



Are You Using fFN Testing Correctly?

[Take the Quiz](#)

RapidfFN[®]

Volume 66, Number 2, March/April 2021

www.jmwh.org

Journal of Midwifery & Women's Health



The Official Journal of the American College of Nurse-Midwives



Editor-In-Chief

Frances E. Likis, CNM, NP, DrPH, FACNM, FAAN
Nashville, Tennessee

Deputy Editors

Ira Kantrowitz-Gordon, CNM, PhD, FACNM
Seattle, WA
Patricia Aikins Murphy, CNM, DrPH, FACNM, FAAN
Salt Lake City, Utah
Tekoa L. King, CNM, MPH, FACNM
Oakland, California

Associate Editors

Melissa D. Avery, CNM, PhD, FACNM, FAAN
Minneapolis, MN
Jenifer O. Fahey, CNM, MSN, MPH, FACNM
Baltimore, MD
Mary K. Barger, CNM, PhD, MPH, FACNM
San Diego, CA
Kathryn Osborne, CNM, PhD, FACNM
Little Elm, TX
Sharon Bond, CNM, PhD, FACNM
Charleston, SC
Julia C. Phillippi, CNM, PhD, FACNM, FAAN
Nashville, TN
Simon Adriane Ellis, CNM, ARNP
Seattle, WA
Pamela J. Reis, CNM, PhD, NNP-BC, FACNM
Raleigh, NC

Contributing Editors

Amy Alspaugh, CNM, MSN, PhD
Updates from the Literature
Nancy A. Niemczyk, CNM, PhD
Updates from the Literature
Rebecca R. S. Clark, CNM, PhD, MSN, RN, WHNP-BC
Updates from the Literature
Lindsey D. Wilson, CNM, DNP
Share with Women
Linda A. Hunter, CNM, EdD, FACNM
Clinical Rounds

Consulting Editors

Marit L. Bovbjerg, PhD, MS *Statistics*
Robyn T. Churchill, CNM, MSN, FACNM *Global Health*
Michelle Dynes, CNM, PhD, MPH, MSN, FACNM *Public Health*
Jennifer Foster, CNM, PhD, MPH, FACNM, FAAN *Diversity and Inclusion in the Midwifery Workforce*
Barbara Hackley, CNM, PhD, FACNM *Quality Improvement*
Nena R. Harris, CNM, FNP-BC, CNE, PhD *Health Disparities*
Abigail Howe-Heyman, CNM, PhD, RN *Health and Public Policy*
Jenna LoGiudice, CNM, PhD, FACNM *Education*
Maureen Shannon, CNM, FNP, PhD, FACNM, FAAN *Ethics*
Karlina Wilson-Mitchell, CNM, DNP, MSN, RM, RN, FACNM *International Midwifery*

Editor Emeritus

Mary Ann Shah, CNM, MS, FACNM

Wiley Editor

Vickie Thaw
vthaw@wiley.com

Managing Editor

Brittany Swett
jmwh@acnm.org

Aims & Scope

The *Journal of Midwifery & Women's Health (JMWH)* is the official journal of the American College of Nurse-Midwives. This peer-reviewed journal includes new research and current knowledge across a broad range of clinical and interprofessional topics including perinatal care, gynecology, sexual and reproductive health, primary care, public health, health care policy, and global health. With a focus on evidence-based practice, *JMWH* promotes health equity and excellence in midwifery.



AMERICAN COLLEGE of NURSE-MIDWIVES

8403 Colesville Road, Suite 1550 Tel: 240-485-1800
Silver Spring, Maryland 20910-6374 Fax: 240-485-1818

www.midwife.org

Board of Directors

Cathy Collins-Fulea, CNM, DNP, MSN, FACNM
Saint Petersburg, Florida
President

Jessica Brumley, CNM, PhD, FACNM <i>Tampa, Florida</i> <i>Vice President</i>	Kathleen Lavery, CNM, MS <i>Jackson, Michigan</i> <i>Region IV Representative</i>
Bridget Howard, CNM, MSN <i>Erial, New Jersey</i> <i>Secretary</i>	Ann Forster Page, CNM, DNP, ARRN, FACNM <i>Golden Valley, Minnesota</i> <i>Region V Representative</i>
Cara Krulewicz, CNM, PhD, FACNM, FAAN <i>Derwood, Maryland</i> <i>Treasurer</i>	Jessica Anderson, CNM, DNP, WHNP-BC, FACNM <i>Aurora, Colorado</i> <i>Region VI Representative</i>
Karen Jefferson, CM, DM, FACNM <i>Brooklyn, New York</i> <i>Region I Representative</i>	Theresa Coley-Kouadio, CNM, MSN <i>Kotzebue, Alaska</i> <i>Region VII Representative</i>
Nichole Wardlaw, CNM, FACNM <i>Chesapeake, Virginia</i> <i>Region II Representative</i>	Felina M. Ortiz, CNM, RN, DNP <i>Albuquerque, New Mexico</i> <i>Midwife of Color Representative, Ex Officio</i>
Elois Edge, CNM, CLC, DNP, MSN <i>Albany, Georgia</i> <i>Region III Representative</i>	Kendall McCoy <i>Brooklyn, New York</i> <i>Student Representative</i>

National Office

General ACNM Information

Web: www.midwife.org
Email: info@acnm.org

A.C.N.M. Foundation

Web: <http://www.midwife.org/foundation>
Email: fdn@acnm.org

Communications

Web: www.midwife.org/newsroom
Email: pr@acnm.org

Consumer Information

Web: www.ourmomentoftruth.com

Continuing Education and Practice Resources

Web: <http://acnm.sclivelearningcenter.com>
www.midwife.org/professional-resources

Finance

Email: accounting@acnm.org

Midwifery Practice & Education Global Outreach

Web: www.midwife.org/global-outreach
Email: globaloutreach@acnm.org

Government Relations

Web: www.midwife.org/advocacy
Email: govaffairs@acnm.org

Meetings

Web: www.midwife.org/news
Email: events@acnm.org

Membership & Publications

Web: www.midwife.org/member-resources
Email: membership@acnm.org
Email (Quickening): quick@acnm.org

Midwifery Employment

Web: www.midwifejobs.com

Midwifery Practice, Education, and Global Outreach

Email: MPEGO@acnm.org

Midwife Practice Locator

Web: <http://www.midwife.org/rp/find.cfm>

Publications

Web: www.midwife.org/ACNM-newsletters

Annual Meeting Dates

May 2021: Virtual Meeting

May 2022: Chicago, Illinois

Mission

The American College of Nurse-Midwives (ACNM) works to establish midwifery as the standard of care for women. We lead the profession through education, clinical practice, research, and advocacy.

Periodical Postage Paid at Hoboken, NJ and additional offices.

Postmaster: Send all address changes to THE JOURNAL OF MIDWIFERY & WOMEN'S HEALTH, John Wiley & Sons Inc., C/O The Sheridan Press, PO Box 465, Hanover, PA 17331.

DISCLAIMER: The Publisher, American College of Nurse-Midwives, and Editors cannot be held responsible for errors or any consequences arising from the use of information contained in this journal; the views and opinions expressed do not necessarily reflect those of the Publisher, American College of Nurse-Midwives, and Editors, neither does the publication of advertisements constitute any endorsement by the Publisher, American College of Nurse-Midwives, and Editors of the products advertised.

Copyright © 2021 American College of Nurse-Midwives. All rights reserved. No part of this publication may be reproduced, stored or transmitted in any form or by any means without the prior permission in writing from the copyright holder. Authorization to photocopy items for internal and personal use is granted by the copyright holder for libraries and other users registered with their local Reproduction Rights Organisation (RRO), e.g. Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, USA (www.copyright.com), provided the appropriate fee is paid directly to the RRO. This consent does not extend to other kinds of copying such as copying for general distribution, for advertising or promotional purposes, for republication, for creating new collective works or for resale. Permissions for such reuse can be obtained using the RightsLink "Request Permissions" link on Wiley Online Library. Special requests should be addressed to: permissions@wiley.com.

INFORMATION FOR SUBSCRIBERS: The *Journal of Midwifery & Women's Health* is published in six issues per year. Institutional subscription prices for 2021 are: Print & Online: US\$907 (US), US\$907 (Rest of World), €741 (Europe), £645 (UK). Prices are exclusive of tax. Asia-Pacific GST, Canadian GST/HST and European VAT will be applied at the appropriate rates. For more information on current tax rates, please go to <https://onlinelibrary.wiley.com/library-info/products/price-lists/payment>. The price includes online access to the current issue, and the complete archive back to January 1st 2017, where available. For other pricing options, including access information and terms and conditions, please visit <https://onlinelibrary.wiley.com/library-info/products/price-lists>. Terms of use can be found here: <https://onlinelibrary.wiley.com/terms-and-conditions>.

DELIVERY TERMS AND LEGAL TITLE: Where the subscription price includes print issues and delivery is to the recipient's address, delivery terms are Delivered Duty Unpaid (DDU); the recipient is responsible for paying any import duty or taxes. Title to all issues transfers Free of Board (FOB) our shipping point, freight prepaid. We will endeavour to fulfil claims for missing or damaged copies within six months of publication, within our reasonable discretion and subject to availability.

BACK ISSUES: Single issues from current and recent volumes are available at the current single issue price from cs-journals@wiley.com. Earlier issues may be obtained from Periodicals Service Company, 351 Fairview Avenue - Ste 300, Hudson, NY 12534, USA. Tel: +1 518 822-9300, Fax: +1 518 822-9305, Email: psc@periodicals.com.

PUBLISHER: The *Journal of Midwifery & Women's Health* is published by Wiley Periodicals Inc., 101 Station Landing, Suite 300, Medford, MA 02155.

Journal Customer Services: For ordering information, claims and any enquiry concerning your journal subscription please go to <https://hub.wiley.com/community/support/onlinelibrary> or contact your nearest office.

Americas: Email: cs-journals@wiley.com; Tel: +1 781 388 8598 or +1 800 835 6770 (toll free in the USA & Canada).

Europe, Middle East and Africa: Email: cs-journals@wiley.com; Tel: +44 (0) 1865 778315.

Asia Pacific: Email: cs-journals@wiley.com; Tel: +65 6511 8000.

Japan: For Japanese speaking support, Email: cs-japan@wiley.com.

Visit our Online Customer Get-Help available in 7 languages at <https://hub.wiley.com/community/support/onlinelibrary>.

PRODUCTION EDITOR: Anju Upadhyay (email: jmwh@wiley.com)

ADVERTISING: MJ Drown (email: mdrawn@wiley.com)

COMMERCIAL REPRINTS: Lydia Supple-Pollard (email: lsupple@wiley.com)

View this journal online at www.wileyonlinelibrary.com/journal/jmwh.

Wiley is a founding member of the UN-backed HINARI, AGORA, and OARE initiatives. They are now collectively known as Research4Life, making online scientific content available free or at nominal cost to researchers in developing countries. Please visit Wiley's Content Access Corporate Citizenship site: <http://www.wiley.com/WileyCDA/Section/id-390082.html>

Printed in the USA by The Sheridan Group

Aims and Scope: The *Journal of Midwifery & Women's Health (JMWH)* is the official journal of the American College of Nurse-Midwives. This peer-reviewed journal presents new research and current knowledge across a broad range of clinical and interdisciplinary topics including maternity care, gynecology, primary care for women and newborns, public health, health care policy, and global health. With a focus on evidence-based practice, *JMWH* is dedicated to improving the health care of women throughout their lifespan and promoting excellence in midwifery.

The *Journal of Midwifery & Women's Health* accepts articles for Open Access publication. Please visit <https://authorservices.wiley.com/author-resources/Journal-Authors/open-access/onlineopen.html> for further information about OnlineOpen.

For submission instructions, subscription and all other information visit www.wileyonlinelibrary.com/journal/jmwh.

Abstracting and Indexing Services: The Journal is indexed by Science Citation Index, CINAHL, MEDLINE, PsycINFO, & SCOPUS. For a complete listing of A&I services please visit the journal homepage at www.wileyonlinelibrary.com/journal/jmwh.

Wiley's Corporate Citizenship initiative seeks to address the environmental, social, economic, and ethical challenges faced in our business and which are important to our diverse stakeholder groups. Since launching the initiative, we have focused on sharing our content with those in need, enhancing community philanthropy, reducing our carbon impact, creating global guidelines and best practices for paper use, establishing a vendor code of ethics, and engaging our colleagues and other stakeholders in our efforts. Follow our progress at www.wiley.com/go/citizenship.



Editorials

141 Avoiding Cognitive Biases When Reading Research Studies

Tekoa L. King

143 Honoring Authorship Responsibilities in Manuscript Preparation

Patricia Aikins Murphy, Frances E. Likis, Tekoa L. King, Ira Kantrowitz-Gordon

Commentary

145 Ensuring Racial Equity in Midwifery Education Programs: Beginning Steps for Midwifery Education

Ronnie Lichtman, Jennifer Woo, Pamela Reis, Carrie S. Klima, Dana Perlman

Original Research and Reviews

148 Myofascial Pelvic Pain: An Overlooked and Treatable Cause of Chronic Pelvic Pain

Continuing Education

Recognizing and treating myofascial sources of pain can improve care and outcomes for patients with chronic pelvic pain.

Vanessa Ross, Carly Detterman, Anastasia Hallisey

161 The Attitudes and Beliefs of Australian Midwives and Obstetricians About Birth Options and Labor Interventions

The beliefs of Australian midwives and obstetricians about birth options and labor interventions are influenced by their professional group.

Dominiek Coates, Natasha Donnelly, Amanda Henry

174 Client Experience with the Ontario Birth Center Demonstration Project

Women receiving midwifery care have positive experiences and high satisfaction, regardless of intended place of birth.

Jessica Reszel, Deborah Weiss, Elizabeth K. Darling, Dana Sidney, Vicki Van Wagner, Bobbi Soderstrom, Judy Rogers, Vivian Holmberg, Wendy E. Peterson, Bushra M. Khan, Mark C. Walker, Ann E. Sprague

185 Core Outcome Sets Relevant to Maternity Service Users: A Scoping Review

The quality of the development process for maternity-related core outcome sets has advanced in recent years; however, further improvement is needed.
Valerie Slavin, Debra K. Creedy, Jenny Gamble

203 Patient Experience with Postpartum Pain Management in the Face of the Opioid Crisis

A qualitative analysis of women's postpartum pain experiences indicates the desire for multimodal pain management and increased communication about pain control with health care providers.

Karolina Leziak, Lynn M. Yee, William A. Grobman, Nevert Badreldin

211 The Lived Experience of Postpartum Women Attending Outpatient Substance Treatment for Opioid or Heroin Use

Postpartum women with opioid or heroin use have complex needs that may be best served by treatment programs that offer comprehensive care.

Donna Proulx, Heidi Collins Fantasia

218 Testing an Online Training Session on Couples' Perinatal Sexual Changes Among Health Care Professionals and Paraprofessionals

A brief online training session offered to perinatal health care workers improves their knowledge, attitudes, and perceived counselling skills regarding couples' sexual changes during and after pregnancy.

Catherine de Pierrepont, Audrey Brassard, Isabelle Lessard, Anne-Sophie Gingras, Katherine Péloquin

227 Knowledge of and Attitudes Toward Perinatal Home Visiting in Women with High-Risk Pregnancies

Women express both interest in and reluctance about home visiting programs, and they hold varying opinions of the services they would like these programs to offer.

Jennifer L. Barkin, Joan Rosen Bloch, Katherine E.R. Smith, Sarah N. Telliard, Analise McGreal, Chris Sikes, Amare Ezeamama, Massimiliano Buoli, Marta Serati, Christy C. Bridges

233 Integrating Mental Health into Maternal Health Care in Rural Mali: A Qualitative Study

The integration of mental health into maternal health services is a feasible and acceptable way to reduce the mental health treatment gap in rural Mali.

Molly E. Lasater, Sarah M. Murray, Mariam Keita, Fatoumata Souko, Pamela J. Surkan, Nicole E. Warren, Peter J. Winch, Aissata Ba, Seydou Doumbia, Judith K. Bass

240 Women's Experience of Pelvic Girdle Pain After Childbirth: A Meta-Synthesis

Pelvic girdle pain following birth is an invisible pain that often restrains women from performing their maternal role causing emotional distress.

Pornpan Srisopa, Ruth Lucas

249 The Recorded Interaction Task: A Validation Study of a New Observational Tool to Assess Mother-Infant Bonding

The novel Recorded Interaction Task demonstrates acceptable face and content validity and appears to be a viable observational tool for assessment of mother-infant bonding.

Hannah Edwards, Femke TA Buisman-Pijlman, Adrian Esterman, Craig Phillips, Sandra Orgeig, Andrea Gordon

256 Home Birth in Rural Zambia: The Role of Intimate Partner Violence and Autonomous Decision-Making

Physical intimate partner violence is not significant in predicting home births while autonomous decision-making is significantly associated with home birth among women in rural Zambia.

Dana Beck, Philip T. Veliz, Michelle Munro-Kramer, Thandiwe Ngoma, Nancy Scott, Jeanette L. Kaiser, Gertrude Musonda, Jody R. Lori

Clinical Rounds

265 Placenta Accreta Spectrum

Leslie A. Brown, Margarita Menendez-Bobseine

Updates from the Literature

270 Updates from the Literature, March/April 2021

Nancy A. Niemczyk, Caroline Osborne

Evidence-Based Practice

274 Current Resources for Evidence-Based Practice, March/April 2021

Mary K. Barger

Continuing Education Form

283 Myofascial Pelvic Pain (2021/014)

Share with Women

285 Fetal Heart Rate Monitoring in Labor



Are You Using fFN Testing Correctly?

[Take the Quiz](#)

RapidfFN[®]

Avoiding Cognitive Biases When Reading Research Studies

In most high-income nations, clinical practice is primarily based on the results of basic and clinical research. These investigations measure, test, and estimate the safety and efficacy of therapies that are designed to promote or improve the health status of an individual. However, midwifery and obstetrics are old professions, whereas statistical research methods are relatively young. The professions were well established before the invention of sound research methods that are now used to evaluate practice. Thus, each midwife and physician has a knowledge base with multiple precepts that may or may not be evidence-based or valid. Reading, interpreting, and applying the published research that pertains to one's work is therefore an integral and ongoing facet of our professional lives. An important aspect of this process is identification of biases that can affect research results and readers' interpretation of those results.

Bias refers to disproportionate weighting in favor of or against something, which becomes a systematic error that causes inaccurate conclusions.¹ Knowledge of common research biases can aid a reader in evaluating the strength and value of a study.¹⁻³ A less explored aspect of interpreting research is the influence of cognitive biases on how a reader weighs or values research findings.⁴ Cognitive biases are natural results of brain processing patterns within stimuli received from the external environment.⁵⁻⁷ They are identified associations or patterns that increase mental efficiency because they enable quick decision-making.^{7,8} However, cognitive biases can be problematic when they distort judgement and prevent an objective analysis.

Many different cognitive biases have been described.⁵ A few tricks can help avoid misjudgments that are secondary to some common cognitive biases when reading a research article. First, after reading the title, ask yourself what information you expect and what findings would make you uncomfortable. That exercise is a first step in identifying how your beliefs might affect your interpretation. *Confirmation bias* refers to valuing study results that confirm prior beliefs (or conversely, discounting studies that challenge those beliefs). Readers who believe induction of labor increases the risk of cesarean birth may have a confirmation bias that could make it difficult to objectively value the findings of studies that show induction of labor is a safer option than expectant management for women at 41 weeks' gestation or more.⁹ Interestingly, confirmation bias may be one of the most important reasons therapies are not removed from practice after well-done studies have shown they are ineffective. The first randomized trials that showed routine episiotomy was associated with increased morbidity were published in the early 1980s, but it was not until the mid-1990s that the practice of restrictive use of episiotomies was adopted.¹⁰

Second, skip the conclusion of the abstract. The abstract is the author's summary of the study results and is written to attract readers. You might avoid several common biases by

avoiding reading the author's conclusion first. *Framing bias* refers to how individuals react to a scenario differently depending on how it is presented to them. *Anchoring bias* refers to the tendency to accept or anchor on the first piece of information acquired on a subject. However, the author's abstract summary may not be an objective conclusion. Skipping the abstract conclusion also helps avoid *premature closure bias*, which refers to finalizing a decision before all the data are presented and verified.⁵

Third, briefly read the introduction to identify the question the author wanted to address. Look for a purpose statement, aims of the study, or text that describes what is not known that necessitated the need for this study. This text tells you what the author's hypothesis or purpose was in conducting the study.

The fourth step is a close reading of the methods section. Don't be afraid of this section; you do not have to be an expert in statistics to evaluate how well a study result can benefit your professional work. Focus first on identifying inclusion criteria (are the participants in this study similar to the people in your practice with regard to characteristics such as race, ethnicity, age, or educational attainment?) and then exclusion criteria (did they exclude people who should have been included?). For example, consider a study that finds breastfeeding duration is improved following a particular form of prenatal counseling. Breastfeeding studies are classic feel-good studies for midwives. Most of us consider human milk the ideal food for newborns, so studies that document positive outcomes of breastfeeding fit nicely into our *confirmation bias*, and therefore we might overvalue the findings of studies that have modest results. In this hypothetical breastfeeding study, all the women had high family incomes. Thus, the study starts out with a *selection bias* because the participants are not reflective of the general population of persons who have recently given birth. And that problem opens the door to *confounding*, which refers to an unidentified factor that independently affects the outcome. In this case, it is possible that the participants could afford to take extended time off work to breastfeed exclusively, and perhaps taking that time off had more of an effect on breastfeeding duration than did the prenatal counseling.

The next step is to identify what variables were compared in the study. Were the outcome variables valid given the intervention or therapy that was evaluated? A *plausibility and mechanism bias* can either make you more receptive to or more critical of study results.⁴ For example, outcomes of acupuncture studies are viewed critically by some readers because of a lack of understanding of acupuncture's mechanism of action but positively by others who believe in a particular mechanism of action. Biologic plausibility was one of the foundations supporting use of hormone therapy (HT) to treat menopausal symptoms, and initial observational studies supported this theory with positive findings for the effects of HT.



Thus, when the Women's Health Initiative study found HT increased the risks of adverse outcomes such as stroke and did not decrease coronary heart disease incidence, it was initially difficult for many clinicians and users to accept the findings.¹¹

Once you understand what was done, who was included, and if the health outcomes that were the focus of study were likely to be affected by the intervention versus some a priori characteristics of the study participants, then read the results and tables. Now... stop and evaluate this study for yourself. Did the study address the hypothesis or answer the study question? Are the results informative? Were there interesting findings in the tables that may or may not have been noted by the author in the text? Usually studies have a demographic table showing participants' characteristics, such as race, ethnicity, age, and educational attainment levels. This table reveals more details about the study participants than you will find in the text.

This time-out step of internal evaluation before reading the discussion section can help you avoid *attentional bias*, which refers to our tendency to selectively pay attention to specific parts of a manuscript to the exclusion of other parts. It also allows the reader to consider *illusions of causality* or *false causality bias*, which is a particular problem inherent in observational study designs.^{12,13} Because our brains identify patterns as a way of learning in order to predict outcomes, it is a natural tendency to infer causality as the explanatory link between 2 events. After reading a study that found persons who use epidural analgesia during labor were more likely to have a newborn with a low Apgar score, it can be almost automatic to assume that the epidural analgesia caused the low Apgar score. Because correlation is not causation, one can avoid making this slip by taking a moment to clarify what the study found.

Finally, relax and read the discussion and conclusion sections to learn what the author considered were important take-home messages. By now, you have methodically evaluated the study with use of some mental steps that can help diminish the effects of unconscious bias.

Biases are subtle but ubiquitous in all of us. They are also predictable deviations from objective evaluation. Biases can be helpful in clinical decision-making when used to rapidly identify a pattern and make an accurate diagnosis. Clinicians rely on use of these mental shortcuts to help our patients.⁶ They can also be harmful if relied upon without awareness of their effects. Biases are likely a large reason why study results that question established practice are slow to be adopted. Midwifery, obstetrics, and all of medicine are frankly inexact

sciences and very young with regard to use of statistical objectivity to weigh harms versus benefits. Thus, we have to be able to change our minds and adapt as new knowledge is generated. The human brain is wired to identify patterns. Therefore, the process of recognizing bias is never-ending, and the need to be open to learning is a lifelong commitment. By reading published research reports in the order suggested in this editorial, you can evaluate the research methodically using a process that can help avoid stimulation of natural biases.

Tekoa L. King, CNM, MPH

REFERENCES

1. Delgado-Rodríguez M, Llorca J. Bias. *J Epidemiol Community Health*. 2004;58(8):635-641.
2. Grimes DA, Schulz KF. Clinical research in obstetrics and gynecology: more tips for busy clinicians. *Obstet Gynecol Surv*. 2005;60(9 suppl 2):S53-S69.
3. Munafò MR, Tilling K, Taylor AE, Evans DM, Smith GD. Collider scope: when selection bias can substantially influence observed associations. *Int J Epidemiol*. 2018;47(1):226-235.
4. Kaptchuk TJ. Effect of interpretive bias on research evidence. *BMJ*. 2003;326(7404):1453-1455
5. Croskerry P. The importance of cognitive errors in diagnosis and strategies to minimize them. *Acad Med*. 2003;78(8):775-780.
6. Norman GR, Monteiro SD, Sherbino J, Ilgen JS, Schmidt HG, Mamede S. The causes of errors in clinical reasoning: cognitive biases, knowledge deficits, and dual process thinking. *Acad Med*. 2017;92(1):23-30.
7. O'Sullivan ED, Schofield SJ. Cognitive bias in clinical medicine. *J R Coll Physicians Edinb*. 2018;48(3):225-232.
8. Tversky A, Kahneman D. Judgement under uncertainty: heuristics and biases. *Science*. 1974;4157(4157):1124-1131.
9. Grobman WA, Rice MM, Reddy UM, et al. Labor induction versus expectant management in low-risk nulliparous women. *N Engl J Med*. 2018;379(6):513-523.
10. Clesse C, Lighezzolo-Alnot J, De Lavergne S, Hamlin S, Scheffler M. Socio-historical evolution of the episiotomy practice: a literature review. *Women Health*. 2019;59(7):760-774.
11. Anderson GL, Limacher M, Assaf AR, et al. Effects of conjugated equine estrogen in postmenopausal women with hysterectomy: the Women's Health Initiative randomized controlled trial. *JAMA*. 2004;291(14):1701-1712.
12. Blanco F. Positive and negative implications of the causal illusion. *Conscious Cogn*. 2017;50:56-68.
13. Matute H, Blanco F, Yarritu I, Díaz-Lago M, Vadillo MA, Barberia I. Illusions of causality: how they bias our everyday thinking and how they could be reduced. *Front Psychol*. 2015;6:888.



Are You Using fFN Testing Correctly?

[Take the Quiz](#)

RapidfFN[®]

Honoring Authorship Responsibilities in Manuscript Preparation

Authorship of an article published in a peer-reviewed journal is an important academic and scientific achievement. It is a contribution to the health and science literature and a prestigious accomplishment for the authors. But that achievement also requires accountability and responsibility for the article that carries the authors' names.

Over recent years, an increasing number of manuscripts received by this Journal have been disorganized and poorly written on submission. Many of these manuscripts list authors and co-authors who are well-published scholars. Such manuscripts unfortunately risk rejection, as reviewers may miss a worthwhile contribution to the literature while wading through unclear text. This is concerning, not only because of the loss of potentially valuable science, but also because authorship and mentoring authors are an integral component of scholarship.

The editors of the *Journal of Midwifery & Women's Health (JMWH)* have published policies that address requirements for authorship of manuscripts published in the Journal¹ and have also editorialized on what these policies entail.² These criteria are in accordance with the policies of the International Committee of Medical Journal Editors (ICMJE), and apply to all authors who submit manuscripts to this and other journals.³ The criteria are:

Substantial contributions to the conception or design of the work; or the acquisition, analysis or interpretation of data for the work; AND (2) Drafting the work or revising it critically for important intellectual content; AND (3) Final approval of the version to be published; AND (4) Agreement to be accountable for all aspects of the work in ensuring that questions related to accuracy or integrity of any part of the work are appropriately investigated or resolved.

It is important to note that all authors must meet all 4 of these criteria to be considered an author. For someone to add their name to a manuscript who has not in fact met each one of these widely accepted and published requirements for authorship is unethical. Many journals, including *JMWH*, require each author to verify in writing that they meet all requirements for authorship as part of the publication process. If an individual's contribution to the manuscript does not meet all 4 criteria, that person can be formally acknowledged but cannot be listed as an author.

No doubt, many, if not most, authors are familiar with these criteria and believe they meet them. In our view, however, the latter 2 requirements often seem to be unmet. When a manuscript is disorganized, unclear, and lacking accurate or up-to-date content on submission, it seems improbable that all authors, especially those who are seasoned scholars, have in fact read and approved it or recognize their accountability for the work.

In some academic circles, it appears customary for those who may be only remotely involved in drafting a manuscript to add their names to the author list without providing much input or oversight during the writing process. Honorary or guest authorship was once a more common practice in academia⁴ but is now deemed inappropriate or even unethical.⁵⁻⁷ Nonetheless it seems to persist. Some authors have opined that they view the drafting, revision, and submission of a manuscript as being the first author's responsibility. Still others seem to think that it is part of the learning process for students to be left on their own to learn how to produce a publishable manuscript.

These are not valid or acceptable practices for scholarly publication. When co-authors cede responsibility for a submission to the first author alone, providing little input or collaborative effort, or when senior authors do not provide the oversight and mentoring necessary to ensure that a manuscript meets minimum criteria for publication, the end result is that authors, reviewers, and editors all suffer. For those authors in the business of mentoring or teaching the next generation of researchers and authors, the addition of one's name without full participation in the authorship process sets an inappropriate example. Junior authors being mentored by their senior colleagues should not be placed in the position of questioning whether those senior colleagues meet requirements for authorship; the power dynamics in such a situation are too unbalanced. And the absence of oversight by senior experienced scholars on manuscripts first-authored by students or junior faculty could be seen as abdicating a presumed academic responsibility for mentorship. It is also a disservice to those who worked on the project to risk rejection of potentially valuable science because a manuscript is of poor quality.

Submission of a manuscript that is an unpolished draft also creates an unreasonable burden for those involved in the review and editing process. Peer reviewers should not be expected to sort through a poorly written and disorganized manuscript in order to provide a thoughtful, cogent review. As is true of many nursing journals, the *JMWH* editors have a longstanding commitment to help novice authors, especially midwife authors, revise a manuscript into a publishable article. However, it is not the editor's job to write someone's manuscript for them, or to do the work of a junior author's mentoring and co-author team. The work of producing a publishable manuscript belongs to those whose names are listed as authors. And these unpolished submissions slight respected, peer-reviewed journals with an assumption that poor manuscripts are reflective of the quality of articles published in that journal.

We recognize that contributions to scholarly work can be many and varied. The Consortia for Advancing Standards in



Research Administration Information (CASRAI) has developed an informal yet widely accepted taxonomy for this.⁸ However, all named authors should review the ICMJE requirements for authorship before submitting a manuscript to a journal and consider whether they in fact meet all 4 authorship criteria, including final approval of and accountability for the submission. Senior scholars and experienced authors who wish to co-author manuscripts with their junior colleagues should not allow a poorly written and poorly organized draft to burden reviewers and editors, but rather should provide the mentorship needed to ensure the submission is suitable for publication. This is the appropriate, ethical, and courteous view of authorship.

Patricia Aikins Murphy, CNM, DrPH
Deputy Editor

Frances E. Likis, CNM, NP, DrPH
Editor-in-Chief

Tekoa L. King, CNM, MPH
Deputy Editor

Ira Kantrowitz-Gordon, CNM, PhD
Deputy Editor

REFERENCES

1. Journal of Midwifery & Women's Health. Editorial Policies. <https://onlinelibrary.wiley.com/pb-assets/assets/15422011/JMWH%20Editorial%20Policies%205.1-1601564555497.pdf>
2. Likis FE, Swett B. What does it mean to be an author of an article in a scholarly journal? *J Midwifery Womens Health* 2018. <https://onlinelibrary.wiley.com/doi/10.1111/jmwh.12921>. Accessed 12/17/2020.
3. International Committee of Medical Journal Editors. Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals. <http://www.icmje.org/icmje-recommendations.pdf>. Accessed 12/9/2020.
4. Kennedy MS, Barnsteiner J, Daly J. Honorary and ghost authorship in nursing. *Nursing Scholarship* 2014; 46(6):41622.
5. Wislar JS, Flanagan A, Fontanarosa PB, DeAngelis CD. Honorary and ghost authorship in high impact medical journals: a cross-sectional survey. *BMJ* 2011; 343. <https://www.bmj.com/content/343/bmj.d6128>. Accessed 12/9/2020.
6. Committee on Publication Ethics. How to spot authorship problems. <https://publicationethics.org/files/u7140/Authorship%20problems.pdf>. Published 2006. Accessed 12/9/2020.
7. Committee of Publication Ethics. Suspected ghost, guest, or gift authorship. <https://publicationethics.org/files/Ghost.pdf>. Published 2006. Accessed 12/9/2020.
8. CASRAI. CRediT- Contributor roles taxonomy. <https://casrai.org/credit/>. Accessed 12/9/2020.



Are You Using fFN Testing Correctly?

[Take the Quiz](#)

RapidfFN[®]

Client Experience with the Ontario Birth Center Demonstration Project

Jessica Reszel^{1,2}, RN, MScN , Deborah Weiss^{1,3}, PhD, Elizabeth K. Darling⁴, RM, PhD, Dana Sidney¹, CNM, NP, MSc, Vicki Van Wagner⁵, RM, PhD, Bobbi Soderstrom^{5,6}, RM, MLS, Judy Rogers⁵, RM, MA, Vivian Holmberg¹, BS, DAC, Wendy E. Peterson⁷, RN, PhD, Bushra M. Khan¹, BSc, BA, MD, Mark C. Walker^{1,8,9,10}, MD, Ann E. Sprague^{1,2}, RN, PhD

Introduction: In 2014, 2 new freestanding midwifery-led birth centers opened in Ontario, Canada. As one part of a larger mixed-methods evaluation of the first year of operations of the centers, our primary objective was to compare the experiences of women receiving midwifery care who intended to give birth at the new birth centers with those intending to give birth at home or in hospital.

Methods: We conducted a cross-sectional survey of women cared for by midwives with admitting privileges at one of the 2 birth centers. Consenting women received the survey 3 to 6 weeks after their due date. We stratified the analysis by intended place of birth at the beginning of labor, regardless of where the actual birth occurred. One composite indicator was created (Composite Satisfaction Score, out of 20), and statistical significance ($P < .05$) was assessed using one-way analysis of variance. Responses to the open-ended questions were reviewed and grouped into broader categories.

Results: In total, 382 women completed the survey (response rate 54.6%). Half intended to give birth at a birth center ($n = 191$). There was a significant difference on the Composite Satisfaction Scores between the birth center (19.4), home (19.5), and hospital (18.9) groups ($P < .001$). Among women who intended to give birth in a birth center, scores were higher in the women admitted to the birth center compared with those who were not ($P = .037$). Overall, women giving birth at a birth center were satisfied with the learners present at their birth, the accessibility of the centers, and the physical amenities, and they had suggestions for minor improvements.

Discussion: We found positive experiences and high satisfaction among women receiving midwifery care, regardless of intended place of birth. Women admitted to the birth centers had positive experiences with these new centers; however, future research should be planned to reassess and further understand women's experiences.

J Midwifery Womens Health 2021;66:174–184 © 2020 The Authors. *Journal of Midwifery & Women's Health* published by Wiley Periodicals LLC on behalf of American College of Nurse Midwives (ACNM).

Keywords: birthing center, midwifery, quality of health care, health services research, patient satisfaction, surveys and questionnaires

INTRODUCTION

Midwifery has been a regulated health profession in Ontario for just over 25 years. Midwives are primary care providers

¹Better Outcomes Registry & Network (BORN) Ontario, Children's Hospital of Eastern Ontario (CHEO), Ottawa, Ontario, Canada

²CHEO Research Institute, CHEO, Ottawa, Ontario, Canada

³School of Epidemiology and Public Health, University of Ottawa, Ottawa, Ontario, Canada

⁴McMaster Midwifery Research Centre, McMaster University, Hamilton, Ontario, Canada

⁵Midwifery Education Program, Ryerson University, Toronto, Ontario, Canada

⁶Association of Ontario Midwives (AOM), Toronto, Ontario, Canada

⁷School of Nursing, University of Ottawa, Ottawa, Ontario, Canada

⁸Clinical Epidemiology Program, Ottawa Hospital Research Institute, Ottawa, Ontario, Canada

⁹Department of Obstetrics, Gynecology, and Newborn Care, The Ottawa Hospital, Ottawa, Ontario, Canada

¹⁰Department of Obstetrics and Gynecology, Faculty of Medicine, University of Ottawa, Ottawa, Ontario, Canada

Correspondence

Jessica Reszel

Email: jreszel@cheo.on.ca

ORCID

Jessica Reszel  <https://orcid.org/0000-0003-1702-5629>

for women and their families during pregnancy, labor and birth, and the first 6 weeks postpartum. Midwives in Ontario work in midwifery practice groups providing care within midwifery-led continuity models of care. Choice of birthplace is a central tenet of Ontario midwifery care, and all midwives are trained to attend both in-hospital and out-of-hospital births.¹ In 2014, the Ontario Ministry of Health and Long-Term Care funded 2 new midwifery-led birth centers in 2 large urban areas of the province, adding a third option for place of birth: home, hospital, or birth center. These freestanding birth centers, located about 3 to 5 kilometers from the nearest hospitals, are governed by Boards of Directors that are accountable to clients, communities, partners, and funders. Midwives from the surrounding community may obtain privileges to attend births at the centers. As independent health care facilities, the centers adhere to the province's Independent Health Facilities Act,² with quality of care monitored by the College of Midwives of Ontario on behalf of the Ministry.³ Given the evidence supporting the safety of out-of-hospital birth for low-risk women,^{4–13} the opening of the 2 birth centers aimed to shift health services such as childbirth out of the hospital setting and into community settings, providing safe care close to home at a lower cost.¹⁴

Ottawa and Toronto were selected for the 2 new birth centers. Both cities are large urban centers with several established midwifery practice groups and access to hospitals

Quick Points

- ◆ Overall, women receiving midwifery care reported positive labor and birth experiences at the newly opened birth centers.
- ◆ There was a significant difference on the Composite Satisfaction Scores between those women receiving midwifery care by intended place of birth, with women intending to give birth in a hospital having the lowest satisfaction score.
- ◆ Our study adds to the literature on positive client experiences with midwifery care and birth centers and supports midwifery-led birth centers as an option for women seeking an out-of-hospital low-intervention place of birth.

providing both low-risk and high-risk maternal and newborn care.¹⁵ Both cities are ethnically and linguistically diverse, and it was anticipated that the birth centers would provide care to priority populations such as Francophone and Indigenous families. When the new birth centers opened, there were approximately 140,000 births per year in Ontario with just over 9% of births attended by midwives and 2.5% of all Ontario births taking place at home.¹⁶ The only other birth center in the province was the Tsi Non:we Ionakeratstha Ona:grahsta' birth center, which opened in 1996 as part of the Six Nations Health Service to serve the local Indigenous community and educate Indigenous midwives.¹⁷ By 2014, there were a total of 86 midwifery practice groups in Ontario, with 14 having admitting privileges at the 2 birth centers—5 midwifery practice groups in Ottawa and 9 midwifery practice groups in Toronto. A total of 495 women were admitted to the 2 birth centers in the first year of operation.

The opening of the birth centers provided the opportunity to complete a comprehensive evaluation. The overall mixed-methods study examined the implementation of the birth center demonstration project in the 2 cities and assessed the clinical activities and outcomes for the first year,¹⁸ health care provider experiences,¹⁹ and client experiences (which we report here). We demonstrated that the birth centers are a safe and effective option for women with low-risk pregnancies seeking a low-intervention approach to their labor and birth.¹⁸ In addition, we found that the process used to plan and implement the birth centers facilitated integration of the centers into the existing maternal-newborn health system and increased opportunities for interprofessional collaboration.¹⁹

Here we report the results of the client experience component of the overall evaluation, where we sought to understand the experiences of women receiving midwifery care accessing the new birth centers. The primary objective of this study was to compare the experiences of women receiving midwifery care who intended to give birth at the newly opened birth centers with those who intended to give birth in the preexisting home and hospital options. Our secondary objectives were to (1) understand the experiences of women admitted to the birth centers, including satisfaction with care and the centers, as well as the transfer experience, if applicable, and (2) identify strengths and areas for improvement related to this new birth center model.

METHODS

Design

As one part of a larger mixed-methods evaluation, we used a cross-sectional survey design to learn about client experiences at the birth centers.

Participants

We recruited survey participants from midwifery practice groups whose midwives had admitting privileges at one of the 2 birth centers. Women were eligible to participate if they were (1) under the care of a midwife at a midwifery practice group with admitting privileges at one of the 2 birth centers; (2) had an expected date of birth between January 31, 2014, and February 3, 2015; and (3) could read and understand English or French. Women were eligible for participation regardless of planned place of birth (ie, birth center, home, or hospital).

Measures

We conducted a literature review on client satisfaction in health care broadly and maternity services specifically to inform the development of the survey questions.²⁰⁻²⁵ Several validated tools^{23,25-29} from our literature review were considered, but none fully met our needs. The evaluation working group had previously identified quality indicators for the overarching birth center demonstration project; we mapped findings from the literature review to these quality indicators. One of the quality indicators was the proportion of women satisfied with their birth center experience. We developed a composite indicator, which we called the Composite Satisfaction Score (CSS), comprising 5 questions that relate to satisfaction with labor and birth and that are important in the midwifery model of care. The 5 CSS questions were the following: (1) I felt emotionally supported during my labor and birth; (2) I felt my physical needs were supported during my labor and birth; (3) I felt involved in decision making during my labor and birth; (4) My preferences were respected during my labor and birth; and (5) During my labor and birth, my caregivers explained things in a way I could understand.

The final survey had 4 main groups of questions: (1) demographics, (2) satisfaction with labor and birth experience, (3) alignment with midwifery model of care (ie, proportion of women cared for by a known midwife, proportion of women with 1:1 care during labor), and (4) birth center-specific information on learner integration (ie, midwifery student involvement in labor and birth), satisfaction with birth center facilities, the transfer experience from birth center to hospital (if applicable), and perceptions of the birth center experience and areas for improvement. The first 3 groups of questions were answered by all women, regardless of intended place of birth. The last group of questions was specific to the birth center care and facilities, and the questions were therefore only answered by those admitted to a birth center.

To assess face validity, we circulated a draft survey among members of the research team as well as relevant

stakeholders with knowledge in the area of client experience. Improvements were made to the questions, and the survey was subsequently created within Research Electronic Data Capture (REDCap), a secure, web-based application designed to support data capture for research studies, hosted at the Children's Hospital of Eastern Ontario Research Institute.³⁰ We formally piloted the REDCap survey with the evaluation team, the general employee group at the Better Outcomes Registry & Network (BORN) Ontario (via a staffwide email), and midwifery clients at one midwifery practice group (via an online link posted on the midwifery practice group's Facebook page and hard copies available at the practice). We asked pilot test participants to complete the full survey and leave comments on their perceptions of the clarity of the questions and the usability of the survey in a comment box at the end. We made revisions based on the feedback of 40 pilot test participants. Most changes were minor editing or reordering of questions. The final survey version was professionally translated into French and reviewed by French-speaking colleagues. The final English and French surveys each contained 29 questions (25 close-ended questions, and 4 open-ended questions) and took approximately 20 minutes to complete (see Supporting Information: Appendix S1 for the English survey).

Recruitment and Data Collection

The research team contacted midwifery practice groups where midwives had admitting privileges to the 2 birth centers and trained the midwives on asking for survey participation and consent processes for clients. The Research Ethics Board process required us to inform women that their decision regarding participation would not impact any care they received. Individual midwives were asked to explain the survey to women during pregnancy and provide a consent form that women could complete and drop in a box in the waiting room. The consent permitted us to contact the woman within 3 to 6 weeks after birth. Women could provide an email address to receive an electronic survey, or their mailing address for a paper-based copy with prepaid return postage. Signed consent forms were returned in batches via courier from the midwifery practice group clinics.

The research team transcribed the information from the consent forms into a Microsoft Excel spreadsheet. The research team delivered the surveys to the consenting women in their preferred format and language (ie, English or French) within 3 to 6 weeks after their birth, according to the estimated date of birth indicated on the consent form. Women received the survey and up to 2 reminders at 2-week intervals. Because the research team completed survey distribution, midwives were not aware if their clients had received and completed the survey.

Data Analysis

Surveys were collected and compiled over the course of one year, and descriptive analysis was conducted. The analysis was stratified by *intended* place of birth at the beginning of labor, regardless of where the actual birth occurred. Response choices were categorical, and therefore the results were calculated as percentages. For the composite indicator, the CSS,

responses for the series of questions were summed.³¹ The response choices "not at all" or "never" were assigned a value of 1, "somewhat" or "sometimes" a value of 2, "frequently" a value of 3, and "always" a value of 4. Possible values of the CSS ranged from 5 (lowest satisfaction) to 20 (highest satisfaction). Missing responses were assigned the mean for that question.³¹ The mean and SD of the CSS was calculated for the various groups of interest, and statistical significance ($P < .05$) was assessed using one-way analysis of variance. Qualitative survey data were analyzed using conventional content analysis,³² whereby research team members read and coded the responses to the open-ended questions and grouped similar codes into broader categories. Frequencies for each category were also calculated to facilitate understanding of the most common positive and negative factors experienced by birth center clients.

Denominators are presented throughout the results section to indicate where there were missing data because of respondents skipping questions.

Ethical Considerations

Approval was obtained from the Children's Hospital of Eastern Ontario's (CHEO) Research Ethics Board in September 2013 (protocol #13/136X).

RESULTS

Demographics

Between January 31, 2014, and February 3, 2015, 700 women receiving midwifery care consented to receive a survey. Between April 30, 2014, and March 7, 2015, 382 women completed the survey, a response rate of 54.6% (382/700) (Figure 1). Of those who responded, 50% (191/382) intended to give birth at a birth center ("birth center group"), 16.8% (64/382) intended to give birth at home ("home group"), and 33.2% (127/382) intended to give birth in a hospital ("hospital group"). Of those who intended to give birth at a birth center, 143 (74.9%) were admitted to a birth center in labor, and 125 (65.4%) actually gave birth at a birth center. An additional 12 women in the hospital group also gave birth at a birth center. The majority of women were between the ages of 26 and 35 (70.4%), spoke English (78%), had completed college or university (92.4%), and were married (79.6%). Table 1 provides a profile of the survey respondents.

Satisfaction with Labor and Birth Experience by Intended Place of Birth

Regardless of intended place of birth, most respondents answered "always" for the 5 questions included in the CSS (Figure 2).

Of the 382 respondents, 3 respondents were missing responses to one of the 5 questions and therefore were assigned the mean value for that question. No respondents were missing answers to more than one question. In a sensitivity analysis, these 3 participants were excluded, which confirmed the main findings presented here (data not shown). The mean (SD) CSS was 19.2 (1.6) out of 20. There were significant differences in CSS by intended place of birth, parity, and birth type.

Table 1. Profile of the 382 Clients Receiving Midwifery Care Who Completed the Survey

Characteristics	Full Cohort (N = 382) n (%)	Intended Birth Location Was		Intended Birth Location Was Hospital (n = 127) n (%)
		Birth Center (n = 191) n (%)	Home (n = 64) n (%)	
Age, y				
<20	2 (0.5)	2 (1.0)	0 (0)	0 (0)
21-25	15 (3.9)	11 (5.8)	1 (1.6)	3 (2.4)
26-30	86 (22.5)	55 (28.8)	7 (10.9)	24 (18.9)
31-35	183 (47.9)	86 (45.0)	40 (62.5)	57 (44.9)
36-40	86 (22.5)	35 (18.3)	14 (21.9)	37 (29.1)
41-45	10 (2.6)	2 (1.0)	2 (3.1)	6 (4.7)
Education level				
Less than high school	1 (0.3)	1 (0.5)	0 (0)	0 (0)
Completed high school or GED certificate	9 (2.4)	7 (3.7)	0 (0)	2 (1.6)
Some college or university	19 (5)	12 (6.3)	1 (1.6)	6 (4.7)
Completed college or university	205 (53.7)	99 (51.8)	34 (53.1)	72 (56.7)
Some graduate work	35 (9.2)	16 (8.4)	9 (14.1)	10 (7.9)
Postgraduate degree	113 (29.6)	56 (29.3)	20 (31.3)	37 (29.1)
Marital status				
Single	7 (1.8)	3 (1.6)	1 (1.6)	3 (2.4)
Married	304 (79.6)	149 (78.0)	49 (76.6)	106 (83.5)
Cohabiting (and unmarried)	67 (17.5)	37 (19.4)	14 (21.9)	16 (12.6)
Divorced or separated	2 (0.5)	1 (0.5)	0 (0)	1 (0.8)
Other	2 (0.5)	1 (0.5)	0 (0)	1 (0.8)
Native language				
English	298 (78.0)	156 (81.7)	49 (76.6)	93 (73.2)
French	38 (9.9)	18 (9.4)	8 (12.5)	12 (9.5)
Other ^a	46 (12.0)	17 (8.9)	7 (10.9)	22 (17.3)
Nulliparous				
Yes	203 (53.1)	112 (58.6)	24 (37.5)	67 (52.8)
No	177 (46.3)	79 (41.4)	39 (60.9)	59 (46.5)
Missing	2 (0.5)	0 (0)	1 (1.6)	1 (0.8)
Actual location of birth				
At home	66 (17.3)	18 (9.4)	45 (70.3)	3 (2.4)
In a hospital	179 (46.9)	48 (25.1)	19 (29.7)	112 (88.2)
In a birth center	137 (35.9)	125 (65.4)	0 (0)	12 (9.5)
Type of birth				
Spontaneous vaginal birth	321 (84)	173 (90.6)	58 (90.6)	90 (70.9)
Assisted vaginal birth (forceps or vacuum)	20 (5.2)	6 (3.1)	3 (4.7)	11 (8.7)
Cesarean birth	41 (10.7)	12 (6.3)	3 (4.7)	26 (20.5)

Abbreviation: GED, General Education Development.

^aOther languages included Arabic, various Southeast Asian languages, Chinese, and Spanish and very small numbers of other languages.

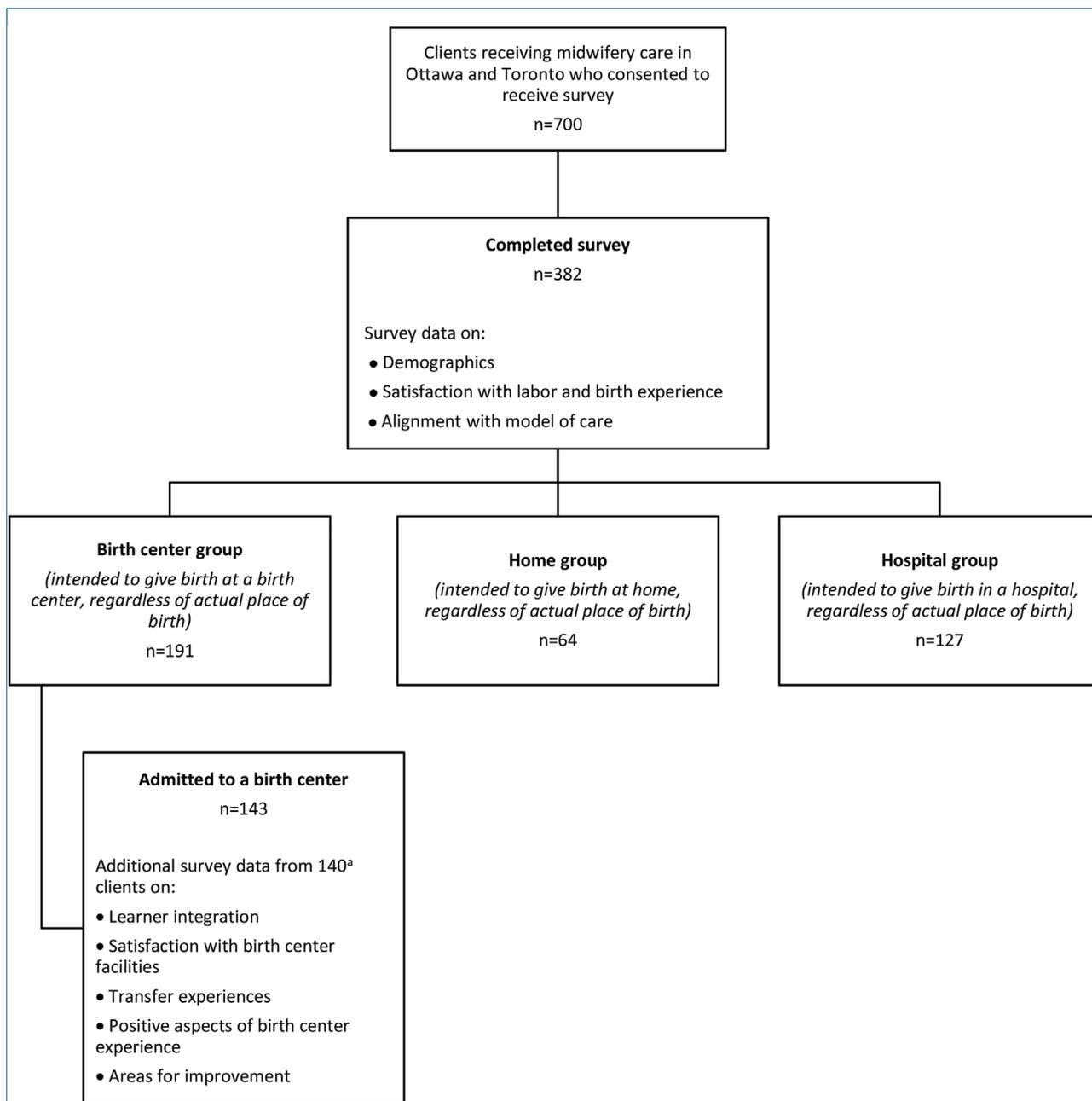


Figure 1. Participant Flow Diagram from Recruitment to Survey Completion

^aData missing for 3 respondents.

The birth center group was further subdivided into 2 groups, one group of women who were admitted into a birth center in labor ($n = 143$) and the other who were not (ie, they labored and gave birth at home or in hospital) ($n = 47$). Among women who intended to give birth in a birth center, CSS was higher in the women admitted to the birth center compared with those who were not (Table 2).

Among women in the birth center group, 84.7% (160/189) indicated that they would choose to give birth in a birth center should they become pregnant again. In the home group, 89.1% (57/64) of women indicated they would give birth at home again. In the hospital group, 72.2% (91/126) of women indicated that they would give birth in a hospital for a subsequent

pregnancy. The majority of women reported that their birth went as hoped either “very much” or “extremely so”: 73.8% (141/191) in the birth center group, 79.7% (51/64) in the home group, and 66.1% (84/127) in the hospital group.

Alignment with Midwifery Model of Care by Intended Place of Birth

The number of women who reported they had previously met at least one of the midwives or midwifery students who attended their labor and birth was high: 96.8% (182/188) in the birth center group, 95.3% (61/64) in the home group, and 97.6% (124/127) in the hospital group. Of these, 85.0%

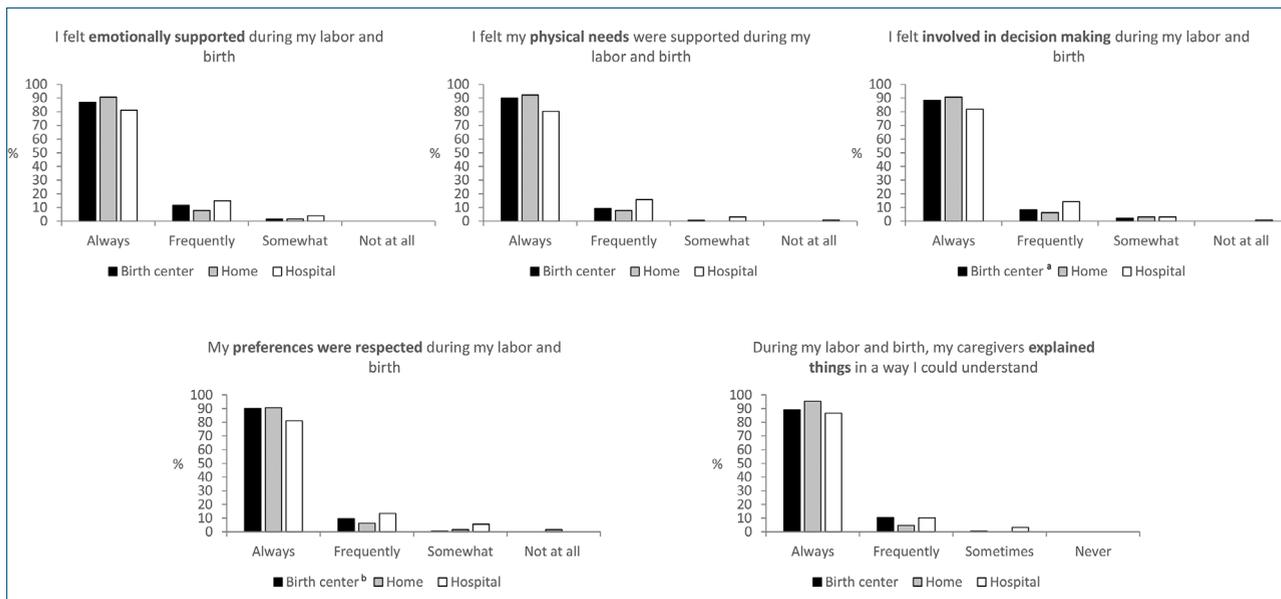


Figure 2. Client Responses to the 5 Composite Satisfaction Score Questions by Intended Place of Birth (N = 382)

^aData missing for 2 respondents.

^bData missing for one respondent.

Table 2. Composition Satisfaction Scores for the 382 Clients in Midwifery Care

Groups	CSS ^a		P Value
	Mean	(SD)	
CSS by intended place of birth			
Birth center group (n = 191)	19.4	(1.3)	<.001
Home group (n = 64)	19.5	(1.4)	
Hospital group (n = 127)	18.9	(2.0)	
CSS by parity^b			
Nulliparous (n = 203)	19.1	(1.9)	.02
Multiparous (n = 177)	19.5	(1.2)	
CSS by birth type			
Spontaneous vaginal birth (n = 321)	19.4	(1.5)	.0001
Assisted vaginal birth (n = 20)	18.5	(1.8)	
Cesarean birth (n = 41)	18.4	(2.2)	
CSS for birth center group, by actual place of labor (n = 190)			
Admitted to birth center in labor (n = 143) ^c	19.5	(1.2)	.04
Not admitted to birth center in labor (n = 47) ^d	19.1	(1.5)	

Abbreviation: CSS, Composite Satisfaction Score.

^aThe CSS is a composite indicator developed by the research team, composed of 5 questions that relate to satisfaction with labor and birth and that are important in the midwifery model of care. Possible values of the CSS ranged from 5 (lowest satisfaction) to 20 (highest satisfaction).

^cResponses to the question on parity were missing for 2 women, and therefore they were excluded from this subgroup analysis.

^dResponses to the question on admission to the birth center were missing for one woman, and therefore they were excluded from this subgroup analysis.

^eThese 47 clients intended to give birth at the birth center but actually gave birth either at home or in a hospital.

(153/180) in the birth center cohort, 82.0% (50/61) in the home cohort and 80.6% (100/124) in the hospital cohort stated they had met this person “many times.”

Respondents were asked how much time their midwife or student midwife spent with them during their labor and birth. Over 90% (354/381) indicated they were attended either “at all times” or “most of the time,” with only 2.1% (8/381) select-

ing the response “I was often unattended by my midwife during labor and/or birth.” Within the birth center cohort 95.8% (183/191) indicated that their midwife or student midwife was present “at all times” or “most of the time” with only one noting that she was “often unattended.” In the home cohort and hospital cohort, 92.2% (59/64) and 88.9% (112/126), respectively, indicated their midwife or student midwife was present.

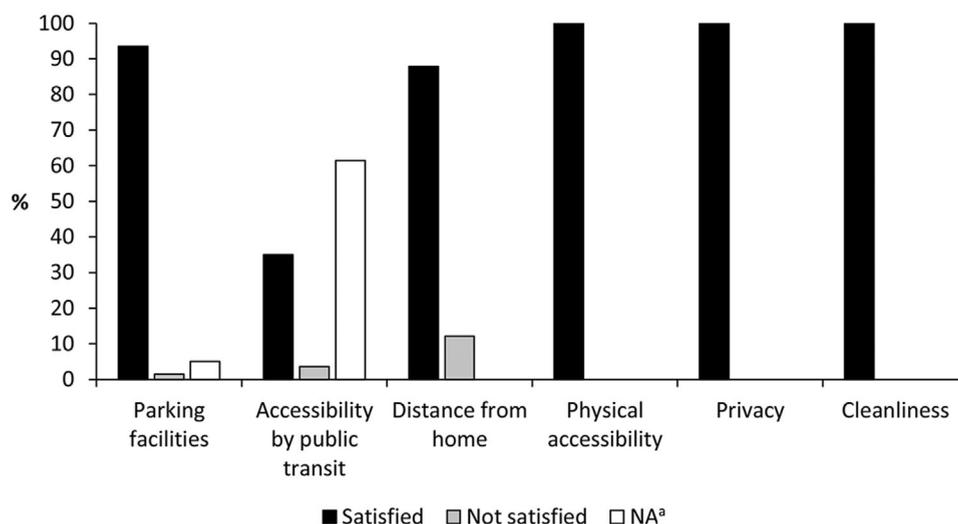


Figure 3. Client Satisfaction with Birth Center Facilities (n = 140)

Abbreviation: NA, not applicable.

^aTwo questions were not applicable to some respondents: parking facilities (if the respondent did not have a vehicle that required parking at the birth center) and accessibility by public transit (if the respondent did not use public transit to access the birth center).

Learner Integration in Birth Centers

About half of the women in the birth center group admitted to a birth center (55%, 77/140) reported having a student involved in their care during labor and birth. Most were satisfied with the care received by the student, with only 7.8% (6/77) stating they were “somewhat” or “not at all” satisfied.

Transfer Experience from Birth Center to Hospital

Of the 155 women who were admitted to a birth center (143 in the birth center group and 12 in the hospital group), 18 were transported from the birth center to a hospital, a transfer rate of 11.6%. All 18 respondents reported understanding the reason for their transfer. Most women (14/18, 77.8%) stated they would not have changed anything about their transport experience. Two women (11.1%) wished they had been transported to the hospital sooner, and one woman (5.6%) wished she had transported by ambulance.

Satisfaction with Birth Center Facilities

Overall, women were satisfied with the birth centers, with most giving positive ratings for the parking facilities, accessibility by public transit, distance from home, physical accessibility, privacy, and cleanliness (Figure 3).

Qualitative Descriptions of the Birth Center Experience and Areas for Improvement

In response to open-ended questions at the end of the survey, almost all respondents (136/140, 97%) described at least one positive aspect of their birth center experience, most frequently related to the physical space and amenities (86/140, 61%) and the atmosphere of the birth center (60/140, 43%). Some respondents (62/140, 44%) also provided constructive feedback about what could be improved. The most frequent

areas of improvement described were related to enhancements to the physical space and amenities (23/140, 16%) and to the timing of arrival and discharge at the birth center (18/140, 13%). Please see Supporting Information: Appendices S2 and S3 for categories and sample quotations.

DISCUSSION

This study showed that women receiving midwifery care in the 2 regions with the newly opened birth centers had positive experiences and high measured rates of satisfaction with their labor and birth experience. Women giving birth at a birth center reported positive experiences and overall were satisfied with the learners present at their birth, the accessibility of the centers, and the physical amenities, with some suggestions for minor improvements.

In our survey, similar to other literature, most women gave birth in the location where they intended.³³ Most women would choose to give birth in the same setting again, although fewer women in the hospital group indicated they would give birth in the same setting again compared with the birth center group and the home group. Previous literature comparing client satisfaction and experiences in birth centers with those in other birth settings has shown mixed results. An integrative review on maternal outcomes in birth centers reported that women in birth centers had higher levels of satisfaction compared with women who had hospital births.³⁴ Similarly, a 2014 study in the United Kingdom reported that women receiving midwifery care who intended to give birth in a birth center rated their care more positively than those intending to give birth in a hospital.³⁵ A Dutch study³⁶ of 1134 women to assess the concept of responsiveness found that women receiving midwifery care who planned to give birth in a birth center had comparable experiences to those intending to give birth in a hospital, but less positive experiences compared with those intending to give birth at home.³⁶

Although the specific factors that account for the high levels of satisfaction we observed in the birth center, home, and hospital groups cannot be ascertained from this current study, previous literature suggests 2 possible explanations, including the type of care provider and low rates of interventions. First, satisfaction with midwifery care in Canada^{37,38} and internationally³⁹ is high, with women in Canadian midwifery care 3 times more likely to be satisfied with their care compared with those being cared for by an obstetrician.³⁷ Continuity of care is central to Ontario midwifery care,¹ and midwifery clients have the opportunity to meet and build relationships with a small group of midwives throughout their prenatal care with the goal of the client knowing the midwife who attends their labor and birth.¹ Our study showed that continuity of care was largely achieved in all 3 groups (birth center, home, hospital), with nearly all (>95%) clients having met at least one midwife or midwifery student attending their labor and birth. Positive relationships with midwives have been identified as a key theme in previous studies³⁴ and may also contribute to the high levels of satisfaction with labor and birth in our sample of midwifery clients. Secondly, low rates of intervention during labor and birth are correlated with satisfaction. A Canadian study found that among women having vaginal births, fewer interventions during labor was significantly associated with higher overall satisfaction with the labor and birth experience.⁴⁰ In our study, the assisted vaginal birth rate and the cesarean birth rate were below the provincial averages of 9% and 20%, respectively,⁴¹ suggesting a lower intervention rate and a possible additional explanation for high satisfaction. Although the self-reported rates of assisted vaginal births and cesarean births were higher in the hospital group in our study, this could be due to underlying factors in self-selection for a hospital birth. More discussion of these outcomes can be found in our previous work that included a matched control group.¹⁸

In addition, respondents in our study who were admitted to a birth center indicated that the centers met their needs, and they provided positive feedback on the amenities and environment. Previous research has similarly found that women accessing birth centers appreciate the relaxing environment,³⁴ perceived the birth center met their expectations,³⁶ and rated the birth center environment and services positively.³⁶

In the first year of operations of the 2 birth centers, we observed a transfer rate of 26.3% (130 transfers out of 495 admissions),¹⁸ which was higher than the transfer rate of our survey sample. It is unknown why the transfer rate of our survey sample is lower than the overall birth center-hospital transfer rate for the corresponding period. Previous studies have described the experience of being transferred from birth center to hospital as an anxiety-provoking experience.⁴² In our study, we found that all 18 women who were transferred from the birth center to the hospital reported understanding the reason for transfer, and most stated they would not change anything about their transfer experience. Although potential explanations for these positive transfer experiences cannot be concluded from the work we report here, they may be attributable to factors such as health care provider communication,^{35,43} the ongoing presence of the midwife through the transfer experience,^{35,42} and the manner in which the woman's care was handed over from one profes-

sional to another.⁴² Previous work by our team demonstrated that health care providers generally described a positive and seamless system for transferring women between birth centers and hospitals.¹⁹ Our findings from this current survey are in alignment with our previous findings from health care providers, suggesting that birth center-hospital transfers are generally working well, but further in-depth qualitative work is required to better understand specific factors that influence women's transfer experiences in our setting.

Lastly, in this study we found that just over half of birth center births had a student involved in their care during labor and birth, which was comparable to the overall rate of student involvement in 52.7% of all birth center admissions (261/495) in the corresponding period.⁴⁴ There is tremendous opportunity for continued learner involvement, and given the evidence on the importance of teamwork to improve safety and patient outcomes in maternity care,^{45,46} increased inter-professional education and training on low-risk birth within the birth center model could be leveraged beyond midwifery education.

Strengths and Limitations

This survey was one part of a larger mixed-methods evaluation of the first year of operations of 2 new freestanding midwifery-led birth centers, and it contributes essential information on the perspectives of clients accessing care at these newly funded locations.

Despite the use of multiple reminders, we had a response rate of 54.6%. A possible explanation was the timing of survey administration, which was in the postpartum period when women may have had insufficient time, energy, or interest to participate. Our response rate was comparable to other studies with new mothers, with literature reporting response rates ranging from 29%⁴⁷ to 57%.⁴⁸ Although the birth centers serve priority populations (ie, specific subpopulations that experience health inequities), our survey respondents were largely well educated and English speaking. We did not have data on nonresponders, and therefore we are unable to ascertain whether there were demographic differences between our survey respondents and those who did not participate, and caution should be taken in generalizing our results to other populations. In addition, there were 12 women who indicated that at the start of their labor they were planning to give birth at a hospital (and were therefore classified in the hospital group) but in fact ended up birthing at a birth center. Potential explanations for why a midwifery client might have planned to give birth at a hospital when their labor started but ended up giving birth at a birth center include factors such as their midwife already being at the birth center with another client, the woman feeling more confident laboring without pain relief, or the hospital being busy, leading to a new plan. The Ontario midwifery model, where midwives may attend births in all 3 settings (home, birth center, hospital), allows for this change of plan during labor, with many women registering at both the birth center and hospital prenatally. It is also possible that respondents may have misunderstood the question and answered it according to their plan during pregnancy, rather than their plan when their labor actually started.

Finally, it is important to recognize that measuring women's experiences and satisfaction with birth can be challenging. Women may rate their experience positively soon after the birth because of the happiness of the event and the relief that labor is over, with the potential for satisfaction levels to change over time.⁴⁹ In addition, the CSS we used was internally developed and not validated; however, the items were developed based on a review of relevant literature and reflect important dimensions of satisfaction. Nonetheless, we acknowledge that the use of our own scale is a limitation in this study as it precludes direct comparison with other literature and our tool might not have been sensitive enough to discern small but important differences in the quality of women's experiences.

Implications

This study reported on client experiences in the first year of operations of 2 new birth centers. The finding of positive experiences among our sample of midwifery clients accessing the birth centers in Ontario, combined with our previously reported findings of positive client outcomes¹⁸ and health system integration,¹⁹ adds further support for this new model.

The results of this cross-sectional survey were provided to administrators and staff at the 2 birth centers. Patient experience data are increasingly becoming recognized as an important source of information to identify areas for quality improvement,^{50,51} and ideally, this constructive feedback from clients accessing the centers may facilitate adjustments to the program and services where possible and appropriate.

The CSS scores were high in all 3 groups, although the CSS for the hospital group was slightly lower. Although this difference was marginal (but statistically significant), hospital birth settings can likely be more responsive to client needs and supportive of low-intervention approaches, for example, including options for the use of water in labor and birth and family-friendly spaces.

Although the preliminary evidence supports positive experiences of those accessing these new centers, future surveys and in-depth qualitative work should be planned to reassess and further understand women's experiences with birth centers, including a focus on populations that may not have been well captured in our survey (including those with lower education and non-English- or French-speaking clients).

Conclusion

Overall, midwifery clients intending to give birth at birth centers in Ontario reported high levels of satisfaction and positive experiences during labor and birth. In addition, women were satisfied with the birth center physical amenities and environment. In Ontario, midwifery-led birth centers are a valuable model supporting midwifery clients seeking an out-of-hospital low-intervention place of birth.

CONFLICT OF INTEREST

The authors have no conflicts of interest to disclose.

ACKNOWLEDGMENTS

The research group would like to acknowledge the contributions of the women who participated in this project. We thank Ann Welsh and Amber Skye for their contributions as consumer representatives on this project and Carolina Lavin Venegas for her review and editing of this article. Finally, we acknowledge the Ontario Ministry of Health and Long-Term Care, which funded this project.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix S1. English Labor and Birth Client Experience Survey

Appendix S2. Summary of Categories from Open-Ended Survey Questions on Positive Things About Birth Center Experience

Appendix S3. Summary of Categories from Open-Ended Survey Questions on Areas for Improvement at the Birth Centers

REFERENCES

1. Midwifery in Ontario. Ontario Ministry of Health website. Accessed June 23, 2020. <http://www.health.gov.on.ca/en/public/programs/midwife/>
2. Independent Health Facilities Act. *Revised Statutes of Ontario* 1990, c. I.3. Accessed June 23, 2020. <https://www.ontario.ca/laws/statute/90i03>
3. Ontario birth centres. College of Midwives of Ontario website. Accessed June 23, 2020. <https://www.cmo.on.ca/public/ontario-birth-centres/>
4. de Jonge A, Geerts CC, van der Goes B, Mol BW, Buitendijk SE, Nijhuis JG. Perinatal mortality and morbidity up to 28 days after birth among 743 070 low-risk planned home and hospital births: a cohort study based on three merged national perinatal databases. *BJOG*. 2015;122(5):720-728.
5. Rowe RE, Townend J, Brocklehurst P, et al. Duration and urgency of transfer in births planned at home and in freestanding midwifery units in England: secondary analysis of the birthplace national prospective cohort study. *BMC Pregnancy Childbirth*. 2013;13:224.
6. Li Y, Townend J, Rowe R, Knight M, Brocklehurst P, Hollowell J. The effect of maternal age and planned place of birth on intrapartum outcomes in healthy women with straightforward pregnancies: secondary analysis of the Birthplace national prospective cohort study. *BMJ Open*. 2014;4(1):e004026.
7. Stapleton SR, Osborne C, Illuzzi J. Outcomes of care in birth centers: demonstration of a durable model. *J Midwifery Womens Health*. 2013;58(1):3-14.
8. Deline J, Varnes-Epstein L, Dresang LT, Gideonsen M, Lynch L, Frey JJ 3rd. Low primary cesarean rate and high VBAC rate with good outcomes in an Amish birthing center. *Ann Fam Med*. 2012;10(6):530-537.
9. Janssen PA, Saxell L, Page LA, Klein MC, Liston RM, Lee SK. Outcomes of planned home birth with registered midwife versus planned hospital birth with midwife or physician. *CMAJ*. 2009;181(6-7):377-383.
10. Hodnett ED, Downe S, Walsh D, Weston J. Alternative versus conventional institutional settings for birth. *Cochrane Database Syst Rev*. 2010;(9):CD000012.
11. Stewart M, McCandlish R, Henderson J, Brocklehurst P. *Review of Evidence about Clinical, Psychosocial and Economic Outcomes for Women with Straightforward Pregnancies Who Plan to Give Birth in a Midwife-Led Birth Centre, and Outcomes for Their Babies: Report of a Structured Review of Birth Centre Outcomes December 2004 - Revised*

- July 2005. Oxford, UK: National Perinatal Epidemiology Unit; 2005. Accessed June 23, 2020. <https://www.npeu.ox.ac.uk/downloads/files/reports/Birth-Centre-Review.pdf>
12. Li Y, Townend J, Rowe R, et al. Perinatal and maternal outcomes in planned home and obstetric unit births in women at “higher risk” of complications: secondary analysis of the Birthplace national prospective cohort study. *BJOG*. 2015;122(5):741-753.
 13. Monk AR, Grigg CP, Foureur M, Tracy M, Tracy SK. Freestanding midwifery units: maternal and neonatal outcomes following transfer. *Midwifery*. 2017;46:24-28.
 14. Ontario Ministry of Health and Long-Term Care. *Ontario's Action Plan for Health Care*. Toronto, Ontario, Canada: Ontario Ministry of Health and Long-Term Care; 2012. Accessed June 23, 2020. http://www.health.gov.on.ca/en/ms/ecfa/healthy_change/docs/rep_healthychange.pdf
 15. Provincial Council for Maternal and Child Health. *Standardized Maternal and Newborn Levels of Care Definitions*. Toronto, Ontario, Canada: Provincial Council for Maternal and Child Health; 2013. Accessed June 23, 2020. <http://www.pcmch.on.ca/wp-content/uploads/2015/07/Level-of-Care-Guidelines-2011-Updated-August1-20131.pdf>
 16. Better Outcomes Registry & Network (BORN) Ontario. *BORN & Growing: Annual Report 2012-2014: Two Years of Progress*. Ottawa, Ontario, Canada: Better Outcomes Registry & Network (BORN) Ontario; 2015. Accessed June 23, 2020. <https://www.bornontario.ca/en/publications/resources/Documents/121187-Final---english.pdf>
 17. Tsi Non: we Ionakeratstha Ona:grahsta: The Place They Will Be Born. Association of Ontario Midwives website. Accessed June 23, 2020. <https://www.ontariomidwives.ca/tsi-non-we-ionakeratstha-onagrahsta-place-they-will-be-born>
 18. Sprague AE, Sidney D, Darling EK, et al. Outcomes for the first year of Ontario's birth center demonstration project. *J Midwifery Womens Health*. 2018;63(5):532-540.
 19. Reszel J, Sidney D, Peterson WE, et al. The integration of Ontario birth centers into existing maternal-newborn services: health care provider experiences. *J Midwifery Womens Health*. 2018;63(5):541-549.
 20. Public Health Agency of Canada. *What Mothers Say: The Canadian Maternity Experiences Survey*. Ottawa, Ontario, Canada: Public Health Agency of Canada; 2009. Accessed June 23, 2020. <https://www.canada.ca/content/dam/phac-aspc/migration/phac-aspc/rhs-ssg/pdf/survey-eng.pdf>
 21. Cunningham JD. Experiences of Australian mothers who gave birth either at home, at a birth centre, or in hospital labour wards. *Soc Sci Med*. 1993;36(4):475-483.
 22. Waldenström U, Rudman A. Satisfaction with maternity care: how to measure and what to do. *Womens Health (London)*. 2008;4(3):211-214.
 23. Goodman P, Mackey MC, Tavakoli AS. Factors related to childbirth satisfaction. *J Adv Nurs*. 2004;46(2):212-219.
 24. Gungor I, Beji NK. Development and psychometric testing of the scales for measuring maternal satisfaction in normal and caesarean birth. *Midwifery*. 2012;28(3):348-357.
 25. Niven C, Gijsbers K. A study of labour pain using the McGill Pain Questionnaire. *Soc Sci Med*. 1984;19(12):1347-1351.
 26. *HCAHPS Fact Sheet (CAHPS® Hospital Survey)*. Baltimore, MD: Centers for Medicare and Medicaid Services; 2019. Accessed June 16, 2020. https://www.hcahpsonline.org/globalassets/hcahps/facts/hcahps_fact_sheet_october_2019.pdf
 27. Janssen PA, Dennis CL, Reime B. Development and psychometric testing of the care in obstetrics: measure for testing satisfaction (COMFORTS) scale. *Res Nurs Health*. 2006;29(1):51-60.
 28. Smith LFP. Postnatal care: development of a psychometric multi-dimensional satisfaction questionnaire (the WOMBPNSQ) to assess women's views. *Br J Gen Pract*. 2011;61(591):e628-e637.
 29. Hodnett ED, Simmons-Tropea DA. The labour agency scale: psychometric properties of an instrument measuring control during childbirth. *Res Nurs Health*. 1987;10(5):301-310.
 30. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap) - a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*. 2009;42(2):377-381.
 31. Streiner DL, Norman GR. *Health Measurement Scales: A Practical Guide to Their Development and Use*. 4th ed. Oxford, UK: Oxford University Press; 2008.
 32. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res*. 2005;15(9):1277-1288.
 33. Association of Ontario Midwives. *Guideline for Discussing Choice of Birthplace with Clients*. Toronto, Ontario, Canada: Association of Ontario Midwives; 2016. Accessed June 23, 2020. <https://www.ontariomidwives.ca/sites/default/files/CPG%20supplemental%20resources/Choice%20of%20birthplace.pdf>
 34. Alliman J, Phillippi JC. Maternal outcomes in birth centers: an integrative review of the literature. *J Midwifery Womens Health*. 2016;61(1):21-51.
 35. Macfarlane AJ, Rocca-Ihenacho L, Turner LR, Roth C. Survey of women's experiences of care in a new freestanding midwifery unit in an inner city area of London, England. 1: Methods and women's overall ratings of care. *Midwifery*. 2014;30(9):998-1008.
 36. Hitzert M, Hermus MAA, Scheerhagen M, et al. Experiences of women who planned birth in a birth centre compared to alternative planned places of birth. Results of the Dutch Birth Centre Study. *Midwifery*. 2016;40:70-78.
 37. Mattison CA, Dion ML, Lavis JN, Hutton EK, Wilson MG. Midwifery and obstetrics: factors influencing mothers' satisfaction with the birth experience. *Birth*. 2018;45(3):322-327.
 38. O'Brien B, Chalmers B, Fell D, Heaman M, Darling EK, Herbert P. The experience of pregnancy and birth with midwives: results from the Canadian maternity experiences survey. *Birth*. 2011;38(3):207-215.
 39. Sandall J, Soltani H, Gates S, Shennan A, Devane D. Midwife-led continuity models versus other models of care for childbearing women. *Cochrane Database Syst Rev*. 2016;(4):CD004667.
 40. Chalmers BE, Dzakpasu S. Interventions in labour and birth and satisfaction with care: the Canadian maternity experiences survey findings. *J Reprod Infant Psychol*. 2015;33(4):374-387.
 41. Better Outcomes Registry & Network (BORN) Ontario. *Data Analysis for Annual Report 2014-2016*. Ottawa, Ontario, Canada: Better Outcomes Registry & Network (BORN) Ontario; 2016. Accessed June 23, 2020. <https://www.bornontario.ca/en/whats-happening/resources/Documents/Annual-report-2014-2016-Data-Slides.pdf>
 42. Rowe RE, Kurinczuk JJ, Locock L, Fitzpatrick R. Women's experience of transfer from midwifery unit to hospital obstetric unit during labour: a qualitative interview study. *BMC Pregnancy Childbirth*. 2012;12(1):129.
 43. Grigg CP, Tracy SK, Schmied V, Monk A, Tracy MB. Women's experiences of transfer from primary maternity unit to tertiary hospital in New Zealand: part of the prospective cohort Evaluating Maternity Units study. *BMC Pregnancy Childbirth*. 2015;15:339.
 44. Better Outcomes Registry & Network (BORN) Ontario. *Evaluation of Ontario's Birth Centre Demonstration Project: Final Report*. Ottawa, Ontario, Canada: Better Outcomes Registry & Network (BORN) Ontario; 2016.
 45. Guise JM, Segel S. Teamwork in obstetric critical care. *Best Pract Res Clin Obstet Gynaecol*. 2008;22(5):937-951.
 46. Cornthwaite K, Edwards S, Siassakos D. Reducing risk in maternity by optimising teamwork and leadership: an evidence-based approach to save mothers and babies. *Best Pract Res Clin Obstet Gynaecol*. 2013;27(4):571-581.
 47. Harrison S, Henderson J, Alderdice F, Quigley MA. Methods to increase response rates to a population-based maternity survey: a comparison of two pilot studies. *BMC Med Res Methodol*. 2019;19(1):65.
 48. Sjetne IS, Iversen HH, Kjøllestad JG. A questionnaire to measure women's experiences with pregnancy, birth and postnatal care: instrument development and assessment following a national survey in Norway. *BMC Pregnancy Childbirth*. 2015;15(1):182.
 49. Waldenström U. Why do some women change their opinion about childbirth over time? *Birth*. 2004;31(2):102-107.

50. Gleeson H, Calderon A, Swami V, Deighton J, Wolpert M, Edbrooke-Childs J. Systematic review of approaches to using patient experience data for quality improvement in healthcare settings. *BMJ Open*. 2016;6(8):e011907.

51. Health Quality Ontario. *Ontario Patient Experience Measurement Strategy*. Toronto, Ontario, Canada: Health Quality Ontario; 2016. Accessed June 23, 2020. <https://www.hqontario.ca/Portals/0/documents/system-performance/patient-experience-measurement-strategy-1608-en.pdf>

Continuing Education Form

Myofascial Pelvic Pain (2021/014)

Receive a continuing education certificate immediately by visiting www.jmwhce.org to take the test, complete the evaluation, and pay processing fees online.

not CNMs/CMs should check with their certifying and licensing agencies.

CONTINUING EDUCATION CREDIT INFORMATION

This continuing education (CE) activity has been approved by the American College of Nurse-Midwives (ACNM) for 2 contact hours (inclusive of 2 pharmacology contact hours). All CE forms must be received by April 30, 2023.

ACNM is an approved provider of CE for certified nurse-midwives/certified midwives (CNMs/CMs). ACNM contact hours are accepted for the American Midwifery Certification Board (AMCB) Certificate Maintenance Program (CMP) and for National Certification Corporation (NCC) certification maintenance. Other professional groups may recognize ACNM contact hours as well. Health care providers who are

FORM INSTRUCTIONS

1. Complete this form.
2. Enclose a check or money order made payable to ACNM or Visa or MasterCard information and mail or fax to:

*American College of Nurse-Midwives
P.O. Box 759147
Baltimore, MD 21275-9147
Fax: 240-485-1818*

3. Participants will receive a PDF CE certificate by email. Please allow 5 business days for processing after receipt of the form. The date on the CE certificate will be the day remuneration and the completed form are received.

Name: _____	Date: _____
Mailing Address: _____	Telephone: _____
_____	E-mail: _____
Payment Information:	
ACNM Member	\$20.00 membership number _____
Nonmember	\$25.00
Total \$ _____	
<input type="checkbox"/> Check made payable to ACNM	<input type="checkbox"/> MasterCard
	<input type="checkbox"/> Visa
	<input type="checkbox"/> Money Order
Credit Card # _____	Expiration Date _____
Name on Card _____	Signature _____

TEST ANSWERS

After reading the article, fill in the answers to the test questions on the reverse side of this page in the space provided below.

1.	2.	3.
----	----	----

EVALUATION

The evaluation questions must be answered to receive CE.

1. Accuracy of content: Poor____ Fair____ Good____ Excellent
2. Currency of content: Poor____ Fair____ Good____ Excellent
3. Relevancy of topics: Poor____ Fair____ Good____ Excellent
4. Were the learning objectives for this CE activity met by the material you read? Yes____ No____
If your answer is no, what suggestions do you have?_____
5. Was this CE activity an effective method of acquiring CE for you? Yes____ No____
If your answer is no, what suggestions do you have?_____



OBJECTIVES

After completion of this continuing education activity, the participant will be able to:

1. Assess patients for myofascial pelvic pain syndrome.
2. Develop a treatment plan for patients with myofascial pelvic pain syndrome.
3. Perform abdominal trigger point injections.

TEST QUESTIONS

Select the one best answer for each of the multiple-choice questions below.

1. The experience of typically non-painful stimuli as painful is called:
 - a. allodynia.
 - b. hyperanalgesia.
 - c. pain catastrophizing.
2. Using a clock face orientation with the clitoris at the 12-o'clock position and the inferior introitus at the 6-o'clock position, which of the following pelvic floor muscles is palpated at the 1-o'clock and 11-o'clock positions?
 - a. Bulbospongiosus
 - b. Ischiocavernosus
 - c. Obturator internus
3. When performing abdominal trigger point injections with a 50/50 mix of 0.25% bupivacaine and 1% lidocaine, which of the following amounts of the mixture would be appropriate for a single trigger point?
 - a. 3
 - b. 13
 - c. 23

Receive a continuing education certificate immediately by visiting www.jmwhce.org to take the test, complete the evaluation, and pay processing fees online.



Fetal Heart Rate Monitoring in Labor

What is fetal heart rate monitoring?

Fetal (baby) heart rate monitoring is used to check your baby's heart rate when you are in labor. Listening to your baby's heart rate can help your health care provider watch how your baby is doing during labor.

What does fetal heart rate monitoring show?

When your uterus (womb) has a contraction (muscles get tight), your blood flow to the placenta (afterbirth) slows down. Your baby gets oxygen from your blood through the placenta. Most babies have enough oxygen stored up so this slower blood flow during contractions does not cause any problems. If your baby is not getting enough oxygen, their heart rate can slow down or speed up for a short time. Your health care provider will be watching for how your baby's heart rate changes as you have labor contractions.

What types of fetal heart rate monitoring are used?

Doppler stethoscope

A special stethoscope, called a Doppler, can be used to listen to your baby's heart rate briefly. Your provider holds this stethoscope in their hand and puts it on your abdomen (belly). Your provider will listen to your baby's heart rate when you have a contraction and between some contractions.

Electronic fetal heart rate monitor

An electronic fetal heart rate monitor tracks your baby's heart rate and prints it on a piece of paper. The monitor picks up your baby's heart rate from a plastic disc placed on your abdomen (belly) or from a small wire called a fetal scalp electrode. This wire is attached to the skin of your baby's head. The fetal scalp wire is put in your vagina through your cervix (the opening to your uterus) to touch your baby's head. To put in the fetal scalp wire, your membranes (bag of water) must be broken. Your cervix must be dilated (open) enough to feel your baby's head. With either the plastic disc on your abdomen or the fetal scalp wire tracking your baby's heart rate, you will also have another plastic disc placed on your abdomen that tracks your contractions.

How often is the fetal heart rate checked?

Intermittent monitoring

Intermittent monitoring is when your baby's heart rate is listened to off and on during labor. This can be done with the Doppler stethoscope or by putting the plastic disc from the electronic monitor on your abdomen for a short time. Your provider will listen to your baby's heart rate more often as you get closer to giving birth. This is also called intermittent auscultation.

Continuous monitoring

Continuous monitoring is when an electronic fetal heart rate monitor is used to track your baby's heart rate the whole time you are in labor. This can be done with a plastic disc placed on your abdomen or a fetal scalp wire. Your nurse and your health care provider will check your baby's heart rate recording regularly.



Why would I need continuous electronic fetal heart rate monitoring?

If you have a problem during your pregnancy or labor, your provider may recommend continuous fetal heart rate monitoring to watch your baby more closely. Continuous monitoring will be recommended if:

- You have problems during your pregnancy that may give your baby a higher chance of not having enough oxygen during labor, such as you are having twins, or you have preeclampsia (high blood pressure) or diabetes.
- Your baby is being born early (before 37 weeks of pregnancy), being born late (after 42 weeks of pregnancy), or does not have enough amniotic fluid (water) around them.
- You are getting medicine to make you have contractions, such as Pitocin.
- You have an epidural to help with your labor pain.
- You have problems during labor such as your amniotic fluid contains meconium (baby poop), you develop a fever, or your baby's heartbeat shows signs that more time between contractions is needed.

What will happen if my health care provider has concerns about my baby's heart rate while I am in labor?

If your provider has concerns about your baby's heart rate while checking it with the Doppler stethoscope, they may recommend continuous electronic fetal heart rate monitoring. If you are having electronic fetal heart rate monitoring with a plastic disc on your abdomen, your provider may recommend changing to a fetal scalp wire. Simple things like changing the position of your body, giving you IV fluids, or giving you extra oxygen to breathe through a facemask may make your baby's heart rate better. If these do not help, having more contractions may not be safe for your baby. In this case, your provider may recommend a cesarean birth or assisted vaginal birth using forceps or a vacuum.

Do I have a choice about the fetal heart rate monitoring I have while I am in labor?

Health care providers and birth settings have different policies for what type of fetal heart rate monitoring is used. Choices include using the Doppler stethoscope or electronic fetal heart rate monitor, and how often the fetal heart rate is checked. You should discuss your fetal heart rate monitoring goals with your provider before you go into labor. Many providers will recommend intermittent monitoring if you do not have any risk factors and prefer this method.

For More Information

American College of Obstetricians and Gynecologists

<https://www.acog.org/womens-health/faqs/fetal-heart-rate-monitoring-during-labor>

BabyCenter: Fetal Monitoring

https://www.babycenter.com/pregnancy/your-body/fetal-monitoring_1451559

Edward Hospital video on YouTube: Fetal Monitoring

<https://www.youtube.com/watch?v=DvcDXvlCXAE>

Flesch-Kincaid Grade Level: 9.3

Approved March 2021. This handout replaces "Fetal Heart Rate Monitoring in Labor" published in Volume 59, Number 6, November/December 2014.

This handout may be reproduced for noncommercial use by health care professionals to share with patients, but modifications to the handout are not permitted. The information and recommendations in this handout are not a substitute for health care. Consult your health care provider for information specific to you and your health.