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A Public Health Lens on Rural Health

Erwin, Paul C [1] ; Braund, Wendy E [2] [1] School ofPublic Health, University ofAlabama, Birmingham. [2] University of Pittsburgh Graduate School ofPublic Health, Pittsburgh, PA.

ABSTRACT (ENGLISH)

The call for articles for this AJPH special section on rural health began with these words: "Rural health in America is at a crossroads." When that call was issued in late 2019, we had no idea how our world would change, and the impact of COVID-19 on the rural United States has caused a seismic shift, buckling that crossroad. COVID-19 aside, the crossroads still exist: predominately a declining and aging population, with a steadily eroding health infrastructure and shrinking economic base. For many, the road out is the only viable path. What vision of rural public health in the 21st century evokes the possibility of a reinvented and reinvigorated rural landscape?

FULL TEXT

The call for articles for this AJPH special section on rural health began with these words: "Rural health in America is at a crossroads." When that call was issued in late 2019, we had no idea how our world would change, and the impact of COVID-19 on the rural United States has caused a seismic shift, buckling that crossroad. COVID-19 aside, the crossroads still exist: predominately a declining and aging population, with a steadily eroding health infrastructure and shrinking economic base. For many, the road out is the only viable path. What vision of rural public health in the 21st century evokes the possibility of a reinvented and reinvigorated rural landscape?

CELEBRATE THE GOOD AND IDENTIFY DISPARITIES

Meit and Knudson (p. 1281) begin the special section by noting that the prevailing narrative about rural America is a dystopic one, often driven by the very attempts to identify opportunities to improve rural health by focusing on inequities. Their work instead sheds light on the good in rural America: pride ofplace, resilience, social cohesion, cross-sector engagement, and innovation. Ever present in assembling this special section was their appeal to create a better balance in the narrative about the rural United States while still providing new perspectives on rural disparities.

Probst et al. (p. 1325) focus on rural-urban mortality gaps in their examination of mortality differentials across geography, race, and ethnicity for 2013 through 2017. The rural Black population experienced the highest mortality from cardiovascular disease, cancer, and stroke, whereas rural American Indians/Alaska Natives experienced the highest unintentional injury mortality. The authors surmise that failing to consider race and ethnicity while investigating overall rural-urban health disparities risks leaving minority health disparities unaddressed.

Jensen et al. (p. 1328) provide additional perspectives on rural-urban disparities, focusing on depopulation and increasing diversity. Population loss attributable to youth out-migration leaves an older rural population, which will ultimately overwhelm the remaining, aging health workforce and infrastructure. They also call for future research on the impacts of climate change on rural population health and aging.

RURAL
GOVERNMENTAL PUBLIC HEALTH

Beatty et al. (p. 1293) examine changes in local health department (LHD) funding sources between 2010 and 2016, finding that urban LHDs relied more on local funding, whereas rural LHDs depended more on state and federal funding. Rural LHDs generated more revenue from Medicare and Medicaid and tended to provide more clinical services. The authors call for greater consideration of community needs in response to the push for LHDs to divest from clinical services in favor of population health programs.

Leider et al. (p. 1283) go even further in their article on the expansion of rural-urban mortality disparities over the past 40 years, describing the national message regarding what LHDs "should do" as creating a "counterproductive stigma" associated with LHDs providing clinical services. Like Beatty et al., Leider et al. call for a consideration of individual community needs for determining services provided by LHDs. Both make the case that improving the rural governmental public health enterprise will improve rural health.

CHANGES IN HEALTH CARE SERVICES

Kozhimannil et al. (p. 1315) discuss whether US rural hospitals provide labor and delivery care. Their findings that fewer than half of all rural hospitals provide obstetric services are especially disturbing given the increasing number of hospital closures: since 2010, some 90 rural hospitals have closed and hundreds more are at risk for closure.1 State-level perinatal quality collaboratives2 and the Rural MOMS Act3-which provides funding to establish rural obstetric networks for improving outcomes in perinatal and maternal morbidity-are among the authors' potential solutions for rural obstetric care.

Telemedicine broadly offers the possibility of expanded access to care for rural populations, and telemental health services, as described by Pateletal. (p. 1308), have the potential to decrease the significant rural-urban gap in providing mental health services. Between 2010 and 2017, telemental health use increased by 425% among rural Medicare beneficiaries diagnosed with schizophrenia or bipolar disorder, although the overall rural-urban difference in specialty care's use of telemedicine did not change. Services could be expanded, the authors suggest, if Medicare allowed rural patients to receive telemedicine visits in their home.

Palma et al. (p. 1304) describe the University of Iowa's Mobile Clinics as both a source of care for underserved populations-rural residents as well as immigrant and refugee populations in urban settings-and a service learning opportunity for health professions students. For almost 20 years, students have provided free health screenings, education, and basic services, grounded in core values of health equity, service, diversity, community, and integrity. Team-based care through a health equity lens affords them opportunities to address social determinants of health while gaining "exposure to lessons of cultural humility in the heartland" (p. 1305).

OPIOIDS AND RURAL HEALTH

DuPre et al. (p. 1332) describe an outbreak of hepatitis A in Kentucky associated with opioid use disorder. Their analysis revealed that despite disability, poverty, and low education, counties with more married adults, residential stability, and lower income inequality had lower hepatitis A rates. The authors suggest that considering such risk and protective factors can inform expanded recommendations for hepatitis A immunization programs, especially for communities hit hardest by the opioid epidemic.

Liu et al. (p. 1318) describe an opioid buyback program at a rural Veterans Administration hospital in 2017 to 2018. Of particular value in this study, when information tracked by pharmacists on the return of unused opioids was provided to the prescribing physicians, such feedback resulted in a subsequent 27% decrease in opioid prescribing without an increase in refills.

These articles provide new insights into, and possible means of addressing, the rural opioid epidemic.

COOPERATIVE EXTENSION AS A FORCE

Cooperative extension has been part of the rural landscape for more than 100 years and is known primarily for its work with farmers; however, as Buys and Rennekamp (p. 1300) describe, cooperative extension has the potential to be a significant force for improving rural health. With offices in nearly every county in the United States, cooperative extension can use its strengths in health and nutrition education, experience in building collaborations, community development and sustainable systems change, and expertise in recruiting and training a strong volunteer base to partner with rural governmental public health to improve rural health.

There are whole journals dedicated to rural health. What does this AJPH special section contribute to that corpus? This collection of articles examines rural health issues through a public health lens. The COVID-19 global pandemic has exposed the constraints and limitations of our nation's public health infrastructure and heightened awareness of the importance of, and need for, prevention, protection, equity, and system change. The need is great in the rural United States. Our hope is that these articles, and invited editorials by Wykoff, Sanchez, and Dearinger, will bring fresh perspectives to the issues of rural public health and inspire readers to probe new avenues for improving rural health. Such inspiration can create new options at the crossroads.

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Sidebar

See also the AJPH Rural Health section, pp. 1274-1343.

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CONTRIBUTORS

P. C. Erwin wrote the initial draft of the editorial, and both authors contributed to subsequent editing and revisions.

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Resourcing Public Health to Meet the Needs of Rural America

Anonymous

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ABSTRACT (ENGLISH)

Rural public health in the United States is a field in tension. A lack of health care access and infrastructure, a smaller population and tax base, and perva-sive disparities along race and class lines complicate the work of rural public health. Rural local health departments (LHDs) are myriad in their service portfolio and activities mix because, in part, of this reality. As Beatty et al.
(p. 1293) explore in this issue of AJPH, rural LHDs look differ-ent from their urban peers in a number of significant ways. This has changed somewhat since the Great Recession.

FULL TEXT

AJPH RURAL HEALTH

Resourcing Public Health to Meet the Needs of Rural America

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Rural public health in the United States is a field in tension. A lack of health care access and infrastructure, a smaller pop-ulation and tax base, and perva-sive disparities along race and class lines complicate the work of rural public health. Rural local health departments (LHDs) are myriad in their service portfolio and activities mix because, in part, of this reality. As Beatty et al.
(p. 1293) explore in this issue of AJPH, rural LHDs look differ-ent from their urban peers in a number of significant ways. This has changed somewhat since the Great Recession.

THE "EITHER/OR" PINCH

Beatty et al. find that, as state and some federal sources declined as a share of LHD revenue be-tween 2010 and 2016, rural LHDs saw relatively less local (city or county) revenue, and relatively more of their revenue share came from clinical sources. Of particular note is the reality that while urban and rural LHDs both face tremendous need to ameliorate barriers to accessing care, urban LHDs may be better positioned financially to do so while also providing population-based services. De-spite rural LHDs often having
"no choice but to retain direct care services because of com-munity need and a lack of alter-native support," (p. 1298) they too often lack sufficient resources to do so. There is also a natural crowding out for population-based prevention that may occur with a relatively strong focus on provision of clinical services. As more is spent on direct clinical care services, relatively less is left for public health overall, and for population-based work es-pecially; this is the tension of choosing "either/or," but not both.1

CHALLENGES WITHIN THE RURAL CONTEXT

LHDs in rural areas operate within the context of large and growing health disparities for the residents they serve, relative to LHDs in urban areas. The com-mon refrain that rural residents are "older, poorer, and sicker," while not monolithically true, holds some merit. Rural pop-ulations are older than urban populations, on average, and have higher rates of morbidity and mortality on nearly every measure.2,3 Rural residents also have fewer economic resources, including higher rates ofpoverty, unemployment, and unin-surance.4 The overall population of rural areas has also been
declining in recent decades,4 leading to declining tax bases and increasing constraints on meeting the public health and health care needs of the rural residents who remain.

Meanwhile, access to health care in rural areas is a persistent- and growing-problem, perhaps best highlighted by the ongoing crisis of rural hospital closures.5 Such closures occur amid workforce shortages, financial pressures serving un- and un-derinsured individuals, large geographic distances patients must travel for care, and limited capacity within small facilities. Even in places where rural hos-pitals remain open, many rural areas have seen service lines disappear (e.g., obstetrics, phar-macy, psychiatry, nursing homes), while others have always lacked specialty care.3 While they ideally act as complements to one an-other, rural LHDs may be left to fill in the gaps in the absence of formal health care and clinical services.

RURAL LOCAL HEALTH DEPARTMENTS AS SAFETY NETS

Rural LHDs are among the most varied of all health depart-ment types in terms of service mix. They are more likely to be smaller and serve wide geo-graphic areas. Like the private sector in rural America, there is substantial difficulty attracting and retaining staff to the public sector in rural areas. History, need, and happenstance have contributed to the variety and service mix observed across rural LHDs. When the 1988 Institute of Medicine report called for a divestment in clinical services from local public health, many were able to follow this guidance. Rural LHDs, however, especially in the South, largely could not and did not, often because they act as the safety-net provider for their community. A number of clinical and inspection and reg-ulatory services are required by state laws. To the extent that many rural LHDs discontinued certain clinical services, the services would simply not be available in their community. Even today, with ostensibly greater access to care through the Affordable Care Act (ACA), there are tremendous pressures put on LHDs to incentivize clin ical service provision to make up

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for gaps in the formal health care system. As Beatty et al. note, rural LHDs are more reliant on state and federal sources, with rela-tively less capacity to generate revenue through local tax base given small population sizes. When federal and state priorities shift, so does the money, and so does the service mix at LHDs. There are also a number of federal policies pressuring rural health departments in a post-ACA landscape.

Rural LHDs face a confluence ofpressures from the federal level, both as a clinical provider gen-erally and a safety-net care pro-vider specifically. In places where clinical services are otherwise unavailable or inaccessible for the general population through the health care sector, rural LHDs play a critical role in meeting the needs of the rural residents they serve. This might include pro-viding primary care, screenings, treatment, vaccinations and other preventive care, and maternal and child health services. Too often, access to these basic services is otherwise sparse in many rural areas. While federal investment in rural health care, largely through Medicare reimburse-ment, has helped to support safety-net providers in rural areas, including rural health clinics, critical access hospitals, and fed-erally qualified health centers (FQHCs), more than half a mil-lion rural residents live in a county with no such facility.6 Those residents without even basic access to health care are disproportionately located in the southeastern United States,6 where many states have thus far chosen not to expand Medicaid, further creating barriers to accessing care for too many rural residents. Such pressures mean that LHDs find themselves need ing to provide clinical care, often without sufficient resources to also address broader public health concerns.

A CHANGING LANDSCAPE IN THE TIME OF COVID-19

At the time of writing, in the midst of the COVID-19 pan-demic, the future of rural public health and public health more broadly is uncertain. Unprece-dented strain on the public health and health care systems may well motivate a reimagining of sup-port for rural public health, support that might actually create other avenues enabling access to care. This could free rural health departments to focus more on population-based services, in line with Institute of Medicine guidance. It seems more plausi-ble, though, that rural LHDs will likely always be involved in some type of clinical care provision, given history, funding, and need. As such, rural public health should be recognized as the critical safety net provider it is, alongside FQHCs and critical access hospitals. More than that, LHDs are the only entity with the responsibility and authority for the protection and improvement of population health for their entire jurisdiction. Their catchment area is the community. As such, rural public health should also be recognized for leadership at the community level in policy and practice and adequately resourced to achieve their major roles-safety-net clinical care provision, inspection, regulation, and population-based prevention. >4jPI-l

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(Re-)Making a People's WHO

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ABSTRACT (ENGLISH)

As global health experts, politicians, civil society organizations, and six of the G7 leaders rally to support the World Health Organization (WHO; https:// bit.ly/3gP9Dyj) and counter the US administration's discrediting of the agency and suspension of funding, a moment of reflection is warranted. Undoubtedly, WHO is a crucial player (https://bit.ly/2U9s7Qh) in steering us through the COVID-19 pandemic, cooperating with member countries in developing pandemic preparedness plans (including for subsequent waves of the disease); gathering, analyzing, and disseminating critical epidemiological data; conveying sound, scientifically grounded policies and advice; establishing guidelines around testing, physical distancing, and other public health measures; setting norms on data collection and information sharing; and supporting research on drugs and vaccines. Ifproperly funded and granted the power by member countries, WHO has the potential to amp up its transport ofpersonal protective equipment and other essential supplies to protect frontline workers and serve as an international coordinator for the ethical and equitable distribution of diagnostics, vaccines, therapeutics, and equipment. As per the International Health Regulations, WHO is empowered to declare a public health emergency of international concern, as it did on January 30 regarding COVID-19 (https://bit.ly/2XvtQkU), and make a "real-time" response.

FULL TEXT

As global health experts, politicians, civil society organizations, and six of the G7 leaders rally to support the World Health Organization (WHO; https:// bit.ly/3gP9Dyj) and counter the US administration's discrediting of the agency and suspension of funding, a moment of reflection is warranted.

Undoubtedly, WHO is a crucial player (https://bit.ly/ 2U9s7Qh) in steering us through the COVID-19 pandemic, cooperating with member countries in developing pandemic preparedness plans (including for subsequent waves of the disease); gathering, analyzing, and disseminating critical epidemiological data; conveying sound, scientifically grounded policies and advice; establishing guidelines around testing, physical distancing, and other public health measures; setting norms on data collection and information sharing; and supporting research on drugs and vaccines. Ifproperly funded and granted the power by member countries, WHO has the potential to amp up its transport ofpersonal protective equipment and other essential supplies to protect frontline workers and serve as an international coordinator for the ethical and equitable distribution of diagnostics, vaccines, therapeutics, and equipment. As per the International Health Regulations, WHO is empowered to declare a public health emergency of international concern, as it did on January 30 regarding COVID-19 (https://bit.ly/2XvtQkU), and make a "real-time" response.

Did WHO make any missteps? The forthcoming "impartial, independent, comprehensive" review (https://bit.ly/2AHgQzW) of WHO's response to COVID19 will reveal these, but WHO's restraint was predetermined from the get-go by its very decisionmaking structure, constrained reach (reliance on country reporting and compliance with norms, lack of enforcement mechanisms), and financial dependence on donors operating in their own interest.

Persistent questions remain around China's delayed information sharing with WHO (https://bit.ly/2Xych3I). That said, once Chinese authorities officially confirmed person-toperson transmission, WHO worked with China in warning the world of this public health emergency of international concern and recommending extraordinary measures to contain it.1

On another front, under international pressure, China revised its COVID-19 death toll upward (https://cnn.it/ 2XxEwzG) to correct inaccuracies. By contrast, the belated, gruesome accounting of home and nursing home deaths in the United Kingdom, Italy, France, Spain, and the United States, among other countries, is excused, or at least contextualized within current extenuating circumstances.

Furthermore, countries that heeded WHO's advice- including Germany, Vietnam, Iceland, Denmark, New Zealand, South Korea, and Finland -benefited from its guidance. (Taiwan, as a non-WHO member, effectively anticipated the situation, but this is a separate case.) In sum, even as the vital learning and renewal process- which all countries should carry out-unfolds, WHO should be allowed to do its work.

Yet one concern trumps all others: WHO is indeed "captured." WHO's progressive 1948 constitution established democratic governance via an annual World Health Assembly and a rotating, elected 34-member executive board.2 For decades, however, WHO has been impeded from setting policy independently, its agenda setting supplanted by powerful member states, their transnational corporations (TNCs) and philanthropies, and international financial institutions. Since 2010, the World Economic Forum's Global Redesign Initiative has sought to transform the United Nations (UN), including WHO, into a system of "multistakeholder governance" (TNC-, philanthropy-, and big financeinfluenced; https://bit.ly/ 3gV66yv), whereby public monies and UN legitimacy are channeled into private profitmaking endeavors.

Founded amid the early Cold War and decolonization struggles, WHO was always imperfect. Its initial decades were dominated by US-favored campaigns against diseases, such as malaria and yaws, that had ready technical tools (DDT and penicillin) but paid little attention to health-related living conditions or the development of robust health care systems. During a 1960s to 1970s US-USSR collaboration to stamp out smallpox (https://bit.ly/2U4xKPJ), countries of the "Third World" pushed for a reorientation: "Health for All by the Year 2000," embodied in the 1978 Alma-Ata Declaration (https:// bit.ly/3034Ymm). This was WHO's, and the world's, best chance at equitably improving health and well-being through a primary health care-based approach-grounded in the right to health, social justice, and a new international economic order-in the context of challenging power asymmetries particularly between North and South.3

But in the 1980s, during a worldwide debt crisis and recession and a neoliberal ideological turn, WHO was bullied by the United Kingdom's Thatcher and the United States' Reagan administrations. The latter unilaterally slashed its UN-assessed contributions and then withheld its WHO dues circa 1986 to 1988. These measures were at least partially aimed at reprimanding WHO for its 1977 Essential Medicines program (listing generics), opposed by leading pharmaceutical companies, and its 1981 International Code of Marketing of Breast Milk Substitutes to end unethical marketing practices by infant formula companies. Simultaneously, Alma-Ata, envisioned as a community-driven effort to address underlying causes of disease (e.g., addressing diarrhea through access to clean water and sanitation) within a radical critique of global economic power arrangements, was de-toothed via a Rockefeller Foundation- championed effort to make primary health care "selective" through top-down, narrowly defined interventions.4

Meanwhile, the World Bank began upstaging an underfinanced WHO, its loans obliging massive health care system downsizing and privatization across the Global South. Post2008 austerity policies reverberated northward, too: acclaimed universal health systems were weakened, underfunded, and marketized to great private profit, notably in the United Kingdom and Spain, among the countries worst affected by COVID-19.

With member dues falling or stagnant into the 1990s, WHO was impelled to seek other funding sources. Nowadays, WHO's budget (approximately $2.4 billion per year [https:// bit.ly/2ABiH9e], less than one third [!] of New York-Presbyterian Hospital's budget [https:// bit.ly/2Y0basD]), is more than 80% earmarked by donors for particular activities, affording enormous control to certain highincome countries, corporations, foundations, and public-private partnerships (PPPs; which typically employ technical tools, often produced by these very partnerships, to target individual diseases, while eschewing integrated or health system approaches).

The proliferation of underregulated PPPs, offering unaccountable corporate players decision-making access and unprecedented commercialization opportunities funded by government partners, is a particularly insidious development. In recent years, WHO has been pressured by PPPs, TNCs, and their government partners to, for example, ease up on sugar intake guidelines, recommend massive stockpiling of an inefficacious influenza medication (representing a conflict of interest with Big Pharma), and push the adoption of a noncommunicable disease prevention framework that overlooks regulation ofTNCs.5

The largest PPPs, the Global Fund and Gavi (the Vaccine Alliance), both heavily supported by the Bill and Melinda Gates Foundation and government contributions, have sidestepped and displaced WHO (which does not even have a vote on the Global Fund's board), directing billions of public dollars annually into Big Pharma-friendly vaccine purchasing and distribution, and AIDS-, tuberculosis-, and malaria-control efforts that provide lucrative private-sector contracts.6

As such, simply stating that WHO has made mistakes and lacks leadership (https://bit.ly/ 2Mvmd7W) fundamentally misconstrues the situation. Four decades of neoliberal restructuring has led WHO to act precisely as designed: as a broker for powerful interests.

Today, relegitimizing WHO's power and purview is an urgent matter.7 WHO needs adequate dues-based, strings-free financial support to ensure democratic governance, independent agenda setting, and science-based decision-making, based on its constitutional mandate to promote health as a human right. Of course, such a transformation is in direct contestation to the neoliberal onslaught of WHO and the entire UN system. Still, homing in on the societal factors shaping health, from the climate crisis to unsafe work; extractivism (mining, gas and oil, agribusiness, etc.); war; forced migration; classist, sexist, transphobic, homophobic, and racist oppression; and prevailing asymmetries of power and wealth- and providing impartial research and advice on the most equitable and effective public health and health care systems according to the principles and practice of universal health justice-will not only engender health equity for all but will also help forestall future pandemics and address the current one.

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Sidebar

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The Global Corruption–Health Nexus

Lewandowski, Stephen; Abuawad, Ahlam; Abatu, Omokhoya; Segura, Luis E

ProQuest document link

FULL TEXT

Because of a lack of transparency that conceals bribery and other law and policy violations, corruption plays a major role in decreasing perceived satisfaction and increasing societal damages globally. To the authors' knowledge, this is the fi irst study to evaluate the empirical association between corruption and health measures that uses the cross-sectional global data of 185 countries from 2005 through 2017. The models of Achim et al. reveal a positive association between corruption and mortality and inverse associations between corruption and life expectancy and happiness, with di ff ferences among low- and highincome countries and across varying cultures. This study highlights the necessity of anticorruption campaigns within the frameworks of differing economies and cultures of health.

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ERRATUM

Anonymous

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FULL TEXT

In: DeSalvo KB, Levi J. Public Health WINS is a call to arms as well as a roadmap for all who care about a thriving, healthy nation. Am J Public Health. 2019;109(5):650-651. doi: 10.2105/AJPH.2019.305047

At the time of publication, a potential conflict of interest was unintentionally omitted. Because the Editorial is about the importance offunding the governmental public health infrastructure at the local level rather than anything related to health care, the inclusion did not seem relevant at the time of publication.

On page 651, the "Conflicts of Interest" section should read:

CONFLICTS OF INTEREST

K. B. DeSalvo serves on the board of directors for Humana, Inc. >4jPI-l

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COVID-19 Emergency Measures Are Hurting Democracy Globally

Anonymous

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ABSTRACT (ENGLISH)

There are not one, but two, pandemics on a joint rampage: COVID-19 and an authoritarian deployment of emergency powers to combat COVID-19. As governments scramble to contain the far-reaching health and economic costs inflicted by the evolving pandemic, political leaders worldwide are increasingly turning to excessive and disproportionate emergency containment measures that spell grave dangers for civil rights and liberties. This is as true of democracies as it is of semiauthoritarian states and dictatorships. Yet it is a legal and moral imperative that public health emergencies do not result in decisions that systemically regress hard-won advances in liberal democracy over the past century. Responsible governments must be more interventionist in the face of a pandemic. But derogation, even in the midst of a public health emergency, from democracy-enabling rights, such as personal liberty and privacy and freedom of speech and association, is strictly regulated by numerous key treaties, including the International Covenant on Civil and Political Rights, the American Convention on Human Rights, the Arab Charter on Human Rights, and the European Convention on Human Rights. The Siracusa Principles, adopted in 1984 by the United Nations Economic and Social
Council, impose additional controls such as necessity, proportionality, and good faith on limitations on, and derogations from, the rights contained in the International Covenant on Civil and Political Rights.

FULL TEXT

AJPH COVID-19
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There are not one, but two, pandemics on a joint rampage: COVID-19 and an authoritarian deployment of emergency powers to combat COVID-19. As governments scramble to contain the far-reaching health and economic costs inflicted by the evolving pandemic, political leaders worldwide are increasingly turning to excessive and disproportionate emergency contain-ment measures that spell grave dangers for civil rights and liber-ties. This is as true ofdemocracies as it is of semiauthoritarian states and dictatorships. Yet it is a legal and moral imperative that public health emergencies do not result in decisions that systemically re-gress hard-won advances in liberal democracy over the past century.1

Responsible governments must be more interventionist in the face of a pandemic. But derogation, even in the midst ofa public health emergency, from democracy-enabling rights, such as personal liberty and privacy and freedom of speech and as-sociation, is strictly regulated by numerous key treaties, including the International Covenant on Civil and Political Rights, the American Convention on Hu-man Rights, the Arab Charter on Human Rights, and the European Convention on Human Rights. The Siracusa Principles, adopted in 1984 by the United Nations Economic and Social
Council, impose additional controls such as necessity, pro-portionality, and good faith on limitations on, and derogations from, the rights contained in the International Covenant on Civil and Political Rights.

The World Health Organi-zation has repeatedly praised China's response to the COVID-19 pandemic,2 despite the lack of clear evidence supporting the efficacy, sustainability, and pro-portionality of Wuhan-style lockdowns,3 which imposed an unprecedented, indefinite, mass quarantine of millions of people between January and April 2020. Elsewhere in China, armed of-ficers and community officials enforced residential lockdown rules, affecting hundreds of mil-lions more. An all-or-nothing approach to stemming the spread of COVID-19 sets, however, a dangerous precedent for the handling offuture pandemics and disasters, for global history is rife with examples of emergency measures being retained and repurposed over long durations.

COVID-19 is already being used to justify democracy-stifling measures. On March 30, 2020, Hungary enacted one ofthe most draconian emergency laws in recent European history. It em-powers the government to sus-pend the enforcement of duly enacted laws and impose addi-tional extraordinary measures by
decree. There is no "sunset clause" for this law, and elections and referenda are prohibited in-definitely. Dissemination of dis-torted claims about COVID-19 is punishable by up to five years' imprisonment.4 This legislation has rightly been condemned by the United Nations High Com-missioner for Human Rights, the Secretary General ofthe Council of Europe, and the Director of the Organization for Security and Co-operation in Europe Office for Democratic Institutions and Human Rights.

In India, the invocation ofthe Disaster Management Act, 2005, allows the Indian government to effectively rule by decree, with-out parliamentary involvement. State governments may also rule by decree under the colonial era Epidemic Diseases Act, 1897, which was enacted to help con-tain the bubonic plague in Bombay. These statutes allow wide variation in regulation and enforcement practices across In-dia and little democratic ac-countability for measures imposed or actions taken. With
very broadly framed criminal offences established in the Indian Penal Code and the Code of Criminal Procedure for actions that could jeopardize public health, the stage is set for diverse uses and abuses of emergency powers. Degrading practices, such as stamping persons in home quarantine with indelible ink, have already featured in the In-dian response to COVID-19.

Elsewhere in Asia, the Cam-bodian Parliament enacted emergency legislation on April 10, 2020 authorizing telecom-munications surveillance, pro-hibiting or restricting the distribution or broadcast of in-formation that could generate unrest or fear, and establishing criminal offences for obstructing emergency efforts punishable by up to 10 years' imprisonment. As in Hungary, the legislation con-tains no sunset clause, and there are clear signs that Cambodia is being further transitioned into authoritarianism, all in the name of combating COVID-19. In comparatively liberal Hong Kong, marred by escalating ten-sion with mainland China and rapid authoritarianization since 2019, riot police arrested pro-testers for unlawful assembly on the pretext of enforcing social distancing regulations.

Even the French require-ment for individuals to carry

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documentation attesting to their reasons for being outside their place of residence is profoundly illiberal and authoritarian. Inap-propriate use in public health interventions of drones, robots, facial recognition cameras, elec-tronic wristbands, and mobile phone tracking, including in oth-erwise democratic countries, will likely bolster an emerging global surveillance culture that under-mines trust and personal freedom.5 These measures are unlikely to be fully rolled back after the end of the COVID-19 pandemic, as ag-gressive legal responses to the September 11,2001 attacks in the United States exemplify the per-sistence of surveillance measures well into the future.6

Decision makers are faced with formidable and complex challenges in the current pan-demic. They and their expertise deserve our respect and defer-ence. Nevertheless, measures taken to stem the spread of COVID-19 cannot be permit-ted to undermine civil liberties more than is strictly necessary to achieve the purpose of viral containment. As vital as effective containment measures are, we must not lose sight of the im-perative that a right and pro-portionate balance is struck between population health goals and the fundamental rights and freedoms that are the lifeblood of transparent, accountable, and democratic government. Most alarmingly, the global retreat of democracy that has occurred in recent years is likely to be ag-gravated by abuses of COVID-19 emergency powers around the world.7

There are, however, welcome developments in some countries as courts roll back some of the excesses in the fight against COVID-19. In Germany, the Higher Administrative Court of Mecklenburg-Vorpommern invalidated a prohibition on travel to the state's coastal and lakeland areas on the basis of disproportionate interference with freedom of the person. Local courts in France suspended city curfews that were deemed excessive. The Constitutional Court of Kosovo ruled that COVID-19 containment mea-sures restricting the freedoms of movement and assembly and the rights to private and family life were unconstitutional. These judicial decisions, too, deserve our respect and our deference, as they provide a technically bal-anced, nonpartisan counter-weight to the adoption of excessive measures.

Democratic accountability and the rule of law cannot be completely suspended in any public health emergency. As humanity grapples with COVID-19, the way to combat one pan-demic is not to create another, a pandemic of authoritarian rule. Â1PU

Stephen Thomson, PhD Eric C. Ip, DPhil

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The authors contributed equally to this editorial.

CONFLICTS OF INTEREST

We declare no competing interests.

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Health Equity in Midsize Rural Communities: Challenges and Opportunities in a Changing Rural America

Anonymous

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ABSTRACT (ENGLISH)

Increasing premature mortal-ity in the rural United States has brought new attention to rural health disparities. However, public health research on rural-urban disparities often overlooks the demographic, cultural, and eco-nomic heterogeneity of rural America.1 Addressing health in-equities between urban and rural areas, as well as within rural areas, requires an approach that con-siders the heterogeneity of com-munities across the rural-urban continuum as well as the growing sociodemographic diversity within rural settings.
Although discussions of rural areas often conjure images of open space and towns of a few thousand people, most rural residents (59%) live in "micro-politan" communities: non-metropolitan areas with from 10 000 to 50 000 people. In the past two decades, micropolitan areas (which are distinguished from smaller, "noncore" areas) have experienced economic ad-versity and demographic changes that present unique challenges and opportunities for public health. We discuss recent changes in the economic conditions and demographic composition of micropolitan communities,

FULL TEXT

AJPH RURAL HEALTH

Health Equity in Midsize Rural Communities: Challenges and Opportunities in a Changing Rural America

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Increasing premature mortal-ity in the rural United States has brought new attention to rural health disparities. However, public health research on rural-urban disparities often overlooks the demographic, cultural, and eco-nomic heterogeneity of rural America.1 Addressing health in-equities between urban and rural areas, as well as within rural areas, requires an approach that con-siders the heterogeneity of com-munities across the rural-urban continuum as well as the growing sociodemographic diversity within rural settings.

Although discussions of rural areas often conjure images of open space and towns of a few thousand people, most rural residents (59%) live in "micro-politan" communities: non-metropolitan areas with from 10 000 to 50 000 people. In the past two decades, micropolitan areas (which are distinguished from smaller, "noncore" areas) have experienced economic ad-versity and demographic changes that present unique challenges and opportunities for public health. We discuss recent changes in the economic conditions and demographic composition of micropolitan communities,
evidence about health in micro-politan communities, and obsta-cles and opportunities for intervention to promote public health and health equity in micropolitan communities. We draw on our work in Iowa to illustrate potential strategies for using community strengths to implement evidenced-based public health interventions in micropolitan settings.

CHANGING ECONOMIES AND POPULATIONS

Shifts in the US economy over the past several decades, including deindustrialization, consolidation of agriculture, and widening in-come inequality, have corre-sponded to shifting economic conditions in micropolitan com-munities.2

Micropolitan areas nationwide experienced slow re-covery from the Great Recession (2007-2009) and faced elevated poverty and unemployment rates longer than did urban areas or noncore areas. Some micropolitan areas have also experienced faster increases in income inequality.2

Changes in micropolitan economies have coincided with changing micropolitan demographics. Micropolitan areas experience out-migration because of urbanization, whereby youn-ger, more educated residents de-part to pursue opportunities in urban areas. At the same time, other population groups relocate from urban to micropolitan areas to seek employment and more affordable costs of living.3 As a result, micropolitan communities are experiencing faster rates of growth in Black, Asian, Latinx, and immigrant populations than are noncore areas. Between 1990 and 2010, the proportion of micropolitan residents who were Latinx doubled nationwide.3

CHANGING HEALTH

Understanding recent changes in the economics and demo-graphics of micropolitan com-munities can inform our understanding of recent trends in micropolitan health. The limited research that disaggregates micropolitan from noncore areas tends to find that micropolitan areas have a slight health advan-tage over noncore areas with regard to risk factors for poor health, such as obesity, smoking, and physical inactivity. However, some evidence suggests that this micropolitan health advantage may be eroding. Researchers who examined trends in potentially excess deaths in metropolitan, micropolitan, and noncore areas from 2010 to 2017 found that micropolitan areas experienced the highest annual percentage increase in excess deaths because of heart disease or chronic lower respiratory disease than did any other rural-urban category.4

Declines in health in micropolitan areas have not been experienced equally across all segments of the population. For example, a study of trends in midlife mortality found that adults in micropolitan and non-core areas had large increases in midlife mortality rates between 1999 and 2016. However, this pattern was largely driven by non-Hispanic White groups; trends in micropolitan midlife mortality rates varied widely

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across racial/ethnic groups, with micropolitan American Indian/ Alaska Natives experiencing a much greater increase in midlife mortality than micropolitan Whites, and micropolitan Black adults experiencing a reduction in midlife mortality.5

Understanding patterns in health among racial/ethnic sub-groups in rural settings will re-quire careful research grounded in the growing literature on structural, historical, and pol-icy influences on racial/ethnic health inequities, including interpersonal and systemic racism. Future research should examine the health implica-tions of racialization processes in micropolitan settings, as well as the specific structural forces shaping rural life for communities of color. Future work should also consider other dimensions of diversity in rural communities, such as gender, sexual orientation, disability, nativity, and other health equity priority areas.

PROMOTING HEALTH AND HEALTH EQUITY

Just as micropolitan communities are unique economically and demographically, they are unique contexts for public health intervention. Local health departments (LHDs) in micropolitan areas have greater institutional resources than do noncore health departments, which may result in a greater capacity to address complex public health challenges. For example, micropolitan LHDs are 3.4 times more likely to hold public health accreditation board accreditation than are noncore LHDs. In Iowa, where our team's work is focused, a recent survey ofLHDs found that micropolitan LHDs were generally more likely than were noncore LHDs to use evidence-based practices for chronic disease
prevention and were more likely to have a public health administrator with bachelor's- or higher-level training in health sciences.6

However, micropolitan LHDs perform a wider range of services than do noncore LHDs. Most micropolitan LHDs perform key public health activities that are typical of LHDs in noncore areas (but often performed by health care or social services agencies in urban areas): immunizations, communicable disease services, maternal and child health services, and family planning. However, at the same time, micropolitan LHDs also perform services typical of urban LHDs, such as regulation and inspection ofrestaurants, schools, and daycares. Micropolitan LHDs perform these activities with less funding per capita than their noncore counterparts have (https://bit.ly/36YUB4&acedil;).

The high demands on micropolitan LHDs can pose a barrier to implementing multisectoral approaches, such as those recommended by Public Health 3.0, which encourages public health agencies to move beyond addressing proximate determinants of health (e.g., health care, health behaviors) to address social determinants, such as economic development, transportation, and housing. Although micropolitan LHDs may have a limited capacity to lead complex multisectoral strategies, micropolitan areas benefit from a concentration of institutional resources that could be used for multisectoral collaborations. In Iowa, where our work is focused, we found that the majority of micropolitan communities have a local YMCA, and many communities have community action agencies, community colleges, or local foundations that could participate in multisectoral public health efforts.

It is essential that the needs and perspectives of minoritized or
marginalized populations be represented in multisectoral partnerships. In micropolitan communities where residents of color have recently arrived, advocacy groups may not be as formalized as they are in larger cities. Alternate representatives, such as faith leaders, informal community leaders, or businesses, may need to be identified as partners. With support and coordination, micropolitan communities may be well placed to build multisectoral partnerships to promote health and health equity.

Community-engaged research approaches can be a strategy to ensure that local knowledge is used to tailor multisectoral interventions in the demographic, cultural, and economic heterogeneity of rural America. An example of using a participatory approach to adapt a public health intervention to a micropolitan setting is Active Ottumwa: a lay health advisor intervention to promote physical activity in a micropolitan Iowa community.7 Diverse actors, including the park system, school district, and churches, collaborated to present free physical activity opportunities led by local residents.

Careful attention to the diversity of rural contexts across the rural-urban continuum and the diversity of communities within rural settings is essential for effective intervention to promote health and health equity. It is essential to develop health equity strategies that are tailored to the unique needs and strengths of micropolitan communities.
ÂfPU

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DETAILS

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Buyback Program of Unused Prescription Opioids in US Rural Communities, 2017–2018

Liu, Jean Y, MD, MS [1] ; Franklin, Julie S, MD, MPH [1] ; Gesek, Frank A, PhD, RPh [1] ; Anderson, Joseph C, MD [1] [1] VA Medical Center, White River Junction, VT

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ABSTRACT (ENGLISH)

Objective. To implement an opioid buyback program after ambulatory surgery. Methods. We performed a prospective cohort study of 578 opioid-naive patients prescribed opioids after ambulatory surgery at a rural US Veterans Affairs (VA) hospital from 2017 to 2018. We reimbursed $5 per unused opioid pill ($50 limit) returned to our VAfor proper disposal. We tracked the number of participants, number of unused opioid pills returned, surgeon prescribing, and refill requests. Results. Out of 578 eligible patients, 171 (29.6%) returned 2136.5 unused opioid pills. Information shared with surgeons after 6 months led to a 27% decrease in opioid prescribing without an increase in refills. Conclusions. With this opioid buyback program, rural patients had a safe and convenient place to dispose of unused opioids. Surgeons used information about returns to adjustopioid prescribing aftercommon ambulatorysurgeries withoutan increase in refill requests. Public Health Implications. Although providers prescribe within state opioid guidelines, there will be variations in patient use after ambulatory surgery. An opioid buyback program helped our patients and surgeons decrease unused prescription opioids available for diversion in our rural communities. (Am J Public Health. 2020;110:13181324. doi:10.2105/AJPH.2020.305730)

FULL TEXT

Headnote

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More than 4.7 million veterans live in rural communities.1 While there are many benefits to rural living, there are also challenges. One such challenge is prescription opioid diversion, which can lead to opioid abuse. Prescription opioid diversion has 2 major components: lack of disposal in rural areas and overprescription.

A recent study in California showed that only 19% of pharmacies provided correct opioid disposal information.2 Rural patients are challenged by geographic isolation because rural patients often have to travel hours to find a disposal site, and drug take-back days are offered only twice a year in specific locations. What remains unknown is how to motivate patients to properly dispose of unused opioid pills rather than keep them unsecured in the home. Surgical literature reports that less than 10% of surgery patients properly store or dispose of unused opioids.3,4

In 2000, the Joint Commission on Accreditation of Healthcare Organizations introduced the Pain Management Standards,5,6 which placed priority on pain as the fifth vital sign and recommended aggressive treatment to clinicians, including opioids. Pain management needs after same-day surgery are difficult to predict, and there is a wide range of opioid prescribing and use after similar procedures.7-14 If patients are not provided with adequate pain medication, they may suffer in pain, which can result in a delay of return to normal activity.15,16 If patients do not use all of the opioid pain medications, these unused opioid pills are available for misuse or abuse if they remain in the home.17-25 Studies show that surgeons overprescribe by as much as 70% after elective surgeries, so a measure of actual patient use can help determine appropriate prescribing ranges.36

More than 75% of surgeries in the US Veterans Affairs (VA) system are ambulatory37 or same-day surgery, which means that every year, approximately 320 000 veterans manage their postoperative pain at home. Opioids are commonly prescribed after ambulatory surgery because they are effective in managing acute pain.38,39 Electronic opioid prescriptions are not allowed within the VA system, which forces patients to return to the VA for more opioids if they need more than were prescribed. Many live far away, especially in rural environments, so the need to return for refills could cause financial as well as emotional hardship if there is a need for opioid pain medications beyond what is prescribed at the time of discharge.

This prospective study evaluated if we can simultaneously motivate and educate patients about proper drug disposal while measuring actual opioid use by using a small monetary reimbursement in a rural environment.

METHODS

We screened all patients who had ambulatory surgery between April 24, 2017, and August 31, 2018, at a single rural VA institution (level II surgical complexity center) for inclusion. This eligible patient population was aged 18 years or older of any gender, race, or ethnicity. We included all surgical specialties and procedures if opioids were routinely prescribed after ambulatory surgery and included demographic information on patients who had the same procedure but were not prescribed opioids. We excluded procedures in which opioids are not routinely prescribed (pain procedures, ophthalmology procedures, and routine cystoscopy). We excluded patients who required a postoperative opioid refill and those on chronic opioids from participation in the buyback. We only included outpatients (discharged to home on the same day as the procedure). We excluded patients discharged to a nursing home or back to a rehabilitation center (Figure 1).

All patients received written standard specialty specific discharge instructions, including how to manage the expected postoperative pain.

Buyback Intervention

The VA is unique in that medications are dispensed on site when providers enter medications into our electronic medical record (Computerized Patient Record System). After surgery, the patient leaves the recovery room with filled prescriptions. Potential study participants received an informational letter printed on pink paper in the bag (Figure A, available as a supplement to the online version of this article at http:// www.ajph.org) with the dispensed opioid medication after ambulatory surgery as well as a pink reminder sticker on the bottle that says "Return unused pills for $$. See pink info sheet."

Nurses also reviewed the buyback program with patients as part of the discharge instructions. The letter educated the patients about the need for proper disposal of unused opioid pain medications because ofthe risk to communities and families of keeping unused opioids in the home. To motivate this behavior, we offered reimbursement of $5 per pill with a limit of $50 if patients returned their unused opioid pain medication within 60 days of surgery to our VA outpatient pharmacy for proper disposal, Monday through Friday from 9 AM to 3:30 PM, excluding federal holidays. This medication disposal receptacle could be used for any unused medication. Pharmacists counted and confirmed that the opioid medications returned were what was dispensed. We queried a multistate prescription drug monitoring program (PDMP) to confirm that no duplicate opioid prescriptions were obtained outside of the VA.

Surgeon Education Intervention

After 6 months, data were compiled and information on what the patients were willing to return through the opioid buyback program was shared with each surgical specialty service that performed ambulatory surgery and wrote prescriptions for postoperative opioids. The proportion ofpatients returning unused opioids for procedures based on Current Procedural Terminology (CPT) code (American Medical Association, Chicago, IL) was given to each ofthe surgical specialties along with how many pills were unused and how many pills were prescribed. There are some procedures that are performed by more than 1 specialty, and these were shared by CPT code to each specialty. By December 31, 2017, surgeons in each specialty reached a specialty-level consensus with recommendations to adjust and standardize opioid prescribing by procedure after common ambulatory surgeries. We used opioid pain medication refill requests within 30 days of surgery as a proxy for insufficient postoperative pain management with an agreement that if there was an increase in refill requests, we would share that information with surgeons in a timely manner.

Data Collected

We collected demographic data including age, gender, date of index surgery, and CPT codes for the day of the procedure. If multiple CPT codes were assigned to the same procedure, we recorded the CPT code with the highest work relative value unit. If patients had multiple qualifying surgeries during the study period, they were counted as separate participants if more than 30 days elapsed between their surgeries.

Opioid data. We only included opioid pain medications with a Drug Enforcement Agency (DEA) schedule II, III, or IV40 if they were prescribed in a pill form after surgery. The opioid prescription was converted to milligram morphine equivalents (MMEs) using the Center for Medicare and Medicaid Services conversion table to adjust for differences in surgeon preference for oral opioids.41 To determine eligibility, we collected information from the multistate PDMP and Computerized Patient Record System for preoperative opioid use in the 12 months before the index surgery.

Preoperative opioid use classification. We defined chronic opioid use as greater than 90 days of opioids prescribed in the previous 12 months and we excluded these patients from the buyback program. If there was at least 1 opioid prescription in the 6 months before the index operation, we assigned the "acute use" classification, and we included these patients in the buyback group. If no opioids were prescribed in the 12 months before the index operation, we classified the patient as opioid naive and included them the buyback group.

We identified opioid refills in Computerized Patient Record System and the multistate PDMP. We defined refills as any additional opioid written in the 1 to 30 days after the index operation, not including the discharge opioid prescription. The multistate PDMP includes refills from any provider at the VA or outside provider, including emergency department care.

Expected pain. On July 1, 2017, our state adopted opioid limits for adults aged 18 years old or older. This included categories of expected pain with recommendations for types of procedures to be classified as minor pain, moderate pain, severe pain, and extreme pain.42 We adopted the same approach to classification ofexpected pain postoperatively based on the procedure performed. For example, we classified open inguinal hernia repair as expected to have moderate postoperative pain with the state recommended range of72 to 120 MMEs (approximately 10-16 oxycodone 5-milligram pills).

The primary outcome was the number of patients who participated in the opioid buyback and the number of opioid pills returned as a proxy for actual need or use after ambulatory surgery. Other outcomes examined included changes in prescribing with feedback given to surgeons based on the buyback information.

Data analysis. We compared outcomes in the cohort of opioid buyback participants to nonparticipants. We analyzed outcomes with %2 analysis or Fisher exact test for proportions and the student t test for continuous variables. We defined statistical significance at a P level of less than .05, and all tests were 2-sided with normal distributions. We used SPSS version 25 (IBM, Somers, NY) for all statistical analyses.

RESULTS

Overall, 1203 patients from April 24, 2017, through August 31, 2018, had ambulatory surgery with a likely requirement for postoperative opioid analgesia to manage pain. Of those, 730 (60.7%) were prescribed opioids, and 473 were not prescribed an opioid. Excluded were 94 patients we identified as already prescribed chronic opioids: 59 prescribed an opioid and 35 not prescribed an opioid. We excluded 15 patients prescribed an opioid who requested a refill; no patients by PDMP check in the no-opioid group subsequently requested an opioid. We also excluded an additional 68 who were prescribed an opioid but did not receive the opioid buyback information and 10 who declined to take the opioid home even after receiving the buyback information. The final eligible-for-buyback population was 578 patients (Figure 1).

Buyback Intervention

Overall, 171 (29.6%) eligible patients returned unused opioid pills after ambulatory surgery as part of this program, resulting in 2136.5 unused opioid pills returned for proper disposal (range 3-49 pills returned; Table 1). We also emptied our medication disposal receptacle every 4 to 5 weeks and destroyed 754.2 pounds of unused medications to include the returned unused opioids and other unwanted or expired medications. Patients who returned unused opioids were older (64.9 years vs 59.0 years; P <.001) and more likely to be opioid naive (94.7% vs 82.4%; P< .001) compared with those who did not participate in the buyback. This veteran population was mostly male in both the returned opioids and the no-participation groups.

The expected intensity of postoperative pain had similar distributions between the group that returned unused opioids and the group that did not return, and the case mix was also similar in each ofthese groups (Table 1). There was no difference between the 2 groups in who prescribed the postoperative medications with surgery residents in both groups prescribing the majority of postoperative opioids. The average MME was similar between the 2 groups overall and for the expected postoperative pain groups.

Patients who were not prescribed postoperative opioids and were not on chronic opioids already were in the same age range (average 63.0 years). The vast majority who were not prescribed opioids (91.6%) underwent surgeries with expected minor or moderate pain. None of these patients later requested an opioid prescription during this study period.

Although we found that older patients participated more in the buyback, this result varied by select CPT codes. For the cohort (return, no return, and no opioid prescribed; n = 1016), the average age was 62 years. After carpal tunnel release surgery (CPT 64721; n = 37) those aged 62 years or older were more likely to return unused opioids (P <.007). However, after inguinal hernia repair (CPT 49505, 49520, 49525, 49650, 49651; n= 111), there was no difference (P =.89).

Surgeon Education Intervention

After the surgeon education intervention, surgeons prescribed opioids to fewer patients after the same procedures (62.3% in 2017 vs 50.5% in 2018; P< .001; Table 2). For example, after carpal tunnel release (CPT 64721), the rate of opioid prescriptions decreased from 76% in 2017 to 28% in 2018. Similarly, 79% of vasectomy patients (CPT 55250) in 2017 were prescribed opioids, which decreased to 33% in 2018. The average MMEs prescribed decreased from 136.3 in 2017 to 99.8 in 2018 (P< .001). In 2017, 61.6% of patients were prescribed more than 10 opioid pills after ambulatory surgery. In 2018, only 34.3% of patients were prescribed more than 10 opioid pills (P< .001). The attending surgeons and case mix remained the same during this time period.

Participation in the opioid buyback slightly increased from 2017 to 2018 (28.4% vs 31.4%; P = .5). The number ofbuyback participants who returned more than 10 pills decreased from 43.3% in 2017 to 20.5% in 2018 (P = .003). We also found that 63.2% of patients who participated in the buyback did not use any opioids after surgery and returned all of the opioid pills that were prescribed with no statistical difference from 2017 to 2018. Overall, we paid out $4290 in 2017 and $3185 in 2018 to patients.

The refill requests remained the same before and after the surgeon intervention with 7 refill requests in 2017 and 8 refill requests in 2018, including 1 in 2018 in which the patient reported the postoperative opioid was stolen by a family member. Refill requests were not limited to a single specialty or provider during this time period.

DISCUSSION

To our knowledge, this is the first opioid buyback program successfully implemented. We used a small monetary incentive to motivate patients to return 2136.5 unused opioid pills so they could not be diverted for misuse or abuse in our rural communities. In our rural location, it can be challenging to find an accessible drug disposal location that accepts controlled substances, and transportation is a potential barrier for our patient population to use community disposals. According to our online state disposal locator, one larger town with a state college where our patients frequently come from has 3 police or sheriff station disposal sites and 1 hospital disposal site within 15 miles. But they have limited hours and require a special trip to use these sites. Our VA patients return 2 to 4 weeks after surgery for follow up, so no special trip is needed to participate in the buyback program. If a VA patient does not have a working vehicle or cannot drive or find a driver, VA transportation can bring patients for appointments. Based on income, some VA patients qualify for Travel Pay for appointments.

After ambulatory surgery, almost 1 in 3 of our patients returned unused opioids through the opioid buyback program. No opioids were used for postoperative pain management by almost two thirds of those who participated in the opioid buyback, many returning the bottles with the tamper-proof seal unbroken. Previous studies that included inpatient and outpatient surgery showed 61.5% of opioids went unused,12 and we had a return of unused opioids from about half that percentage through our opioid buyback.

In addition, 43.3% returned more than 10 unused opioid pills in 2017. This feedback was given to surgeons resulting in only 20.5% returning more than 10 unused opioid pills in 2018. This is in direct correlation to surgeons decreasing their prescribing of 10 pills or more by almost half from 61.6% in 2017 to 34.3% in 2018 when opioids were prescribed after ambulatory surgery.

Surgeons decreased prescribing by 27% after the feedback about returns. Oxycodone 5 milligrams was the most commonly prescribed medication after surgery, so to put the MME decrease in perspective, this is a decrease from 18 oxycodone 5-milligram pills perpatientto 13 oxycodone 5-milligram pills. In addition, surgeons were prescribing opioids to almost two thirds of patients in 2017, but they were more selective in 2018 with only half the patients prescribed opioids with a similar case mix.

There are many strengths in our analysis. The VA dispenses the opioid pain medications as written by the surgeons after ambulatory surgery. This allowed us to confirm that the patients actually received the opioid pain medication. In our program, pharmacists counted and confirmed the number and type of pill that were returned so we were able to accurately provide information on what patients were using to provide feedback to surgeons. Rather than rely on survey information or patient recall, we were able to count and confirm what patients returned as a proxy for postoperative opioid needs to manage pain. The information on what patients were returning through the opioid buyback program by CPT code was given to the surgeons; there was a measurable decrease in prescribing without an increase in refill requests.

There are many potential implications for our data. Surgeons were interested to know what their colleagues were prescribing for the same procedures and adjusted prescribing toward the lowest prescriber. In our facility, providing information to the recovery room nurses about opioid use after ambulatory surgery helped with their discharge education with the patients. Patients were reminded and encouraged to use nonopioid pain management techniques including acetaminophen and nonsteroidal anti-inflammatory drugs, and things like ice. We did not ask specialties to alter their usual practice as nonopioid pain management varies by specialty. For example, some specialties prohibit nonsteroidal anti-inflammatory medications after surgery. The recovery room nurses called the patients 24 to 48 hours after surgery and provided feedback to providers if pain was a significant problem. Although this is our experience, further analysis of the effect of an opioid buyback in our facility as well as other facilities will give us a broader understanding of what effective perioperative pain management can be with the lowest range of opioid pain pill prescribing and use after ambulatory surgery.

State legislation and proposed guidelines are helpful for identifying ranges for surgeons to prescribe opioids after common surgeries.43-50 For example, our state allows up to 70 tablets of 5 milligrams ofVicodin for bone fracture surgery with expected extreme pain. A surgeon might prescribe 2 tablets every 4 hours (12 per day) and a prescription of 50 tablets is well within the guidelines. But pain is an individual problem, so there may be unused opioids even staying within proposed guidelines attributable to variation in patient use. An opioid buyback program motivates patients to remove unused opioids from their homes for proper disposal, and we are thankful that the patient who had 49 unused opioid pills returned them for proper disposal through our program.

An opioid buyback program may ultimately be a cost-effective tool to help curb the opioid epidemic as the United States spent $78 billion for opioid addiction and treatment in 20 1 3.51,52 An added benefit for our rural population is that we also provide a safe and convenient place for disposal of all unused or expired medications for our patients, not just unused opioids.

Limitations

There are several limitations to this study. First, we do not know if patients used the information provided and were motivated instead to bring unused opioids to local drug take-back days sponsored by the DEA in April and October at select locations around the country. If so, our findings may underestimate the true amount ofreturned opioids. Second, several declined the reimbursement so we do not know if other patients did not want the reimbursement and disposed of the medications directly into the receptacle for destruction when they came to the pharmacy. Controlled substances can only be accepted in secured medication receptacles. When full, the liners in the receptacles are removed and sealed by our VA police and shipped for incineration. We are not permitted to examine the contents before shipping. Third, since we capped the reimbursement at $50 (10 pills), we do not know if patients are returning the maximum of 10 but keeping the other unused opioid pills, so we may still be overestimating postoperative opioid needs. Fourth, we cannot account for changes in provider practice or patient preferences attributable to an increase in education for providers as well as media attention regarding the opioid crisis. And last, we do not know if our findings would be generalizable to other VA or non-VA facilities or to other rural or urban locations.

Our success led to expansion to a second rural VA in 2019 and institutional review board approval at a third rural VA location to start in 2020. In addition, we are retrospectively reviewing records from 2017 to 2018 to see if there are patient characteristics (such as previous substance abuse or mental health issues) that might lead a patient to participate in the opioid buyback. We are continuing the opioid buyback program at our VA and, since June 2019, partnered with social scientists to see if sending out a reminder card would increase our participation rate.

Conciusions

This opioid buyback program after ambulatory surgery shows that a small monetary incentive motivates patients to return unused opioids for proper disposal so they are no longer available for misuse or abuse in our rural communities. Information on returns provided to surgeons can help optimize opioid prescribing for common ambulatory surgeries. There will always be patient variability in opioid pain medication use after ambulatory surgery, and this program can be a useful tool to keep unused prescription opioids out of our communities. ÂfPU

CONTRIBUTORS

J. Y. Liu, J. S. Franklin, and F. A. Gesek provided study conceptualization and design. J. Y. Liu collected the data. J. Y. Liu and J. C. Anderson analyzed and interpreted the data. All authors drafted the article, provided critical revisions, and finalized the article.

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CONFLICTS OF INTEREST

The authors declare that they have no conflict of interest.

HUMAN PARTICIPANT PROTECTION

This study protocol was reviewed and approved by the Veterans Institutional Review Board of Northern New England (VINNE#1019235) and granted an alteration of consent process and authorization to replace written consent with the informational letter provided with each opioid prescription.

Sidebar

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DETAILS

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Baby Powders and the Precautionary Principle

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ABSTRACT (ENGLISH)

On May 19, 2020, Johnson &Johnson (J&J) announced that it would discontinue the sale of talc-based Baby Powder in the United States. The announcement pointed to decline in demand because of "misinformation around the safety of the product and a constant barrage of litigation advertising" (https://bit.ly/2YcWh7s). While J&J would continue selling talc-based powder in Europe, North Americans would now only be sold a product based on cornstarch. For many decades, cornstarch or talc have been the prime ingredient in this signature product.1,2 But, in recent years, their talc-based powders have been the subject of lawsuits alleging that women and children who had been exposed to talc either as infants or while powdering after showers have developed mesotheliomas and ovarian cancers decades later. The lawsuits allege that their disease was caused by talc contaminated by asbestos, often in trace amounts.

FULL TEXT

On May 19, 2020, Johnson &Johnson (J&J) announced that it would discontinue the sale of talc-based Baby Powder in the United States. The announcement pointed to decline in demand because of "misinformation around the safety of the product and a constant barrage of litigation advertising" (https://bit.ly/2YcWh7s). While J&J would continue selling talc-based powder in Europe, North Americans would now only be sold a product based on cornstarch.

For many decades, cornstarch or talc have been the prime ingredient in this signature product.1,2 But, in recent years, their talc-based powders have been the subject of lawsuits alleging that women and children who had been exposed to talc either as infants or while powdering after showers have developed mesotheliomas and ovarian cancers decades later. The lawsuits allege that their disease was caused by talc contaminated by asbestos, often in trace amounts.

These lawsuits have resulted in multimillion-dollar awards and in one (in which one of the authors testified on behalf of the plaintiffs), a jury awarded 22 women $4.69 billion (https:// nyti.ms/2UZ2cuZ). On appeal, the the award was reduced to $2 billion.

In significant ways, these cases rested on historical evidence from which plaintiffs' lawyers argued that J&J had known ofthe possible dangers of asbestoscontaminated talc for decades and that, despite this knowledge, they placed their corporate profits over the possibility of long-term harm. By contrast, J&J has "remained steadfastly confident in the safety of talc-based Johnson's Baby Powder. Decades of scientific studies by medical experts around the world support the safety of our products" (https://bit.ly/2Na4Cmf). While in its recent announcement of the suspension of sales, J&J maintains its product is and has been "safe," J&J does not say that its talc is free of asbestos.

As researchers have documented, asbestos has been known to be a threat to human health for more than a century. By the mid-1950s, it was linked to lung cancer and, by the early 1960s, to mesothelioma, until that time an extremely rare cancer of the lining ofthe lung. Since the early decades of the 20th century, it has been known that the talc extracted from many, not necessarily all, of the mines contained asbestos, which could and did find its way into cosmetic talcum powder, sometimes in large amounts but often as trace contaminants.

These trace amounts became an issue for J&J as well as for other cosmetic talc manufacturers in 1971 following a 1968 study by Cralley et al. of the Public Health Service, which raised questions about the potential contamination of commercially available talcum products.3 The problem was, as George W. Wright, who consulted for the asbestos industry, wrote, "it is difficult to conceive of a better way of having [asbestos] fibers inhaled than the use of cosmetic talcum powders. "4(p477)

In response to these concerns, in September 1973, the Food and Drug Administration (FDA) proposed methods for testing talc that they argued would virtually eliminate up to 99.99% of possible asbestos contamination.5 As we document in "Nondetected," our AJPH piece ofJuly 2019, the industry was able to forestall the FDA regulation of talc.6 Instead, the industry adopted language that assured consumers that their product was "safe," avoiding the question of whether it might contain low levels of asbestos. Today we see the same vague language of safety is used in the J&J announcement.

How can we understand the decision to remove talc from their baby powders? As the editor-in-chiefofAJPHonce asked, is discrediting "independent scientific assessment for the sake of corporate interests . . . really in corporations' interests?"7

The prospect of more litigation has led J&J to remove talc from its Baby Powder. This is a grudging application, at least for future generations, of the longstanding principle of public health: that when in doubt about danger, we should err on the side of precaution. J&J has had cornstarch as an alternative to talc for decades. Yet, for reasons they have not fully explained, the company chose not to adopt the principle until now, putting thousands of women in danger by imperiling their health and even their lives by possibly exposing them to a known carcinogen.

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Gerald Markowitz, PhD

CONTRIBUTORS

Both authors contributed equally to this article.

CONFLICTS OF INTEREST

The authors have both testified for plaintiffs in asbestos and talc litigation as state-of-the-art witnesses.

Sidebar

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DETAILS

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Marijuana Legalization and Marijuana Prevalence Among Adolescents

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ProQuest document link

FULL TEXT

How does marijuana legalization affect the prevalence of marijuana use among adolescents? Marijuana legalization could potentially influence both supply and demand. Theoretically, it could lead to an increased supply of marijuana to adolescents and thereby increase their prevalence of marijuana use. This potential effect is limited by the fact that marijuana is already widely available to adolescents, with more than 75% of US 12th graders reporting that they could easily obtain marijuana if they wanted it in each and every year from 1975 to 2019.1 The wide availability of marijuana to adolescents is an important finding to keep in mind during current debates on marijuana-legalization is not likely to flood the streets with marijuana because, in essence, they are already flooded with it.

Theoretically, legalization also could increase the prevalence of marijuana use among adolescents by increasing their demand for it. New medical and recreational marijuana laws across the United States over the past two decades could encourage marijuana interest and experimentation among adolescents and thereby increase prevalence. Although these laws changed the legal status of marijuana for adults and not adolescents, legalization may have sent a "signal"2 to adolescents that marijuana use is safe and state approved, thereby increasing prevalence.

Separating out the sum total effect of marijuana legalization from the many other influences on the attitudes and behaviors of adolescents is a difficult task. One way to approach this question with scientific rigor is to follow over time the prevalence of adolescent marijuana use in states that have and have not legalized marijuana use. Levels of adolescent marijuana use would be expected to increase more quickly in states that legalize use, if legalization leads to higher levels ofadolescent marijuana use.

To date, legalization appears to have had little effect on marijuana prevalence among adolescents. The authors of a 2013 AJPH article concluded that medical marijuana legalization laws "have not measurably affected adolescent marijuana use in the first few years after their enactment."3 This conclusion was based on a scientifically rigorous research design that compared before and after trends in adolescent marijuana use across states that did and did not legalize medical marijuana use. Furthermore, a recent article with a similar research design found no disproportionate increase in adolescent prevalence of marijuana use among states that legalized recreational marijuana use.4

In this issue of AJPH, Kan et al. (p. 1386) contribute to the field with a focus on the specialized group of justice system- involved adolescents. As they point out, marijuana use levels in this group are substantially higher than they are in the general population. In addition, this high-risk group may well have unique exposure to factors that influence and moderate marijuana use. In brief, recreational marijuana laws may have a specific effect on vulnerable, at-risk groups that may not be detectable at the population level.

That being said, Kan et al. found no effect of recreational marijuana laws on prevalence of marijuana use among justice system-involved youths. Specifically, among 504 justice system- involved adolescents in California, marijuana use levels in the past 24 hours were similar in 2015 (before recreational marijuana use was legalized) and in 2018 (after marijuana use was legalized and implemented), at slightly less than 31% at both time points. The authors compared the findings of this control group with those of a group of justice system-involved adolescents in Pennsylvania, a state that has not legalized recreational use and had lower levels of marijuana use than in California at baseline. The gap in marijuana use prevalence across the groups in the two states would be expected to grow if recreational marijuana laws increased adolescent marijuana use; in fact, the gap actually grew smaller because marijuana prevalence increased relatively faster among the Pennsylvania adolescents.

Taken as a whole, these studies suggest that marijuana legalization has not had much overall effect on marijuana use by children and adolescents, at least during the past two decades. From 2000 to 2019, marijuana legalization changed substantially, and now medical marijuana is legal in 33 states and recreational marijuana use in 11. Despite these changes, adolescent marijuana prevalence has varied little, with the national percentage ofUS 12th graders who have ever used marijuana hovering within a narrow window of 42% to 49% during this time period.1 In 2019, it was at 44%, toward the lower end of this range.1

Current legalization efforts have mobilized substantial resources among opponents concerned that legalization may increase prevalence of marijuana use among children and adolescents. The current evidence suggests that these resources could potentially be more effectively deployed if they were directed to efforts with a track record of reducing adolescent substance use. The dramatic decline in adolescent cigarette smoking over the past two decades serves as an exemplar. Specifically, from 2000 to 2019, the percentage of 12th-grade students who had ever smoked a cigarette decreased gradually and steadily from 63% to 22%.' Today, cigarette smoking among adolescents is at the lowest level ever recorded since nationally representative surveys began tracking it in 1975.1 All these changes took place while cigarette smoking was legal among adults. And it is worth noting that when these declines started around the year 2000, they were preceded by many years of adolescent cigarette smoking at a constant, high prevalence, much as adolescent marijuana use has been for the past 20 years.

Although it would likely constitute a book in itself to examine all the lessons from adolescent cigarette reduction that could potentially apply to marijuana, a few key points are worth mentioning here. First, one major strategy to reduce adolescent cigarette smoking has been scientifically informed, national media campaigns targeted at adolescent cigarette use that have taken place over the past 20 years.5,6 To my knowledge, no scientifically informed, national media campaigns targeted specifically at adolescent marijuana use have yet been attempted, despite evidence from regional studies supporting their potential effectiveness.7 Second, efforts to reduce adolescent cigarette smoking have used a repertoire of strategies that include educational campaigns in schools, taxes to reduce demand, and health care reform to cover the cost of disease prevention initiatives and cessation programs. These strategies warrant consideration as candidates for efforts to reduce adolescent marijuana use. Finally, it is important to note that the reduction in adolescent cigarette smoking was a long process that did not take place overnight. It is because the efforts to reduce adolescent cigarette smoking were sustained, prolonged, and cumulative that they resulted in such remarkable overall declines.

In summary, prevalence of marijuana use among adolescents has remained remarkably steady over the past 20 years despite substantial changes in its legality across the United States during this period. Consequently, opposition to marijuana legalization does not seem to be a promising strategy to curb and ultimately lower levels of adolescent marijuana use. Instead, the successful campaign to lower prevalence of adolescent cigarette smoking offers an array of other candidate strategies with more potential. None of these strategies are magic bullets that will lower adolescent marijuana use overnight; instead, they will require the hard work of building consensus among influential stakeholders and developing infrastructure to keep successful strategies in operation over long periods of time. ÂfPU

Richard Miech, PhD, MPH

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Note. The opinions in this editorial are those of the author entirely and do not necessarily represent those ofthe National Institute on Drug Abuse.

CONFLICTS OF INTEREST

The author has no conflicts of interest to disclose.

Sidebar

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DETAILS

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Rural-Urban Mortality Disparities: Variations Across Causes of Death and Race/Ethnicity, 2013–2017

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ABSTRACT (ENGLISH)

Objectives. To examine rural-urban disparities in overall mortality and leading causes of death across Hispanic (any race) and non-Hispanic White, Black, American Indian/ Alaska Native (AI/AN), and Asian/Pacific Islander populations. Methods. We performed a retrospective analysis of age-adjusted death rates for all-cause mortality and 5 leading causes of death (cardiovascular, cancer, unintentional injuries, chronic lower respiratory disease, and stroke) by rural versus urban county of residence in the United States and race/ethnicity for the period 2013 to 2017. Results. Rural populations, across all racial/ethnic groups, had higher all-cause mortality rates than did their urban counterparts. Comparisons within causes of death documented rural disparities for all conditions except cancer and stroke among Hispanic individuals; Hispanic rural residents had death rates similar to or lower than urban residents. Rural Black populations experienced the highest mortality for cardiovascular disease, cancer, and stroke. Unintentional injury and chronic lower respiratory disease mortality were highest in rural AI/AN and rural non-Hispanic White populations, respectively. Conclusions. Investigating rural-urban disparities without also considering race/ethnicity leaves minority health disparities unexamined and thus unaddressed. Further research is needed to clarify local factors associated with these disparities and to test appropriate interventions. (Am J Public Health. 2020;110:1325-1327. doi:10.2105/ AJPH.2020.305703)

FULL TEXT

Headnote

Objectives. To examine rural-urban disparities in overall mortality and leading causes of death across Hispanic (any race) and non-Hispanic White, Black, American Indian/ Alaska Native (AI/AN), and Asian/Pacific Islander

populations.

Methods. We performed a retrospective analysis of age-adjusted death rates for all-cause mortality and 5 leading causes of death (cardiovascular, cancer, unintentional injuries, chronic lower respiratory disease, and stroke) by rural versus urban county of residence in the United States and race/ethnicity for the period 2013 to 2017.

Results. Rural populations, across all racial/ethnic groups, had higher all-cause mortality rates than did their urban counterparts. Comparisons within causes of death documented rural disparities for all conditions except cancer and stroke among Hispanic individuals; Hispanic rural residents had death rates similar to or lower than urban residents. Rural Black populations experienced the highest mortality for cardiovascular disease, cancer, and stroke. Unintentional injury and chronic lower respiratory disease mortality were highest in rural AI/AN and rural non-Hispanic White populations, respectively.

Conclusions. Investigating rural-urban disparities without also considering race/ethnicity leaves minority health disparities unexamined and thus unaddressed. Further research is needed to clarify local factors associated with these disparities and to test appropriate interventions. (Am J Public Health. 2020;110:1325-1327. doi:10.2105/AJPH.2020.305703)

In 2017, the Centers for Disease Control and Prevention (CDC) published a series of studies examining differences in health behaviors and outcomes between metropolitan (urban) and nonmetropolitan (rural) populations in the United States.1 These reports have helped refocus discussion regarding the health needs of rural residents and potential policies and programs to mitigate rural-urban disparities. However, apart from rural-urban differences in suicide deaths,2 the potential dual disparities experienced by rural minority residents have not received the same level of attention. Recent work has documented disparities in age-adjusted mortality rates across racial/ethnic groups and by rurality separately, without showing rural-urban disparities in mortality rates within each racial/ethnic group.3,4 Other studies have addressed a range of populations but not American Indian/Alaska Native (AI/AN) rural residents.5 In this article, we quantify the absolute and relative mortality differences in the 5 leading causes of death across rural and urban populations, stratified by race/ethnicity.

METHODS

We examined US age-adjusted death rates for both overall and cause-specific mortality for the period 2013 to 2017. Data were drawn from the National Vital Statistics System underlying-cause-of-death files, accessed through the Wide-ranging Online Data for Epidemiologic Research (WONDER) Web site of the CDC.6 Death certificates are part of the National Vital Statistics System; they are required by all states and include specification of county of residence. Because some of the racial/ethnic groups studied have relatively low representation in the rural population, we used a 5-year period to ensure adequate numbers of observations within specific causes of death for all racial/ethnic categories studied. Annual mortality rates were age adjusted using the 2000 US standard population.

Defining "rural" can be challenging; there are multiple levels of geography at which the rural-urban distinction can be made and multiple coding schemes and levels of rurality.7 Following Moy et al.,8 residence was dichotomized based on county ofresidence into rural (noncore and micropolitan) versus urban (metropolitan) county, using the 2013 National Center for Health Statistics definition.9 Although this dichotomous approach does not examine the distinction between rural counties with an urbanized area of 10 000 to 49 999 residents (micropolitan) and those lacking this level of urbanization (noncore), it has 2 advantages. First, it allows for sufficient numbers of observations within causes of death and racial/ethnic groups. Second, it allows comparability with previous work, such as the analysis by Moy et al.8 cited earlier.

Race/ethnicity is examined as a social differentiation that may expose an individual to interpersonal and structural disadvantage.10 Race/ethnicity was categorized as Hispanic (any race) and non-Hispanic White, Black, AI/AN, and Asian/Pacific Islander (API). Records for which Hispanic ethnicity was not coded as either "yes" or "no," 0.33% of the records studied, were not included in the analysis.

Leading causes of death were identified and defined by using previous research.8 For overall mortality and for each leading cause of death, we compared the age-adjusted mortality rates between rural and urban populations by race/ethnicity; P values for differences were calculated with t statistics.

RESULTS

Overall age-adjusted mortality rates estimated across the 5-year period were highest among rural Black (981.3 deaths per 100 000) and rural AI/AN (970.0 deaths per 100 000) populations and lowest among urban API residents (394.3 deaths per 100 000; Table 1). Rural disparity, the degree to which rural death rates exceeded urban rates within the same period, was highest among AI/AN populations (+42%) and varied between + 11% and +18% for all other groups. No group had all-cause mortality rates that were lower among rural than among urban residents. Within each racial/ethnic category, overall mortality disparities for rural residents have remained at the levels shown in Table 1, with only minor year-to-year variation, for the past five years (Table A, available as a supplement to the online version of this article at http://www.ajph.org).

Within causes of death, rural Black populations had the highest mortality rates across combinations of race/ethnicity and rurality for cardiovascular disease (240.0 deaths per 100 000), cancer (203.1 deaths per 100 000), and stroke (60.1 deaths per 100 000). Unintentional death rates were highest among rural AI/AN residents (101.9 deaths per 100 000), whereas the burden of chronic lower respiratory disease was highest among rural White residents (56.8 deaths per 100 000).

Patterns of rural-urban disparity varied across both race/ethnicity and the leading causes of death. As noted in the previous paragraph, rural White residents had the highest age-adjusted death rates for chronic lower respiratory disease; disparities in rates of death also were highest for this condition (+30% of urban rate; Table 1). Among all other racial/ethnic groups, disparities were greatest for unintentional injury. Rural AI/AN residents had unintentional injury mortality rates 60% higher than did those in their urban peers. Although cancer death rates were either the first or the second leading cause of death among all groups, the magnitude of rural-urban disparities were lower for cancer than for other leading causes of death among all groups except AI/AN populations.

Hispanic residents were the only subpopulation within which death rates from any causes studied were equal to or less than those among urban populations. Rural Hispanic population had slightly lower cancer mortality rates than did their urban peers and did not differ from urban Hispanic residents in stroke mortality. Despite this, overall mortality remained higher for rural than for urban Hispanic populations.

DISCUSSION

Overall mortality among rural residents was higher than that among their urban peers across all racial/ethnic categories. Rural Black and AI/AN populations were particularly disadvantaged. The pattern of rural disparity reflects multiple structural factors, all of which are exacerbated in counties with high minority representation. Rural Black residents, for example, are concentrated in the southern United States, and nearly all of these states failed to implement Medicaid expansion under the Affordable Care Act.11 Rural residents, particularly rural minority populations, disproportionately possess characteristics such as low educational attainment and poverty that place them at risk for increased mortality,1 and these characteristics are associated with lack of resources in rural communities.12 A full discussion of rural gaps in all public health and direct health services is beyond the scope of this brief article.

This study had multiple limitations, because it was based on nationally aggregated death rates. We used the county-level metropolitan-nonmetropolitan distinction available in the CDC WONDER data set; we did not have the data to examine other possible metrics for rurality, such as census tract-based rural-urban commuting area codes. We did not adjust results for community-level factors such as provider availability or for individual comorbidities and socioeconomic characteristics. Nonetheless, our analysis illustrates within-group differences between rural and urban populations of diverse race/ethnicity and thus may prompt additional research with more robust analytic approaches.

PUBLIC HEALTH IMPLICATIONS

Unseen disparities cannot be addressed. Therefore, we need more research examining the intersection of rural residence and race/ ethnicity, particularly in identifying gaps in the availability of services and preventive interventions that may be linked to these disparities. Interventions need to be developed and tested with rural minority populations rather than with convenient minority populations. Cultures and health care systems are each local; they cannot be understood at a distance.

To the extent possible, future research should employ commonly used definitions of levels of rurality, to allow comparison across studies. Rural minority residents, whose outcomes are masked by the larger White population, will continue to experience disparities unless public health surveillance, policies, and interventions are improved.

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CONTRIBUTORS

All authors have been actively involved in the substantive work of this study and hold themselves jointly and individually responsible for the content of this article.

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The authors have no conflicts of interest to disclose.

HUMAN PARTICIPANT PROTECTION

This study was deemed exempt (no human participants) by the institutional review board ofthe University of South Carolina.

Sidebar

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23, 2020.

DETAILS

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Short-Term Effects of State Legalization on Adolescent Cannabis Use May Not Predict Any Longer-Term Effects

Anonymous

ProQuest document link

FULL TEXT

AJPH EDITORIALS

Short-Term Effects of State Legalization on Adolescent Cannabis Use May Not Predict Any Longer-Term Effects

See also Kan et al., p. 1386.

It is difficult to assess whether the legalization of adult canna-bis use in some US states has increased cannabis use and cannabis-related harm among youths1,2-a major concern about the effects of the policy change.3 First, adult legalization has been implemented by citizen-initiated referenda and, with the exception of Wash-ington State, these states have not funded evaluations of the impact of the policy on cannabis use by youths.1 Second, most evalua-tions ofthe policy have compared survey data on self-reported cannabis use among youths be-tween states that have and have not legalized cannabis for adult use and have examined changes in cannabis use before and after the legislation of cannabis use.2,4 This method assumes that any short-term changes in use (or, more often, the absence of a change) provide a reliable guide to the longer-term effects ofle-galization1 and that the policy was implemented on the date that legislation passed.2

In this issue of AJPH, Kan et al.

(p. 1386) have used survey data from two states from a longitu-dinal study of justice system- involved (JSI) adolescents and

young adults (the Crossroads Study) to assess the impact of cannabis legalization on youths' cannabis use across three periods: (1) before legalization, (2) im-mediately after legalization but before implementation, and (3) after implementation of legali-zation. Their data were collected from October 2015 to June 2018 in a population of youths in-volved with the juvenile justice system. This included 504 youths in California, where recreational use was legalized in 2016, and 478 youths in Pennsylvania, where recreational cannabis use was prohibited throughout their study. The authors measured participants' self-reported can-nabis use in the 24 hours before they were interviewed, and they retained most of the members of both samples over the three study periods.

Kan et al. found that the prevalence of cannabis use in the past 24 hours was higher in California than in

Pennsylvania before legalization and remained unchanged in California across the three time periods. In Pennsylvania, by contrast, can-nabis use increased in the past 24 hours after the recreational can-nabis law passed in California, and it remained higher for the rest of the period. The authors sug-gest that the increase in cannabis use in Pennsylvania may reflect other policy changes within Pennsylvania, or possibly na-tional reductions in the perceived harms of cannabis use as more states have legalized recreational cannabis use.

STUDY LIMITATIONS

The authors acknowledged several limitations of the study. First, it could compare only two states-one that had legalized adult cannabis use and one that had not-because these were the only states with the required data. Second, the sample sizes were relatively small, and cannabis use was only measured as use in the past 24 hours. As Kan et al. argue, use in the past 24 hours is prob-ably highly correlated with can-nabis use over longer time periods, largely because daily users are overrepresented in justice-involved youths. None-theless, this measure may have limited the study's capacity to detect any increases in the frequency of cannabis use, an important outcome because cannabis-related harms increase with the frequency of use.3

Third, a JSI population may not be as sensitive to the effects of legalization as youths in the general population who were not involved with the criminal justice system. This is because JSI youths were not discouraged from using cannabis by its illegal status, and they probably already had ready access to the illicit cannabis market before legalization.

IS IT TOO EARLY TO ASSESS EFFECTS OF LEGALIZATION?

The present study also shared a common limitation of studies of the impacts of cannabis legaliza-tion on cannabis use among youths: it was only able to assess the effects of legalization in the first year after implementation.4 Changes over this short period of time are unlikely to reflect the longer-term effects of legaliza-tion, for several reasons. First, the number of retail cannabis outlets has increased slowly in most US

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states after legalization. Their numbers and locations have often been limited by state restrictions on the number of licensed re-tailers and by local governments refusing to allow retail outlets to open. The California cannabis industry, for example, complains that these restrictions limit its capacity to compete with the il-licit cannabis market.5

Second, federal cannabis prohibition has limited the commercialization of cannabis sales in US states that have legalized cannabis.1 Federal law restricts advertising and limits access to banking, and the In-ternal Revenue Service does not allow tax deductions for business costs. We should expect much larger changes in cannabis use if legalization becomes US national policy because the end of federal prohibition would allow online cannabis markets and sales, mergers between small cannabis companies, cross-state cannabis commerce, and investment by the tobacco and alcohol indus-tries. It would also provide con-stitutional protection for the promotion of cannabis use under commercial freedom of speech.1

Third, many other studies have assumed that the effects ofa state's cannabis legalization are confined to that state.2 This is unlikely. Media stories and public debates about cannabis legaliza-tion spill easily across state boarders; so has cannabis. The patchwork of US state policies has increased cannabis trafficking between states that have legalized and those that have not. This was evident in the outbreak of vaping-related lung injuries caused by illicit cannabis vapes contaminated with vitamin E in the United States.6 The authors of the current study noted suggestive evidence for spillover effects in that rates ofcannabis use increased in Pennsylvania after legalization had occurred in California.

Most evaluations of the effects of the legalization of recreational cannabis use assume that they can be distinguished from the effects oflegalizing medical cannabis use. It is not a coincidence that the first US states to legalize cannabis had earlier legalized medical cannabis sales under liberal regulations.1 These liberal medical cannabis policies amounted to the de facto legalization of adult cannabis use by making it legal for any adult with a medical recommendation to purchase cannabis products from commercial cannabis dispensaries.1

Notwithstanding these limi-tations, Kan and colleagues' findings are broadly consistent with population surveys in sug-gesting that, in the short term, the legalization of adult cannabis use has had a limited impact on cannabis use among youths in the states that legalized use.2,4 It would be unwise, however, to assume that the lack of any short-term impact oflegalization indicates that there will be no increase in the longer term. We may yet see in-creased rates and frequencies of youth use as retail markets mature and expand, increasing cannabis access and potency, reducing price, and normalizing recreational use among adults. The limited impacts so far of state cannabis legalization under federal prohibition may poorly predict what will happen to youth cannabis use if federal cannabis prohibition ends in the United States.1 ÂfPU

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CONTRIBUTORS

Both authors contributed equally to this manuscript.

CONFLICTS OF INTEREST

The authors have no conflicts ofinterest to report.

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DETAILS

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Addressing the Unmet Need of Family- Planning Services in Zambia

Anonymous

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FULL TEXT

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Family planning provides several benefits to women, families, and society at large, including reducing unintended pregnancies, planning for the desired number of children, and spacing births. Although contraceptive use has increased significantly among women aged 15 to 49 years in Zambia, there is still an unmet need for adequate family-planning services. Mulenga et al. identified age, partner's education level, contraceptive side effects, partner's opposition to contraceptives, and number of living children as major factors that may influence that unmet need. Future programs and policies should address these factors that affect nonutilization to build more acceptance of family-planning services and increase the uptake of contraceptives.

Sidebar

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Health Status and Health Care Utilization of US Adults Under Probation: 2015–2018

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ABSTRACT (ENGLISH)

Objectives. To compare the health and health care utilization of persons on and noton probation nationally. Methods. Using the National Survey of Drug Use and Health, a population-based sample of US adults, we compared physical, mental, and substance use disorders and the use of health services of persons (aged 18-49 years) on and not on probation using logistic regression models controlling for age, race/ethnicity, gender, poverty, and insurance status. Results. Those on probation were more likely to have a physical condition (adjusted odds ratio [AOR] = 1.3; 95% confidence interval [CI] = 1.2,1.4), mental illness (AOR = 2.4; 95% CI = 2.1,2.8), or substance use disorder (AOR = 4.2;95% CI = 3.8, 4.5). They were less likely to attend an outpatient visit (AOR = 0.8;95% CI = 0.7,0.9) but more likely to have an emergency department visit (AOR = 1.8; 95% CI = 1.6, 2.0) or hospitalization (AOR = 1.7; 95% CI = 1.5, 1.9). Conclusions. Persons on probation have an increased burden of disease and receive less outpatient care but more acute services than persons not on probation. Public Health Implications. Efforts to address the health needs of those with criminal justice involvement should include those on probation. (Am J Public Health. 2020;110: 1411-1417. doi:10.2105/AJPH.2020.305777)

FULL TEXT

Headnote

Objectives. To compare the health and health care utilization of persons on and noton probation nationally.

Methods. Using the National Survey of Drug Use and Health, a population-based sample of US adults, we compared physical, mental, and substance use disorders and the use of health services of persons (aged 18-49 years) on and not on probation using logistic regression models controlling for age, race/ethnicity, gender, poverty, and insurance status.

Results. Those on probation were more likely to have a physical condition (adjusted odds ratio [AOR] = 1.3; 95% confidence interval [CI] = 1.2,1.4), mental illness (AOR = 2.4; 95% CI = 2.1,2.8), or substance use disorder (AOR = 4.2;95% CI = 3.8, 4.5). They were less likely to attend an outpatient visit (AOR = 0.8;95% CI = 0.7,0.9) but more likely to have an emergency department visit (AOR = 1.8; 95% CI = 1.6, 2.0) or hospitalization (AOR = 1.7; 95% CI = 1.5, 1.9).

Conclusions. Persons on probation have an increased burden of disease and receive less outpatient care but more acute services than persons not on probation.

Public Health Implications. Efforts to address the health needs of those with criminal justice involvement should include those on probation. (Am J Public Health. 2020;110: 1411-1417. doi:10.2105/AJPH.2020.305777)

The United States incarcerates more people than any other country, and many adverse health consequences are associated with incarceration.1,2 Moreover, the correctional system affects many more people than those who are incarcerated in prisons and jails. The majority of persons under correctional control are managed outside of the carceral setting, including 3.6 million who are on probation,3 a number that is expected to increase as criminal justice policies increasingly emphasize alternatives to incarceration.4

Probation, a court-ordered period of community supervision in lieu of incarceration, may come in the form of a sentence served entirely in the community or a sentence involving a shortened period of incarceration followed by community supervision.5 The original intent of probation was to provide an alternative to incarceration that focused on community-based rehabilitation, which could include linkage to care for those with health needs. However, given the growth ofprobational supervision during the past 4 decades and the lack of concomitant investments in rehabilitation or health services for those under supervision, many criminal justice researchers argue that probation has been largely unsuccessful at providing rehabilitative services.4,6

Studies suggest that the greatest health risks of justice involvement occur in the community rather than in the carceral setting,7 yet scant previous research has examined the health or health care of people on probation. One analysis found that persons on probation are at higher risk of death compared with both the general population and those currently incarcerated,8 although the comparisons were not adjusted for underlying health conditions. A study that surveyed adult correctional agencies and administrators nationally indicated that persons on probation often failed to receive needed medical care for chronic conditions, substance use, and mental illness, or infectious disease detection.9 In addition, other research has found high emergency department (ED) utilization and hospitalization rates among those recently arrested or on probation or parole, suggesting increased acute care needs.10

Decreased access to health care may contribute to poor health outcomes of persons under probational supervision. While incarcerated persons are constitutionally guaranteed health care, no such guarantee applies to those on probation. Some states, particularly those that have rejected the Affordable Care Act's Medicaid expansion, limit access to publicly funded health insurance among those with a felony record.11 Moreover, persons with a criminal record often face barriers to employment, effectively excluding them from private health insurance 12 coverage.

However, no previous study has examined the health profile or health care utilization patterns of persons under probational supervision. Using nationally representative, cross-sectional data, we sought to address this knowledge gap. We hypothesized that, relative to the general population, persons on probation would demonstrate a greater burden of physical disease, mental illness, and substance use disorders, and would utilize less outpatient services but more acute hospitalbased services.

METHODS

We analyzed the 4 most recent years of data (2015-2018) from the National Survey of Drug Use and Health (NSDUH), a cross-sectional, nationally representative survey sponsored by the Substance Abuse and Mental Health Services Administration. The NSDUH surveys noninstitutionalized individuals via in-person interviews with most questions anonymously entered by computer entry to assess the prevalence ofsubstance use and mental health conditions in the United States.13 The annual response rates ranged from 66% to 69%. We restricted our analysis to adults aged 18 to 49 years (n = 136 524) because the vast majority (90%) of those on probation are aged younger than 50 years.

Identifying Persons on Probation

We categorized respondents as "on probation" on the basis ofthe following question: "Were you on probation at any time in the past 12months?" A small proportion (< 1%) of those not on probation reported being on parole (a period of conditional supervised release at the end of a prison sentence)5; we excluded them from the analysis. We refer to persons who were not on probation or parole as the "general population."

Outcomes

We first examined the prevalence of a range of physical conditions based on responses to questions asking ifthe respondents had ever been told by a doctor that they had the relevant condition. The physical conditions included chronic obstructive pulmonary disease (COPD), asthma, diabetes, hypertension, a heart condition, obesity (body mass index >30.0), cirrhosis, hepatitis B or C, HIV, a cancer diagnosis, kidney disease, and a past-year diagnosis of a sexually transmitted infection. We also created binary variables indicating whether the individual had any of the physical conditions, 2 or more of the conditions, or self-reported fair or poor health status (vs good, very good, or excellent health).

We identified persons with any mental illness or serious mental illness based on a previously described and extensively used NSDUH-specific prediction model that uses responses to survey questions about mental health symptoms.14 That model also identified any episode of major depressive disorder within the past year based on Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), criteria. Multiple survey questions assess substance use, which the NSDUH model employs to generate variables for alcohol use disorder only, illicit drug use disorder only, or either alcohol or illicit drug use disorder, as determined from standardized diagnostic assessments using DSMIV criteria for substance abuse or dependence.15 Illicit substances included marijuana, cocaine, heroin, hallucinogens, inhalants, methamphetamine, pain relievers, tranquilizers, stimulants, or sedatives. We defined current smoking as self-reported past-month daily cigarette use.

In addition, we examined self-reported health care utilization, including having 1 or more outpatient medical visits in the past 12 months, 1 or more ED visits in the past 12 months, or 1 or more nights of hospitalizations in the past 12 months.

Finally, we examined self-reported unmet need for mental health and substance use treatment. Unmet need for mental health treatment was defined as "feeling a perceived need for mental health treatment/counseling that was not received" within the past year. Unmet need for substance use treatment was defined as "needing illicit drug or alcohol treatment in the past year, but not receiving illicit drug or alcohol treatment at a specialty facility."

Covariates

We included the following covariates in our models comparing persons on probation with the general population: age category (18-25, 26-34, or 35-49 years), race/ethnicity (White [non-Hispanic], Black [nonHispanic], Hispanic [any race], Native American, or other [Hawaiian/Pacific Islander, Asian, more than 1 race]), gender, poverty level (as determined by the US Census Bureau; income <poverty level, 100%-200% of poverty level, or >200% of poverty level), and health insurance status (uninsured vs any coverage). In models assessing health care utilization, we also controlled for urbanicity of the county of residence based on the National Center for Health Statistics' 2013 Urban-Rural Classification Scheme (large metro, small metro, nonmetro [or "rural"]).16

Statistical Analysis

We first compared sociodemographic characteristics of persons on probation to those of the general population by using the Pearson %2 test. To compare the burdens of physical conditions, mental illness, and substance use disorders in the 2 populations, we first calculated the proportion in each group reporting each condition and the unadjusted odds ratio ofhaving a condition among those on probation compared with the general population. We then estimated the adjusted odds ratios (AORs) for each condition by using logistic regression models that controlled for age, gender, poverty level, and health insurance status.

To understand the racial/ethnic distribution of health in the population on probation, we stratified by race/ethnicity and calculated unadjusted proportions of respondents in each stratum reporting serious mental illness, any mental illness, substance use disorder, and 1 or more physical conditions.

To examine differences in health care utilization, we first calculated the unadjusted proportion of those on probation (and other respondents) who reported having received each type of care. We then estimated the adjusted odds of having had an outpatient visit, an ED visit, ora hospitalization in the past year in 2 sequential models. In model 1 we controlled for age, gender, race/ethnicity, poverty level, and county of residence. In model 2, we additionally controlled for insurance status. Substantial changes in AORs between model 1 and model 2 would imply that health insurance is independently associated with differences in utilization rates between people on probation versus the general population.

To examine the differences in perceived unmet health needs between the general population and those on probation, we calculated the unadjusted proportion of respondents in each group who reported an unmet mental health or substance use treatment need. We then estimated the AORs of having an unmet health need in the past year controlling for age, race/ethnicity, gender, poverty level, insurance status, and county of residence. We conducted these analyses only among those with any mental illness (for perceived unmet mental health treatment need) or those with any substance use disorder (for perceived unmet substance use treatment need).

We conducted all analyses with Stata version 15.1 (Stata Corp LP, College Station, TX) and used weights provided by the Substance Abuse and Mental Health Services Administration that account for the NSDUH's complex survey design and allow extrapolation for the US population as a whole. We considered 2-sided P values of less than .05 to be statistically significant.

RESULTS

Our unweighted sample consisted of3685 adults aged 18 to 49 years on probation during the previous 12 months and 132 839 other adult respondents, representing 3 313 501 (2.5%) and 131 147 555 (97.5%) US adults, respectively. We found substantial demographic differences between the 2 groups (Table 1). Nearly one third (31.8%) of those on probation were female (vs 51.0% in the general population), which is similar to data presented by the Bureau ofJustice Statistics.3 Persons on probation were younger, more likely to be Black (18.9% vs 12.9%) or Native American (1.8% vs 0.6%), and more likely to be covered by Medicaid (29.7% vs 15.1%) or uninsured (25.9% vs 14.0%) than the general population. Those on probation also reported lower educational attainment, rates of current employment, and income.

Persons on probation had a higher burden of physical conditions, mental illnesses, and substance use disorders than did the general population in both unadjusted and adjusted analyses (Table 2). Those on probation were more likely to report any physical condition (AOR = 1.3; 95% confidence interval [CI] = 1.2, 1.4), to suffer 2 or more physical conditions (AOR = 1.5; 95% CI = 1.3, 1.7), and to report fair or poor health (AOR =1.7; 95% CI = 1.4, 2.2) compared with the general population. Being on probation was also associated with reporting several specific physical conditions, including COPD, a heart condition, hepatitis B or C, HIV, kidney disease, and past-year sexually transmitted infection. Persons on probation were more likely to have any mental illness (AOR = 2.0; 95% CI = 1.8, 2.2), including a serious or moderate mental illness ora recent episode of major depression. Finally, those on probation were much more likely to meet criteria for any substance use disorder (AOR = 4.2; 95% CI = 3.8, 4.5), including illicit drug use disorder, alcohol use disorder, or current smoking.

Figure 1 displays the distribution of physical conditions, mental illness, and substance use disorder among persons on probation stratified by race. There were no differences in the proportion reporting any physical condition between White, Black, and Native American respondents; Hispanic respondents were less likely to have a physical condition than were respondents of other races/ethnicities. White respondents on probation were more likely to have a serious or any mental illness compared with Black, Hispanic, or Native American respondents, and were more likely to have any substance use disorder compared with Black respondents.

Persons on probation compared with the general population had lower odds of having had an outpatient visit in the previous 12 months (AOR = 0.8; 95% CI = 0.7, 0.9) but higher odds of having had an ED visit (AOR = 1.8; 95% CI = 1.6, 2.0) or inpatient hospitalization (AOR = 1.7; 95% CI = 1.5, 1.9). The association between being on probation and lacking an outpatient visit was stronger among respondents with any or multiple chronic conditions than among those with no chronic condition. Comparable associations of utilization with probation status were present among persons with any mental illness (outpatient visit: AOR = 0.8; 95% CI = 0.7, 0.9; ED visit: AOR = 1.8; 95% CI = 1.6, 2.0; hospitalization: AOR = 1.7; 95% CI = 1.3, 2.1) or any substance use disorder (outpatient visit: AOR = 0.8; 95% CI = 0.6, 1.0; ED visit: AOR = 1.6; 95% CI = 1.3, 1.8; hospitalization: AOR= 1.7; 95% CI = 1.3, 2.2). In models that additionally controlled for insurance status, point estimates for outpatient utilization for most groups were minimally attenuated, but the patterns of statistical significance persisted overall (Table 3). The additional adjustment for insurance status had no impact on models of ED visits or hospitalizations for any group.

The odds of an unmet mental health need (among those with any mental illness) were significantly higher for those on probation than in the general population (AOR = 1.3; 95% CI = 1.1, 1.6; Table A, available as a supplement to the online version of this article at http://www.ajph.org). However, among those with a substance use disorder, the odds of not receiving treatment of a substance use disorder were significantly lower for those on probation compared with the general population (AOR = 0.1; 95% CI = 0.1, 0.2), although the absolute proportion of those not receiving treatment was high in both groups (70% probation; 95% general population).

DISCUSSION

In this nationally representative study of the health and health care utilization ofpeople on probation, we found elevated rates of a wide array of physical conditions, mental illnesses, and substance use disorders. The higher prevalence of substance use disorders and related conditions such as hepatitis C and HIV was expected given the criminalization ofillicit drug use, as were the adverse physical and mental health outcomes associated with alcohol use disorder.17,18 However, it is unclear why those on probation reported higher rates ofkidney disease and heart conditions. It is plausible, although unproven, that the association between probation status and these conditions arises from the stress of criminal justice involvement-or unmeasured socioeconomic factors correlated with justice involvement-that may accelerate atherosclerosis and endothelial dysfunction.19,20 Not surprisingly, we also found higher rates of mental health disorders among those on probation compared with those in the general population. Although we could not determine the direction of causality, 2 longitudinal analyses have suggested that criminal justice involvement may cause a deterioration in mental health.21,22 Consistent with past studies, we found that White persons on probation are more likely than persons of color on probation to have substance use or mental health disorders.23

Previous studies suggest that poor access to both medical care and addiction treatment are associated with high mortality rates among persons recently released from incarceration.24 Our finding that individuals on probation had high rates of physical conditions, substance use disorders, and unmet mental health needs, but reduced use of outpatient care may help explain the recently published finding of increased mortality of those on probation compared with the general population.8

Our findings also suggest that persons on probation face particularly severe or unique access barriers. Their greater use of ED and inpatient services may reflect inadequate access to outpatient care. A previous study found that, among people with a history of incarceration, expansion of Medicaid under the Affordable Care Act was associated with increased outpatient utilization and greater likelihood of reporting a usual source of care.25 However, the findings of our tiered logistic regression models that health insurance only minimally attenuated the association between being on probation and outpatient health care utilization suggest that factors beyond insurance coverage likely play important roles in producing differentials in utilization. Such factors might include structural barriers including stigma and discrimination, which may obstruct access to ambulatory care among those with justice involvement.26 Future research should focus on understanding why people on probation, particularly those who have insurance, may face barriers to accessing and utilizing outpatient care.

Unmet mental health treatment needs were higher among those on probation. Previous research suggests that improving insurance coverage among the justice involved alone may not be sufficient to improve mental health treatment utilization or reduce unmet mental health needs.27 While use of needed treatment of substance use disorders was actually higher among those on probation, possibly because of courtmandated treatment, the absolute level of unmet need for treatment was still high, at 70%. In addition, our findings do not address the quality of substance use disorder treatment received by those on probation, which previous research has shown to be lacking. Those on probation-especially those with opioid use disorder-often fail to receive evidence-based treatment because court-ordered substance treatment programs rarely offer access to pharmacotherapy, such as buprenorphine and methadone,28 which, in criminal justice settings, have been shown to reduce risk of overdose death, increase the time to relapse, and possibly decrease recidivism.29 Our findings suggest significant room for improvement in the treatment of mental illness and substance use among those on probation, which could improve health and reduce criminal justice involvement.

The COVID-19 epidemic has expedited release of incarcerated persons and increased the number of individuals placed on probation in lieu of incarceration to minimize the population of those susceptible and exposed to COVID-19 behind bars. Many of those on probation will live in communities with disproportionately high rates of COVID-19 infection.30 Furthermore, our findings suggest that those on probation, with higher rates of physical conditions, mental illness, and substance use disorders compared with the general population, may face increased barriers to initiating and maintaining outpatient treatment as most outpatient care has transitioned to telephone and video visits. To mitigate risk, individuals on probation must have continuing access to health insurance coverage, appropriate medications, and telephone access to stay connected to care.31 Furthermore, communication with probation officers should be minimized or limited to telephone visits to diminish transmission of COVID-19 on public transportation and in probation offices.

Limitations

Our study has several limitations. First, because the data were observational, we cannot establish causation. Second, the survey data are subject to potential selection bias, and unmeasured confounders (especially adverse childhood experiences) are likely. Nonetheless, the findings suggest substantially worse health and access to outpatient care among those on probation, information that could help clinicians and public health officials better meet the health needs of this population. Third, all data are self-reported and not verified with clinical or administrative data. Finally, exposure to probation was determined on the basis of self-report, an ascertainment method that might cause underreporting. However, studies suggest that self-reported exposure to justice involvement is as accurate as administrative data.32 Moreover, our estimate of the total number of persons on probation closely mirrors the Bureau of Justice Statistics' administrative data,5 suggesting that respondents provided reasonably accurate information on their probation status.

Public Health Implications

Our findings highlight the high burden of disease and poor access to care among persons on probation, a large but poorly studied population of young to middle-aged adults. Previous research on the health effects of incarceration has largely omitted this group. This omission may reflect the lack of uniform data on this population, heterogeneous implementation ofprobation programs across states, or researchers' beliefs that probation is a "privilege," especially when compared with incarceration.33 Our findings underscore the need for better empirical data on the health needs of the vast probation population, including the special needs of vulnerable populations such as sexual minorities and immigrants, and suggest that better access to care is imperative for those on probation.

The creation of a more uniform system to understand the health of persons on probation would help elucidate their care needs. Ensuring access to health insurance for all persons and tasking probation officers with linking those on probation to care resources may improve access to outpatient services and reduce ED visits and hospitalizations. Models of primary care engagement for persons following release from incarceration34,35 indicate that patient-centered interventions can increase outpatient engagement among the recently incarcerated. Further expansion of these models to include those on probation should be explored.

Sidebar

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AH authors contributed to the conceptualization and design of the study. L. Hawks managed and analyzed the data. L. Hawks drafted the article, and all authors contributed substantially to its revision.

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Racism, a Root Cause of Health Inequity, Must Be Tackled Head on

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Racism, a Root Cause of Health Inequity, Must Be Tackled Head on

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Racism, a Root Cause of Health Inequity, Must Be Tackled Head on

Racism: Science &Tools for the Public Health Professional By Chandra L. Ford, PhD, Derek M. Griffith, PhD, Marino A. Bruce, PhD, and Keon L. Gilbert, DrPH Washington, DC: APHA Press; 2019 616 pages; $75.00 ISBN: 978-0-87553-303-2

"Racism is a system of struc-turing opportunity and assigning value based on the social inter-pretation of how one looks (which is what we call 'race') that unfairly disadvantages some individuals and communities, unfairly advantages other indi-viduals and communities, and saps the strength of the whole society through the waste of human resources. "1(p3) Public health has a long-fraught rela-tionship with racism through policies and practices such as at-tributing stigmatized disease to one's nationality, ethnicity, or race. Fortunately, the American Public Health Association more recently has been raising the clarion call to address racism. One might ask whether we still have a need for a book explicitly titled Racism. Just as Camara Phyllis Jones, MD, PhD, MPH, presi-dent of American Public Health Association from 2015 to 2016 noted, for those who are privi-leged by a system (e.g., those who are successful in public health), "it is part of your privilege not to have to know."1 But if we are to shift practice enough to ensure that a book like this becomes obsolete, know we must! Even more important, we must know from those who have the first-hand, lived experience of racism within public health.

Critical race theory provides the reason that this book is so essential. Those who experience institutional racism within public health are the very ones who should challenge the traditional paradigms and theories.2 Thus, this book compiles the narratives from leaders within the public health profession to contextual-ize the praxis of racism within public health. Also compiled is a rich discussion of the key terms, such as ethnicity, race, and rac-ism, which is central for enabling a meaningful discourse. Fur-thermore, the tactic taken goes beyond presenting the historical context and scientific underpin-nings of the study of racism to structuring the earned assets and sources of strength as a toolkit to address racism.

Segregation by race, poverty, education, and other social fac-tors accounts for more than a third of total deaths in the United States in a year.3 Racism imposes a huge human, social, and eco-nomic burden, estimated as $1.24 trillion between 2003 and 2006 in health care or lost productivity and premature death.4 Racism affects health through racial stratification in social structures such as housing, the criminal justice system, and the educa-tional system. Several examples of how racialization, the social process of"othering" those not of the dominant group, has health effects include mechanisms such as hypervigilance and high-stress coping (e.g., John Henryism).

Racism is a public health issue, and practitioners have tools that can help achieve health equity such as social change, community organizing, policy advocacy, re-search, and scholarship. Public health practitioners are posi-tioned with research tools and health system practices such that they can raise awareness, identify causal pathways, and organize cultural and institutional change. To address racism, research must start with explicitly naming rac-ism and investigating it directly. This necessitates examining both implicit and explicit racial biases and assumptions in knowledge production, conceptualization and measurement, and action. Furthermore, public health has a rich history of partnering with communities, which can be used as an antiracism strategy when sharing of power and privilege in formal and informal ways is done with respect, recognition, and responsibility. Many innovations to address structural racism have come from public health, such as health literacy; cultural compe-tence; and, more recently, cul-tural humility.

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Race is a social construct with racist underpinnings. Racial cat-egorizations are reductive and racist, rooted in Colonial origins of the country when non-White and native institutions were dis-mantled to achieve manifest des-tiny of the United States. Thus, examining the categories can assist in measuring the real effects of racist consequences on nondom-inant groups. The racial/ethnic minority and religious minority populations share common themes, but each has a unique historical context that is needed to understand the key issues these populations confront today.

Contemporary scientists often ask, "Why the history lesson? The past is already in the past." Unfortunately, "racial hierarchy is not just a problem attributable to millions of individual Ameri-cans but is also deeply embedded in American systems, structures, and institutions. "5(p469) Historical trauma, a type of institutional racism, transfers through multiple generations via philosophies, insti-tutions, organizations, and policies, with violence, depression, and substance use. Many common themes between groups include using historical and current laws and policies to illegitimize, criminalize, and dehumanize groups within the racial hierarchy ofthe United States.

Another thread is who has the privilege of characterizing the group. Part of racism is that the dominant group assigns the value and meaning to nondominant groups. Those who self-identify as American Indian and Alaska Native are not minority pop-ulations; they are people from diverse nations with self-determination and sovereignty. Asian Americans come from many different nations but have been grouped together with other nations that experienced historical atrocities in times of war. Latina and Latino individuals are cast as perpetual foreigners, criminalized and dehumanized, with a low social rank within the racial hierarchy of the United States. Even explanations appeal-ing to cultural differences can "easily devolve into victim-blaming explanations instead of pointing to the inequities that place communities and individ-uals at increased risk."6(p416) Most insidious are when threats to one's cultural identity are internalized, and the person believes his or her group is truly inferior.

Thus, community-based re-search, community partners, and community scientists need to be central in helping recast the realm ofdata and knowledge systems to serve their own groups. "Struc-tural competency calls on health care providers and students to recognize how institutions, markets, or health care delivery systems shape symptom presen-tations and to mobilize for cor-rection of health and wealth 7(p190) inequities in society."

Racism, a root cause of health inequity, must be tackled head on. What better place to begin than learning from the wealth of seminar papers, narratives from key warriors, and the historical context of the fight against racism in public health. It behooves all of us who are privileged to work within public health to take the time to learn about racism from fellow practitioners who have generously shared their earned as-sets and sources of strength. >4jPI-l

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Refusing Testing During a Pandemic

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ABSTRACT (ENGLISH)

At the start of May, the United States was conducting approximately 250 000 diagnostic tests each day for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease 2019 (COVID-19).1 Researchers have proposed that running many more diagnostic tests, perhaps even millions per day, may be necessary to safely reopen the economy during this pandemic. Still, as testing becomes more available, health professionals and public health officials face a new challenge: not everyone wants to be tested.

The implications of testing positive for SARS-CoV-2 may deter some people from testing. If testing positive means that people cannot leave their homes, return to work, or spend time with their families, they may not want to get tested at all. In March, after a COVID-19 outbreak on the Grand Princess cruise ship, passengers were quarantined at a California military base and, when initially offered diagnostic testing, 568 (66%) of 858 passengers declined. According to news reports, some passengers feared that undergoing testing or receiving positive results could lengthen their quarantine and delay their ability to return home, among other reasons for declining testing.

FULL TEXT

At the start of May, the United States was conducting approximately 250 000 diagnostic tests each day for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease 2019 (COVID-19).1 Researchers have proposed that running many more diagnostic tests, perhaps even millions per day, may be necessary to safely reopen the economy during this pandemic. Still, as testing becomes more available, health professionals and public health officials face a new challenge: not everyone wants to be tested.

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The reliability oftesting might influence people's willingness to participate. A review of seven studies examining reverse transcriptase polymerase chain reaction testing for SARS-CoV-2 found that median false-negative rates exceeded 20%, even days to weeks after the onset of patients' symptoms.3 Reports about false-negative test results have raised concerns that testing for SARS-CoV-2 may not be accurate. As friends and family have undergone testing during recent months, I have heard many wave away the results with a similar refrain: "Oh, I tested negative, but I'm pretty sure I had it anyways." If test results are not trustworthy, people may be less likely to undergo testing in the first place.

Financial concerns could dissuade millions ofAmericans from testing for COVID-19. According to the US Census Bureau, 27.5 million people lacked health insurance throughout 2018, and these numbers are likely to rise, as more than 40 million Americans have filed for unemployment over the past several months. Loss of income or savings during this pandemic may mean that people cannot afford medical care regardless of their insurance status. In March, Congress passed the Families First Coronavirus Response Act, expanding insurance coverage so that patients could access diagnostic testing for free; still, the law did not require that all costs of care for COVID-19 be covered, such as treatment after someone tests positive for COVID-19. In an April telephone survey of 1017 US adults, 9% reported that they would avoid seeking treatment if they suspected having COVID-19 because ofworries about medical costs.4

The degree of voluntariness could also affect willingness to participate in testing. Many people may hesitate or refuse to undergo testing ifforced to do so under circumstances that they did not agree to. In May, a sheriff's office in Massachusetts reported that detainees at an immigration detention center had disclosed symptoms of COVID-19 but refused transfer to a medical unit for testing, leading to a violent altercation with corrections officers, a special response team, and a K9 unit.5 After the incident, the sheriff said that the detainees had "refused to comply" with instructions for testing, and one detainee reportedly explained that the detainees wanted testing but did not want to move between units given the risks of cross-contamination.5

People might avoid testing for COVID-19 for various other reasons. Some might fear getting infected if they have to travel for testing. Others might worry about the discomfort ofspecimen collection (e.g., nasopharyngeal swabbing). Mistrust ofgovernment may shape some patients' refusals to get testing. Testing fatigue may set in for those asked to get tested repeatedly. Regardless ofthe reason, in a March survey of 1006 US adults, 12% reported they would not want diagnostic testing, even if tests were available or ifthey had been possibly exposed to the virus.6

Alongside efforts to increase diagnostic testing capabilities, comprehensive measures are needed to support people's willingness to get tested. Communicating clear criteria for when people should seek testing for COVID-19 is essential, because many people may not know whether their symptoms or lack of symptoms qualify them for testing. Studying the reliability of different tests and communicating these findings to the public might address uncertainties about how these tests work and what test results may mean for individuals. Helping newly unemployed individuals maintain insurance coverage, for example by expanding eligibility for Medicaid coverage or widening enrollment periods for insurance marketplaces, could mitigate financial concerns related to testing and associated care. Expanding private and public insurance coverage for care for COVID-19, for example by decreasing copayments or coinsurance for emergency department or clinic visits, may be another approach. Minimizing coercion when possible, including informing patients about what different test results might mean for them and asking patients about their preferences during specimen collection, could also reduce reluctance about testing.

These types of measures may improve the acceptability of diagnostic testing, but there will always be cases in which people still refuse or cannot consent to testing. Some cases may seem straightforward; for instance, ifan ambulance brings an unconscious patient in respiratory failure and without any known surrogates to a hospital, emergency department staff might reasonably perform testing not only for diagnostic purposes but also to protect staff and other patients from potential infection. But what about a patient with psychosis in an emergency department who requires psychiatric admission but refuses SARSCoV-2 testing? How should clinicians manage an inpatient in the early stages of recovery from COVID-19 who asks to leave against medical advice and refuses SARS-CoV-2 testing before discharge? Some countries, such as the United Kingdom, have even passed legislation enabling authorities to fine or detain those suspected of having COVID-19 who refuse testing.

Health professionals need guidance for handling testing refusals, and health care organizations should develop protocols for these kinds of situations. Barring legal exceptions that compel testing, clinicians should evaluate the need for testing in the situation and the patient's decision-making capacity to refuse testing. As described by guidelines at the Brigham and Women's Hospital in Massachusetts, patients with known or suspected COVID-19 should "likely have a higher threshold to demonstrate capacity" to refuse testing, because these patients could pose a risk not only to themselves but also to those around them.7

If a patient demonstrates decision-making capacity to refuse testing, clinicians should continue to encourage testing when indicated, address modifiable reasons for refusal (e.g., costs, timing, method of specimen collection, presence of social supports), and take steps to minimize potential viral spread (e.g., using personal protective equipment during patient care, delaying nonurgent procedures, notifying public health authorities of testing refusals that pose public risks, counseling the patient about ways to prevent community transmission). If a patient lacks decision-making capacity to refuse indicated testing, clinicians should liaise with surrogate decision-makers for informed consent and weigh whether the benefits of testing outweigh the risks of forcible testing. In emergencies in which informed consent is not possible to obtain from the patient or surrogate decisionmakers, clinicians should consider pursuing testing ifnecessary for the safety of the patient and others.

The availability of diagnostic testing will continue to shape our understanding and our management of this pandemic. Still, when anybody can get a test, not everyone will want one.

Nathaniel P. Morris, MD

CONFLICTS OF INTEREST

The author has no conflicts of interest to declare.

Sidebar

ABOUT THE AUTHOR

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DETAILS

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Rural Population Health and Aging: Toward a Multilevel and Multidimensional Research Agenda for the 2020s

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ABSTRACT (ENGLISH)

The unique health and aging challenges of rural populations often go unnoticed. In fact, the rural United States is home to disproportionate shares of older and sicker people, there are large and growing rural-urban and withinrural mortality disparities, many rural communities are in population decline, and rural racial/ethnic diversity is increasing. Yet rural communities are not monolithic, and although some rural places are characterized by declining health, others have seen large improvements in population health. We draw on these realities to call for new research in five areas. First, research is needed to better describe health disparities between rural and urban areas and, because rural places are not monolithic, across rural America. Second, research is needed on how trends in rural population health and aging are affecting rural communities. Third, research is needed on the ways in which economic well-being and livelihood strategies interact with rural health and aging. Fourth, we need to better understand the health implications of the physical and social isolation characterizing many rural communities. Finally, we argue for new research on the implications of local natural environments and climate change for rural population health and aging.

FULL TEXT

The unique health and aging challenges of rural populations often go unnoticed. In fact, the rural United States is home to disproportionate shares of older and sicker people, there are large and growing rural-urban and withinrural mortality disparities, many rural communities are in population decline, and rural racial/ethnic diversity is increasing. Yet rural communities are not monolithic, and although some rural places are characterized by declining health, others have seen large improvements in population health. We draw on these realities to call for new research in five areas.

First, research is needed to better describe health disparities between rural and urban areas and, because rural places are not monolithic, across rural America. Second, research is needed on how trends in rural population health and aging are affecting rural communities. Third, research is needed on the ways in which economic well-being and livelihood strategies interact with rural health and aging. Fourth, we need to better understand the health implications of the physical and social isolation characterizing many rural communities. Finally, we argue for new research on the implications of local natural environments and climate change for rural population health and aging.

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Population aging is among the most important trends in 21st-century America and is occurring more rapidly in rural than in urban areas.1 The rural United States is also home to disproportionate shares of people in poor health whose collective health profile has worsened over the past 40 years.2 Fresh approaches are needed to understand and address these trends and their drivers, including the multilevel and multidimensional roles of local demographic, economic, service, natural, and policy environments. Here we describe three major demographic trends with implications for rural population health and aging and propose five promising areas for research related to these trends.

The rural United States is characterized by three major population health and aging trends that have implications for research in the 2020s. The first is large and growing rural-urban disparities in health and mortality. After decades of lower mortality rates in rural than in urban areas, a rural mortality penalty emerged in the 1980s and has grown each decade.2 Smaller improvements in cardiovascular and cancer mortality in rural areas and increases in drug, alcohol, and suicide deaths contributed to the growing gap.

Nationally, rural areas have lower life expectancy3 and higher mortality rates from most top causes of death,3,4 report worse self-rated physical and mental health,4,5 and have higher rates of most chronic diseases,4,6 activity limitations,4,6 and chronic pain.6 In addition, smoking,4,6 poor diets,6 and physical inactivity4,6 are more likely among rural adults. Despite observing a reduction in the magnitude of the rural penalty in older adult cognitive functioning between 2000 and 2010 (stemming from improvements in educational attainment), Weden et al. found a persistent disadvantage in cognitive functioning among rural adults relative to their sociodemographically similar urban peers.7

The second trend is depopulation. Reflecting chronic outmigration of working-age adults and natural population decreases (more deaths than births), nonmetropolitan counties were home to 26.3% of the US population in 1980 but only 14% as of 2017. This raises questions about the implications for the people and places left behind.

The third trend is increasing diversity. Members of racial/ ethnic minority groups account for about 20% of the US rural population, are often geographically isolated, and face significant health challenges, including race-specific rural health and mortality penalties.8,9

Ofcourse, places are dynamic, their composition and contexts shift over time, and rural health disparities are not static. Whereas some rural areas have suffered from a remarkably persistent mortality disadvantage over time, others have experienced vast improvements.2 Rural areas have diverse economies, health and social service infrastructures, natural amenities, and capacities to cope with economic and environmental stressors.

Health outcomes vary drastically across different types of rural areas. Although some rural areas are characterized by persistent poverty, chronic joblessness, out-migration, and poor health, not all rural people and places are in dire straits. Some rural areas have demonstrated tremendous resilience and are in the midst of a demographic and economic renaissance.10 However, explanations for why some rural places and populations are flourishing while others are floundering remain unclear. Moreover, research on intersections between race, rurality, and health and how these factors vary across different US regions (e.g., Appalachia, the Delta South, the Black Belt, the Rio Grande Valley, and Native American regions) remains sparse.

The urgency of examining these trends has been heightened by the macro-level economic, environmental, policy, and health shocks and stressors that have buffeted rural areas since the turn of the 21st century. Among the most recent of these are the opioid epidemic, which has manifested differently in rural than in urban areas,11 and the COVID-19 pandemic, in which the older age composition and higher prevalence of several chronic health conditions place some rural communities at risk for high COVID-19 fatality rates.12 New approaches are needed to understand how these factors affect and are in turn affected by health and aging trends in the rural United States. As noted, here we describe five promising areas for future investigation.

AN AGENDA FOR THE 2020s

Cutting across the five areas is explicit attention to how "place" (the characteristics ofthe contexts in which people live) influences health and aging trends, affects different groups, and changes overtime. Slow-moving stressors over the past 40 years (e.g., industrial transformation, rising income inequality, immigration, climate change) and short-term economic, policy, environmental, and health shocks (e.g., the recession, the Affordable Care Act, natural disasters, the opioid epidemic, COVID-19) affect rural people and places differently than their urban counterparts as a result of greater concentrations of vulnerable groups, less diversified economies, thinner institutions, and fewer local services in rural areas. Yet, rural places are not monolithic, and one cannot assess problems or develop adequate solutions without recognizing that rural settings are fundamentally different from each other.

DISPARITIES BETWEEN AND WITHIN RURAL AREAS

There is no shortage of research on the rural mortality penalty. However, the causal mechanisms (e.g., compositional, behavioral, structural, policy) driving worse rural health and the widening or narrowing of disparities over time are not clear. Moreover, mental health and cognitive health receive less attention than outcomes and are promising areas for future rural health research. For example, the link between rural environmental conditions and physical health is clear.13 However, we know very little about how contextual conditions (e.g., pollution, crime, security, walkability, aesthetics) affect mental and cognitive health among rural populations.

Beyond rural-urban disparities, more attention is needed on within-rural disparities in health and aging. Although research has moved beyond the rural-urban binary, often overlooked is that rural places are not monolithic. The smallest and most remote rural areas are not always the worst off.14 For example, life expectancy is much lower and has begun to decline in parts of rural Appalachia and the East South Central region while showing remarkable improvement in rural parts of the MidAtlantic, Great Plains, and Pacific.3 Moreover, although all-cause mortality rates are higher among rural than urban Blacks and Hispanics, certain cause-specific mortality rates (e.g., drug poisonings) are much lower among rural than urban Blacks.15 These realities push us to reconceptualize how we think about rural disadvantage so that we can better understand why some rural populations and places appear to be more resilient than others against declining life expectancy and rising morbidities.

Research on the intersections between aging, health, rurality, and different dimensions of vulnerability (e.g., race/ethnicity, nativity, gender, veteran status) is also sparse. Although there is a large body ofliterature on health disparities by race/ethnicity, socioeconomic status, and place, these factors are often treated as independent vulnerabilities, whereas the intersections between them may be particularly important for health outcomes.16

National studies tend to be prioritized in both academic journals and the media, but there are increasing regional disparities in multiple health outcomes. These regional patterns, including how they vary across demographic and socioeconomic status groups, need much more attention.17

PLACE-LEVEL EFFECTS OF RURAL HEALTH AND AGING TRENDS

Second, new research is needed to identify the implications (e.g., social, economic, political, and infrastructural) of rural health and aging trends. We know a great deal about the determinants of rural population change,18 but research on the effects of this change on rural health and well-being lags behind. There is much we need to know. For example, the increase in the rural elderly population will place greater demands on the already-underresourced rural health care infrastructure. Simultaneously, rural health care providers are themselves aging and retiring, and the remaining working-age population is insufficient to replace them.19 This has implications for rural elderly and nonelderly individuals alike.

Aging populations will also require infrastructure adaptation to deal with accessibility issues. Such accommodations are more expensive in rural places where infrastructure is older and there is less money to support upgrades.19

Recent health challenges, such as the opioid crisis and COVID-19, raise new questions about the service needs of older rural populations. More rural grandparents are raising their grandchildren than at any point in recent history partly because their own children are addicted to drugs, are incarcerated, or have died from overdose.11 This may have important but as of yet unaddressed implications for rural families and rural communities, where economic resources and housing for older populations are limited.

There are also different types of aging rural areas. Some rural counties have higher concentrations of older adults because of persistent young adult out-migration. In population-loss places, tax bases, businesses, and services for older residents have declined.19 In these areas, costof-living differentials often "trap" elders in place because theirnest eggs (e.g., home values, pensions, 401(k)s) were built in rural locales with substantially less income than necessary to support them in an urban area. versely, aging rural counties are growing in size as retirees and preretirees target them as places to live.10 Although retirement and natural amenity migration can have positive economic, social, and civic effects on communities, health and other services are often unavailable for older populations, and the in-migration of affluent retirees can lead to residential segregation and resource neglect of low-income and young adults.20 Rural residents already face affordable housing shortages, a reality that is likely to intensify with retirement and amenity migration. Immigration also provides opportunities for rural growth and renewal. Hispanic population growth has reversed or ameliorated population declines and "youthified" many rural places. Yet some rural communities struggle to accommodate the needs of this population, and rural Hispanics in new destinations are economically and residentially disadvantaged relative to their urban and established destination peers. Innovative data and analytic approaches are needed to understand the place-level effects of health and aging trends in these different types of rural areas. RURAL LIVELIHOOD STRATEGIES AND WELL-BEING Third, novel research is needed to understand relationships between rural economic livelihood strategies, economic well-being, and health. Official poverty measures do not capture the lived experiences of economically struggling rural people and families. Combining income from earnings, safety net programs, informal work, and other sources is common in rural areas, but we know little about how livelihood strategies have changed over time, vary by demographic group and place, and affect adult health. Underemployment is more common among rural workers.21 Such employment disadvantages carry over into older ages, but what are the implications of employment hardship in midlife for later-life health? Informal work is also more common in rural areas and can be critical for economic survival. More needs to be known about informal work in the rural economy and among rural elders and how it relates to population health. Disproportionate and rising shares ofrural workers are unable to achieve economic security and have fallen into a growing pool of the "working poor."22 This calls for a better understanding of the nature of working poverty and underemployment among rural elders. Although impoverished elders are more likely to be considered "deserving poor," we need to better understand the role of safety net programs in rural elderly households. Relatedly, research on the effects ofvarious federal and state safety net policy changes on rural health is also scant. Safety net policy changes may have unintended consequences because rural realities are often ignored in policy formulation. For example, a greater share of rural residents are covered by public insurance, making changes to Medicare or Medicaid policies (e.g., ing rates) consequential to rural patients and providers. A larger share of uninsured rural residents live in states that did not expand Medicaid under the Affordable Care Act.13 These trends necessitate research on the differential effects of recent safety net policy changes to insurance coverage, provider supply, and subsequent health outcomes among rural populations. PHYSICAL AND SOCIAL ISOLATION Fourth, research is needed to identify the influence of physical and social isolation (including access to health care and other necessary service infrastructure) on healthy aging in different rural areas. Broadly, the extant literature shows that many health- and aging-related services are simply less available in rural communities,13,20,23 but we know very little about how lack of access to these services actually affects specific outcomes in rural areas, including premature mortality, morbidity, and cognitive aging. For example, how does scarcity of diagnostic and pharmacy services affect outcomes related to Alzheimer's disease and related dementias? We also know little about the health implications of scarcity in other potentially important services and infrastructure in rural areas, including mental health, housing, legal, and end-of-life care services. Informal caregiving in rural areas can be critical for providers as well as recipients. Stronger community and social cohesion in some rural places may enable a variety of survival mechanisms and create an environment in which social entrepreneurship among elders can flourish. A common assumption is that rural residents have strong social relationships that substitute for market- or public-sector resources, but rural elders face challenges when attempting to access assistance from their support networks.24 More studies are needed on the substitution effects of social capital in the face of service limitations.

ENVIRONMENTAL CONDITIONS
AND CLIMATE CHANGE Finally, research
is needed to identify where and how exposures to environmental change and hazards have affected rural population health and aging. Environmental changes can occur suddenly (e.g., floods, hurricanes) orgradually (e.g., climate change, natural resource extraction). Importantly, environmental shocks and stressors expose and often exacerbate existing health inequities. This issue is especially relevant to rural people and places given the unique relationships between the environment and livelihoods in rural areas and the intensification and concentration of corporate agricultural production and natural resource extraction.13 The uneven
distribution of resources and infrastructure necessary for effective planning, adaptation, and mitigation makes studying the effects of environmental shocks and stressors on health and aging paramount for rural America. Research must identify specific rural populations at risk and potential responses to such risk. Resilience is also important to consider. Research shows that community-based groups with appropriate ties, resources, and other capital can help reduce vulnerability in the face of environmental shocks and stressors, including in rural communities with persistent poverty and disinvestments.25 Research is needed on the challenges facing resourceconstrained rural communities and their ability to respond to respond to environmental shocks and stressors. We also need to stand how characteristics lead to greater vulnerability or resilience and the recovery challenges faced by the elderly and other vulnerable groups. CONCLUSION
Population
health and aging trends are driven by multilevel and multidimensional factors, including place-level population composition and local economic, service, social, natural, and policy environments. Rural areas are more demographically and economically diverse than ever before, and we cannot assess problems, develop policies, or deliver adequate resources to rural areas without recognizing these fundamental differences and without a clearer understanding of the exposures shaping health and aging among different rural populations. In
addition to asking new questions, future rural health and aging research should assess what data resources exist or should be developed to answer these questions. Ultimately, better understanding the multilevel and multidimensional causes and consequences of contemporary trends in rural health and aging requires asking new questions, building interdisciplinary collaborations, recruiting and training new scholars with diverse perspectives, developing data and analytic resources, and aggressively disseminating findings to policymakers and the public.
CONTRIBUTORS

Sidebar

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COVID-19: Widening Health Disparities Among Pediatric Populations

Anonymous

ProQuest document link

ABSTRACT (ENGLISH)

General pediatricians special-ize in preventive medicine-we vaccinate, provide anticipatory guidance, support parenting, perform developmental screen-ing, and connect families with needed services. Our constant goal is to ensure that all children achieve their fullest potential and live healthy, productive lives regardless of income, race, or immigration status. In these un-precedented times, the focus across all medical specialties has shifted from preventive to reac-tive medicine. In the field of pediatrics, we have restructured all of our primary care services to prevent further spread of COVID-19 among our patients and their families. Although children are not sickened by COVID-19 at the same rate as adults, the long-term impact of the pandemic will be all-encompassing and will have detrimental effects on children's health and development, espe-cially for at-risk populations such as immigrant and minority fam-ilies, children with develop-mental delays, and children who live below the poverty line.

FULL TEXT

AJPH COVID-19

COVID-19: Widening Health Disparities Among Pediatric Populations

|é|| See also the AJPH COVID-19 section, pp. 1344-1375.

General pediatricians special-ize in preventive medicine-we vaccinate, provide anticipatory guidance, support parenting, perform developmental screen-ing, and connect families with needed services. Our constant goal is to ensure that all children achieve their fullest potential and live healthy, productive lives regardless of income, race, or immigration status. In these un-precedented times, the focus across all medical specialties has shifted from preventive to reac-tive medicine. In the field of pediatrics, we have restructured all of our primary care services to prevent further spread of COVID-19 among our patients and their families. Although children are not sickened by COVID-19 at the same rate as adults, the long-term impact of the pandemic will be all-encompassing and will have detrimental effects on children's health and development, espe-cially for at-risk populations such as immigrant and minority fam-ilies, children with develop-mental delays, and children who live below the poverty line.

Before COVID-19, there were already prevalent health disparities throughout the United States, leaving children from high-risk populations without preventative services ranging from vaccinations to physical therapy. The pandemic is having a disproportionate impact on minority patients, with nation-wide data showing high rates of COVID-19 in Black, Hispanic, and immigrant communities.1 These populations will continue to be affected after the pandemic because of our fractured social and economic support systems. We must be prepared for the downstream effects of social dis-tancing on families and advocate expanded services to assist these marginalized populations.

Discrepancies in immuniza-tion rates across the United States highlight existing health care disparities that may worsen dur-ing and after the COVID-19 pandemic. Nationwide vaccina-tion rates for children younger than 24 months are consistently lower for uninsured children or children who are on Medicaid, live in rural areas, or live below the poverty line.2 Clinic regula-tions that promote social dis-tancing during the pandemic are likely to reduce vaccination coverage for all populations. Many pediatric clinics have set age cutoffs to allow the youngest children to complete their pri-mary vaccine series, but many parents are afraid to bring chil-dren to these appointments. Since the 2014-2015 Ebola epidemic, which similarly over-whelmed hospital capacity and paused routine health services, low immunization rates have been sustained in the post-epidemic years.3 Children in the United States who already lack adequate access to health care because of socioeconomic status, insurance, or geographic location are at risk for similar long-lasting declines in vaccine coverage.

To respond to this decline in vaccinations, pediatricians and public health officials can partner together to target outreach to-ward these at-risk populations. Some clinics have implemented drive-through vaccinations, which is an elegant solution yet alienates large populations of people who do not have cars. We can implement mobile vaccina-tion campaigns to bring immu-nizations into geographically isolated populations and neigh-borhoods with high proportions of patients who are on Medicaid or are uninsured. We should also advocate appropriate regulation ensuring up-to-date vaccination status before children reenter schools and should consider on-site vaccinations at schools to prevent delays in education.

Children with developmen-tal delays and special needs are uniquely in danger of falling behind their peers during this time because ofprolonged school closures and interrupted thera-pies. As the pandemic is raging on, children's brains and bodies are continuing to mature, but many are doing so without needed support to reach their fullest neurodevelopmental po-tential. The Early Intervention Program (EIP) in New York City provides home speech, physical, and occupational ther-apy for children aged zero to three years with developmental delays, but at-home services have been paused. Prior to COVID-19, lack of program funding and bilingual therapists caused stark disparities in access to resources across the city. Chil-dren referred to the EIP are entitled to an evaluation within 30 days of referral; however, children in low-income and primarily Spanish-speaking neighborhoods are significantly less likely to be evaluated within this time period and ultimately receive services.4 Once routine

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well child care resumes, there will likely be a significant influx of referrals to services such as the EIP, as we will be catching up from months of lower detection rates for developmental delays. Children in these low-income neighborhoods and bilingual households will continue to have extreme difficulty accessing these services when the system is flooded with referrals. As pedia-tricians, we must advocate in-creased funding for services such as the EIP around the country so that these programs can employ more therapists and accommo-date higher patient loads. Pediatricians have vastly ex-panded telemedicine services in the place of routine well child visits to monitor developmen-tal delays. Although telemedicine is an imperfect solution for de-tecting delays and abnormalities on examination and is difficult for families with limited access to the internet and other technology, it is currently our best tool, and it will help families engage in their children's health care to mitigate loss to follow-up. Medicaid has recently updated its policies on telemedicine to expand coverage to include virtual well child visits and behavioral therapies, though specific regulations vary by state. Pediatricians should stay up to date on these policies and endorse continued expansion of tele-medicine coverage at the state level to reach as many children as possible during and after the pandemic.

Low-income and minority families who are impacted heavily by COVID-19 are not only struggling with disease, but also loss of jobs, housing, and stable income. These child-ren and families are dispropor-tionately affected by food and housing insecurity because ofthe pandemic. With schools closed, children are no longer receiving free or reduced-price lunches at school, leading to increased food insecurity. Pediatricians must continue to prioritize food insecurity screening at every in-person or virtual visit and identify available resources to help support families. Existing programs such as the Special Supplemental Nutrition Pro-gram for Women, Infants, and Children (WIC) and the Sup-plemental Nutrition Assistance Program (SNAP) will likely be overwhelmed with the vast in-crease in unemployment, and policymakers should work to expand funding for these services.

With heightened stress from disease and loss ofincome among the guardians of our most vul-nerable children, we are con-cerned about our patients' increased risk of trauma. We are already seeing startling increases in domestic abuse reports and suspected child abuse cases.5 School officials and teachers are the most common source of re-ports to child protective services; therefore, with school not in session, children not only lack a respite from potentially danger-ous situations, but these acts are more likely to go unreported.5 The impact of toxic stress has been well described in the ad-verse childhood experiences studies, and there is no doubt that the uncertainty and fear of this pandemic will prolong stressful environments for children and their families. Pediatricians should be trained on supporting families through these trying times and should consider add-ing adverse childhood experi-ence screening to their regular practice.

Much of what we do as pe-diatricians may now be on hold to flatten the curve and support our colleagues on the front lines, but there are many ways to support families during this time and to prepare to address their needs after a pause in services. We cannot underestimate our voice in advocacy to promote legisla-tion for expanded support for at-risk communities through programs such as the EIP, WIC, and vaccination campaigns. We must work with public health officials and policymakers to plan targeted interventions in these communities. Once we are able to practice preventive medicine again, pediatricians will be at the forefront of the postpandemic response. Â1P4

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CONTRIBUTORS

S.B. Gati and H.M. Bloomhardt con-ceptualized and created the outline, draft-ed the initial manuscript, and reviewed and revised the final manuscript. E.A. McArthur contributed to the concept and reviewed and provided significant additions and revisions to the manuscript. All authors approved the final manuscript and are accountable for all aspects of the

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Toward Optimal and Equitable Rural Health

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ABSTRACT (ENGLISH)

When this AJPH special section on rural health is published, the United States as a nation, the individual states, local communities, and US citizens will still be addressing and be affected by the COVID-19 (coronavirus disease 2019) pandemic, which will have resulted in more than two million cases of COVID-19-the disease caused by SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2)-and more than 115 000 deaths in the United States. The pandemic has made obvious the importance and value ofa competent, adequately resourced public health system and competent, adequately resourced hospital care, particularly critical care. The pandemic has also exposed the weaknesses and fragmented nature of the public health system and infrastructure in the United States and the medical care delivery system and infrastructure, which should, but do not, function as virtually one unified health system.

FULL TEXT

When this AJPH special section on rural health is published, the United States as a nation, the individual states, local communities, and US citizens will still be addressing and be affected by the COVID-19 (coronavirus disease 2019) pandemic, which will have resulted in more than two million cases of COVID-19-the disease caused by SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2)-and more than 115 000 deaths in the United States. The pandemic has made obvious the importance and value ofa competent, adequately resourced public health system and competent, adequately resourced hospital care, particularly critical care. The pandemic has also exposed the weaknesses and fragmented nature of the public health system and infrastructure in the United States and the medical care delivery system and infrastructure, which should, but do not, function as virtually one unified health system.

WHAT THE PANDEMIC HAS WROUGHT

The pandemic has resulted in rapid adoption of and transition to digital approaches to public health (contact interviewing and contact tracing) and to the provision of clinical care using telehealth platforms and modalities. Reimbursement mechanisms, long proposed but not acted on, were quickly brought online to enable payment for telemedicine. That quick transformation and capacity building has not, however, made up for the threat to the economic viability of the large and small US health systems. The stay-at-home orders and recommendations and the complete lockdown of significant parts of the economy (including self-imposed and guidance-based limits to elective medical services) have had a detrimental economic impact on ambulatory care practices, specialty and diagnostic care, oral health care, and hospital-based care, and, arguably, detrimental health effects on individuals and communities. In addition, health departments diversion of staff attention to COVID-19 has contributed to delays and short staffing of other public health activities.

WHY THE FOCUS ON COVID-19?

So, why spend two paragraphs on the COVID-19 global pandemic rather than start with rural health in a rural health editorial for a special AJPH section on rural health? There are three reasons: COVID-19 changes everything, the weaknesses exposed because of COVID-19 have long been known to persons studying rural health in the United States, and the solution set to address rural health challenges in the United States will be informed by the experience of responding to the COVID-19 pandemic.

One recent report1 on rural health is representative of the attention to rural health in just the past 12 months. It is important to note that approximately 20% of persons living in the United States reside in rural areas. That is approximately 60 million persons- which is approximately as many people as in the population ofa few individual countries, notably Italy, Tanzania, and South Africa. The 60 million persons in the rural United States are, of course, distributed across 3000 counties in 50 states and tribal lands. The 60 million are heterogeneous and diverse, and within the heterogeneity, there is even more heterogeneity (including race/ethnicity) by region, state, and county. In addition, compared with persons living in the nonrural United States, those in the rural United States, in general, are older and have lower household income, lower overall educational attainment, a higher burden of chronic disease risk factors and chronic disease, and less access to medical care because of a lack of availability, long distances to care, and inadequate health insurance status.

The disproportionality of individual health factors in the rural United States suggests we need uniquely rural-focused solutions. Interestingly, though, these same types of factors have contributed to the disproportionality of COVID-19 among essential workers and to the disproportionality of severe and fatal COVID-19 among the elderly and those with underlying medical conditions in all of the United States.

The deficiencies in public health and clinical care (primary care and hospital care, in particular) infrastructure and systems existed in the rural United States before SARS-CoV-2; however, COVID-19 clusters and hot spots have made visible to many the weaknesses in rural public health and the limitations of sparse clinical care capacity to optimally conduct testing and contact tracing, on the one hand, and to deliver quality medical care to all (including adequate intensive care unit bed and staff capacity and availability of ventilators), on the other.

Solutions have been deliberated, proposed, and, to some extent, initiated on the rural health front. However, in this time of COVID-19, as we look forward to what the US health and health care ecosystem should look like and how it operates in a continued COVID-19 or post-COVID-19 world, there is an opportunity, a window, ifyou will, to engage in the reckoning to redesign and adequately support and sustain (with appropriate levels of funding and decisionmaking authority) a new health and health care system that optimally serves persons living in the rural United States.

The deliberation and redesign should include capacity for appropriate convening, governance, assessment, planning, and evaluation at the local, state, regional, tribal, and federal levels. In a digital health world, appropriate technology and trained staff for public health surveillance, disease control, telemedicine, and telehealth must be considered and prioritized. The workforce must be composed of new multidisciplinary, diverse, cross-sectoral teams that deploy approaches to address health issues with population-based, nonclinical strategies that pay attention to socioeconomic, environmental, and behavioral factors that promote health, achieve health equity, and prevent disease. The teams must also provide quality clinical care, which includes assessing social issues, counseling for healthy lives, delivering vaccinations and other preventive services, and diagnosing and managing diseases.

TRANSFORMING HEALTH THROUGH PREVENTION

This special section of AJPH will add to the collective knowledge and understanding of rural health in the United States and will propose a set of comprehensive solutions. In addition to the special section public health practitioners, preventive medicine physicians, social services professionals, other practitioners, and researchers must be at the tables in the "never again" meetings organized to transform the health and health care systems in the rural United States in addition to the United States in general. Preventive medicine brings the perspective of population health-broadly or narrowly defined and addressed by government agencies, health plans, and health systems-and the understanding of structures, tools, processes, policies, resources, and governance needed to achieve optimal and equitable health for all. >4jPI-l

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CONFLICTS OF INTEREST

The author has no conflicts of interest to disclose.

Sidebar

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The Intergenerational Cycles of Rural Health

Wykoff, Randy, MD, MPH, TM [1] [1] College of Public Health and director of the Center for Rural Health Research, East Tennessee State University, Johnson City

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ABSTRACT (ENGLISH)

This issue of AJPH provides both a somber assessment of the challenges of rural health in America and several glimmers of hope for the future. The articles and commentaries in this issue provide a valuable description of the status of health in rural America that will resonate with anyone who has been working in the field, and will benefit those in nonrural areas who wish to obtain a better understanding of rural health. It may also help nonrural readers better understand, more generally, their rural counterparts.

FULL TEXT

This issue of AJPH provides both a somber assessment of the challenges of rural health in America and several glimmers of hope for the future.

The articles and commentaries in this issue provide a valuable description of the status of health in rural America that will resonate with anyone who has been working in the field, and will benefit those in nonrural areas who wish to obtain a better understanding of rural health. It may also help nonrural readers better understand, more generally, their rural counterparts.

CREATING A NEW CENTER: MESSAGES FROM THE FIELD

In the process of establishing the new Center for Rural Health Research at East Tennessee State University, I spoke with about 100 rural health leaders-ranging from the presidents and CEOs of national professional organizations to elected officials, state-level leaders, and front-line workers. Although each had very specific, and helpful, perspectives on the challenges facing rural America, two consistent messages began to emerge.

The first was that rural America has significant resources that can be applied to addressing their health challenges. This fact is clearly reflected in this issue, with articles ranging from the use of telemental health as reported by Patel et al. (p. 1308) to buyback programs for opioids reported by Liu et al. (p. 1318), and from Buys and Rennekamp's report (p. 1300) on the use of extension services to Palma et al.'s article (p. 1304) on the use of mobile free clinics. Meit and Knudson (p. 1281) appropriately refer to these strengths as "pride, independence, and creativity." It is noteworthy and reassuring that these resources transcend geography, as reflected in the fact that the authors of these articles and commentaries are located in 18 different states.

It is abundantly clear that across rural America, there are people and organizations that are dedicated to improving the lives of their rural neighbors. Frequently, they do not need outside "experts," nor do they usually want, or need, "the pros from Dover." They do sometimes need ideas, support, and especially resources, and this issue of AJPH provides some exciting starting points for collaboration.

The second recurring message that emerged from my discussions, however, was more somber and worrisome than the first. Consistently, I heard that many of the challenges facing rural America are worsening-either in absolute terms or compared with the rest ofthe country. Leider et al. (p. 1283) clearly present this disparity, and Probst et al. (p. 1325) document how these challenges are even worse among racial and ethnic minorities.

What is clear from Beatty et al.'s review (p. 1293) of funding challenges facing rural health departments, from DuPre et al.'s review (p. 1332) of the interrelationship ofone epidemic (opioid addiction) with another (hepatitis A), and Kozhimannil et al.'s study (p. 1315) of obstetric services in rural hospitals, is that many parts of rural America are seeing a slow downward spiral, where, incrementally and over time, a variety of factors are combining to further erode the fragile health status of rural Americans, especially for those living in the poorest and most isolated areas.

CONVERGENCE OF SOCIAL FACTORS

In the Center for Rural Health Research, we have come to believe that the greatest challenge facing rural America is the confluence of four social vectors: poverty, educational underachievement, poor health behaviors, and lack of access to health care. These four factors have produced an intergenerational cycle in rural America that -sometimes slowly and sometimes more rapidly-is producing widening gaps between rural America and the rest of the country.

1. In terms of poverty, there are two overarching realities that affect Americans living in rural areas. First, over the past 50 years, the gap between the wealthiest and the poorest Americans has been widening consistently. In 2017, the ratio between the median household income for the top fifth of Americans compared with the bottom fifth was more than 50% wider, in constant dollars, than it was in 1967 (https://bit.ly/2WfB0ZL). This is exacerbated by the fact that an American who is born to parents living in the bottom fifth ofthe income range is 10 times more likely to remain in that bottom fifth for his or her lifetime than to reach the top fifth (https://bit.ly/32dAyyN).
2. It is well documented that parents' educational achievement is a significant predictor ofthe educational achievement of their children1 (https://bit.ly/ 3gSNA90). Although we have seen impressive improvements in the rates of high school completion, there remain significant gaps in postsecondary education. The gap is therefore widening between areas in which parents have lower educational achievement- such as in many parts of rural America-and areas where parents have higher educational achievement.
3. Like poverty and educational underachievement, poor health behaviors are seemingly passed from one generation to the next. In parts of the country with higher rates of poverty and lower educational achievement, there are already higher levels of smoking, obesity, sedentary lifestyles, and other negative health behaviors, compared with wealthier parts of the country.2 Children of parents who smoke are more likely to become smokers.3 Children of parents who are obese are more likely to be obese.4 Over the generations, this cycle results in many rural Americans engaging in poorer health habits than their nonrural counterparts.
4. It is well documented that many rural areas lack the number and range of health care providers found in nonrural areas (https://bit.ly/ 3j00e84). As economic factors cause more and more rural hospitals to close, it becomes harder to retain existing health care providers and even harder to recruit new ones. Even when rural hospitals can stay in business, the profit margin is often tenuous and extremely sensitive to any reduction in payment or increase in demand for services. Factors as different as the opioid crisis and the pandemic of COVID-19 can have a devastating impact on rural hospitals and rural providers.5

Although they are often described independently, these four factors are inexorably intertwined. When a rural hospital closes, for example, there is a strong residual impact on the host community, making it harder to recruit new businesses and retain existing ones. This can dramatically affect the host community's tax base, which, in turn, affects investment in education and social programs. Loss of jobs, reduced tax base, and lower investment in education exacerbate poverty, which itself is associated with poor health behaviors and poor health outcomes, and the cycle goes around and around (https://bit.ly/3j1eltV).

INTERRUPTING THE VICIOUS CYCLES

The overarching challenge facing all of us concerned with improving health in rural America is summarized in a single question: "How can we interrupt the intergenerational cycles of poverty, educational underachievement, poor health behaviors, and lack of access to health care?"

Nonrural Americans are sometimes perplexed by the behaviors and actions-especially the political activities-of rural Americans. When seen through the lens ofthese intergenerational cycles, however, the behavior of rural America can start to make more sense. Anyone who has been on the negative end of widening wealth gap, a worsening education gap, persistence of poor health behaviors, and a dwindling of health care resources, would be forgiven for being impatient in their desire to see significant and radical change.

Fortunately, there are many individuals and organizations- represented by the authors ofthe articles and commentaries in this issue, and many others-who are leading a nationwide effort to help rural Americans produce change in their own communities and, ultimately, interrupt the intergenerational cycles that so seriously threaten rural America.

Randy Wykoff, MD, MPH &TM

CONFLICTS OF INTEREST

The author has no conflicts of interest to declare.

Sidebar

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Health Disparities of People Living in the Community on Probation: A Call to Action for Community and Public Health Systems

Anonymous

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FULL TEXT

AJPH EDITORIALS

Health Disparities of People Living in the Community on Probation: A Call to Action for Community and Public Health Systems

|g|| See also Hawks et al., p. 1411.

The criminal justice system in the United States reaches far beyond the people behind bars. In fact, the majority of those with criminal justice involvement are in the community on probation or parole. Black and Brown people and those who are so-cioeconomically disenfranchised are disproportionately affected by the criminal justice system as a result of decades of unjust poli-cies. With 2.2 million people incarcerated in the United States and 11 million jail admissions yearly, mass incarceration is an urgent public health issue. There is robust evidence that incarcer-ation has adverse effects on the health of individuals, families, and communities. People who have been incarcerated have a higher prevalence of chronic health conditions,1 such as heart disease, asthma, and certain can-cers such as cervical and lung cancer; high rates of adverse substance use outcomes2; and a very high risk of death after release from incarceration.2 Nearly half of Americans have had a family member incarcerated, and this experience has been associ-ated with increased cardiovas-cular health disparities, increased poverty, and worse health for children with incarcerated par-ents.3 Mass incarceration also leads to persistent health and social inequalities and systemati-cally disengages communities from civic involvement.4

What is less understood is the health impacts of other forms of the criminaljustice system such as probation. Despite the reality that 3.6 million people are on pro-bation annually and that proba-tion has been touted as an alternative to incarceration, rel-atively little research has been conducted on the intersection of probation and health. One recent study found that people on probation died at a rate more than three times higher than that of people incarcerated in jail and twice as high as those in the general public.5 The causes of death and associated chronic health conditions in that study were not measured.

In this issue of AJPH, Hawks et al. (p. 1411) characterize the chronic physical and mental health conditions and health care utilization patterns of US adults on probation. They used data from a nationally representative survey, the National Survey of Drug Use and Health, which has been used previously to study

chronic health conditions and in-surance access in people with criminaljustice involvement. They found that, compared with the general population, for those on probation there was a higher odds of having one or more chronic health condition (e.g., chronic obstructive pulmonary disease, hepatitis, HIV/AIDS, heart dis-ease, kidney disease, a recent sex-ually transmitted infection), having a behavioral health condition, and reporting poor health. Those on probation had lower ambulatory care and higher acute care utiliza-tion. They found that those on probation had a 20% lower odds of using outpatient medical services and higher odds of receiving care in emergency departments (80%) or through hospitalizations (70%) than the general public, regardless of insurance status.

Their findings demonstrate that enrollment in Medicaid may

provide insurance coverage but does not ensure access to or en-gagement with health care ser-vices. This is likely attributable to additional barriers to care that people with criminal justice in-volvement face, such as dis-crimination in health systems, low trust ofhealth care providers, and the need to navigate complex health systems. People have competing needs that they must prioritize while also contending with the stress of being under probation surveillance, such as employment, housing, and sub-stance use recovery, with health care often falling last on the list.

COMMUNITY HEALTH

SYSTEM IMPLICATIONS

The findings of Hawks et al. underscore that criminal justice involvement in all forms is a social and structural determinant of health. High rates of chronic conditions and utilization of acute care services signals sys-temic inequities in health systems for people on probation. Given that all probationers are living in the community, there is a clear call to action for community and public health systems to imple-ment interventions that are spe-cifically focused on addressing

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the unique health needs of people on probation. Yet, from our experience working with community and public health systems across the United States to improve health care for people with criminal justice in-volvement, few have the ca-pacity to do that.

Most health systems do not routinely screen patients for his-tories of recent incarceration, let alone other criminal justice in-volvement such as probation. Similarly, most health plans, in-cluding Medicaid-managed care plans, do not query members about criminal justice involve-ment and therefore fail to identify opportunities to provide case management and social service supports to this population. Community clinics often lack services that meet the needs of people with criminal justice in-volvement, such as integrated behavioral health services, trauma-informed care, and legal services. Health systems either have few relationships with criminal justice entities or lack experience in creating effective partnerships. Partnerships that are overly coordinated with the criminal justice system (e.g., having clinics set up in probation offices) run the risk of replicating systems of control and further eroding the low trust patients with criminal justice involve-ment have in the health system.

The vast majority of com-munity health systems have been historically underfunded to adopt evidenced-based programs that may help. Culturally relevant health care services that include embedding staff with lived ex-perience into primary care teams have been shown to improve engagement in primary care, re-duce acute care utilization, and reduce probation violations among people with histories of criminal justice involvement.6

These types of primary care transformations could improve health outcomes for people on probation, but few sustainable funding mechanisms through Medicaid exist to support hiring community health workers, who are at the core ofthese programs. Also, most health systems infre-quently hire previously incarcer-ated people to work on health teams, despite evidence that people with criminal records can thrive in health system workplaces.

PUBLIC HEALTH IMPLICATIONS

The findings presented by Hawks et al. give rise to serious questions about the health and health care disparities of people on probation. To be sure, more research is required to understand the effect on people experiencing probation of the complex inter-section ofthe criminal justice and health systems. Yet, these effects cannot be ignored and should give us pause in accelerating probation as a benign alternative to incarceration.

Public health systems need to examine their role in perpetuat-ing health and social disparities created by policies ofthe criminal justice system. Community health systems too must ac-knowledge the inherent bias against people who have criminal justice system involvement7 and the inherent systemic racism in health system practices. Funding needs to be dedicated to building more robust systems that address the specific needs of all com-munity members affected by the criminal justice system and that are focused on promoting a broader vision of health and wellness. Additionally, successful system transformation requires that people affected by the criminal justice system are both leading and at the core of the work. This requires investment in educational and career devel-opment opment pipelines for people af-fected by the criminal justice system (e.g., prison and post-incarceration higher education initiatives) and health systems' commitment to valuing and supporting the lived experience ofpeople affected by the criminal justice system. In this time of parallel and deeply related movements of bipartisan support to end mass incarceration and a national reckoning with struc-tural racism in US institutions, there is an opportunity for public health leaders to demand and advance a new vision of justice that no longer causes or perpet-uates health and social disparities in communities that have been affected by the criminal justice system. ÂIPU Lisa B. Puglisi, MD Shira Shavit, MD CONTRIBUTORS The authors contributed equally to this editorial. ACKNOWLEDGMENTS L.B. Puglisi is partially supported by the Veterans Health Administration. We would like to acknowledge all our partners at Transitions Clinic Network sites, who are transforming health care systems to address the criminal justice system and systemic racism in their com-munities, and our funders, who make this work possible, especially the Langeloth and the California Health Care Foundations. Note. The content of this editorial is solely the responsibility ofthe authors and does not necessarily represent the policy or views of the Veterans Health Administration. CONFLICTS OF INTEREST The authors have no conflicts of interest to Med. 2018;16(6):549-551. September 2020, Vol 110, No. 9 AJPH Puglisi and Shavit

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DETAILS

Subject:	Ambulatory care; Cervical cancer; Primary care; Judicial system; Medicaid; Health care; Cardiovascular diseases; Health disparities; Social inequality; Community; Medicine; Community involvement; Racism; Crime; Public health; Imprisonment; Parole &probation; Coronary artery disease; Probation; Asthma; Poverty; Childrens health; Heart diseases; Lung cancer; Chronic illnesses; Criminal justice; Government programs; Editorials; Substance use; Clinics; Embedding; Community health care
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Intimate Partner Violence in Transgender Populations: Systematic Review and Meta-analysis of Prevalence and Correlates

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ABSTRACT (ENGLISH)

Background: Transgender individuals experience unique vulnerabilities to intimate partner violence (IPV) and may experience a disproportionate IPV burden compared with cisgender (nontransgender) individuals. Objectives: To systematically review the quantitative literature on prevalence and correlates of IPV in transgender populations. Search Methods: Authors searched research databases (PubMed, CINAHL), gray literature (Google), journal tables of contents, and conference abstracts, and consulted experts in the field. Authors were contacted with data requests in cases in which transgender participants were enrolled in a study, but no disaggregated statistics were provided for this population. Selection Criteria: We included all quantitative literature published before July 2019 on prevalence and correlates of IPV victimization, perpetration, or service utilization in transgender populations. There were no restrictions by sample size, year, or location. Data Collection and Analysis: Two independent reviewers conducted screening. One reviewer conducted extraction by using a structured database, and a second reviewer checked for mistakes or omissions. We used random-effects meta-analyses to calculate relative risks (RRs) comparing the prevalence of IPV in transgender individuals and cisgender individuals in studies in which both transgender and cisgender individuals were enrolled. We also used meta-analysis to compare IPV prevalence in assigned-female-sex-at-birth and assigned-male-sex-at-birth transgender individuals and to compare physical IPV prevalence between nonbinary and binary transgender individuals in studies that enrolled both groups. Main Results: We identified 85 articles from 74 unique data sets (n_{total} = 49 966 transgender participants). Across studies reporting it, the median lifetime prevalence of physical IPV was 37.5%, lifetime sexual IPV was 25.0%, past-year physical IPV was 16.7%, and past-year sexual IPV was 10.8% among transgender individuals. Compared with cisgender individuals, transgender individuals were 1.7 times more likely to experience any IPV (RR = 1.66; 95% confidence interval [CI] = 1.36, 2.03), 2.2 times more likely to experience physical IPV (RR = 2.19; 95% CI = 1.66, 2.88), and 2.5 times more likely to experience sexual IPV (RR = 2.46; 95% CI = 1.64, 3.69). Disparities persisted when comparing to cisgender women specifically. There was no significant difference in any IPV, physical IPV, or sexual IPV prevalence between assigned-female-sex-at-birth and assigned-male-sex-at-birth individuals, nor in physical IPV prevalence between binary- and nonbinary-identified transgender individuals. IPV victimization was associated with sexual risk, substance use, and mental health burden in transgender populations. Authors' Conclusions: Transgender individuals experience a dramatically higher prevalence of IPV victimization compared with cisgender individuals, regardless of sex assigned at birth. IPV prevalence estimates are comparably high for assigned-male-sex-at-birth and assigned-female-sex-at-birth transgender individuals, and for binary and nonbinary transgender individuals, though more research is needed. Public Health Implications: Evidence-based interventions are urgently needed to prevent and address IPV in this high-risk population with unique needs. Lack of legal protections against discrimination in employment, housing, and social services likely foster vulnerability to IPV. Transgender individuals should be explicitly included in US Preventive Services Task Force recommendations promotingIPVscreening inprimary care settings. Interventions at the policy level as well as the interpersonal and individual level are urgently needed to address epidemic levels of IPV in this marginalized, high-risk population. (AmJ Public Health. 2020:110; e1-e14. doi:10.2105/AJPH.2020. 305774)

FULL TEXT

Headnote

Background: Transgender individuals experience unique vulnerabilities to intimate partner violence (IPV) and may experience a disproportionate IPV burden compared with cisgender (nontransgender) individuals.

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Main Results: We identified 85 articles from 74 unique data sets (n_{total} = 49 966 transgender participants). Across studies reporting it, the median lifetime prevalence of physical IPV was 37.5%, lifetime sexual IPV was 25.0%, past-year physical IPV was 16.7%, and past-year sexual IPV was 10.8% among transgender individuals. Compared with cisgender individuals, transgender individuals were 1.7 times more likely to experience any IPV (RR = 1.66; 95% confidence interval [CI] = 1.36, 2.03), 2.2 times more likely to experience physical IPV (RR = 2.19; 95% CI = 1.66, 2.88), and 2.5 times more likely to experience sexual IPV (RR = 2.46; 95% CI = 1.64, 3.69). Disparities persisted when comparing to cisgender women specifically. There was no significant difference in any IPV, physical IPV, or sexual IPV prevalence between assigned-female-sex-at-birth and assigned-male-sex-at-birth individuals, nor in physical IPV prevalence between binary- and nonbinary-identified transgender individuals. IPV victimization was associated with sexual risk, substance use, and mental health burden in transgender populations.

Authors' Conclusions: Transgender individuals experience a dramatically higher prevalence of IPV victimization compared with cisgender individuals, regardless of sex assigned at birth. IPV prevalence estimates are comparably high for assigned-male-sex-at-birth and assigned-female-sex-at-birth transgender individuals, and for binary and nonbinary transgender individuals, though more research is needed.

Public Health Implications: Evidence-based interventions are urgently needed to prevent and address IPV in this high-risk population with unique needs. Lack of legal protections against discrimination in employment, housing, and social services likely foster vulnerability to IPV. Transgender individuals should be explicitly included in US Preventive Services Task Force recommendations promotingIPVscreening inprimary care settings. Interventions at the policy level as well as the interpersonal and individual level are urgently needed to address epidemic levels of IPV in this marginalized, high-risk population. (AmJ Public Health. 2020:110; e1-e14. doi:10.2105/AJPH.2020.

305774)

PLAIN-LANGUAGE SUMMARY

Intimate partner violence (IPV) is a pervasive public health issue that can result in physical injury, mental illness, and even homicide. Less attention has been paid to IPV in transgender individuals, whose gender differs from the sex they were assigned at birth. We searched for existing studies about the prevalence and correlates of IPV victimization, perpetration, or service utilization in transgender populations. We found 85 relevant articles. Transgender individuals face high rates of IPV: on average, across studies, some 1 in 6 transgender individuals reported physical IPV, and 1 in 10 reported sexual IPV in the past year. Transgender people were 2.2 times more likely to experience physical IPV and 2.5 times more likely to experience sexual IPV than were cisgender people recruited for the same study. IPV victimization was linked to worse sexual health, mental health, and substance abuse outcomes in transgender individuals, pointing to IPV as a potential driver of health disparities. This study suggests that transgender people should be meaningfully included in IPV screening programs, and more should be done to increase access to resources such as domestic violence shelters. Future research should test IPV prevention interventions for this population that is disproportionately affected by violence.

Intimate partner violence (IPV)-defined as physical violence, sexual violence, stalking, psychological aggression, or coercive control by a current or former intimate partner1-is a pervasive public health issue that often results in physical injury, mental illness, negative sexual and reproductive health outcomes, and even homicide.2,3 Globally, IPV has disproportionate prevalence, severity, and impact on cisgender (i.e., individuals whose gender aligns with their sex assigned at birth [SAB]) women, affecting roughly 1 in 3 women, but also affects cisgender men.3 5 Emerging research demonstrates that transgender individuals (i.e., individuals whose gender is different from their SAB, including transgender men, transgender women, and nonbinary individuals) experience high levels of IPV victimization.6 12 An estimated 25 million people worldwide are transgender.13

In addition to common antecedents of IPV, including relationship stress and substance use,14 transgender individuals experience unique "trans-related vulnerability" to IPV and thus may be disproportionately affected by IPV compared with cisgender individuals.10,15,16 Abusers can seek to undermine transgender partners by misgendering them (using incorrect pronouns), exploiting insecurities linked to societal stigma (e.g., fear of not finding love outside the relationship because of transgender identity), or threatening to "out" them (i.e., reveal transgender identity to others) as a form of blackmail.9,15,17 Transgender individuals are also more likely to experience multiple sources of social isolation (e.g., rejection by family and friends) and economic vulnerability (e.g., employment discrimination or homelessness) that can increase dependency on a violent partner. These issues are more common among transgender individuals of color and disabled individuals.10,15 When seeking help from domestic violence shelters, police, or medical providers, transgender individuals are likely to face additional discrimination on the basis of gender identity.15,16,18,19

In the 2015 US Transgender Survey (n = 27 715), 54% reported some form of lifetime IPV: 35% physical IPV (e.g., being hit or slapped), 24% severe physical IPV (e.g., being beaten, burned, or harmed with a weapon), and 19% sexual IPV (e.g., being forced to do something sexual that was unwanted) by a partner, all rates comparable to or greater than those documented in the US population at large and cisgender women globally.2,3,15 Given rising recognition of epidemic levels of violence against transgender individuals globally,20,21 we undertook a global systematic review synthesizing the existing quantitative literature on the prevalence, correlates, and health outcomes of IPV victimization and perpetration, and on IPV service utilization in transgender populations.

METHODS

Full methods are included in Appendix A (available as a supplement to the online version of this article at http://www.ajph. org). To identify articles for inclusion, we used PubMed and CINAHL database searches, forward and backward citation searches, hand searching journal and conference abstracts, Google searches for gray literature, and expert consultation. The database search was updated in November 2017 and again in July 2019 before publication. Articles were included if they were original research and contained quantitative data on IPV victimization, perpetration, or service utilization prevalence or correlates specifically for transgender individuals, or ifauthors were willing to provide data for transgender subsample(s) when contacted. Two independent reviewers (S. M. P., M. M., S. K., E. M.) conducted the screening for each article, and 1 reviewer conducted the extraction (S. M. P., S. K., M. M.,E. M.), whichanother reviewer double-checked (S. M. P., E. M., S. K., M. M.). We requested data from authors for articles that did not present disaggregated IPV data for transgender subsample(s) but indicated that they had enrolled transgender participants. We extracted data with a standardized database collecting

1. IPV victimization prevalence,
2. IPV perpetration prevalence,
3. demographic correlates of victimization or perpetration,
4. health outcomes associated with victimization or perpetration,
5. utilization of IPV services (i.e., help seeking following an IPV incident with domestic violence shelters, medical providers, police, or others), and
6. methodological characteristics.

We extracted data on all IPV types (physical, sexual, and psychological and other forms of IPV [e.g., stalking]). We categorized IPV type as "any IPV" if the assessment tool combined multiple types of IPV into 1 question (e.g., "Has your partner hit you or forced you to have sex?"), if the article asked about IPV generally (e.g., "Have you ever experienced domestic violence?"), or if an article provided a summary statistic combining multiple types of IPV after reporting prevalence of each type separately.

We used random effects meta-analysis (metabin command in R [R Foundation for Statistical Computing, Vienna, Austria]) to compare any, physical, and sexual IPV prevalence in transgender participants versus (1) all cisgender participants, (2) cisgender men participants, and (3) cisgender women participants in studies that included a cisgender comparison group. We also used random effects meta-analysis to compare (1) any IPV, physical IPV, and sexual IPV prevalence in assigned-female-sex-at-birth (AFAB; may identify as male, man, nonbinary, etc.) and assigned-male-sex-at-birth (AMAB; may identify as female, woman, nonbinary, etc.) transgender participants and (2) physical IPV prevalence in binary- and nonbinary-identified transgender individuals in studies that reported IPV prevalence separately for each group.

RESULTS

From a review of more than 1229 records, 85 articles from 74 unique study data sets met all inclusion criteria (Appendix C, Figure A, available as a supplement to the online version of this article at http://www.ajph.org), representing 1 273 989 participants, including 49 966 transgender participants across studies (Appendix B, Table A, available as a supplement to the online version of this article at http://www.ajph.org). The median total sample size (inclusive of cisgender participants) across studies was 499 (interquartile range [IQR] = 150-2042), and the median transgender sample size was 91 (IQR = 29-232). Most included studies were conducted in the United States (73%; n = 54/74) and other high-income countries (Spain,22 Australia,23 25 Scotland,9 Canada,26 28 and France29: 12%; n = 9/74; Appendix B, Table A). The remainder were from middle-income settings (Thailand,8 South Africa,30,31 Jamaica,11 India,32 China,7 Brazil,33,34 Mexico,35 Haiti,36 and countries across Latin America37: 15%; n= 11/74). The majority of studies were peer-reviewed (88%; n = 65/74), and the remainder were reports from advocacy and research organizations9,23,26,38-41 (10%; n = 7/74) or unpublished data from a state survey.42,43

Among the 71 unique studies that enrolled transgender individuals rather than service providers, AMAB individuals participated in 6-9,11,15,22,23,26,29-38,40,42,44-77 78% (n = 55/71), and AFAB individuals participated in 44% (n = 31/71) of studies.6,9,15,22,23,26,29,31,353738, 40,42,47-52,56,61,62,65-67,71-75,78 While 28% (n = 20/71) of studies explicitly reported inclusion ofnonbinary individuals, 6,9,15,26,35,38,40,47, 50-52,62,65-67,71-73,75,78 this is likely an underestimate attributable to frequent lack of disaggregation of nonbinary participants. Authors from 30 of the 71 studies did not publish disaggregated IPV data for transgender participants or other information necessary for inclusion in the review, but they provided these data when contacted.7,17,24,26,29-31,33-38,42,43,47,48,61,62,66,70,72,74, 76,77,79-83 We excluded more than 40 articles representing more than 3000 transgender participants because, although they contained IPV data and recruited transgender participants, the authors were unresponsive to requests for disaggregated statistics for transgender participants.

Studies were predominantly crosssectional convenience samples (Appendix B, Table B) recruited from diverse sites and usually multiple sites per study. A mix of self- (62%; n = 44/71) and interviewer-administered (34%; n = 24/71) data collection tools were used, with the majority of self-administered studies (61%; n = 27/44) occurring online. While some studies generically described staff as "trained," only 230,58 explicitly reported training in population-specific cultural competency. None explicitly reported training study staff about sensitive IPV assessment. Although 66% (n = 47/ 71)7-9,11,15,17,23,26,28,29,32,34-36,38,40-46,48,49,51, 52,54-60,62,64,66-69,71-73,77-79,84,85 of studies demonstrated some evidence of community engagement (i.e., "a process of inclusive participation that supports . . . authentic partnership" between researchers and community members affected by the research86(p1383)), extent of community-engagement methods varied greatly (see Appendix B, Table B for details). Definitions of "intimate partner" also varied, including by relationship duration and whether sexual intimacy was required. While IPV was predominantly assessed using behavioral measures (e.g., "Has a boyfriend or girlfriend ever hit, slapped, or physically hurt you on purpose?"), 17% 11,29,31,32,35,38,44,48,55,56,58,70 of (n = 12/71) studies used nonbehavioral measures (e.g., "Have you ever experienced domestic violence?"), and 4% (n = 3/71)24,53,84 measured domestic violence service utilization without directly assessing IPV victimization experience. Seven percent (n = 5/71) ofstudies9,39,45,64,87 developed transgender-specific IPV items (e.g., partner insulted them by telling them they were not a "real" woman or man), including 1 study that validated a transspecific IPV measure.87 Twenty-three studies (32%)6,7,11,15,2931,35,36,38,50,51,53,58,63-65,67-69,74,77,78,88 reported using a 2-step measure89 (i.e., 2 items separately assessing SAB and gender identity) to determine gender identity of participants.

Intimate Partner Violence in Transgender Populations

Lifetime report of experiencing any IPV ranged from 6.3%56 to 83.3%80 across 28 unique studies 7,9,11,15,23,26,28,33,34,38,44,50-52,56,64-68,74,76-78,80,85,90,91 reflecting heterogeneous study populations and assessment tools (Table 1). Lifetime physical IPV ranged from 10.5%74 to 66.7%80 (median = 37.5%34,37) across 16 studies.9,15,23, 34,37,42,43,54,57,58,60,66,74,77,80,87 Lifetime sexual IPV ranged from 5.0%22 to 66.7%80 (median = 25.0%57) across 14 studies 9,15,22,23,37,57,60,64,66,74,77,80,87

Past-year physical IPV ranged from 3.8%92 to 44.7%93 (median = 16.7%72) across 11 studies. Past-year sexual IPV ranged from 3.2%59 to 29.1%82 (median = 10.8%93) across 7 studies.6,17,59,72,82,93,94 Twenty-three studies measured IPV prevalence using other reference periods, including partnership-based time periods or time since enrollment in college. 7,8,24,29-32,35,40,47,48,54,55,59,61, 69,70,79,81,88,95-97

Twenty-four studies6,7,9,15,17,23,37,40,41, 60,64,66,71,72,74,77,80,81,83,87,88,93-95 assessed prevalence of psychological and other types of IPV, including threats (ranging from 19.8% to 60.0%9), psychological IPV (8.9%53-83.3%80), controlling behaviors (1.8%6-60%9), isolation (5.4%6-30%9), stalking (0.8%40-28.6%60), and abuse targeting gender identity (17.6%64-73.3%9) (reference periods vary; see Appendix B, Table C for details). These forms of abuse were usually as or more prevalent than physical or sexual IPV.

Transgender vs Cisgender Disparities

Transgender participants were 1.66 times more likely to experience any IPV than were cisgender participants (95% confidence interval [CI] = 1.36, 2.03) across 20 studies enrolling 3023 transgender and 277 399 cisgender participants (Figure 1). 6,7,23,24,30,40,48,52,53,56,85,88 Transgender participants were more than twice as likely to experience both physical IPV (risk ratio [RR] = 2.19; 95% CI = 1.66, 2.88; n = 5962 transgender participants; n = 385 059 cis-gender participants across 21 studies; Figure 2) and sexual IPV (RR = 2.46; 95% CI = 1.64, 3.69; n = 2972 transgender participants; n = 177 177 cisgender participants across 15 studies; Figure 3) as compared with cisgender participants. Cisgender comparison groups for studies in these meta-analyses were (1) lesbian, gay, and bisexual (LGB) men and women ; (2) men and women living with HIV or other populations with a higher-than-population-average proportion of LGB individuals6,33, 36,48,53,59,70,85 ; (3) men who have sex with men7,30,34; or (4) general population men and women. 24,28,40,42,43,75,79,80,82,93-95,98 Trans-gender participants had greater IPV disparities compared with cisgender men, than compared with cisgender women, but had significantly higher IPV prevalence compared with both groups (Appendix C, Figures B- G). School-based samples of middle-school, high-school, or college students were some of the largest studies and featured the largest transgender-cisgender disparities in physical IPV (RR = 2.89; 95% CI = 2.20, 3.80; Appendix C, Figure H) and sexual IPV (RR = 3.91; 95% CI = 2.74, 5.59; Appendix C, Figure I).

Sixteen studies measured psychological or other forms of IPV in transgender and cis-gender participants. 6,7,17,23,37,40,41,60,71,72,83, 88,93-95,98 Psychological or other forms of IPV were significantly more prevalent for transgender than for cisgender participants in some studies, but differences were not significant in others.17,37,71,72,98

Demographic and Health Correlates

There was no significant difference in the prevalence of any IPV (RR = 0.88; 95% CI = 0.68, 1.14; n = 1087 AMAB participants; n = 1835 AFAB participants), physical IPV (RR= 1.02; 95% CI = 0.77, 1.34; n= 1018 AMAB participants; n = 2007 AFAB participants), or sexual IPV (RR = 0.57; 95% CI = 0.27, 1.20; n = 869 AMAB participants; n = 1658 AFAB participants) between AMAB and AFAB participants (Appendix C, Figures J-L). Just 7 studies provided disaggregated prevalence estimates for nonbinary and binary transgender participants. 6,47,65,66,72,73,75 There was no significant difference in physical IPV victimization between nonbinary and binary transgender participants (Appendix C, Figure M; RR = 1.03; 95% CI = 0.74, 1.44; n= 661 nonbinary participants; n = 664 binary participants across 5 studies).

IPV victimization was associated with disability,15 homelessness,15 immigration status,15 race/ethnicity15,54 (though not in all studies65), incarceration,65 and undergraduate versus graduate status (Appendix B, Table D).40 IPV victimization was not associated with social gender transition91 or self-esteem.45,65 IPV victimization was associated with bullying,90 family assault,90 family harassment,90 general victimization,45 repeated gender-related victimization,65 and everyday discrimination90 (depending on model parameters91).

Eleven studies 11,15,45,46,51,58,63,65,90-92 measured associations between some type of IPV and sexual health, substance use, or mental health outcomes in a population of transgender individuals (Appendix B, Table E). Any IPV victimization is significantly associated with sexual risk measures (partner count,91 transactional sex,11,15,65 sexually transmitted infection diagnosis,91 unprotected sex45,91), substance use (recent substance use,51 polysubstance abuse,45 substance use treatment51), and mental health (depression,90 posttraumatic stress disorder,91 avoidant coping90) in transgender populations. There was mixed evidence of an association between any IPV victimization and HIV status. . , 45,65

Physical IPV victimization was associated in individual studies with HIV viral suppression,63 sex work,15 and depressive symptoms,92 but unassociated with HIV status,65 HIV diagnosis,63 and inconsistent condom use.46 No study examined health correlates of sexual IPV, and just 1 reported any correlates of psychological or other forms of IPV.15

Perpetration by Transgender Individuals

Four small studies (n = 837-3847) measured IPV perpetration by transgender participants (Appendix B, Table f).37,47,85,95 Two studies noted that while transgender individuals (n = 17 and n = 31) reported higher prevalence of victimization compared with cisgender participants, they also reported higher perpetration85,95; 1 study found no significant difference in perpetration.37

Service Provision to Transgender Populations

We did not identify any study that developed or tested an IPV prevention intervention with transgender participants. Twelve studies provided data on IPV service provision to transgender survivors (Appendix B Table G) 15,23,25,27,50,52,53,71,84,99-101 Discrimination at domestic violence shelters was common and significantly associated with being AMAB versus AFAB,15,99 being perceived as transgender,100 having a disability,50 and identifying as American Indian, multiracial, or Latino versus White.50 Ford et al. found that service providers (ranging from shelter staff to law enforcement officials) reported feeling uncomfortable serving transgender clients,101 and Du Mont et al. found that sexual assault forensic nurses were unprepared to work with transgender patients,27 though Riggs et al. demonstrated that a training intervention can increase service providers' skills in working with transgender women.25

DISCUSSION

Evidence synthesized in this review demonstrates that transgender individuals are at 2 to 3 times higher risk of physical and sexual IPV compared with cisgender individuals, regardless of SAB. Several studies also suggest high risk of psychological and other forms of IPV, including a growing number that document trans-specific forms of IPV. Echoing research in cisgender men and women in which gender disparities in victimization are most pronounced for sexual IPV and less pronounced for physical and psychological IPV,2 we found the largest gender disparities between transgender and cisgender populations were in sexual IPV victimization. However, transgender individuals were still more than twice as likely as were cisgender individuals to experience even physical IPV. Population-level IPV disparities may be even higher than estimated in this review, as LGB individuals were overrepresented in most cisgender comparison samples; LGB populations may have elevated IPV prevalence relative to heterosexuals.4 Indeed, studies with some of the largest disparities came from large, school-based samples in which the cisgender comparison group included mostly heterosexual individuals. Our review demonstrates that IPV is a risk factor for multiple health conditions, including poor sexual health, poor mental health, and substance use in transgender populations. The high IPV prevalence documented in this review indicates an urgent need for research and interventions for primary and secondary prevention ofIPV in transgender populations. Although this review identifies substantive research on IPV in transgender populations, the literature is still emerging, with the majority of studies occurring within the past 10 years in high-income settings. Because considerable funding for both transgender health and violence research comes from HIV funding, study populations were disproportionately high risk and AMAB. Despite this, the largest studies were community-based or school-based surveys that enrolled transgender communities broadly, not just those most at risk for HIV. Studies recruited from diverse and oftentimes multiple sites; IPV prevalence can vary greatly by site, representing a potential source of bias. However, we are not aware of any population-based violence-focused survey, from the Demographic and Health Surveys domestic violence module to the US National Intimate Partner Violence and Sexual Violence Survey, that assesses transgender identity and has the sample size to report transgender-specific estimates. Just 2 representative population-based studies were included in this review; both were high-school based samples with nonvalidated gender identity measures and limited focus on violence.75,82

Until the systematic exclusion of transgender individuals from population-based surveillance ends (i.e., until gender identity measures are routinely included in population-based violence surveys, violence measures that have been validated in transgender populations are created and included in population-based surveys, interviewers are trained to work respectfully with der and investment in oversampling occurs to allow for reporting of transgender-specific prevalence estimates), transgender individuals will not have access to the same level of evidence around IPV that cisgender individuals do. Until such a time, large surveys with multipronged community-engaged recruitment strategies (e.g., US Transgender Survey15) represent compelling evidence.

Extant literature on IPV in transgender populations is hampered by numerous limitations. First, disaggregated information is often not provided for transgender and cis-gender individuals when they are enrolled in the same study. There were 45 additional articles we could not include because of lack of disaggregated data. There is also significant heterogeneity in how transgender and IPV are defined, making it difficult to compare study populations and outcomes. Worst are studies in which the interviewer assigns the participant gender based on appearance,8 but even single-item assessments, such as providing gender options of "male," "female," and "transgender," can result in substantial misclassification bias.102

One fifth of studies used nonbehavioral measures of IPV-known to underestimate prevalence compared with measures that ask about specific abusive behaviors103-or did not state the source of their measures. Even validated behavioral measures may underestimate prevalence in transgender populations, as they were developed for heterosexual cisgender women and may lack content validity.87,104 Research to validate IPV measures for lesbian, gay, bisexual, transgender, or queer populations broadly17,72 or transgender populations specifically87 is nascent. Lack of interviewer training in sensitively assessing IPV, particularly with transgender individuals, may have resulted in underestimation of IPV prevalence, perhaps differentially in transgender individuals. Standardizing measures of IPV will decrease heterogeneity, and more attention to disaggregated prevalence estimates for transgender subpopulations (e.g., AMAB, AFAB; nonbinary; racial/ethnic groups) in future research will allow for less heterogeneous estimates of prevalence by subpopulation.

We did not identify any study that developed or tested the efficacy of transgender-specific IPV primary prevention interventions. IPV prevention often focuses on school- and college-aged individuals broadly or cisgender women specifically.105 Evidence suggests that IPV victimization may be high over the life course for transgender individuals, with IPV disparities already emerging in middle and high school- 28,42,43,73-75,82,95 and college-aged 40,83,93,94 transgender individuals, making interventions aimed at adolescents critical. Peer education around what IPV looks like for transgender communities may prevent abuse and empower survivors. Some HIV prevention interventions for transgender women incorporate healthy relationship modules10; such studies could be leveraged to include a greater focus on IPV prevention. Interventions that have been shown to reduce IPV against cis-gender women in global settings, such as community mobilization, economic empowerment, and cash transfer interventions,106 could be adapted for transgender individuals, albeit with careful implementation research to address the potential for increasing abuse depending on local context. Structural interventions, such as laws reducing barriers to legal name and gender marker changes or antidiscrimination legislation within housing and employment, could reduce vulnerability to IPV by increasing access to resources and decreasing dependency on abusive partners.

In secondary IPV prevention and response, more research is needed on service provision to transgender IPV survivors, including interventions with providers that can improve quality of care. Only 1 US study25 tested an intervention to improve transgender competency among domestic violence service providers and police, despite documentation of extensive maltreatment.15 Innovative community-based IPV response in high- and low-income settings could include "crisis response teams" (similar to those that have been formed within sex worker communities), transgender survivor support groups, and self-help materials created by and for transgender survivors. Health care providers are the most common people that cisgender women first disclose to when seeking formal help for IPV,5 but clinical settings are often sites of abuse and revictimization for trans-gender individuals.15 The US Preventive Services Task Force only recommends routine IPV screening in primary care settings for "women of childbearing age"107; similarly, the World Health Organization's 2013 clinical recommendations make no mention of transgender individuals.5 Making clinical guidelines and clinical care more inclusive for transgender patients is critical.

Despite calls in the violence literature to intervene with abusive partners rather than victims,106 no studies included in the review explored the characteristics of abusive partners for transgender victims of IPV. In addition, only 4 small studies measured IPV perpetration by transgender individuals. Despite their advantages, behavioral measures of IPV have been criticized for giving the impression that cisgender women and men perpetrate IPV equally, even though women women are more likely to use violence in self-defense and are less likely to cause injury or psychological impact.108 This fundamental critique applies to the 3 articles that compared cisgender and transgender participants' IPV perpetration.37,85,95 Work to understand typologies of IPV, the prevalence ofbidirectional violence, and how minority stress may affect violence perpetration in transgender populations will develop our understanding of this area.

While it is clear that transgender individuals are at greater risk of IPV than cisgender individuals, few studies examined demographic correlates of IPV within transgender communities. Twenty-eight unique data sets had more than 150 transgender participants and could support subgroup and risk factor analyses. Rather than viewing transgender individuals as a homogenous group, an intersectional lens should be used to understand how SAB, nonbinary gender identity, sexual orientation, race/ethnicity, disability, and other social categories may synergistically affect IPV risk within transgender communities. Medical and social transition status, examined in only 1 study,91 are key correlates to explore to identify potential critical periods for intervention. While there was no evidence of a significant difference in sexual IPV prevalence in AMAB compared with AFAB transgender individuals or in physical IPV prevalence in binary compared with nonbinary transgender individuals, only 5 studies informed each of these comparisons; more data are needed to understand whether a disparity truly exists.

Psychological and other forms of IPV (e.g., financial abuse, stalking) were, in some studies, more prevalent among transgender than cisgender participants. These types of IPV were less frequently measured than physical or sexual IPV. In cisgender populations, psychological IPV has gained attention as a driver of negative mental, physical, and sexual health outcomes of similar or greater magnitude than physical or sexual IPV.109 Qualitative data suggest that psychological IPV may be a more prominent component of abuse against transgender than cisgender individuals, as abusers leverage trans-related vulnerability to gain power and control.19 This trans-specific IPV often co-occurs with, but differs from, physical and sexual IPV, and is associated with excess mental health burden.87 Greater study of the prevalence, context, and impact of psychological IPV in transgender populations is warranted.

The direction of the disparity observed between transgender and cisgender participants was consistent across studies: 20 out of 23 studies that measured physical or sexual IPV in transgender and cisgender individuals found greater prevalence of IPV in transgender than in cisgender participants. However, clinical, methodological, and statistical heterogeneity was substantial, resulting in variability in the magnitude of the disparity estimated by each study. In studies in which the cisgender comparison group was at relatively low baseline risk of IPV (e.g., primarily heterosexual male and female students), we observed disparities as great as 6.5 times greater risk in transgender individuals.93 In studies in which baseline prevalence ofIPV in the whole population is already relatively high (e.g., among lesbian, gay, bisexual, and queer cisgender individuals recruited from IPV-related forums),17 transgender-cis-gender disparities were smaller. Our meta-analytic estimates average across these diverse studies. Disparities may be smaller or greater than this meta-analytic average in a particular population ofinterest, depending on baseline rates of IPV in the population. Regardless of the precise magnitude of the disparity, the implications for practice are that clinicians and service providers should take additional care to screen for IPV and offer affirming services to this at-risk population.

A strength of this review was contacting authors for disaggregated prevalence data for transgender participants. The review presents data that are publicly available for the first time from more than 40% of included studies and leverages data from almost 50 000 transgender respondents across studies. Limitations of this review include lack of covariate adjustment in meta-analyses. Meta-analyses combine estimates from different populations of transgender individuals, yielding high heterogeneity and potentially obscuring differences in subpopulations by providing a single estimate of disparities between cisgender and transgender populations. English-language searches may have missed literature from non-Anglophone countries and results may not be applicable to low-income settings.

Available evidence demonstrates that IPV is an epidemic facing transgender populations globally and highlights the existence of a dramatic disparity in physical and sexual IPV victimization between transgender and cis-gender individuals, particularly cisgender men but also cisgender women. Physical, sexual, and mental health inequities21 faced by transgender individuals may be partially driven by these higher levels of violence. To address this critical public health and human rights concern, efforts are needed to develop transgender-specific, transgender-inclusive, and transgender-led interventions for IPV prevention, screening, reporting, and response in transgender populations worldwide.

CONTRIBUTORS

S.M. Peitzmeier conceptualized the review strategy, conducted statistical analyses, and drafted the majority of the article. M. Malik and S. K. Kattari drafted sections of the article. M. Malik and S. L. Reisner provided substantive input on article writing. S. M. Peitzmeier, M. Malik, S. K. Kattari, and E. Marrow conducted study screening and data extraction. M. Malik synthesized study characteristics and summarized the systematic article selection process. R. Stephenson, M. Agénor, and S. L. Reisner provided revisions and guidance. S. L. Reisner provided substantive input on search strategy and analytic plan.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

HUMAN PARTICIPANT PROTECTION

This study is a systematic review ofpublished research and is not considered human participant research.

Sidebar

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DETAILS

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The "Dangerous Trades," Fifty Years After Alice Hamilton's Death

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FULL TEXT

The "Dangerous Trades," Fifty Years After Alice Hamilton's Death The Education of Alice Hamilton: From Fort Wayne to Harvard By Matthew C. Ringenberg, William C. Ringenberg, and Joseph D. Brain Bloomington, IN: Indiana University Press; 2019 Paperback: 166 pages; $18.00 ISBN-10: 0253043999 ISBN-13: 978-0253043993

The cliché about "standing on the shoulders of giants" to see further probably conjures up a mental picture of one aspirant casting about to see which giant he or she can best perch upon. But what happens when one giant uniquely appeals to a myriad, all seeking to follow one or more of the several paths she forged? Such a figure was Alice Hamilton (1869-1970), the giant upon whose shoulders stand not only women in academia and medicine but advocates for social justice and (most relevant to this journal) scholars and policymakers interested in the disproportionate risks of disease that workers bear on the behalf of us all. Hamilton was simultaneously the first female professor at the nation's oldest university (Harvard), a protege of Jane Addams (1931 Nobel Peace Prize winner for social work) and later her personal physician, and one of the first intellectuals to study occupational health and to promote controls on occupational toxicants.

This new book by Matthew Ringenberg, his father William Ringenberg, and Joseph Brain explicitly focuses on the period in her life before she arrived at Harvard in 1919. (All three authors are alumni of Taylor University, then located in Fort Wayne, Indiana, where Hamilton studied for her first year of medical school, and Brain went on to teach at Harvard for more than 50 years.) This formative period in Hamilton's life, and the "experiences that informed [her] ... throughout a lifetime of learning," has not been covered in such depth in the several biographies and dissertations about her, or in articles in this journal1 and related publications2 that focus on her time at Harvard and her many accomplishments and travails in the last three to four decades of her long life.

The authors succeed in grounding her well-known work in occupational epidemiology in the context of how she arrived at her lifelong focus on social justice, in chapters aptly entitled "The Scientist as Social Scientist" and "The Senior as a Public Intellectual." Their exposition allows us to follow Hamilton's persona as she navigates the discrimination she faced as a pioneering woman (her contract with the university specified that she could not enter the Harvard Club in Boston or march in the Commencement procession). The authors elegantly summarize the tone and orientation she eventually adopted as "being direct and unapologetic without needless moralizing." Readers who feel shunted into a narrow academic or ideological path will appreciate the authors' focus on how Hamilton switched from the study of literature and history to a medical education, and their observation that she was a longtime subscriber both to the farleft magazine The Worker and to William F. Buckley's National Review.

The most germane sections of the book for AJPH readers, of course, are those explaining how Hamilton approached occupational epidemiology problems and sought solutions. Her first field work as an epidemiologist was in Chicago, Illinois, in 1902, where Jane Addams asked her to examine the possible cause(s) of an outbreak of typhus in the city. This turned out to be a bittersweet piece of work, for although she did pioneering "citizen science" work leading a team collecting houseflies and testing them for typhus (establishing this as a vector), she also learned-only after her report led to changes in city government-that the city had concealed evidence of a major sewer line break in the affected area. A few years later, Hamilton led the groundbreaking work of the Illinois Commission on Industrial Disease, broadening its focus beyond only lead and five other known "industrial poisons" to a dozen other toxicants, adding numerous industrial processes to the field work, and, most importantly, investigating case clusters (occupational deafness, Raynaud syndrome, and nystagmus) along with mapping exposures. Besides describing her many findings during this project, the authors document her growing unwillingness to accept the notion that work is a market transaction in which the laborer who objects to the level of risk should simply go elsewhere; she wrote that this is like a sea captain telling his sailors, "If you don't like the ship, get overboard." And yet she was unabashed about publishing a negative study (her 1917 article showing that prostitution was not a risk factor for developing tuberculosis), stating that "If there is no way of deterring a girl from a life of shame save by terrifying her with the prospect of an early death, then we must give up trying to deter her."

This volume is valuable just for its windows-through a series of 40 photographs, a comprehensive table of honors and awards Hamilton received, and an extensive bibliography of other source material-into the formative years of our field and the life of a pathbreaking woman in academia. But the authors have brought Hamilton into the present moment through their careful synthesis of how she came to occupational epidemiology and remained absolutely faithful to science and to evidence-based advocacy at its best.

I wonder-and would welcome more from the authors on this-what Hamilton would say about the impending (December 29, 2020) 50th anniversary of the signing of the Occupational Safety and Health Act (OSH Act). The very day that Hamilton died (September 22, 1970), the US House of Representatives began debate on HR 16785, which in similar form became the OSH Act three months later.3 What progress had she seen in the 50 years between 1920 and her death, and how would she compare it to the subsequent 50 years? Surely she would applaud the reduction in the national rate of fatal occupational injuries, from about 37 per 100 000 per year in 1933, to 18 per 100 000 in 1970, to 3.5 per 100 000 in 2017 (up slightly from an all-time low of3.3 per 100 000 in 2013).4 But as the first leader who understood how occupational disease dwarfs the injury problem, would she believe that the US Occupational Safety and Health Administration (OSHA) has sampled for toxicants at fewer than 5% of the inspections it has conducted over the last 50 years,5 and in a representative recent year sampled at only 1750 establishments out of the more than 8 million work sites it governs (see annual data files at https://bit.ly/2Pmex9c)? Would she believe that as of now-more than a century after she led a similarly large effort in Chicago-it has been 37 years and counting since the last National Occupational Exposure Survey? Would she refrain from "moralizing" after learning that during the first weeks of the COVID-19 epidemic, OSHA inaction led to 3.8% of all meatpacking workers (as of April 30, 2020) being infected with the virus, a rate 10-fold higher than the national rate?6,7 The Ringenbergs and Brain have brought to life a visionary who just might have replied to this paragraph with William Faulkner's famous line, "The past is never dead; it's not even past." ÂfPU

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CONFLICTS OF INTEREST

The author was a student of Joseph Brain circa 1978 at Harvard College.

Sidebar

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The Community Eligibility Provision: Continuing the Century-Long Debate Over Universal Free School Meals

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FULL TEXT

School meals provided through the National School Lunch Program and the School Breakfast Program are a central part of the social safety net, contributing an important share of low-income children's nutritional intake.1 The structure of school meal programs is a tenuous balance between two goals that have jostled for primacy for more than a century-feeding the hungry and promoting nutrition for all children. This is partly a debate over mission but also a reflection of the tension regarding the relative merits ofuniversal versus means-tested programs that permeates the broader social welfare conversation.2 The Community Eligibility Provision (CEP), the topic of an article by Hecht et al. (p. 1405) in this issue of AJPH, is the latest manifestation of this tension in the school meal programs.

Since the earliest school meal programs in the United States, there have been strong proponents ofa universal model-who have seen providing healthy food as a logical component of what schools should provide to all students-and equally strong opponents-who have viewed the idea of universal free meals as a triumph of socialism and a threat to traditional family roles.2,3 Until recently, the means-tested vision largely won out: the National School Lunch Program was formally launched in 1946, and by the early 1970s it took on the broad framework that persists today. This framework includes an entitlement structure that obligates participating schools to provide free meals to the neediest, a requirement that meals be available for all others to purchase, nutritional criteria governing meal content, and a financing scheme that reimburses schools at different rates for meals served to free-eligible versus paying students. In practice, low per-meal reimbursement rates made it challenging to mount high-quality programs that appealed to paying students. As a result, school meals over time became viewed as a welfare program for the poor, and the associated stigma has been a longstanding barrier to participation among poor and nonpoor students alike.2

The CEP was intended to increase participation in school meals by making breakfast and lunch free to all students in eligible schools that opt in to the program-simultaneously removing income barriers, stigma, and the logistical and administrative roadblocks of eligibility determination that siphon time and resources away from the provision of meals. In doing so, it moves school meal programs closer to a comprehensive universal free model, even as funding levels remain challenging and the ability to participate remains limited to low-income schools and districts.

A growing body of research has examined the CEP's early impacts, both on student participation and on downstream outcomes. As Hecht et al. describe, there is robust evidence that offering universal free meals, including via the CEP and the less widely available universal free meal options that some schools have already been using, leads to higher school meal participation-the primary intended outcome, although the estimated magnitudes vary widely. There is some indication ofdownstream gains as well, with initial research showing some evidence of modest benefits spanning food security, weight, school attendance, test scores, and reductions in disciplinary action. Teasing out these effects is challenging given the myriad factors at play and the likelihood that impacts are context dependent. Methods and findings are not always consistent across studies; as the literature evolves, it will be important to prioritize the highest quality studies in assessing what we know and how this should inform policy deliberations.

Hecht et al. offer a modest set of policy strategies to maintain and strengthen the CEP. This may be as much progress as is currently feasible: the research evidence, although promising, is still in a relatively early stage, and the same philosophical divisions over universal free meal programs that have persisted for more than a century remain prominent. Without more far-reaching changes than proposed, however, the CEP will remain vulnerable; fundamental weaknesses in the eligibility rules and financing structure threaten its long-term viability. These weaknesses stem from reliance on the identified student percentage rate: the percentage of students who are administratively certified as eligible for free meals because they participate in the Supplemental Nutrition Assistance Program (SNAP) or certain other public programs.

Schools are eligible to offer the CEP if they have an identified student percentage rate of40% or higher. The share of free meals that are reimbursed at the free rate is likewise linked to this rate via a multiplier (currently 1.6), determined administratively within a legislatively set range.4 SNAP eligibility is the primary driver, leaving CEP eligibility and financing uniquely vulnerable to changes in SNAP policy and rule making at both the federal and state levels. Lower SNAP participation translates into fewer eligible schools and lower meal reimbursements for schools that are eligible; this in turn threatens the reach and viability of the program. Indeed, one of the policy recommendations that Hecht et al. make is to avoid cuts to SNAP, which highlights the tenuous ground on which the CEP rests-particularly as SNAP eligibility can easily be curtailed via the administrative rule-making process.

State policy decisions regarding optional SNAP rules have implications for CEP viability as well. For instance, state SNAP income limits range from 130% to 200% of the poverty line, and states can choose whether to waive vehicle and liquid asset limits to determine eligibility. These and other state policy options have a major effect on caseloads.5 As long as a school's ability to offer the CEP rests on its ties to SNAP (or other vulnerable programs) and on technical program parameters that can as easily be tweaked to constrain access and funding as to expand it, the program will remain on shaky ground.

Given the structural vulnerabilities in its design, moving closer to universal free meals would likely necessitate moving beyond the confines ofthe CEP's current framework. Mustering the support to accomplish that may require not only strengthening the research base linking free meals to downstream nutritional and school-related outcomes but also elevating the kind of value-based and philosophical arguments that undergird support for universal social programs more broadly.

Many such arguments are relevant in the school meal context. Universal free meals, for example, put an end to "meal shaming," the practice of drawing attention to children who are not certified to receive free meals yet have fallen behind in their meal accounts. More generally, universal programs avoid arbitrary distinctions between needy and nonneedy students. This distinction, as has been evident in the COVID-19 crisis, can change on a dime: an estimated one third of families with children have faced food insecurity in the early days of the pandemic.6 Furthermore, although universal free meal programs don't differentiate among groups of students, they do concentrate financial and human resources on the provision of meals rather than the administrative processes of determining eligibility, tracking participation, and monitoring account balances. By virtue of their broad reach, universal programs can also cultivate a larger and more politically potent support base than means-tested programs, which over the long term could help to sustain a better funded and higher quality program that benefits all children, both poor and nonpoor. Indeed, advocates of universal school meals point to the transformative role school meals could play if harnessed for their capacity to influence all children's exposure and attitudes toward healthy and high-quality food and sustainable food systems.3

Sidebar

lili See also Hecht et al., p. 1405.

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Judith S. Bartfeld, PhD

CONFLICTS OF INTEREST

There are no conflicts of interest.

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George Floyd and Our Collective Moral Injury

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ABSTRACT (ENGLISH)

When I think of the torture and murder of George Floyd at the knee of a White police officer, I feel morally wounded. We've been here before, with countless Black men and women whose lives were taken by those who wielded unearned power over them. But to me, as a woman of color leading the country's largest public health agency, Mr. Floyd's death feels different because it represents a cumulative injury on top of the sustained acuity of health inequities playing out in horrifying details through the COVID-19 pandemic. This accumulation pays cruel dividends to communities ofcolor. Our data predict these outcomes but cannot undo them. It's like watching a preventable collision in slow motion that we're powerless to stop. The wreckage haunts us. So how to stop it, when signaling the need for systemic change seemingly never leads to sustainable action? Outrage at those in authority who are failing us is understandable when data documenting generations of disinvestment and inequitable health outcomes are so clear. We should feel morally injured by actions committed in the name of maintaining false power structures, and by those who choose to linger in descriptions of the wreckage rather than take actions to prevent it.

FULL TEXT

When I think of the torture and murder of George Floyd at the knee of a White police officer, I feel morally wounded. We've been here before, with countless Black men and women whose lives were taken by those who wielded unearned power over them. But to me, as a woman of color leading the country's largest public health agency, Mr. Floyd's death feels different because it represents a cumulative injury on top of the sustained acuity of health inequities playing out in horrifying details through the COVID-19 pandemic. This accumulation pays cruel dividends to communities ofcolor. Our data predict these outcomes but cannot undo them. It's like watching a preventable collision in slow motion that we're powerless to stop. The wreckage haunts us.

So how to stop it, when signaling the need for systemic change seemingly never leads to sustainable action? Outrage at those in authority who are failing us is understandable when data documenting generations of disinvestment and inequitable health outcomes are so clear. We should feel morally injured by actions committed in the name of maintaining false power structures, and by those who choose to linger in descriptions of the wreckage rather than take actions to prevent it.

Think ofa collective moral injury as lasting emotional and spiritual impacts on a community when authorities commit actions that violate core moral values and expectations of righteous behavior. It is "a deep soul wound that pierces a person's identity, their sense of morality, and their relationship to society," as Diane Silver put it (https://bit.ly/2YGfbTt).

Moral injury is not a burden we should carry alone, but one we must share with others, so that we are all made stronger in the struggle to advance racial equity. By bringing our full selves to this work every day, and by sharing our anger, hope, and pain, we create authentic spaces of healing, and push ourselves and one another to show up and be accountable. In a time of physical distancing, we must work harder to remain emotionally connected and rooted in our righteousness. We must not revert to our silos, or concede-in any way, shape, or form-defeat.

Anticipating the post-COVID-19 rebuilding reminds me ofwhen I visited South Africa shortly after the fall of apartheid, and of what one of the young doctors at a newly formed school ofpublic health told me. "We are excited to heal our country," she said. Despite crushing inequities, there was still hope. There was still fight.

I think of that young doctor often whenever I ask myself, "Have I done enough?" And although the last weeks and months have been the most challenging ofmy life, I continue to push myselfas a leader to create opportunities for my staff and our community partners to have hard conversations about how public health has contributed to reifying racist frameworks and to find ways to start undoing the harm.

For example, it has long been taken as public health gospel that data should not be made public until fully complete. But the stark inequities in how COVID-19 was playing out in New York City emerged so quickly and clearly in our analyses that we decided to break protocol and release incomplete data. As a result, agency partners, health care providers, community leaders, and government officials immediately joined us in centering the most affected New Yorkers in their responses to the virus. Prioritizing action above convention, in this case, almost certainly saved lives. This was a powerful lesson in how eliminating racism in systems designed to ignore or perpetuate it requires a willingness to strategically break seemingly ironclad rules.

Confronting public health inequities, therefore, demands that we confront public health's systemic rigidities and biases, and our own. Our challenge is to fight systemic racism with boldness, love, and a living commitment to the struggles for justice that the past months have made impossible for even the most institutionally dogmatic to ignore. There willbe missteps, andtimeswhen things we do may seem insignificant. But if we stand shoulder to shoulder with our communities and pursue justice and equity to the fullest every day, we can reshape moral leadership in our country and heal our collective moral injury. >4jPH

DETAILS

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Anti-Asian Xenophobia and Asian American COVID-19 Disparities

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ABSTRACT (ENGLISH)

As coronavirus disease 2ů19 (COVID-19) has rapidly spread across the United States, so has xenophobia and discriminatory acts against Asian Americans. From March 19, 2Ů2U. to May 13, 2Ů2Ů, more than 17ŮŮ anti-Asian hate incidents were documented across the United States. according to reports by the STOP AAPI Hate campaign from the Asian Pacific Policy and Planning Council. In one incident. a trucker threw a drink atan Asian American wearing a mask and gloves and yelled. "Hey Chink, you're f-ing nasty."1

Although this new rise of racism is alarming, the association between disease, racism. and Asian Americans isnot new in US history. "Yellow Peril," or the tear that Chinese and other Asian immigrants were a threat to America and

Western culture. led to the Chinese Exclusion Act of 1882-the first racial-based exclusion law in American history. At the turn of the 20th century. public health officials perceived Chinese and other "Orientals" as infested with disease, subjecting them to undue quarantine, medical examinations, and interrogations. For example, during the 1900 to 1904 bubonic plague in San Francisco, California. a Chinese American man. found dead in his apartment in San Francisco's Chinatown. was falsely accused of being the source of this plague; disease transmission was later found to be from rats and fleas. Nevertheless, ungrounded public xenophobia and bias against Chinese Americans resulted in the entire Chinatown area being quarantined and forced vaccinations during this period.

FULL TEXT

As coronavirus disease 2019 (COVID-19) has rapidly spread across the United States, so has xenophobia and discriminatory acts against Asian Americans. From March 19, 2020. to May 13, 2020, more than 1700 anti-Asian hate incidents were documented across the United States. according to reports by the STOP AAPI Hate campaign from the Asian Pacific Policy and Planning Council. In one incident. a trucker threw a drink atan Asian American wearing a mask and gloves and yelled. "Hey Chink, you're f-ing nasty."1

Although this new rise of racism is alarming, the association between disease, racism. and Asian Americans isnot new in US history. "Yellow Peril," or the tear that Chinese and other Asian immigrants were a threat to America and Western culture. led to the Chinese Exclusion Act of 1882-the first racial-based exclusion law in American history. At the turn of the 20th century. public health officials perceived Chinese and other "Orientals" as infested with disease, subjecting them to undue quarantine, medical examinations, and interrogations. For example, during the 1900 to 1904 bubonic plague in San Francisco, California. a Chinese American man. found dead in his apartment in San Francisco's Chinatown. was falsely accused of being the source of this plague; disease transmission was later found to be from rats and fleas. Nevertheless, ungrounded public xenophobia and bias against Chinese Americans resulted in the entire Chinatown area being quarantined and forced vaccinations during this period.

THE MODEL MINORITY MYTH

Current xenophobic acts against Asian Americans are concerning because racism. a known social determinant of health. can exacerbate health disparities already present in the Asian American population. However, identification and recognition of these racial health gaps have not historically been straightforward. Minority health disparities gained national prominence in the 1985 Heckler Report on Black and Minority Health. which documented racial health disparities at the national level for the first time and led to the establishment of the Federal Office of Minority Health in 1986. However, the report described Asian Americans as healthier than all other racial groups. corroborating the socially reconstructed view of Asian Americans from the 1960s as healthy. wealthy, and with a strong work ethic-the "model minority" myth. The report did not consider that the aggregated data of good health were largely driven by healthier. affluent Asian American subgroups. neglecting underserved Asian Americans and many distinct Asian American populations. which today consist of more than 50 ethnic and 100 language groups. National .Asian American advocacy organizations were founded in direct response to the Heckler report to debunk this "model minority' myth, such as the Asian &Pacific Islander American Health Forum and the Association of Asian Pacific Community Health Organizations. These organizations led the establishment of a national evidence base that disaggregated Asian American racial data by ethnic subgroups and identified health disparities across the heterogeneous Asian American population. Asian American health has since emerged out of the shadows, documenting ethnic health disparities such as Korean Americans with high uninsurance rates. Vietnamese American women with high cervical cancer rates and low cervical cancer screening rates. and Asian Indian and Filipino Americans with high rates of type 2 diabetes compared with Asian Americans in aggregate, nonHispanic Whites, and other racial groups.

COVID-19 ASIAN AMERICAN HEALTH DISPARITIES

Lessons learned from these national initiatives to document Asian American health disparities point us to the need to look further into granular COVID-19 data by Asian American subgroups. Disaggregated data will enable us to fully document COVID-19 Asian American health disparities and the particular Asian American subgroups most affected by this pandemic. Undocumented, low-income, elderly, and limited-Englishproficient Asian Americans may be most adversely affected in the current climate, as well as those afraid to seek care because of anti-Asian xenophobia. For example. one out of seven Asian immigrants is undocumented, of which Asian Indians (37%) and Chinese (18%) represent the largest proportion.2 Asians in aggregate are less likely than the general US population to live in poverty (12% vs 15%), but Burmese (35%) and Bhutanese (33%) have poverty rates much higher than the US average.3 Elderly Asian Americans are particularly vulnerable to COVID-19 not only because of their multiple comorbidities but also because of significant language barriers to health care; 60% of elderly Asian Americans have limited English proficiency, with elderly Cambodians (89%) and Vietnamese (88%) having the highest limited English proficiency.4

One place to begin addressing these disparities during this era of COVID-19 would be to understand the unique cultural and language considerations for Asian Americans. For example, Asian American older persons with limited English proficiency are more likely to face social isolation and neglect from the health system. With the current unprecedented stressors on the health system, effective language communication tends to decline in priority, despite being the only lifeline for many Asian American elderly patients. In addition, Asian American communities can be insular, with trusted COVID-19 health information circulating through ethnic community networks such as temples, churches, ethnic newspapers, radio stations, and mobile applications rather than through physicians, government officials, or mainstream American media. It is essential to work with community-based stakeholders who understand these Asian American patients and their networks, to build trust, conduct testing, and disseminate credible information.

GAPS IN ASIAN AMERICAN COVID-19 DATA

We can also better understand COVID-19 effects on Asian American populations with more granular data on race/ethnicity. Although there has been a nationwide push for reporting of detailed race/ethnicity data for COVID-19, we have found that Asian Americans are being left out ofthe conversation. Based on publicly reported data as of June 28, 2020, 86% of states report cases and 82% of states report deaths for Asian Americans. Florida, Missouri, Rhode Island, and West Virginia report COVID-19 data by some racial groups but exclude Asian Americans. No states report data on specific Asian American ethnic subgroups affected by the pandemic.5

Asian Americans constitute 5.6% of the US population and currently represent 3.5% of COVID-19 cases (49 481 cases) and 4.3% of deaths (4781 deaths) as ofJune 28, 2020.4 California (9724 cases), New Jersey (5140 cases), and Illinois (4119 cases) represent the states with the most Asian American COVID-19 cases. The proportion of Asian American COVID-19 cases is greater than their population representation across 17 US states, including South Dakota (6.2 times), Oklahoma (4.7 times), Nebraska (3.6 times), Iowa (3.4 times), Kentucky (2.8 times), Kansas (2.4 times), Vermont (2.4 times), Minnesota (1.8 times), Maine (1.8 times), and Wisconsin (1.5 times; Table 1).

Although these data may highlight disparities for Asian Americans linked to COVID-19 by state, meaningful differences in COVID-19 and associated health risks are being overlooked without granular ethnic subgroup data, in addition to data on age, gender, language, and other social factors. Therefore, both aggregate and granular Asian American data must be considered in COVID-19 reporting and response. We recommend collecting and reporting Asian American data by a minimum of seven Asian American ethnic subgroups (Asian Indian, Chinese, Filipino, Korean, Japanese, Vietnamese, and other Asian) for monitoring COVID-19 incidence, mortality, testing, and treatment following the US Department of Health and Human Services' data collection standards.6

This pandemic continues to exacerbate anti-Asian xenophobia and health disparities for medically underserved Asian Americans. For these ethnically diverse populations, greater cultural humility, inclusion, and representation in our COVID-19 response, reporting, and treatment are essential to alleviate the effects of this crisis. As a nation of immigrants, the United States has long-standing roots from Asia as part of its fabric and social history. As one nation, we need to ensure that no one is left out or left behind as we fight this pandemic together. Â1PU

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All authors contributed equally to this editorial.

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Sidebar

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Sexual and Gender Minority Health in the COVID-19 Pandemic: Why Data Collection and Combatting Discrimination Matter Now More Than Ever

Anonymous

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ABSTRACT (ENGLISH)

The COVID-19 pandemic has exposed striking racial and ethnic disparities in the United States, with hospitalization and death rates highest for Black and Latinx Americans on a per capita basis and Native Americans and Pacific Islanders also experienc-ing greater disparities compared with White and Asian Ameri-cans.1 This is attributable to multiple syndemic factors, in-cluding higher rates of underly-ing comorbid conditions; higher rates of living in dense, urban housing and relying on public transportation; and a greater likelihood of working in front-line, essential jobs, such as food service, transportation, and health care, and therefore not being able to socially distance. Black, Latinx, and Native American people are more likely than are White and Asian American people to lack health insurance, less likely to access routine health care, and more likely to avoid health services because of medical mistrust and anticipated microaggressions.

Although COVID-19 has sparked an important conversa-tion about racial/ethnic health disparities, the risks of COVID-19 for sexual and gender minority (SGM) people have received little to no attention. Most SGM people are a hidden population that exists in all racial/ethnic groups. Until recently they were invisible in the health care system. In recent years, the need for training in culturally responsive care and sexual orientation and gender identity (SOGI) data collection has been embraced by major health institutions. Atten-tion to the unique needs ofSGM people in the COVID-19 pan-demic, however, has been lacking.

FULL TEXT

AJPH COVID-19

Sexual and Gender Minority Health in the COVID-19 Pandemic: Why Data Collection and Combatting Discrimination Matter Now More Than Ever

|ШЦ See also the AJPH COVID-19 section, pp. 1344-1375.

The COVID-19 pandemic has exposed striking racial and ethnic disparities in the United States, with hospitalization and death rates highest for Black and Latinx Americans on a per capita basis and Native Americans and Pacific Islanders also experienc-ing greater disparities compared with White and Asian Ameri-cans.1 This is attributable to multiple syndemic factors, in-cluding higher rates of underly-ing comorbid conditions; higher rates of living in dense, urban housing and relying on public transportation; and a greater likelihood of working in front-line, essential jobs, such as food service, transportation, and health care, and therefore not being able to socially distance. Black, Latinx, and Native American people are more likely than are White and Asian American people to lack health insurance, less likely to access routine health care, and more likely to avoid health services because of medical mistrust and anticipated microaggressions.

Although COVID-19 has sparked an important conversa-tion about racial/ethnic health disparities, the risks of COVID-19 for sexual and gender minority (SGM) people have received little to no attention. Most SGM people are a hidden population that exists in all racial/ethnic groups. Until recently they were invisible in the health care system. In recent years, the need for training in culturally responsive care and sexual orientation and gender identity (SOGI) data collection has been embraced by major health institutions. Atten-tion to the unique needs ofSGM people in the COVID-19 pan-demic, however, has been lacking.

GREATER RISK OF INFECTION AND COMPLICATIONS

SGM people disproportion-ately work in jobs that are con-sidered essential; they may, therefore, be more likely to be exposed to SARS-CoV-2. A Human Rights Campaign Foundation analysis of 2018 General Social Survey data2 found that 2 million lesbian, gay, bisexual, and transgender (LGBT) people work in restau-rants and food services (15.0% of all LGBT adults), 1 million work in hospitals (7.5%), and half a million work in retail (4.0%). Additionally, SGM people are more likely to live in dense, urban areas, where physical distancing measures are much harder to maintain and have emerged as early COVID-19 infection hot-spots. Many, especially bisexuals and transgender people and LGBT people of color, are low income.

SGM people may be more vulnerable to complications from COVID-19. This is because SGM people are more likely to have chronic conditions, such as cardiovascular disease, cancer, obesity, and HIV/AIDS.3 SGM older adults experience higher rates of disability than do their heterosexual, cisgender coun-terparts.4 Sexual minorities are more likely to smoke cigarettes5 and vape than are heterosexual, cisgender people. These dispar-ities intersect with racial/ethnic health disparities. All of these conditions and risk behaviors could increase the vulnerability of SGM people to complications if they develop COVID-19.

THE NEED FOR DATA COLLECTION

It is not known whether SGM people are more likely to become infected with SARS-CoV-2, nor is it known whether they are more likely to develop compli-cations from COVID-19 or to die as a result of infection. The role of intersectionality (i.e., whether Black, Latinx, and indigenous SGM people have worse outcomes from COVID-19 than their demo-graphically similar non-SGM counterparts) has not yet been studied. These are critically im-portant questions, because the answers might affect the de-ployment of resources and the development of culturally tailored interventions. Unfortu-nately, the US public health system has not been systemati-cally collecting SOGI data and reporting it in real time, so it is not known whether SGM people are more likely to have

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complications and poorer out-comes from COVID-19.

Nevertheless, the answers to these questions are knowable. The federal government has taken a number of steps over the past decade to encourage or in-centivize SOGI data collection to better understand and reduce SGM health disparities and to improve quality of care and population health. At this key moment in this nation's health, however, public health surveil-lance systems, including the US Department of Health &Human Services' COVID-19 laboratory reporting guidance, have a blind spot when it comes to SOGI. Pennsylvania, Washington, DC, Massachusetts, and Rhode Island are taking steps toward collecting SOGI data (Rhode Island collects sexual orientation only) in the COVID-19 pandemic, but data are not yet available. Illinois will add a COVID-19 module to its 2020 Behavioral Risk Factor Surveillance System survey, which also asks about SOGI. This will eventually provide data on SGM populations and COVID-19, but it will not be available until at least 2021.

Since 2015, as part of the Affordable Care Act (ACA), the US government's electronic health record incentive program has encouraged the collection of SOGI data as a standard demo-graphic variable. There are na-tionally endorsed, mature data standards for measuring SOGI and protocols to implement SOGI data collection while protecting patient confidentiality are well established.6

The nation's public health response system-at the local, state, and national levels-needs to systematically collect SOGI data to understand how SGM people are experiencing COVID-19 and how SGM dis-parities intersect with racial/ethnic disparities in COVID-19 outcomes as well as to ensure that prevention, testing, and care services are effectively meeting the needs of SGM people.

THE NEED FOR NONDISCRIMINATION

It is also necessary that dis-crimination on the basis ofSOGI not be allowed in COVID-19 screening or care. It is well estab-lished that SGM people experi-ence discrimination in health care; this correlates with poorer health and well-being for SGM people and causes SGM people to not access health care. It also exacer-bates SGM health disparities. The Trump administration has pro-moted anti-SGM discrimination in a wide range of policy areas, including by implementing religion-and "conscience"-based policies that could increase anti-SGM discrimination in health care and social services.7

Tens of millions of Americans lost their jobs in spring 2020, and many of them lost employer-provided health insurance. The Trump administration has final-ized its repeal of the ACA's nondiscrimination rule (imple-menting Section 1557 of the ACA), which prohibits gender identity discrimination in health care and some forms ofanti-LGB discrimination that take the form of sex stereotyping. Nondis-crimination protections are needed now to ensure that SGM people can access life-saving care during this global pandemic.

It is also important to ensure that the health care workforce is trained to provide culturally re-sponsive and affirming care for SGM patients. This includes staff testing people for SARS-CoV-2, providing care to patients with COVID-19, and conducting
contact tracing to notify people who may have come into contact with the individual who tested positive for SARS-CoV-2. It is important that these staff be trained in using the correct names and pronouns for transgender and gender-diverse people; this in-formation may differ from that listed on their official identity documents. Staff should also be respectful and nonjudgmental when conducting contact tracing for same-sex sexual partners.

SGM people who fall ill with COVID-19 should have access to testing and needed care. Because of discrimination, however, many SGM people do not have access to routine, preventive health care and may face increased barriers to accessing a SARS-CoV-2 test. The only way to be certain about the disparities in risks and out-comes facing the SGM commu-nity in this pandemic is to mandate the collection and reporting of voluntary SOGI data in all aspects of testing and health care, in compliance with existing health care privacy laws. >4jPUI

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Telemental Health and US Rural–Urban Differences in Specialty Mental Health Use, 2010–2017

Patel, Sadiq Y, PhD MSW [1] ; Huskamp, Haiden A, PhD [1] ; Busch, Alisa B, MD MPH [1] ; Mehrotra, Ateev, MD MPH [1] [1] Harvard Medical School, Department of Health Care Policy, Boston, MA

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ABSTRACT (ENGLISH)

Objectives. To examine whether growing use of telemental health (TMH) has reduced the rural-urban gap in specialty mental health care use in the United States. Methods. Using 2010-2017 Medicare data, we analyzed trends in the rural-urban difference in rates of specialty visits (in-person and TMH). Results. Among rural beneficiaries diagnosed with schizophrenia or bipolar disorder, TMH use grew by 425% over the 8 years and, in higher-use rural areas, accounted for one quarter of all specialty mental health visits in 2017. Among patients with schizophrenia or bipolar disorder, TMH visits differentially grew in rural areas by 0.14 visits from 2010 to 2017. This growth partially offset the 0.42-visit differential decline in in-person visits in rural areas. In net, the gap between rural and urban patients in specialty visits was larger by 2017. Conclusions. TMH has improved access to specialty care in rural areas, particularly for individuals diagnosed with schizophrenia or bipolar disorder. While growth in TMH use has been insufficient to eliminate the overall rural-urban difference in specialty care use, this difference may have been larger if not for TMH. Public Health Implications. Targeted policy to extend TMH to underserved areas may help offset declines in in-person specialty care. (Am J Public Health. 2020;110:1308-1314. doi:10.2105/AJPH.2020.305657)

FULL TEXT

Headnote

Objectives. To examine whether growing use of telemental health (TMH) has reduced the rural-urban gap in specialty mental health care use in the United States.

Methods. Using 2010-2017 Medicare data, we analyzed trends in the rural-urban difference in rates of specialty visits (in-person and TMH).

Results. Among rural beneficiaries diagnosed with schizophrenia or bipolar disorder, TMH use grew by 425% over

the 8 years and, in higher-use rural areas, accounted for one quarter of all specialty mental health visits in 2017. Among patients with schizophrenia or bipolar disorder, TMH visits differentially grew in rural areas by 0.14 visits from 2010 to 2017. This growth partially offset the 0.42-visit differential decline in in-person visits in rural areas. In net, the gap between rural and urban patients in specialty visits was larger by 2017.

Conclusions. TMH has improved access to specialty care in rural areas, particularly for individuals diagnosed with schizophrenia or bipolar disorder. While growth in TMH use has been insufficient to eliminate the overall rural-urban difference in specialty care use, this difference may have been larger if not for TMH.

Public Health Implications. Targeted policy to extend TMH to underserved areas may help offset declines in in-person specialty care. (Am J Public Health. 2020;110:1308-1314. doi:10.2105/AJPH.2020.305657)

Mental illnesses are common-in the United States, the lifetime prevalence of mental illness that impairs functioning is 46%.1 However, mental health treatment rates in the United States remain low, particularly for specialty care. Fewer than a third of individuals with mental illness in the United States received specialty mental health care in the previous year.2 Among individuals with more serious mental illness, fewer than half received specialty mental health care,3 and 43% reported unmet need for mental health care.4 Treatment by a specialty mental health provider, particularly among those patients with serious and disabling mental illness, has been associated with greater use of guidelineconcordant care.1,4

Specialty care rates are particularly low in rural areas relative to urban areas, with rural patients receiving up to 73% fewer specialty mental health visits than urban residents.5 While barriers to treatment exist for all, barriers to access are greater in rural areas, where specialty provider shortages are especially acute and individuals seeking treatment may have to travel long distances.6 9

Telemedicine in the form of live video teleconferencing with a specialty mental health clinician-known as telemental health-has the potential to address this rural-urban difference in specialty mental health use. In randomized trials, telemental health has been shown to be comparable or even superior to in-person care,10 12 including for patients with depression13-15 and schizophrenia.16-18 Under current regulations, Medicare chiefly covers telemedicine visits if a beneficiary is hosted at a clinic or other health care facility located in a rural area (that is, telemental health visits cannot be received in the home or in a hosting site in an urban area; see Appendix J, available as a supplement to the online version of this article at http://www.ajph.org, for details of how eligibility for telemedicine is determined). While Medicares coverage of telemedicine began as early as 2000,19 telemental health use among rural Medicare beneficiaries with mental illness has grown most rapidly starting in 2010 and has been increasing at a rate of roughly 50% per year.20 Many bills have been introduced in Congress to address telemedicine barriers and accelerate growth.21

Given the growing use of telemental health in rural areas, it is possible that the rural-urban difference in specialty mental health treatment has narrowed. To answer this question, using 2010-2017 Medicare data, we describe trends in rural-urban differences in outpatient specialty mental health utilization rates-both in-person and via telemental health-among adults with mental illness.

METHODS

We conducted a retrospective analysis of 2010-2017 de-identified Medicare Part B claims for a 20% random sample of Medicare beneficiaries throughout the United States. We excluded patients not continuously enrolled in Medicare Parts A and B for 12 months during the calendar year.

Identification of Aduit Beneficiaries With Mental Illness

We focused on 2 populations of adults aged 18 years and older: (1) those diagnosed with any mental illness and (2) the subgroup of patients with any mental illness diagnosed with schizophrenia or bipolar disorder. We created person-year cohorts for each calendar year. To be included in our mental illness population, we required at least 2 outpatient visits with a mental health diagnosis in any diagnosis field on different days or 1 inpatient admission with a mental health diagnosis as the primary diagnosis in a given year (International Classification of Diseases, Ninth Revision [ICD-9; Geneva, Switzerland: World Health Organization; 1980], codes 295 to 302,306 to 309, or 311 to 316 and International Classification of Diseases, Tenth Revision [ICD-10; Geneva Switzerland: World Health

Organization; 1992], codes F20 to F69 or F80 to F99). To identify patients with schizophrenia orbipolar disorder, we used ICD-9 codes 295, 296.0, 296.1, 296.4 to 296.9, 297, 301.11, or 301.13 and ICD-10 codes F20 to F29, F30 to F31, or F34. We examined schizophrenia and bipolar disease as examples of more serious and disabling mental illnesses. The proportion of urban and rural beneficiaries included in the person-year cohorts identified by different criteria (1 or more inpatient visits, 2 or more outpatient visits, or both) was similar (Appendix I, available as a supplement to the online version of this article at http:// www.ajph.org).

Beneficiary Characteristics

We captured age, sex, rural-urban status, county-level Federal Information Processing Standards code, dual enrollment in the Medicaid program, and diagnosis of cooccurring substance use disorder (SUD). We identified SUD if a patient had at least 1 SUD claim in any diagnostic field or at least 1 inpatient admission for SUD in the primary diagnostic field in a given year (ICD-9 codes 291 to 292, 303, 304, 305.0, 305.2 to 305.7, or 305.9 and ICD-10 codes F10toF16orF18 to F19; see Appendix E, available as a supplement to the online version of this article at http://www.ajph.org, for full list of SUD codes). Consistent with previous work,22 only 1 SUD claim was required because SUD is often undercoded in administrative claims data.

Consistent with Medicare's definition, we classified patients as rural if they lived outside a metropolitan statistical area or in a community categorized as a nonmetropolitan ruralurban commuting area code of 4 to 10, and urban ifthey lived in an area with rural-urban commuting area code of 1 to 3. While other measures of rural and urban status exist, we implemented Medicare's definition as it determines reimbursement for telemental health visits for rural patients.

Classification of Mental Health Visits

As in our previous work,19 we defined visits (in-person and telemedicine) as outpatient mental health-related visits if the first or second diagnosis code was a mental health diagnosis (using the list of previously mentioned diagnosis codes). To address the possibility of double counting because of multiple claims for a single visit, we included a maximum of 1 visit per day.

We defined specialty mental health visits as visits to a psychiatrist, psychologist, or clinical social worker and identified them by using Medicare specialty codes 26, 86, 62, 68, and 80.

Telemental health visits were outpatient mental health visits with GT, GQ, or 95 modifier codes, or place-of-service code 02 (telemedicine). We classified all other outpatient specialty mental health visits as in-person visits.

Utilization Measures

For each calendar year, we measured the number of telemental health, in-person, and total (telemental plus in-person) specialty mental health visits per rural and urban Medicare beneficiary per year who met diagnostic criteria described previously. We calculated these rates by dividing the total number of visits for each group by the total number of beneficiaries in each group per year. We assigned zero visits ifthe beneficiary did not have a specialty visit during the year.

Analyses

To describe our sample, we present unadjusted averages ofpatient characteristics for urban and rural patients over time in Table 1. We measured the standardized difference in patient characteristics between 2010 and 2017 among rural and urban beneficiaries. Standardized differences are increasingly used in health services research to compare the distribution of continuous and dichotomous covariates between groups, particularly in observational studies using big data.23 Across all years in our data, we measured unadjusted telemental health utilization rates in both the urban and rural populations.

To estimate rural-urban differences in service utilization rates over time, we estimated a linear regression model of each utilization outcome using the initial and final years of data only (2010 and 2017). We calculated the unadjusted rural-urban difference in the number ofspecialty outpatient mental health visits (in-person, telemental health, and overall) per Medicare beneficiary for each year and observed a linear change over time for each outcome variable (Appendix G, available as a supplement to the online version of this article at http://www. ajph.org). To assess change in the rural-urban difference in specialty care use between 2010 and 2017, we tested the significance of the rural-by-year interaction term. Negative coefficient values indicated an increase in the rural-urban difference, and positive values indicated a decrease. We controlled for beneficiary characteristics as defined previously and state fixed effects (see Appendix A, available as a supplement to the online version of this article at http://www.ajph.org, for model specification). Analyses adjusted for repeated measures (i.e., the same beneficiary in 2010 and 2017).

In a sensitivity analysis, we used a zero-inflated negative binomial regression model to account for the distributional characteristics of the outcome variables. The results were similar in both the direction of the point estimate and level of significance for the rural-by-year interaction term. Results from linear regression models are presented in Tables 2 and 3, and results from the negative binomial models are presented in Appendix C (available as a supplement to the online version of this article at http://www.ajph. org).

Rural Counties With Highest Telemental Health Utilization

While telemental health uptake has been modest overall, uptake is highly variable across counties.19 To offer insight on how future growth in telemental health could affect rural-urban differences in specialty mental health care utilization, we performed a subanalysis focused on the counties with the highest uptake of telemental health in 2017. The assumption is that, with continued growth, the care patterns in these counties could be a baseline estimate for what we will see nationally in the future. We compared differences between all urban patients versus rural patients who reside in these counties.

To identify these high-use counties, we measured each county's telemental health utilization rates for 2017 among rural residents. We rank ordered the counties, and we included the top counties encompassing 10% of our rural sample with the highest telemental health utilization rates in this subanalysis. The 348 080 rural Medicare patients diagnosed with mental illness resided in 2719 counties in 2017. The high-use counties encompassed 358 counties with 10% of these patients (34 808 beneficiaries). We used the same 358 counties for both 2010 and 2017.

RESULTS

Among the 20% sample of Medicare beneficiaries (n = 12 856 313 in 2010; n = 13 224 017 in 2017), there were 238 606 rural and 620 402 urban beneficiaries diagnosed with any mental illness in 2010 and 348 080 rural and 897 775 urban beneficiaries diagnosed in 2017. The schizophrenia or bipolar sample comprised 47 138 rural and 147 090 urban beneficiaries in 2010, and 54 467 rural and 159 523 urban beneficiaries in 2017 (Table 1).

Between 2010 and 2017, there was a decrease in the proportion of beneficiaries diagnosed with any mental illness dually enrolled in the Medicaid program (49% to 42% and 46% to 37%, rural and urban, respectively) and an increase in the proportion of beneficiaries with SUD comorbidity (5.7% to 7.5% and 6.2% to 7.8%, rural and urban, respectively). From 2010 to 2017, there was an increase in the proportion of beneficiaries with schizophrenia or bipolar disorder who had an SUD comorbidity (10% to 13.4% and 11% to 13.9%, rural and urban, respectively; Table 1).

Visit Trends Among Patients With Any Mental Illness

Rates ofin-person specialty mental health visits fell from 2010 to 2017 among both urban and rural beneficiaries diagnosed with any mental illness. The decline was differentially larger among rural residents between 2010 and 2017, but the change in the difference was not statistically significant (differential decline in rural areas = -0.03 visits; 95% confidence interval [CI] = -0.07, 0.01).

Rates of telemental health specialty visits grew among Medicare beneficiaries diagnosed with any mental illness, increasing from 0.02 visits per rural beneficiary in 2010 to 0.06 visits in 2017 and from approximately zero visits per urban beneficiary in 2010 to 0.01 visits in 2017 (Figure 1 and Table 2). The differential increase in telemental health specialty care in rural areas was 0.04 visits (95% CI = 0.038, 0.042). This differential increase in telemental health was similar in magnitude to the differential decline in in-person visits and, in net, the overall rural-urban difference in specialty care use did not change (+0.01; 95% CI = -0.03, 0.05).

Visit Trends Among Patients With Schizophrenia or Bipolar Disorder

Rates ofin-person specialty mental health care among those with schizophrenia or bipolar disorder fell from 2010 to 2017, and the decline was larger in rural areas (differential decline in rural areas-0.42 visits; 95% CI = -0.55, -0.29).

Telemental health specialty visits grew among Medicare beneficiaries diagnosed with schizophrenia or bipolar disorder, increasing from 0.04 visits per rural beneficiary in 2010 to 0.21 visits in 2017, and 0.01 visits per urban beneficiary in 2010 to 0.03 visits in 2017. The differential increase in telemental health specialty care in rural areas (0.14 visits; 95% CI = 0.13, 0.15) partially offset the decline in in-person visits. In net, there was an increase in the rural-urban difference in all specialty care (differential decline in rural areas = -0.28 visits; 95% CI = -0.41, -0.15).

Counties With Highest Teiementai Health Utilization

In a subanalysis, we examined ruralurban differences in specialty care between all urban patients and 10% of rural patients who resided in counties with the highest telemental health utilization rates in 2017 (in Appendix B, available as a supplement to the online version of this article at http://www.ajph.org, we compare the patient characteristics of these counties). Among rural beneficiaries in these areas with any mental illness, telemental health specialty visits increased from 0.05 visits per rural beneficiary in 2010 to 0.38 visits in 2017. In 2017, telemental health visits accounted for 23% of all outpatient specialty visits in these areas (0.38/1.67 = 23%).

In this subset of rural areas, the differential increase of telemental health visits (0.32 visits; 95% CI = 0.31, 0.33) fully offset the differential decline in in-person specialty care (-0.24 visits; 95% CI = -0.35, -0.12), resulting in no net change in the rural-urban difference (0.09 visits; 95% CI = -0.03, 0.20).

We found a similar trend among rural beneficiaries diagnosed with schizophrenia or bipolar disorder, but the changes were greater in magnitude. In this subset of rural areas, telemental health visits increased from 0.11 to 1.07 visits per rural beneficiary in 2010 and 2017, respectively. Telemental health specialty visits accounted for 25% of all outpatient mental health specialty visits in 2017 among rural beneficiaries diagnosed with any mental illness (1.07/4.21 = 25%). Rates of in-person specialty visits fell from 2010 to 2017, particularly for these rural areas. The differential increase in telemental health (0.93 visits; 95% CI = 0.91,0.96) in these rural areas fully offset the differential decline in in-person specialty care (-1.06 visits; 95% CI = -1.43, -0.70). As a result, there was no significant change in the rural-urban difference in all specialty mental health care between 2010 and 2017 (-0.13 visits; 95% CI = -0.50, 0.24).

DISCUSSION

There has been great interest in the potential for telemental health to increase access to specialty mental health care among rural beneficiaries with mental illness and thereby reduce rural-urban differences in use of specialty mental health visits. Across both urban and rural populations, we observed a general decline in in-person specialty visits from 2010 to 2017 that was differentially greater in rural areas compared with urban areas. The differential growth of telemental health in rural areas has helped partially or fully offset some of this differential decline of in-person visits in rural areas, particularly for individuals diagnosed with schizophrenia or bipolar disorder.

The patterns we observed in rural areas with higher uptake of telemental health are promising if they portend what we may see nationally in the future given the growth in telemental health over the past several years. In rural counties with the highest telemental health uptake, telemental health made up roughly a quarter of all outpatient mental health specialty visits in 2017. In these rural areas, the differential growth of telemental health in rural areas has fully offset the differential decline in in-person specialty mental health care. Together, this suggests that, in these communities, telemental health has already become a core component ofspecialty mental health care delivery,24 in particular for those with more serious and disabling mental illnesses. Without the growth of telemental health, the rural-urban differences would likely have been even larger. Given increasing shortages in in-person specialty providers in rural areas, telemental health may be even more important in the future. We observed wide variation in the use of telemental health across communities, and future research should explore local factors that might explain the use of telemental health.

We observed a general decline in use of specialty mental health care attributable to a substantial decline in in-person visits. It is unclear what is driving the overall decline in in-person mental health specialty care, particularly in rural areas. Potential factors that may contribute include a relative decline in supply of specialty providers6 because of an aging mental health workforce25 and a decrease in the number of specialty providers accepting Medicare.7 Another factor driving the drop in in-person visits is that they could be replaced with telemental health visits. Given the general decline across the United States in all areas in in-person specialty mental health visits, our hypothesis was that telemental health would be additive to in-person care. However, it is possible that, in some cases, telemental health visits are replacing in-person specialty mental health visits and have no net impact on total use of specialty mental health care (Appendix H, available as a supplement to the online version of this article at http://www.ajph.org). In previous qualitative interviews with community mental health centers, they report that they generally view telemental health visits as a supplement to in-person care.24 However, in some cases, clinics allow patients to choose between teleand in-person visits, which could imply that telemental health visits could be replacing in-person care.

Limitations

These analyses had several limitations. First, our analyses were limited to the Medicare population and, therefore, the care patterns we observed may not translate to the Medicaid or commercially insured population. It is notable that a large proportion of our Medicare mental illness cohort is disabled and aged younger than 65 years. Beneficiaries aged younger than 65 years used specialty mental health care (in-person, telemental health, and overall) at higher rates than those aged 65 years or older (Appendix F, available as a supplement to the online version of this article at http://www.ajph.org), indicating that their needs may be different than those aged 65 years or older. Second, we may have undercounted the number of telemental health visits. For example, clinicians may provide telemental health services for which they do not seek reimbursement.26 To the degree that this undercounting is differential in rural areas, this could bias our estimates on trends in the differences in care. Third, our definition of specialty mental health care providers was limited to psychologists, psychiatrists, and clinical social workers. Because Medicare data do not specify the specialization of other providers (such as psychiatric nurse practitioners), we were unable to include these other specialty providers. It is possible that nurse practitioners are differentially used in rural areas. However, given that only 2.9% of all nurse practitioners specialize in psychiatric or mental health care, and less than 18% practice in rural communities,27 it is unlikely to substantially affect our results.

Public Health Implications

Our findings demonstrate that telemental health could be an important mechanism for improving access to specialty mental health care in lieu of in-person care, particularly among rural Medicare beneficiaries diagnosed with serious and disabling mental illnesses. In some rural communities in the United States, telemental health has already become a core component of specialty mental health care delivery. To date, Medicare has taken a targeted approach focused primarily on telemedicine visits only for rural beneficiaries and those that are hosted at a local clinic or provider.

Policy interventions to increase use of telemental health specialty care could help to further offset declines in in-person specialty care. One strategy would be to allow rural patients to receive telemedicine visits in their home. In urban areas, underserved populations could also be targeted by allowing patients of federally qualified health centers to receive telemedicine. Another strategy would be to increase reimbursement for telemental health specialty visits such that telemedicine is paid more than in-person visits. While all of these interventions will address access barriers attributable to proximity to a provider, it will not address a lack of providers. The national decline of mental health providers, in particular those who accept Medicare,7 means that there simply may not be enough providers to deliver specialty mental health care to rural and urban residents and that interventions are also required to increase the supply of mental health providers. Â1P4

CONTRIBUTORS

AH authors contributed to the review and editing of the article. S. Y. Patel contributed to the original draft preparation, visualization, data curation, formal analysis, development of methodology, creation of models, and conceptualization. H. A. Huskamp contributed to the formulation of overarching research goals and aims and funding acquisition. A. B. Busch contributed to the conceptualization. A. Mehrotra contributed to the formulation ofoverarching research goals and aims, funding acquisition, and supervision and mentorship.

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CONFLICTS OF INTEREST

The authors report no conflict of interest.

HUMAN PARTICIPANT PROTECTION

This study was reviewed and approved by the Harvard Medical School institutional review board.

Sidebar

Correspondence should be sent to Ateev Mehrotra, 180A Longwood Ave, Boston, MA 02115 (e-mail: mehrotra@hcp.med.harvard.edu). Reprints can be ordered at http://www.ajph.org by clicking the Reprints link.

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DETAILS

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CONFLICTS OF INTEREST

Anonymous

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FULL TEXT

Paul C. Erwin, MD, DrPH, and Wendy E. Braund, MD, MPH, served as Guest Editors for the special section: Rural Public Health: A New Frontier? Both were involved in conceptualizing the special section, and both were responsible for inviting the contributors, overseeing the peer review process, and writing the lead editorial.

CONFLICTS OF INTEREST

Paul C. Erwin does not have any conflicts of interest to declare.

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Iran's Rural–Urban Mortality Gap Among Children Younger Than 5 Years

Lewandowski, Stephen; Abuawad, Ahlam; Abalu, Omokhoya; Segura, Luis E

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FULL TEXT

Reducing mortality among children younger than 5 years (U5M) is a sustainable development goal. Mohammadi et al. used data from the Demographic and Health Surveys to estimate the rates and rural-urban ratio in Iran of U5M in 1990, 2000, 2010, and 2015. In urban areas, the U5M rate in 1990 and 2015 was 66 and 13 per 1000 living births, respectively. In rural areas, U5M rates in 1990 and in 2015 were 129 and 21 per 1000 living births, respectively. The rural-urban ratio of U5M was 1.93 in 1990 and 1.63 in 2015. Although U5M rates have decreased since 1990 in Iran, there is still a significant gap in mortality disproportionately affecting children in rural areas.
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Implementation of the First US Sugar-Sweetened Beverage Tax in Berkeley, CA, 2015–2019

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ABSTRACT (ENGLISH)

Objectives. To identify lessons learned from implementation of the nation's first sugar-sweetened beverage (SSB) excise tax in 2015 in Berkeley, California. Methods. We interviewed city stakeholders and SSB distributors and retailers (n = 48) from June 2015 to April 2017 and analyzed records through January 2019. Results. Lessons included the importance of thorough and timely communications with distributors and retailers, adequate lead time for implementation, advisory commissions for revenue allocations, and funding of staff, communications, and evaluation before tax collection begins. Early and robust outreach about the tax and programs funded can promote and sustain public support, reduce friction, and facilitate beverage price increases on SSBs only. No retailer reported raising food prices, indicating that Berkeley's SSB tax did not function as a "grocery tax," as industry claimed. Revenue allocations totaled more than $9 million for public health, nutrition, and health equity through 2021.

Conclusions. The policy package, context, and implementation process facilitated translating policy into public health outcomes. Further research is needed to understand long-term facilitators and barriers to sustaining public health benefits of Berkeley's tax and how those differ from facilitators and barriers in jurisdictions facing significant industry-funded repeal efforts. (Am J Public Health. 2020;110:1429-1437. doi:10.2105/ AJPH.2020.305795)

FULL TEXT

Headnote

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Berkeley, California became the first US jurisdiction to pass a sugar-sweetened beverage (SSB) tax1 in 2014 via referendum, which garnered 7 6% of the vote. The ordinance levied a $0.01 per ounce excise tax on SSB distribution. Artificially sweetened beverages are not taxable. Although SSB taxes evoke higher support when revenues are designated for health or education, Berkeley's measure appropriated revenues to the general fund. This was a strategic decision made by SSB tax proponents and City Council to keep the vote threshold at a simple majority; California requires a two thirds vote for earmarked taxes.2 However, to promote revenue allocations aligned with public health, the ordinance established an SSB Product Panel of Experts (SSBPPE) to advise the city on funding "programs to further reduce [SSB] consumption ... [and its] consequences."

As of fall 2019, 8 US jurisdictions had implemented SSB taxes.1 Since Berkeley's implementation, the evidence base for SSB taxation has strengthened. Within 1 year, SSB consumption declined in Berkeley's lowerincome neighborhoods,3,4 and SSB purchasing dropped 10% in supermarkets.5 These results are consistent with findings of lower consumption and sales of taxed beverages following enactment of beverage taxes in Mexico (in 2013),6 Philadelphia, Pennsylvania (2016),7 and Seattle, Washington (2017).8

Given the growing interest in SSB taxes,9 it is critical to use implementation science to identify barriers, facilitators, and resources required to translate taxation policy into public health outcomes.10 To our knowledge, no other study has examined implementation of an SSB tax. Lessons learned from Berkeley could inform the success of future taxes. Therefore, we conducted keyinformant interviews and record review, informed by implementation science frameworks, to characterize the implementation process, barriers and facilitators, and lessons learned for achieving public health impact.

METHODS

From June 2015 to April 2017, we conducted semistructured interviews with city staff, its tax administrator, SSB distributors, Berkeley retailers, and SSBPPE commissioners.

We invited staff of the city's finance, legal, and public health offices, tax administrator, and SSBPPE commissioners for interviews; all participated (n = 9). From stores sampled for a prior study,11 we invited all independent stores (except 1 selling few SSBs) and 1 store from each drugstore, supermarket, and convenience chain (n = 22); 16

participated (3 declined, 3 were unreachable). We also interviewed staff from an independently owned supermarket and university dining (n = 2). Finally, we invited a random sample of 35 self-distributors (i.e., stores and restaurants buying drinks from stores outside Berkeley to sell in Berkeley or making in-house SSBs); 16 participated (8 declined, 11 were unreachable). Of26 distributors invited, 5 participated (7 refused, 14 were unreachable; the latter included large distributors).

Table 1 describes the sample and gives interview dates and topics. We developed interview guides based on prior retailer feedback,11 beverage industry claims that SSB taxes raise food prices (amounting to a "grocery tax"),12 stakeholder response to excise taxes of other products,13,14 and select constructs of frameworks by Frieden15 and Damschroder et al.16: policy characteristics, context (inner and outer setting of the implementing organization), and implementation process (including communication and engagement). We audio-recorded interviews and transcribed them verbatim. We took detailed notes for 3 retailers and 3 distributors who declined recording. We used both deductive and inductive analysis; using a collaborative and iterative process, we developed a codebook with structural codes (based on question theme and the range ofresponses) and codes based on themes that emerged. We double-coded interviews using NVivo 11 (QSR International, Melbourne, Australia) and resolved disagreements through consensus.

From January 2015 to January 2019, we identified city records (SSBPPE minutes, Council resolutions and contracts, and Web sites17-19; n = 93 screened, 31 included). We used records to construct a time line and determine revenue allocations and tax administrator cost. We reviewed documents provided by retailers (10 distributor invoices and 2 distributor letters) to characterize the information retailers received.

RESULTS

We present results by the following constructs: policy characteristics, context (inner and outer settings), and implementation process. "Implementation process" comprises tax collection and engagement of distributors and self-distributors, retailer perceptions, and revenue allocations.

Policy Characteristics

Three policy characteristics facilitated implementation of Berkeley's SSB tax: legitimacy of the policy source,16 policy simplicity,15,16 and the policy "package."16 First, Berkeley's SSB tax was championed by the Berkeley Healthy Child Coalition, which comprised parents, teachers, health professionals, the Berkeley NAACP, Latinos Unidos, and others. The tax had unanimous City Council support and garnered 76% of the popular vote. The policy source and mechanism of enactment facilitated implementation: "there is politically a sense of inevitability to it. People ... are very aware that 70-something percent of the electorate voted for this, [which] makes it difficult to attack" (city official).

Second, regarding simplicity, the tax administrator described the tax calculation ($0.01/oz) as "actually really simple" compared with tobacco tax rates, which can vary "per pack, per carton, per cigar." Third, a policy "package" can better promote public health through synergy among its components. The 2 core components of Berkeley's ordinance, the tax and SSBPPE, worked synergistically: the excise tax reduced SSB consumption while generating revenue, which the SSBPPE directed to new public health programs.

A policy-specific implementation barrier was the ordinance's effective date of January 1,2015, less than 2 months after the vote. This time line was not feasible, so enforcement began March 1, 2015-still "extraordinarily quick by municipal standards" (city staff). City staff, retailers, and distributors recommended more lead time (e.g., "6 months" [city official and small grocer]).

Context

The Berkeley city government and the SSBPPE were the implementing organizations (i.e., inner setting). The outer setting comprised Berkeley residents, institutions, and retailers, and the SSB industry.

Outer setting. Characteristics of Berkeley's history, institutions, and residents were conducive to public support for SSB tax enactment and implementation. First, Berkeley has a history of policy leadership (e.g., busing for desegregation,20 tobacco control21). City officials and retailers noted that regulation was already the norm. Second, although Berkeley is perceived as a relatively healthy city, there were widely publicized chronic disease inequities,22,23 and the public schools' popular Cooking and Gardening Program lost all funding because of federal cuts. SSB taxation was pitched as addressing both issues. Fourth, Berkeley is home to the University of California, Berkeley, and its School of Public Health, students, graduates, and professors, contributing to an educated24 and engaged electorate who may have been particularly attuned to the rationale for the tax.

The SSB tax campaign made Berkeley's 2014 election the most expensive in the city's history, and the beverage industry sued over the measure's language.25 However, unlike Philadelphia and Cook County, Illinois,26 Berkeley did not face postenactment lawsuits or well-funded repeal efforts. Otherwise, implementation would have required more resources. However, as the nation's first, Berkeley's tax was high profile, with both protax and antitax stakeholders monitoring implementation. This created external pressure on the inner setting-the city-to prioritize implementation: "Researchers, the media, big soda companies: they're all watching. ... [Thus,] the whole city is very interested in [making] this is a successful program" (city official).

Inner setting. The inner setting placed a high priority on implementation. There was early leadership engagement across multiple city departments, especially Finance, the City Attorney's Office, and, later, Public Health, with leadership from the City Manager's Office. "They're interested that implementation happens as smoothly, effectively, and efficiently as possible" (city official).

A city the size of Berkeley did not have available capacity to conduct in-house collection so quickly. Therefore, a city official said, "the city manager made a good executive decision" to hire a tax administration company to coordinate tax outreach and collection, which cost 2% of tax proceeds.

A lesson learned was the importance of funding and hiring personnel in advance of implementation. Existing city staff had to absorb initial implementation responsibilities. Later, after implementation began, the city hired a part-time program specialist (subsequently converted to full-time) in the Berkeley Public Health Division, funded by a grant. City staff recommended that other jurisdictions identify funding for and hire long-term implementation staffin advance of implementation. Although responsibilities and staffing needs would vary by jurisdiction size and context, Berkeley required at least 1 full-time position (with support from junior staff or interns) for coordinating across divisions, managing contracts with community agencies, staffing the SSBPPE, overseeing communications, and advising other jurisdictions.

Implementation Process

We describe the implementation process by the policy's core components: tax collection and SSBPPE. Figure 1 shows an implementation time line, and the box on page 1433 summarizes lessons learned.

Tax collection. Effective tax collection matters because taxes can fund critical programs and because it reduces consumer demand for SSBs. Berkeley's tax collection was divided into phases focusing on (1) distributors and (2) self-distributors. Although distributors are free to assume the costs of the tax, they typically raise SSB prices to retailers, and retailers typically raise SSB shelf prices, lowering demand for SSBs.27,28 Although retailers do not remit the tax, they are constituents affected by the tax, and their actions affect customers. Therefore, we also discuss retailers.

Phase 1-distributors. In January 2015, the city and the tax administrator sent a flyer to distributors, "manually called everyone, [and] ... followed up with an email" about tax outreach sessions in February 2015. "All 30-something distributors were essentially [there] and had tons of questions" (tax administrator). Afterward, there were additional phone calls, mailings, and an online FAQ.18 The city played a leading role in outreach: "The city manager felt we should do the outreach. The primary address should be local.. .. It was like a partnership, but we were in front. ... We approved the language. We know our citizens" (city official).

City officials and the tax administrator perceived successful execution of the implementation plan, noting their wide-reaching communication strategy, high attendance at education sessions, and timely execution of tax collection (e.g., "We did a pretty quick job ... collecting without a lot of friction." Another official characterized the tax as "beyond my dreams," from "$0 to $1.6 million you can spend educating kids," referring to the additional money raised by the tax.

Barriers included early distributor confusion about calculating taxes from syrup and misperceptions that use of "natural" caloric sweeteners exempted certain SSBs. A distributor said, "If you grab a bottle of Snapple, it says 'all natural.'... To me . .. that drink would not be subject to the tax." This distributor described making many phone calls to determine that it was taxable. The distributor also cited challenges programming software to calculate the tax, but ultimately characterized the tax as "just an inconvenience." Other distributors described the tax as "not hard" and "fairly simple now that it is up and running." Some distributors were dissatisfied with uncertainty around the enforcement date, echoed in local news.29 None of the 5 distributors interviewed had attended outreach sessions. Some cited not receiving notice, suggesting some communication gaps despite well-attended sessions.

Phase 2-self-distributors. Enforcement for self-distributors began in January 2016, 10 months after enforcement for distributors began: "We rolled it out in chunks we could manage" (city staff); "We knew who the big [distributors] were. ... [The self-distributors] would take more time" (city official). The Berkeley Public Health Division became more involved, and through a foundation grant it hired a program specialist in summer 2015 to be the liaison for self-distributors and to staff the SSBPPE, increasing readiness for phase 2.

The city and the administrator engaged potential self-distributors in November 2015 through a mailing and phone call, inviting them to attend 2 education sessions. Although few attended, those who did found it useful (e.g., "Otherwise I don't understand the whole thing" [restaurant owner]). An additional mailing with remittance forms was sent in December 2015.

A lesson learned was the need for more widespread outreach. "Maybe we should've hired staff, maybe a college student, to go visit each" self-distributor (city official). Most self-distributors did not recall receiving session notifications but acknowledged that mail gets overlooked. Retailers suggested communicating via letters, calls, and newspapers, but e-mail and in-person visits were most preferred (e.g., "It would be nice to just have that one-on-one. ... why can't you send someone to 10 stores a day?").

When asked about ease of tax remittance, many self-distributors described it as not challenging, "just more work" or "timeconsuming." One wished calculation was easier but said it is "already .. . the simplest." Two described confusion about syrup. One suggested quarterly instead of monthly payments.

Retailers. Retailer interviews revealed (1) how retailers adjusted business practices, (2) a desire for city outreach, (3) barriers to raising SSB prices, and (4) varied appraisals of the tax.

First, retailers reported that major distributors raised SSB prices immediately. When asked ifand how retailers were making up for costs, including probes about nonbeverage items, retailers reported raising beverage prices only (n = 24, 71%) or absorbing or delaying beverage price increases (n = 10, 29%; Table A, available as a supplement to the online version ofthis article at http://www.ajph.org). Retailers' reasons for absorbing or delaying price increases included the following: they had not gone through all the invoices, the time needed for-and technical challenges associated with- repricing products in point-of-sale software, regional pricing, not selling enough SSBs to care, and preferring "round" prices. Of 24 retailers raising beverage prices, 18 (75%) reported raising SSB prices only and 5 (21%) reported also raising prices of nontaxable artificially sweetened drinks or not raising all SSB prices. No retailers reported raising food prices.

When we asked city staff if they would consider issuing guidance to businesses, especially retailers, stating that the best practice for public health is to raise SSB prices in response to an excise tax, responses were mixed. Some staff felt that it was not their place to advise on specific business decisions or that it would not be well received. When asked if issuing such guidance would be legally permissible, an interviewee from the Attorney's Office said that it is permissible as long as the guidance is factual and conveyed as being voluntary for businesses. There is precedent for cities advising businesses for public health.30

Other business changes included discontinued SSB promotions or inventory changes: "You can't do a 4 [bottles] for $5 [sale] now" (supermarket manager). A convenience store no longer participated in SSB promotions. A restaurateur said, "Now I go for non-sugar stuff." Two small grocers discontinued soda sales (e.g., "I've expanded my dairy department, squeezing out sodas").

Among retailers that increased customer costs ofSSBs, chains raised shelfprices whereas some nonchains added a surcharge at the register. Some reasons for the surcharge were "[otherwise] the customers believe that we're collecting it for us" and to "have a better chance selling the item." Others perceived that this was the proper or most feasible method. A city attorney clarified that although stores "can say your price went up by X amount ... because of the city tax, they can't have it as a line item" that misrepresents the consumer as paying a tax "that's already been paid."

Second, the city did not engage retailers generally, only self-distributors. However, many retailers wanted early outreach from the city "to let everyone know. " Another said, "I would have liked the city to stop by-just train [us]." Retailers described learning about the tax from distributors, their own research, advocates, the city Web site, and letter or flyer. One café owner said beverage companies "came in to persuade [them] to go and testify" against the tax. Two retailers provided distributor letters, which contained incomplete or inaccurate information, and 1 letter encouraged retailers to "voice their opinions" to the city.

Third, although retailers were generally knowledgeable about the tax (even in summer 2015), some did not know if artificially sweetened drinks and sugar-sweetened coffee and fruit drinks were taxable. Furthermore, retailers described not being able to identify taxable beverages from distributor invoices- an important barrier. Only a few described invoices listing a surcharge under each beverage (typically, invoices contained the total surcharge). Retailers widely expressed wanting help identifying taxable and exempt beverages, including category lists or examples, to facilitate raising SSB prices, "because you can go through that and say, 'okay, yes, no,' and exclude or include [a price increase] as you're getting the products in." Retailers also wanted information to share with customers "if someone is complaining" and information on how revenues were spent (even in later interviews).

Fourth, retailer appraisal of the tax varied. Many were supportive, mentioning benefits for children or health. A small grocer said, "This law has made a lot of people aware of what they're actually drinking. ... So I think it has brought in a lot of good." Others mentioned family: "I don't want [my grandkids] to drink soda. ... Let them put more tax on the soda" (café owner). A supermarket manager said, "I support it.... It hasn't hurt our business. I think it hasn't upset our customers."

Criticisms were voiced, particularly by small retailers bordering other cities (e.g., "I'm on the border. ... a lot of my clients leave the merchandise on the counter and just go" [small grocery owner]). However, later interviews indicated that customers became accustomed to the tax. Several retailers described wanting the tax to cover a larger jurisdiction (e.g., "I'm in favor if it is implemented everywhere" [convenience store manager]). Others discussed the tax in the context of general cost concerns: "... anything that's more expensive-minimum wage-that's going up. Got the sugar tax going. That's just increased prices for us" (convenience store manager). Other store owners and managers expressed indifference: "We're kinda used to it. ... Berkeley has a bunch of weird laws" (liquor store owner). Two small grocery owners said they wanted revenues to "help the community stores."

SSBPPE and revenue allocations. The month the ordinance passed, the mayor appointed a City Council subcommittee to create an appointment process. Councilmembers and the Berkeley Healthy Child Coalition reviewed 42 applications. The Council appointed 9 resident commissioners-1 per district: "It is a very wellbalanced, diverse panel of experts. For example, we have an early-childhood nurse; a dentist; a public health researcher with expertise in child nutrition, the prevention of chronic disease and evaluation; and someone who has served on other city commissions. We have a former health officer of Berkeley. The remainder of the Commission are community members ... active in the campaign-experts on the intent of the campaign and the voice of the people" (commissioner).

The SSBPPE began meeting monthly in May 2015 and formed subcommittees to get "through all of the things we wanted to do." The 2 commissioners that we interviewed described prioritizing health disparities, policy, and environments: "We-and we feel that the community at large-all agreed that money should be used to reduce the high burden of disease in low-income populations"; "We didn't just want to do education. We wanted to make the healthy choice the easy choice."

The commissioners prioritized swift funding recommendations, to ensure the viability of the Cooking and Gardening Program, and to assure the community that they were adhering to the ordinance's intent. Funding allocations totaled more than $9 million for use through June 2021 for purposes such as nutrition education in public schools, a healthy beverage media campaign, and community grants for health promotion in communities of color and obesity prevention for Head Start families (Table 2; Figure A, available as a supplement to the online version of this article at http://www.ajph.org).

Both interviewed commissioners felt they were fulfilling their mandate: "I'm very happy with the [agencies] funded ... they're really going to move diabetes prevention to the low-income parts of Berkeley." The commissioners identified facilitating factors, including commissioner expertise, support from the Berkeley Public Health Division, clear Commission rules, and the subcommittee structure.

Regarding barriers and lessons learned, commissioners noted the significant effort to navigate city regulations around requests for proposals, which delayed their community grants work. One commissioner recommended having "a veteran person staff the commission ... somebody who's been on a similar commission that ... gives out grants" or having "an ad hoc advisor." Other recommendations were to get money quickly to the community (which the City Council did by advancing funds before revenues accrued), and to quickly fund a robust media campaign because "even after the tax was voted in, many people didn't fully understand why it targeted SSBs." Campaigns can also disseminate information on programs funded, which can sustain public support. The other commissioner said that advisory committees are important, even ifrevenues are earmarked because "the relationship between some communities and their Council is just so poor." The commissioner cautioned against appointing individuals with beverage industry ties because "they water everything down and make it less effective; they make it less about theirproducts and more about... exercise." Lastly, they noted the importance of ensuring that funded programs are within the scope of the ordinance and that new funding not replace existing funding; they also noted the need for program evaluation. A commissioner suggested that ordinances require "monitoring of SSB consumption, obesity, and diabetes" and funding to collect baseline data prior to implementation.

DISCUSSION

Overall successful implementation of the nation's first SSB tax was facilitated by policy characteristics (e.g., simplicity of the tax, synergy between components), inner and outer settings (e.g., supportive electorate, city prioritization), and policy process (e.g., distributor outreach). The tax ordinance generated more than $9 million in funding allocated for public health and equity from 2015 to 2021, facilitated by the SSBPPE Commission, which represented community and expert voices and provided a measure of accountability over revenue allocations.

Key lessons included the importance of thorough and timely communications with business, adequate lead time for implementation, and the need to immediately fund new staff, communications, outreach, and evaluation before implementation. Early and robust outreach to the public and retailers about the tax and programs funded may promote public support, correct misinformation, educate residents about healthy beverage consumption, reduce friction, and facilitate beverage price increases only on SSBs. Pretax outreach to retailers should include guidance on identifying taxed and exempt beverages and information on how SSB price increases are permitted to appear- or are prohibited from appearing-in prices and receipts (e.g., not as a tax paid by consumers).

No retailers reported raising food prices, indicating that Berkeley's SSB tax was not a "grocery tax." Most retailers reported raising SSB prices only, consistent with retail price data.5,11 Incomplete pass-through (i.e., SSB retail prices increasing by less than the full amount of the excise tax)11,31 likely reflected early retailer confusion about whether certain SSBs were taxable.

Limitations

Limitations include lack of interview data more than 2 years after initial implementation and lack of participation from large distributors. The latter may have skewed distributor findings, as campaigns32 and lawsuits indicate strong opposition from large soda companies. Regarding generalizability, all jurisdictions and ordinances2 are unique; for example, Cook County and Philadelphia are large jurisdictions that faced industry-funded repeal efforts and postenactment industry litigation (in Philadelphia, related to state law on taxation authority33). Challenges such as these require more resources to overcome. Also, those taxes were enacted by councilmembers or commissioners, not voters, possibly increasing susceptibility to repeal efforts. Philadelphia's tax was earmarked for popular programs (e.g., free prekindergarten),34 but Cook County's beverage tax, which was repealed, was primarily pitched as closing budget gaps.

Public Health Implications

SSB excise taxes reduced SSB purchases and consumption while generating revenues for health, equity, and education. Lessons learned from Berkeley provide a starting place for other jurisdictions considering SSB taxes. The policy package, context, and implementation process, including stakeholder engagement, were key for translating tax policy into public health behavioral outcomes. However, more research is needed to understand the long-term facilitators and barriers to sustaining the public health benefits of Berkeley's SSB tax and how those differ from facilitators and barriers in jurisdictions with contrasting characteristics (e.g., aggressive repeal campaigns). Future research on SSB taxes should continue to track revenue expenditures and their impacts, as well as how different components of implementation (e.g., communications campaigns) affect public sentiment. >4jPI-l

CONTRIBUTORS

J. Falbe and K. A. Madsen conceptualized the study. J. Falbe designed and supervised the study and led the analysis and writing. A. H. Grummon contributed to the design. A. H. Grummon and N. Rojas conducted and supervised data collection and contributed to analysis and writing. S. Ryan-Ibarra and L.D. Silver contributed to data collection and writing. K. A. Madsen contributed to design and writing.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

HUMAN PARTICIPANT PROTECTION

The study was approved as exempt by the UC Berkeley Committee for Protection ofHuman Subjects.

Sidebar

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DETAILS

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Immigrants and Access to Care: Public Health Must Lead the Way in Changing the Nation's Narrative

Ingram, Maia, MPH

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FULL TEXT

The United States has long held an ambivalent stance toward our nations Latino immigrant populations. Ignoring our history of colonization and perpetual dependence on low-paid immigrant labor, we charge immigrants with spreading infectious disease, stealing American jobs, and living off public resources. Public discourse on immigration conveys the sentiment that as a nation we are unmoved by the physical, emotional, and economic factors that drive Latino immigrants from their home countries, many of them rooted in US foreign policy. Historically, immigration policy has sought to deny immigrant access to health and human services, an expression of our core belief that immigrants must be self-reliant. This, despite evidence that as a group with high participation in the labor force they generate a surplus in the Medicare Trust Fund by paying in substantially more than they take out in social security benefits.1 Recent state and federal policies magnify perceptions that immigrants seek to exploit the system while further diminishing their access to 2 services.

In the current issue of AJPH, Guadamuz et al. (p. 1397) illustrate the manifestation of these exclusionary policies in their examination of the medical treatment of cardiovascular disease (CVD) risk among Latino immigrants. The authors use data from the Hispanic Community Health Study of Latinos, a population-based cohort study in five US cities, to examine access to health care. Their analysis demonstrates that among foreign-born Latinos, documented and undocumented immigrants are less likely to receive treatment for high cholesterol, hypertension, and diabetes than are naturalized citizens. Health insurance coverage or having a regular medical provider mitigates, but does not erase, this increased risk. These findings are not surprising and provide further evidence of the relationship between access to care and health outcomes across US populations. Although insurance coverage is the cornerstone of any effort to address access to care, it would only begin to alleviate many immigrant health disparities. Access to care is rooted in social ecologies, and a contextual analysis is required to confront the complex issues facing documented and undocumented immigrants in addressing CVD risk.

Latino immigrants fill many essential and underappreciated roles in the US economy, such as agricultural workers, cleaning and maintenance workers, meat-packing workers, construction workers, and factory workers.2,3 Employers of these low-wage workers quite often do not provide health insurance, and undocumented immigrants are further barred from the health coverage expansion under the Affordable Care Act.4 As the analysis of CVD risk treatment conducted by Guadamuz et al. makes clear, a foundational approach is needed to expand both public and private health insurance coverage to include all sectors of the population. However, even with access to health care, preventive management of CVD risk requires immigrants to negotiate a set ofcomplex factors that may present greater hazards than does forgoing care.

Immigrant workers in general do not have paid sick leave. A day spent seeing a doctor is often a day oflost wages. Aware that they cannot afford to be sick, immigrant workers are likely to dismiss symptoms related to hypertension and high glucose levels even when those symptoms become unmanageable and debilitating. Fear of deportation is a constant threat for undocumented individuals and those with undocumented family members, which further affects decisions to seek assistance ofany kind.4 Immigrants experience discrimination in every facet of their daily lives from employers, law enforcement agents, landlords, and service providers.5 On a fundamental level, immigrants are discouraged from participating in public life or interacting with the structural fabric of American society.

An immigrant may become aware of their CVD risk if they encounter a mobile health unit that provides screening and outreach services at family-centered or church-sponsored events that are considered safe havens for communities.6 Mobile units are designed to connect vulnerable populations to a primary health care home, the most common being a federally qualified health care center. As the backbone of the nations health care safety net for the uninsured, federally qualified health care centers provide primary care services on a sliding fee scale. However, applications for fee assistance can require extensive paperwork, leaving immigrants feeling vulnerable about their documentation status or that of their family members.4,7 Furthermore, entry into this system often requires long waiting times for appointments or to be seen by a doctor.5 Hence, although immigrants may have access to screening, the care itself may still not be accessible. The quality of the care in terms of linguistic and cultural congruence is variable, which may result in an immigrant receiving a diagnosis ofCVD risk but not purchasing medication or taking medication as prescribed. In the event that an immigrant does find his or her way into competent and compassionate care, the expectation of selfreliance is both external and internal to the immigrant community, making it difficult for individuals to prioritize the time and money for CVD treatment over family needs.4

Addressing disparities in the treatment of CVD risk for documented and undocumented immigrant Latinos in the United States requires a concerted and comprehensive effort. Reversing entrenched erroneous and negative attitudes toward immigrants will require not only policy change but also a transformation of the public and political narrative on immigration. Foremost, our country's leaders must reject the temptation to scapegoat immigrants for economic downturns and other societal problems, a strategy that has proven effective in winning elections. Today, the COVID-19 pandemic is forcing our nation to confront the inequities of an economic system that pays unlivable wages to individuals performing essential services, both immigrant and US born. Our immediate, communal, and overwhelming need for these services provides an opportunity to consider how to redefine the value of different types of work.

The temporary closure of the US-Mexico border to nonessential travel on March 20, 2020, to control transmission of the COVID-19 virus underscores the harsh reality that on a daily basis we rely on labor from Latino countries. The H-2A temporary agricultural visa, touted as a solution to the shortage of farmworkers to harvest our nation's food, brings Latinos into the country as cheap laborers, while ignoring and abusing their rights as independent workers.2

The location ofUS factories in border communities in Mexico ensures access to low-cost labor, while avoiding the responsibility of supporting our workforce through livable wages and adequate benefits. Americans seek to avoid the lowest-paying and most physically demanding jobs, while enacting policies that allow us to sidestep paying for the long-term health implications of this work.

The COVID-19 crisis exposes the perils of a health care system that perpetuates health disparities across low-wage workers in the United States, and especially among foreign-born Latinos. The major role of immigrants, both documented and undocumented, in performing the essential services that allow our country to function, underscores the risk of health policies, as articulated by Guadamuz et al., that arbitrarily exclude some portion ofthe population as undeserving. The COVID-19 crisis provides an opportunity to change the national narrative on immigration, expand health care coverage to all immigrants, and address the economic, social, and structural barriers to connecting with health care services. Access to care is the foundation ofa successful and functional society as well as a basic human right. ÂfPU

Maia Ingram, MPH

Sidebar

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CONFLICTS OF INTEREST

The author has no conflicts of interest to disclose.

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DETAILS

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Immigration Status and Disparities in the Treatment of Cardiovascular Disease Risk Factors in the Hispanic Community Health Study/Study of Latinos (Visit 2, 2014–2017)

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ABSTRACT (ENGLISH)

Objectives. To estimate treatment rates of high cholesterol, hypertension, and diabetes among Hispanic/Latino immigrants by immigration status (i.e., naturalized citizens, documented immigrants, or undocumented immigrants).

Methods. We performed a cross-sectional analyses of the Hispanic Community Health Study/Study of Latinos (visit 2, 2014-2017). We restricted our analysis to Hispanic/Latino immigrants with high cholesterol (n = 3974), hypertension (n = 3353), or diabetes (n = 2406); treatment was defined as use of statins, antihypertensives, and antidiabetics, respectively. Results. When compared with naturalized citizens, undocumented and documented immigrants were less likely to receive treatment for high cholesterol (38.4% vs 14.1%; prevalence ratio [PR] = 0.37 [95% confidence interval [CI] = 0.27, 0.51] and 25.7%; PR = 0.67 [95% CI = 0.58, 0.76]), hypertension (77.7% vs 57.7%;PR = 0.74 [95% CI = 0.62, 0.89] and 68.1%;PR = 0.88 [95% CI = 0.82,0.94]), and diabetes (60.3% vs. 50.4%;PR = 0.84 [95% CI = 0.68,1.02] and 55.8%;PR = 0.93 [95% CI = 0.83,1.03]);the latter did not reach statistical significance. Undocumented and documented immigrants had less access to health care, including insurance coverage ora usual health care provider, than naturalized citizens. Therefore, adjusting for health care access largely explained treatment disparities across immigration status. Conclusions. Preventing cardiovascular disease among Hispanic/Latino immigrants should focus on undertreatment of high cholesterol, hypertension, and diabetes by increasing health care access, especially among undocumented immigrants. (Am J Public Health. 2020;110:1397-1404. doi:10.2105/AJPH.2020.305745)

FULL TEXT

Headnote

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Conclusions. Preventing cardiovascular disease among Hispanic/Latino immigrants should focus on undertreatment of high cholesterol, hypertension, and diabetes by increasing health care access, especially among undocumented immigrants. (Am J Public Health. 2020;110:1397-1404. doi:10.2105/AJPH.2020.305745)

As of 2017, approximately 18 million foreign-born Hispanic/Latino adults resided in the United States, of whom two thirds were noncitizens (11.3 million)- including 7 million undocumented immigrants.1,2 Noncitizens, including documented (or lawfully present) and undocumented immigrants, experience considerable barriers to health care access.3 For example, most undocumented immigrants lack access to jobs that offer employer-based health insurance and are barred from most federal and state public insurance programs.3 Many documented immigrants are also ineligible for public insurance as eli gibility depends on their visa, duration of residence, and state of residence.3 In addition, noncitizens, especially undocumented immigrants, disproportionately experience structural factors that negatively affect health and health care access, including poverty and residence in segregated, underresourced communities.4 As a consequence, immigration status may contribute to health disparities, including disparities in the use of medications for the prevention of cardiovascular disease (CVD)-a leading cause of death among Hispanic/Latino immigrants.5

The pharmacologic treatment of high cholesterol, hypertension, and diabetes is crucial in the prevention of CVD morbidity and mortality. Unfortunately, Hispanic/ Latino immigrants who experience barriers to health care are less likely to use preventive cardiovascular medications.6-8 For example, Mexicans and Central Americans, who constitute the largest share of undocumented immigrants in the United States,2 are less likely to have health insurance or receive preventive care,9,10 including for the treatment of CVD risk factors.7,8 Differences in immigration status exacerbate disparities in health care access and utilization across diverse immigrant groups, including disparities between Mexicans and other Hispanic/Latino immigrants.9'10 Despite this, little is known about disparities in the treatment of CVD risk factors by immigration status in the diverse Hispanic/ Latino immigrant population.

Using data from the Hispanic Community Health Study/Study of Latinos (HCHS/ SOL), we assessed the treatment of high cholesterol, hypertension, and diabetes among foreign-born Hispanics/Latinos by immigration status. We hypothesized that noncitizens, especially undocumented immigrants, would be less likely to be treated for CVD risk factors because of poor access to care.

METHODS

HCHS/SOL is a population-based cohort study that uses a 2-stage area probability design to sample Hispanic/Latino adults (aged 18-74 years) in the Bronx, New York; Chicago, Illinois; San Diego, California; and Miami, Florida. Baseline characteristics were collected in 2008 to 2011 (n= 16415) and a follow-up assessment (visit 2) was conducted in 2014 to 2017 (n = 11 623). The design, recruitment, and implementation of HCHS/ SOL have been previously described in detail.11'12

We excluded participants who did not complete visit 2 (n = 4792), who were born in the United States (n = 3051), and who did not have information on immigration status (n = 357), medication use (n = 78), or high cholesterol, hypertension, or diabetes (n = 36; Figure A, available as a supplement to the online version of this article at http:// www.ajph.org). Therefore, our analyses included foreign-born Mexican, Cuban, Dominican, or Central or South American visit-2 participants (n = 8101) with high cholesterol (n = 3974), hypertension (n = 3353), or diabetes (n = 2406).

Identifying Participants With Prevalent Risk Factors

We defined high cholesterol as total cholesterol of greater than or equal to 240 milligrams per deciliter (mg/dL), low-density lipoprotein cholesterol of greater than or equal to 130 mg/dL, or lipid-lowering medication use.13 We defined hypertension as systolic blood pressure greater than or equal to 140 millimeters of mercury (mm Hg), diastolic blood pressure of greater than or equal to 90 mm Hg, or antihypertensive use.14 We defined diabetes as fasting glucose greater than or equal to 126 mg/dL, 2-hour postload plasma glucose greater than or equal to 200 mg/dL, hemoglobin A1c greater than or equal to 6.5%, or antidiabetic use.15

Study Measures

Immigration status. Immigration status was the primary independent variable in our study. Although HCHS/SOL does not directly query about documentation status, starting in visit 2, participants were asked about their country of birth, naturalization or citizenship status, lawful permanent resident (LPR) status, pending LPR applications, other visa statuses, and pending visa applications (Figure B, available as a supplement to the online version of this article at http://www.ajph.org). Based on established practices, we categorized immigration status as naturalized citizens, documented immigrants (noncitizens who report holding or applying for LPR or another visa), or undocumented immigrants (noncitizens that do not hold an LPR or another visa and have not applied for either).16'17

Cardiovascular disease risk factor treatment. CVD risk factor treatment was based on prescription medication use; participants were asked to show interviewers containers for all medications taken in the previous month. We defined high cholesterol treatment as statin (HMG-CoA reductase inhibitors) use. We defined hypertension treatment as the use of antihypertensive agents (diuretics, angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers, beta blockers, calcium-channel blockers, or another antihypertensive). We defined diabetes treatment as the use of antidiabetic agents (insulin, biguanides, sulfonylureas, thiazolidinediones, dipeptidyl peptidase-4 inhibitors, incretin mimetics, or another antidiabetic).

Covariates. We included covariates that may confound the association between immigration status and CVD risk factor treatment. Health care access, a key explanatory factor, was based on reporting a usual health care provider (do you have one person you think of as your personal doctor or health care provider?) and health insurance coverage. Important sociodemographic characteristics included age, gender, country of birth, center location, and household income. Acculturation characteristics, which may have an impact on medication underuse among immigrants, included language preference and years in the United States. Additional cardiovascular characteristics included smoking, obesity (body mass index ‡30 kg/m2)' number of CVD risk factors, and prevalent CVD (coronary heart disease, myocardial infarction, coronary bypass surgery, balloon angioplasty, stent placement, or stroke).

Sensitivity analyses. We conducted sensitivity analyses to evaluate whether our conclusions were robust to alternative CVD risk factor definitions. Recent guidelines from the American College of Cardiology/American Heart Association (ACC/AHA) recommend cholesterol treatment for those who have (1) prevalent CVD, (2) greater than or equal to 190 mg/dL low-density lipoprotein cholesterol, (3) diabetes plus greater than or equal to 70 mg/dL low-density lipoprotein cholesterol, or (4) greater than or equal to 7.5% predicted 10-year risk of any CVD18; therefore, we assessed cholesterol treatment by using this alternative. The ACC/AHA also lowered recommended hypertension diagnostic thresholds to systolic blood pressure greater than or equal to 130 mm Hg or diastolic blood pressure greater than or equal to 80 mm Hg in 201719; thus, we evaluated hypertension treatment by using this alternative.

Statistical analysis. We used descriptive statistics to estimate CVD risk factor treatment rates among participants with high cholesterol, hypertension, or diabetes. We determined differences in treatment rates by using the Pearson %2 test. We used Poisson regression with robust standard errors to evaluate the associations between immigration status and the treatment of CVD risk factors. We used Poisson regression to calculate prevalence ratios (PRs) rather than logistic regressions for odds ratios because the latter overestimates the association when the outcome is common.20

We calculated all estimations by using complete case analysis. We calculated estimates, 95% confidence intervals (CIs), and statistical tests by using Taylor linearization methods to incorporate sample weights that adjust for the complex sampling design found in HCHS/SOL.11 These weights also account for the probability of nonresponse at baseline and visit 2.21 P values were 2-sided. We conducted analyses with Stata version 15 (StataCorp LP, College Station, TX).

RESULTS

In our sample of foreign-born Hispanic/Latino adults, 44.2% were citizens, 35.7% were documented immigrants, and 20.1% were undocumented immigrants (Table 1). Undocumented (median age = 40 years) and documented immigrants (49 years) were considerably younger than naturalized citizens (54 years; P< .001). While most foreign-born Hispanics/Latinos were Mexican (43.8%) or Cuban (26.2%), a majority of undocumented immigrants were Mexican (71.6%) or Central American (16.9%; P< .001). Most foreign-born Hispanics/ Latinos preferred to speak Spanish (93.3%) and had lived in the United States for 10 years or longer (83.3%).

Undocumented and documented immigrants reported much lower access than naturalized citizens to a usual health care provider (40.5%, 60.3%, and 77.5%, respectively; P <.001) or health insurance coverage (18.5%, 69.8%, and 86.6%, respectively; P< .001). High cholesterol (40.5%), hypertension (29.1%), and diabetes (20.6%) were common among Hispanic/ Latino immigrants. While differences in the prevalence of high cholesterol and diabetes were marginal, hypertension was more prevalent in naturalized citizens (29.0%) and documented immigrants (30.5%) than among undocumented immigrants (25.7%; P =.02).

Risk Factor Treatment Disparities

Undocumented and documented immigrants, when compared with naturalized citizens, had lower treatment rates of high cholesterol (14.1%, 25.7%, and 38.4%, respectively; P <.001) and hypertension (57.7%, 68.1%, and 77.7%, respectively; P< .001; Figure 1). Undocumented immigrants had lower rates of diabetes treatment than both documented immigrants and naturalized citizens (50.4%, 55.8%, and 60.3%, respectively; P = .10); however, this difference was not statistically significant because of limited power. While treatment rates of CVD risk factors varied by country of birth, treatment disparities based on immigration status were consistent (Figure C, available as a supplement to the online version of this article at http://www.ajph.org). For example, among Central Americans, undocumented and documented immigrants had considerably lower treatment rates ofhigh cholesterol (5.6%, 20.6%, and 35.5%, respectively; P< .001), hypertension (39.5%, 66.5%, and 72.9%, respectively; P <.001) and diabetes (38.4%, 55.5%, and 61.4%, respectively; P = .13) than naturalized citizens, although the latter was not statistically significant.

Treatment rates were especially low among Hispanic/Latino immigrants without access to a usual health care provider (high cholesterol: 6.4% vs 40.2%; hypertension: 39.2% vs 79.5%; and diabetes: 29.6% vs 63.7%) or health insurance (high cholesterol: 10.4% vs 37.5%, hypertension: 49.8% vs 77.7%, and diabetes: 44.1% vs 61.0%) in comparison with those with health care access (all P< .01). Older adults and those with prevalent CVD had higher CVD treatment rates. However, among those with prevalent CVD, undocumented immigrants had significantly lower treatment rates than both documented immigrants and naturalized citizens. While treatment disparities based on immigration status persisted across duration of residence, these disparities were most pronounced among Hispanics/Latinos who had lived in the United States for less than 10 years.

Factors Associated With Risk Factor Treatment

To test our primary hypothesis, we examined the associations between immigration status and health care access on the treatment of CVD risk factors (Table 2). In unadjusted regressions, undocumented and documented immigrants were less likely to use medications for the treatment of high cholesterol (PR = 0.37 [95% CI = 0.27, 0.51] and PR = 0.67 [95% CI = 0.58, 0.76]) and hypertension (PR = 0.74; [95% CI = 0.62, 0.89] and PR = 0.88 [95% CI = 0.82, 0.94]) than naturalized citizens (all P< .01). Undocumented immigrants were also less likely to use medications for the treatment of diabetes than naturalized citizens (PR = 0.84 [95% CI = 0.68, 1.02]; P =.08), but this was not statistically significant.

In comparison with those with access to health care, lacking a usual health care provider or health insurance coverage was negatively associated with treatment of high cholesterol (PR = 0.16 [95% CI = 0.12, 0.21] and PR = 0.28 [95% CI = 0.22, 0.35]), hypertension (PR = 0.49 [95% CI = 0.42, 0.58] and PR = 0.64 [95% CI = 0.56, 0.73]), and diabetes (PR = 0.46 [95% CI = 0.37, 0.57] and PR = 0.72 [95% CI = 0.62, 0.85]; all P<.01). Therefore, when we compared undocumented and documented immigrants with naturalized citizens, adjusting for health care access attenuated disparities in the treatment of high cholesterol (PR = 0.83 [95% CI = 0.57,1.20];P = .32andPR = 0.83 [95%CI = 0.74, 0.94]; P = .003) and hypertension (PR = 0.95 [95% CI = 0.82, 1.11]; P =.53 and PR = 0.95 [95% CI = 0.89, 1.01]; P = .11), as well as differences in diabetes treatment between undocumented immigrants and naturalized citizens (PR = 1.06 [95% CI = 0.83, 1.36]; P = .65). Other characteristics also influence CVD risk factor treatment rates- including increasing age, multiple risk factors, and prevalent CVD-however, their association varied by risk factor (Table A, available as a supplement to the online version of this article at http://www.ajph.org).

Sensitivity Analyses

Per ACC/AHA guidelines, 28.1% of foreign-born Hispanics/Latinos used medications for the treatment of cholesterol, and disparities remained between undocumented and documented immigrants and naturalized citizens (20.5%, 22.8%, and 33.4%, respectively; P< .001; Table B, available as a supplement to the online version of this article at http://www.ajph. org). Using updated hypertension guidelines, only 54.7% of Hispanic/Latino immigrants used medications for the treatment of hypertension, yet disparities remained across immigration status (32.1%, 50.6%, and 62.8%, respectively; P< .001).

DISCUSSION

Despite the critical importance of cardiovascular medications in the management of CVD risk factors and the prevention of CVD, we found considerable undertreatment among Hispanics/Latinos without US citizenship, especially among undocumented immigrants. It is imperative to address these treatment disparities because most immigrants reach middle and late adulthood in the United States,1,2 when the risk of CVD and related conditions increases exponentially. Recent evidence suggests that among Hispanics/ Latinos, immigrants have greater rates of CVD mortality than those born in the United States,22 underscoring the importance of ensuring adequate treatment in this population.

Our findings suggest that immigration status plays a critical role in the undertreatment of CVD risk factors regardless of ethnicity and country of birth. For example, treatment disparities based on immigration status were consistent across the diverse background of immigrant Hispanic/Latino adults but were especially pronounced among Mexicans and Central Americans. Even among Cubans, who were afforded near-universal asylum,23 large treatment disparities existed between citizens and documented immigrants. Therefore, we expect other immigrant populations to experience similar treatment disparities across immigration status.

Recent efforts to eliminate immigration protections for several Hispanic/Latino groups may exacerbate treatment disparities as individuals lose their documentation status. For example, there are ongoing efforts to rescind Temporary Protected Status (granted to some immigrants whose home countries are affected by armed conflicts or natural disasters) from Salvadorans, Nicaraguans, and Hondurans and to rescind Deferred Action for Childhood Arrivals from undocumented immigrants who were brought to the United States as children.24,25 Cubans are no longer guaranteed asylum upon arrival to the United States23; hence, in upcoming years, many Cuban arrivals may be undocumented and experience related barriers to health care access.

Although treatment disparities across immigration status were in large part attributable to differences in access to a usual source of care and health insurance, recent health reforms (e.g., the Affordable Care Act) continue to exclude noncitizens, especially undocumented immigrants.3 This has resulted in larger disparities in health insurance coverage and health care utilization across immigration t t 10,26 status.

Recent changes to the Public Charge Rule also expanded the government's ability to refuse LPR or visa applications for documented immigrants who are determined to be dependent on public assistance.27 Until 2019, the government considered cash-based assistance (e.g., Temporary Assistance for Needy Families), but it may now consider most federal, state, and local assistance programs, including Medicaid and subsidized insurance purchased through the health exchanges.27 These changes are expected to cause millions of noncitizens to forgo Medicaid and other public health insurance programs.27 Policies that exclude or discourage noncitizens from using public health insurance programs may worsen existing CVD risk factor treatment disparities among Hispanics/Latinos.

Considering the population health implications of neglecting to treat a significant proportion of Hispanics/Latinos, efforts to reduce the burden of CVD in this population should target treatment disparities by improving health care access, especially among undocumented immigrants. Similar treatment disparities by immigration status- which are exacerbated by inadequate health care-may also exist in other chronic conditions. Therefore, it is of utmost importance to reduce disparities in health insurance coverage across immigration status, which are substantial among nonelderly immigrants (45% of undocumented and 23% of documented immigrants are uninsured),3 yet even worse in our sample of foreign-born Hispanics/Latinos.

Such efforts should entail protecting current pathways to documentation and citizenship available to vulnerable immigrant groups and removing policies that arbitrarily bar many noncitizens from publicly funded health insurance. While politically unlikely, states could use their funds to expand Medicaid coverage for otherwise eligible undocumented adults; 6 states and Washington, DC, already use their state funds to cover income-eligible children regardless of immigration status.3 Localities can also implement health insurance schemes that provide comprehensive health care, regardless of immigration status, as have done Los Angeles and San Francisco, California; Washington, DC; and, more recently, New York City.28-30 Federal, state, and local efforts should also provide sufficient funding to safety-net hospitals and clinics, which often are the only source of low-cost care for millions of immigrants excluded from the US health care system.31

Strengths and Limitations

To our knowledge, this is the first study to examine immigration status, including documentation status, and its potential impact on disparities in the treatment of CVD risk factors. We used a populationbased cohort that was designed to examine disparities within the Hispanic/Latino population, including immigrants. Our conclusions are also consistent across several treatment guidelines.

Despite these strengths, our study has limitations. First, immigrants may overreport citizenship and documentation because of stigma or fear associated with their status. An unknown proportion of undocumented immigrants may have declined to participate in HCHS/SOL because of these fears. As a result, we may be underestimating differences across immigration status. Yet, foreign-born participants were not less likely to participate in visit 2 than their US-born counterparts (73.0% vs 65.3%; Table C, available as a supplement to the online version of this article at http://www.ajph.org). In addition, we used sample weights that adjusted for nonresponse between baseline and visit 221 to address this potential limitation. These weights accounted for baseline characteristics associated with the probability of returning to attend visit 2, including country of birth.21

Second, we found substantial yet statistically insignificant differences in the treatment of diabetes, possibly because diabetes is less prevalent than other risk factors and, therefore, we had limited statistical power. Third, we could not account for the influence of several important characteristics. For example, CVD risk factor treatment rates and the magnitude of observed treatment disparities varied by disease states; these differences may be influenced by perceived disease severity, which was not measured in this study.32 Hispanic/Latino adults, including immigrants, are also disproportionately burdened by other factors that may contribute to the treatment disparities observed, including lacking awareness of CVD risk factors,33 inability to self-manage these conditions,34 and inability to pay for medications.35 Finally, while HCHS/SOL is designed to represent the Hispanic/Latino population of each city sampled,11,12 this study may not be representative of Hispanic/Latino immigrants nationwide or other immigrant groups.

Conclusions

Immigration status is associated with CVD risk factor treatment among foreign-born Hispanic/Latino adults. Efforts to reduce the burden of CVD among immigrants should focus on the undertreatment of high cholesterol, hypertension, and diabetes by increasing health care access, especially among undocumented immigrants. ÂfPU

CONTRIBUTORS

J.S. Guadamuz originated the idea and design of this article, conducted the analyses, and wrote the first draft of the article. R. A. Durazo-Arvizu provided suggestions for the analyses and data interpretation. M. L. Daviglus and J. S. Guadamuz received funding for the study. D. M. Qato suggested improvements to the design, analyses, and interpretations and contributed critical revisions of the article for important intellectual content. All authors reviewed, revised, and approved the final version of the article.

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CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

HUMAN PARTICIPANT PROTECTION

Institutional review boards at participating institutions approved the study protocol and all participants provided written informed consent.

Sidebar

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The Role of Alternate Care Sites in Health System Responsiveness to COVID-19

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ABSTRACT (ENGLISH)

The COVID-19 pandemic has altered life and upended health and the economy for millions of Americans, highlighting fault lines that sharply divide our population along racial/ethnic and socioeconomic status. These determinants predict life expectancy, food and housing security, health care access, and educational and economic opportunities. In Baltimore, Maryland, a city ofsegregated neighborhoods, life expectancy varies by up to 16 years and the infant mortality rate can vary by a factor of 20 across communities separated by just a few miles.1 These differences traverse many health and socioeconomic indicators that befall the largely Black neighborhoods and are marked by years of civic neglect, inadequate housing policies, and gross underinvestment.
The cruelty of COVID-19 is not only its high transmission potential and its mortality rate. It is also the disproportionate ill effects on the most vulnerable and marginalized populations, who are already far more likely to experience underlying chronic health conditions; have limited or no access to healthy foods; reside in group homes, homeless shelters, or prisons; and have lower health care access.2,3 Although few population-based COVID19 studies have been published, initial research and reporting clearly indicate that Black, Latinx, and Native American populations are disproportionately affected by COVID-19.

FULL TEXT

The COVID-19 pandemic has altered life and upended health and the economy for millions of Americans, highlighting fault lines that sharply divide our population along racial/ethnic and socioeconomic status. These determinants predict life expectancy, food and housing security, health care access, and educational and economic opportunities.

In Baltimore, Maryland, a city ofsegregated neighborhoods, life expectancy varies by up to 16 years and the infant mortality rate can vary by a factor of 20 across communities separated by just a few miles.1 These differences traverse many health and socioeconomic indicators that befall the largely Black neighborhoods and are marked by years of civic neglect, inadequate housing policies, and gross underinvestment.

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Higher rates of being uninsured or underinsured, receiving discriminatory treatment, and subsequently mistrusting the health system among racial/ethnic minorities affects care and will result in suppressed estimates of COVID-19 incidence, prevalence, and mortality in these communities.5 Our own surveillance data, from three primary care practices in Baltimore, reveal that Black and Latinx patients are more than twice as likely as are White patients to test positive (19%, 26%, and 7%, respectively).

THE BALTIMORE ALTERNATE CARE SITE HOTEL MODEL

Pandemic responses vary widely across state borders, driven by the need for large-scale isolation facilities and a rapid expansion of health care spaces. Around the United States, alternate care sites (ACSs) are used as part of local or Federal Emergency Management Agency- led emergency response plans to address pandemics and natural disasters when health care facilities are unable to accommodate the surging demand for resources.

The concern for inadequate hospital capacity combined with an anticipated need for isolation space led a local health system to collaborate with the state of Maryland to open an ACS in a 400-bed Baltimore hotel. As in other cities, the process oflocating a suitable, available, and willing hotel was difficult given the concerns ofowners regarding financial guarantees, potential property damage, reputation, and restoration requirements. The state provided financial backing. Plans called for this hotel to serve as an isolation dormitory at no cost to admitted residents and to accommodate individuals no longer requiring in-patient care but with limited housing options owing to unstable living situations or a high risk of household exposures (box on p. 1363 lists admission criteria). In addition, patients staying at this ACS were to be connected to transitional care services to facilitate a safer return to the community.

The hotel infrastructure proved well suited to providing safe and comfortable isolation space, in-room refrigerators and safes to store personal medication and valuables, food services, security, conference space converted into a command center, Wi-Fi, ability to maintain hot and cold zones, and in-room climate control. Stations for donning and doffing were built into each occupied floor with modest architectural modifications.

This model uses telehealth technologies with purchased tablets and patients' own smart phones to connect with providers for chronic care management, behavioral counseling, social work, pharmacotherapy, and specialist consultation. This augments a small number of onsite staff, including nurses, nonclinical support staff, providers, social workers, and pharmacists.

Clinical documentation was integrated with the same electronic health record used by the health system and built as its own ambulatory department to achieve rapid deployment. Additionally, a transportation system was organized for routine and emergent transport of patients to and from the medical center, hemodialysis, and radiology. A dedicated advanced life support ambulance crew was stationed at the hotel. Centers for Medicare and Medicaid Services waivers allowed the conversion of the hotel into an ACS as an extension of the medical center. This model still requires compliance with patient and employee safety standards and quality and performance improvement regulatory requirements. Stakeholders and subject experts developed site- and context-appropriate documentation standards and internal emergency response plans and compiled them into a comprehensive operation manual.

As the COVID-19 pandemic evolves, this health system is finding the demand for health care utilization ever more focused on critical care capacity. Within a month of testing in homeless shelters and group homes, rates of COVID-19 varied from 15% to just over 50% in some facilities. Close quarters, congregate meals, and the need to access social services means social distancing, quarantine, and isolation are difficult to achieve. Therefore, this hotel ACS was able to respond to this crisis by pivoting its mission to temporarily housing hundreds of the city's residents experiencing homelessness suspected or confirmed to have COVID-19. In this partnership, our health system is providing clinical support and the health department is addressing residents' case management and social service needs.

OTHER ALTERNATE CARE SITE MODELS

In China, a novel approach was implemented to meet the crushing demand for isolation facilities with basic medical assistance. The rapid construction of 16 Fangcang hospitals with 16 000 beds allowed provincial health systems to provide five essential functions during this emergency: triage, isolation, basic medical care, frequent monitoring with rapid referral to higher level care, and essential living and social spaces.6 Unlike previous field hospitals, these facilities separated patients by severity, provided high quality and safety controls, and incorporated electronic health record systems that allowed closer integration with the main hospitals.

In Chicago, Illinois, city officials partnered with local hotels to provide several thousand beds for temporary housing of unsheltered individuals recovering from COVID-19. Patients are monitored by the department of public health and other contracted health workers. Additional rooms are allocated to frontline workers and first responders. Los Angeles, California, embarked on a similar model to provide 20 000 hotel rooms for people with COVID-19 who are experiencing homelessness, are health care workers, are victims of domestic violence, orare elderly. These efforts are expected to continue to slow the spread of infection by providing dignified shelter space and continued medical supervision.

CONCLUSIONS

In the face of this pandemic, addressing the needs of marginalized groups is paramount. Ifnot now, then when? The ACS hotel concept may provide a viable approach to addressing the immediate recovery needs of those in crowded or unstable living conditions with harm-reduction strategies that also minimize risk to others. Using hotels as ACSs has inherent benefits given their existing infrastructure, ability to provide comfortable and dignified living quarters, and aptness to undergo rapid conversion into health care spaces in as little as two weeks. At this early stage, such facilities appear to do well with public-private partnership for financing, equipping, and staffing along with implementation of technology and strong infection-control and -prevention plans.

Still, ACSs require further scrutiny to better plan and understand the types ofmodel most appropriate and efficient for the population density, existing health disparities, prevailing social determinants, epidemiological factors of the infection, and the local health and commercial infrastructure. As the first wave of COVID-19 moves through the population, such assessments are urgently needed to proceed with further refinements using evidence-based practices.

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CONTRIBUTORS

A. Kaysin served as the main author of the editorial and the chief medical officer for the described project. D. N. Carvajal contributed to the writing and preparation of the editorial. C. W. Callahan contributed to the writing of the editorial and served as the executive officer for the project.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

Sidebar

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DETAILS

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Public Health and Privacy in the Pandemic

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ABSTRACT (ENGLISH)

The fundamental ethical, legal, and policy challenge of public health is balancing public and individual interests, often conceptualized as the conflict between utilitarianism and libertarianism. During the COVID-19 (coronavirus disease 2019) pandemic, this struggle has involved the imposition of extraordinary levels of government-mandated social distancing to protect public health followed by impassioned efforts to lessen these constraints in the interests of individual liberty and economic renewal. The same type of conflict exists between individual interests in health privacy and public health interests in the collection, use, and disclosure of health information. The COVID-19 pandemic presents these issues in a unique way because it is the most deadly pandemic in more than a century and new technologies permit an unprecedented level of information collection, aggregation, analysis, and dissemination.

FULL TEXT

The fundamental ethical, legal, and policy challenge of public health is balancing public and individual interests, often conceptualized as the conflict between utilitarianism and libertarianism. During the COVID-19 (coronavirus disease 2019) pandemic, this struggle has involved the imposition of extraordinary levels of government-mandated social distancing to protect public health followed by impassioned efforts to lessen these constraints in the interests of individual liberty and economic renewal.

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IN SEARCH OF PUBLIC POLICY

In deciding whether to use certain health information technology in a pandemic, policymakers should analyze and apply the following criteria, which have been derived from principles commonly cited in the public health ethics literature related to public health powers generally and applied to privacy: (1) necessity and effectiveness, (2) proportionality and minimal infringement, (3) purpose limitations, and (4) justice.

NECESSITY AND EFFECTIVENESS

No public health intervention should be introduced without clear evidence ofits necessity and effectiveness. However, faced with a novel, lethal pathogen and with no vaccine or highly effective treatment available, clinicians have felt compelled to adopt measures without persuasive evidence, and public health officials have faced similar pressures to expand information-gathering techniques.

During the severe acute respiratory syndrome (SARS) epidemic of2003, the World Health Organization recommended exit and entrance screening of international travelers. Unproven thermal screening was used for maritime crews, passengers on cruise ships and ferries, and land border crossings. Canada used thermal screening at the airports in Toronto and Vancouver and 2.4 million passengers were screened, but only 832 passengers were identified for further evaluation and none were determined to have SARS.1

This experience demonstrated that thermal screening for coronavirus, at least in this setting, does not work. Yet, 17 years later, still lacking evidence of its effectiveness,2 thermal screening for SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2), often accompanied by oral questioning about symptoms and exposures, is widely used in the United States, perhaps because it is fast, cheap, and nonintrusive and because it gives the impression that something is being done to protect people. Neither the thermal-screening procedure nor the data it generates pose a significant threat to privacy, but the stakes are too high and the support for public health interventions too tenuous to employ measures whose main value is symbolic.

PROPORTIONALITY AND MINIMAL INFRINGEMENT

Public health interventions should be proportional to the risk presented. In a pandemic, public health measures should be granted wide leeway, but not every public health information plan is necessary or can be accomplished without significant intrusion. "Data minimization" seeks to limit the amount of data collected and used to the minimum necessary. Other relevant data protection principles provide that information ought to be collected, maintained, and disclosed in the least identifiable form consistent with the intended use; data should be retained for the minimum amount of time necessary; and security measures should prohibit access by unauthorized individuals. Because researchers and clinicians are still learning about COVID-19, it is unknown how much individual health information is needed, for how long, and in what form. Although one approach would be to collect and retain all possible health information, it should not take precedence over proportionality and minimal infringement.

PURPOSE LIMITATIONS

Data collected for a specific purpose should be used for only that purpose and should not be "repurposed" for other uses without the consent of the data sources or a compelling public justification. Purpose limitations may conflict with Big Data analytics and other health surveillance technologies based on machine learning and algorithms identifying associations from disparate data sets.

One way of assessing the appropriateness of compiling various data sets is by considering whether the data were collected for a public health purpose or are traditional public health measures.3 For example, public health laws in every state require the reporting of specific conditions to public health agencies. Similarly, contact tracing is an established public health tool used to control sexually transmitted infections and other diseases. The public is likely to view the use of these traditional public health methods as acceptable and ethical to use in a public health emergency.

It is more problematic when data are repurposed for public health from social media posts, geolocation information, sensor data, cell phone records, health check apps, credit card records, and proximity data generated by apps on mobile devices. Some of these nontraditional data sources have been valuable in other countries during the pandemic,4,5 and they should not be prohibited summarily, but they should not be presumed relevant and ethically acceptable. Furthermore, collecting data that can be used for surveillance or law enforcement is likely to be viewed with suspicion by the public.

JUSTICE

The pandemic is challenging societal notions of justice. Black Americans are 2.4 times more likely to die of COVID-19 than are White Americans and 2.2 times more likely to die than are Asians or Latinos.6 Discrepancies in risk are even greater in some locations, such as on Indian reservations.6 Justice demands assessing the relative burdens and benefits of all public health policies, including neutral policies with a discriminatory impact. For instance, the burden of home confinement is greater in an urban apartment with several family members than in less dense housing, the burden of discontinuing public transportation falls more harshly on those without cars, and the burden of closing nonessential businesses is more onerous for low-wage service workers who cannot telecommute and who have modest savings.

Other public health interventions may adversely affect various individuals and groups, such as people with disabilities or preexisting health conditions, individuals experiencing homelessness, senior citizens, people with cognitive impairments, and immigrants who lack English fluency.

Health privacy is rarely included in discussions of health equity, but it is essential to fairly allocate the burdens and benefits of health information policies. For example, if contact tracing using mobile apps is deemed effective and acceptable, what about lower-income people, who are most at risk for COVID-19 but less likely to have smartphones? Is the release of public health data more likely to result in discrimination against certain individuals in employment, housing, or access to health care? Finally, will any health benefits derived from collecting and using health information extend to all members of society?

CONCLUSIONS

Ethical issues, including health privacy, are especially important during major disease outbreaks.7 Health information policies should be continually evaluated using criteria that support public policy. After a public health emergency ends, measures permitting intrusive surveillance should not be continued without a careful reevaluation. /4JPI-I

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CONFLICTS OF INTEREST

The author has no conflicts of interest to declare.

Sidebar

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DETAILS

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Service Learning in Health Care for Underserved Communities: University of Iowa Mobile Clinic, 2019

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ABSTRACT (ENGLISH)

The University of Iowa Mobile Clinic (UIMC) is an interdisciplinary student-run free medical clinic founded in 2002. UIMC provides free health screenings, education, and basic services to underserved populations in Iowa: immigrants, refugees, migrant farmworkers, individuals experiencing homelessness, low-income individuals, and people who live in rural communities. Forty-four percent of patients surveyed use UIMC as their only source of care. Ninety-seven percent of patients surveyed rate care as excellent or good. UIMC is a crucial safety net health care resource in Iowa to improve health equity. (Am J Public Health. 2020;1 10:1304-1307. doi:10. 2105/AJPH.2020.305755) The University of Iowa Mobile Clinic (UIMC) is an interdisciplinary initiative of health sciences students from the schools of medicine, nursing, pharmacy, dentistry, physician assistant, physical therapy, public health, and social work. Founded in 2002, for nearly two decades, UIMC has provided free health screenings, education, and basic services to underserved populations in Iowa: immigrants, refugees, migrant farmworkers, individuals experiencing homelessness, and those who are justice involved, are low income, or live in rural communities.

FULL TEXT

The University of Iowa Mobile Clinic (UIMC) is an interdisciplinary student-run free medical clinic founded in 2002. UIMC provides free health screenings, education, and basic services to underserved populations in Iowa: immigrants, refugees, migrant farmworkers, individuals experiencing homelessness, low-income individuals, and people who live in rural communities. Forty-four percent of patients surveyed use UIMC as their only source of care. Ninety-seven percent of patients surveyed rate care as excellent or good. UIMC is a crucial safety net health care resource in Iowa to improve health equity. (Am J Public Health. 2020;1 10:1304-1307. doi:10. 2105/AJPH.2020.305755)

The University of Iowa Mobile Clinic (UIMC) is an interdisciplinary initiative of health sciences students from the schools of medicine, nursing, pharmacy, dentistry, physician assistant, physical therapy, public health, and social work. Founded in 2002, for nearly two decades, UIMC has provided free health screenings, education, and basic services to underserved populations in Iowa: immigrants, refugees, migrant farmworkers, individuals experiencing homelessness, and those who are justice involved, are low income, or live in rural communities.1

INTERVENTION

A student-run free medical clinic, UIMC service learning is grounded by the five core values of health equity, service, diversity, community, and integrity.1 Because Iowa is a predominantly agricultural state, there remain large disparities between urban and rural areas.2 UIMC fills a need to provide health screenings, education, and community referrals for uninsured and underinsured patients in Iowa.

PLACE AND TIME

Unlike most student-run free medical clinics operating from a single, permanent location, UIMC operates nine traveling clinics within a 50-mile radius of Iowa City, Iowa. Although the original mobile clinic in 2002 was a retrofitted school bus in migrant farmworker camps, continual growth has led to direct partnerships with local religious, civic, and educational institutions. In 2019 UIMC coordinated, on average, monthly clinics at nine sites, each catering to a specific underserved population in Iowa (Table 1).

POPULATION

Filling a need, UIMC serves a largely uninsured population (Table A, available as a supplement to the online version ofthis article at http://www.ajph.org). Although Iowa was a Medicaid expansion state following the Affordable Care Act, recent legislation significantly reduced eligibility and enrollment.3 Safety net health centers exist in larger metropolitan areas like Des Moines, Iowa, or Iowa City but are inaccessible for rural Iowa and those who lack transportation.

Population growth in much of Iowa is driven by immigration, particularly in agriculture and manufacturing (9% and 10% of industry workers, respectively).4 Approximately 5% of Iowa residents are immigrants (148 700 people), an estimated 26% of whom (38 700) are undocumented and thus ineligible for health care coverage.4

PURPOSE

The purpose of UIMC is to provide holistic, culturally appropriate care intersecting the diversity of our patients. UIMC aims to sustainably provide free health education and services to communities. We deliverneeded services such as immunizations, medical management of acute and chronic conditions, health education, and referrals to higher levels of care.

UIMC brings interdisciplinary teams of health sciences students and faculty to underserved populations of undocumented migrant farmworkers, Sudanese and Burmese refugees, individuals experiencing homelessness, justice-involved individuals, and low-income populations (Table 1). Participating in student-run free medical clinics introduces team-based care and a health equity lens to address social determinants of health.5 Working alongside and for our patients, health sciences students gain exposure to lessons of cultural humility in the heartland.

IMPLEMENTATION

Across nine core UIMC sites, our mobile services are tailored to each population's health needs (Table 1). Core services offered at every clinic include chronic disease screening and management, acute condition medical evaluations, and healthy lifestyle education. Additionally, specialty services are available, such as physical therapy, dental care, social work, HIV and hepatitis C screening, human papillomavirus vaccinations, and seasonal influenza vaccinations.

UIMC partners with university and community organizations to promote health care access in Iowa through several grant-funded initiatives. Programs include musculoskeletal evaluations for agriculturalrelated occupational injuries, behavioral health counseling for depression and anxiety, and a no-cost eyeglass program.

For services UIMC is unable to provide onsite, we have a network of referrals. Pediatric patients are referred to local health departments for school-entry vaccinations. Iowa City Free Medical Clinic and Iowa City Free Mental Health Clinic allow additional laboratory testing and continuity chronic disease management.

Two of our largest initiatives include interpreter services and electronic health record integration. Our corps of volunteer interpreters and electronic health record experts undergo training by student-led clinic operations. Interpreters function as cultural brokers to provide culturally tailored care, including nutrition counseling for the patients they follow. Preclinical students are trained to take vital signs for clinical medical students who serve as patient examiners responsible for the clinical encounter. These students all work under the supervision of practicing physicians, nurse practitioners, physician assistants, pharmacists, or other appropriate clinical faculty.

EVALUATION

Drawing on data since the implementation of electronic health records at UIMC from 2012 to 2019, we found that more than 2275 patients were served by UIMC and that an estimated 6800 students have volunteered since 2002. Table 2 demonstrates that through 2018 to 2020 UIMC cared for roughly an equal number of adult and pediatric patients. Spanish (24.8%) and Arabic (24.0%) were the two most common languages of interpretation. Additionally, UIMC served patients geographically distant from traditional medical centers (Table A).

The most common health care services accessed by patients (Table 2) included clinician visits (54.5%), health education (28.8%), flu shots (18.3%), and dentistry (10.2%). The most common laboratory tests performed were hemoglobin A1c (51.1%) and cholesterol (49.4%). Prescription medications and referrals to Iowa City Free Medical Clinic for chronic disease management were a minority of UIMC visits (11.6% and 7.8%, respectively).

According to patient satisfaction surveys administered from 2014 to 2018, 44.4% of patients used UIMC as their only source ofhealth care, and approximately half (54.6%) of patients were return visits (Table 2). Despite limited resources as a student-run free medical clinic staffed by multitudes of learners, patient satisfaction was high (69.1% excellent, 27.9% good) and trainees were able to answer questions and patient needs "completely" 89.8.% of the time.

ADVERSE EFFECTS

Unintended consequences of UIMC included fragmentation of health care, that only 1.2% participated in a new postreferral follow-up initiative (Table 2), and the inability to provide comprehensive preventive and diagnostic health care such as diabetic urine microalbumin or x-ray services. Additionally, ethical issues remain regarding whether student-run free medical clinics provide sufficient continuity with a rotating cast of health care trainees to serve as medical homes for patients requiring chronic disease management.5 However, in our small sample, approximately 44% of patients surveyed used UIMC as their only source of care and 6% returned monthly (Table 2).

SUSTAINABILITY

Despite limitations, UIMC has been a sustainable intervention to address health care services for underserved populations in Iowa. Two physician faculty advisors, a pharmacy faculty advisor, and a finance advisor provide institutional resources. These resources support the student-led executive board, which coordinates more than 800 student volunteers across eight health professional schools and the undergraduate campus to carry out UIMC's mission.

As seen in previous studies, the benefits of clinical exposure at student-run free medical clinics during preclinical years at UIMC are evidenced by high levels of engagement.6 Day-to-day decisions are made by approximately 70 student board members who implement operational protocols, train student volunteers, facilitate provider recruitment, and provide clinical services under supervision. Additionally, UIMC student clinic coordinators maintain ongoing partnerships with local public-school systems, faith-based organizations, and community-based nonprofits.

UIMC is continually improving service learning processes through reflection, feedback, and fielding requests for new clinical sites to better serve the community.7

PUBLIC HEALTH SIGNIFICANCE

Providing culturally appropriate health education and services is difficult in large urban areas, and these challenges are exacerbated in rural areas.2 In states such as Iowa with no coverage for undocumented individuals and increasingly stringent requirements for Medicaid eligibility for natural-born citizens and immigrants alike, community-based solutions to policy deficiencies are urgently needed. This evaluation of services provided by the UIMC demonstrates the impact of a sustainable student-led, community-based public health intervention for the underserved.5,6 UIMC is a crucial safety net health care resource in Iowa, whose student leaders will strive to improve health equity among our patients for years to come. ÂfPU

CONTRIBUTORS

M. L. Palma wrote the initial draft of the article. M. L. Palma, A. Arthofer, K. M. Halstead, andJ.M. Wahba collected and analyzed the data. All authors contributed to the study conceptualization and design, commented on subsequent versions ofthe article, and approved the final version.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

HUMAN PARTICIPANT PROTECTION

Data presented were collected for de-identified quality improvement purposes and thus are exempt from human participant review. Additional details from the University ofIowa institutional review board are available upon request.

Sidebar

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DETAILS

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Impact of The Community Eligibility Provision of the Healthy, Hunger-Free Kids Act on Student Nutrition, Behavior, and Academic Outcomes: 2011–2019

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ABSTRACT (ENGLISH)

The Community Eligibility Provision (CEP) allows high-poverty schools participating in US Department of Agriculture meal programs to offer universal free breakfast and lunch. Authorized as part of the Healthy, HungerFree Kids Act of 2010, CEP became available to eligible schools nationwide in 2014. Emerging evidence suggests that schools that provide universal free meals experience positive impacts on student nutrition, behavior, and academic performance. In particular, schools benefit from increased meal participation rates. There is mixed evidence of impacts on test scores and attendance, and limited but promising results showing improvements in weight outcomes, on-time grade promotion rates, disciplinary referrals, and food security. In this article, we summarize the growing evidence base and suggest policy approaches to increase the use of CEP by eligible schools. (Am J Public Health. 2020;110:1405-1410. doi:10.2105/ AJPH2020.305743)

FULL TEXT

Headnote

The Community Eligibility Provision (CEP) allows high-poverty schools participating in US Department of Agriculture meal programs to offer universal free breakfast and lunch. Authorized as part of the Healthy, HungerFree Kids Act of 2010, CEP became available to eligible schools nationwide in 2014.

Emerging evidence suggests that schools that provide universal free meals experience positive impacts on student nutrition, behavior, and academic performance. In particular, schools benefit from increased meal participation rates. There is mixed evidence of impacts on test scores and attendance, and limited but promising results showing improvements in weight outcomes, on-time grade promotion rates, disciplinary referrals, and food security.

In this article, we summarize the growing evidence base and suggest policy approaches to increase the use of CEP by eligible schools. (Am J Public Health. 2020;110:1405-1410. doi:10.2105/ AJPH2020.305743)

One in 7 US children lives in a food-insecure household (i.e., a household with limited or uncertain access to adequate food).1 Food insecurity among children has a deleterious effect on physical and psychosocial health, cognitive function, and academic performance.2-5 Children in food-insecure households are more likely to be hospitalized and develop chronic conditions such as diabetes, and are less likely to meet developmental milestones and succeed in school.6-8 Annual costs to the health care and education systems associated with food insecurity among families with young children are estimated at more than $1.2 billion.9 Federal nutrition assistance programs administered by the US Department of Agriculture (USDA) aim to support tens of millions of children in the United States each year. Research has consistently demonstrated the benefits of 2 of these programs-the School Breakfast Program and the National School Lunch Program- for reducing childhood food insecurity. •. 10-12

The US Congress is currently discussing Child Nutrition Reauthorization, which is the process of revising the statutes that authorize the federal child nutrition assistance programs. The last reauthorization process occurred in 2010 through the Healthy, Hunger-Free Kids Act.13 In addition to reauthorizing funding for child nutrition programs, the law created the Community Eligibility Provision (CEP), a school meal-funding option that allows schools or districts in high-poverty areas to serve free breakfast and lunch to all students.13 CEP is an alternative to the traditional USDA reimbursement model through which meal pricing is determined annually for each student on the basis of household income. CEP was designed to increase access to nutritious food for low-income children, decrease stigma associated with participating in school meals, and reduce administrative burden for schools by eliminating the need to process meal applications and track students' meal charges.

Previous research has explored the impacts ofuniversal free meal (UFM) programs other than CEP, including municipal free meals initiatives and the USDA's prior UFM options, Provisions 1, 2,and 3, whose eligibility cutoffs and lengths of cycle are different from those of CEP.14-21 Among 8 previous studies of UFM,14-21 all but 1 focused on universal free breakfast only; the remaining study focused on universal free lunch only.15 These studies have consistently found improvements in student meal participation but revealed mixed impacts on academic achievement and attendance. In the years since CEP became available, accumulating evidence indicates that CEP has positive impacts on a range of student nutrition, academic, and behavior outcomes, including some outcomes not previously studied in the UFM literature, such as disciplinary referrals.

Despite promising findings of the benefits of UFM programs, proposals have circulated in the US Congress that would weaken CEP and render participation financially infeasible for thousands of schools serving millions of low-income children. In this article, we provide a primer on CEP, synthesize literature that has assessed the impact of UFM on student outcomes with an emphasis on the recent literature on CEP, and argue that policy changes that strengthen- rather than erode-CEP are warranted to promote the health and educational attainment of the nation's children. This article is timely because it is anticipated that Child Nutrition Reauthorization will pass in 2020 or 2021.

THE COMMUNITY ELIGIBILITY PROVISION

Nearly half of all US public school children are eligible for free or reduced-price meals.22 However, despite elevated prevalence of food insecurity among such students, rates of student participation in USDA school meals programs are low: in 2015, only 43% of students eligible for free or reduced-priced meals participated in breakfast and 81% participated in lunch.22 Barriers to student meal participation include stigma, lack of outreach to eligible students, and confusion among parents regarding eligibility.23,24 CEP was designed to address such barriers by allowing high-poverty schools to provide universal free breakfast and lunch. Schools or districts can opt into CEP if 40% or more of students are identified as "categorically eligible" for free meals using existing administrative data, such as participation in the Supplemental Nutrition Assistance Program (SNAP) or Temporary Assistance for Needy Families. CEP was rolled out over a 3-year period in 10 states and the District of Columbia, and it then became available nationwide to eligible schools at the beginning of school year (SY) 2014-2015. In that first year, 14 214 schools adopted CEP.25 By SY 20182019, adoption had doubled to 28 614 schools (64.6% of those eligible).25

How Does Reimbursement Work?

Instead of collecting annual meal applications with household income information from each student, schools adopting CEP are reimbursed using a formula based on the percentage of students categorically eligible for free meals (the "identified student percentage," or ISP). A school's ISP is multiplied by 1.6 to calculate the percentage of meals reimbursed at the "free" rate (in SY 2019-2020, on average, $3.41 for lunch and $1.84 for breakfast), and the remainder are reimbursed at the lower "paid" rate (in SY 20192020, on average, $0.32 for lunch and $0.31 for breakfast).26 For example, a school with an ISP of 50% would be reimbursed at the USDA's "free" rate for 80% of meals served (50% ISP X 1.6), and at the "paid" rate for the remaining 20% of meals.

Which Eligible Schools Adopt the Provision?

Among eligible districts, adjusted odds of CEP participation are higher for districts that are located in rural compared with suburban areas, in the Southeast compared with the Northeast, and in states where CEP has been available longer (i.e., states that participated in CEP prior to the national rollout).27 School ISP is also strongly associated with adoption: in SY 2018-2019, CEP adoption rates were 22.3%, 65.5% and 80.4%, respectively, among schools with ISPs of 40% to 49%, 50% to 59%, and 60% or higher.25 Documented barriers to CEP adoption among eligible schools include concerns about how adoption would affect food service reimbursement, and state and federal education funding through programs such as Title I.28

EFFECTS OF UNIVERSAL FREE MEAL PROGRAMS

Studies representing a wide range of geographies and grade levels have reported promising outcomes following UFM adoption. Studies focused on the impacts of CEP are detailed in Appendix A (available as a supplement to the online version of this article at http://www.ajph. org). Most studies employ strong analytic methods, including difference-in-difference and instrumental variable approaches, that allow for causal inference. In Appendix A, we describe the study design used in each study, and in this section we note where noncausal study designs were used.

Student Nutrition Impacts

Research suggests that UFM programs achieve their primary goal of increasing meal participation. A review ofuniversal free breakfast program evaluations through 2004 found consistent evidence of increased breakfast participation.20 Since then, additional studies using strong causal research designs have provided further evidence of increased meal participation linked with UFM.14-18 Adding to the existing literature on UFM programs, 4 studies have evaluated the impact of CEP on breakfast and lunch participation across grade levels, and all detected significant increases.28-31 Two studies focused on multiple states participating in CEP prior to nationwide rollout,28,30 and 2 examined specific states after nationwide rollout (California29 and Pennsylvania31). Increases in participation ranged from 3.5 to 37.8 percentage points for breakfast and 3.5 to 11.8 percentage points for lunch; some variation in findings was due to different student subgroups studied. Analytic rigor and design of these studies also differed: the California and Pennsylvania studies compared participation rates in CEP adopting and nonadopting eligible schools 1 year after adoption, whereas 1 national study used propensity score matching to develop sets of adopting and nonadopting schools for comparison and the other leveraged the staggered rollout of CEP to compare early and late adopting states. Gains in meal participation occurred among students previously eligible for free and reduced-price meals, as well as those previously above the eligibility cutoff.Taken together, these studies suggest that UFM programs significantly increase program reach for the School Breakfast Program and the National School Lunch Program.

Critics of CEP feared that students at participating schools would "double-dip"-both bringing their lunch from home and eating the school meal, leading to higher caloric intake and increases in obesity. On the contrary, of the 3 studies that have assessed weight outcomes in the context of UFM, 2 found no impact of UFM on weight and 1 found a beneficial effect. An analysis ofa randomized universal free breakfast pilot program in elementary schools found no impact on 24-hour nutritional intake or weight.16 Among middle school students participating in UFM programs in New York City, there was no change in body mass index or healthy weight, but there were improved weight outcomes among students not previously eligible for free meals.15 In Georgia, CEP adoption led to a 1 percentage point decrease in body mass index averaged across grade levels.32 Further, evidence suggests that revised nutrition standards issued by the USDA in SY 2012-2013 have led to a significant improvement in the nutritional quality of school meals, and that meals served in schools are of significantly higher nutritional quality than those brought by children from home.22 Therefore, students switching to school meals instead of homepacked meals may experience improvements in nutritional outcomes.

Finally, 3 studies have considered the relationship between UFM and food security or hunger. In Boston, Massachusetts, Kleinman et al. found that a universal free breakfast program led to lower rates of student hunger.19 In Maryland, surveys of families in 5 matched CEP participating schools and eligible nonparticipating schools showed that adjusted odds of living in a food-insecure household were twice as great for students at nonparticipating schools.33 Additionally, a simulation study of the impact of CEP on families' food purchasing power and food insecurity found that in 2014, by increasing purchasing power, CEP may have allowed 3.2% of food-insecure children and their families (693 411 families) to move to full food security.34 Although neither study on CEP used longitudinal data and findings were not causal, they do suggest that CEP adoption may be linked to improved household food security.

Student Academic Performance Impacts

Six previous studies have explored the impact of UFM programs other than CEP on test scores and have found different effects by academic subject and age group. Five of these studies focused on universal breakfast programs; 3 found no change in test scores16-18 and 2 found some improvements.19,21 A final study examined universal free lunch in middle schools and found improvements in reading and math test scores.15 Among studies focusing specifically on test scores and CEP, 2 detected improvement in test scores for some subjects and age groups and the third detected no change.35 Notably, the study that found no change included only data from 1 year after implementation. Gains detected in the other 2 CEP studies are similar in magnitude to those observed in the UFM studies. In South Carolina, Gordanier et al. detected a significant increase (0.06 standard deviations) in elementary school math scores, but no change in elementary school reading scores or middle school scores.36 In a national evaluation, Ruffini found that across grade levels, reading scores did not change but math scores increased 0.02 standard deviations in districts with the largest shares of students becoming eligible for free meals.30 After scaling by the share of newly eligible students, access to free meals increased math performance by 0.05 standard deviations. Although these gains are relatively small, they are similar in magnitude to those seen when families receive other forms of income support, such as the earned income tax credit.30

To date, only 1 study has explored the impact of UFM on on-time grade promotion rates. In that study, Kho found that by the second year of CEP adoption in Tennessee, students at participating schools were 0.6 percentage points more likely to be promoted to the next grade on time.35

Evidence on the impact of UFM on attendance rates is mixed. Six studies examined the impact of universal breakfast on attendance; 3 found no change,16-18 2 found improvements across the study sample,19,21 and 1 found improvements only among certain racial and socioeconomic subgroups.14 Three studies examined this question in the context of CEP and found similarly inconclusive results; 1 found positive effects among elementary schoolers,37 1 found positive effects among elementary but not middle schoolers,36 and the third found small but negative effects across grade levels.35 In Wisconsin elementary schools, Bartfeld et al. found that participation in CEP led to a 3.5 percentage point reduction in students with low attendance, particularly among economically disadvantaged children.37 In South Carolina, Gordanier et al. found that CEP participation led to a reduction in absences equivalent to one fifth of a day per student for elementary school students, but it had no effect on attendance in middle schools.36 In Tennessee, Kho detected an increase in absences equivalent to halfa day per student across grade levels due to CEP.35

Student Behavior Impacts

Two studies have examined the impact of UFM programs- specifically, CEP-on student disciplinary referrals, and both found positive effects. In a national evaluation, Gordon and Ruffini found that CEP participation reduced suspension rates among White elementary school males by 1 percentage point, but their study lacked statistical precision to estimate changes for other groups by race or grade level.38 In Tennessee, by the third year after CEP adoption, Kho found that disciplinary referrals decreased 2.3 percentage points averaged across grade levels, with the greatest reductions among high school students.35

SUMMARY OF THE EVIDENCE

There is strong evidence of benefits of UFM for meal participation rates; promising evidence for benefits for weight outcomes, food security, disciplinary referrals, and on-time grade promotion; and mixed evidence of impacts for test scores and attendance. Although the studies evaluating the impact of CEP discussed in the previous section reflect early stages of policy implementation (primarily assessing outcomes 1 to 3 years after adoption), most use strong causal methods to produce credible results and are corroborated by other studies with findings in the same direction.

It is persuasive that these studies have identified positive effects so soon after policy implementation given that outcomes such as weight reflect the cumulative effect of years of exposure and take time to change. Research on CEP has shown that benefits accrue both to students previously eligible and ineligible for free or reduced-price meals, indicating that families may have needed meal assistance despite earning above the cutoff.This finding is important because as many as 15% of marginally food secure and 10% of foodinsecure students do not qualify for free or reduced-price meals on the basis of household income. 39

STRATEGIES TO STRENGTHEN THE PROVISION

Considering the emerging evidence of UFM's benefits for a range of student nutrition, behavior, and academic outcomes, federal and state policymakers should consider strategies to strengthen CEP and promote adoption by eligible schools. We recommend several policy approaches.

1. Increase the federal reimbursement multiplier for CEP schools. The total amount of meal reimbursement that a school receives is tied directly to its ISP; thus, ISP is a strong predictor of CEP adoption.27,29,40 With the ISP multiplier currently capped at 1.6, only schools with ISPs of 62.5% or above are fully reimbursed for all meals served; schools with ISPs between 40% and 62.5% must cover the gap in reimbursement themselves. An increase of the multiplier to 1.8 would enable full reimbursement for schools with ISPs above 55.5%. This federal policy change could increase the likelihood of CEP adoption for an estimated additional 2100 new schools and extend meal access to more than 1 million children.40

2. Continue to allow "grouped" schools with ISPs of 40% or above to participate in CEP. Currently, schools can opt into CEP individually, as part ofa group of schools oras part of a district, as long as their pooled ISP is greater than 40%. This allows a district to adopt CEP for all schools in the district, even if some schools are slightly below the 40% ISP mark. For example, a district with 10 schools where ISPs range from 30% (near eligible) to 80% (very high poverty) and a district aggregate ISP of 65% could adopt CEP districtwide. Grouping schools simplifies administration and often helps districts save money: they can reduce their administrative overhead by eliminating the infrastructure needed to process meal applications and can achieve economies of scale through increased purchasing and production volumes. Districtwide adoption can also reduce confusion among parents that may occur when students move from a participating school to a nonparticipating school within the district, or when 1 sibling attends a participating school and another does not. The 2020 budget proposed by the White House suggested limiting CEP participation to schools with an ISP of40% or above. This would prevent districts from including schools with lower ISPs in grouped or districtwide adoption. The ability to pool ISPs and include these schools as part of grouped or districtwide implementation is a key consideration for decision-makers41; curtailing the opportunity for districtwide implementation would eliminate these benefits and may result in fewer eligible schools participating.

3. Strengthen state direct certification systems. ISP is a top predictor of CEP participation; therefore, strategies that improve identification of categorically eligible students and boost ISPs could lead more schools to adopt CEP.27,29,40 In SY 20162017, states failed to certify, on average, 8% of children directly eligible for free meals.42 Direct certification systems could be improved with increased state and federal funding, including through resumption of the Direct Certification Improvement Grant program, which is currently frozen. Additionally, the ability to use income data available in Medicaid administrative records for direct certification should be extended to all states. In states that were authorized to use Medicaid data as part of the Direct Certification With Medicaid for Free and Reduced-Price Meals Demonstration Program, direct certification rates increased significantly; in the 4 states new to the program in 2016, students directly certified for free meals increased between 2.5 and 8.0 percentage points in the first year. 43

4. Revise federal policies that limit participation in other public benefit programs. ISPs reflect the proportion of students within a school who are identified as directly eligible for free meals on the basis of existing administrative data, such as participation in SNAP and Temporary Assistance for Needy Families. Federal policies that lead to lower participation in these benefit programs, including the Categorical Eligibility for SNAP proposed rule44 or the Inadmissible on Public Charge Grounds final rule,45 may lead to lower ISPs and thus lower CEP adoption. Estimates suggest that the Categorical Eligibility for SNAP proposed rule would cause ISPs to drop below 40% (the

CEP eligibility cutoff) at schools that collectively serve 142 000 students, and ISPs to drop below 62.5% (the level at which schools are fully reimbursed for all meals served) at schools that serve an additional 1.05 million students.46 These policies should be revised to avoid negatively affecting school meal access.

KEY TAKEAWAYS

There is growing evidence that CEP produces important benefits for children's health and academic performance. Investment yields long-term benefits: outcomes such as food security and school attendance during childhood are predictive of health and productivity into adulthood.8,47 Further, CEP has become an increasingly appealing solution to schools seeking to address unpaid meal debt and eliminate meal shaming, a practice that has recently garnered considerable negative media attention. The US Congress should consider these benefits to students, schools, and society, and identify opportunities to strengthen CEP through Child Nutrition Reauthorization and beyond. AJPH

CONTRIBUTORS

A. A. Hecht conceptualized and designed the article, reviewed previous literature, drafted the article, and reviewed and revised the article. L. Turner and K.M. Pollack Porter helped conceptualize the study, reviewed previous literature, and critically revised and reviewed the article for important intellectual content. All authors approved the final article as submitted and agree to be accountable for all aspects of the work.

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CONFLICTS OF INTERESTS

No financial disclosures or conflicts of interest were reported by the authors.

HUMAN PARTICIPANT PROTECTION

This article did not require institutional review board review because it is a review of existing literature.

Sidebar

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DETAILS

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Hepatitis A Outbreaks Associated With the Opioid Epidemic in Kentucky Counties, 2017–2018

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ABSTRACT (ENGLISH)

Objectives. To describe county-level socioeconomic profiles associated with Kentucky's 2017-2018 hepatitis A outbreak that predominately affected communities affected by the opioid epidemic. Methods. We linked county-level characteristics on socioeconomic and housing variables to counties' hepatitis A rates. Principal component analysis identified county profiles of poverty, education, disability, income inequality, grandparent responsibility, residential instability, and marital status. We used Poisson regression to estimate adjusted relative risks (RRs) and 95% confidence intervals (CIs). Results. Counties with scores reflecting an extremely disadvantaged profile (RR = 1.21; 95% CI = 0.99, 1.48) and greater percentage of nonmarried men, residential instability, and income inequality (RR = 1.15; 95% CI = 0.94, 1.41) had higher hepatitis A rates. Counties with scores reflecting more married adults, residential stability, and lower income inequality despite disability, poverty, and low education (RR = 0.77; 95% CI = 0.59, 1.00) had lower hepatitis A rates. Counties with a higher percentage of workers in the manufacturing industry had slightly lower rates (RR = 0.97; 95% CI = 0.94, 1.00). Conclusions. As expected, impoverished counties had higher hepatitis A rates. Evaluation across the socioeconomic patterns highlighted community-level factors (e.g., residential instability, income inequality, and social structures) that can be collected to augment hepatitis A data surveillance and used to identify higher-risk communities for targeted immunizations. (Am J Public Health. 2020;110:1332-1339. doi:10.2105/AJPH. 2020.305789)

FULL TEXT

Headnote

Objectives. To describe county-level socioeconomic profiles associated with Kentucky's 2017-2018 hepatitis A outbreak that predominately affected communities affected by the opioid epidemic.

Methods. We linked county-level characteristics on socioeconomic and housing variables to counties' hepatitis A

rates. Principal component analysis identified county profiles of poverty, education, disability, income inequality, grandparent responsibility, residential instability, and marital status. We used Poisson regression to estimate adjusted relative risks (RRs) and 95% confidence intervals (CIs).

Results. Counties with scores reflecting an extremely disadvantaged profile (RR = 1.21; 95% CI = 0.99, 1.48) and greater percentage of nonmarried men, residential instability, and income inequality (RR = 1.15; 95% CI = 0.94, 1.41) had higher hepatitis A rates. Counties with scores reflecting more married adults, residential stability, and lower income inequality despite disability, poverty, and low education (RR = 0.77; 95% CI = 0.59, 1.00) had lower hepatitis A rates. Counties with a higher percentage of workers in the manufacturing industry had slightly lower rates (RR = 0.97; 95% CI = 0.94, 1.00).

Conclusions. As expected, impoverished counties had higher hepatitis A rates. Evaluation across the socioeconomic patterns highlighted community-level factors (e.g., residential instability, income inequality, and social structures) that can be collected to augment hepatitis A data surveillance and used to identify higher-risk communities for targeted immunizations. (Am J Public Health. 2020;110:1332-1339. doi:10.2105/AJPH. 2020.305789)

Hepatitis A is a vaccine-preventable, infectious liver disease transmitted via the fecal-oral route through direct person-to-person contact or consumption of contaminated food or water. Hepatitis A is the most common form of viral hepatitis worldwide1; however, in the United States, hepatitis A incidence decreased from 31 582 cases in 19952 to 1239 cases in 20143 after vaccine introduction in 1995. Since 2016, multiple outbreaks have resulted in greater than 15 000 incident hepatitis A cases not attributed to food or drink contamination, but that have predominately occurred in urban and rural communities that use or inject drugs and those affected by the opioid epidemic.1

The opioid epidemic and increased rates of infectious diseases are closely associated.4-6 Behaviors promoting hepatitis A virus (HAV) transmission among drug users are less clear, but likely involve poor hygiene and unsanitary drug sharing that are tied with socioeconomic challenges that increase infection vulnerability.7-9 Social and economic factors, such as personal and neighborhood poverty,10 19 income inequality,15,20,21 and lack of financial opportunities or social enrichment resources,24,25 are factors associated with drug-seeking behaviors,11,15-18,25 opioid use disorder,13,20,22,24 and higher prevalence of 10,14,15,19-21,23,24 blood-borne viral infections, but have not been studied in relation to HAV infection. Community-level public health interventions are needed to address the contextual causes of drug use for infectious disease prevention and opioid use disorder prevention5,7,9 11 and should consider the complicated nature of socioeconomic status that is likely to be meaningful, as observed with the neighborhood deprivation index.26 In this study, we assessed the interplay of multiple county-level socioeconomic factors by using a principal component analysis (PCA) and examined socioeconomic patterns in relation to hepatitis A incidence in the context of the opioid epidemic.

Kentucky reported the highest number of hepatitis A cases in the 2017-2018 outbreak27 and had one of the highest rates of overdose deaths.28 Qualitative research in Kentucky highlighted that opioid use and risky health behaviors were thought to be driven by greater poverty, declining economic opportunity-particularly loss of coal mining jobs and out-migration-and declining social enrichment, which have disproportionately affected the eastern Kentucky region of Appalachia.24 The current study's objective was to describe the county-level variation in socioeconomic patterns in Kentucky and to examine their associations with differential rates of the hepatitis A outbreak across Kentucky counties.

METHODS

Hepatitis A is a reportable infectious ease. probable, and suspected 10.2105/AJPH.2020.305789 suspected cases of hepatitis A were reported to local and state health departments in Kentucky. Local health departments and epidemiologists reviewed medical records and conducted case interviews. Patient and infectious disease outbreak information collected during this outbreak included demographic factors, clinical information, housing characteristics, behavioral factors, travel history, and contact with homeless persons, sick persons, and restaurants. Between August 2017 and December 2018, 3353 hepatitis A cases were reported in 97 of 120 Kentucky counties. In this study, we included 3349 reported hepatitis A cases with information on the county of diagnosis. The median age of hepatitis A diagnosis among the cases was 36 years, 59.2% were males, 64.9% reported illicit drug use, 52.5% had coinfections predominately from hepatitis C virus, and 9.1% reported homelessness. Nearly all hepatitis A cases (n = 3348) were serologically positive with immunoglobulin-M anti-HAV tests, and 89.8% had 2 or more symptoms consistent with infection. Among those with samples sent to the Centers for Disease Control and Prevention for HAV sequencing (n = 586), 97.8% screened positive. County-level hepatitis A rates were derived by dividing the number of reported cases in each county by the county population size and were the outcome of interest.

The American Community Survey (ACS) is an annual survey on demographic, social, economic, and housing factors conducted by the US Census Bureau from a sample of US addresses.29 We linked the county-level 5year estimates for 2012-2016 ACS characteristics to the county-level hepatitis A rates. We excluded the 23 counties that did not report hepatitis A cases.

County-LeveL American Community Survey Variables

County-level demographic and social factors considered were age, race, ethnicity, familial and marital characteristics, educational attainment, grandparent responsibility for care of grandchildren, disability, residential stability, and adolescent birth rate. We examined economic factors on income and poverty, income inequality, health insurance coverage, employment, and industry types of employment as well as housing characteristics on median home value, costs, occupancy, and vehicle ownership. The median percent margin of error for the 5-year ACS variables included in the PCA was 2.8% (interquartile range = 2.0%-3.6%).

Statistical Analyses

We mapped quartiles of county-level hepatitis A rates by using ArcGIS, version 10.6 (Environmental Systems Research Institute Inc, Redlands, CA) to describe the geographic distribution of hepatitis rates. County-level socioeconomic characteristics by hepatitis A quartiles were presented to identify factors crudely related to hepatitis A rates. We examined correlation patterns between 41 socioeconomic variables with Pearson correlation coefficients. As expected, many socioeconomic variables were strongly correlated with each other with correlations greater than the absolute value of 0.70 (Table A, available as a supplement to the online version of this article at http://www.ajph.org), which prompted the use of the PCA to identify socioeconomic patterns across 97 Kentucky counties. After identifying socioeconomic status patterns from the PCA, we used Poisson regression to estimate the associations between the principal component (PC) scores with HAV infection rates.

Principal component analysis. We conducted the PCA in SAS version 9.4 (SAS Institute Inc, Cary, NC) using PROC FACTOR to generate statistically uncorrelated PC scores using the weighted sum ofthe socioeconomic variables with the weights equal to the eigenvectors obtained from the PCA. We used a scree plot and a cut-off of 75% of cumulative variation explained to select the number of PCs to include in subsequent outcome analyses.30 This approach has been used in many contexts, including social and nutritional epidemiology, to develop indices related to other health comes.26,31 For interpretation of the PCs, we selected a reduced set of 12 economic and social variables that have been commonly used in the literature and based on data observations from Table 1. We examined the factor loadings and labeled each PC by the heaviest loadings greater than 0.15, which has been used as a cutpoint in previous literature.31

We included percentage of population below the poverty level and the Gini index of income inequality that are commonly used income-based variables.20,21 Education variables were highly correlated with one another (> the absolute value of 0.64; Table A); we selected percentage of county with educational attainment below ninth grade and high-school graduation. On the basis of Table 1 observations, we selected a subset of 5 familial structure and marital status variables, grandparent responsibility for grandchildren, disabled population, and residential instability based on the strength of relationships observed with hepatitis A quartiles. We excluded other variables on living in nonfamily households, widows, family size, and adolescent birth rates from the PCA because they were similar across hepatitis quartiles (Table B, available as a supplement to the online version of this article at http://www.ajph.org). The loadings between these 12 socioeconomic variables and each PC score are presented in Table 2. In summary, the variables included in the PCA were the Gini index of income inequality and the percentage of the county's population below the poverty line, with educational attainment less than ninth grade, high-school graduates, disabled, grandparents responsible for grandchildren, living in a different residence than the previous year, families living in married households, families living in households with a single-female head of household, families living in households with a single-male head of household, married adult men, and married adult women. We mapped quintiles of the PC scores in ArcGIS to visualize the geospatial distribution of the socioeconomic PC scores across the state, which public health practitioners may find useful to identify their counties' score for the 3 identified PC patterns.

Outcome analysis. We used Poisson regression to estimate relative risks (RRs) for a 1-standard-deviation increase in each county-level PC score with a scaled deviance to account for overdispersion. County hepatitis A counts was the dependent variable, and we included an offset term for the natural log of population size. We additionally adjusted all Poisson regression models for population size and a quadratic term for population size. We included county median age and percentage of the county who were White as adjustment variables. We examined examined whether the adjusted associations were independent of industries alluded to as reasons underlying the rise in opioid use24 (e.g., lack of economic development or social enrichment resources). We included the percentage of the county in the industries of (1) manufacturing; (2) arts, entertainment, recreation, accommodation, and food services; (3) construction; and (4) agriculture, forestry, fishing and hunting, and mining as proxies of economic development and social enrichment resources. As a sensitivity analysis, we restricted our analyses to counties with more than 10 cases of hepatitis A. We conducted all statistical analyses in SAS version 9.4.

RESULTS

The median HAV infection rate in Kentucky was 57.8 per 100 000 (IQR = 27.5-149.8). Higher HAV infection rates tended to occur in eastern Kentucky counties (Figure 1a), which is the Appalachian region particularly affected by the opioid epidemic. Compared with low hepatitis A rate counties, counties with the highest hepatitis A rates were slightly younger, had a larger White population, were more likely to live in single-male or single-female heads of households, had more single adult men, had more grandparents responsible for grandchildren, had more individuals who were disabled, were more impoverished, and had higher income inequality and residential instability (Table 1). In addition, the populations in counties with higher hepatitis A incidence had lower educational attainment, fewer families in married households, and lower percentage in the manufacturing industry (Table 1). Counties were similar across hepatitis A quartiles in terms of family size, nonfamily households, single adult females, widows, health insurance coverage, and other top industries including arts, food services, construction, agriculture, and mining (Table B).

Principal Component Results

Three principal components explained 75.3% of the variation in county-level socioeconomic factors (Table 2) and were the location of the elbow in the scree plot (Figure A, available as a supplement to the online version of this article at http://www.ajph. org). High PC1 scores were correlated with high poverty ($p = 0.921$), low educational attainment ($p = 0.791$), high disability ($p = 0.729$), single-female and singlemale heads of households (single-female: $p = 0.721$; single-male: $p = 0.487$), low married households ($p = -0.774$), high income inequality ($p = 0.658$), and high grandparent responsibility for grandchildren ($p = 0.537$;Table 2). Counties with high PC1 scores reflect socioeconomic factors related to extreme disadvantage. Counties in the highest quintile of PC1 scores were generally in eastern Kentucky (Figure 1b).

High PC2 scores were correlated with counties with a high proportion of married households ($p = 0.517$), married adults (married women: $p = 0.706$; married men: $p = 0.601$), high disability ($p = 0.510$), low educational attainment (high-school graduate: $p = -0.526$; education <ninth grade: $p = 0.480$), low residential instability ($p = -0.724$; i.e., high residential stability); moderately associated with poverty ($p = 0.263$); and there was a lack of an association with income inequality ($p = 0.066$; Table 2). High PC2 scores reflect a pattern of marital support and residential stability with low income inequality despite challenges of low education, high disability, and moderate poverty. Counties in the highest quintile of PC2 were distributed across the state (Figure B1, available as a supplement to the online version of this article at http:// www.ajph.org).

High PC3 scores were correlated with high residential instability ($p = 0.476$), high grandparent responsibility for grandchildren (p = 0.465), moderate income inequality (p = 0.249), families living in married households (p = 0.265), yet lower percentages of families living in single-male head of households (p = -0.513) and married men (p = -0.177). PC3 scores were largely not correlated with poverty (p = 0.103), education (p = -0.039), disability (p = 0.025), married women (p = 0.022), or single-female heads of households (p = -0.076). High PC3 scores reflect a profile of residential instability, nonmarried men despite low single-male heads of households, and high income inequality. Counties in the highest quintile of PC3 were distributed across the state (Figure B2).

Outcome Poisson Regression Results

Counties scoring high on the extremely disadvantaged PC1 profile were significantly associated with higher hepatitis A incidence (RR = 1.44; 95% confidence interval [CI] = 1.19, 1.74); however, estimates attenuated after adjustment for median age of the county population, percentage ofthe population that was White, and percentage working in the manufacturing industry (RR = 1.21; 95% CI = 0.99, 1.48; Table 3). Counties with higher PC2 scores following the profile of high marital support and residential stability despite low education, high disability, and moderate poverty had lower HAV infection rates after adjustment for county age, race, and manufacturing (RR = 0.77; 95% CI = 0.59, 1.00). A standard deviation increase in PC3, which was characterized by counties with high residential instability, nonmarried men, and high income inequality, was associated with higher incidence after adjustment for county age, race, and manufacturing (RR= 1.15; 95% CI = 0.94, 1.41). Results were similar when restricting to counties with at least 10 reported hepatitis A cases (Table C, available as a supplement to the online version of this article at http://www.ajph.org).

Counties with a higher proportion of Whites had higher HAV infection rates (RR= 1.13; 95% CI = 1.07, 1.19; Table 3). Median age ofthe county population was not associated with hepatitis A rates. Counties with a higher percentage of the population in manufacturing had slightly lower rates (RR = 0.97; 95% CI = 0.94, 1.00; Table 3). The multivariable associations with HAV infection rates were null for the arts, entertainment, recreation, accommodation, and food services industries (RR = 1.00 95% CI = 0.90, 1.12) and construction (RR = 0.93; 95% CI = 0.84, 1.04), but showed an inverse association for the agriculture, forestry, fishing and hunting, and mining industries (RR = 0.93; 95% CI = 0.85, 1.00). With additional adjustment for these industries, the RR estimates for PC1, PC2, and PC3 scores were similar (Table 3, model 4; PC1: RR = 1.27 [95% CI= 1.04, 1.57]; PC2: RR = 0.90 [95% CI = 0.66, 1.23]; PC3: RR = 1.20 [95% CI = 0.96, 1.48]).

DISCUSSION

In summary, the 3 most prominent socioeconomic profiles derived from the PCA were generally geographically dispersed throughout Kentucky and were associated with differential hepatitis A case rates (PC1: RR= 1.21 [95% CI = 0.99, 1.48]; PC2: RR = 0.77 [95% CI = 0.59, 1.00]; PC3: RR= 1.15 [95% CI = 0.94, 1.41]). As expected, extremely disadvantaged counties with high poverty, high income inequality, high disability, low education, high single-family homes, and high grandparent responsibility had higher hepatitis A rates (PC1: RR= 1.21; 95% CI = 0.99, 1.48) and were predominately in the eastern Kentucky region. But even counties not correlated with poverty had similarly higher hepatitis A rates (PC3: RR= 1.15; 95% CI = 0.94, 1.41). Interestingly, counties that were characterized by poverty but had certain social and familial structures and residential stability had lower hepatitis A rates (PC2: RR = 0.77; 95% CI = 0.59, 1.00). From this study, more comes to light on potential county-level risk factors beyond the well-established risk factor of poverty (e.g., residential instability and single males who do not appear to be living in single-male heads of households), and potential county-level protective predictors are elucidated (e.g., residential stability, more married adults, lack ofincome inequality, and lack of single-female heads of households). These additional risk and protective factors could explain the differences in the hepatitis A epidemic severity observed across the state during the 2017-2018 outbreak.

By comparing the 3 socioeconomic profiles, we observed that more than a single marker of poverty was at play in the hepatitis A epidemic in Kentucky. Specifically, when we compared the profiles of counties with high PC3 and PC1 scores that both had similar associations with higher HAV infection rates, we observed unique factors to PC3 that may be contributing to the higher observed rates of hepatitis A, such as greater residential instability (correlation between PC3 score and residential instability: p = 0.476 vs correlation between PC1 score and residential instability:

p = -0.122; Table 2) and having single males who do not appear to be living in single-male heads of households (PC3: p = -0.513 vs PC1: p = 0.487; Table 2). We also observed in counties with high PC2 scores that they experienced high poverty, high disability, and low education (PC2: p = 0.263; p = 0.510; p = 0.480, respectively; Table 2); yet, despite these setbacks, PC2 counties had lower rates of hepatitis A. Upon further evaluation of factors unique to PC2 counties, a few unique protective factors may explain their advantage, such as the lack of residential instability (PC2: p = -0.724 vs PC3: p = 0.476 and PC1: p = -0.122; Table 2), lack of income inequality (PC2: p = 0.066 vs PC3: p = 0.249 and PC1: p = 0.658; Table 2), having more married men and women (PC2: p = 0.601 for men and p = 0.706 for women vs PC3: p = -0.177 formen and p = 0.022 for women and PC1: p = -0.552 for men and p = -0.52 for women; Table 2), and lack of families with a single-female head of household (PC2: p = -0.471 vs PC3: p = -0.076 and PC1: p = 0.721; Table 2). This suggests that, despite high poverty, protective county-level factors include residential stability, lack of income inequality, being married, and lack of single-female heads of households. Previous literature corroborates that markers of income inequality and residential instability are associated with hepatitis C and HIV,10,14,16,19-21 but less literature is available on hepatitis A.8 Higher income inequality was associated with higher HIV prevalence among persons who inject drugs20 and higher likelihood of an HIV outbreak.21 Residential instability and homelessness have been implicated in opioid use,7,10,32 risky behaviors, spread of infection, and barriers to medical care10 that are tied with the hepatitis A epidemic. While these individual markers have been widely used in the literature, there is limited research on the complex interplay among these socioeconomic markers in relation to infectious disease outbreaks, particularly in the context of the opioid epidemic or in relation to hepatitis A. One study observed that relocation to a more economically advantaged area with its inherent interplay of socioeconomic qualities was associated with disrupting an individual's network to substance-using individuals,16 though the role of relocation on infectious disease incidence was not assessed.

The role of counties' industrial composition on hepatitis A incidence was minimal for manufacturing (RR = 0.97; 95% CI = 0.94, 1.00). The inverse association between the percentage of the county in manufacturing and hepatitis A case rates suggests that economic development may play a role in the epidemic, though it may be relatively minor compared with the risk associated with the socioeconomic profiles.

Limitations

This was an ecologic study ofcounty-level data subject to ecologic fallacies because the socioeconomic profiles of the individual hepatitis A cases are unknown. A limited amount of data is collected from individual hepatitis A cases that does not capture their social and economic context or their living conditions ortheirneighborhoods. This study suggests that improving data surveillance to gather additional information on contextual neighborhood social, economic, and housing factors may be an important avenue for understanding outbreaks associated with drug use for which little is known about the exact person-to-person transmission route. This ecologic design, while limited, aligns with ecosocial theory that macro-level contexts can shape individual behavior and population health.33 Public health practitioners can use these ecologic results and the approach to comprehensively describe the multiple socioeconomic profiles within their catchment area and identify the socioeconomic profiles most affected by the epidemic.

From this study, public health practitioners may gain insight into expanding vaccinations to high-risk communities based on neighborhood socioeconomic profiles that are not currently considered in the current Advisory Committee on Immunization Practices recommendations.34 Specifically, public health practitioners in Kentucky may consider expanding HAV vaccination programs to higher-risk communities that follow the PC1 and PC3 patterns and those with greater income inequality, more residential instability, more single-family homes, and fewer married adults.

An additional limitation of our study was that the ACS data are from a sampled population, their categorization of data may not fully capture socioeconomic attributes, and the ACS data can have higher margins of error for rural areas than urban areas. However, we included 5-year ACS estimates to improve population coverage and long-term representation ofthe population, and to have lower margins for error. The error in the countylevel socioeconomic data in a predominately rural state is likely to be nondifferential in terms of the outcome status ofHAV infection rates; hence, the exposure measurement error would bias the results toward the null making it harder to detect an association.

As with any PCA, the profiles in Kentucky may not be generalizable to other states; however, the socioeconomic county profiles may be useful to local health departments in Kentucky and to the public to appreciate the heterogeneous and complex socioeconomic profiles that are differentially affected by infectious diseases associated with the opioid epidemic. This study of contextual factors related to hepatitis A takes a comprehensive approach to examine multiple social, economic, and housing factors' associations with hepatitis A and to gain a greater appreciation of the complexities of socioeconomic patterns on health in Kentucky, instead of focusing on single predictors that ignore complex correlations among socioeconomic factors. Furthermore, the current study addressed an understudied infectious disease associated with the opioid epidemic for which the behaviors and environments leading to hepatitis A outbreaks and transmission were less clear.

Public Health Implications

In conclusion, socioeconomic county profiles were modestly associated with hepatitis A incidence rates in Kentucky. This approach went beyond observing poverty as a risk factor and shed light on additional county-level risk factors (e.g., residential instability and single males who do not appear to be living in single-male heads of households) and protective factors (e.g., residential stability, lack of income inequality, more married adults, and lack of single-female heads of households). This may be useful to public health practitioners looking to expand immunization programs to higher-risk communities not currently included in the recommendations, such as communities with more income inequality, residential instability, and single-family homes, and fewer married adults. Even with the expansion of HAV vaccination programs, this study supports the notion that there are several community-level socioeconomic profiles associated with severity of hepatitis A outbreaks that should be explored with other opioid epidemic-related outcomes. These findings may also support public health practitioners in augmenting hepatitis A data surveillance by capturing personal- and community-level social, economic, and housing characteristics that are not routinely collected, if resources allow.

Sidebar

Correspondence should be sent to Natalie C. DuPre, ScD, 485 E Gray St, Louisville, KY 40202 (e-mail: natalie.dupre@ louisville.edu). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

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CONTRIBUTORS

N. DuPre contributed to conceptualization; methodology; software; analysis; data collection; writing-original draft, review, and editing; and visualization. L. Blair contributed to writing-original draft, review, and editing; software; formal analysis; and visualization. S.Moyer and B. Little contributed to writing-review and editing, and supervision. E. F. Cook contributed to methodology, writing-review and editing, and supervision. J. Howard contributed to conceptualization, software, analysis, data collection, resources,
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HUMAN PARTICIPANT PROTECTION

This study was approved by the Kentucky Cabinet for Health and Family Services' institutional review board.

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DETAILS

Subject:	Hepatitis A; Vaccines; Surveillance; Income inequality; Counties; Social factors; Families &family life; Outbreaks; Immunization; Epidemics; Narcotics; Disadvantaged; Principal components analysis; Poverty; Education; Homeless people; Manufacturing industry; Drug use; Hepatitis; Public health; Socioeconomics; Income; Manufacturing; Marital status; Regression analysis; Rates; Instability; Households; Stability augmentation; Infections; Infectious diseases; Population; Socioeconomic factors; Food contamination &poisoning; Opioids; Educational attainment; Statistical analysis; Disability; Risk assessment; Housing; Adults; Confidence intervals; Viral infections; Profiles; Social inequality; Viruses; Social structure; Special education; Opiates; Blood diseases; Low income groups
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The State of Rural Public Health: Enduring Needs in a New Decade

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ABSTRACT (ENGLISH)

Public health in the rural United States is a complex and underfunded enterprise. While urbanrural disparities have been a focus for researchers and policymakers alike for decades, inequalities continue to grow. Life expectancy at birth is now 1 to 2 years greater between wealthier urban and rural counties, and is as much as 5 years, on average, between wealthy and poor counties. This article explores the growth in these disparities over the past 40 years, with roots in structural, economic, and social spending differentials that have emerged or persisted over the same time period. Importantly, a focus on place-based disparities recognizes that the rural United States is not a monolith, with important geographic and cultural differences present regionally. We also focus on the challenges the rural governmental public health enterprise faces, the so-called "double disparity" of worse health outcomes and behaviors alongside modest investment in health departments compared with their nonrural peers. Finally, we offer 5 populationbased "prescriptions" for supporting rural public health in the United States. These relate to greater investment and supporting rural advocacy to better address the needs of the rural United States in this new decade. (Am J Public Health. 2020; 110:1 283-1 290. doi:10.2105/ AJPH.2020.305728)

FULL TEXT

Headnote

Public health in the rural United States is a complex and underfunded enterprise. While urbanrural disparities have been a focus for researchers and policymakers alike for decades, inequalities continue to grow. Life expectancy at birth is now 1 to 2 years greater between wealthier urban and rural counties, and is as much as 5 years, on average, between wealthy and poor counties.

This article explores the growth in these disparities over the past 40 years, with roots in structural, economic, and social spending differentials that have emerged or persisted over the same time period. Importantly, a focus on place-based disparities recognizes that the rural United States is not a monolith, with important geographic and cultural differences present regionally. We also focus on the challenges the rural governmental public health enterprise faces, the so-called "double disparity" of worse health outcomes and behaviors alongside modest investment in health departments compared with their nonrural peers.

Finally, we offer 5 populationbased "prescriptions" for supporting rural public health in the United States. These relate to greater investment and supporting rural advocacy to better address the needs of the rural United States in this new decade. (Am J Public Health. 2020; 110:1 283-1 290. doi:10.2105/ AJPH.2020.305728)

The United States has surpassed 330 million in population, with more than 65 million living in rural jurisdictions.1 There is a well-described urban-rural divide in the United States, where rural residents tend to be sicker and poorer and to have worse health behaviors than do their nonrural peers.2-8 Rural challenges are not uniform and are complicated by geographic characteristics-for example, rural Appalachia looks quite different than the rural deep South or frontier areas in the Northwest.2,5,6 Race, too, complicates the issue.2,3,7 Disparities across race/ethnicity interact with rurality to create regional patterns of inequality and inequity across the United States.9,10

In this article, we highlight the profound, systems-level issues that constitute the state of rural public health from the 1980s, through the onset of the Great Recession in 2007, until the present day. We particularly consider the context of an underfunded public health system, which is highlighted within the context of readiness for and response to the COVID-19 pandemic of 2020. We include analyses of differential gains in potential life years across the United States, the lack of recovery after the Great Recession in public sector investment in the rural United States, and examinations of the revenue and spending patterns among the nation's 1200 rural local health departments (LHDs), using urban-rural definitions derived from the Centers for Disease Control and Prevention (CDC) and US Department of Agriculture (USDA).11,12 We follow the descriptive overview of the state of rural public health with 5 recommendations on how to build up and enhance rural public health in the United States and consider implications on implementation of these recommendations for the overall field.

PREMATURE MORTALITY: RURAL VS URBAN

Specific US subpopulations have experienced rising mortality during the last decade leading to the first declines in life expectancy in modern history.13,14 Data on premature mortality trends have consistently shown disparities between rural and urban counties in the United States (Figure 1). Years of potential life lost (YPLL) estimates the average number of years a person would have lived had they not died before age 75 years and is expressed as number of lost years per 100 000 people. By examining trends in YPLL at the county level, we can more accurately calculate disparities between rural and urban localities.13

Figure 1 shows that from 2005-2007 to 2015-2017 the ratio of YPLL in rural versus urban counties has increased from 1.23 (8640/7000) to 1.31 (8771/6706). While YPLL differs significantly across states (Appendix Figure A, available as a supplement to the online version of this article at http://www. ajph.org), some of the gap between urban and rural premature mortality during this time period may be attributable to differences in the economic status of the population in urban versus rural areas more generally.4,7,9,13,14 Not all rural areas contributed equally to the widening urban-rural mortality gap. Differences are apparent especially when comparing outcomes in the highest quartile of per-capita income ("high income") versus the lowest quartile of per-capita income ("low income"). In 2005 to 2017, low-income rural areas had slower reductions in mortality than low-income urban areas. Conversely, high-income rural areas faced rising premature deaths since 2005, while highincome urban areas experienced declines in premature deaths. In addition, there is a demographic component in these YPLL differentials as high-income rural areas have a 10% lower proportion of Hispanic inhabitants than lowincome rural areas where Hispanics make up roughly 30% of the population. Both high-income and low-income rural areas have a similar proportion of Black residents (13%).17 The uptick in premature mortality in high-income rural areas and the slower rate of YPLL improvement in lowincome rural counties compared with all other local jurisdictions since 2005 foreshadows rural areas being left behind in the 2 decades that follow.

Indeed, the fallout of the Great Recession hit rural jurisdictions particularly hard (Figure 2). The Bureau of Labor Statistics reported a precipitous decline in employment through 2009 for the whole country and sustained job growth and general recovery economic recovery since. However, Figure 2 shows that the economic recovery has been much more robust in metropolitan and urban areas. Postrecession decreases in mortality were disproportionately achieved by urban areas, whereas in the postrecession period, rural areas have had significantly higher rates of excess deaths for the 5 leading causes of death-heart disease, cancer, unintentional injury, chronic lower respiratory disease, and stroke.2 One exception to this general trend is opioid deaths, which since 2016 have been hitting the urban United States harder than the rural United States.20

A HISTORIC LACK OF INVESTMENT IN RURAL INSTITUTIONS

The clinical care and mortality disparities outlined here and elsewhere in the literature are only 1 part of the urban-rural divide.7'8 Rural communities also face disparities related to investments in the social determinants of health. A growing body of research suggests that health can be driven in large part by factors beyond ac cess to clinical care' including housing' education' access to healthy foods' and a host ofother social factors. Increases in locallevel spending on these social services are associated with better population health status.21 It is therefore important to note the extent to which rural communities are experiencing disparities in public spending for social services and the social determinants more broadly (Figure 3). For most of the social services shown in Figure 3, per-capita spending in urban areas outstrips spending in rural areas. A gap in per-capita spending is especially notable given the potential returns to scale for spending done by urban governments serving communities with large populations. Local funding for health and social services is determined in large part on the basis of an area's overall wealth, tax base, and fiscal policies. A major challenge facing many rural communities is a low and declining tax base.23 Without meaningful growth in the resources available to support public programs such as social services, public health, or clinical care access, it is challenging to expect local governments to be able to meaningfully invest in these areas. One mechanism that federal and state governments can use to help address differences in local-level resource availability is intergovernmental transfers, which are payments from one government to another. These intergovernmental transfers can be in various forms such as grants, categorical or programmatic support for critical areas such as public health (e.g., from CDC to states, then to LHDs), housing (from the Department of Housing and Urban Development to states, counties, or cities, and often on to housing or community development departments), the environment (from the Environmental Protection Agency), or others. Rural communities have not tended to enjoy parity in their intergovernmental transfers with their more urban peer communities, in terms of total or per-capita revenues (Appendix Figure D). This is despite the fact that rural communities with smaller tax bases may be more reliant on intergovernmental transfers as larger proportions of their budget.24 These intergovernmental allocation decisions have important equity implications for rural populations given the importance of intergovernmental transfers to overall resources for public health, including public health departments.

CHALLENGES TO RURAL HEALTH DEPARTMENTS

Governmental public health in the rural United States has held a critical position, historically, as among a rural community's most important providers ofprotective inspections, population-based health services, and safety-net clinical health care. Before the Hill-Burton Act of 1945, which strove to better fund clinical health care in the United States, rural health care was inconsistently funded, largely relying on individual clinical practices, private rural hospitals, and scantly available basic safety-net services.25 Health departments began to fill part of that health service gap and, even after the growth of federally qualified health centers and the passage of the Hill-Burton Act, funding for clinical care remained inconsistent and, thus, local public health departments in rural jurisdictions have largely had continued responsibility in ensuring reliable and sustainable clinical care services.

Since the early 1970s, national leaders and institutions in governmental public health have recommended that local LHDs discontinue direct provision of clinical care and leave that to other governmental entities and the now-emerged private health care sector.26 This call, to divest clinical services from health departments and have health departments focus on populationbased services, was first issued in 1973 and has been repeated at least once per decade since.26 This call has created a stigma in the public health community25 for LHDs that are functionally clinic-lookalikes. These LHDs tend to be more heavily staffed by nurses and other clinicians and have the majority of their dollars and activities going toward clinical prevention services versus population-based prevention, surveillance, inspections, or regulation.27 Many LHDs across the country have indeed shifted to more population-based service provision but often still provide certain clinical services in traditional public health areas, including tuberculosis screening and treatment, immunizations, and screening and treatment of HIV and other sexually transmitted infections.4 Other types of clinical care, especially around primary care and maternal and child health, are still frequently offered by LHDs that serve jurisdictions with limited availability of clinical care and thus where LHDs remain among the providers of last resort, particularly rural and small health departments in the South.7 In some rural communities, if an LHD were to fully divest its clinical services, those services would functionally be unavailable through any other sources.

There are more than 2400 LHDs in the United States, about half of which are rural. These rural health departments look quite different than their urban and suburban LHD peers. Rural LHDs tend to have fewer staff and larger geographic jurisdictions to cover, which compound staff size and travel time issues. Even though rural health departments spend as much or more per capita than do their more urban health department peers, in general, they suffer from significant economies of scale challenges (Figure 4 and Appendix Figure C). There are significant fixed costs for operating a health department of any size. Paying for basic infrastructure is challenging in rural communities-not to mention maintaining the capacity to provide the nationally recommended full suite of essential public health services.29 Offering comprehensive protective inspections, population-based surveillance and prevention, and also clinical care may be out of reach for a rural LHD with just a few staff. In addition, rurality and small population size served are not entirely concordant in that not all small health departments in the United States are rural, though most rural LHDs are small.30 Some rural areas are not served by an LHD at all, but rather by a regional or state health department.

Operating costs for small governmental entities and concomitant infrastructure means that even when per-capita spending may appear high, total spending is typically quite modest (Figure 4, Appendix Figures A and B). While changes in and relative levels of per-capita spending may tell one story of urban versus rural resource availability for public health, total expenditures often tell another story entirely. Thus, both percapita and total spending levels are important data points and relevant for public health system stakeholders to consider in assessing adequacy ofpublic health funding and capacity in local communities across our nation.

Rural LHDs have a smaller staff size because of smaller budgets and populations. A challenge in these rural health departments is getting the right mix of staff to offer needed services. Smaller LHDs may face greater challenges in recruiting nurses, top executives, and midlevel managers than do medium or larger LHDs.27 One of the top reasons cited for these rural LHD recruitment issues is remote geographical location, alongside pay. Small rural LHDs (or LHDs in general) are often perceived as part of the clinical care safety net.6,25 This further complicates recruitment and retention efforts, as LHDs' direct competition with the private health care sector has historically been a losing proposition; nurses can make some $15 000 more per year for the same job class in a private health care setting compared with LHDs.31 Unfortunately, no national surveys give insight into these issues specific to small rural LHDs; however, an analysis of a large-scale convenience sample of small LHD staff across the nation found similar staffing and recruitment concerns.32

A POPULATION-BASED PRESCRIPTION FOR RURAL PUBLIC HEALTH

Rural LHDs face structural challenges in addressing the needs of populations that experience poorer health outcomes and social determinants than their urban peers and have fewer available resources to address these challenges.7 While the outcome is "sicker and poorer," the factors that place many rural residents at a disadvantage relate to a diverse set of factors tied to, among others, educational opportunity, housing quality and availability, and, perhaps most importantly, community economic vitality.2-4,7,10,13,24 Rural areas have not seen economic recovery, workforce investment, or public sector investment concomitant with their urban peers since the Great Recession. Despite these challenges, there remain social and structural advantages in rural communities that can be leveraged to improve health and well-being. These rural advantages include high levels of social connectedness, self-reliance, and shared history.33 Robust state and local public health systems can play a strong role in facilitating community efforts to leverage these rural strengths and assets and to help convene cross-sector partners that have influence across the social determinants ofhealth. We offer 5 recommendations to enable the governmental public health enterprise to better support rural LHDs in their work:

1. Reduce variation across definitions of "rural" to standardize eligibility for state and federal support.
2. Foster an identified rural public health constituency to advocate for rural health issues.
3. Create a population-based prevention agenda for the rural United States.
4. Increase investments in rural public health.
5. Reduce stigma and consider individual community needs associated with LHDs providing clinical services.

Reduce Variation Across Definitions of "Rural"

There are several core issues underlying the profound, systems-level issues facing the rural public health system. One seemingly mundane, but important, issue is the lack of uniform categorization of rurality. The federal government employs several definitions of rurality, which vary widely across agencies, with state governments often using their own definitions.7,34 Ultimately, the rationale for any rural definition is to create inclusion and exclusion criteria for the allocation of resources. To a certain extent, these definitional criteria will always be problematic as there will inevitably be communities at the periphery that are excluded from opportunities. While it is important to acknowledge and embrace the unique "flavors" of rural that exist in our diverse nation, efforts to standardize definitions for state and federal support could facilitate local efforts to secure needed funding and resources to address public health concerns as well as collectively assess performance and recognize needs specific to rural communities. Recognizing that no definition will ever be perfect, and in an effort to not oversimplify the needs of individual communities, special considerations could be made for those communities at the periphery ofeligibility criteria to determine if unique factors tied to their location and population demographics justify exemption from eligibility requirements. While the use of quantitative metrics to determine eligibility is preferred, a qualitative process that respects the uniqueness of individual communities may also be necessary in certain situations. We do not make a specific recommendation about which definition to adopt (though we utilized the CDC and USDA definitions in this article),11,12 merely that a standard definition should be adopted.

Foster a Rural Public Health Constituency

A lack ofa uniform definition ofwhat is "rural" has stymied the development of an identifiable rural public health constituency that can initiate targeted advocacy efforts.33 Though there are state-based rural public health associations, there is no national group to which rural public health agencies exclusively belong and identify with that can work to bolster the efforts and resources of rural public health agencies and staff, as there is for the health departments for the largest urban areas through the Big Cities Health Coalition or the National Rural Health Association for rural health care issues. Clearer delineation of what is the "rural" United States can in turn lead to the establishment of an identified constituency to advocate for resources and attention to public health problems affecting rural communities. Recognition of the heterogeneity of rural communities and populations will be important in this effort. In addition, the rural constituency can create a longterm vision and action plan for rural public health. Key to success for such a movement to "champion" rural public health is a transformation of the current rural health conversation beyond access to care needs to also shed light on upstream solutions specific to rural communities and promote cross-sector collaboration and public-private partnerships. Furthermore, such a rural public health advocacy movement could adapt public health frameworks, increase availability of public health data categorized by level of rurality, and advance public health system strengthening efforts, such as the accreditation of health departments tailored to meet the needs of rural communities.

Rural LHDs engaged in advocacy for not only rural public health issues specifically but also the field of public health more broadly is good for public health, both urban and rural. Rural communities play an outsized role in our nation's politics, and our rural public health colleagues more often work in communities that tend to be skeptical of the role of government. Thus, engaging trusted locally based rural LHDs as partners in public health advocacy more generally has the potential to advance advocacy efforts and bolster the field of public health more broadly across the nation.

Create a Prevention Agenda

The lack of rural public health-focused advocacy described previously has resulted in alack of focus on rural population health in the national discourse. National public health advocacy organizations typically do not focus enough on population health needs among rural populations, and national rural advocacy organizations have largely focused narrowly on health care access. While rural health disparities are well documented across nearly all of the leading causes of death, inattention to upstream population-based factors in rural communities has been a likely contributor to growing rural inequities. Although attention does come to some rural public health challenges, it tends to be issuespecific, such as with the opioid epidemic. While bringing needed attention to a specific rural health challenge, for opioids this has been done through the lens of addiction stigma and lack of treatment options with no consideration of or resources toward the wider population-level public health needs.

Access to care will always remain a rural health priority. However, attention and resources are also needed for other population-level public health challenges such as increasing physical activity, access to healthy food, and building social supports aimed at long-term health outcome improvements. The creation of a rural public health constituency is critical to the future ofrural public health. This constituency can leverage rural strengths and assets and build on ongoing public health advocacy efforts to establish a targeted rural public health agenda focused on upstream factors and tied to collective efficacy and social connectedness, as well as shared culture and history.

Increase Investments in Rural Public Health

Importantly, we need to revisit how our public health system is financed because it places rural LHDs at a disadvantage relative to their urban peers. It has been well documented that rural LHDs are proportionally more reliant on federal, state, and clinical revenues, while urban LHDs have proportionally more access to local revenues.27 Much of this can be attributed to struggling rural economies and declining populations that make it difficult to provide tax support for local governmental agencies. However, lack oflocal revenue inhibits rural LHDs in their efforts to address local needs. Intergovernmental transfers from the federal, state, and local levels represent a highly relevant and logical tool for addressing this gap yet are not currently being allocated as such. Strategies to bolster rural LHD staff recruitment including loan repayment and tax incentive programs should be considered. If we believe that public health is most responsive and effective when it is controlled locally, we must ensure that resources are available locally in rural communities to address identified needs.

Reduce Stigma and Consider Community Needs

As we look toward strengthening our rural public health system, it is important to consider the national message as to what public health agencies "should" be doing. While it is reasonable to set aspirational goals to push the field away from clinical care provision and toward population-level activities, this push has resulted in a counterproductive stigma that has been associated with public health agencies providing clinical services. This in turn has created a divide among LHDs in which rural agencies providing clinical services are often seen as "lesser" public health departments.25 It is important to recognize that there is significant variation in funding, organization, and capacities across LHDs and wide-ranging clinical service capacity in individual communities. Thoughtful reflection on the roles and functions of rural LHDs is needed, along with respect of local autonomy in determining what services are appropriate to meet the needs of individual jurisdictions, all while creating systems and incentive structures to move public health agencies toward national goals or standards.

In many rural communities, the LHD's role in providing clinical services ensures the availability of critical health services that would otherwise be lacking. While the Institute of Medicine has historically considered LHD provision of direct clinical care as being far from ideal,26 arguably those services are also among the most visible roles that LHDs can provide in rural communities in need of health care providers. This creates opportunities for community engagement and trust building and the opportunity to link residents to other critical public health functions and social services. And to the extent that those clinical services are reimbursable, the services often provide an important revenue source that helps to retain other public health services for their communities. If clinical services return enough revenue to more than cover expenditures and are needed within a community, it is our view that there should not be a stigma for providing these services, and we might even consider asking why LHDs are not providing them.

If, on the other hand, revenue for clinical services only partially offsets expenditures or, importantly, there are already many providers in a community, these services should be viewed in light of their "actual" cost and whether they in fact crowd out population-based services. Comparing the estimated population-level impact of clinical versus population-based services given a particular level of "net" investment (i.e., less offsetting fees or clinical revenue) would then be more relevant. We could then reasonably ask: what population-oriented activities could be done with funds supporting clinical services available elsewhere in the community? In sum, the individual context ofa public health agency and the community it serves is critical to assessing the appropriate role of an LHD in the provision of clinical services.

It is our view that it is appropriate to promote greater provision of population-based services (e.g., as called for in the Foundational Public Health Services model).35 However, we must also recognize that, as rational agents, many rural LHDs continue to provide clinical services for good reasons and with good outcomes. Until health care access increases in rural jurisdictions and until the legal and financial context changes, it is unreasonable to expect all rural LHDs to divest their clinical services.

CONCLUSION

Rural LHDs are distinct from their urban peer departments and their advocacy needs are unique within the public health community. As such, there is a need for more resources for rural public health as well as establishment of an identified rural public health constituency engaged in targeted rural public health advocacy initiatives. These advocacy efforts should address access to care as well as upstream population-level issues. While there are organizations that represent the clinical side of rural health and organizations that represent public health more broadly, more can and should be done to bolster the efforts and resources of rural LHDs and staff to improve population health specifically as is done for large, urban LHDs. Perhaps this is an opportunity to advance rural public health-furthering the coalition of rural LHDs and staff where their unique needs can be considered and advocacy efforts can be developed. Ultimately, advocacy efforts can help to shape public health frameworks and public health system strengthening efforts to specifically meet the needs of rural communities. Rural LHDs can play a strong role in engaging rural residents and policymakers in support of the field of public health as they can provide high-touch, highvisibility, and highly regarded services to their communities. Ultimately, efforts to bolster the efforts ofrural LHDs and the health of the communities they serve has the potential to benefit public health more broadly, which in the wake of the COVID-19 pandemic in 2020 has become a national priority. APU

CONTRIBUTORS

All of the authors conceptualized the initial article and contributed to the first draft. J. P. Leider and Y. N. Alfonso conducted data analysis. All of the authors provided critical review.

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CONFLICTS OF INTEREST

The authors have no financial or other disclosures to declare.

HUMAN PARTICIPANT PROTECTION

The study used publicly available secondary data.

Sidebar

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DETAILS

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Food Insecurity, Diet Quality, Home Food Availability, and Health Risk Behaviors Among Emerging Adults: Findings From the EAT 2010–2018 Study

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ProQuest document link

ABSTRACT (ENGLISH)

Objectives. To examine emerging adults' experiences of food insecurity in relation to measures of diet quality, food literacy, home food availability, and health behaviors. Methods. We used EAT 2010-2018 (Eating and Activity over Time) study data on 1568 participants who completed surveys as adolescents in 2009 to 2010 and follow-up surveys in 2017 to 2018 (mean age = 22.0 ±2.0 years;58% female). At baseline, participants were recruited from 20 urban schools in Minneapolis-St Paul, Minnesota. Food insecurity was defined by emerging adult report of both eating less than they thought they should and not eating when hungry because of lack of money. Results. The prevalence at follow up of experiencing food insecurity in the past year was 23.3% among emerging adults. Food insecurity was associated with poorer diet quality (e.g., less vegetables and whole grains, more sugar-sweetened drinks and added sugars), lower home availability of healthy foods, skipping breakfast, frequently eating at fast-food restaurants, binge eating, binge drinking, and substance use (all P< .01). Conclusions. Assistance programs and policies are needed to address food insecurity among emerging adults and should be coordinated with other services to protect health. (Am J Public Health. 2020;110:1422-1428. doi:10.2105/AJPH.2020.305783)

FULL TEXT

Headnote

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Conclusions. Assistance programs and policies are needed to address food insecurity among emerging adults and should be coordinated with other services to protect health. (Am J Public Health. 2020;110:1422-1428. doi:10.2105/AJPH.2020.305783)

Food security is defined as having consistent, dependable access to enough food for active, healthy living.1 Food insecurity is a prevalent problem that is linked to poor health.2-6 National data from 2018 indicate that 11% of US households were affected by food insecurity at some time during the previous year.1 Experiences of food insecurity during the transition from adolescence to adulthood, a stage often termed emerging adulthood (18-26 years), are not well understood, and there is a critical need for data regarding the experiences of young people outside ofcollege and university settings. The existing data on postsecondary students suggest that food insecurity is prevalent among emerging adult populations; however, additional research is needed to guide programs and policies. There is particularly a need to understand how food insecurity during emerging adulthood may co-occur with health risk behaviors.

Adequate food and nutrient intake are important for supporting rapid growth and development during adolescence and promotion of healthy weight and reproductive outcomes in early adulthood.7,8 Research suggests that young people experiencing food insecurity during these life stages are more likely to experience health problems (e.g., elevated blood pressure, prediabetes)5,9 and behavioral risk factors.10 12 For example, national cross-sectional survey data indicate that food-insecure adolescents are more likely to report skipping breakfast, inadequate sleep, smoking cigarettes, and consuming alcohol.11 These cross-sectional linkages between food insecurity and health behavior suggest the need to examine long-lasting or cumulative impacts on future health as a result of experiencing food insecurity and engaging in poor health behaviors.

Most research on food insecurity in early adulthood and its co-occurrence with other health risk factors is focused on postsecondary students.13 Research in diverse population samples is needed to build a betterunderstanding of interrelationships between these risk factors and trajectories of food insecurity over time to inform responsive public health strategies. Programs designed to enhance food management and preparation skills are often recommended to reduce food insecurity; however, food literacy (i.e., proficiency in food-related skills and knowledge) may have a very limited impact without accompanying interventions to enhance healthy food availability. It is further important to understand how food insecurity is related to other health risk behaviors so programs and services can be coordinated to best serve the needs of vulnerable populations.

The current study addressed 3 interrelated aims. The first aim was to inform the targeting ofprogram services and responsive policies by describing the prevalence of food insecurity among a population-based sample of emerging adults. Second, we aimed to examine how experiencing food insecurity in emerging adulthood is related to diet quality, food literacy, home food availability, and other health risk behaviors. The third aim was to examine how emerging adult experiences of food insecurity are related to adolescent experiences of food insecurity and whether adolescent experiences play a role in observed linkages with health risk behaviors.

METHODS

EAT 2010-2018 (Eating and Activity over Time) is a population-based, longitudinal study ofweight-related health behaviors and associated factors. The analytic sample cluded 908 649 males, and 11 participants identifying with another gender identity. This sample enrolled in the EAT 2010 study as adolescents during the 2009-2010 academic year and completed follow-up EAT 2018 surveys in 2017 to 2018. For EAT 2010, middle-school and senior high-school students at 20 urban public schools in Minneapolis-St Paul, Minnesota, completed classroom surveys.14,15

Schools were selected on the basis of students' demographic acteristics as an goal of the study was to learn about the weight-related health of ethnically/racially and socioeconomically diverse adolescents. EAT 2018 was designed to examine changes in weight-related behaviors (e.g., eating and physical activity patterns) as participants progressed through adolescence and into young adulthood.

Of the original 2793 participants, 410 (14.7%) were lost to follow-up, primarily because of missing contact information at EAT 2010 or no address found at follow-up. Invitations to the online EAT 2018 survey were mailed to the remaining 2383 young people. All participants were mailed a financial incentive following survey completion. The diverse sample of 1568 participants who completed surveys at both time points represents 65.8% of original participants for whom contact information was available at EAT 2018. As attrition did not occur completely at random, we used inverse probability weighting to account for missing data.16 Inverse probability weighting minimizes response bias attributable to missing data and allows for extrapolation back to the original EAT 2010 school-based sample. There were no statistically significant demographic differences between the EAT 2010 sample of adolescents and the weighted EAT 2018 survey respondent sample described in the results.

Survey Development and Measures

The EAT 2018 survey was based on EAT 2010 and other surveys of weight-related health.14 The 2018 measures of food insecurity were selected from a 6-item validated tool17; however, only 2 items were included to limit participant burden within the context of the broad survey. If participants responded "yes" when asked "did you ever eat less than you felt you should" and also "yes" when asked "were you ever hungry but didn't eat" because "there was not enough money for food" in the past year, they were categorized as food insecure. Focus groups (n = 29) were conducted to pretest the survey and comments made by group participants informed minor revisions to improve relevance and readability (e.g., modified the language of some items, addition of response options). After the survey was finalized, test-retest reliability ofmeasures was examined by using data from 112 participants who completed the survey twice over 3 weeks. The EAT 2018 survey was the source of nearly all personal and health behavior risk measures described in Appendix A (available as a supplement to the online version of this article at http://www. ajph.org), including food literacy, home food availability, skipping breakfast, frequent eating at fast-food restaurants, binge eating, and substance use (test-retest agreement range = 79%-96%).18 Dietary quality was assessed in relation to the Dietary Guidelines for Americans by using a food frequency questionnaire.19,20 Adolescent food security status (test-retest agreement = 96%), parental socioeconomic status (SES; test-retest r = 0.90), and ethnicity/race (test-retest agreement range = 98%-100%) were assessed on the EAT 2010 survey.14,20,21

Adolescent food security was assessed briefly by using 2 items modified from the US Household Food Security Survey Module (FSSM).22,23 If participants indicated that they had enced hunger inadequate food at home in the past year, they were categorized as food insecure. The test-retest reliability of EAT 2010 survey items was determined over a 1-week period among 129 adolescents.

Statistical Analysis

We addressed the first aim regarding food insecurity prevalence and the need for information to better target program services and responsive policy approaches through descriptive statistics. We used frequencies and percentages to examine prevalence of food insecurity across the personal participant characteristics. We used the %2 test to examine unadjusted differences in prevalence across characteristics.

We accomplished the second aim by using regression models to produce least square mean estimates for markers of health behavior among food-secure and food-insecure emerging adults. We used generalized linear models to examine statistical associations of each health behavior with food security status (P values associated with maximum likelihood parameter estimates) and estimate corresponding average dietary intake values among food-secure and food-insecure persons; likewise, we used binomial models with the inverse linked scale option to estimate adjusted prevalences for markers of health behavior. We examined regression models without adjustment and also adjusted for parental SES and emerging adult characteristics that were identified as correlates of food security and the health behavior on the basis of previous research.24,25 We additionally adjusted models used for examining associations with dietary measures for energy intake by using the nutrient density method (intake per

1000 calories).

We accomplished the third aim by creating a dichotomous indicator of adolescent food insecurity. To address the potential for adolescent food insecurity to influence observed differences in dietary quality and health risk behavior, we examined the regression models described previously with adolescent food security status as a covariate. Another set of models involved adding the main effect and interaction terms (adolescent food security by emerging adult food security status) to each model to examine whether associations between food insecurity in emerging adulthood and health risk markers were consistent across the adolescent food security groups. For each groups. For each case in which the P value for an interaction term was <.10, providing some evidence of effect modification, we reran models stratified by adolescent food security and adjusted for covariates. We selected the liberal cut-off of .10 to permit a thorough exploration of group differences.

We conducted analyses with SAS version 9.4 (SAS Institute Inc, Cary, NC) and, as described previously, used inverse probability weighting to account for missing data.16 The results of analyses are presented in a manner that emphasizes patterns and the magnitudes of observed associations.

RESULTS

The weighted sample of 1568 participants had a mean age of 14.4 ±2.0 years at EAT 2010 and 22.0 ±2.0 years at EAT 2018; ethnic/racial backgrounds of participants were 18.8% White, 29.0% African American or Black, 19.8% Asian American, 16.9% Hispanic, 3.7% Native American, and 11.8% mixed or other. The distribution across categories of parental SES based primarily on baseline educational attainment was 39.4% low, 22.2% low-middle, 17.9% middle, 13.1% upper-middle, and 7.5% high. Past-year prevalence offood insecurity, defined by both eating less than you felt you should and experiencing hunger because of lack of money for food, was 23.3% among emerging adults.

Table 1 presents the distribution of food insecurity across participant characteristics and prevalence differences (all P <.05). Food insecurity prevalence was highest among those identifying as Black (28.3%), Native American (29.0%), or mixed or other ethnicity/race (33.3%) and lowest among those who identified as Hispanic (17.1%). Prevalence of food insecurity among emerging adults with no postsecondary degree was elevated among those who were not currently enrolled as a student (29.0%) in comparison with those who were a postsecondary student (19.7%) or high-school student (21.9%). Educational attainment was also related to food insecurity for nonstudents with a particularly high prevalence among those having no highschool degree (45.2%). Food insecurity was elevated among subgroups who were unemployed or seeking work (30.5%), had parents of low SES (28.5%), and lived in a household receiving public assistance benefits (33.3%). Living with a parent appeared to be protective (18.2%) in comparison with other living arrangements (28.1%), and emerging adults living with children of their own had an elevated prevalence of food insecurity (38.5%) compared with emerging adults without children (21.6%).

Food Insecurity and Health Risk Markers

Diet quality. Emerging adult food insecurity was related to poorer diet quality in unadjusted and adjusted models (Table 2). In both sets of models, food insecurity was related to lower intake of total fruit and vegetables, dark green vegetables, red or orange vegetables, whole grains, potassium, vitamin D, calcium, and fiber (all P< .05). Food insecurity was also related to higher intake of sugar-sweetened drinks, added sugars, and saturated fat (all P< .05). For example, for a daily energy intake of2000 kilocalories, adjusted results indicate that food-insecure emerging adults consumed a daily average of 1 less serving of fruit or vegetables and 9 grams more of added sugars in comparison with food-secure emerging adults.

Food literacy, home food availability, and eating behaviors. Experiencing food insecurity in emerging adulthood was unrelated to measures of food literacy. By contrast, food insecurity was consistently related to all measures of home food availability and eating behaviors in unadjusted and adjusted models (Table 3). For example, the prevalence of having vegetables as part of dinner was 50.6% among food-insecure emerging adults compared with 69.0% among food-secure emerging adults. Food-insecure emerging adults were also less likely to eat meals prepared at home and were more likely to report frequently eating food purchased from fast-food restaurants, skipping breakfast, and binge eating (all P< .05). For example, past-year prevalence of binge eating was 25.6% among food-insecure emerging adults compared with 17.8% among food-secure emerging adults.

Substance use. Experiencing food insecurity in emerging adulthood was also related to higher prevalences of substance use and binge drinking (Table 3). Food-insecure emerging adults were more likely to report weekly substance use (cigarettes, marijuana, or other drugs) and engaging in binge drinking within the past 2 weeks (all P< .01). This association was most pronounced for weekly substance use, which was reported by 28.3% of food-insecure and 16.5% of food-secure emerging adults.

Reoccurring Experiences of Food Insecurity

Participants experiencing adolescent food insecurity were more likely to report past-year food insecurity in emerging adulthood (Table 4). The prevalence of experiencing food insecurity in the past year was 20.3% among emerging adults without a history of food insecurity and 37.4% among those who previously reported food insecurity (P< .001). Although many participants had experienced episodes of food insecurity in both adolescence and emerging adulthood, regression models including adolescent food security as a covariate produced results not meaningfully different from those presented in Table 2 and Table 3 (Appendix B, available as a supplement to the online version of this article at http://www.ajph.org). The 1 exception was that calcium intake did not differ by emerging adult food security in models that accounted for adolescent food security. In addition, as detailed in Tables 2 and 3, the models used to assess for interactions between adolescent and emerging adult food insecurity did not provide evidence of effect modification.

DISCUSSION

This study describes experiences of food insecurity in a population-based sample of emerging adults and investigates its relationship with dietary quality and health risk behaviors. Results indicate that food insecurity is prevalent, and vulnerable groups that may benefit from targeted interventions include emerging adults living with their own child(ren), persons in households receiving public assistance, and those who are not presently students but have no postsecondary degree or certificate. Furthermore, as several health risk factors (e.g., low fruit and vegetable intake, binge drinking) co-occurred with food insecurity, the results suggest that programs addressing emerging adult food insecurity may need to be coordinated with other health services. The current study did not find evidence that adolescent food insecurity has an impact on engagement in health risk behaviors in emerging adulthood; however, the results indicate that young people who experience adolescent food insecurity may be more likely to also experience food insecurity in emerging adulthood.

The prevalence of food insecurity among the EAT study sample of emerging adults was higher than the 2018 national average among US adults, but comparable to prevalences in emerging adult samples of college students (20%-50%).1,13,26,27 The current study extends the finding that food insecurity is prevalent among postsecondary students to the broader population of emerging adults and suggests that young people who do not enroll in degree programs may in fact be more likely than students to be food insecure within a given community. Results of the current study add to the consistent finding that the transition from adolescence to adulthood is a period of vulnerability for food insecurity.

The observed co-occurrence of emerging adult food insecurity with low diet quality and health risk behaviors is in line with previous findings among postsecondary students and other age groups.4'11'13 Links between health behaviors and food insecurity might be attributable to the psychological and emotional stresses associated with experiencing disrupted access to adequate food (e.g., binge eating when food is available) or chronic stresses ofliving in poverty (e.g., substance use).11'28'29 If stresses associated with repeated episodes or an ongoing state of food insecurity across development have a cumulative impact on future health, then it would be expected that many young people who participated in the current study will be at high risk for future health problems. The results of the current study confirm that food insecurity tends to cluster with health risk factors overall and expands the scope of observed risks to include binge eating when food is available.13 Binge drinking and substance use were also elevated in prevalence among food-insecure emerging adults' but observed differences were not of a magnitude to suggest expenditures for alcohol and substances are a cause of insufficient money for food. The co-occurrence of poor diet quality and other health risk behaviors among food-insecure emerging adults is of concern given the likely consequences for long-term health.

Programs to enhance food management and preparation skills are often recommended to combat food insecurity; however, the extent to which skilled food selection and preparation can compensate for a limited food budget has not been established. In contrast to findings of research among postsecondary students,10'12 the current study did not find evidence to support the potential for food skills to compensate for limited resources and protect against food insecurity. Additional research addressing food literacy among emerging adults could be useful to identify specific aspects of food skills (e.g., ability to quickly prepare nutritionally dense food) to promote improvements in diet quality among food-insecure young people.

Finally, this study is one of very few to date to use longitudinal data in examining food insecurity among emerging adults. Although we hypothesized that young people who experienced food insecurity in adolescence and emerging adulthood would be more likely than their counterparts (i.e., those who experienced food insecurity at only 1 time point) to experience other negative health outcomes, we did not find evidence of a cumulative impact. These findings are in concordance with findings from another longitudinal study that found that food insecurity was significantly correlated with adverse health behaviors of college freshmen and outcomes occurring at the same time point; however, independent of current food insecurity, previous food insecurity was not significantly associated with future outcomes.30

Limitations

Study limitations include brevity of survey measures, inherent measurement error associated with using food frequency questionnaires to assess diet, and a lack of objective measures of food preparation behaviors.31 Furthermore, only a small portion of items on the US Household FSSM were included on the EAT 2018 survey, and different, ageappropriate measures were included on the surveys for adolescents at baseline.17 The validity of the short US Household FSSM was established by examining the 6-item tool, and only 2 items were used in EAT 2018.17 Because the 2-item assessment focused on having a sufficient quantity of food and did not capture challenges relating to food quality, it is possible the assessment underestimated food insecurity among emerging adults. Future research should address these limitations; for example, it would be informative to conduct cognitive interviews to address how emerging adults understand various survey measures of food security.

Study strengths include sociodemographic diversity of emerging adult participants, assessment of food security at multiple life stages, the range of diet quality markers from a validated food frequency questionnaire, and attention to both environmental and personal factors relevant to health.21 The unique sign for attention to a gap in the literature regarding the potential for food insecurity to have a greater impact on health when it is persistent versus transient during the transition from adolescence to adulthood.30 However, it is important to further explore long-term and potentially cumulative impacts of food insecurity in both childhood and adulthood. There is also a need for future studies to examine what forms of public assistance are most effective forpreventingpoor health behaviors among emerging adults and improving health outcomes over time.

Public Health Implications

In summary, study findings suggest that assistance programs are needed to address existing gaps in preventing food insecurity among not just postsecondary students but also the broader population of emerging adults, and assistance should be coordinated with other health services (e.g., screening and treatment of binge eating, drug use). Early adulthood is a vulnerable stage of the life course as well as a time when young people may begin providing meals for children of their own.8'32 Public health consequences of inadequate access to food for emerging adults may therefore extend to the next generation. Furthermore, epidemiological studies studies indicate that food-insecure parents are less likely to engage in feeding practices that promote healthy weights for their children (e.g., child satiety responsiveness).33 35 Nutrition programs teaching food skills may benefit the health of emerging adults; however, the results of the current study suggest that such programs on their own are unlikely to alleviate food insecurity. Policy efforts could diminish adverse effects of food insecurity in emerging adulthood, including those aimed at simplifying the process of applying for Supplemental Nutrition Assistance Program benefits, expanding outreach around nutrition assistance programs to better reach emerging adults, and expanding the

National School Lunch Program and other food security efforts to college campuses. Given that adolescents who experience food insecurity are at high risk for being food insecure in emerging adulthood, it may be valuable for health professionals to work with young people to prepare them and their families for the transition from having access to school meal programs to the need for accessing other forms of nutrition assistance.

Sidebar

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CONTRIBUTORS

N. Larson managed data collection for the EAT 2010- 2018 (Eating and Activity over Time) study, conducted the statistical analysis, and drafted the article. M. N. Laska helped to conceptualize the analysis plan. D. NeumarkSztainer conceptualized the larger EAT 2010-2018 study and provided oversight for all aspects of study implementation. All authors contributed to the interpretation of results and article revisions.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to report.

HUMAN PARTICIPANT PROTECTION

The University ofMinnesota institutional review board Human Subjects Committee approved all study protocols.

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DETAILS

Subject:	Students; Restaurants; Adolescents; Food quality; Diet; Availability; Schools; Quality; Food security; Health behavior; Food; Risk taking; Risk behavior; Health care; Health risk assessment; Drug use; Adults; Public health; Food availability; Teenagers; Health risks; Child development; Food consumption; Eating; Generalized linear models; Risk factors; Hunger; Beverages; Money; Substance use; Urban schools; Binge drinking; Eating disorders; Literacy; Fast food; Polls &surveys; Young adults; Sugar
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Incentivized Public Service Response to COVID-19 in Rural and Marginalized Urban Communities

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ABSTRACT (ENGLISH)

COVID-19 has strained health care systems across much of the developed the world, including the United States, which is now one of the epicenters of the pandemic. Limitations in medical attention, testing capacity, and local epidemiological surveillance are expected to substantially intensify health impacts in rural and marginalized urban communities, in particular because of the increased risk in people with comorbidities. In such a context, there have been calls for exceptional measures to aid in bridging gaps in the health workforce, such as potentially mandatory service for medical, nursing, and public health students at various stages of their training. Indeed, the US response during the current COVID-19 emergency, and its aftermath, may benefit from deployment of health workers to confront potential and actual transmission of SARS-CoV-2. However, the high degree of unpredictability brought by COVID-19- clinically, epidemiologically, and socially-may multiply the challenges for which health students and novice health personnel may not be fully prepared. Further, a major risk factor of rural and marginalized urban populations in the COVID-19 pandemic is the lack of longerterm solutions to health personnel shortages. We briefly address how an incentivized public health service intervention could aid in the response through a community-based approach. This strategy could offer a more permanent solution to recruitment and retention of health personnel, which could be adopted through governmental programs aimed at communities in need.

FULL TEXT

COVID-19 has strained health care systems across much of the developed the world, including the United States, which is now one of the epicenters of the pandemic. Limitations in medical attention, testing capacity, and local epidemiological surveillance are expected to substantially intensify health impacts in rural and marginalized urban communities, in particular because of the increased risk in people with comorbidities. In such a context, there have been calls for exceptional measures to aid in bridging gaps in the health workforce, such as potentially mandatory service for medical, nursing, and public health students at various stages of their training.

Indeed, the US response during the current COVID-19 emergency, and its aftermath, may benefit from deployment of health workers to confront potential and actual transmission of SARS-CoV-2. However, the high degree of unpredictability brought by COVID-19- clinically, epidemiologically, and socially-may multiply the challenges for which health students and novice health personnel may not be fully prepared. Further, a major risk factor of rural and marginalized urban populations in the COVID-19 pandemic is the lack of longerterm solutions to health personnel shortages. We briefly address how an incentivized public health service intervention could aid in the response through a community-based approach. This strategy could offer a more permanent solution to recruitment and retention of health personnel, which could be adopted through governmental programs aimed at communities in need.

Incentivized health service programs for doctors, nurses, midwives, and health students and workers exist around the world largely to serve rural or marginalized urban communities in low- and middle-income countries, as well as in highincome countries such as Japan and Canada.1 Depending on the country, these programs may be designed as a requisite to work in the public sector or to enroll in postgraduate or specialization programs, as part of training or in exchange for educational support. Some countries add incentives such as higher pay grade, housing provisions, or career advancement. In a fragmented, unequal, and fragile health care system as exists in the United States, which has shown poorer performance and health outcomes,2 students in the health professions and recent graduates could take an active part in supporting community-based prevention of COVID-19, including early detection strategies. As they adjust to the moving COVID-19 landscape, they would gradually become more technically grounded and empowered to also give attention to wider health and health promotion demands.

Of particular importance to rural areas and marginalized urban communities is the need to build upon community strengths toward adequately, and responsibly, contextualizing strategies and actions.3 The value of cultural and social expertise gained through firsthand contact is irreplaceable at the primary level of care, especially since building a relationship of trust is fundamental in a health emergency and, even more so, in these communities.3 Hence, any proposal to create a service program should encourage participants to work close to home, thus ensuring a more effective community-based, socially accountable approach.

Protests against lockdown have shown that centrally mandated measures can be easily disrupted, thus exposing various population groups, including health personnel, to unnecessary risk. In particular, it would seem that the greatest contribution personnel enrolled in such an incentivized service program can initially make is to channel the flow of much-needed local epidemiological surveillance,4 alongside an educational component. Focusing on health promotion, rather than solely on health care provision, may be a more robust option, and could reduce obstacles and errors inherent in implementing a rapidly prepared, large-scale intervention in the midst of a pandemic. Accordingly, relying on evidence-based, communityoriented, and cost-saving approaches, such as engaging community health workers from the same areas that are underserved, could strengthen an incentivized public service program. While focusing on equity, community health workers working in their own localities may be able to effectively counteract mistrust and fear of governmental intervention.5 Furthermore, in clinical settings, community health workers (also known as patient navigators) can facilitate patient-centered efforts across the care continuum.6

The United States has at least one functioning service program, AmeriCorps, that could be expanded to strengthen primary care systems by following the Public Health Service Commissioned Corps model. In fact, Senators Elizabeth Warren and Chris Van Hollen recently sent a letter to the surgeon general and the assistant secretary of the US Department of Health and Human Services urging them to more fully engage the Corps. The federal government could do so by directing medical, nursing, and other health professionals and students toward underserved areas, and supporting them to stay in the longer term. Consequently, once resource-intensive COVID-19 mitigation efforts are no longer necessary, the health care sector should have in place clearer career pathways that build on firsthand experiences of these community-based health efforts. First, admission should assess how participants' preferences, inclinations, and capabilities are aligned with the goals and conditions of the health service program they apply to. Second, well-articulated pathways across the public and private health care systems should be able to objectively value empirical and knowledge-based achievements, which would also serve as an additional incentive beyond economic compensation.

Learning from rural medical education programs, whose graduates are more likely to remain in rural areas,7 community-based placements could be introduced as a requirement for training or career advancement.1 If students and recent graduates are enrolled to work largely as guides for patients and community members to navigate the health care system and access needed health care services within the COVID-19 response, they should still be prepared to document specific milestones that advance their training and career goals. And, because field experience is not gained in a void, local community expectations should also be clear for participants. In this context, community health workers could play a critical role in designing, monitoring, and evaluating mandatory service programs; facilitating community stakeholder engagement; addressing patient navigation issues; and adjusting implementation based on community and health personnel input.5

An extreme need for health personnel, even in normal conditions, has justified mandatory service programs at the primary care level around the world.1 However, without consideration for local realities and existing capacity, there is the risk ofdoing more harm than good, particularly among rural and marginalized urban communities. The COVID-19 response should not be limited to reactive, immediate approaches that may become exhausted once the pandemic emergency subsides. Rather, countries like the United States should engage in a sustained, coordinated effort to strengthen their public health infrastructure to better tackle the current and future potential crises, such as chronic disease disparities. Although this is a tragic moment for many populations across the world, we must all engage in developing a more humanistic, family- and community-based provision of care, away from disease-specific and for-profitoriented medical systems. Such an approach suggests that federal and state governments should consider the option of incentivized public health service in their emergency and longer-term budgets, in connection with clearly articulated educational pathways. yflPH

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CONFLICTS OF INTEREST

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Sidebar

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Hunger Does Discriminate: Addressing Structural Racism and Economic Inequality in Food Insecurity Research

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FULL TEXT

On April 10, 1967, Fannie Lou Hamer, Marian Wright, and other Black community leaders testified before the US Senate about the crisis of hunger in the Mississippi Delta. At Wright's urging, Senator Robert F. Kennedy traveled to the Delta the following day to "look into the deadened eyes of hungry children with bloated bellies" (https://bit.ly/2Y56BhN). The images that followed shocked the nation; many struggled to believe that such conditions could exist alongside such enormous wealth. More than 50 years later, during the COVID-19 pandemic, dramatic images ofhunger remain: cars line up for miles outside food pantries as farmers destroy thousands of pounds of fresh food. Why does food insecurity persist? Hamer, Wright, and countless others with lived experiences of racism and economic exploitation knew the answer long before most were ready to listen: structural inequality, and its transmission across generations, lies at the root offood insecurity. Effective and sustainable solutions must acknowledge and address these fundamental causes.

In this issue of AJPH, Larson et al. (p. 1422) examine food insecurity and its association with diet quality, home food availability, and health risk behaviors among emerging adults (18-26 years) in Minneapolis- St. Paul, Minnesota. Their longitudinal study builds on research documenting the high prevalence of food insecurity among college students and points to an even greater risk among emerging adults who do not attend postsecondary school. Their findings are particularly relevant given the economic precarity of our times: workers aged 25 to 37 years without a bachelor's degree earn less than their counterparts in the previous four generations (https://pewrsr.ch/2YIk7ab), and the COVID-19 pandemic is poised to exacerbate these inequities. The study also confirmed particularly high levels of food insecurity among those who identified as Black/ African American or American Indian/Alaska Native or who belong to multiple or other races/ethnicities. Although Larson et al. thoroughly describe these stark socioeconomic, racial, and ethnic inequities, we can do more to highlight their root causes.

REDEFINING THE PROBLEM

Public health research on food insecurity typically aims to identify proximal causes, characterize high-risk populations, enumerate health consequences, and evaluate interventions that increase food access through charitable (e.g., food pantries) and federal (e.g., Supplemental Nutrition Assistance Program; SNAP) assistance programs. This research is needed to inform programs and policies that meet the immediate needs of food-insecure households. However, until we define structural inequality as the problem, we will never move beyond superficial solutions. A full treatment offood insecurity's root causes will remain outside the scope ofmany studies. This is understandable. But it does not prevent us from naming the problem, thinking more holistically about proposed solutions, and building broader research agendas that strive for structural change.

Racism, poverty, and food insecurity are increasingly recognized as sources of toxic stress, which can significantly damage health across the life course.1 The Center for Hunger-Free Communities and their participatory action project, Witnesses to Hunger, have been instrumental in documenting how food insecurity, poverty, and trauma are passed down through generations and highlighting the near impossibility of breaking these links through individual action alone.2 They have located food insecurity's root causes in numerous nonfood policies, including unaffordable housing, child care, and health care; lack of paid family and sick leave; and nonlivable wages.2 The finding of Larson et al.-that 38.5% of emerging adults with children were food insecure, compared with 21.6% of those without children-underscores the need for solutions that disrupt intergenerational cycles. Recent work also illustrates that Black and Latinx mothers who experience racial discrimination are more likely to live in food-insecure households.3 Heightened risk may function through multiple pathways, including increased psychological stress, anxiety, and depression as well as reduced self-esteem,4 all of which may impede one's ability to identify adaptive coping strategies needed to mitigate food insecurity.

Virtually no research has examined how structural racism-"the processes of racism that are embedded in laws, policies, and practices of society and its institutions"4^10^-directly affects food insecurity. Consider, for example, racially discriminatory policing, sentencing, and incarceration. Laws and policies such as the 1996 welfare reform legislation, which included a lifetime ban on SNAP benefits for people convicted of felony drug offenses, almost certainly have a disproportionate impact on communities of color, and Black communities in particular. Although nearly all states rescinded complete lifetime bans, 25 maintain modified bans (e.g., terminating benefits for parole violations, requiring drug testing) that act as barriers to SNAP participation (https://bit.ly/ 3d43c7f). Discriminatory policing is not limited to adults. Black K through 12 students are more than three times more likely to be suspended or expelled than are White students,5 which may significantly limit access to the National School Lunch and School Breakfast Programs, the nation's key tools in the fight against child food insecurity. Rigorous research examining how specific manifestations of institutional racism affect food insecurity should be prioritized.

WHERE DO WE GO FROM HERE?

Reframing food insecurity research to center structural inequality is no small task. There are several places where we can begin.

Adopt Antioppressive Frameworks

It is incumbent on food insecurity researchers to acknowledge how systems of oppression and racism pattern population health. We must consider how our own identities, experiences, and varying degrees of privilege and power shape the questions we ask and the ways we answer them. Elevating the voices of those directly affected by food insecurity is critical. We can do that by using participatory research methods, generatingpractice-based evidence, and recognizing that the most innovative solutions are often developed by affected communities themselves. Fannie Lou Hamer, although best known for her voting rights activism, was a pioneer ofthe food justice movement. Her Freedom Farm Cooperative holistically addressed food insecurity, housing, land ownership, and education for families across Sunflower County, Mississippi.6 This history and the work it inspired in communities across the nation offer many valuable lessons.

Apply Trauma-Informed Interventions

Concerns about adequate nutrition dominate public health approaches to reducing food insecurity. Although nutrition is critical, the adversity and trauma experienced by many who are food insecure must also be addressed. Trauma-informed approaches-which recognize the far-reaching impacts of trauma; integrate key principles of safety, trustworthiness, peer support, collaboration, and empowerment; and incorporate resiliencebuilding strategies-offer a more holistic model for addressing food insecurity. One successful example is the Building Wealth and Health Network, a traumainformed intervention born of the Witnesses to Hunger project, which improved food insecurity among families with young children.7 Such interventions should be implemented across diverse settings, with the goal of determining the most effective strategies for scalability and sustainability.

Recognize the Need for Health in All Policies

Food- and nutrition-specific policies are urgently needed to address the growing crisis of food insecurity amid the COVID-19 pandemic, including immediate increases to SNAP benefits that are maintained for the duration of economic recovery. But, in the longer term, we must look toward a health in all policies approach, which recognizes that many of the fundamental causes of health inequities lie in sectors outside public health, including housing, education, employment, and criminal justice. Researchers can examine nonhealth determinants of food insecurity, intentionally choose measures that are policy relevant, communicate our results to state and local government agencies, form partnerships to conduct food insecurity- specific health impact assessments, and advocate policies in all sectors that promote health equity.

As a first step, we must acknowledge that hunger does discriminate.

Ilana G. Raskind, PhD

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Sidebar

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COVID-19 Reveals Emerging Opportunities for Rural Public Health

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ABSTRACT (ENGLISH)

Differences in physical and mental health care outcomes and premature mortality between residents who live in rural areas and those who live in urban areas have been well documented.1 Rural Americans tend to be older, to be sicker, and to have less access to health care services. In addition, some racial/ethnic groups living in rural communities are particularly disadvantaged and have even higher rates ofmortality from leading causes of death.2 As part of their mission, local health departments d.I IDs) work to protect and improve the health of the people in the communities they serve. However, rural LI IDs often have lower levels of staffing and financial resources than do urban LHDs.Although unfavorable health outcomes and disparities between metro- and micropolitan areas have characterized the rural United States for some time, the COVID-19 pandemic has underscored the health impacts of these differences, which suggests that public health systems need to rapidly innovate to meet the health needs of their communities. The articles in this special section of AJPH provide a broad view of some of the unique challenges of protecting and improving health in rural communities and discuss innovative opportunities to advance rural public health.

FULL TEXT

Differences in physical and mental health care outcomes and premature mortality between residents who live in rural areas and those who live in urban areas have been well documented.1 Rural Americans tend to be older, to be sicker, and to have less access to health care services. In addition, some racial/ethnic groups living in rural communities are particularly disadvantaged and have even higher rates ofmortality from leading causes of death.2 As part of their mission, local health departments d.I IDs) work to protect and improve the health of the people in the communities they serve. However, rural LI IDs often have lower levels of staffing and financial resources than do urban LHDs.

Although unfavorable health outcomes and disparities between metro- and micropolitan areas have characterized the rural United States for some time, the COVID-19 pandemic has underscored the health impacts of these differences, which suggests that public health systems need to rapidly innovate to meet the health needs of their communities. The articles in this special section of AJPH provide a broad view of some of the unique challenges of protecting and improving health in rural communities and discuss innovative opportunities to advance rural public health.

NEW MODALITIES IN SERVICE PROVISION

Amid the COVID-19 crisis, many health care centers and clinics have drastically reduced in- person health care visits and subsequently made rapid transitions to using telehealth services to meet the health and mental health care needs of the populations they serve. The inability to provide in-person services because of the pandemic has also forced rural health departments to evaluate different delivery modalities for providing nonclinical public health services. Anecdotal evidence suggests that technology has allowed local public health departments to maintain and expand the reach and scope of the services they provide.

For example, federal waivers -intended to promote social distancing and reduce the necessity of in-person visits to WIC (Special Supplemental Nutrition Program for Women, Infants, and Children) clinics during the pandemic-have allowed health departments to provide WIC recertification appointments electronically. In a conversation with the director of a regional Kentucky LID that serves seven rural counties (|une 2020), I learned that WIC participation rates increased from 84% to 98% with electronic (online or telephone) appointments between March and June 2o2o. Rural LIDs have also used online meeting platforms to provide smoking cessation, diabetes selfmanagement, and other health education classes to multiple counties. The director stated, "We are reaching people we have never reached before." Aside from helping during the pandemic, providing public health services via telehealth modalities can mitigate a known barrier of care: lack of transportation, which in many rural areas is exacerbated during winter months.

The ability to continue to provide services electronically after the COVID-19 pandemic ends will be important for these more remote communities. Community partners, such as cooperative extension, can also assist LIDs in the expanded use of these technologies (see Buys and Rennekamp, p. 1300, in this issue of AJPH). Although the use of telehealth to improve access to public health services is promising, many rural areas still lack high-speed broadband networks. The Association of State and Territorial 1 Iealth Officials noted that ensuring an adequate telehealth infrastructure, including sufficient broadband, was a foundational component of advancing telehealth.3 Although there are some pilot programs to expand broadband, funding for telehealth infrastructure in rural areas is still a primary barrier to expansion.

CONSTRAINED RESOURCES

Funding for public health, in general, has long been inadequate. This has become strikingly evident with the recent outbreaks of communicable diseases, such as hepatitis A, syphilis, and now COVID-I9. In this issue, DuPre et al. ip. 1332) showed that more disadvantaged counties in Kentucky, predominantly in rural Eastern Kentucky, had even higher rates of hepatitis A during a 2017 to 2018 outbreak. Funding for rural public health departments, however, has been disproportionately lower than has funding for their urban counterparts.

Beatty et al. ip. 129 3) address how rural LI IDs rely more on state and federal funds, which are more vulnerable to policy change, and receive less funding from local sources. Local public health funding is often determined by an area's overall wealth and tax base (Beatty et al., p. 1293; Leider et al., p. 1283), but because many rural communities are facing a declining tax base or are reluctant to raise local taxes, rural LHDs are left with lower or less stable funding. This is certainly the case in Kentucky, where the majority of LHDs serve rural constituents, yet LHDs in more affluent counties are able to provide more robust public health services for their communities.

This inequity was brought to light in 2018, when a pension crisis in Kentucky threatened the solvency of more than half of Kentucky's LHDs, almost all of which served rural areas. The local and state health departments worked collectively to develop a transformative public health funding model that would direct more resources to the areas with the greatest needs and thus ensure that all Kentuckians have equitable access to essential public health services. However, the implementation of this equitable funding model as intended has been hampered by budget constraints associated with the COVID-19 pandemic.

This lack of funding, along with a health care workforce shortage, is one of many reasons that some rural LHDs must prioritize clinical services over population-based services. Nevertheless, communicable disease control is a core responsibility of all LHDs. In rural areas, the crisis of the COVID-19 pandemic has been exacerbated by the poor health status discussed. Residents of these areas have a higher prevalence of comorbidities such as hypertension, obesity, diabetes, and chronic lower respiratory diseases-all of which increase their risk ofdeath from COVID19. With less funding, fewer staff, a sicker population, and, often, a larger geographical area in which to provide services, rural LHDs are not equipped to deal with the extreme demands of a pandemic ofthis enormity. COVID-19 has highlighted the inequity and fundamental flaws in the way rural public health is funded. Leider and Henning-Smith (p. 1291) recommend reevaluating how the public health system is financed and increasing investments in rural public health to ensure that adequate resources are available to address the unique needs of rural communities.

A CALL FOR NEW RESOURCES AND PARTNERSHIPS

COVID-19 has been a wake-up call for our nation and has shed even more light on the rural-urban disparities in health outcomes and public health funding. After the COVID-19 pandemic, expanded use of technology may be a new normal in the way we interact with one another, including health care services and public health programs. This may be even more important for rural areas; thus, investment in resources and expanded partnerships are necessary. Funding mechanisms for rural public health must be reevaluated. Funding should be based on the public health needs of communities, not on their local tax base. We need a vibrant and robust public health infrastructure that is able to meet the unique needs of our rural communities and most vulnerable populations. Supporting rural LHDs so they are better equipped to improve the health of their communities will advance not only rural public health but the overall health of our nation.

Angela T. Dearinger, MD, MPH

CONFICTS OF INTEREST

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Sidebar

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What's Next for the US Health Care System After COVID-19?

Anonymous

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ABSTRACT (ENGLISH)

The coronavirus pandemic has laid bare longstanding problems with the fragmented US health care system. Lack of universal coverage, high costs, and health insurance coverage linked to employment have prevented the United States from responding quickly and effectively. Many would like the pandemic to be the wake-up call that puts the United States on a sure path to significant reform. However, the path forward is not so easy.

The pandemic presents a twofold crisis for American families: the risk of contracting the potentially deadly virus with the additional costs of testing, treatment, and a possible expensive hospital stay and the potential loss ofemployment and employer-sponsored health insurance. Hardest hit are those with low incomes and limited cash flow and savings. People with preexisting health conditions are also vulnerable; one in five individuals with a preexisting condition is uninsured. Moreover, COVID-19 is disproportionately affecting populations of color: nationally, deaths for African Americans are nearly twice the proportion of their share of the population.

FULL TEXT

The coronavirus pandemic has laid bare longstanding problems with the fragmented US health care system. Lack of universal coverage, high costs, and health insurance coverage linked to employment have prevented the United States from responding quickly and effectively. Many would like the pandemic to be the wake-up call that puts the United States on a sure path to significant reform. However, the path forward is not so easy.

The pandemic presents a twofold crisis for American families: the risk of contracting the potentially deadly virus with the additional costs of testing, treatment, and a possible expensive hospital stay and the potential loss ofemployment and employer-sponsored health insurance. Hardest hit are those with low incomes and limited cash flow and savings. People with preexisting health conditions are also vulnerable; one in five individuals with a preexisting condition is uninsured. Moreover, COVID-19 is disproportionately affecting populations of color: nationally, deaths for African Americans are nearly twice the proportion of their share of the population.1

The cost of treating COVID19 is on people's mind. In a recent national survey, 40% of US adults reported worrying about the costs of COVID-19 treatment.2 Health care is expensive. In 2018, almost half (49%) of Americans with employer-sponsored health insurance were enrolled in highdeductible health plans and spent $3300 on out-of-pocket medical expenses. Almost one in five Americans (18.8%) faced a high medical cost burden.3

The economic impact of COVID-19 also highlights the tenuous link between employment and health insurance coverage. In 2018, two thirds (64%) of workers aged 19 to 64 years and their dependents received coverage through an employer. Relying on an employmentbased system of coverage is not sustainable during an economic crisis. Estimates by the University of Minnesota found that of the 22.3 million workers who filed unemployment claims in the week ending April 18,2020,18.4 million workers and their dependents faced disruptions with potential loss of their health insurance coverage.

The United States has a complex patchwork of safety net programs to provide access to needed medical care to those with low incomes and the 28 million currently uninsured. Tax-funded programs include Medicaid, the Children's Health Insurance Program, subsidized premiums for Affordable Care Act Marketplace plans, and care provided by federally qualified health centers and public hospitals. These programs are facing increased demand during the COVID-19pandemic, and they will continue to face increased demand when the subsequent economic crisis takes hold. The Urban Institute estimated that an increase in unemployment to 20% would add 12 million people to Medicaid and 7 million newly uninsured.5 Not well funded in the best of times, the safety net is stretched beyond capacity.

The crisis created by COVID-19 should be the impetus needed to move toward a national health insurance system like Medicare for All. This single-payer approach would provide the best opportunity to achieve universal coverage and remove the link between employment and coverage. Although 56% of adults favor Medicare for all, the support declines with the mention of potential tax increases and is split across party lines.6 Today's polarized political system and vested health care interests preclude such a major overhaul.

The public option would provide a government-run health insurance plan that individuals could purchase in the nongroup market. A state or federal public option could be offered either on or off the Marketplace and could compete with private health insurance. Presidential candidate Joe Biden has proposed a public option plan. Costs would be lower, as government would use its size and negotiating power to constrain spending. This incremental strategy would likely not achieve universal coverage and would retain employersponsored insurance. However, it may be one of the most politically viable strategies. The public option polls well, with 69% of Americans in favor of it. Washington State passed a public option plan, and studies on a public option plan have been authorized in New Mexico, California, Delaware, and Oregon.

Buy-in proposals and expansions of existing public programs are another strategy. Several national proposals would allow individuals aged 55 to 64 years to buy into Medicare. Premiums would be subsidized either through federal income-eligible Marketplace subsidies or through employers' contributions to premium payments. This strategy would certainly help the 3.7 million Americans, aged 55 and older who have no health insurance and are at higher risk for serious illness from COVID-19.7

Lack of universal coverage, the perilous link between employment and coverage, and an underfunded safety net put the United States at a significant disadvantage during a pandemic. Significant reform is still on the table, but state innovation will be stymied by the financial fallout of the coronavirus. State budgets have been hit hard with the significant reduction in tax revenue; states are looking at reductions, not expansions of their public programs. States will need additional federal support to sustain existing programs, let alone develop new public options. However, there will be limited appetite for additional federal spending after the COVID-19 pandemic ends. As of May 8, 2020, Congress had approved four COVID-19 relief bills representing $2.4 trillion in aid with additional pressure to spend more.

Although there is no clear consensus on the path forward, there is much more awareness of the fragility of the US health care system. This is a good thing. Nevertheless, it is likely that reform will be back to the status quo-that is, incremental reform with expansion ofcoverage based on limited extensions of existing public programs.

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L. A. Blewett wrote the first draft of the editorial. M. T. Osterholm contributed to editing the editorial.

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DETAILS

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Syndromic Surveillance in Puerto Rico During the COVID-19 Response: An Alternative Approach to Scarce Molecular Testing

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ABSTRACT (ENGLISH)

On January 30, 2020, the World Health Organization officially declared COVID-19 a public health emergency of international concern. As of May 15, 2020, 188 countries and regions have reported more than 4 500000 COVID-19 confirmed cases and 313 000 deaths.1 Countries have implemented public health prevention measures, including physical distancing, isolation, and quarantine. Currently, governments and public health authorities are identifying which indicators are most useful for evaluating prevention measures.

Public health emergency (PHE) dynamics require immediate intervention to reduce possible morbidity and mortality. Public health decision-makers face massive challenges during and after emergency scenarios, including how to effectively collect comprehensive systematic data. Given the traditional challenges facing public health authorities, the lack ofaccurate data can promote detrimental decisions. The scarcity of reliable information is even more salient in developing countries because of limited infrastructure. Since 2016, Puerto Rico, a territory ofthe United States, has faced four PHEs, including the COVID-19 pandemic. Despite the lessons learned from these PHEs, and the concomitant physical, emotional, and financial consequences, the governmental data-collection infrastructure is inadequate for making evidenced-based decisions. Throughout the emergencies, public health decisions in Puerto Rico were often made without data that was scientific or reliable. An example of this data is the diverse conclusions regarding the death rates from Hurricane Maria (2017) reached by various groups conducting epidemiological studies that used dissimilar methodologies.

FULL TEXT

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Since 2016, Puerto Rico, a territory ofthe United States, has faced four PHEs, including the COVID-19 pandemic. Despite the lessons learned from these PHEs, and the concomitant physical, emotional, and financial consequences, the governmental data-collection infrastructure is inadequate for making evidenced-based decisions. Throughout the emergencies, public health decisions in Puerto Rico were often made without data that was scientific or reliable. An example of this data is the diverse conclusions regarding the death rates from Hurricane Maria (2017) reached by various groups conducting epidemiological studies that used dissimilar methodologies.2

PUBLIC HEALTH CHALLENGE

In early March 2020 in Puerto Rico, local authorities confirmed the first COVID-19 case with a tendency to continue to increase. On March 12, 2020, Puerto Rican authorities issued an executive order to establish a lockdown as a preventive measure-the first to be placed under US jurisdiction. Almost two months later, Puerto Rico has reported more than 2500 confirmed cases. Puerto Rico's hospitalization rates are within their health care system's capacity,3 which may serve as an initial proxy indicator of the effectiveness of the lockdown measure. Further rigorous assessment using valid data should confirm this observation, particularly as a long-term preventive measure.

During this ongoing PHE, increasing access to molecular testing is still the primary challenge for Puerto Rico's COVID-19 response. Without adequate testing, the estimates for SARS-CoV-2 infection rates are limited, reducing the ability to understand viral spreading and contact tracing and hindering the assessment of preventives measures. The limits of the epidemiological data available during this PHE are evident. Thus, efficient monitoring, in the context of limited epidemiological data infrastructure and a socioeconomic and political crisis (e.g., bankruptcy, administration instability), poses a difficult public health challenge.4

PUBLIC HEALTH APPROACH

In March 2020, a public health initiative was launched to establish the Epidemiological Syndromic Surveillance System (ESSS) as a collaboration between academia and nonprofit organizations. This tool offers prediagnostic data for public health decision-making.5 The ESSS was developed in response to COVID-19 in Puerto Rico as a novel online crowd-based and geocoded passive strategy using the Survey123 for ArcGIS (ESRI, Redlands, CA) platform to overcome the dearth of local island-wide infrastructure for testing, tracing, and confirming cases. The ESSS platform asks participants to share the signs and symptoms of COVID-19 that they have experienced in the past 24 hours. This self-reported ESSS was swiftly implemented when only five COVID-19 cases were confirmed in Puerto Rico. Trends of signs and symptoms can be tracked, as responders enter their own information daily. By collecting zip code information, the system allows the detection of areas of high symptoms or clustering symptoms across Puerto Rico municipalities.

The ESSS Web-based design makes it unique for its simplicity, acceptability, and timeliness of the data. Real-time aggregated data are continuously posted on a Web-based dashboard for the rapid dissemination of signs and symptoms collected by the ESSS. To ensure systematic data collection and analysis, the form-centric platform allows rapid and valid data capturing, sharing, and analysis. Once molecular tests become available, further analyses will include the ESSS's specificity and sensitivity evaluation of COVID-19 at community levels.

To date, more than 40 000 surveys have been registered. The data gathered are expected to identify potential incidence areas using self-reported COVID-19 signs and symptoms. This information is a cost-effective way to establish priority communities for testing.6 Collecting general information on sociodemographic characteristics and preexisting conditions also allows the identification of priority subgroups. Data visualization using heat maps facilitates rapid and easy results, particularly for the lay audience. Figure A (available as a supplement to the online version of this article at http://www. ajph.org) shows a preliminary heat map of Puerto Rico with data visualization capabilities that can assist in the identification of high-priority areas to aid the public health decisionmaking process for COVID-19 testing.

PUBLIC HEALTH ALLIANCES

Public health alliances are crucial for identifying available resources and maximizing them during a PHE. A multisectoral approach is necessary, especially in countries with limited datacollection infrastructures, for generating reliable data. In the context ofa fragmented health care system, systematically collecting data requires the collaboration of diverse private and public entities unified to provide a focus on health policy. This collaborative public health approach through trusted academic-research partnerships stimulates community-based participatory research when communities actively collect systematic data to identify their needs.

In scenarios in which limited access to molecular testing, deficient data-collection infrastructure, political barriers, and uncertainty hinder the emergency response, public health alliances can support decisionmaking with reliable data. Taking into account these challenges, and recognizing that the gold standard of massive molecular testing for epidemiological surveillance is often complicated, we suggest the following activities for enhancing data-driven policy: (1) ESSS activities at the population level, as well as for specific vulnerable populations (e.g., health care facilities, elderly home care), to identify COVID-19 outbreak areas early on; (2) enhanced hospitalization statistics focusing on respiratory disease diagnosis to monitor health care system capacity; and (3) analysis of current influenza and dengue surveillance systems to actively monitor influenza and dengue-like illness. Openness from the local authorities is critical for ensuring the successful integration ofthese activities into the COVID-19 response. The quick and effective collaboration of multiple public health practitioners with the private, public, academic, and community sectors is necessary to successfully overcome the epidemic challenges and prevent negative outcomes at the population level.

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Sidebar

Isll See also the AJPH COVID-19 section, pp. 1344-1375.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

HUMAN PARTICIPANT PROTECTION

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Characteristics of US Rural Hospitals by Obstetric Service Availability, 2017

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ABSTRACT (ENGLISH)

Objectives. To describe characteristics of rural hospitals in the United States by whether they provide labor and delivery (obstetric) care for pregnant patients. Methods. We used the 2017 American Hospital Association Annual Survey to identify rural hospitals and describe their characteristics based on the lack or provision of obstetric services. Results. Among the 2019 rural hospitals in the United States, 51% (n = 1032) of rural hospitals did not provide obstetric care.These hospitals were more often located in rural noncore counties (counties with no town of more than 10 000 residents). Rural hospitals without obstetrics also had lower average daily censuses, were more likely to be government owned or for profit compared with nonprofit ownership, and were more likely to not have an emergency department compared with hospitals providing obstetric care (P for all comparisons <.001). Conclusions. Rural US hospitals that do not provide obstetric care are located in more sparsely populated rural locations and are smaller than hospitals providing obstetric care. Public Health Implications. Understanding the characteristics of rural hospitals by lack or provision of obstetric services is important to clinical and policy efforts to ensure safe maternity care for rural residents. (Am J Public Health. 2020;110:1315-1317. doi: 10.2105/AJPH.2020.305695)

FULL TEXT

Headnote

Objectives. To describe characteristics of rural hospitals in the United States by whether they provide labor and delivery (obstetric) care for pregnant patients.

Methods. We used the 2017 American Hospital Association Annual Survey to identify rural hospitals and describe their characteristics based on the lack or provision of obstetric services.

Results. Among the 2019 rural hospitals in the United States, 51% (n = 1032) of rural hospitals did not provide obstetric care.These hospitals were more often located in rural noncore counties (counties with no town of more than 10 000 residents). Rural hospitals without obstetrics also had lower average daily censuses, were more likely to be government owned or for profit compared with nonprofit ownership, and were more likely to not have an emergency department compared with hospitals providing obstetric care (P for all comparisons <.001).

Conclusions. Rural US hospitals that do not provide obstetric care are located in more sparsely populated rural locations and are smaller than hospitals providing obstetric care.

Public Health Implications. Understanding the characteristics of rural hospitals by lack or provision of obstetric services is important to clinical and policy efforts to ensure safe maternity care for rural residents. (Am J Public Health. 2020;110:1315-1317. doi: 10.2105/AJPH.2020.305695)

There has been a steady loss of rural hospital-based obstetric care across the United States. Approximately 9% of all rural counties lost hospital-based obstetric care between 2004 and 2014.1 These losses create access challenges for pregnant rural residents and are associated with increases in births in hospitals without obstetric care (planned services for pregnant patients during labor and childbirth).2,3

Closure of rural obstetric units is frequently precipitated by challenges related to low birth volume and sparsely populated locations (e.g., financing, staffing and scheduling, workforce recruitment and retention, and maintenance of clinical skills).4 Loss of hospital-based obstetric care is associated with an increased risk of births in hospital emergency departments and out-of-hospital births.2 There are also potential consequences for the infant, because the loss of hospital-based obstetric care has been associated with increased rates of preterm birth in rural counties nonadjacent to urban areas.2 In the United States, infant mortality is elevated in rural communities.5 Maternal morbidity and mortality are also elevated among rural residents, which may be exacerbated by limited access to care.6 Addressing these health disparities requires a detailed understanding of the rural obstetric care landscape. The purpose of this analysis was to describe the characteristics of rural hospitals based on whether they provide obstetric care and to inform clinical and policy discussions to improve rural maternal and infant health.

METHODS

Data for this analysis came from the 2017 American Hospital Association (AHA) Annual Survey, an annual survey mailed to administrators at all US hospitals, with a response rate of approximately 80%.7 We identified hospitals that provided obstetric care as those that indicated in the AHA survey that they had (1) an obstetric service line, (2) level 1 or higher maternity care, (3) at least 1 dedicated obstetric bed, and (4) 10 or more births per year. Any discrepancies were validated against the Centers for Medicare and Medicaid Services' Provider of Services file and hospital Web sites.

Hospital location was based on the Office of Management and Budget definition of metropolitan statistical areas.8 Rural counties include those classified as nonmetropolitan, both micropolitan counties (population center of 10 000-50 000) and noncore counties (population center of fewer than 10 000). Hospital location data were validated against the Area Health Resources Files. This analysis focused on rural hospitals only.

We examined financial structure, location, hospital size, and services. Financial structure included whether the hospital was a critical access hospital or a prospective payment system hospital, the type of ownership (government-nonfederal, government- federal, nongovernment-not-for-profit, or nongovernment-for-profit), and the percentage ofinpatient days that were funded by Medicaid. Geographic location included rural county type (micropolitan or noncore) and adjacency to a metropolitan area. Hospital size and service measures included the annual number of emergency department visits, the proportion of hospitals without emergency departments, and the average daily census.

Among rural hospitals, we examined distributional differences between those that did and those that did not provide obstetric care, assessed by using frequency and percentage for categorical variables and mean and SD among continuous variables and tested by using the %2 or Fisher exact test for categorical variables and 2-sample t test for continuous variables. We conducted all analyses with SAS version 9.4 (SAS Institute, Cary, NC). Accounting for 8 statistical tests, P values less than .006 were considered statistically significant.

RESULTS

Among the 2019 rural hospitals in the 2017 AHA Annual Survey, 51.1% (n = 1032) did not provide obstetric care (Figure 1). Compared with rural hospitals that provided obstetric care, those that did not were more often critical access hospitals (67.6% vs 38.1%), government owned (43.6% vs 29.1%), or for profit (13.6% vs 9.8%). Hospitals without obstetric care had a lower proportion of inpatient days that were funded by Medicaid (15.2% vs 21.4%). Rural hospitals that did not provide obstetric care were more often located in noncore counties than in micropolitan counties (70.8% noncore and 29.2% micropolitan vs 40.8% and 59.2%, respectively, among hospitals providing obstetric care).

Compared with rural hospitals with obstetric services, rural hospitals without obstetric care had one quarter the number of emergency department visits (no obstetrics, mean = 5075 visits; SD = 4755; obstetrics, mean = 18 158 visits; SD = 16 349) and an average daily census that was almost half the size of hospitals with obstetric care (no obstetrics, mean = 24.4 patients; SD = 43.3; obstetrics, mean = 40.7 patients; SD = 50.7). Furthermore, almost 10% of rural hospitals that did not provide obstetric care also did not have an emergency department, whereas all hospitals providing obstetric care had emergency departments. All differences were statistically significant at P <.001.

DISCUSSION

Rural US hospitals that do not provide obstetric care are located in less populous rural locations and have more limited size and clinical capacity. Specifically, we found that rural hospitals that did not provide obstetrics were more often government owned or for profit (vs nonprofit), were located in rural noncore counties (vs micropolitan), and had fewer emergency department visits and lower average daily censuses.

These findings provide critical new data on the current status of rural hospitals that do not provide obstetric care. Recognizing the potential public health consequences of lacking local obstetric care as well as loss of obstetrics,2,9 it is crucial to understand the resource constraints of rural hospitals without obstetric capacity to design programs and policies to ensure access to care, including emergency care, for pregnant rural residents.

Limitations

First, the AHA survey data do not contain quality metrics or patient outcomes and may be subject to respondent bias. However, the AHA survey is a widely used and trusted source that has been used previously to study rural obstetric care.1 Second, these data covered 1 year, not changes over time. Finally, these data do not reflect capacity of those hospitals without obstetric care to provide such care in emergencies, although we expect presence of an emergency department to serve as a surrogate for this in most cases. Future research should seek to understand the experience of rural patients and hospitals regarding emergency obstetric care.

Public Health Implications

From a clinical perspective, findings on characteristics of hospitals without obstetric services raise concerns about access to care when obstetric emergencies occur locally.10 Policies designed to improve maternal and infant health and to ensure access to necessary services should account for the particular constraints of rural health care settings. The smaller size and capacity of rural hospitals without obstetric care imply particular constraints on rural emergency obstetric care that may necessitate policy attention. For example, the critical access hospital program was established to provide essential access via hospitals with fewer beds, using a cost-based reimbursement strategy. Yet critical access hospitals are not required to provide obstetric care because of the high fixed costs of providing round-the-clock staff and clinicians capable of attending births.

Better data collection, resources for regional coordination, and training opportunities to ensure local capacity for emergency obstetrics are essential. Recently proposed federal legislation, the Rural Maternal and Obstetric Modernization of Services Act or Rural MOMS Act, would address many of these aspects of rural obstetric care access and quality.11 Additionally, state efforts, including maternal mortality review committees and perinatal quality collaboratives, may help to address some of these concerns, particularly when rural voices are included.12

Integrating an understanding ofthe characteristics ofrural hospitals without obstetric care is essential to clinical and policy efforts to ensure safe maternity care for rural residents. ÂjPU

CONTRIBUTORS

K. B. Kozhimannil conceptualized and designed the study with input from all co-authors, acquired the data, led the interpretation of the data, drafted portions of the article, and oversaw the study. J. D. Interrante contributed to the study design, led the statistical analysis, drafted portions of the article, and contributed to the interpretation of the data and revisions of the article. M.S. Tuttle, C. Henning-Smith, and L. Admon contributed to the study design, interpretation of the data, and critical revision of the article for important intellectual content.

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Sidebar

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Marijuana Use Among Justice-Involved Youths After California Statewide Legalization, 2015–2018

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ABSTRACT (ENGLISH)

Objectives. To determine the impact of California's recreational marijuana legalization on marijuana use among justice system-involved (JSI) adolescents and young adults, and to distinguish whether any changes resulted from legalization (passing the law) or from implementation of the law. Methods. We compared changes in JSI youths' marijuana use in 2 states: California (n = 504), where recreational marijuana use was recently legalized, and Pennsylvania (n = 478), where recreational use is still prohibited. Furthermore, we examined changes in marijuana use across 3 key time periods (October 2015-June 2018): before legalization, after legalization but before implementation, and after implementation. Results. California JSI youths did not demonstrate a significant increase in marijuana use after legalization (b = -0.010;P =.950) or implementation (b = -0.046;P =.846). However, in Pennsylvania, rates of marijuana use increased significantly after legalization (b = 0.602;P =.001) but not after implementation (b = 0.174;P =.533). Conclusions. Although recreational marijuana legalization was not associated with changes in marijuana use among youths in California, we observed increased rates of use in Pennsylvania after legalization in California. Recreational marijuana laws may be indirectly related to youths' marijuana use by supporting more permissive national attitudes toward marijuana. (Am J Public Health. 2020;1 10:1 386-1 392. doi:10.2105/ AJPH.2020.305797)

FULL TEXT

Headnote

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Methods. We compared changes in JSI youths' marijuana use in 2 states: California (n = 504), where recreational marijuana use was recently legalized, and Pennsylvania (n = 478), where recreational use is still prohibited. Furthermore, we examined changes in marijuana use across 3 key time periods (October 2015-June 2018): before legalization, after legalization but before implementation, and after implementation.

Results. California JSI youths did not demonstrate a significant increase in marijuana use after legalization (b = -0.010;P =.950) or implementation (b = -0.046;P =.846). However, in Pennsylvania, rates of marijuana use increased significantly after legalization (b = 0.602;P =.001) but not after implementation (b = 0.174;P =.533).

Conclusions. Although recreational marijuana legalization was not associated with changes in marijuana use among youths in California, we observed increased rates of use in Pennsylvania after legalization in California. Recreational marijuana laws may be indirectly related to youths' marijuana use by supporting more permissive national attitudes toward marijuana. (Am J Public Health. 2020;1 10:1 386-1 392. doi:10.2105/ AJPH.2020.305797)

In the past 7 years, 11 US states and Washington, DC, have legalized recreational marijuana use (Table 1; Figure A, available as a supplement to the online version of this article as https://www.ajph.org). Although the debate over marijuana laws has been ongoing since medical use was first legalized in 1996, now that recreational use is legal in several states, the public is even more concerned about how these recent laws will affect young people.1,2 Advocates argue that marijuana is less harmful than alcohol or tobacco and that legalization will reduce the "forbidden fruit" effect.3 Opponents of these laws are concerned that rates of use will increase substantially because of the greater availability of marijuana.4 Furthermore, critics contend that marijuana could be a "gateway drug" for more serious substance use and may lead to greater delinquency.5-8 Marijuana use during adolescence has also been linked to neurocognitive deficits, disruptions in brain development, and depressive symptoms.9-11 Most prior studies examining the impacts of recreational marijuana laws have not determined whether observed changes in use occurred over and above age-related developmental changes and have primarily focused on community youth. Using a sample of high-risk youths who have had justice system contact, the present study assessed potential changes in rates of marijuana use resulting from recreational marijuana laws while accounting for expected age-based increases. Given that substance use is generally higher among justice-involved youths compared with their noninvolved counterparts,12 we assessed recreational legalization's impact among the highest-risk youths. Furthermore, use ofa sample ofjustice-involved youths allows for an examination of whether changes in recreational marijuana's legal status or implementation would affect use among youths who have shown a disregard for the law and who likely already had access to illegal drug markets. Although legal status alone may not change the prevalence of use for this population, implementation and availability may have an effect.

Existing studies have also not distinguished whether changes in youth marijuana use occurred after laws were passed or after they were implemented. The passage of recreational marijuana laws and implementation of those laws are 2 critical, distinct time points in the process of legalization. After California passed the law legalizing recreational marijuana on November 9, 2016, individuals aged 21 years or older could legally use, possess, share, and grow marijuana. However, no legal dispensaries selling marijuana for recreational use had been opened yet, making it still illegal to purchase marijuana for recreational purposes. January 1, 2018, marked the day when California's recreational marijuana law was actually implemented and when retail shops were first allowed to open. As such, implementation, not the law's passage, opened an additional avenue for people to obtain marijuana.

Despite key differences between the law's passage (referred to here as legalization) and implementation, previous studies have not distinguished changes in marijuana use across both time points. In particular, some studies assessed changes in marijuana use only before and after implementation. This method ignores any potential impacts that legalization could have on marijuana use and may inflate rates of use in the comparison group, making it difficult to see any changes due to implementation if marijuana use had already increased after legalization. For example, a cross-sectional study compared pre- and postimplementation changes in marijuana use in Oregon versus nonlegalized states.13 Researchers found that, among college students, increases in past-month use were not greater in Oregon than in nonlegalized states.13

Another study that compared pre- and postimplementation marijuana use investigated changes only within Colorado.14 The authors found no evidence that college students' past 2-month use increased after implementation. Unfortunately, because neither study examined prelegalization rates of marijuana use, it is unclear whether their null findings mean that state recreational marijuana laws truly did not affect use, or that rates of use had already increased after legalization and therefore were not significantly affected by implementation.

Other studies investigated changes in marijuana use solely before and after legalization. This method also has limitations. Analyzing use only before versus after legalization might not capture the time period after implementation at all, and these prior studies may have missed any changes in marijuana use linked to greater access from legal dispensaries. Using cross-sectional data from the Monitoring the Future study on 8th through 12th graders, researchers examined rates of past-month marijuana use before and after Colorado and Washington State passed laws to legalize recreational marijuana.15 They found no differences in use between youths in Colorado and those in nonlegalized states; however, they did find greater increases in use among 8th and 10th graders in Washington compared with students in nonlegalized states. Many other studies did not specify the time periods during which they were comparing changes in marijuana use,16,17 making it difficult to understand the differential impacts that legalization versus implementation of recreational marijuana laws can have.

To expand on existing research, the present study investigated changes in rates of marijuana use across 3 time periods: before legalization, after legalization but before implementation, and after implementation. It is important to distinguish whether legalization-which permits recreational marijuana use but does not provide another avenue to purchase the drug-or implementation- which allows legal dispensaries to sell marijuana for recreational use-is the primary driver ofyouth marijuana use. To further add to prior literature, the current investigation was longitudinal and accounted for both within-person and between-person changes in marijuana use over time. In addition, we accounted for age-based increases in marijuana use, and we were thus able to assess whether marijuana use changed over and above age-related changes. Furthermore, we examined changes in rates of marijuana use among justice system-involved (JSI) adolescents and young adults. Marijuana use tends to be initiated during adolescence and to peak in young adulthood.18 20 This is an important topic of research given that some prior studies have shown that frequent marijuana use may be associated with negative outcomes such as greater risk taking, delinquency, and later substance use disorders.6,7,21

Not only are adolescence and young adulthood critical developmental time periods to examine, but within these age groups, those who are involved in the justice system are at especially high risk of marijuana use.12 Approximately 38% of JSI youths reported past-month marijuana use,22 compared with only 22% oftheirnon-JSI counterparts.23

The present study is the first to investigate JSI youths who are at the highest risk ofmarijuana use. We tracked patterns ofmarijuana use among Californian adolescents and young adults before legalization, after legalization but before implementation, and after implementation. For comparison, we also tracked patterns of use among similar youths in Pennsylvania, a state that has not yet legalized recreational marijuana. We did not expect to see changes in marijuana use among JSI youths due solely to legalization given that these youths had already shown a disregard for the law.24 However, we hypothesized that implementation might contribute to increased rates of use among JSI youths in California, potentially by adding an avenue through which youths could obtain marijuana or perhaps through reducing its cost.3 However, in Pennsylvania, we did not expect to see increases greater than expected agerelated changes across any time period.

METHODS

The present work took advantage of existing, multisite, longitudinal data from the Crossroads Study (http://sites.uci.edu/ crossroadsinfo), which enabled a prospective analysis ofmarijuana use at 3 time points. The study began in July 2011 and examines the development of 1216 male adolescents after their first juvenile justice system contact. Participants were eligible for the study ifthey had been arrested only once, for one of the moderate offenses listed in Table A, available as a supplement to the online version of this article as https://www.ajph.org. Recruitment was conducted by students working with P.J. F., L. S., and E. C. in 3 locales: Orange County, California; Philadelphia, Pennsylvania; and Jefferson Parish, Louisiana. However, because of sample size constraints in Louisiana, the present study was only able to compare marijuana use among participants in California (n = 504) and Pennsylvania (n = 478). Detailed descriptive statistics and demographics are displayed in Table 2.

Procedure

Participants were interviewed by Crossroads project staff using a secure, computerassisted program. Interviews lasted 2 to 3 hours and were conducted in the youth's home, in the community (e.g., coffee shop), or in a secure facility (e.g., detention center; jail) if the youth was housed there. Participants were first interviewed within 6 weeks after their first arrest (July 2011-June 2013, followed by 6 biannual interviews (January 2012-June 2016) and 2 annual interviews (July 2015-June 2018). For the purposes of the present study, we focused on data collected from October 2015 to June 2018 to capture changes in marijuana use before legalization (observations =1102), after legalization but before implementation (observations = 859), and after implementation (observations = 148). Retention rates were high, and the proportion ofmissing data was low in both states: 90.73% of participants in California and 87.50% in Pennsylvania remained during the 5-year study period. If a youth was incarcerated at the time of his interview, his marijuana use score was coded as missing because we did not know whether the law would have affected his marijuana use, since the facility would have prohibited access to it.

Measures

Time. Recreational marijuana use was legalized in California on November 9, 2016, and the law change was implemented on January 1,2018. The 3 key time periods were therefore as follows:

- T1: before legalization (October 1, 2015- November 8, 2016);
- T2: after legalization but before implementation (November 9, 2016-December 31, 2017);
- T3: after implementation (January 1, 2018-June 11, 2018).

Marijuana use. To identify rates of marijuana use, we used items from a subset of the Substance Use/Abuse Inventory.25 Consistent with prior work and to ensure that the recall period fell within the time periods of interest, we assessed participants' past 24-hour marijuana use. As in prior studies that used past 24-hour measures,26,27 we found significant, strong correlations between past 24-hour marijuana use and use over longer recall periods (e.g., past 6-month or 12-month use; T1: r = 0.72, P <.001; T2: r = 0.70, P< .001; T3: r=0.77, P< .001).

Covariates. Participants self-reported their age and race/ethnicity. They also provided self-reports of their parents' highest level of education, which was used as a proxy for socioeconomic status.28 We also controlled for the day ofthe week on which participants were interviewed, as it could have had an impact on whether they engaged in marijuana use in the past 24 hours (Table B, available as a supplement to the online version of this article as https://www.ajph.org). In our analyses, we also included as a covariate the assessment time point during which participants were interviewed.

Analytic Strategy

As a preliminary step, we used 2 generalized estimating equation (GEE) population-averaged models to investigate rates of marijuana use by age. First, we examined the main effect of age (linear, quadratic) while also controlling for race/ ethnicity, site, socioeconomic status, day of week, and interview time point. Next, we examined whether patterns of marijuana use by age differed by site by including product terms between age and site in the preliminary model described here. These preliminary models indicated that marijuana use followed a quadratic growth pattern for both sites; we therefore included linear and quadratic age variables in all primary models.

For the primary models, a GEE model examined the main effects of time (T1 vs T2 vs T3) on marijuana use, controlling for linear and quadratic age and other covariates. Next, we examined whether the impact of time varied by site by rerunning the primary model and including a product term between site and time. We conducted analyses in Stata 15 (StataCorp LP, College Station, TX).

RESULTS

As shown in Table 2, the prevalence ofpast 24-hour marijuana use was fairly similar during the 3 time periods in California (range = 29%-36%). In Pennsylvania, however, the prevalence was much higher in T2 (26%) and T3 (36%) than in T1 (15%). In addition, although the prevalence of marijuana use was higher in California than in Pennsylvania at T1, the difference between the 2 states was essentially eliminated by T3.

Marijuana Use by Age

The first preliminary set ofmodels showed that rates of use significantly varied by age. Specifically, rates increased steadily from age 17 to 20.5 years and remained somewhat stable thereafter (Figure 1). The developmental trajectory of marijuana use followed a similar pattern in California and Pennsylvania, although the intercept was higher in California.

The Impact of Legalization on Marijuana Use

There was no main effect of time on marijuana use when we controlled for all covariates. When we looked at the combined sample, there were no changes in use at T1 versus T2 (b = 0.229; P = .095), T2 versus T3 (b = 0.022; P = .908), or T1 versus T3 (b = 0.251; P = .318). However, there was a significant main effect of site on marijuana use, such that Californian participants were more likely to use marijuana than were Pennsylvanian participants (b = 0.364; P =.049).

Next, we observed a significant site-bytime interaction (%2 = 13.10; P = .001), and we proceeded to probe specific contrasts by rotating the time reference groups. These post hoc analyses revealed no significant changes in marijuana use in California across any of the time contrasts (Figure 2). In California, rates of use at T1 versus T2 (b = -0.010; P = .950), T2 versus T3 (b = -0.046; P = .846), and T1 versus T3 (b = -0.056; P = .848) were not statistically different. However, marijuana use changed significantly over time in Pennsylvania. Rates of use in Pennsylvania were significantly higher in T2 than T1 (b = 0.602; P = .001) and in T3 than T1 (b = 0.777, P = .020), but the increase from T2 to T3 was not significant (b = 0.174, P = .533). In addition, the prevalence of past 24-hour marijuana use was higher in California than in Pennsylvania for T1 (b = 0.768; P = .002), but not for T2 (b = 0.170; P =.452) or T3 (b = 0.008; P =.919).

To summarize, results showed that California JSI youths did not demonstrate a significant increase in past 24-hour marijuana use across any of the time periods. However, in Pennsylvania, rates of use increased after legalization in California and remained at this elevated rate. Furthermore, the prevalence of marijuana use was higher in California than in Pennsylvania only after legalization, suggesting that marijuana use in Pennsylvania "caught up" to use in

California after legalization in California.

Supplemental analyses examined marijuana use in Pennsylvania using the medical marijuana legalization date, and findings were no different from those in the main analysis (online Figure B). Additional supplemental analyses to the primary GEE models-including a binary indicator of whether a participant was younger than 21 years or was 21 years or older-showed that the primary site X time interaction was not significantly different on the basis of youths' age status (Table C, available as a supplement to the online version of this article as https://www.ajph.org). Lastly, when we conducted the primary analyses with data only from participants who provided data during all 3 time periods, the findings were essentially the same. Results are available from E. K. by request.

DISCUSSION

As recreational marijuana legalization becomes more widespread across the United States, how it affects marijuana use among youths is becoming an increasingly important topic ofresearch. Contrary to ourhypotheses, JSI youths in Pennsylvania, but not in California, exhibited increased rates of use after recreational marijuana legalization in California. One potential explanation is that legalization removed the "forbidden fruit" effect: although California youths could use marijuana, they may have been less motivated to use because it was no longer forbidden. Anotherpossible explanation is that states that pass recreational marijuana laws may have already had more permissive attitudes toward marijuana prior to legalization, which research consistently shows is associated with higher rates of use.29,30 However, in Pennsylvania, we observed increased rates of use despite there being no changes in recreational marijuana laws in the state. We did not test the precise mechanism accounting for the change in use among Pennsylvanian youths, but a number of explanations are possible. For example, the observed increase could be a result of other policy changes in Pennsylvania that corresponded to the timing of the present study (e.g., decriminalization of marijuana possession in Philadelphia in September 2014 and in Pittsburgh in December 2015; legalization of medical marijuana in April 2016, around the same time as recreational legalization in California) or because Pennsylvania is located within driving distance of jurisdictions where recreational use has been legalized (e.g., Washington, DC; Massachusetts). Furthermore, the fact that more US states have legalized recreational marijuana in recent years might have provided cues to youths that marijuana use is not dangerous and may be as normal as drinking alcohol.

Importantly, our findings also showed that rates of marijuana use among Californian youths did not increase after implementation, when the first legal recreational marijuana dispensaries were opened. This suggests that JSI youths likely already had access to marijuana through illegitimate means, and gaining a legal, additional avenue through which to purchase marijuana did not affect their use. Interestingly, after implementation, the price of marijuana dropped in California, both in legal dispensaries (from an average of $290 to $245 per ounce) and among illegal street dealers (from $256 to $152 per ounce).31-33 Despite these reductions in price, however, rates of marijuana use among JSI youths in California did not differ significantly before and after implementation. Perhaps lower prices make it cheaper for youths who were already using marijuana to continue using, but the price reductions may not be enough to motivate nonusers to initiate.

Strengths and Limitations

There are several strengths to the current study. Because of the multisite, longitudinal design of the Crossroads Study, a prospective analysis comparing rates of use at 2 different sites before legalization, after legalization but before implementation, and after implementation was possible. To our knowledge, no studies have examined rates of marijuana use across these 3 key time periods and few have compared marijuana use in legalized versus nonlegalized states. If we had only examined marijuana use across 2 time periods, as has been done in prior studies, we may not have seen the change in marijuana use in Pennsylvania before versus after legalization. Notably, the present research also assessed changes in marijuana use longitudinally and was able to test both within-individual and between-individual changes. Additionally, our analyses identified changes in marijuana use beyond expected age-related increases in use, an important confounding factor that has been overlooked in prior research.

Despite these strengths, the present study has several limitations. First, its findings cannot be generalized to females, and although few of the JSI youths in the present sample had committed serious crimes or been incarcerated (< 7%), our results may not be generalizable to youths who have not had justice system contact. Second, because the nature of our research question necessitates a prospective analysis, we were only able to assess rates ofmarijuana use in states where the Crossroads Study had already collected data. We were therefore limited to comparing changes in marijuana use in California and Pennsylvania and were unable to assess changes in other states. Consequently, because medical marijuana use was legalized in Pennsylvania in April 2016 and recreational use was legalized in California in November 2016, we were unable to compare differences in rates of use between a state where all marijuana use is prohibited versus a state where recreational use is legalized. Third, because of state and local restrictions on the number and location of recreational marijuana dispensaries as well as federal prohibition, the scale of legal dispensaries may still have been limited when data collection concluded on June 2018. We were therefore unable to investigate long-term impacts of implementation on youths' rates of use. Future research should assess what may happen in the coming years as marijuana markets grow and if federal laws legalize recreational use.

In addition, future studies should investigate long-term marijuana use trends. The current study examined past 24-hour use, which is only able to ascertain short-term impacts. Importantly, we found that past 24-hour use is highly correlated with 6-month and 12-month use and serves as a good proxy for examining individuals' marijuana use.25 In fact, utilizing a past 24-hour measure enabled the present study to clearly delineate marijuana use before and after each critical time point (legalization and implementation), which would not have been possible with longer recall periods. However, future research should analyze how legalization might influence rates of use over a longer recall period as well, as both methods provide important information. Furthermore, as in existing studies on the consequences of recreational marijuana legalization, we were limited in sample size and thus unable to comprehensively examine how legalization might differentially affect individuals aged younger than 21 years compared with those 21 years or older. This will be an important distinction to make in future studies because legalization permits recreational marijuana use only for individuals aged 21 years or older.

Public Health Implications

Overall, our findings indicate that when recreational marijuana use is legalized for adults in one state, rates of use can increase even in other states that have not legalized. As recreational use is being legalized in more states, and more states are decriminalizing marijuana possession, these factors could be contributing to a broader cultural shift to greater acceptance of marijuana use that might have begun with medical marijuana legalization. These changes in attitudes toward marijuana may be influencing youths' perceptions of the risks of using marijuana, or perhaps perceptions that more of their peers are using it.34 Practitioners and policymakers aiming to reduce rates of marijuana use among JSI youths might therefore focus their attention on youths' attitudes toward marijuana or their perceptions ofpeers' marijuana use behaviors. ÂfW

CONTRIBUTORS

E. Kan conceptualized the study, performed analyses, and interpreted the results. J. Beardslee verified the analytical methods and interpreted the results. P. J. Frick, L. Steinberg, and E. Cauffman secured funding for the study as the co-principal investigators of the Crossroads Study. All authors contributed to the revision and approval of content.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to report.

HUMAN PARTICIPANT PROTECTION

This study received institutional review board approval from the University of California, Irvine, Louisiana State University, and Temple University.

Sidebar

Correspondence should be sent to Emily Kan, University of California, Irvine, 4308 Social &Behavioral Sciences Gateway, Irvine, CA 92697 (e-mail: kane1@uci.edu). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

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Leveraging Rural Strengths to Overcome Population Health Challenges

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ABSTRACT (ENGLISH)

Research is foundational to identifying challenges faced by rural communities: to address a challenge, we need to understand that challenge. Understanding how inequities vary by geography and the factors that underlie those inequities allows practitioners and policymakers to make informed decisions and design interventions that can make our rural communities healthier places to live, work, and play. We should take pride in the important work that we do to achieve health equity across populations. At the same time, we need to be aware that our work creates a narrative about our rural communities. The view of rural America most often portrayed in the media is of a place of poverty, addiction, disability, and overall dystopia. Sadly, it is often our good work, designed to focus attention on rural inequities, that drives these stories. To the extent that this narrative becomes the prevailing view of rural America, we may be doing unintended harm to the economic vitality and overall vibrancy of our communities.

What gets lost in these narratives is what we believe to be the predominant rural story- one of pride, independence, and creativity, where the work ethic remains strong and the vast majority of people strives to make their communities better places. In rural communities, people use unique assets such as social cohesion and connectedness to solve problems together. The narrative of rural communities is, in fact, one of innovation, where a lack of resources has stimulated creativity by bringing people together across sectors to solve problems.

FULL TEXT

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None of this is intended to blame rural researchers for today's rural narratives. We, like you, struggle with this issue. Since 1996, the Walsh Center team has worked to fulfill our mission of conducting "timely policy analysis, research and evaluation that addresses the needs of policymakers, the health care workforce, and the public on issues that affect health care and public health in rural America."1 Our work, like yours, has typically taken us down the path of exploring problems. Over the years, we have documented rural disparities in leading causes of death- deaths of despair, limited access to services, smoking, obesity, and more. It is indeed difficult to research challenges without contributing to negative stereotypes and narratives.

In 2017, the Robert Wood Johnson Foundation provided us a unique opportunity to conduct formative research to explore rural strengths and assets to improve health and achieve equity in rural communities,2 consistent with the foundation's vision forbuilding a culture of health.3 Through this work we conducted community forums across the nation and sought input from more than 400 rural stakeholders. We conducted forums in the Delta, the Northeast, the Upper Midwest, and Appalachia, as well as along the US-Mexico border, asking participants what they wanted federal agencies, philanthropies, and researchers to know about rural America. Although the communities varied widely in terms of diversity, resources, and needs, their narratives were remarkably consistent. We heard stories of resilience, strength, collaboration, and innovation. We heard about cross-sector engagement facilitated by strong social cohesion and a willingness to roll up one's sleeves to address challenges head on. Pride in place, a shared history and a shared culture were evident everywhere.

For us this work was transformative. Even as we continue to explore rural challenges, as we should, we do our best to also convey all that is good about our rural communities so that we can help create more balance in how our communities are portrayed. In doing so, we hope to uplift our rural communities, which in turn will encourage investments that will help to create a better future for us all. In rural America the good still far outweighs any challenges our communities may face, and we believe that the hardworking individuals looking to contribute to their communities, their states, and their nation create an incredible investment opportunity.

And yet, the challenges are significant, as you will see in the articles included in this issue of AJPH. Challenges are not unique to rural communities, however. If we were to define any population subgroup solely by its challenges, we would create a similarly negative narrative. So, even as we research and document these challenges, we ask that you join us in also considering the many strengths and assets of our rural communities- they are likely to guide us to sustainable solutions. In the process, rural communities can lead the way in addressing health inequities and can be the innovation hubs where we test new interventions on a smaller scale and at a lower cost. Rural communities can most certainly lead the way to a healthier and more vibrant future.

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Sidebar

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Funding and Service Delivery in Rural and Urban Local US Health Departments in 2010 and 2016

Beatty, Kate, PhD MPH; Heffernan, Megan, MPH; Hale, Nathan, PhD MPH; Meit, Michael, MA MPH

ABSTRACT (ENGLISH)

Objectives. To investigate differences in funding and service delivery between rural and urban local health departments (LHDs) in the United States. Methods. In this repeated cross-sectional study, we examined rural-urban differences in funding and service provision among LHDs over time using 2010 and 2016 National Association of County and City Health Officials data. Results. Local revenue among urban LHDs (41.2%) was higher than that in large rural (31.3%) and small rural LHDs (31.2%; P< .05). Small (20.9%) and large rural LHDs (19.8%) reported greater reliance on revenue from Center for Medicare and Medicaid Services than urban LHDs (11.5%; P<.05). All experienced decreases in clinical revenue between 2010 and 2016. Urban LHDs provided less primary care services in 2016; rural LHDs provided more mental health and substance abuse services (P< .05). Conclusions. Urban LHDs generated more revenues from local sources, and rural LHDs generated more from the Center for Medicare and Medicaid Services and clinical services. Rural LHDs tended to provide more clinical services. Given rural LHDs' reliance on clinical revenue, decreases in clinical services could have disproportionate effects on them. Public Health Implications. Differences in financing and service delivery by rurality have an impact on the communities. Rural LHDs rely more heavily on state and federal dollars, which are vulnerable to changes in state and national health policy. (Am J Public Health. 2020;110:1293-1299. doi:10.2105/AJPH.2020.305757)

FULL TEXT

Headnote

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Methods. In this repeated cross-sectional study, we examined rural-urban differences in funding and service provision among LHDs over time using 2010 and 2016 National Association of County and City Health Officials data.

Results. Local revenue among urban LHDs (41.2%) was higher than that in large rural (31.3%) and small rural LHDs (31.2%; P< .05). Small (20.9%) and large rural LHDs (19.8%) reported greater reliance on revenue from Center for Medicare and Medicaid Services than urban LHDs (11.5%; P<.05). All experienced decreases in clinical revenue between 2010 and 2016. Urban LHDs provided less primary care services in 2016; rural LHDs provided more mental health and substance abuse services (P< .05).

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Public Health Implications. Differences in financing and service delivery by rurality have an impact on the communities. Rural LHDs rely more heavily on state and federal dollars, which are vulnerable to changes in state and national health policy. (Am J Public Health. 2020;110:1293-1299. doi:10.2105/AJPH.2020.305757)

Local health departments (LHDs) contribute to population health improvement through the core functions of public health: assessment, policy development, and assurance, which are operationalized into the 10 Essential Public Health Services (10EPHS).1 Common activities conducted by LHDs include conducting community health assessments; communicable disease prevention, investigation, and control; population health promotion; emergency preparedness and response; management of vital records and statistics; and environmental health, among others.1-3

Secure and stable funding is vital to the ability of LHDs to fulfill their missions. Funding appears to be correlated with the provision of key public health services, proportionally affecting the performance of public health systems across the 10EPHS.4 A combination of local, state, and federal resources finance services provided by LHDs. Most of this funding comes from federal sources and is supplemented by state and local funds, often through competitive grant programs.2 Most LHDs also provide at least some direct services and have increased their ability to bill public and private payers for this work.5,6

Over the past 30 years, there has been a shift in the role ofpublic health agencies. The release of 2 important Institute of Medicine (IOM) reports reflect a shift in focus toward population-based public health services.7,8 Although engagement in the core public health functions and 10EPHS remains the standard for measuring LHD performance, their role as a provider of clinical services remains uncertain-particularly in rural and underserved communities.

People residing in rural communities face many challenges related to health and health care. They are generally older and poorer, and have more risky health behaviors leading to worse health outcomes.9 Rural residents have higher rates of tobacco use, obesity, and physical inactivity.10 They also have higher incidences of cancer and higher rates of poor cancer outcomes.10 Rural residents are disproportionately affected by the social determinants of health, including lower socioeconomic status and lower rates of insurance, and live in states that did not expand Medicaid as part of the Affordable Care Act (ACA).10

Many LHDs operating in rural and historically underserved communities remain an integral part of a fragile safety net that ensures access to health care services. With a limited primary care infrastructure, it is unlikely that the demand for clinical services provided by LHDs will subside. This is true not only in states that did not expand Medicaid but also in expansion states, as many rural communities continue to experience severe shortages of health professionals. In fact, in many of these Medicaid expansion states, expanded insurance coverage may actually exacerbate existing provider and service shortages as more individuals join the insured population.11 Uncertainty around the ACA and volatility in insurance markets further complicates decisions on safety-net service provision among LHDs.

The purpose of this study is twofold. First, we describe the proportions of funding sources forLHDs and compare the differences in these proportions between rural and urban agencies over time. The results ofthis analysis are intended to inform policymakers on the effects of budget cuts to LHDs andjustify the assurance of secure and stable funding for LHDs, especially in the rural localities.

Second, as the focus on population health and health care systems reform continues, there is a need to better understand the current balance of LHDs as clinical service providers with that of population-based services. While LHD service provision is likely influenced by multiple factors, the extent to which LHDs are engaged in clinical and population-based services and potential geographic variation in delivery of these services remains an important issue. In this analysis, we examined clinical and population-based services delivery among LHDs by level of rurality over time.

METHODS

We used a repeated cross-sectional study design to examine the outcomes of interest. We linked the 2010 and 2016 National Association of County and City Health Officials National Profile ofLocal Health Departments (Profile) data and used the data to examine rural-urban differences in funding sources and geographic distribution of clinical and population-based service provision among LHDs over time.2,12 Though there were older Profiles (1998-1990, 1992-1993, 1996-1997, 2005, and 2008) and 1 in 2013, the 2010 and 2016 Profiles used comparable categories for funding sources. We used zip codes ofthe LHDs to identify corresponding Rural Urban Commuting Area codes, which served as the measure of rurality. Rural Urban Commuting Area codes are defined by US Department of Agriculture Economic Research Service and classify US census tracts by using measures of population density, urbanization, and daily commuting.13 We limited the data set to only individual county or city LHD jurisdictions. We excluded LHDs serving multicounty jurisdictions or those reporting as a regional health department from the analysis. These multijurisdiction LHDs report both revenue and services provision collectively for all sites as a single organizational entity. Furthermore, we were not able to accurately differentiate levels of rurality among the counties and cities comprising the jurisdiction. These departments report as a single entity with the organizational lead located within the most populous area of the jurisdiction. Including them in the analysis may systematically underestimate the experiences of rural LHDs.

We constructed a categorical variable reflecting the 3 levels of rurality by using Rural Urban Commuting Area codes. "Small rural" included census tracts with towns of fewer than 10 000 population. "Large rural" included census tracts with towns ofbetween 10 000 and 49 999 population and census tracts tied to these towns through commuting. "Urban" included census tracts with towns with a population of 50 000 or more.

We calculated the proportion of each revenue source relative to the total revenue reported for each respective year and used it as a primary outcome of interest. Sources of revenue captured in these data included local, state, federal (direct and pass through), Medicare and Medicaid (Center for Medicare and Medicaid Services; CMS), private insurance, patient personal fees, nonclinical fees and fines, private foundations, and other revenue sources. The LHDs' responses indicating the amount of revenues from various sources for each fiscal year were recorded. Local sources included revenue that originated from county, city, or town government, including allocations from taxing districts, property tax, and school boards. State sources included all revenues received from state agencies. Federal sources are those that originated from the federal government, excluding CMS reimbursements, provided to LHDs directly or passed through from the states. Medicare and Medicaid sources include all revenue received from CMS insurance plans for CMS patients. Private insurance revenue is dollars received from private health insurers and patient personal fees generated through the provision of health care services and paid directly by the patient. The final sources included nonclinical fees and fines, grants from private foundations, and other revenue sources. Other sources included the sum of revenues from all sources except the ones already listed, such as donations and interest income.14

Select services provided in each respective year were also of primary interest. Profile response options for how these services were provided varied between the 2010 and 2016 survey. Response options for services performed directly by the LHD, however, were consistent between the 2 years examined. We created a dichotomous measure reflecting whether the LHD provided this service directly and used it in the analysis. Responses to these questions were not mutually exclusive, meaning that LHDs could indicate having provided a service directly but also indicate some other response option as well.

We described characteristics of the study population, the distribution of revenue sources, and select services by year and rurality. We used a regression-based differences-in-differences (DID) analysis approach to examine geographic differences in revenue sources and the extent changes in LHD sources of revenue over time were consistent between LHDs by rurality. We specified separate linear regression models with the percentage of revenue from each respective source as the outcomes variable. We created a dichotomous variable for time reflecting responses from 2010 and 2016 and included it in the models. The models included measures for time, level of rurality, and their subsequent interaction. We used Stata's MARGINS command to derive the predicted value of revenue from each source by level of rurality in each time period. We used the Stata (DYDX) command with a contrast operator to examine the extent to which differences in the predicted values of revenue over time differed by level of rurality.15 We took a similar analysis approach to examine changes in direct services provision over time.

RESULTS

The 2010 Profile survey was distributed to 2565 LHDs, with responses from 2107 (82% response rate); in 2016, the survey was distributed to 2533 LHDs, with 1930 responding (76% response rate). Complete revenue and rurality information was available for 1828 LHDs in 2010 and 1699 LHDs in 2016, with 1480 LHDs with observations in both years. We noted differences in the composition of LHDs by rurality and year. A higherproportion of small rural LHDs completed the profile survey in 2016 (39.6%) relative to what was observed in 2010 (30.8%). Conversely, a greater proportion of urban LHDs are represented in the 2010 profile survey (51.1%) compared with 2016 (40.1%). Higher proportions of small rural LHDs operated within centralized state systems in both years. Fewer small rural LHDs reported having a local board of health in 2016, relative to what was reported in 2010 (Table 1).

Funding Sources

We also observed significant differences between urban, large rural, and small rural LHDs and between the 2 time periods (Table 2). In both 2010 and 2016, urban LHDs reported higher proportions of revenue from local and direct federal sources than what was observed among large and small rural LHDs. Conversely, large and small rural LHDs reported greater proportions of revenue from CMS and private insurance than what was observed among urban LHDs.

Urban, large rural, and small rural LHDs all reported shifts in the distribution of revenue with increasing sources of revenue coming from local sources in 2016. Conversely, all LHDs experienced notable and consistent decreases in revenue from CMS and patient fees between 2010 and 2016, regardless of geography (Table 2).

Changes in revenue from state, federal, and private insurance sources varied by rurality. While urban and small rural LHDs reported a smaller proportion of revenue coming from state sources, large rural LHDs reported a slight increase, creating a significant overall difference between the 2 time periods (P< .05). We noted similar findings with federal pass-through revenue, with urban and large rural LHDs reporting decreases in revenue from these sources, while small rural LHDs reported a slight increase (P< .05). Large rural LHDs also experienced a notable decrease in direct federal sources of revenue beyond what was observed among urban LHDs (P <.05). Although changes in revenue derived from private insurance billing were largely consistent between urban and small rural LHDs between the 2 time periods, revenue from this source increased among large rural LHDs (P< .05; Table 2).

Clinical and Prevention Services

A very high proportion of small and large rural LHDs continue to provide both adult and childhood immunizations (> 90% in both time periods). We noted significant decreases in the proportion of urban LHDs providing immunizations with 88.9% of urban LHDs providing adult immunization directly in 2010 compared with 81.6% in 2016 (P <.05). We noted a similar trend for childhood immunizations with 76.7% of urban LHDs providing this service directly in 2016 compared with 85.4% in 2010 (P< .05; Table 3).

With the exception of non-HIV/AIDSrelated sexually transmitted infections (STIs), there has been a decrease in LHDs providing direct preventive screenings between the 2 time periods, regardless of level of rurality. A slightly higherproportion of small rural LHDs reported more direct screening for other STIs in 2016 (65.0%) than in 2010 (62.2%; P< .05). However, we found notable decreases in screening efforts related to diabetes and high blood pressure across all LHDs. Furthermore, lower proportions of urban LHDs reported engagement in direct cancer screening and blood lead level testing between the 2 time periods (P <.05). Both large and small rural LHDs reported less provision ofscreenings for cardiovascular disease (P< .05; Table 3).

The proportion of LHDs reporting increased direct provision of treatment services for HIV/AIDS has increased across levels, with notable increases occurring among small rural LHDs (16.2% in 2010 vs 34.5% in 2016; P <.05). Small rural LHDs also reported higher levels of engagement in the treatment of other STIs and tuberculosis-related illness in 2016 relative to 2010 (P< .05; Table 3).

We noted few significant changes in the direct provision of maternal and child health services between the 2 time periods. A lower proportion ofurban LHDs reported the direct provision of Early and Periodic Screening, Diagnostic, and Treatment and well-child services in 2016, relative to what was observed in 2010 (P< .05); however, the provision of these services among small rural LHDs has remained largely unchanged (Table 3).

Fewer urban LHDs reported the direct provision of primary care services in 2016 (11.6%) relative to 2010 (15.2%; P< .05). Primary care provision among small rural LHDs has remained largely unchanged, with approximately 10% providing these services directly. Although the direct provision of home health services is higher among rural LHDs, decreases in the provision of these services were noted across all LHDs. More small rural LHDs reported the provision of direct oral health, behavioral and mental health, and substance abuse services in 2016 than didin 2010 (P <.05). In addition, ahigher proportion of urban LHDs also reported the direct provision of substance abuse services in 2016 relative to 2010 (P< .05; Table 3).

LHDs reported increased provision of prevention services related to physical activity, tobacco, substance abuse, and mental illness in 2016 relative to 2010 (P <.05). A higher proportion of LHDs reported the direct provision of chronic disease services in 2016 compared with what was observed in 2010. Furthermore, a higher proportion of small rural LHDs reported the direct provision of nutrition services in 2016 compared with 2010 (P< .05; Table 3).

DISCUSSION

In this study, we found key differences between rural and urban LHDs with respect to sources ofrevenue and the direct provision of services over time. Proportionally, urban LHDs generated more revenues from local sources than did rural LHDs. Conversely, while rural LHDs generated more revenue proportionally from CMS and clinical services, reflecting the ongoing importance of rural LHDs in providing clinical services directly to their communities, all 3 categories of LHDs experienced a decrease in the proportion of their revenues from CMS between the 2 time periods. It is possible that LHDs experienced a decreased demand for reimbursable services with expanding coverage of previously uninsured individuals through the ACA. However, these rural LHDs are often considered safety-net providers for many key direct services, helping to ensure access for their residents who may otherwise have limited access to providers.16 It is also possible that LHDs may experience an increased demand for clinical services as insurance coverage expands but provider capacity remains constrained. Given rural LHDs' reliance on these sources ofrevenue, continued decreases could have a disproportionate effect on rural LHDs-especially if they continue providing more direct clinical services as a matter of community need.11,17,18 This decrease could have a sizable negative impact on rural communities in Medicaid nonexpansion states where the need for these services may be greater.

In urban communities, some ofthese same direct services can be provided by other providers, so that LHDs no longer need to assume this role.16 In addition, large rural LHDs and small rural LHDs, with their lower levels of local funds, depend heavily on state and federal sources of revenues, meaning state and federal budget cuts could significantly hamper the public health functions of LHDs nationally.4,19 LHDs receive most of their federal funds through state and federal pass through, which poses both a challenge and opportunity. More coordinated effort including specific funding for LHDs to address their community-level needs could lessen the gaps facing low-resourced localities. In addition, not all states distribute Centers for Disease Control and Prevention resources equitably, and rural LHDs, with small populations served, may end up with fewer funds. Requiring states to distribute resources in a way that is equitable to rural needs may also help to lessen disparities.

LHDs serving rural communities tend to provide more direct clinical services than do LHDs. There appears to be a capacity difference between large rural LHDs and small rural LHDs, with large rural LHDs providing a broader array of services. Changes in services provided over time appear to mirror current health trends. Providing more STI-related services reflects increasing STI rates.20 There were also increases in both treatment and prevention services around substance abuse and mental health, which might result in more funding for treatment and services in addition to LHDs being responsive to the needs of their community.21

We hypothesize that these differences in clinical service provision between rural and urban LHDs may be attributable to differences in availability ofother providers within the community. As the number of insured individuals in many communities has increased as a result of ACA, LHDs in urban areas, where there are a large number of providers, do not need to serve as the safety-net provider and are able to focus on population-based services. In large rural areas, provider shortages may continue to exist, and there may be an opportunity for LHDs to expand their provision of direct clinical services and their billing capacity.22 In small rural areas, there may be a need for the provision of direct services; however, if there is not enough capacity, these needs may go unmet.

Limitations

Data used for this study were self-reported by LHDs participating in the 2010 and 2016 Profiles and were not independently verified for accuracy and may be incomplete, imperfect, or inconsistent. It should be noted that not all rural communities have LHDs or one that responded, and the information contained in this study may not fully capture the entire scope of rural public health. Furthermore, the survey inquired about specific program or service lines but did not probe the scale or scope of services. This study identified LHDs providing these services; it was not able to determine the extent to which these services were being provided within the overall context of LHD services. This study was descriptive in nature-not intended to predict why revenues and services are changing, but to demonstrate rural and urban differences. Future studies should investigate the factors that might lead to these changes. Finally, we did not examine the actual dollar amounts of funding sources for the 2 time periods, only the changes in proportions of funding sources. It is possible that the absolute amount of funding from any 1 source may have increased or decreased between 2010 and 2016, while the proportion of that specific funding source may have been in the opposite direction.

Pubiic Health implications

These findings describe key differences in financing and service delivery between LHDs serving urban and rural jurisdictions. Urban jurisdictions are served by LHDs with more local revenue, and their communities have more capacity to provide the clinical services vital to those who need access to care.

This allows them to focus their resources, financial and human, on providing more population-based services that align with the 10EPHS. They can make strategic decisions to divest of clinical services if appropriate, knowing that there is a safety net ofproviders to care for their community. Conversely, many rural jurisdictions are served by LHDs lacking in local tax revenues, and their communities often experience shortages of health professionals. Rural LHDs often have had no choice but to retain direct care services because of community need and a lack of alternative support. Large rural LHDs and small rural LHDs also rely more heavily on state and federal dollars, which are more vulnerable to changes in state and national health policy, giving them less control.

Among rural LHDs, large rural LHDs tend to have greater staffing and capacities as compared with small rural LHDs; they report more other providers of both clinical and population-based services.16 Some large rural LHDs have expanded their provision of clinical services and established billing systems to increase revenue.11 For small rural LHDs, they often provide critical services and may be 1 of few providers of clinical services in their community. They are less able to provide population-based services beyond the basic foundational services ofepidemiology and surveillance because in part of the scarcity of resources and the communities' basic needs around clinical services.

These findings are particularly relevant given the IOM recommendations that call on LHDs to develop outside capacity for clinical services delivery and shift focus to providing more population-based services.7,8 Although this may be feasible in urban communities, many LHDs operating in rural communities with historically deficient primary care systems may find this transition difficult.17 Rural LHDs rely more heavily on revenue from clinical services, which can sustain other health department activities. Importantly, both urban and rural LHDs strive to address the unique needs of their communities. Organizations that support local public health must consider how to support both urban and rural LHDs in pursuing their missions to improve health in their jurisdictions. .4JPI-I

Sidebar

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K. Beatty and M. Meit developed the concept of the article. K. Beatty and N. Hale contributed to the analysis. All

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Experts Fear Suicides Will Rise in the Wake of COVID-19

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FULL TEXT

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COVID-19 Disparities and the Black Community: A Health Equity–Informed Rapid Response Is Needed

Brown, Italo M, MD MPH [1] ; Khan, Ayesha, MD MPH [1] ; Slocum, Jamar, MD MBA MPH [2] ; Campbell, Linelle F, MD MS [3] ; Lacey, Jahmil R, MSc [4] ; Landry, Alden M, MD MPH [1] Department of Emergency Medicine, Stanford University School of Medicine, Palo Alto, CA [2] Johns Hopkins Bloomberg School of Public Health, Baltimore [3] Department of Emergency Medicine, Albert Einstein College of Medicine,Jacobi/Montefiore Health System, Bronx, NY [4] Charles R. Drew Medical Education Program, UCLA David Geffen School of Medicine, Los Angeles, CA

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ABSTRACT (ENGLISH)

Black Americans represent 13% of the US population but account for one third of COVID-19 cases and are twice as likely to die from this disease.1 Unaddressed social determinants of health exacerbate this health disparity. However direct routes to address and improve health outcomes for Blacks remain unclear. Reporting racial/ethnic health outcomes is now recommended, but data collection is a fraction ofthe challenge. How do we create a policy framework that accounts for social determinants of health in the short term with the at-large goal ofimproving both health outcomes and health equity for Black Americans? Here are five actionable strategies to ensure a health equity-informed COVID-19 response.

FULL TEXT

Black Americans represent 13% of the US population but account for one third of COVID-19 cases and are twice as likely to die from this disease.1 Unaddressed social determinants of health exacerbate this health disparity. However direct routes to address and improve health outcomes for Blacks remain unclear. Reporting racial/ethnic health outcomes is now recommended, but data collection is a fraction ofthe challenge. How do we create a policy framework that accounts for social determinants of health in the short term with the at-large goal ofimproving both health outcomes and health equity for Black Americans?

Here are five actionable strategies to ensure a health equity-informed COVID-19 response.

DEMOCRATIZE SCREENING

Despite increasing testing efforts, access to screening is inequitable. Many states failed to capture ethnic identifiers, and, as a result, systemic problems associated with ethnicity (e.g., variable allocation oftests, biased eligibility protocols) remained obscured. In the Black community, drive-in testing and telehealth screening are complicated by lack of transportation and technology, poor literacy, and geographic segregation.

Cost creates another barrier. The Families First Coronavirus Response Act mandates Medicare and Medicaid and private insurers to cover coronavirus testing.2 However, an emergency department visit requiring additional services or care beyond the coronavirus test can still generate a bill; fear of these unanticipated costs may hinder the uninsured from seeking care. Finally, some testing sites require proof of identity or citizenship as part ofregistration, which creates a hurdle for some seeking care.

We recommend maximizing equity and minimizing obstacles to testing. Funding should benefit underserved communities, whose residents have a high prevalence of chronic conditions and poor access to health services. Furthermore, we recommend partnerships among academic institutions, community-based organizations, and local nonprofits to fast-track screening sites and resource centers in areas of need. Finally, there should be a standardized approach to counseling and support services; a thorough explanation of health risks, including a modified goals of care discussion; and an evaluation of living conditions for all individuals who test positive for COVID-19.

EXECUTE A COMPREHENSIVE STIMULUS

The federal aid package (the Coronavirus Aid, Relief, and Economic Security Act [CARE]) and expansion of the Family Medical Leave Act (the Families First Coronavirus Relief Act [FFCRA]) has holes that disproportionately leave members of the Black community uncovered. Of the $2 trillion CARE stimulus, only 28% aided individuals; this one-time $1200 stipend with $500 additional per child does not meet the needs of communities barely making a living wage.3 Furthermore, the stipend hinged on citizenship, filed taxes, banking status, and ability to navigate the claim system-all factors that may place members of Black communities at a disadvantage.

Although the FFCRA extends two weeks ofpaid sick leave and 12 weeks of partially paid family leave for businesses with 25 to 500 employees,4 the Black community is overrepresented in occupations excluded by this mandate. Health care workers are excluded, and Blacks have their highest representation in unskilled nursing, psychiatric aides, and home health. Blacks are also overrepresented in industries such as food service, packaging, and manufacturing, where telework is not an option and job site closure, even if owing to sheltering, leaves them uncovered by the FFCRA. Furthermore, most essential workers, a disproportionate number of whom are Black and have an increased risk for SARS-CoV-2 exposure, are at companies either too big or too small to benefit from FFCRA.5 Yet with no alternative streams of income or cash reserves, hazardous work becomes mandatory.

We recommend a reliefact that intentionally targets vulnerable populations commensurate with their risk and a federal mandate that essential industries offer paid sick leave. Finally, independent contractors and small business owners from communities of color should receive financial support and structured guidance on federal grant applications.

MORATORIUM ON EVICTIONS AND FORECLOSURE

Unstable housing leads to poor health outcomes. The double burden of disproportionate illness and economic hardship makes it difficult to pay monthly rent or mortgage. But evictions and foreclosures counteract the practices of social distancing and self-quarantine. If evicted, many will be forced into cohousing or suboptimal conditions, exacerbating risk and prematurely reintroducing carriers to other populations.

Roughly 40% of the total population experiencing homelessness is Black.6 When members from Black communities are displaced, they face secondary and tertiary challenges, such as health compliance, increased interaction with law enforcement, and increased discrimination in accessing shelter resources. Some cities have plans for the undomiciled but lack uniformity in supporting those unable to seek designated housing and unable to shelter among individuals chronically experiencing homelessness. Housing insecurity potentiates the COVID-19 mortality risk ofBlacks compared with their White counterparts beyond twofold.

Many jurisdictions have followed the leads of New York and California by instituting temporary moratoriums. We recommend moratoriums on evictions and foreclosures across all states beyond the minimum of 60 days. This protects against housing insecurity and lowers the aggregate risk of exposure to SARS-CoV-2 in vulnerable populations.

RELEASE NONVIOLENT OFFENDERS

Incarcerated populations are among the most vulnerable for COVID-19 exposure. Suboptimal living conditions and overcrowding make preventive recommendations difficult to enforce. The volume of inmates is an additional strain on correctional resources and increases contact rate among individuals living in dormitories. Blacks are overrepresented in jails and prisons,7 deepening potential disparities.

We recommend data transparency (screening, cases, and deaths stratified by ethnicity) among incarcerated populations. We also recommend safely and effectively reducing the populations in prisons. Detainees incarcerated for nonviolent offenses should be immediately released. Other feasible mechanisms include supervised release programs, electronic monitoring for those awaiting trial, granting or extending probationary periods for minor parole violations, and commuting sentences for those who have served the bulk of their sentence.

EXPEDITE FUNDING

Despite the contributions of social determinants of health research, federal dollars for programs that promote health equity remain scarce. COVID-19 exposed the downstream effects of underfunding and deprioritizing health disparities interventions.

We recommend expedited funding for initiatives that actively address social determinants of health in Black communities. An increase in funding validates health equity insight through capital and activates other stakeholders to invest resources in COVID-19-related disparities. Additionally, this allows content experts to quickly expand capacity and operate as a network of focused problem solvers. Finally, funding can convert vetted infrastructures (e.g., communitybased health organizations) into trusted testing sites, data hubs, and resource centers in real time.

CONCLUSIONS

The national COVID-19 response coopted strategies from China and Italy, two countries that are racially and socially dissimilar to the United States; therein exists a fatal misstep that led to disproportionately negative health outcomes for Blacks. Nonmedical drivers ofpoor health outcomes have permeated the Black community for decades; this pandemic magnified the historical context of health disparities. Americans are now confronting the reality that wellness is social and structural and that health sees color through the same lens as our legislative and judicial systems.

We define health equity as the assurance that every person has the same opportunity to achieve optimal health. Communities of color contribute significantly to the fabric of society and deserve an equitable chance at survival-especially amid a global health crisis. The next permutation of our COVID-19 response can be both swift and equitable. But most of all it can value Black lives through the timely execution of these equity-informed steps. Â1PU

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

Sidebar

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How Will COVID-19 Reshape the Future of US Public Health?

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Maintaining Social Connections in the Setting of COVID-19 Social Distancing: A Call to Action

Pantell, Matthew S, MD, MS [1] ; Shields-Zeeman, Laura, PhD, MSc [2] [1] Department of Pediatrics and the Center for Health and Community, University of California, San Francisco [2] Department of Mental Health &Prevention, Netherlands Institute for Mental Health and Addiction, Utrecht, Netherlands, and the Center for Health and Community, University of California, San Francisco

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ABSTRACT (ENGLISH)

The COVID-19 pandemic is the biggest public health crisis the United States has faced in generations. The devastating direct medical consequences of COVID-19 have been accompanied by far-reaching economic and social consequences, including increased risk of social isolation and loneliness.

Social isolation is conceptualized as the objective lack of social contact with others,1 such as the absence of a live-in partner or limited contact with others. Loneliness is conceptualized as a subjective experience and refers to the perception ofsocial isolation or the feeling of being lonely.1 Even when people are not socially isolated, they might feel lonely iftheir contact with others does not provide enough of a sense of social support and connection. Both social isolation and loneliness are associated with an increased risk of morbidity and mortality,1,2 and thus it is no surprise that even before the COVID-19 crisis, Vivek Murthy, the former US surgeon general, referred to loneliness as a national epidemic.

FULL TEXT

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THE IMPACT OF COVID-19

Shelter-in-place orders have encouraged people to remain in their homes except for essential activities. Although staying inside is absolutely crucial to flattening the curve of the pandemic, it is important to recognize that these socially restrictive guidelines heighten the risk ofexperiencing or exacerbating social isolation and loneliness. Therefore, it is important to emphasize strategies to bolster social support and connectedness despite physicaldistancing measures. We offer suggestions for providers, health systems, and public health officials considering how to respond to social isolation and loneliness in the setting of COVID-19 social distancing.

Assessing in Health Care Settings

Several National Academies reports have emphasized assessment of social isolation or loneliness in clinical settings and documentation in electronic health records, and have identified tools for clinicians to assess these concepts.1,4

Although in-person primary care visits have decreased to observe socialdistancing guidelines, health systems have rapidly transitioned these visits to telehealth, which still allows providers the opportunity for assessment. For providers that have not assessed social isolation or loneliness with their patients before, the near universal experience of shelter-in-place orders and physical-distancing measures may serve as an opportunity to bring up these topics. Assessment by other public health professionals and essential service workers coordinating and providing care to patients should be considered as well.

Providing Targeted Resources

Maintaining social contact can improve overall mental health, enhance feelings of social connectedness, and decrease loneliness.5 Providers can encourage social contact via appropriately distanced in-person visits, telephone calls, video calls, and e-mail. Additionally, many organizations in the public, private, and philanthropic sectors have developed interventions to specifically help promote social connections and reduce loneliness via telephone calls, Web sites, or mobile phone applications. These existing tools can be used to maintain social connections as a way to adapt to restrictions on in-person gatherings.

Even with the availability of resources, many people may still experience the sequelae of social isolation and loneliness, which include depression and anxiety.1 Health care providers should explain that although it can be normal to experience transient feelings of stress and anxiety, it is important to share these feelings with trusted social network connections and health care professionals. Providers should also emphasize having a plan in place for how to access help and resources if stress or mental health symptoms become unmanageable (see the box on p. 1368), including knowing the criteria for deciding whether to go to clinics in person for care and treatment.

Considerations for Vulnerable Populations

Nouri et al.6 recently emphasized that many vulnerable populations experience limited digital literacy, including those with lower socioeconomic status and limited health literacy. Additionally, people unable to access or use the Internet and smartphones will have fewer opportunities to access certain social resources. These concerns are particularly relevant to older adults living in nursing homes and assisted-living facilities. Experiencing either limited digital literacy or lack of digital access, in combination with visitor restrictions during the pandemic, can increase the risk of social isolation and loneliness. Although there is no easy fix for this issue, the health care system should seek solutions to reach patients with limited digital literacy and access. For example, a recent Veteran Affairs' pilot study provided patients with iPads as a way to facilitate telehealth.7 This type of solution has the potential to allow providers to assess social isolation and loneliness in at-risk patients while simultaneously providing them access to other electronic resources and support.

The social consequences of COVID-19 are occurring in parallel with devastating economic consequences. Because social isolation and loneliness are associated with social risk factors such as food insecurity, providers and other public health professionals should consider assessing for other social risk factors among patients identified as being isolated or lonely, and should also consider assessing for social isolation and loneliness among patients with other identified social risk factors.

Partnering Beyond the Health Care System

Public health tools have the potential to reach people who have no connection to health systems. One such tool is outreach campaigns promoting contacting people unable to use the Internet or making telehealth visits through nonelectronic methods such as telephones and physically distanced checks. Other potential practices could involve partnering with programs in other sectors that are active during social distancing. For example, meal delivery services and postal services have been used to help address social isolation and loneliness in certain countries. Other approaches might involve working with community-based organizations already working with socially isolated and lonely populations, building on the infrastructures already in place.

FUTURE DIRECTIONS

Social isolation and loneliness have neverbeen more relevant to health and well-being. Now is the time for clinicians, health systems leaders, and public health officials to acknowledge the importance of these problems and to integrate patient assessment and assistance with other care activities. A National Academies of Sciences, Engineering, and

Medicine report specifically highlights the role that public health can play in this work, including reframing interventions using a public health framework that address primary, secondary, and tertiary prevention.1 However, there still remain significant research gaps in the implementation and effectiveness of programs addressing social isolation and loneliness, leaving the following research directions to explore:

* Identification of successful practices to incorporate social isolation and loneliness assessments into clinical and public health practices, including strategies for vulnerable populations and populations with limited digital literacy;
* Determination of which clinical and public health interventions are most effective andforwhichpopulations1;and
* Development of evidencebased best practices to prevent and address social isolation, loneliness, and their sequelae by connecting at-risk populations with communitybased resources.1

CONCLUSIONS

The COVID-19 pandemic is an unprecedented public health crisis, with substantial health, social, and economic implications. As we face changes to social routines as a country, it is important to remember that "social distancing" should refer to physical distancing and isolation, but not social isolation. The health benefits of social support were clear before COVID-19. But now, more than ever, is a time to finally implement and develop best practices that encourage patients to stay socially connected, promoting health and wellness during this difficult time and informing practices for the future after physical-distancing measures are lifted. 4jPI-l

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CONTRIBUTORS

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

Sidebar

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EXAMPLES OF MENTAL HEALTH SUPPORT LINES

* National Suicide Prevention Lifeline: This national network of local crisis centers provides emotional support to people in emotional distress or crisis. Telephone: 1-800-273-8255; Web site: https://suicidepreventionlifeline.org.
* Friendship Line: This service, run by the Institute on Aging, serves as both a crisis intervention hotline and a warmline for nonemergency emotional support calls for adults 60 years and older. Telephone: 1-800-971-0016; Web site: https://www.ioaging.org/services/all-inclusive-health-care/friendship-line.
* National Alliance on Mental Illness Helpline: This hotline provides resources and support to people living with mental health conditions as well as their family and caregivers. Telephone: 1-800-950-NAMI (6264); Web site: nami.org/help.

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DETAILS

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Infertility Treatment in France, 2008–2017: A Challenge of Growing Treatment Needs at Older Ages

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ProQuest document link

ABSTRACT (ENGLISH)

Objectives. To measure trends in infertility treatment use between 2008 and 2017 in France using data from the national health insurance system. Methods. Between 2008 and 2017, we observed a representative national sample of nearly 1% of all women aged 20 to 49 years who were affiliated with the main health insurance scheme in France (more than 100 000 women observed each year). We exhaustively recorded all health care reimbursed to these women. Results. Among women aged 20 to 49 years, 1.25% were treated for infertility each year. Logistic regression analysis showed a significant interaction between age and year of treatment use (P <.001). Over the decade, infertility treatment use increased by 23.9% among women aged 34 years or older, whereas among women younger than 34 years there was a nonsignificant variation. Conclusions. Women aged 34 years or older were increasingly treated for infertility between 2008 and 2017. Public Health Implications. Treatment efficiency decreases strongly with a woman's age, presenting a challenge for medical infertility care. (Am J Public Health. 2020;110: 1418-1420. doi:10.2105/AJPH.2020.305781)

FULL TEXT

Headnote

Objectives. To measure trends in infertility treatment use between 2008 and 2017 in France using data from the national health insurance system.

Methods. Between 2008 and 2017, we observed a representative national sample of nearly 1% of all women aged 20 to 49 years who were affiliated with the main health insurance scheme in France (more than 100 000 women observed each year). We exhaustively recorded all health care reimbursed to these women.

Results. Among women aged 20 to 49 years, 1.25% were treated for infertility each year. Logistic regression analysis showed a significant interaction between age and year of treatment use (P <.001). Over the decade, infertility treatment use increased by 23.9% among women aged 34 years or older, whereas among women younger than 34 years there was a nonsignificant variation.

Conclusions. Women aged 34 years or older were increasingly treated for infertility between 2008 and 2017.

Public Health Implications. Treatment efficiency decreases strongly with a woman's age, presenting a challenge for medical infertility care. (Am J Public Health. 2020;110: 1418-1420. doi:10.2105/AJPH.2020.305781)

The burden of infertility has been increasing since the 1990s worldwide and has had considerable public health consequences, including psychological distress, social stigmatization, economic strain, and marital discord.1 In developed countries, the increase in infertility may be attributable to environmental exposure and social changes, including a major trend of delaying parenthood to an age interval marked by higher risk of infertility.2,3

In the United States, more than 1 in 10 women of reproductive age have ever used infertility services.4 The Centers for Disease Control and Prevention have emphasized the need for the public health community to produce a more complete picture of infertility treatment use.5 The lack of data is largely attributable to the exclusive focus of most research on the most complex infertility care (i.e., assisted reproductive techniques). Developing a surveillance system to guide authorities in elaborating plans for infertility prevention, detection, and management would be an important benchmark in measuring the global use of infertility treatments.5

In the United States, the use of infertility treatments is hindered by access barriers because of significant cost and lack of adequate health insurance among socially vulnerable people.4,6 The global use of infertility treatments reflects both demand and access barriers. In France, 98% of residents (French and other nationalities) are covered by the health insurance system, which reimburses 100% of all infertility treatments. The French coverage of infertility treatment thus offers the opportunity to explore the global use of infertility treatment in a population-based approach and in a context of barrier-free financial access, although it has been shown that insurance coverage does not mean barrier-free access.7

Our objective was to assess the use of all infertility treatments in France between 2008 and 2017 using data from the French national health insurance database.

METHODS

In 2007, the French health insurance agency implemented a national sample including one ninety-seventh ofthe population covered by the main scheme (detailed presentation elsewhere8). Our study population was restricted to women aged 20 to 49 years.

We identified the list of infertility drugs using the Anatomical Therapeutic Chemical Classification System (Table A, available as a supplement to the online version of this article at http://www.ajph.org). We identified procedures related to assisted reproductive technology through the French classification system for medical acts (Classification commune des actes médicaux; Table B, available as a supplement to the online version of this article at http://www.ajph.org). For each year between 2008 and 2017, we classified a woman as havingbeen treated for infertility during the year if she was reimbursed for at least 1 infertility drug or procedure. We measured the use of infertility treatments as the number of women treated divided by the number of women aged 20 to 49 years.

We modeled the association between infertility treatment use and the woman's age using logistic regression. To test for a possible interaction with calendar year, we dichotomized age (threshold at 34 years) and included an interaction term with year. We carried out analyses using SAS version 9.4 (SAS Institute, Cary, NC).

RESULTS

Based on more than 100 000 women aged 20 to 49 years observed each year (Table C, available as a supplement to the online version of this article at http://www.ajph.org), 1.25% (95% confidence interval [CI] = 1.23,1.27) of women were treated for infertility each year (detail by year in Figure A, available as a supplement to the online version of this article at http://www.ajph.org, and Table C).

The mean age of treated women was 33.0 years in 2008 and 33.7 years in 2017 (P< .001). In 2008 and 2017, infertility treatment use by age followed a bell curve with a shift toward older ages in 2017 (Figure 1).

In logistic regression analysis, interaction between age and year of infertility treatment use was statistically significant (P <.001; Figure B, available as a supplement to the online version of this article at http:// www.ajph.org). Over the decade, infertility treatment use increased by 23.9% (95% CI = 14.66%, 33.74%; P = .001) among women aged 34 years or older, whereas, among women younger than 34 years, there was a nonsignificant variation of-5.00% (95% CI = -11.76%, 2.27%; P = .170).

DISCUSSION

Over the past decade in France, there has been a major increase in the use of infertility treatments among women aged 34 years and older but not among younger women.

In France, nearly all of the population (including non-French citizens) are fully covered for infertility treatments by the national health insurance scheme. This provides a unique opportunity to develop a strong and reliable population-based approach by considering all infertility treatments. However, potential limitations should be considered.

First, the study population included women covered by the main French health insurance scheme. This includes 76% of the total population and is considered a reliable source to study health in the French population.9 Other schemes have been progressively added to the national sample between 2011 and 2016. We carried out sensitivity analysis including all French schemes for the year 2017 (Figure C, available as a supplement to the online version of this article at http:// www.ajph.org). Results were reassuring, showing that the level ofinfertility treatment use and trend according to age was identical in our study population and in the population including all schemes.

Second, the French health insurance database does not include infertility treatment for French people who use cross-border reproductive care because of legal restrictions and an oocyte donation shortage in France.10 These restrictions are likely to affect a limited number of people: specifically, women aged 43 years and older, same-sex couples, single people, women seeking oocyte donation, and people seeking surrogacy.

Third, we measured the use of hormonal stimulation treatments through information on treatment purchasing. It cannot be ruled out that a few women may have purchased the treatment but not used it, for example, because they became pregnant naturally before starting treatment.

Finally, the French health insurance database includes almost no data on the sociodemographic profile of the patients. For example, it would be interesting to explore the role of nulliparous status. However, this variable is not available, and we could not create it based on previous reimbursement for pregnancy or childbirth, as the database was too recent and did not include earlier reimbursements.

To the best of our knowledge, this is the first estimation of annual infertility treatment use in its entirety in a large population-based study. Estimates of global use of infertility treatments are mainly from the American National Survey of Family Growth, but they are lifetime estimates, and the size of the sample does not allow the exploration of annual estimates.4 A small Spanish study of 443 women aged 30 to 49 years estimated the prevalence of infertility diagnosis at 1.26%.11 This estimate is consistent with that observed in our study, but the outcome considered was different (infertility treatment use vs infertility diagnosis), and so was the age range of the population (20-49 years in our study vs 30-49 years in the Spanish study). One Canadian study explored change in treatment use over time according to age group and also observed increased use only among older women (30- 44 years) and not among younger ones (20- 29 years).12 However, this study considered only treatment by clomiphene citrate.

PUBLIC HEALTH IMPLICATIONS

The increase in infertility treatment use among women aged 34 years and older is consistent with the social and demographic delay in parenthood until older ages that has been described since 1970 in high-income countries.2 As the success rate of infertility treatments declines with women's age, health policymakers and clinicians should be aware of this time trend, as it could have an important impact on infertility medical care. By developing surveillance of infertility treatment use by age, the public health community could better guide national and international strategies to prevent and manage infertility, which emerges as a growing and major health issue among middle-aged people.1,5

CONTRIBUTORS

K. Ben Messaoud managed the data and performed the statistical analyses. K. Ben Messaoud and E. de La Rochebrochard have access to the data. J. Bouyer and E. de La Rochebrochard supervised the data management and statistical analyses. All authors conceptualized and designed the study, interpreted the data, drafted the brief, and read and approved the final version.

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CONFLICTS OF INTEREST

The authors declare no competing interests.

HUMAN PARTICIPANT PROTECTION

The study was reviewed and approved by the Institut national d'etudes démographiques ethics committee.

Sidebar

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DETAILS

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Cooperative Extension as a Force for Healthy, Rural Communities: Historical Perspectives and Future Directions

Buys, David R, PhD MSPH; Rennekamp, Roger, PhD

ProQuest document link

ABSTRACT (ENGLISH)

Extension administrators are encouraging Extension staff to join local health coalitions, contributing what they can to public health initiatives. These coalitions typically include representatives of government agencies, not-for-profit organizations, health care, businesses, and local residents. If no organized coalition currently exists, local staff recruit coalition members and lead solution-focused processes to generate community-owned solutions to issues they identify. While Extension staff tend to be expert teachers and facilitators, they know their limitations and seek partnerships with others who have skills that complement their own. They generously share credit for accomplishments and find joy in collaborative success.

FULL TEXT

Headnote

Extension administrators are encouraging Extension staff to join local health coalitions, contributing what they can to public health initiatives. These coalitions typically include representatives of government agencies, not-for-profit organizations, health care, businesses, and local residents. If no organized coalition currently exists, local staff

recruit coalition members and lead solution-focused processes to generate community-owned solutions to issues they identify. While Extension staff tend to be expert teachers and facilitators, they know their limitations and seek partnerships with others who have skills that complement their own. They generously share credit for accomplishments and find joy in collaborative success.

Cooperative Extension (Extension), part of the land-grant university system, has been engaged in rural communities for more than a century. While the focus of Extension's efforts has largely centered on agriculture, there is an important thread of work that has similarities to public health.

As Extension settles into its second century, we are working to be even more engaged in efforts that improve the health and wellbeing of rural communities in particular. Extension faculty and staff are accomplishing this through direct-to-the-population education and through partnerships with more classically oriented public health organizations able to leverage Extension's networks and positive reputation in communities to engage them and improve their health. A component of these partnerships includes Extension faculty and staff increasingly engaging in policy, systems, and environment work and other initiatives that help ensure longer-term, systemic changes more likely to improve health outcomes.

In short, Extension clearly changed the agricultural system of the United States, and because of its reach into rural communities, it has the capacity to do for health in rural communities in this second century what it did for agriculture in the first century. (Am J Public Health. 2020;110:1300-1303. doi: 10.2105/AJPH.2020.305767)

Cooperative Extension (Extension) has been helping rural people improve their overall health and well-being for more than a century. But most people know Extension primarily for its work with farmers and are not aware of its work with rural populations at large. In this commentary, we advance the notion that Extension, by working handin-hand with public health professionals, has an important role to play in addressing the health needs of rural communities both today and in the future.

ORIGINS OF COOPERATIVE EXTENSION

Cooperative Extension serves as an outreach and community engagement arm of the nations land-grant university system. Land-grant universities were established by legislation enacted in 1862 that set aside federal lands to assist states in building state universities focused on the agricultural and the mechanical arts. Subsequent legislation in 1890, 1994, and 1998 expanded the land-grant family of institutions to include historically Black-, Native American-, and Hispanic-serving universities.1 The Hatch Act of 1887 established land-grant university-affiliated agricultural experiment stations.1

In 1914, President Woodrow Wilson signed the Smith-Lever Act, which formally established the Extension mission of these universities. The goal was to extend the teaching mission of the universities and translate the research findings of the experiment stations into a form that could be utilized by rural people. Early work focused on agriculture, family and consumer sciences (home economics), community leadership, 4-H youth development, economic development, and coastal issues. These are still a mainstay of Extension work today.

The Extension model was built on campus-based, doctorally prepared subject-matter experts providing training to county-based Extension agents who, in turn, would share what they learned with the public. The Smith-Lever Act mandated that Extension be cooperatively funded by federal, state, and local partners to ensure that communities felt ownership in the local Extension programs. Because Extension agents oftentimes live in the communities they serve, they possess a deep understanding of their communities social, economic, and environmental challenges.

In planning programs, Extension professionals use approaches also common in public health, which may include logic models as well as needs assessments that inform program development and delivery, and then evaluation and program refinement.2

EXTENSION AND RURAL COMMUNITIES

Rural Americans are different from their nonrural counterparts. They are more likely to die from heart disease, cancer, unintentional injury, chronic lower respiratory disease, and stroke than their urban counterparts.3 But a recent report from the American Communities Project found that rural individuals and communities are also quite

different from each other. While they tend to be more likely to be White, older, poorer, and less educated than the nation as a whole, there is variability on these measures across rural communities. For example, while residents of rural 10.2105/AJPH.2020.305767
communities as a whole tend to be older, a large percentage of the residents of rural Hispanic, Mormon, and Native American communities are younger than 18 years. As a consequence, public health issues vary across these communities. Chinni and Pinkus, authors of the report, summarize by saying that rural America "is not a monolith." Rather, "its wide ranging, evolving communities have different strengths, face different trials, and need different policy solutions."4 Because rural communities are very different from one another, a one-size-fits-all approach to addressing their health disparities will not work. Accordingly, work focused on generating solutions to local public health-related issues needs to originate from within the community.

FRAMING THE OPPORTUNITY

The pathway for increasing Cooperative Extension's expanded role in public health is outlined in several framing documents developed over the past several years. One example is the National Framework for Health and Wellness commissioned by the Extension Committee on Organization and Policy, which was released in 2013. The framework identified a set of system-wide priorities for Extension's work related to health, all aimed at increasing "the number of Americans who are healthy at every stage of life." In addition, it identified the public, private, and nontraditional partners with whom Extension should partner as it seeks to attract new resources, expand programming, and track outcomes.5

The framework, rooted in socioecological theory, was adapted from Bronfenbrenner's ecological systems theory6 and encouraged Extension to establish implementation teams around six major programmatic themes. These include health literacy, chronic disease prevention and management, health insurance literacy, positive youth development, and health policy issues education through health implementation teams. A model representing this framework is available here: https://bit.ly/ 2WznAaf. Also identified in that framework was a theme focused on integration of nutrition, health, environment, and agriculture. A special task force exclusively focused on this theme developed the Healthy Food Systems, Healthy People report from the Association of Public and Land-Grant Universities.7

The report called "for collaborations and integration among agriculture, food, nutrition, and health care systems that have never before been explored or optimized. "7(p2) It also challenged Extension to articulate the drivers of food choices and community behavior, determine the impact of food on consumer health, define what constitutes quality food and improve accessibility to it, and improve education, outreach, and engagement. The document emphasized the importance of strategic partnerships between industry, academia, and the government in building food and health systems that improve the lives ofall Americans. This report and a model representing the integration called for is available here: https://bit.ly/3fqCFDJ.8

INVESTMENTS IN COOPERATIVE EXTENSION

Because ofits unique ability to catalyze community transformation, Cooperative Extension has been awarded several grants and contracts that capitalize on this strength. Beginning in 2014, funding was provided to 15 states through the Centers for Disease Control and Prevention High Obesity Program to implement strategies in high-obesity communities that increase access to healthier foods and promote physical activity. These projects leveraged Extension's strong community engagement capacity, particularly evident in rural communities.8,9

In 2017, the Robert Wood Johnson Foundation provided funding to the National 4-H Council for Extension staff to establish local health coalitions that develop and implement action plans to address public health priorities. Coalitions involve youth voice and action in a community change cycle, which includes working together, community assessment, priority setting, strategy selection, plan activation, and impact measurement.10

Cooperative Extension is also the largest provider of educational programming supported by the Supplemental Nutrition Assistance Program-Education program (SNAP-Ed) of the Food and Nutrition Service. In addition to providing nutrition education to SNAP-eligible audiences, SNAP-Ed staff have recently begun to implement policy-, systems-, and environment-level interventions that increase access to healthier food and physical activity.11

In 2018, Cooperative Extension was awarded a Substance Abuse and Mental Health Services Administration Rural Opioid Technical Assistance funding opportunity to "develop and disseminate training and technical assistance for rural communities on addressing opioid issues." Since 2019, 18 states have engaged more than one million people in rural communities with opioid misuse prevention messaging and interventions.12 Finally, the US Department of Agriculture Rural Health and Safety Education Initiative supports Extension to collaborate with the state Office ofRural Health to deliver community-based outreach education programs with a focus on chronic disease and environmental health education, access to public health promotion and educational activities, and volunteer and health services provider training.13

THE ENGAGED UNIVERSITY

The Kellogg Commission on the Future of State and LandGrant Universities challenged the United States' public universities to re-engage with communities to address some of the nation's most pressing problems, urging universities to move beyond the comfort of their "ivory towers" and reconnect with people.14 Cooperative Extension is doing just that as it fulfills the land-grant mission ofaddressing the needs of people who historically did not have access to higher education, including those in rural areas who are now among the nation's most unhealthy.2

The way Extension accomplishes its work is shifting to meet the changing demands of the time. Over the years, Extension used an expert model to disseminate agricultural research to rural and farm audiences through a variety of educational methods. But education alone is not always enough to change behavior, particularly when there are barriers to adoption. Thus, Extension is now working in new ways to address the social, economic, and environmental factors that are barriers to thriving in rural America.15 What follows are five bold steps Extension can take with its public health partners to do for the nation's health in the next century what it did for US agriculture in its first 100 years.

Address Determinants of Health Via Coalitions

Local health departments and Extension both operate from a prevention-based orientation. In addition, both are committed to addressing social, economic, and environmental determinants of health through policy and systems change. Such change is frequently catalyzed by the work of multisector coalitions established to address local health issues or health equity concerns. As trusted and well-respected community resources, Extension and local health departments can work together to convene such coalitions or energize those whose efforts have stalled.

Connect Communities to Land-Grant Resources

Land-grant universities are large public institutions that possess a robust array ofacademic expertise potentially relevant to communities. Extension is well positioned to serve as a two-way connector between the campus and communities, helping those communities gain access to science-based knowledge relevant to their needs. Nineteen of the nation's Council on Education for Public Health-accredited schools of public health are affiliated with land-grant institutions. By partnering with Extension, schools of public health have the opportunity to greatly expand the reach and impact of their public health practice units. Extension adds public health expertise to the array of disciplinary resources undergirding its community-based work.

In addition to its expertise related to commonly recognized lifestyle issues like obesity and physical activity, Extension has the capacity to leverage expertise in areas that have significant impacts on rural areas. These include entomology, veterinary medicine, water quality, food systems, vector-borne disease prevention, and engineering.

Restore Public Confidence in Science

Extension has a century-long history of communicating usable science in ways that make it understandable to individuals who may lack advanced formal education. Its success in convincing farmers to adopt science-informed production practices has resulted in our nation becoming one of the world's leading producers of food. As trusted public servants, Extension personnel and community-based public health professionals are well positioned to help rebuild trust in science. Some may choose to work together to conduct community-based participatory research projects that help community members actively engage in the discovery of new knowledge.

Engage New Technologies

It is likely that the COVID-19 pandemic will produce lasting changes in the way that people interact with one another.

Because of its connection to land-grant universities, Extension has access to a wide variety of online learning platforms and other technologies available to support lifelong learning and collaboration. We believe that expanded use of these technologies will have positive impacts on how we collectively serve rural communities.

Capitalize on Youth Voice and Action

Currently, there are 100 million young people in the United States aged 25 years or younger. Unfortunately, young people are often viewed as problems to be managed rather than resources for positive change. History, however, reminds us that much of the social change across the world in the past century has been led by youths. Extension, as the administrator of the national 4-H youth development program, is well positioned to help mobilize youths in pursuit of a culture of health in every community in the nation. Youths can and should be active members of local health coalitions.

A FINAL WORD

In our view, Extension has been an underutilized partner in efforts to address the public health concerns of rural America. With a 100-year history of work in rural communities, a network ofmore than 3000 county and regional offices, a broad portfolio ofpublic health-related programming, and hard-wired connections to land-grant universities, we believe that Extension is well positioned to partner with the public health community to improve and address population health, and-in many cases-is already doing that. The work ahead is difficult, but, together, Extension and public health partners can help the people of rural America achieve a level of health and well-being they expect and deserve. Â1PU

Sidebar

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Housing as a Determinant of COVID-19 Inequities

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ProQuest document link

ABSTRACT (ENGLISH)

As we continue to examine the impacts ofCOVID-19 on the lives of the communities we serve, for about one third of the US population, housing is a dominant concern. With a chronic shortage of affordable housing before the pandemic, record unemployment rates, and economic uncertainty, it is critical to ensure that the communities we serve are prepared to address housing issues from poor conditions, instability, and loss. To do this, housing must be considered in research studying the effects ofCOVID-19 on health inequities.

FULL TEXT

As we continue to examine the impacts ofCOVID-19 on the lives of the communities we serve, for about one third of the US population, housing is a dominant concern. With a chronic shortage of affordable housing before the pandemic, record unemployment rates, and economic uncertainty, it is critical to ensure that the communities we serve are prepared to address housing issues from poor conditions, instability, and loss. To do this, housing must be considered in research studying the effects ofCOVID-19 on health inequities.

HOUSING IS WHERE THE HEALTH IS

Housing is a multidimensional determinant of health. Affordability, access, and the conditions ofthe home can all contribute to various health outcomes independently and jointly. Research looking at individual impacts has examined the health implications of access and conditions with most studies focusing on overcrowding and physical conditions like mold, energy efficiency, and toxins, and their health effects including asthma, heart disease, and mortality.1 More recent research has begun focusing on affordability and housing instability and its health consequences for those affected.2 In recent years, there has been more attention on the effects of discriminatory housing policies on these links including the legacy of redlining and its continued effects on communities of color.3 Nonetheless, this evidence establishes the importance of housing as a social determinant ofhealth and, now more than ever, its relevance to the field of public health.

In the United States, housing affordability is defined as household that spends no more than 30% of its income on rent or mortgage, property taxes, utilities, and other costs associated with their incomes, according to the Department of Housing and Urban Development.4 Costburdened homes are those that spend more than this amount and are left with fewer financial resources for other basic needs including food and medicine. In 2018, 33.8 million (28.3%) ofUS households were considered cost burdened.4 Of these, an estimated 12 million households were considered severely cost burdened by spending more than 50% of their annual income on housing costs.4 Lowincome populations make up the larger proportion of these costburdened households, placing them at higher risk of housing insecurity, which leads to poorer health outcomes. Before the pandemic, a family living on one full-time minimum-wage income was no longer able to afford local fair-market rent for a twobedroom apartment in any city within the United States.5 Furthermore, from the early 2000s until before the pandemic, more than 2 million eviction cases were filed per year with approximately 50% of them resulting in removal of the tenants.6

ON THE VERGE OF MASS DISPLACEMENT

As the coronavirus makes its way through the United States, disruptions to work and unpaid sick time will leave a large proportion financially insecure. With more than 40 million jobs lost so far in the pandemic, many face challenges in paying their rents, mortgages, property taxes, and utilities. Although moratoriums on eviction and foreclosures have ensured that people are not becoming homeless during this time, after the pandemic, these programs provide little protection to those who have lost income or are facing financial uncertainty. After the pandemic, we can only estimate that the increasing financial insecurity and the preexisting chronic shortage of affordable housing will affect the poor and the middle class. For low-income households, these financial hardships will result in millions being at risk for losing their homes through evictions and foreclosures. At a time when rehousing will be challenging, homeless populations will increase, a population already deemed as high risk for contracting COVID-19, and more pressure will be placed on already overrun shelters.

While others may not be displaced, financial stress could lead to inadequate housing conditions including no electricity or water, although handwashing has been regarded as one of the most effective preventive measures. Finally, larger household units are more susceptible to transmission given the closer interactions and encounters within a home. As the economic repercussions of the pandemic continue, more households will turn to "doubling up" or sharing living arrangements as strategies to cope with financial stress.7

Understanding and examining these hardships will be critical for public health research to develop and implement policies and programs that reduce housing inequities affecting the well-being of communities.

INCORPORATING HOUSING IN PUBLIC HEALTH RESEARCH

At the simplest level, housing instability can be measured by using questions asking participants whether COVID-19 or its financial implications (e.g., unemployment, loss of income) have resulted in housing loss. For additional insight, questions measuring housing instability before and after the pandemic are relevant including scales asking participants how much they agree with the statements "Prior to COVID-19, I worried about being forced to move out of my current home" and "Since COVID-19, I worry about being forced to move out my current home."

To further account for housing instability risk, financial stress measures like questions or scales identifying ongoing financial strain over a 12-month period or difficulty in paying bills over the past month will provide insight on rising inequities. Furthermore, questions about difficulties in paying utility bills and discontinuation of services can provide insight on not only housing insecurity but also risk for not being able to observe hand-washing precautions or follow stay-at-home orders without difficulties, including disruptions to electricity preventing individuals from storing foods in refrigerators and freezers.

Questions on housing status or tenure (owner vs renter vs other accommodations) are imperative to understand health inequities across and within neighborhoods. Although moratoriums on evictions have helped prevent mass displacement, the long-term impacts of COVID-19 and the associated financial difficulties will result in loss of housing and widen the health equity gap among renters and owners. Research has established better health outcomes among homeowners compared with renters through more stability and accumulation of wealth.

NEXT STEPS

As stay-at-home orders are removed, rents and mortgages will once again be collected and, for some, moving may be the only option. Although tremendous efforts are being taken to prevent this mass displacement from taking place, the long-term effects of uncertainty and possible displacement are important to capture to better understand how individuals, communities, and cities will be affected. At the individual level, housing instability results in poorer mental health including increased anxiety and depression.1,2 At the community level, housing instability, especially in low-income neighborhoods, could result in long-term vacancy, reducing housing value and increasing blight and potential crime.2,3 At the city level, with a chronic shortage of affordable housing, displacement can result in the loss of essential workers that contribute to the diverse social fabric needed for cities to succeed.3

The COVID-19 pandemic has exposed existing inequities in the United States and resulted in preventable deaths attributed to long-standing housing-related discriminatory policies that have resulted in communities of color being disproportionately affected by the pandemic. To ensure that communities remain intact and cities do not lose their diversity, housing concerns must be addressed, with the goal of no individual being displaced. ÂfPU

Roshanak Mehdipanah, PhD, MSc

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CONFLICTS OF INTEREST

The author has no conflict ofinterest to declare.

Sidebar

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At the time of publication, a potential conflict of interest was unintentionally omitted. Because the Editorial is about the importance offunding the governmental public health infrastructure at the local level rather than anything related to health care, the inclusion did not seem relevant at the time of publication.

On page 1360, the Conflicts of Interest section should read:

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K. B. DeSalvo serves on the board of directors for Humana, Inc. ^Jp|_|

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Is the Housing First Model Effective? Different Evidence for Different Outcomes

Anonymous

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ABSTRACT (ENGLISH)

For more than two decades since the development of the Housing First model, there have been debates about the model's effectiveness in serving individuals experiencing homelessness. Although the Housing First model has various fidelity standards, its hallmark feature is the provision of immediate access to permanent, subsidized, independent housing with no prerequisites such as mandating treatment participation or requiring sobriety. This feature is theorized to provide an effective pathway for homeless individuals to achieve positive outcomes. Various time-trend analyses have been conducted showing that increases and decreases in homelessness have coincided with increases and decreases in housing vouchers, housing units, or implementation of the Housing First model during the same period. However, the old adage remains true that "correlation does not equal causation," and these analyses are subject to threats to internal validity, such as history effects or other confounding factors occurring concurrently. Instead, one should look to the gold standard of research designs-the randomized controlled trial. I provide a brief synthesis of the evidence (or lack thereof) from randomized controlled trials for the Housing First model to further discussions and inform policymaking.

FULL TEXT

For more than two decades since the development of the Housing First model, there have been debates about the model's effectiveness in serving individuals experiencing homelessness. Although the Housing First model has various fidelity standards, its hallmark feature is the provision of immediate access to permanent, subsidized, independent housing with no prerequisites such as mandating treatment participation or requiring sobriety. This feature is theorized to provide an effective pathway for homeless individuals to achieve positive outcomes. Various time-trend analyses have been conducted showing that increases and decreases in homelessness have coincided with increases and decreases in housing vouchers, housing units, or implementation of the Housing First model during the same period. However, the old adage remains true that "correlation does not equal causation," and these analyses are subject to threats to internal validity, such as history effects or other confounding factors occurring concurrently. Instead, one should look to the gold standard of research designs-the randomized controlled trial. I provide a brief synthesis of the evidence (or lack thereof) from randomized controlled trials for the Housing First model to further discussions and inform policymaking.

STRONG EVIDENCE

Of the four total major randomized controlled trials of the Housing First model,1 three have been conducted in the United States, including the original trial of the Pathways to Housing program ofHousing First in New York. Two of the randomized trials in the United States found that Housing First led to a quicker exit from homelessness and greater housing stability over time compared with treatment as usual.2,3

In addition to these trials in the United States, a $110 million five-city randomized controlled trial was conducted in Canada called At Home/Chez Soi. Similar to studies conducted in the United States, this trial found that Housing First participants spent 73% of their time in stable housing compared with 32% of those who received treatment as usual.4

MODERATE EVIDENCE

A meta-analysis of randomized controlled trials of Housing First concluded that Housing First may result in reduced use of emergency department services, fewer hospitalizations, and less time hospitalized compared with treatment as usual, although variability between studies was considerable.1 These trials are supported by a handful of observational studies that have reported similar results.5

The Department of Veterans Affairs (VA) serves as the largest provider of homeless services in the United States, serving more than 100 000 homeless and at-risk veterans annually for the past five years. To date, no large randomized controlled trial of Housing First has been done in VA settings. It is unknown whether research on Housing First in non-VA settings is generalizable to VA settings because the VA is unique in having an integrated, comprehensive health care system for homeless veterans unlike traditional brokered care systems for other homeless adults.

One demonstration project in 2010 in the VA that used a nonequivalent groups design (https://bit.ly/2Y74ryp) found that Housing First led to reduced time to housing placement (from 223 to 35 days) and higher housing retention rates than treatment as usual (98% vs 86%).

WEAK EVIDENCE

The first randomized trial of Housing First conducted in the United States found that Housing First did not lead to greater improvements in substance use or psychiatric symptoms compared with treatment as usual.2 Other trials have had similar findings on mental health, substance abuse, and physical health outcomes consistent with a National Academies of Sciences report (https:// bit.ly/2Y8iaVJ) that concluded the following of permanent supportive housing (which is a broader term that includes Housing First, and the report included the Housing First studies mentioned here): "There is no substantial published evidence as yet to demonstrate that PSH [permanent supportive housing] improves health outcomes or reduces healthcare costs." The one exception is a randomized trial of Housing First that found improved health outcomes for patients with HIV/AIDS,3 so this may be an important subgroup that experiences health benefits from Housing First. A systematic review of randomized and nonrandomized studies of Housing First also concluded that little evidence indicates that Housing First improves criminal justice outcomes.6

LACK OF EVIDENCE

All existing randomized controlled trials have compared Housing First with treatment as usual, which has been vaguely defined and has not used a structured approach. A metaanalysis of 44 studies involving unique community housing models, including Housing First and "non-model housing," found that all housing models were associated with greater housing stability than no housing model, but no one model emerged as better than the others.7 Related to this is an important concern that some programs reportedly offering Housing First have experienced "program drift" and have deviated from model fidelity for Housing First, which is a common occurrence across many defined service models and treatments in the field.

A few observational studies have reported that Housing First is more effective for those with no major substance use disorders or particular substance use disorders over others (i.e., stimulants vs depressants), but more specific research in this area is needed. Very few studies, including observational studies, have examined heterogeneity of treatment effects to identify important subgroup differences in Housing First outcomes. If one is to assume that a one-size-fits-all approach will not work, the question of who benefits most from Housing First is important and yet has not been answered.

CONCLUSIONS

Studies have found that Housing First results in greater improvements in housing outcomes for homeless adults in North America. Housing First may lead to greater reductions in inpatient and emergency health care services but may have limited effects on clinical and social outcomes. Although supportive services are typically provided as part of the Housing First model, services are voluntary and can vary greatly between clients. Homeless adults who need Housing First also may need crucial health care and social services to help them live meaningful, sustainable, and productive lives. The debate about Housing First needs to be furthered through research to identify who benefits most from Housing First, what services are needed in addition to Housing First, and which housing models can serve as effective alternatives to the Housing First model when appropriate or necessary.

Jack Tsai, PhD

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CONFLICTS OF INTEREST

The author has no conflicts of interest to disclose.

Sidebar

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Implementation Science Is Important for Understanding and Advancing Beverage Taxes

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FULL TEXT

Results from rigorous evaluations of beverage taxes in seven localities in the United States and in more than 40 countries are mounting rapidly. These studies provide evidence to policymakers looking to take action on reducing consumption of sugary beverages, which are linked to several adverse health outcomes such as obesity and type 2 diabetes and are disproportionately consumed by low-income and racial/ethnic minority populations. Together, these studies point to consistent increases in price (with variation by store type and geographic location) and reductions in sales of taxed beverages (with variation in the magnitude of the decline). Results from Philadelphia, Pennsylvania,1 and Mexico2 further suggest that beverage taxes may help people with lower income or education levels more than those with higher levels. Some evidence also points to reduced consumption of sugary beverages following implementation of beverage taxes, although this literature is mixed. With respect to health outcomes, microsimulation studies predict significant reductions in obesity and cardiovascular disease as a result of beverage taxes.

We know much less about the implementation process for beverage taxes-essentially, how well beverage tax policies are put into effect and the challenges faced by governments. In this issue of AJPH, Falbe et al. (p. 1429) advance the field meaningfully by adding qualitative insights into the implementation of the Berkeley, California, beverage tax, the first US locality to implement a sugar-sweetened beverage tax. Their qualitative approach-including interviews with city staff, its tax administrator, distributors, retailers, and a Sugar-Sweetened Beverage Product Panel of Experts (established by the tax ordinance)-allows them to provide a nuanced assessment ofhow implementation works in practice (beyond its effect on outcomes) than is typically possible in a quantitative study. In this way, their article adds important insights, including three key lessons that are instructive to other jurisdictions considering sweetened beverage taxes.

KEY LESSONS FROM BEVERAGE TAX IMPLEMENTATION

One key lesson is the importance of the policy package itself. The results by Falbe et al. combined with evidence from the policy adoption literature in political science3 suggest that simpler is better for uptake and implementation oflocal beverage taxes. This is an important takeaway as core aspects of the beverage tax structure are actively debated by policymakers such as the design (e.g., volume, absolute, tiered), size (e.g., one cent per ounce vs two cents per ounce), and included beverages (e.g., sugarsweetened drinks only or combination of sugar- and artificially sweetened drinks), as well as the revenue allocation (e.g., appropriation to the general fund or for specific programs). The lesson from Falbe et al. about the importance of the simplicity of the tax design ($0.01/oz) in facilitating implementation is also critical to consider in beverage tax advocacy efforts and for researchers aiming to inform beverage tax debates.

Another key lesson is the importance of context. Both the Falbe et al. study and a recent implementation study out of Cook County, Illinois,4 point to the need to understand the local context. Falbe et al. find that local leadership supported by a history ofpro-equity policies, supportive institutions, and positive public opinion matter considerably for successful implementation. For example, their interviews suggest that early public outreach about the tax4 and programs resulting from tax revenue allocation helped promote and sustain public support. Sustaining buyin is important because beverage taxes may face postenactment litigation (such as occurred in Philadelphia and in Cook County where the beverage tax law was repealed).4 The uniqueness of each beverage tax jurisdiction suggests that parallel studies should be conducted in each to fully understand implementation. These important details are generally outside the scope of quantitative studies assessing the effect ofbeverage taxes on prices, sales, or consumption.

A third lesson from Falbe et al. is the importance of the implementation process itself, particularly having administrative infrastructure in place with clear lines of communication among stakeholders. Previous qualitative research examining the policymaking process for the Philadelphia beverage tax (where a tax was successfully passed after two failed attempts)5 and the Cook County beverage tax (where a tax was successfully passed and then repealed after four months)4 similarly points to the need for such processes. In Berkeley, the decision to engage a third-party tax administrator at the outset (in recognition of the city's need for help with this process) and to hire key city personnel to oversee implementation before the tax took effect was critical and helped the city to engage with, educate, and ultimately obtain buy-in from a range of stakeholders responsible for on-the-ground implementation, including retailers and distributors. Effective implementation also may help fend offlikely industry challenges that have defeated many beverage tax attempts and have helped some states enact preemption laws that outlaw beverage taxes. Like the policy process, the policy implementation process is context specific and nonlinear, involving many actors and different factors.

PUBLIC HEALTH EFFECT OF BEVERAGE TAX REVENUE

After ensuring that a beverage tax is put in place as intended (e.g., how much of the tax is passed on to the consumer; whether the tax is applied to the correct beverages), the next most critical piece of the implementation process is the use ofcollected revenue. Beverage taxes generate a lot of money for local governments, ranging from approximately $1.5 million in Berkeley to more than $75 million in Philadelphia during the first full year of implementation.6 Across jurisdictions, this has accounted for approximately 1% to 2% of general revenue funds6 and makes beverage taxes very attractive to policymakers for their ability to fill revenue gaps. Revenue in Berkeley has been used toward public health, nutrition, and health equity (e.g., nutrition education in public schools, a healthy beverage media campaign, community grants for health promotion in communities of color) and may become more critical under the coronavirus disease 2019 pandemic. Given that many jurisdictions' beverage tax revenues are deposited into the cities' general revenue fund, reallocation ofthose funds to non-public health-related needs is a constant challenge.

The Falbe et al. study points to the importance of an advisory committee composed of a range of stakeholders to guide or make recommendations to city officials around the use of the revenue focused on equitable allocations for communities and programs in need. Directing revenue toward community investments for which broad public support exists can help to sustain support5 and challenge repeal efforts. Furthermore, clearly communicating the downstream positive economic effects of beverage taxes (above and beyond the public health benefits) may help to sustain public support because income earned from the jobs created by revenue is spent on other goods and services and may help to support the local economy.

LEVERAGING THE SCIENCE OF IMPLEMENTATION

To fully understand the story of beverage taxes, knowledge about the nuances of implementation is critical. One of the novel contributions made by Falbe et al. is framing their study in the context of broader implementation science theory- particularly through the use of the Consolidated Framework for Advancing Implementation Science. Their study contributes to the evolving evidence base that provides unique insights as to how beverage tax implementation is operating on the ground. Future studies should similarly incorporate broader implementation science theories to guide this work because it will help to capture common implementationrelated constructs across studies moving forward. Ultimately, advancing implementation science about beverage taxes should help to promote more successful and effective beverage taxes in the future. /4JPH

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CONFLICTS OF INTEREST

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Sidebar

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Critical Drugs for Critical Care: Protecting the US Pharmaceutical Supply in a Time of Crisis

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ABSTRACT (ENGLISH)

Epidemics shine a bright light on the weak spots in our social structures, and in recent months COVID-19 has pointedly exposed the fragility of the US pharmaceutical supply chain. A single announcement from the White House prematurely claiming the safety and efficacy of hydroxychloroquine (Plaquenil) as a "game changer" for COVID-19 infection was enough to trigger a shortage of this drug.1 Hospitals treating severe COVID-19 cases now face significant challenges in maintaining supplies of far more essential critical care drugs, such as vasopressors, sedatives, and bronchodilators.2 In turn, many states have sought access to Strategic National Stockpile supplies only to find that such life-saving therapies were not available or had not been included in this portfolio.3 With the long bulge of the pandemic curve still to follow, it is likely that other commonly used drugs will face shortages in months to come.

The logistical challenges of the response to the COVID-19 pandemic recall a set of similar problems experienced as the United States responded to the anthrax bioterror attacks of September 2001. After the antibiotic ciprofloxacin was pronounced as vital to national security in the face of the acute infectious threat, the supply of this pharmaceutical agent was likewise immediately threatened by hoarding and stockpiling.4 Although several initiatives have been developed to strengthen US public health preparedness since then, it is clear that the fundamental problem of securing a supply of pharmaceutical agents key to public health in a time of national crisis has not been resolved.

FULL TEXT

Epidemics shine a bright light on the weak spots in our social structures, and in recent months COVID-19 has pointedly exposed the fragility of the US pharmaceutical supply chain. A single announcement from the White House prematurely claiming the safety and efficacy of hydroxychloroquine (Plaquenil) as a "game changer" for COVID-19 infection was enough to trigger a shortage of this drug.1 Hospitals treating severe COVID-19 cases now face significant challenges in maintaining supplies of far more essential critical care drugs, such as vasopressors, sedatives, and bronchodilators.2 In turn, many states have sought access to Strategic National Stockpile supplies only to find that such life-saving therapies were not available or had not been included in this portfolio.3 With the long bulge of the pandemic curve still to follow, it is likely that other commonly used drugs will face shortages in months to come.

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CHALLENGES TO THE PHARMACEUTICAL SUPPLY CHAIN

Two main characteristics of the COVID-19 pandemic have contributed to the failure of the public health response and the potential for pharmaceutical shortages. First, unlike the supplies mobilized in response to bioterrorism, a single curative therapy cannot be the focus of the biomedical response to the COVID-19 pandemic. COVID-19 patients require a range of therapeutic and preventive agents, and as the pandemic has unfolded the types of drugs, devices, and supplies needed to provide an adequate response have only expanded. In the absence ofa single "magic bullet," the most important influence on mortality seems to be access to good supportive care, which requires a more general set of medical products: intravenous fluids, bronchodilators, sedatives, antipyretics, antithrombotics, and more.

Second, most biopreparedness exercises have prepared for an infectious disease threat, such as the anthrax scare, to be a singular and acute event. The chronic nature ofthe COVID-19 pandemic-which has unfolded slowly, with long incubation periods, asymptomatic spread, and no clear end in sight-has further contributed to the depletion of supplies intended for the response to acute and shortterm public health threats. The unknown duration of this condition challenges planning capacity, as manufacturers and suppliers are unsure of how long they will need to respond to the increased demand.

Making matters worse, COVID-19 struck a nation already reeling from an escalating series of shortages ofbasic medical inputs that had become evident in prepandemic times. The drugs that have been historically most affected by shortages are low-cost generics and drugs for intravenous infusion, drug classes that are now essential to the supportive care and intensive management of COVID-19 cases.5 Although most drug shortages recorded in recent years were driven by manufacturing problems, crisis-related shortages are characterized by surges in demand that are often region and facility specific, reflecting the need not only for increasing supply but also for facilitating drug distribution.

PROTECTING THE SUPPLY CHAIN DURING CRISES

The federal government has mechanisms to protect the public's health in the face of a crisis, but its ability to protect the pharmaceutical supply chain has been shown by the COVID-19 pandemic to be anemic at best. Even though some emergency measures have been implemented in the present pandemic, the need for new institutional processes to strengthen and increase the responsiveness of the US pharmaceutical supply chain in the face of a public health emergency still remains.

A solution would be to empower a new office in the Food and Drug Administration (FDA) to identify and safeguard the supply ofessential drugs at special risk of shortage in times of crisis. Protecting the supply of critically needed drugs would focus on two dimensions: increasing manufacturing capacity and facilitating distribution.

Enhancing Manufacturing Capacity

Increasing manufacturing capacity to meet surges in demand is costly and time consuming, as it may require expanding facilities or changing the source of active pharmaceutical ingredients, both of which require FDA approval. Certain drugs have additional production challenges, for example intravenous solutions are required to pass 14-day sterility tests before commercialization, which may further slow these drugs becoming available in the market. Manufacturing drugs such as sedatives and anesthetics depends on quotas allocated by the Drug Enforcement Administration (DEA).

To enhance the manufacturing capacity of critically needed drugs in advance of crises, the FDA could require manufacturers to maintain extra inventory or even to build in additional manufacturing capacity for scaling-up. Once a crisis begins, the FDA could provide faster approval of new active pharmaceutical ingredient sources and of repurposing production facilities and could reconsider, on a drug-by-drug basis, certain manufacturing requirements such as the 14-day sterility test for injectables. Based on the FDA's list, the DEA could provide a responsive review of the production quotas allocated to manufacturers, and the secretary of Health and Human Services could review the need for additional manufacturers to enter the market for certain products, in which case the secretary might consider invoking policies such as Section 1498.6 Under this law, the Secretary can authorize manufacturers to produce an emergency supply ofa drug under patent without the patent holder's approval (but providing fair compensation to the patent holder).

Improving Distribution

Another challenge is distribution. A recent survey found that hospitals treating many patients with acute COVID-19 in New York City had greater need for life-supporting pharmaceuticals and were therefore at greater risk for shortages than other facilities in New York City or acute care hospitals located in other regions.7 Distributing the existing supply of pharmaceutical products to the neediest facility types and geographic areas may be limited by contractual agreements and FDA regulations. Redistribution restrictions may be even stricter when transporting products across state lines is involved.

To improve distribution in advance of a crisis, the FDA should create a centralized information source to monitor drug shortages at regional or local levels. Once a crisis begins, the FDA could temporarily waive regulations that limit the transfer of drug inventory across facilities. Temporarily waiving contractual provisions that limit procurement between facilities, wholesalers, and pharmacies could also be explored. Other measures could focus on preventing hoarding, for example by requesting that drug prescriptions above a certain quantity be justified.

Although some of these actions have been employed on a piecemeal basis, to date their implementation has been reactive and not part of a concerted, proactive strategy. In the long term, this moment of crisis offers an opportunity for the federal government to exercise stronger oversight of the drug supply for the future, so that none of our patients will suffer harm from lack of access to the medicines that form the bedrock of supportive care. ÂfPU

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J. M. Sharfstein served as principal deputy commissioner of the US Food and Drug Administration from March 2009 to January 2011.M. P. Socal andJ. A. Greene have no conflict ofinterest with respect to the research, authorship, or publication of this editorial.

Sidebar

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E-cigarette Tobacco Retail Licensing Laws: Variance Across US States as of January 1, 2020

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ABSTRACT (ENGLISH)

Objectives. To describe how US states and the District of Columbia regulate e-cigarette sales by examining e-cigarette-specific tobacco retail licensing (TRL) laws. Methods. We coded 25 state-level e-cigarette TRL laws (effective as of January 1, 2020) for provisions we labeled as either "core" (e.g., presence of license terms, fees, and penalties) or "descriptive" (e.g., license fee amount and term length). Results. Overall, 23 laws clearly defined a license term, 23 laws required a license fee, and 19 laws identified penalties for violations that included both license suspension and revocation. Fees widely ranged ($5-$1000 annually), and 8 laws did not explicitly direct fees toward TRL administration or enforcement. No law required that retailers comply with all local, state, and federal tobacco or e-cigarette laws. Conclusions. Most laws contained core TRL provisions. Several laws, however, had minimal license fees and did not direct fees toward administration or enforcement. As youth e-cigarette use increases, more states should consider establishing e-cigarette TRL laws or incorporating provisions into existing TRL laws. (Am J Public Health. 2020;110: 1380-1385. doi:10.2105/AJPH.2020.305771)

FULL TEXT

Headnote

Objectives. To describe how US states and the District of Columbia regulate e-cigarette sales by examining e-cigarette-specific tobacco retail licensing (TRL) laws.

Methods. We coded 25 state-level e-cigarette TRL laws (effective as of January 1, 2020) for provisions we labeled as either "core" (e.g., presence of license terms, fees, and penalties) or "descriptive" (e.g., license fee amount and term length).

Results. Overall, 23 laws clearly defined a license term, 23 laws required a license fee, and 19 laws identified penalties for violations that included both license suspension and revocation. Fees widely ranged ($5-$1000 annually), and 8 laws did not explicitly direct fees toward TRL administration or enforcement. No law required that retailers comply with all local, state, and federal tobacco or e-cigarette laws.

Conclusions. Most laws contained core TRL provisions. Several laws, however, had minimal license fees and did not direct fees toward administration or enforcement. As youth e-cigarette use increases, more states should consider establishing e-cigarette TRL laws or incorporating provisions into existing TRL laws. (Am J Public Health. 2020;110: 1380-1385. doi:10.2105/AJPH.2020.305771)

Since their introduction into the United States, there has been growing debate within the public health community regarding the risks and benefits of electronic cigarettes (ecigarettes).1 The discourse has become more pronounced as rates of e-cigarette use among youths continue to grow at epidemic levels.2,3 In 2019, past 30-day e-cigarette use among high school students was 27.5%.4 This is particularly concerning because most e-cigarettes contain nicotine, which can harm adolescent brain development.5,6 Furthermore, e-cigarette use is associated with smoking initiation among young people who have not previously used tobacco products, thus exposing adolescents who otherwise would not have been exposed to the harms ofcombustible tobacco use.5-7 Although e-cigarettes may have the potential to help smokers who fully switch from combustible tobacco use, exclusive use of these devices is low among adults.8 Additionally, no e-cigarette has been approved by the US Food and Drug Administration (FDA), and long-term health effects of e-cigarettes are unknown.6,9

Tobacco control policies have reduced the prevalence of tobacco use in the United States. However, until recently, policies have largely focused on combustible products.10,11 The US surgeon general has called on state and local governments to implement population-level strategies to reduce e-cigarette use among youths and young adults.5 State and local jurisdictions have responded by adopting various policies to regulate e-cigarettes, especially given insufficient federal action by the FDA, including a significantly delayed premarket review process allowing e-cigarettes to be sold without formal review of product risks and benefits.12 16

One policy strategy the surgeon general recommends to jurisdictions is e-cigarette tobacco retail licensing (TRL) laws, which require retailers to obtain a license to sell ecigarettes.3 Research demonstrates that local TRL laws-particularly those requiring license fees that sufficiently fund TRL law administration and enforcement-are associated with reductions in youth access to and use oftobacco products, in part by facilitating retailer compliance with other tobacco control laws, including the minimum sales age.17-19 Comprehensive state-level e-cigarette TRL laws may have a similar impact; however, the extent to which current laws include recommended provisions is not well documented.5 According to the US Centers for Disease Control and Prevention (CDC) STATE System, as ofJanuary 1,2020, only 24 states and the District of Columbia had laws in effect requiring a license for over-the-counter retail sales of e-cigarettes, whereas 38 states and the District of Columbia required a license for over-the-counter sales of other tobacco products.20

The American Lung Association (ALA) recommends (and grades highest) local TRL laws that (1) require licenses to be renewed annually; (2) provide for penalties, including license suspension and revocation; (3) make any violation of a local, state, or federal tobacco law a license violation; and (4) require retailers to pay an annual fee that sufficiently funds TRL administration and enforcement.21 Two additional organizations -ChangeLab Solutions (CLS) and Public Health Law Center (PHLC)-offer recommendations similar to those of the ALA; CLS recommends that local TRL laws include all requirements specified by the ALA, and the PHLC recommends that TRL laws require retailer compliance with other tobacco control laws.22,23 To our knowledge, only the ALA guidelines have been used in studies measuring the strength of local TRL laws; these studies demonstrate that tobacco access and use are lower in jurisdictions receiving a higher TRL law grade from the ALA.17-19

In this study, we build on the ALA methodology to characterize state-level overthe-counter e-cigarette TRL laws. Furthermore, we characterize the comprehensiveness of e-cigarette definitions that apply to e-cigarette TRL laws. Comprehensive product definitions are especially important given the range of emerging products and industry efforts to exclude e-cigarettes from existing tobacco laws, which can undermine existing and future tobacco control laws.24,25 Finally, we examine state preemption of local e-cigarette licensing laws, which hinders tobacco control efforts by restricting stronger local laws.23 Given the unknown risks and potential harm reduction benefits of e-cigarette use,6 a guiding assumption of this research is that comprehensive statutes that regulate access to e-cigarettes, particularly for youths, may improve public health. Research indicates that lower rates ofyouth e-cigarette initiation are associated with stronger regulation of tobacco retailers.19 As such, study results can facilitate future policy or legal epidemiology studies evaluating the behavioral impact of policy implementation and compliance. Our findings can also better inform policymakers on more effective e-cigarette regulations that may reduce youth e-cigarette use.

METHODS

This study presents data from a crosssectional analysis of state-level over-thecounter e-cigarette TRL laws. We did not assess whether these laws applied to heated tobacco products or heat-not-burn products. We primarily adapted the ALA's "Local Tobacco Retail Licensing Ordinance" and secondarily used CLS's "Licensing Ordinance Checklist" to develop study measures (Table A, available as a supplement to the online version of this article at http://www.ajph.org).21,22 Additionally, we included unique variables to characterize the e-cigarette definition that applied to the e-cigarette TRL law and presence of express (i.e., explicit) state preemption of local e-cigarette licensing laws. We did not assess the scope of express preemption (i.e., full or partial) or implied preemption.

We grouped variables into 2 categories: (1) core elements and (2) descriptive elements (Table A). Core elements included measures adapted from ALA criteria. Descriptive elements further described core elements and included e-cigarette definitions and preemption.

Identification of States and Laws Coded

We identified states with over-thecounter e-cigarette TRL laws using quarter 1 data from the CDC STATE System Web page, which identified 26 laws effective as of January 1, 2020; however, we excluded New Jersey because the law required a license only for container e-liquid.20 We accessed laws through the PHLC's 50-state review of e-cigarette regulations.26 Coders strictly reviewed the text within the law's title. We examined other sources of law only if they were referenced by the TRL law (e.g., penalties for violating the TRL law described in another title referenced by the TRL law) or the TRL law was silent on a variable (e.g., preemption or TRL law administration or enforcement funding). In the latter case, we referenced the CDC STATE System's preemption coding, used additional key word searches of state statutes and bills, and reviewed statutory tables ofcontents on state legislative Web sites to ensure that all relevant variables were coded. We did not review other sources of state law, including administrative regulations and case law.

Coding Process

At least 2 coders independently coded each state's law, identifying relevant dates and dichotomous yes-no responses or numerical values as appropriate for each coded component. We resolved discrepancies in coding through a secondary review of the law until agreement was reached or a third coder with legal training and experience with TRL laws and preemption resolved the discrepancy.

Core Elements Measures

License term and fee. Coders indicated that a license term was present if the law clearly stated an initial application and renewal period, regardless of length (yes orno). A license fee was required ifthe law clearly stated that a fee is required to obtain a license (yes or no).

Enforcement. Coders indicated whether laws clearly identified a state agency responsible for law administration or enforcement (yes or no) and whether license fees were explicitly directed to fund law administration or enforcement (yes or no).

Compliance with other laws. Coders indicated whether laws required compliance with all other local, state, and federal tobaccorelated or e-cigarette-related laws (yes or no).

Violations and penalties. Coders identified whether license suspension and revocation were penalties for violating the terms of the license (e.g., selling to minors, failure to renew an expired license; yes or no).

Descriptive Elements Measures

License term and fee. Coders reported the length ofthe license term (in months) and fee amount per full license term (in dollars).

Penalties for violations. Coders identified the types of penalties, including license suspension, license revocation, and a range of fines for retailers selling e-cigarettes without a license.

Preemption of local laws. To identify whether state preemption expressly limited municipalities from enacting local e-cigarette licensing laws, coders preliminarily used the CDC STATE System and subsequently reviewed statutory text. As was done in the STATE System, we coded laws for some form of explicit, or express, preemption; explicit nonpreemption (i.e., a savings, or enabling, clause); or neither.20 We then combined the last 2 categories to form a dichotomous "no express preemption" variable (yes or no), where yes means municipalities may be able to enact stronger local e-cigarette TRL laws and no means municipalities are limited in some way from enacting local e-cigarette licensing laws.

Comprehensive e-cigarette definition. Coders assessed the comprehensiveness of the relevant e-cigarette definitions applying to the TRL law based on the presence of the following4 components (yes orno): (1) included both products that contained nicotine and products that did not, (2) did not require that products be made of or derived from tobacco, (3) defined e-cigarettes as tobacco products or explicitly included them in the definition of conventional tobacco products, and (4) fully included both e-cigarette devices and e-liquids or cartridges.24 Coders also noted whether e-cigarette TRL laws fell under the same license requirements as other tobacco products and whether retailers who exclusively sell e-cigarettes (i.e., do not sell any othertobacco products) are required to obtain a separate stand-alone e-cigarette-specific license.

RESULTS

The 25 coded e-cigarette TRL laws were distributed across the 4 US Census regions and in states with varying levels of past 30-day e-cigarette use among youths and adults (Table 1; Figure A, available as a supplement to the online version of this article at http:// www.ajph.org). Laws were passed between May 2012 and July 2019, with the highest number of laws adopted in 2015 (n = 6) and 2019 (n = 6; Table 2; Table B).

States differed in whether they included e-cigarettes in TRL laws for other tobacco products. Eighteen laws (72%) required retailers to obtain a single license to sell e-cigarettes or other tobacco products. One law (4%) required retailers to obtain a separate e-cigarette-specific "endorsement" in addition to the general tobacco license. The 6 remaining laws (24%) required e-cigarette retailers to obtain a license to sell e-cigarettes separate from the license required to sell other tobacco products. Additional nuances existed; 2 of the 18 laws requiring a single license for the sale of e-cigarettes and other tobacco products also required retailers who exclusively sold e-cigarettes (e.g., vape shops) to obtain an e-cigarette-specific license instead of a general tobacco license.

Core Elements

Table 2 and Table B present data on the 6 core elements to administer a licensing program. Of the 25 coded laws, 23 (92%) clearly defined a license term and 23 (92%) required a license fee. Although 17 laws (68%) explicitly directed the license fee toward law administration or enforcement, 3 of these laws directed fees toward funds that administer the TRL law, such as a tobacco tax enforcement fund, but did not specify what proportion should be allocated toward TRL administration and enforcement. Of the 8 remaining laws, 1 (4%) did not require a license fee, 3 (12%) directed fees to funds that may or may not be used for administration or enforcement of the law (e.g., state general fund), and 4 (16%) did not seem to specify how license fees should be used, so it is possible (but not certain) that fees were intended for administration or enforcement. Nineteen laws (76%) included both license suspension and revocation as penalties for license violations, and all laws except for Minnesota's (96%) clearly identified the agency responsible for administering or enforcing the law. Minnesota's law is unique, relying on municipalities within the state to administer TRL programs for e-cigarettes and other tobacco products, including a local determination of the administration or enforcement agency, license fees, license terms, and penalties above those outlined in the state statute. Descriptive Elements

Table 3 and Table C present results for the descriptive elements. The 25 coded laws exhibited wider variability among these provisions compared with the core elements.

License term and fees. The most common license term, present in 20 laws (76.0%), was 1 year. Of the 6 remaining laws, 5 specified longer license terms or a range between 6 and 36 months, depending on the license type (e.g., state or local licenses in Utah) and retailer compliance record (e.g., those in "good standing" in Louisiana). As previously noted, the license term in Minnesota is determined by municipalities.

License fees varied substantially. For example, no license fee was charged in Alabama, but Montana charged retailers $5 annually, Connecticut charged retailers $475 for an initial license and $400 for an annual renewal, and Ohio charged retailers $125 annually for exclusive e-cigarette licenses or $1000 annually for e-cigarette and other tobacco product licenses. Two laws did not identify a specific fee amount: Maine required the fee to be determined annually by rule-making, and license fees in Minnesota were determined by municipalities.

Other state tobacco control laws. No coded laws explicitly required that e-cigarette retailers comply with all local, state, and federal e-cigarette or tobacco-related laws.

Penalties for violations. All 25 coded laws specified fines for selling e-cigarettes without a retail license. Fines ranged widely, including $50 for a first offense (with repeated offenses escalating to $2500) in Louisiana and a range of $5000 to $35 000 specified for any violation in New York. For violating other license terms (e.g., selling to minors, failure to renew an expired license), 22 laws (88%) included license suspension and 20 laws (80%) included license revocation as potential penalties.

Does not expressly preempt local e-cigarette laws. Excluding the District of Columbia, which does not contain any lower jurisdictions, 18 laws (75%) did not expressly preempt local e-cigarette licensing laws.

Comprehensive e-cigarette definition. Twenty laws (80%) included nicotine and nonnicotine products in the e-cigarette definition. No laws required that e-cigarette products be made of or derived from tobacco. Nine laws (36%) explicitly included e-cigarettes in their definition of tobacco products, and 22 laws (88%) fully included e-cigarette devices and e-liquids or cartridges in the relevant e-cigarette definitions.

DISCUSSION

There are several key findings from this review of state-level e-cigarette TRL laws. Whereas 38 states and the District of Columbia had TRL laws in effect for other tobacco products, only 24 states and the District of Columbia had laws in effect requiring a license for over-the-counter sales of e-cigarettes.20 Considering that e-cigarettes are the most commonly used tobacco product among youths and young adults, it is imperative that states work to close this licensing gap. Additionally, there were significant gaps among existing e-cigarette TRL laws. Among the 25 laws reviewed, none had all 6 core elements, and about half had 5 of the 6. Most of the laws could be strengthened by requiring compliance with all local, state, and federal e-cigarette or tobacco laws, by directing license fees to administration and enforcement, and by including suspension and revocation as penalties for license violations.

Our study also found that fines and fees within e-cigarette TRL laws differed substantially. Although all coded laws identified fines for operating without a license, low fines, such as those that do not exceed the cost of the license, are particularly concerning, as they do not serve as a deterrent to operating without a license. Similarly, sufficient license fees are central to adequately administering and enforcing an effective TRL law.21 License fees should recover the costs of administering the licensing program to avoid insufficient enforcement or diversion of funds from other sources to cover the cost of enforcement.27 However, license fees varied from minimal ($5) to comparatively larger quantities ($500), which could more adequately cover administration costs depending on program scale. Furthermore, nearly a third of coded laws did not explicitly direct fees to law administration or enforcement, leaving compliance potentially largely unchecked. The ALA emphasizes the importance of a license fee that is sufficient to administer and enforce local TRL laws; a local law that does not have a sufficient license fee receives a failing grade regardless of its other components.21 When determining sufficient fees for their states, lawmakers should look to adequately cover the costs needed for administration and enforcement (e.g., human resources, education of retailers, compliance checks and inspections).

Current and future TRL laws could additionally be improved by including explicit nonpreemption language and all 4 components for comprehensive e-cigarette definitions outlined in our study. One fourth of coded laws included express preemption, which limits the ability of municipalities to establish stronger local laws (e.g., including license suspension and revocation as penalties) and respond to community needs (e.g., retailer density restrictions). Additionally, the proportion of coded laws that included all elements for a comprehensive e-cigarette definition was low (28%), which can create different regulatory requirements for substantially similar products. For example, taxes or sales restrictions that build off the licensing structure may tax or restrict the sale of nicotine-containing products, but not nicotine-free e-cigarettes.24 Furthermore, excluding e-cigarettes altogether from the tobacco product definition may preclude e-cigarette- related products from regulations that govern other tobacco product sales. These gaps in product coverage can undermine the law's effectiveness by creating consumer purchasing loopholes, particularly given the range of e-cigarette products on the marketplace.24,25 Additionally, administration and enforcement efforts may become more complicated if agencies need to consider multiple, mutually exclusive e-cigarette product categories versus a comprehensive definition subjecting ecigarettes and conventional tobacco products to the same set of regulations.24

Licensing laws also could facilitate the creation of a known list of tobacco outlets, which can serve multiple public health functions.23 Although not necessarily mandated by e-cigarette TRL laws, a publicly available list is a resource that can facilitate the sampling design for policy evaluation studies, led either by citizen-science groups or academic institutions.28 Additionally, such lists can be directly utilized by agencies to monitor compliance with federal, state, and local tobacco control-related rules, particularly the new federal law raising the age of tobacco sales to 21 years.23,29 31 In this study, no states required licensed retailers to comply with all federal, state, and local e-cigarette or tobacco control laws. Our results indicate that moving forward, state lawmakers should include this language and require publication of a list of licensed outlets to optimize monitoring compliance and strengthen enforcement of e-cigarette- and tobacco-related laws.

Our research builds on the limited existing literature and provides direction for future examination of TRL laws and their policy implications. Research on the impact oflocal TRL laws shows that the strength of the law matters. A California study rated the strength of local TRL laws using the ALA grading system and found that between baseline and follow-up, strong TRL laws, compared with weak TRL laws, were associated with lower odds of cigarette initiation, e-cigarette initiation, and past 30-day e-cigarette use.19 Another study evaluating Pennsylvania's e-cigarette TRL law found that adolescent e-cigarette use declined by 21.6% the year after the law was adopted and by 5.2 percentage points compared with adolescents in New York State, which did not have an e-cigarette TRL law at the time of the study.17 Together, these studies highlight the potential for e-cigarette TRL laws to reduce e-cigarette use. Our current analysis furthers this existing research by identifying components of state-level e-cigarette TRL laws showing variance between states on several key measures. Our results can inform similar policy studies examining the strength of laws and their impact on tobacco use behaviors over time.

Limitations

There are limitations to our study. First, we only assessed laws requiring a retail license for over-the-counter sales of e-cigarettes. States that required a license to sell only some e-liquids or covered only delivery sales of e-cigarettes were not included. The narrow scope ofthese laws was not well suited to our comprehensive coding scheme. Second, because the ALA guidelines focus on local laws and are not e-cigarette specific, we tailored variables to examine state- and e-cigarette- specific laws. Given the changing policy landscape at the local level and the great number of local laws, it was not possible to examine local e-cigarette TRL laws individually; future research can examine locallevel laws, especially in jurisdictions with no state-level law. Third, we were unable to determine if license fees sufficiently covered administration and enforcement costs. Instead, we examined whether a license fee was required and was clearly directed toward law administration or enforcement.

Additionally, we did not examine whether a license fee was required for each retail location. Some states may allow retailers to operate several retail locations under 1 license or license fee, whereas other states may require retailers to obtain a license or pay a separate license fee for each retail location. The license fee can thus be structured in different ways that may have public health implications. Despite these limitations, results from this study provide a snapshot of the current landscape of state-level e-cigarette TRL laws in the United States and can lay the foundation for future policy surveillance and evaluation studies.

Public Health Implications

E-cigarette TRL laws are an underused tobacco control policy strategy that can help to regulate the retailer environment and ultimately reduce prevalence of tobacco use among youths and young adults. Given that about half of US states had e-cigarette TRL laws in effect, states should consider adopting comprehensive TRL laws that cover e-cigarettes and other tobacco products. With recent data indicating that 27.5% of US adolescents vape, it is even more important to regulate the sale of e-cigarettes.4 Additionally, with recent vaping-related deaths and illnesses caused by vitamin E acetate and THC use, states may be looking to enact new e-cigarette TRL laws.32 Our findings can support advocates and policymakers in determining what specific components may be necessary for an effective TRL law and can better inform more comprehensive policies that may ultimately lead to lower tobacco use rates. ÂjPH

Sidebar

ABOUT THE AUTHORS

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CONTRIBUTORS

E. M. Donovan, S. N. Perks, and D. Huang coded the laws described in this study, with supervision from M. Patel. M. Patel, E.M. Donovan, S.N. Perks, and L. Czaplicki drafted the article. All authors collaborated on the interpretation of findings and placement in context, were involved in the conceptualization of the study and design of analyses, and were responsible for review and refinement of the article's content.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

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Because human participants were not involved in this research, institutional review board approval was not needed.

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DETAILS

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Mayaro Virus Distribution in South America

Lewandowski, Stephen; Abuawad, Ahlam; Abatu, Omokhoya; Segura, Luis E

ProQuest document link

FULL TEXT

Mayaro virus is a relatively rare mosquito-borne pathogen endemic to South America whose symptoms are fever, arthritis, and rash-similar to other tropical arboviruses. Lorenz et al. applied a maximum entropy machine-learning algorithm to map risk areas for Mayaro virus from 20 years of case records, biome types, weather variables, elevation, and population density. During this period, infections transitioned from forests to rural areas as urbanization increased. The resulting model identifies hot spots in Brazil's central Cerrado tropical savanna region and along the continent's northwestern coast. This work describes the current distribution of Mayaro virus and may inform strategies to control the spread of the disease.

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From "Infodemics" to Health Promotion: A Novel Framework for the Role of Social Media in Public Health

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ABSTRACT (ENGLISH)

Despite the ubiquity of healthrelated communications via social media, no consensus has emerged on whether this medium, on balance, jeopardizes or promotes public health. During the COVID-19 pandemic, social media has been described as the source of a toxic "infodemic" or a valuable tool for public health. No conceptual model exists for examining the roles thatsocial media can play with respect to population health.

We present a novel framework to guide the investigation and assessment of the effects of social media on public health: the SPHERE (Social media and Public Health Epidemic and REsponse) continuum. This model illustrates the functions of social media across the epidemic-response continuum, ranging across contagion, vector, surveillance, inoculant, disease control, and treatment.

We also describe attributes of the communications, diseases and pathogens, and hosts that influence whether certain functions dominate over others. Finally, we describe a comprehensive set of outcomes relevant to the evaluation of the effects of social media on the public's health. (Am J Public Health. 2020;110: 1393-1396. doi:10.2105/AJPH.2020. 305746)

FULL TEXT

Headnote

Despite the ubiquity of healthrelated communications via social media, no consensus has emerged on whether this medium, on balance, jeopardizes or promotes public health. During the COVID-19 pandemic, social media has been described as the source of a toxic "infodemic" or a valuable tool for public health. No conceptual model exists for examining the roles thatsocial media can play with respect to population health.

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Over the past 25 years, the field of health communication has established itself as central to clinical medicine and public health. In clinical contexts, how patients and clinicians communicate determines a range of health outcomes. In public health contexts, mass communications-whether generated by the private or public sector- influence population health by shaping discourse about exposure risk and disease, influencing the adoption (or nonadoption) of health-promoting social policies, linking people to health services, and providing education and motivation that influence behaviors. These conclusions emerged in an era when communications were predominantly controlled by individuals and entities endowed with the power, money, public trust, or platforms required to drive the conversation. In the modern era, however, health communications have become more democratized through social media's interactive functionality and popularity. Social media are means of interactions among people in which individuals create, share, or exchange information and ideas in virtual (online or cloud-based) communities and networks. Three quarters of US adults use social media; of these, three quarters engage at least once daily1 and nearly 50% report that information found via social media affects the way they deal with their health. In China, more than 740 million individuals (> 50% of the population) have social media accounts with which they daily engage,2 and more than 70% ofWeChat's (a Chinese messaging, social media, and mobile payment app) 570 million users report it to be their primary source of health education.3

Despite the ubiquity of health-related content on social media, no consensus has emerged on whether this medium, on balance, jeopardizes or promotes health. During the COVID-19 pandemic, social media has been described by some as the source of a toxic "infodemic" and considered by others as an emerging tool for public health.4 There is little question that social media has the potential to facilitate or undermine public health efforts.5,6 Yet no widely accepted conceptual model exists for examining the roles that social media can play with respect to population health.7,8

HOW SOCIAL MEDIA CAN INFLUENCE PUBLIC HEALTH

To describe the functions that social media can play, we employ the metaphor of an epidemic. This metaphor is both understandable and fitting: communication is the process of passing information and understanding from one person to another, just as communicable diseases can be passed from person to person. It is no coincidence, then, that social media messages that achieve widespread exposure are often described as "having gone viral." Accordingly, we developed a novel framework to guide the investigation and assessment of social media and public health: the SPHERE (Social media and Public Health Epidemic and REsponse; Figure 1) continuum. This model illustrates potential- and often conflicting-functions of social media across the epidemic-response continuum (Figure 1, middle concentric ring), recognizing that communication itself can contribute to health or disease. We also describe factors that influence which roles social media play based on the contextual attributes in a given circumstance (Figure 1, outer ring) and outcomes relevant to the evaluation of the effects of social media on the health of the public (Figure 1, inner ring).

Social Media as Contagion

Social media influences attitudes, beliefs, norms, and behaviors4 that can undermine public health. Examples of this include exposure to industrygenerated promotional messages related to products that contribute to tobacco and e-cigarette use8 and obesity and type 2 diabetes.9,10 For communicable diseases, the dissemination of misinformation can lead to what World Health Organization (WHO) director general Tedros Adhanom Ghebreyesus recently referred to as an infodemic.11 Such misinformation, in part because of its tendency to spread widely and rapidly, has the potential to lead individuals, subgroups, or communities to institute ineffective, unsafe, costly, or inappropriate protective measures; undermine public trust in more evidence-based public health messages and interventions; and lead to a range of collateral negative consequences12 (see the section "Outcomes of Interest").

Social Media as Vector

Social media can serve as a medium through which risky behaviors are enabled and associated diseases transmitted. Examples include outbreaks of sexually transmitted infections4 and opiate use. For noncommunicable diseases, social media have been harnessed by industry to deliver targeted content and purchasing opportunities in the online market, increasing the consumption of tobacco and e-cigarette products and junk food8- 0 that contribute to cancer, obesity, type 2 diabetes, and cardiovascular disease.

Social Media as Inoculant

On the other hand, proactive communications-usually generated by public health entities- can effectively prevent or minimize the spread of misinformation and increase public awareness of accurate information.13 More often, such inoculating messages are created and disseminated as a reaction to misinformation. In response to misinformation concerns related to COVID-19, WHO's risk communication team launched a new information platform called WHO Information Network for Epidemics, which uses social media amplifiers to share tailored information with target 11 groups.

Social Media for Surveillance

Social media has the potential to enhance real-time surveillance related to incident disease,14 as well as to monitor exposures, including changes in air, soil, and water contaminant levels, and the food and built environments. Advances include so-called citizen science platforms15 and computational linguistics methods that allow the harnessing of big data from social media to identify emerging trends, track behavioral changes, and detect or even predict disease outbreaks.4

Social Media for Disease Control and Mitigation

Social media can disseminate health-promoting information that positively influences health behaviors, such as those that can reduce the spread or impact ofa disease by encouraging appropriate preventive measures.4,7,16 Public health entities increasingly recognize that social media can be an effective platform for disseminating messages to the population at large as well as to vulnerable, hard-to-reach subgroups.9 Furthermore, social media can generate public demand for transparency regarding the severity of an outbreak and modes of transmission and can provide a platform for discourse about the balance between protecting health and preserving individual freedoms. Similarly, social media communications can apply pressure and motivate resource allocation in support of outbreak preparedness and a robust public health response. Finally, social media can be an engine for grassroots movements to develop a common cause and narrative to advocate and implement policies that combat public health problems, such as type 2 diabetes and gun violence. These movements often employ countermessaging to hold accountable industries, such as junk food, beverage, and gun manufacturers, that contribute to modern epidemics.17

Social Media as Treatment

Social media can increase the likelihood that screening or treatment interventions are accessed when appropriate, including where and when (and when not) to seek care and how to be treated if ill.4 For noncommunicable diseases such as diabetes, chronic communicable diseases such as HIV, and mental health disorders such as depression, social media applications and networks provide peer support that can reduce symptom burden and improve quality of life, disseminate information on effective treatments, and promote recovery from illness.18 Finally, social media can play an important role in enhancing social connectedness and well-being for populations with a range of disabilities or those subject to social or geographic isolation.19 Relatedly, social media can serve as an important human bridge that connects people during outbreaks that require social distancing as well as a vehicle for uplifting and even humorous messages or other forms of support that promote healthy coping responses and advance communal resilience.4

INFLUENCING FACTORS

A number of factors influence the role ofsocial media across the SPHERE continuum (Figure 1).

Attributes of Health Communications

Features of the health communications can influence their impacts on the public, including

1. framing and content associated with messages, including their language, clarity, and ability to engage;
2. sources and messengers of the information, including official and unofficial sources;
3. characteristics of the platform and its participants;
4. timing of messages;
5. volume of messages, including numbers of messages initiated and remessaged;
6. influence of amplifiers and detractors on platforms,20 including autonomous social media agents (bots)21;
7. presence of message sponsorship and disclosure therein; and
8. rules, regulations, and controls, or extent ofinformation filtering or censorship applied by the platform or its governing bodies.

Characteristics of the Pathogen or Disease

Characteristics of the pathogen or disease that are the subjects of communications can determine which of the functions in the SPHERE continuum social media is focused on. Spikes in related communications occur in the midst of a pandemic, such as COVID-19, or right after a catastrophic public or media event, such as a mass shooting or an unexpected celebrity death. Social media communications regarding common, noncommunicable diseases, such as diabetes or cancer, most often increase in the context of (1) regulatory efforts, such as sugary drink taxes or antivaping initiatives; (2) the emergence of controversial clinical or public health guidelines; or (3) compelling scientific publications, such as a controversial study-whose authors had financial conflicts with the food industry-that supported the consumption of red meat and a study demonstrating how beverage industry-related financial conflicts of interest unduly influence research examining the effects ofsugary drinks on obesity and diabetes.22

Properties of the Host

The sociocultural and political contexts in which threats to health emerge present variable degrees of susceptibility or resistance to social media messages, engendering either receptivity or critical appraisal.23 These contexts can influence the extent of public trust in health authorities and the prevalence of science denial and conspiracy thinking. The balance between trust in science versus denial ofscience is a function, in part, of the perceived trustworthiness of official sources and channels.24 Characteristics and behaviors of social networks that receive and disseminate health communications to a community of listeners and amplifiers can also influence a subpopulation's likelihood of responding to one or more ofthe functions on the SPHERE continuum, affecting whether social media work to undermine or support health-promoting information, beliefs, attitudes, behaviors, and population health. Social media networks and online communities often serve as echo chambers that foster the replication and amplification of health content that reflects the community's beliefs and values, regardless of whether the communications are inaccurate versus accurate, or unofficial versus official, representations.

Under certain conditions, however, social media can serve as a platform that gradually reveals the wisdom ofthe crowd- enabling the sharing of disparate opinions and the development of a consensus that is more accurate, including decisions on productive, communal action. Specifically, in decentralized communication networks, group estimates become reliably more accurate as a result of information exchange, depending on network structure.25 Governments, regulatory agencies, and social media platforms themselves can institute digital policies and practices that determine allowable content and the extent of dissemination, including preferential message promotion, filtering and blocking messages, and censoring nonofficial communications.

OUTCOMES OF INTEREST

Health research on communications in the era of social media has largely limited itself to outcomes such as the accuracy of information, extent ofdissemination, uptake of misinformation, and effects on knowledge, attitudes, and beliefs.3,7 A more comprehensive and balanced approach to measuring the public health effects of social media communications is needed (Figure 1). First, effects should include proximal communication outcomes, including surveillance and monitoring, uptake of accurate (and inaccurate) information, and public awareness. Intermediate outcomes should involve domains such as outbreak preparedness, implementation of health-promoting policies, mobilization of resources to combat disease, the adoption of healthpromoting behaviors, and social well-being. Distal outcomes include disease incidence, transmission rates and morbidity and mortality, and cost-effectiveness. Finally, a number of collateral (nonhealth) consequences of communications disseminated via social media should be considered, including economic consequences, preferential or irrational allocation of public resources, mass anxiety or fear, discrimination and stigma, denial ofbasic rights, retaliation, and the erosion of public trust.12

CONCLUSIONS

Communication is the fundamental social process through which we all interact. And communicating about health-discussing how to stay strong, healthy, and well; sharing beliefs about how to avoid sickness and death; exchanging opinions about who will live or die; asking why some die and others do not-is a practice that likely began as early as human language emerged. From that perspective, the continuum of functions that social media can play with respect to public health is not surprising. What is novel, however, is how significantly social media has increased the capacity of communication to influence public health. To an unprecedented degree, the popularity and technical sophistication of social media platforms have translated into health discourse becoming more ubiquitous; content becoming more creative, innovative, and engaging; production becoming both more democratized and more market sponsored; communications becoming massively scalable and rapidly spreadable by influencers and autonomous bots20; artificial intelligence enabling high-volume tailoring and targeting of communications; and governments, regulatory agencies, corporate and sponsoring entities, and social media platforms themselves having the capacity to control the content and flow of communications.24

Yet scientists' and public health practitioners' abilities to make sense of the myriad ways that social media can influence public health have lagged, lacking a coherent framework for integrating core elements from communication and public health sciences. The SPHERE continuum can be used to guide researchers and practitioners. Given the scope of the digital revolution and its impact on contemporary communication, observational research is needed to deepen our understanding of the complex dynamics inherent in how social media functions across the public health continuum.

In this regard, the SPHERE continuum can inform and explain the work of health communication research as well as provide a common language and an easily understood framework to encourage collaborations with practitioners in ways that can advance public health. Specifically, the framework can be employed to jointly generate the most salient research questions, select the most relevant outcomes, and apply the most appropriate methods. In addition, the SPHERE continuum provides landmarks and signposts for the design of experimental (simulation) research in carefully controlled settings via randomized controlled trials with selected samples, as well as a blueprint for real-world, real-time, practicebased quasiexperimental research to be conducted with large populations in collaboration with public health practitioners and communication entities. Both types of interventional research can further inform efforts to effectively harness social media for health promotion while maintaining the unique appeal and value ofsocial media as a platform for constructive discourse in an open society. ÂfPU

CONTRIBUTORS

D. Schillinger obtained funding, generated the idea for this commentary and the SPHERE model, created the first draft, drafted subsequent versions, and submitted the final version. D. Chittamuru provided substantive input and feedback regarding the idea for this article and the SPHERE model and edited a draft of the article. A. S. Ramírez obtained funding, provided substantive input and feedback regarding the idea for this article, edited multiple drafts of the article, helped create the SPHERE model, and assisted in the revisions and the finalization.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

Sidebar

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DETAILS

Subject:	Pandemics; Epidemics; Health promotion; Population; Diabetes; Pathogens; Public health; COVID-19; Disease control; Surveillance; Social networks; Communication; Mass media effects; Disease prevention; Electronic cigarettes; Influence; Health education; Medical treatment; Social media; False information; Coronaviruses; Digital media; Roles; Disease transmission; Health surveillance; Mobile commerce
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The call for articles for this AJPH special section on rural health began with these words: "Rural health in America is at a crossroads." When that call was issued in late 2019, we had no idea how our world would change, and the impact of COVID-19 on the rural United States has caused a seismic shift, buckling that crossroad. COVID-19 aside, the crossroads still exist: predominately a declining and aging population, with a steadily eroding health infrastructure and shrinking economic base. For many, the road out is the only viable path. What vision of rural public health in the 21st century evokes the possibility of a reinvented and reinvigorated rural landscape?

Resourcing public health to meet the needs of rural america. (2020). American Journal of Public Health, 110(9), 1291-1292. Retrieved from https://www.proquest.com/scholarly-journals/resourcing-public-health-meet-needs-rural-america/docview/2435559362/se-2?accountid=211160

Rural public health in the United States is a field in tension. A lack of health care access and infrastructure, a smaller population and tax base, and perva-sive disparities along race and class lines complicate the work of rural public health. Rural local health departments (LHDs) are myriad in their service portfolio and activities mix because, in part, of this reality. As Beatty et al.(p. 1293) explore in this issue of AJPH, rural LHDs look differ-ent from their urban peers in a number of significant ways. This has changed somewhat since the Great Recession.

Birn, A., & Nervi, L. (2020). (Re-)making a people's WHO. American Journal of Public Health, 110(9), 1352-1353. doi:https://doi.org/10.2105/AJPH.2020.305806

As global health experts, politicians, civil society organizations, and six of the G7 leaders rally to support the World Health Organization (WHO; https:// bit.ly/3gP9Dyj) and counter the US administration's discrediting of the agency and suspension of funding, a moment of reflection is warranted. Undoubtedly, WHO is a crucial player (https://bit.ly/ 2U9s7Qh) in steering us through the COVID-19 pandemic, cooperating with member countries in developing pandemic preparedness plans (including for subsequent waves of the disease); gathering, analyzing, and disseminating critical epidemiological data; conveying sound, scientifically grounded policies and advice; establishing guidelines around testing, physical distancing, and other public health measures; setting norms on data collection and information sharing; and supporting research on drugs and vaccines. Ifproperly funded and granted the power by member countries, WHO has the potential to amp up its transport ofpersonal protective equipment and other essential supplies to protect frontline workers and serve as an international coordinator for the ethical and equitable distribution of diagnostics, vaccines, therapeutics, and equipment. As per the International Health Regulations, WHO is empowered to declare a public health emergency of international concern, as it did on January 30 regarding COVID-19 (https://bit.ly/2XvtQkU), and make a "real-time" response.

Lewandowski, S., Abuawad, A., Abatu, O., & Segura, L. E. (2020). The global Corruption–Health nexus. American Journal of Public Health, 110(9), 1254. doi:https://doi.org/10.2105/AJPH.2020.305855

ERRATUM. (2020). American Journal of Public Health, 110(9), 1. doi:https://doi.org/10.2105/AJPH.2019.305047e

COVID-19 emergency measures are hurting democracy globally. (2020). American Journal of Public Health, 110(9), 1356-1357. Retrieved from https://www.proquest.com/scholarly-journals/covid-19-emergency-measures-are-hurting-democracy/docview/2435556983/se-2?accountid=211160

There are not one, but two, pandemics on a joint rampage: COVID-19 and an authoritarian deployment of emergency powers to combat COVID-19. As governments scramble to contain the far-reaching health and economic costs inflicted by the evolving pandemic, political leaders worldwide are increasingly turning to excessive and disproportionate emergency containment measures that spell grave dangers for civil rights and liberties. This is as true of democracies as it is of semiauthoritarian states and dictatorships. Yet it is a legal and moral imperative that public health emergencies do not result in decisions that systemically regress hard-won advances in liberal democracy over the past century. Responsible governments must be more interventionist in the face of a pandemic. But derogation, even in the midst of a public health emergency, from democracy-enabling rights, such as personal liberty and privacy and freedom of speech and association, is strictly regulated by numerous key treaties, including the International Covenant on Civil and Political Rights, the American Convention on Human Rights, the Arab Charter on Human Rights, and the European Convention on Human Rights. The Siracusa Principles, adopted in 1984 by the United Nations Economic and SocialCouncil, impose additional controls such as necessity, proportionality, and good faith on limitations on, and derogations from, the rights contained in the International Covenant on Civil and Political Rights.

Health equity in midsize rural communities: Challenges and opportunities in a changing rural america. (2020). American Journal of Public Health, 110(9), 1342-1343. Retrieved from https://www.proquest.com/scholarly-journals/health-equity-midsize-rural-communities/docview/2435556976/se-2?accountid=211160

Increasing premature mortal-ity in the rural United States has brought new attention to rural health disparities. However, public health research on rural-urban disparities often overlooks the demographic, cultural, and eco-nomic heterogeneity of rural America.1 Addressing health in-equities between urban and rural areas, as well as within rural areas, requires an approach that con-siders the heterogeneity of com-munities across the rural-urban continuum as well as the growing sociodemographic diversity within rural settings.Although discussions of rural areas often conjure images of open space and towns of a few thousand people, most rural residents (59%) live in "micro-politan" communities: non-metropolitan areas with from 10 000 to 50 000 people. In the past two decades, micropolitan areas (which are distinguished from smaller, "noncore" areas) have experienced economic ad-versity and demographic changes that present unique challenges and opportunities for public health. We discuss recent changes in the economic conditions and demographic composition of micropolitan communities,

Liu, Jean Y,M.D., M.S., Franklin, Julie S,M.D., M.P.H., Gesek, Frank A,PhD., R.Ph, & Anderson, J. C., M.D. (2020). Buyback program of unused prescription opioids in US rural communities, 2017–2018. American Journal of Public Health, 110(9), 1318-1324. doi:https://doi.org/10.2105/AJPH.2020.305730

Objective. To implement an opioid buyback program after ambulatory surgery. Methods. We performed a prospective cohort study of 578 opioid-naive patients prescribed opioids after ambulatory surgery at a rural US Veterans Affairs (VA) hospital from 2017 to 2018. We reimbursed $5 per unused opioid pill ($50 limit) returned to our VAfor proper disposal. We tracked the number of participants, number of unused opioid pills returned, surgeon prescribing, and refill requests. Results. Out of 578 eligible patients, 171 (29.6%) returned 2136.5 unused opioid pills. Information shared with surgeons after 6 months led to a 27% decrease in opioid prescribing without an increase in refills. Conclusions. With this opioid buyback program, rural patients had a safe and convenient place to dispose of unused opioids. Surgeons used information about returns to adjustopioid prescribing aftercommon ambulatorysurgeries withoutan increase in refill requests. Public Health Implications. Although providers prescribe within state opioid guidelines, there will be variations in patient use after ambulatory surgery. An opioid buyback program helped our patients and surgeons decrease unused prescription opioids available for diversion in our rural communities. (Am J Public Health. 2020;110:13181324. doi:10.2105/AJPH.2020.305730)

Rosner, David,M.P.H., PhD., & Markowitz, G., PhD. (2020). Baby powders and the precautionary principle. American Journal of Public Health, 110(9), 1378-1379. doi:https://doi.org/10.2105/AJPH.2020.305839

On May 19, 2020, Johnson & Johnson (J&J) announced that it would discontinue the sale of talc-based Baby Powder in the United States. The announcement pointed to decline in demand because of "misinformation around the safety of the product and a constant barrage of litigation advertising" (https://bit.ly/2YcWh7s). While J&J would continue selling talc-based powder in Europe, North Americans would now only be sold a product based on cornstarch. For many decades, cornstarch or talc have been the prime ingredient in this signature product.1,2 But, in recent years, their talc-based powders have been the subject of lawsuits alleging that women and children who had been exposed to talc either as infants or while powdering after showers have developed mesotheliomas and ovarian cancers decades later. The lawsuits allege that their disease was caused by talc contaminated by asbestos, often in trace amounts.

Miech, Richard,PhD., M.P.H. (2020). Marijuana legalization and marijuana prevalence among adolescents. American Journal of Public Health, 110(9), 1268-1269. doi:https://doi.org/10.2105/AJPH.2020.305847

Probst, J. C., PhD., Zahnd, W. E., PhD., Hung, P., PhD., Eberth, J. M., PhD., Crouch, E. L., PhD., & Merrell, M. A., PhD. (2020). Rural-urban mortality disparities: Variations across causes of death and Race/Ethnicity, 2013–2017. American Journal of Public Health, 110(9), 1325-1327. doi:https://doi.org/10.2105/AJPH.2020.305703

Objectives. To examine rural-urban disparities in overall mortality and leading causes of death across Hispanic (any race) and non-Hispanic White, Black, American Indian/ Alaska Native (AI/AN), and Asian/Pacific Islander populations. Methods. We performed a retrospective analysis of age-adjusted death rates for all-cause mortality and 5 leading causes of death (cardiovascular, cancer, unintentional injuries, chronic lower respiratory disease, and stroke) by rural versus urban county of residence in the United States and race/ethnicity for the period 2013 to 2017. Results. Rural populations, across all racial/ethnic groups, had higher all-cause mortality rates than did their urban counterparts. Comparisons within causes of death documented rural disparities for all conditions except cancer and stroke among Hispanic individuals; Hispanic rural residents had death rates similar to or lower than urban residents. Rural Black populations experienced the highest mortality for cardiovascular disease, cancer, and stroke. Unintentional injury and chronic lower respiratory disease mortality were highest in rural AI/AN and rural non-Hispanic White populations, respectively. Conclusions. Investigating rural-urban disparities without also considering race/ethnicity leaves minority health disparities unexamined and thus unaddressed. Further research is needed to clarify local factors associated with these disparities and to test appropriate interventions. (Am J Public Health. 2020;110:1325-1327. doi:10.2105/ AJPH.2020.305703)

Short-term effects of state legalization on adolescent cannabis use may not predict any longer-term effects. (2020). American Journal of Public Health, 110(9), 1270-1271. Retrieved from https://www.proquest.com/scholarly-journals/short-term-effects-state-legalization-on/docview/2435556432/se-2?accountid=211160

Addressing the unmet need of family- planning services in zambia. (2020). American Journal of Public Health, 110(9), 1254. Retrieved from https://www.proquest.com/scholarly-journals/addressing-unmet-need-family-planning-services/docview/2435555769/se-2?accountid=211160

Hawks, L.,M.D.M.P.H., Wang, E. A.,M.D.M.A.S., Howell, B.,M.D.M.P.H.M.H.S., Woolhandler, S.,M.D.M.P.H., Himmelstein, D. U., M.D., Bor, D., M.D., & McCormick, D.,M.D.M.P.H. (2020). Health status and health care utilization of US adults under probation: 2015–2018. American Journal of Public Health, 110(9), 1411-1417. doi:https://doi.org/10.2105/AJPH.2020.305777

Objectives. To compare the health and health care utilization of persons on and noton probation nationally. Methods. Using the National Survey of Drug Use and Health, a population-based sample of US adults, we compared physical, mental, and substance use disorders and the use of health services of persons (aged 18-49 years) on and not on probation using logistic regression models controlling for age, race/ethnicity, gender, poverty, and insurance status. Results. Those on probation were more likely to have a physical condition (adjusted odds ratio AOR] = 1.3; 95% confidence interval CI] = 1.2,1.4), mental illness (AOR = 2.4; 95% CI = 2.1,2.8), or substance use disorder (AOR = 4.2;95% CI = 3.8, 4.5). They were less likely to attend an outpatient visit (AOR = 0.8;95% CI = 0.7,0.9) but more likely to have an emergency department visit (AOR = 1.8; 95% CI = 1.6, 2.0) or hospitalization (AOR = 1.7; 95% CI = 1.5, 1.9). Conclusions. Persons on probation have an increased burden of disease and receive less outpatient care but more acute services than persons not on probation. Public Health Implications. Efforts to address the health needs of those with criminal justice involvement should include those on probation. (Am J Public Health. 2020;110: 1411-1417. doi:10.2105/AJPH.2020.305777)

Racism, a root cause of health inequity, must be tackled head on. (2020). American Journal of Public Health, 110(9), 1258-1259. Retrieved from https://www.proquest.com/scholarly-journals/racism-root-cause-health-inequity-must-be-tackled/docview/2435555759/se-2?accountid=211160

Morris, N. P. (2020). Refusing testing during a pandemic. American Journal of Public Health, 110(9), 1354-1355. doi:https://doi.org/10.2105/AJPH.2020.305810

At the start of May, the United States was conducting approximately 250 000 diagnostic tests each day for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease 2019 (COVID-19).1 Researchers have proposed that running many more diagnostic tests, perhaps even millions per day, may be necessary to safely reopen the economy during this pandemic. Still, as testing becomes more available, health professionals and public health officials face a new challenge: not everyone wants to be tested.The implications of testing positive for SARS-CoV-2 may deter some people from testing. If testing positive means that people cannot leave their homes, return to work, or spend time with their families, they may not want to get tested at all. In March, after a COVID-19 outbreak on the Grand Princess cruise ship, passengers were quarantined at a California military base and, when initially offered diagnostic testing, 568 (66%) of 858 passengers declined. According to news reports, some passengers feared that undergoing testing or receiving positive results could lengthen their quarantine and delay their ability to return home, among other reasons for declining testing.

Jensen, L., PhD., Monnat, S. M., PhD., Green, J. J., PhD., Hunter, L. M., PhD., & Sliwinski, M. J., PhD. (2020). Rural population health and aging: Toward a multilevel and multidimensional research agenda for the 2020s. American Journal of Public Health, 110(9), 1328-1331. doi:https://doi.org/10.2105/AJPH.2020.305782

The unique health and aging challenges of rural populations often go unnoticed. In fact, the rural United States is home to disproportionate shares of older and sicker people, there are large and growing rural-urban and withinrural mortality disparities, many rural communities are in population decline, and rural racial/ethnic diversity is increasing. Yet rural communities are not monolithic, and although some rural places are characterized by declining health, others have seen large improvements in population health. We draw on these realities to call for new research in five areas. First, research is needed to better describe health disparities between rural and urban areas and, because rural places are not monolithic, across rural America. Second, research is needed on how trends in rural population health and aging are affecting rural communities. Third, research is needed on the ways in which economic well-being and livelihood strategies interact with rural health and aging. Fourth, we need to better understand the health implications of the physical and social isolation characterizing many rural communities. Finally, we argue for new research on the implications of local natural environments and climate change for rural population health and aging.

COVID-19: Widening health disparities among pediatric populations. (2020). American Journal of Public Health, 110(9), 1358-1359. Retrieved from https://www.proquest.com/scholarly-journals/covid-19-widening-health-disparities-among/docview/2435552929/se-2?accountid=211160

General pediatricians special-ize in preventive medicine-we vaccinate, provide anticipatory guidance, support parenting, perform developmental screen-ing, and connect families with needed services. Our constant goal is to ensure that all children achieve their fullest potential and live healthy, productive lives regardless of income, race, or immigration status. In these un-precedented times, the focus across all medical specialties has shifted from preventive to reac-tive medicine. In the field of pediatrics, we have restructured all of our primary care services to prevent further spread of COVID-19 among our patients and their families. Although children are not sickened by COVID-19 at the same rate as adults, the long-term impact of the pandemic will be all-encompassing and will have detrimental effects on children's health and development, espe-cially for at-risk populations such as immigrant and minority fam-ilies, children with develop-mental delays, and children who live below the poverty line.

Sanchez, E. J.,M.D.M.P.H. (2020). Toward optimal and equitable rural health. American Journal of Public Health, 110(9), 1340-1341. doi:https://doi.org/10.2105/AJPH.2020.305856

When this AJPH special section on rural health is published, the United States as a nation, the individual states, local communities, and US citizens will still be addressing and be affected by the COVID-19 (coronavirus disease 2019) pandemic, which will have resulted in more than two million cases of COVID-19-the disease caused by SARS-

CoV-2 (severe acute respiratory syndrome coronavirus 2)-and more than 115 000 deaths in the United States. The pandemic has made obvious the importance and value ofa competent, adequately resourced public health system and competent, adequately resourced hospital care, particularly critical care. The pandemic has also exposed the weaknesses and fragmented nature of the public health system and infrastructure in the United States and the medical care delivery system and infrastructure, which should, but do not, function as virtually one unified health system.

Wykoff, Randy, MD,M.P.H., T.M. (2020). The intergenerational cycles of rural health. American Journal of Public Health, 110(9), 1279-1280. doi:https://doi.org/10.2105/AJPH.2020.305852

This issue of AJPH provides both a somber assessment of the challenges of rural health in America and several glimmers of hope for the future. The articles and commentaries in this issue provide a valuable description of the status of health in rural America that will resonate with anyone who has been working in the field, and will benefit those in nonrural areas who wish to obtain a better understanding of rural health. It may also help nonrural readers better understand, more generally, their rural counterparts.

Health disparities of people living in the community on probation: A call to action for community and public health systems. (2020). American Journal of Public Health, 110(9), 1262-1263. Retrieved from https://www.proquest.com/scholarly-journals/health-disparities-people-living-community-on/docview/2435552537/se-2?accountid=211160

Peitzmeier, S. M.,PhD.M.S.P.H., MHS, M. M., Kattari, S. K., PhD., Marrow, E., A.B., Stephenson, R., PhD., Agénor, Madina, ScD,M.P.H., & Reisner, S. L., ScD. (2020). Intimate partner violence in transgender populations: Systematic review and meta-analysis of prevalence and correlates. American Journal of Public Health, 110(9), E1-E14. Retrieved from https://www.proquest.com/scholarly-journals/intimate-partner-violence-transgender-populations/docview/2435552431/se-2?accountid=211160

Background: Transgender individuals experience unique vulnerabilities to intimate partner violence (IPV) and may experience a disproportionate IPV burden compared with cisgender (nontransgender) individuals. Objectives: To systematically review the quantitative literature on prevalence and correlates of IPV in transgender populations. Search Methods: Authors searched research databases (PubMed, CINAHL), gray literature (Google), journal tables of contents, and conference abstracts, and consulted experts in the field. Authors were contacted with data requests in cases in which transgender participants were enrolled in a study, but no disaggregated statistics were provided for this population. Selection Criteria: We included all quantitative literature published before July 2019 on prevalence and correlates of IPV victimization, perpetration, or service utilization in transgender populations. There were no restrictions by sample size, year, or location. Data Collection and Analysis: Two independent reviewers conducted screening. One reviewer conducted extraction by using a structured database, and a second reviewer checked for mistakes or omissions. We used random-effects meta-analyses to calculate relative risks (RRs) comparing the prevalence of IPV in transgender individuals and cisgender individuals in studies in which both transgender and cisgender individuals were enrolled. We also used meta-analysis to compare IPV prevalence in assigned-female-sex-at-birth and assigned-male-sex-at-birth transgender individuals and to compare physical IPV prevalence between nonbinary and binary transgender individuals in studies that enrolled both groups. Main Results: We identified 85 articles from 74 unique data sets (ntotal = 49 966 transgender participants). Across studies reporting it, the median lifetime prevalence of physical IPV was 37.5%, lifetime sexual IPV was 25.0%, past-year physical IPV was 16.7%, and past-year sexual IPV was 10.8% among transgender individuals. Compared with cisgender individuals, transgender individuals were 1.7 times more likely to experience any IPV (RR = 1.66; 95% confidence interval CI] = 1.36, 2.03), 2.2 times more likely to experience physical IPV (RR = 2.19; 95% CI = 1.66, 2.88), and 2.5 times more likely to experience sexual IPV (RR = 2.46; 95% CI = 1.64, 3.69). Disparities persisted when comparing to cisgender women specifically. There was no significant difference in any IPV, physical IPV, or sexual IPV prevalence between assigned-female-sex-at-birth and assigned-male-sex-at-birth individuals, nor in physical IPV prevalence between binary- and nonbinary-identified transgender individuals. IPV victimization was associated with sexual risk, substance use, and mental health burden in transgender populations. Authors' Conclusions:

Transgender individuals experience a dramatically higher prevalence of IPV victimization compared with cisgender individuals, regardless of sex assigned at birth. IPV prevalence estimates are comparably high for assigned-male-sex-at-birth and assigned-female-sex-at-birth transgender individuals, and for binary and nonbinary transgender individuals, though more research is needed. Public Health Implications: Evidence-based interventions are urgently needed to prevent and address IPV in this high-risk population with unique needs. Lack of legal protections against discrimination in employment, housing, and social services likely foster vulnerability to IPV. Transgender individuals should be explicitly included in US Preventive Services Task Force recommendations promotingIPVscreening inprimary care settings. Interventions at the policy level as well as the interpersonal and individual level are urgently needed to address epidemic levels of IPV in this marginalized, high-risk population. (AmJ Public Health. 2020:110; e1-e14. doi:10.2105/AJPH.2020. 305774)

Finkel, Adam M,ScD., C.I.H. (2020). The "dangerous trades," fifty years after alice hamilton's death. American Journal of Public Health, 110(9), 1256-1257. doi:https://doi.org/10.2105/AJPH.2020.305848

Bartfeld, J. S. (2020). The community eligibility provision: Continuing the century-long debate over universal free school meals. American Journal of Public Health, 110(9), 1272-1273. doi:https://doi.org/10.2105/AJPH.2020.305853

Barbot, O., M.D. (2020). George floyd and our collective moral injury. American Journal of Public Health, 110(9), 1253. doi:https://doi.org/10.2105/AJPH.2020.305850

When I think of the torture and murder of George Floyd at the knee of a White police officer, I feel morally wounded.We've been here before, with countless Black men and women whose lives were taken by those who wielded unearned power over them. But to me, as a woman of color leading the country's largest public health agency, Mr. Floyd's death feels different because it represents a cumulative injury on top of the sustained acuity of health inequities playing out in horrifying details through the COVID-19 pandemic. This accumulation pays cruel dividends to communities ofcolor. Our data predict these outcomes but cannot undo them. It's like watching a preventable collision in slow motion that we're powerless to stop. The wreckage haunts us. So how to stop it, when signaling the need for systemic change seemingly never leads to sustainable action? Outrage at those in authority who are failing us is understandable when data documenting generations of disinvestment and inequitable health outcomes are so clear. We should feel morally injured by actions committed in the name of maintaining false power structures, and by those who choose to linger in descriptions of the wreckage rather than take actions to prevent it.

Le, T. K., B.S., Cha, L., B.A., Han, Hae-Ra,PhD., R.N., & Tseng, W., PhD. (2020). Anti-asian xenophobia and asian american COVID-19 disparities. American Journal of Public Health, 110(9), 1371-1373. doi:https://doi.org/10.2105/AJPH.2020.305846

As coronavirus disease 2ů19 (COVID-19) has rapidly spread across the United States, so has xenophobia and discriminatory acts against Asian Americans. From March 19, 2Ů2U. to May 13, 2Ů2Ů, more than 17ŮŮ anti-Asian hate incidents were documented across the United States. according to reports by the STOP AAPI Hate campaign from the Asian Pacific Policy and Planning Council. In one incident. a trucker threw a drink atan Asian American wearing a mask and gloves and yelled. "Hey Chink, you're f-ing nasty."1Although this new rise of racism is alarming, the association between disease, racism. and Asian Americans isnot new in US history. "Yellow Peril," or the tear that Chinese and other Asian immigrants were a threat to America and Western culture. led to the Chinese Exclusion Act of 1882-the first racial-based exclusion law in American history. At the turn of the 2ůth century. public health officials perceived Chinese and other "Orientals" as infested with disease, subjecting them to undue quarantine, medical examinations, and interrogations. For example, during the 19ůů to 19Ů4 bubonic plague in San Francisco, California. a Chinese American man. found dead in his apartment in San Francisco's Chinatown. was falsely accused of being the source of this plague; disease transmission was later found to be from rats and fleas. Nevertheless, ungrounded public xenophobia and bias against Chinese Americans resulted in the entire Chinatown area being quarantined and forced vaccinations during this period.

Sexual and gender minority health in the COVID-19 pandemic: Why data collection and combatting discrimination matter now more than ever. (2020). American Journal of Public Health, 110(9), 1360-1361. Retrieved from https://www.proquest.com/scholarly-journals/sexual-gender-minority-health-covid-19-pandemic/docview/2435551115/se-2?accountid=211160

The COVID-19 pandemic has exposed striking racial and ethnic disparities in the United States, with hospitalization and death rates highest for Black and Latinx Americans on a per capita basis and Native Americans and Pacific Islanders also experienc-ing greater disparities compared with White and Asian Ameri-cans.1 This is attributable to multiple syndemic factors, in-cluding higher rates of underly-ing comorbid conditions; higher rates of living in dense, urban housing and relying on public transportation; and a greater likelihood of working in front-line, essential jobs, such as food service, transportation, and health care, and therefore not being able to socially distance. Black, Latinx, and Native American people are more likely than are White and Asian American people to lack health insurance, less likely to access routine health care, and more likely to avoid health services because of medical mistrust and anticipated microaggressions.Although COVID-19 has sparked an important conversa-tion about racial/ethnic healthdisparities, the risks of COVID-19 for sexual and gender minority (SGM) people have received little to no attention. Most SGM people are a hidden population that exists in all racial/ethnic groups. Until recently they were invisible in the health care system. In recent years, the need for training in culturally responsive care and sexual orientation and gender identity (SOGI) data collection has been embraced by major health institutions. Atten-tion to the unique needs ofSGM people in the COVID-19 pan-demic, however, has been lacking.

Patel, S. Y.,PhD.M.S.W., Huskamp, H. A., PhD., Busch, A. B.,M.D.M.P.H., & Mehrotra, A.,M.D.M.P.H. (2020). Telemental health and US Rural–Urban differences in specialty mental health use, 2010–2017. American Journal of Public Health, 110(9), 1308-1314. doi:https://doi.org/10.2105/AJPH.2020.305657

Objectives. To examine whether growing use of telemental health (TMH) has reduced the rural-urban gap in specialty mental health care use in the United States. Methods. Using 2010-2017 Medicare data, we analyzed trends in the rural-urban difference in rates of specialty visits (in-person and TMH). Results. Among rural beneficiaries diagnosed with schizophrenia or bipolar disorder, TMH use grew by 425% over the 8 years and, in higher-use rural areas, accounted for one quarter of all specialty mental health visits in 2017. Among patients with schizophrenia or bipolar disorder, TMH visits differentially grew in rural areas by 0.14 visits from 2010 to 2017. This growth partially offset the 0.42-visit differential decline in in-person visits in rural areas. In net, the gap between rural and urban patients in specialty visits was larger by 2017. Conclusions. TMH has improved access to specialty care in rural areas, particularly for individuals diagnosed with schizophrenia or bipolar disorder. While growth in TMH use has been insufficient to eliminate the overall rural-urban difference in specialty care use, this difference may have been larger if not for TMH. Public Health Implications. Targeted policy to extend TMH to underserved areas may help offset declines in in-person specialty care. (Am J Public Health. 2020;110:1308-1314. doi:10.2105/AJPH.2020.305657)

CONFLICTS OF INTEREST. (2020). American Journal of Public Health, 110(9), 1274. doi:https://doi.org/10.2105/AJPH.2020.110.9.1274

Lewandowski, S., Abuawad, A., Abalu, O., & Segura, L. E. (2020). Iran's Rural–Urban mortality gap among children younger than 5 years. American Journal of Public Health, 110(9), 1254. doi:https://doi.org/10.2105/AJPH.2020.305855

Falbe, Jennifer,ScD., M.P.H., Grummon, Anna H,PhD., M.S.P.H., Rojas, N., M.P.H., Ryan-Ibarra, S., Silver, Lynn D,M.D., M.P.H., & Madsen, Kristine A,M.D., M.P.H. (2020). Implementation of the first US sugar-sweetened beverage tax in berkeley, CA, 2015–2019. American Journal of Public Health, 110(9), 1429-1437. doi:https://doi.org/10.2105/AJPH.2020.305795

Objectives. To identify lessons learned from implementation of the nation's first sugar-sweetened beverage (SSB) excise tax in 2015 in Berkeley, California. Methods. We interviewed city stakeholders and SSB distributors and retailers (n = 48) from June 2015 to April 2017 and analyzed records through January 2019. Results. Lessons included the importance of thorough and timely communications with distributors and retailers, adequate lead time for implementation, advisory commissions for revenue allocations, and funding of staff, communications, and evaluation before tax collection begins. Early and robust outreach about the tax and programs funded can promote and sustain public support, reduce friction, and facilitate beverage price increases on SSBs only. No retailer reported raising food prices, indicating that Berkeley's SSB tax did not function as a "grocery tax," as industry claimed. Revenue allocations totaled more than $9 million for public health, nutrition, and health equity through 2021. Conclusions. The policy package, context, and implementation process facilitated translating policy into public health outcomes. Further research is needed to understand long-term facilitators and barriers to sustaining public health benefits of Berkeley's tax and how those differ from facilitators and barriers in jurisdictions facing significant industry-funded repeal efforts. (Am J Public Health. 2020;110:1429-1437. doi:10.2105/ AJPH.2020.305795)

Ingram, M., M.P.H. (2020). Immigrants and access to care: Public health must lead the way in changing the nation's narrative. American Journal of Public Health, 110(9), 1260-1261. doi:https://doi.org/10.2105/AJPH.2020.305790

Guadamuz, J. S., PhD., Durazo-Arvizu, R., Daviglus, M. L.,M.D.PhD., Perreira, K. M., PhD., Calip, Gregory S, PharmD,PhD., M.P.H., Nutescu, Edith A,PharmD., M.S., . . . Qato, Dima M, PharmD,PhD., M.P.H. (2020). Immigration status and disparities in the treatment of cardiovascular disease risk factors in the hispanic community health Study/Study of latinos (visit 2, 2014–2017). American Journal of Public Health, 110(9), 1397-1404. doi:https://doi.org/10.2105/AJPH.2020.305745

Objectives. To estimate treatment rates of high cholesterol, hypertension, and diabetes among Hispanic/Latino immigrants by immigration status (i.e., naturalized citizens, documented immigrants, or undocumented immigrants). Methods. We performed a cross-sectional analyses of the Hispanic Community Health Study/Study of Latinos (visit 2, 2014-2017). We restricted our analysis to Hispanic/Latino immigrants with high cholesterol (n = 3974), hypertension (n = 3353), or diabetes (n = 2406); treatment was defined as use of statins, antihypertensives, and antidiabetics, respectively. Results. When compared with naturalized citizens, undocumented and documented immigrants were less likely to receive treatment for high cholesterol (38.4% vs 14.1%; prevalence ratio PR] = 0.37 95% confidence interval CI] = 0.27, 0.51] and 25.7%; PR = 0.67 95% CI = 0.58, 0.76]), hypertension (77.7% vs 57.7%;PR = 0.74 95% CI = 0.62, 0.89] and 68.1%;PR = 0.88 95% CI = 0.82,0.94]), and diabetes (60.3% vs. 50.4%;PR = 0.84 95% CI = 0.68,1.02] and 55.8%;PR = 0.93 95% CI = 0.83,1.03]);the latter did not reach statistical significance. Undocumented and documented immigrants had less access to health care, including insurance coverage ora usual health care provider, than naturalized citizens. Therefore, adjusting for health care access largely explained treatment disparities across immigration status. Conclusions. Preventing cardiovascular disease among Hispanic/Latino immigrants should focus on undertreatment of high cholesterol, hypertension, and diabetes by increasing health care access, especially among undocumented immigrants. (Am J Public Health. 2020;110:1397-1404. doi:10.2105/AJPH.2020.305745)

Kaysin, A., Carvajal, D. N., & Callahan, C. W. (2020). The role of alternate care sites in health system responsiveness to COVID-19. American Journal of Public Health, 110(9), 1362-1364. doi:https://doi.org/10.2105/AJPH.2020.305838

The COVID-19 pandemic has altered life and upended health and the economy for millions of Americans, highlighting fault lines that sharply divide our population along racial/ethnic and socioeconomic status. These determinants predict life expectancy, food and housing security, health care access, and educational and economic opportunities. In Baltimore, Maryland, a city ofsegregated neighborhoods, life expectancy varies by up to 16 years and the infant mortality rate can vary by a factor of 20 across communities separated by just a few miles.1 These differences traverse many health and socioeconomic indicators that befall the largely Black neighborhoods and are marked by years of civic neglect, inadequate housing policies, and gross underinvestment.The cruelty of COVID-19 is not only its high transmission potential and its mortality rate. It is also the disproportionate ill effects on the most vulnerable and marginalized populations, who are already far more likely to experience underlying chronic health conditions; have limited or no access to healthy foods; reside in group homes, homeless shelters, or prisons; and have lower health care access.2,3 Although few population-based COVID19 studies have been published, initial research and reporting clearly indicate that Black, Latinx, and Native American populations are disproportionately affected by COVID-19.

Rothstein, M. A. (2020). Public health and privacy in the pandemic. American Journal of Public Health, 110(9), 1374-1375. doi:https://doi.org/10.2105/AJPH.2020.305849

The fundamental ethical, legal, and policy challenge of public health is balancing public and individual interests, often conceptualized as the conflict between utilitarianism and libertarianism. During the COVID-19 (coronavirus disease 2019) pandemic, this struggle has involved the imposition of extraordinary levels of government-mandated social distancing to protect public health followed by impassioned efforts to lessen these constraints in the interests of individual liberty and economic renewal. The same type of conflict exists between individual interests in health privacy and public health interests in the collection, use, and disclosure of health information. The COVID-19 pandemic presents these issues in a unique way because it is the most deadly pandemic in more than a century and new technologies permit an unprecedented level of information collection, aggregation, analysis, and dissemination.

Palma, M. L., M.D., Arthofer, A., B.S., Halstead, K. M., Wahba, J. M., B.S., & Martinez, D. A., M.D. (2020). Service learning in health care for underserved communities: University of iowa mobile clinic, 2019. American Journal of Public Health, 110(9), 1304-1307. Retrieved from https://www.proquest.com/scholarly-journals/service-learning-health-care-underserved/docview/2435548012/se-2?accountid=211160

The University of Iowa Mobile Clinic (UIMC) is an interdisciplinary student-run free medical clinic founded in 2002. UIMC provides free health screenings, education, and basic services to underserved populations in Iowa: immigrants, refugees, migrant farmworkers, individuals experiencing homelessness, low-income individuals, and people who live in rural communities. Forty-four percent of patients surveyed use UIMC as their only source of care. Ninety-seven percent of patients surveyed rate care as excellent or good. UIMC is a crucial safety net health care resource in Iowa to improve health equity. (Am J Public Health. 2020;1 10:1304-1307. doi:10. 2105/AJPH.2020.305755) The University of Iowa Mobile Clinic (UIMC) is an interdisciplinary initiative of health sciences students from the schools of medicine, nursing, pharmacy, dentistry, physician assistant, physical therapy, public health, and social work. Founded in 2002, for nearly two decades, UIMC has provided free health screenings, education, and basic services to underserved populations in Iowa: immigrants, refugees, migrant farmworkers, individuals experiencing homelessness, and those who are justice involved, are low income, or live in rural communities.

Hecht, A. A., PhD., Porter, Keshia M Pollack,PhD., M.P.H., & Turner, L., PhD. (2020). Impact of the community eligibility provision of the healthy, hunger-free kids act on student nutrition, behavior, and academic outcomes: 2011–2019. American Journal of Public Health, 110(9), 1405-1410. doi:https://doi.org/10.2105/AJPH.2020.305743

The Community Eligibility Provision (CEP) allows high-poverty schools participating in US Department of Agriculture meal programs to offer universal free breakfast and lunch. Authorized as part of the Healthy, HungerFree Kids Act of 2010, CEP became available to eligible schools nationwide in 2014. Emerging evidence suggests that schools that provide universal free meals experience positive impacts on student nutrition, behavior, and academic performance. In particular, schools benefit from increased meal participation rates. There is mixed evidence of impacts on test scores and attendance, and limited but promising results showing improvements in weight outcomes, on-time grade promotion rates, disciplinary referrals, and food security. In this article, we summarize the growing evidence base and suggest policy approaches to increase the use of CEP by eligible schools. (Am J Public Health. 2020;110:1405-1410. doi:10.2105/ AJPH2020.305743)

DuPre, N., ScD., Blair, L., M.P.H., Moyer, S.,M.D.M.P.H., Cook, E. F., Little, B., PhD., & Howard, J.,M.D.M.P.H. (2020). Hepatitis A outbreaks associated with the opioid epidemic in kentucky counties, 2017–2018. American Journal of Public Health, 110(9), 1332-1339. doi:https://doi.org/10.2105/AJPH.2020.305789