

# Breastfeeding in Women on Opioid Maintenance Therapy: A Review of Policy and Practice

CEU

Rebecca R. S. Clark, PhD, MSN, RN, CNM, WHNP-BC 

**Introduction:** Opioid use is epidemic in the United States. Opioid use disorder (OUD) in pregnancy, as well as neonatal abstinence syndrome, has quadrupled in the last decade, and opioid maintenance therapy is recommended for pregnant women with OUD. Breastfeeding is an important means of improving outcomes for these vulnerable women and newborns. The purpose of this study was to review current policy on breastfeeding and opioid maintenance therapy, the rates of breastfeeding among women in this population, and facilitators and barriers to implementing policy recommendations.

**Methods:** CINAHL, PubMed, the Cochrane Database of Systematic Reviews, Embase, and Web of Science were searched. Inclusion criteria included publication between 2013 and 2018, English language, human only, and original data (except for policy statements). Studies were excluded if they did not report original data and did not examine breastfeeding for women on opioid maintenance therapy.

**Results:** Eight policy statements and 17 original research studies were identified that met the search criteria. All the policy statements support breastfeeding for women who are stable on opioid maintenance therapy and do not have HIV. Despite this, rates of breastfeeding among women receiving opioid maintenance therapy remain low compared with women in the general population. Results of qualitative research indicates that women on opioid maintenance therapy face numerous barriers to breastfeeding, including misinformation from health care professionals. Quantitative research has only begun to identify interventions to improve breastfeeding outcomes in this population. Research was conducted primarily with white women receiving care at urban health care centers.

**Discussion:** Practice lags behind policy in terms of supporting breastfeeding in women receiving opioid maintenance therapy. There is a need for more research that includes African American and rural women on opioid maintenance therapy, as well as quantitative research that uses findings from qualitative research to identify the best possible interventions for improving breastfeeding outcomes for women on opioid maintenance therapy and their newborns. One significant need is for health care provider education regarding these policies as well as best practices for providing breastfeeding education and support to this population.

J Midwifery Womens Health 2019;64:545–558 © 2019 by the American College of Nurse-Midwives.

**Keywords:** breastfeeding, opiate substitutions treatment, opioid maintenance therapy, methadone, buprenorphine, neonatal abstinence syndrome, opioid use disorder, pregnancy

## INTRODUCTION

Opioid use is currently an epidemic in the United States. As opioid use increases in the population, so does the prevalence of opioid use disorder (OUD). The vast majority (92%) of OUD, which is defined as the “problematic use of opioids leading to clinically significant impairment or distress,”<sup>1</sup> occurs with prescription opioids, not heroin.<sup>2</sup> As OUD increases in the population, more women are entering pregnancy with OUD. The Centers for Disease Control and Prevention reported that the prevalence of OUD in pregnancy ranged from 0.1 to 8.2 per 1000 births in 1999, increasing to 0.7 to 48.6 per 1000 births in 2014.<sup>3</sup> Significant regional differences in perinatal OUD exist.<sup>3,4</sup> In Vermont and West Virginia, for instance, OUD is present in more than 30 in 1000 women who give birth, whereas in the District of Columbia the same is true for less than 1 in 1000 women.<sup>3</sup>

White women are significantly more likely than women of other racial and ethnic groups to have OUD and are more likely to receive treatment than women of other racial and ethnic groups who have OUD.<sup>5,6</sup> *Medication-assisted therapy* (also referred to as *opioid maintenance therapy* in this article), defined as the use of medications in addition to counseling and behavioral therapies, is the recommended treatment for pregnant women with OUD.<sup>7</sup>

As the prevalence of OUD among pregnant women increases, the incidence of newborns with neonatal abstinence syndrome (NAS) follows suit. In fact, the number of newborns affected by NAS has quadrupled from 1999 to 2014.<sup>8</sup> In 2009, one neonate affected by NAS was born each hour; in 2012, one neonate with NAS was born every 30 minutes.<sup>9,10</sup> Treatment of NAS frequently requires lengthy, costly hospital stays. Newborns affected by NAS frequently have lower birth weights, problems with breathing, seizures, and feeding difficulties, and they are predominantly white.<sup>10</sup> Hospital charges for NAS increased from \$732 million to \$1.5 billion from 2009 to 2012.<sup>11</sup>

Breastfeeding, in women with OUD who are stable on opioid maintenance therapy and negative for HIV, is recommended by stakeholder professional organizations as a means to improve neonatal outcomes and decrease cost. Apart from the typical benefits of breastfeeding for infants, such

Department of Community and Public Health, Johns Hopkins University, Baltimore, Maryland

### Correspondence

Rebecca R. S. Clark  
Email: rsafley1@jhmi.edu

### ORCID

Rebecca R. S. Clark  <https://orcid.org/0000-0001-7284-3523>



## Quick Points

- ◆ From 1999 to 2014, there has been a 333% increase in the number of women presenting for prenatal care with opioid use disorder, and the number of newborns with neonatal abstinence syndrome has quadrupled.
- ◆ Breastfeeding for women who are stable on their opioid maintenance therapy and have no absolute contraindications, such as HIV, is recommended by all major professional organizations with policy statements on the topic.
- ◆ Research indicates that the rates of breastfeeding among women on opioid maintenance therapy are quite low and that the women themselves identify numerous barriers to successful breastfeeding.
- ◆ One of the main barriers to successful breastfeeding for women on opioid maintenance therapy, according to qualitative research findings, is misinformation and lack of support from health care providers and nurses.

as improved immunity and decreased risk of certain childhood diseases, breastfeeding has been shown to decrease NAS symptoms, the need for pharmacotherapy for newborns, and the length of newborns' hospital stays (thereby decreasing cost).<sup>7,12,13</sup> Although small amounts of methadone and buprenorphine enter breastmilk, the amount is not sufficient to treat NAS.<sup>14</sup> The decrease in NAS symptoms and need for pharmacotherapy seen in breastfed newborns of women prescribed opioid maintenance therapy is not entirely understood but may be related to the increased contact between the breastfed newborn and parent.<sup>14</sup> In addition, breastfeeding improves attachment, bonding, and maternal confidence and increases women's participation in their newborn's care.<sup>14</sup>

Despite the additional benefits to breastfeeding in this population, women receiving opioid maintenance therapy are less likely to breastfeed their newborns, especially if their newborns develop NAS. Although findings vary, one study found that breastfeeding initiation rates for women on opioid maintenance therapy ranged from 19.6% to 31.4%, depending on the maintenance medication a woman was receiving; nationally, meanwhile, 83.2% of women initiate breastfeeding in the first postpartum days.<sup>15,16</sup> This review presents the results of an examination of current policy statements on breastfeeding in the context of opioid maintenance therapy, the rates of breastfeeding among women in this population, and facilitators and barriers for implementing these policy recommendations.

### METHODS

To examine current policy, prevalence, facilitators, and barriers regarding breastfeeding and opioid maintenance therapy, the term *breast feeding* was combined separately with each of the following to create the search criteria: *opioid substitution therapy*, *methadone*, *buprenorphine*, and *opioid maintenance therapy*. PubMed, CINAHL, the Cochrane Database of Systematic Reviews, Embase, and Web of Science were searched for publications that answered the search criteria. No restrictions were placed on the initial search, but then articles were only included in the review if they were published in the last 5 years, conducted in humans, and written in English. Research was restricted to the last 5 years, because the nature of opioid use in pregnancy has continued to change significantly during this time frame and because of changing recommendations around buprenorphine

(Subutex) use during breastfeeding. In 2013, a clinical report published by the American Academy of Pediatrics (AAP) noted that buprenorphine was not recommended for use during breastfeeding based on the results of animal studies.<sup>17</sup> Since that time, other professional organizations have published policy statements supporting breastfeeding for women using buprenorphine or methadone.<sup>7,18,19</sup> Reference lists were also examined for articles that met the search criteria. A separate internet search was conducted of stakeholder professional organizations to ensure that all relevant policy statements had been captured in the literature search. Apart from the policy statements, publications were excluded if they did not present original data. Research that studied breastfeeding as an intervention to reduce symptoms of NAS was not included. These studies were not included individually in this review because they are the basis of current policy recommendations.

Studies were included if the study population was composed of pregnant or postpartum women receiving opioid maintenance therapy and the study included at least one breastfeeding outcome (eg, breastfeeding initiation or duration), even if this outcome was not part of the study's stated purpose. This was done in order to expand the available research findings. For the same reason, studies from other developed countries regarding opioid maintenance therapy and breastfeeding were eligible for inclusion. Observational studies were included; the study did not have to examine an intervention to be included in the review. Qualitative studies were included because they present critical perspectives, the women's own, about breastfeeding while on opioid maintenance therapy. The inclusion of qualitative studies allows for a more integrated and holistic view of a complex issue.

Studies were analyzed via the creation of tables (Tables 1 through 4) that allowed the extraction of information of interest, such as the prevalence of breastfeeding among women on opioid maintenance therapy, the design and statistical results of quantitative studies, and the thematic findings of qualitative studies. For the areas of interest (ie, policies, prevalence, barriers, and facilitators), study findings were compared, contrasted, and synthesized.

### RESULTS

A total of 558 results were found, 154 duplicates were removed, and 404 titles and abstracts were screened. Of the 404 articles, 344 were excluded for failing to meet inclusion

**Table 1. Policies from Professional and Government Organizations Addressing Breastfeeding for Women on Opioid Maintenance Therapy**

Association, Year	Policy Regarding Breastfeeding for Opioid-Dependent Women	Rationale for Recommending Breastfeeding	Contraindications and Limitations to Recommendations Regarding Breastfeeding
American College of Obstetricians and Gynecologists <sup>7</sup> 2017	Breastfeeding encouraged for women who are stable on methadone or buprenorphine, regardless of dose; not using illicit drugs; and without other contraindications  Recommends significant postpartum opioid maintenance therapy dose reductions not be done routinely	Decreased NAS Decreased need for pharmacotherapy Shorter hospital stays for newborn Supports maternal-newborn attachment Skin-to-skin bonding Improved immunity for newborns	Suspend breastfeeding if there is a relapse  Breastfeeding not recommended if woman is using illicit drugs or in case of absolute contraindications, such as HIV or a newborn with galactosemia
Academy of Breastfeeding Medicine <sup>19</sup> 2015	Breastfeeding encouraged for women stable on methadone or buprenorphine, regardless of dose	Policy statement mentions that breastfeeding may benefit woman and newborn but does not give specifics  Breastfeeding especially recommended if women active in prenatal, postpartum, and substance abuse care	Breastfeeding not recommended if woman is not in substance abuse treatment or has no provision of consent for counselor contact plans for postpartum treatment or pediatric care  Breastfeeding not recommended if woman had no prenatal care, drug screen positive for illicit drugs other than marijuana, chronic alcohol use, relapse in 30 days prior to birth
American Academy of Pediatrics: Transfer of Drugs and Therapeutics into Human Breast Milk <sup>17</sup> 2013	Breastfeeding recommended for women on methadone and buprenorphine given certain conditions	Specific benefits not mentioned Policy states that benefits of breastfeeding outweigh exposure to most medication transferred in breastmilk	Woman should abstain from illicit substances, be HIV negative, be enrolled in a treatment program, and have social support  Advises gradual weaning of opioid maintenance therapy to prevent NAS, although little methadone or buprenorphine is excreted in breastmilk
American Academy of Pediatrics: Neonatal Abstinence Syndrome <sup>14</sup> 2014	Policy statement on NAS recommends breastfeeding if woman meets criteria	Breastfeeding increases maternal-newborn bonding, improves maternal confidence, and encourages participation in newborn care and may decrease incidence of NAS, length of newborn hospital stays, and need for pharmacologic treatment	Breastfeeding contraindicated only if woman is actively using illicit drugs or has HIV  Sudden discontinuation of breastfeeding, though not associated with worsening NAS, is not recommended

(Continued)

<b>Table 1. Policies from Professional and Government Organizations Addressing Breastfeeding for Women on Opioid Maintenance Therapy</b>			
<b>Association, Year</b>	<b>Policy Regarding Breastfeeding for Opioid-Dependent Women</b>	<b>Rationale for Recommending Breastfeeding</b>	<b>Contraindications and Limitations to Recommendations Regarding Breastfeeding</b>
Substance Abuse and Mental Health Services Administration <sup>21</sup> 2018	Recommends breastfeeding if woman is stable on opioid maintenance therapy (buprenorphine or naltrexone also an option) and meets the ABM's guidelines Recommends health care providers explain benefits of breastfeeding	Decreased need for or decreased length of medication therapy; decrease in NAS scores, and length of stay for newborn Increased bonding and attachment; protective of maternal and newborn health	Refers to CDC guidelines regarding contraindications to breastfeeding (eg, HIV positive, has tuberculosis) Return to illicit substance use as a contraindication, including cannabis, differing from the ABM's policy
Association of Women's Health, Obstetrics and Neonatal Nurses <sup>18</sup> 2016	Recommends promotion of breastfeeding for women who receive medication-assisted treatment for opioid use disorders, regardless of dose, including lactation support	Breastfeeding may delay the onset and reduce the severity of NAS	Continued illicit drug use Note that, with intact nipples, neither hepatitis B or C is a contraindication to breastfeeding
American Society of Addiction Medicine <sup>20</sup> 2017	Encourages and supports breastfeeding for women on opioid maintenance therapy	Breastfeeding and skin-to-skin contact can reduce the severity and duration of NAS	Active untreated substance use and HIV are contraindications to breastfeeding
Society of Obstetricians and Gynaecologists of Canada <sup>22</sup> 2017	Recommends encouraging breastfeeding for women on opioid maintenance therapy, regardless of dose, in absence of absolute contraindications	Reduces severity and length of pharmacologic therapy for NAS (per research on methadone)	Active substance abuse is an absolute contraindication

Abbreviations: ABM, Academy of Breastfeeding Medicine; CDC, Centers for Disease Control and Prevention; NAS, neonatal abstinence syndrome.

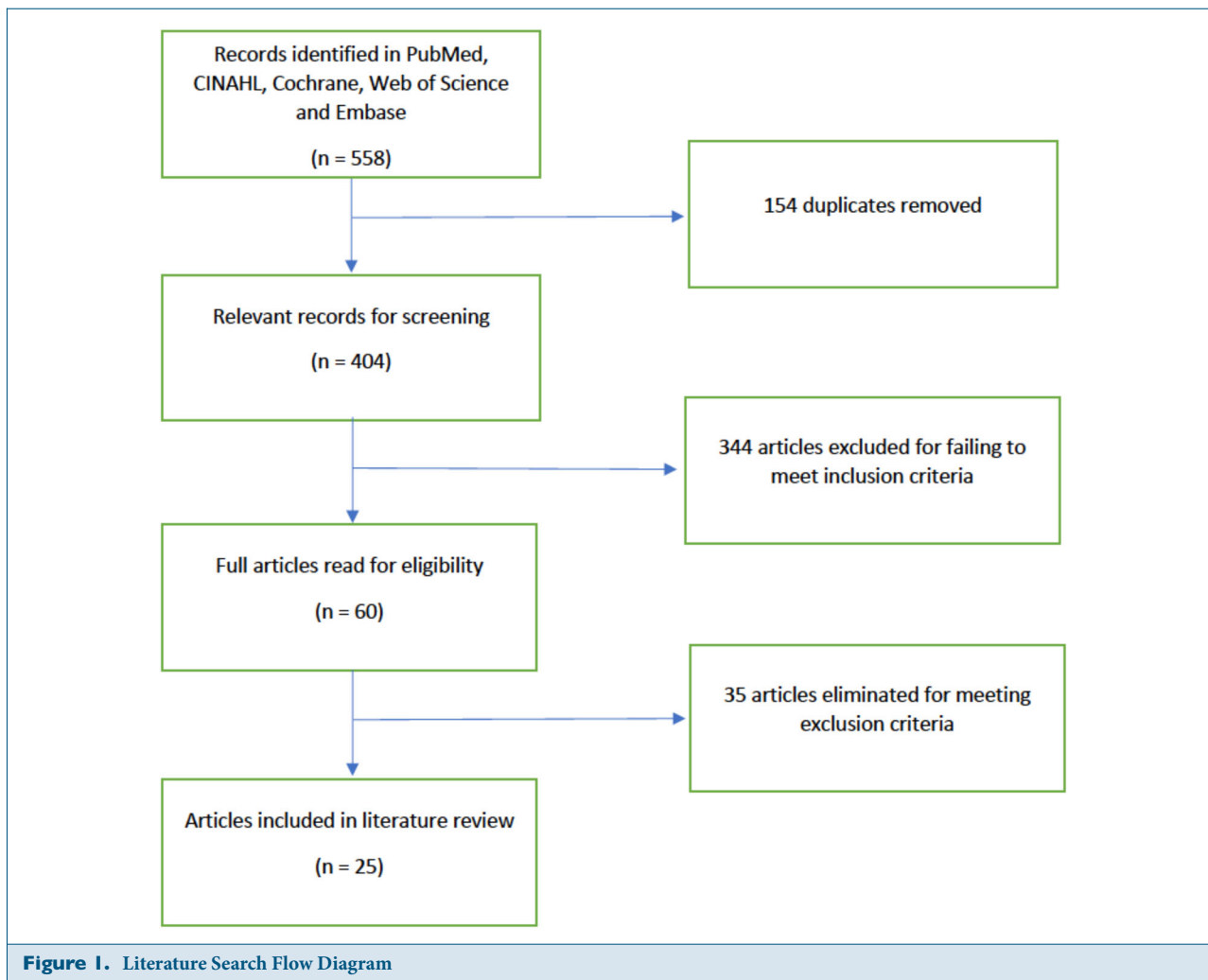
criteria. Sixty articles were read, of which 35 were excluded per exclusion criteria, resulting in 25 articles that were included in this literature review (Figure 1).

### Professional Organization Recommendations and Policies

Seven professional and government organizations, including the American College of Obstetricians and Gynecologists (ACOG), the Academy of Breastfeeding Medicine (ABM), the Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN), the American Society for Addiction Medicine, AAP, the Substance Abuse and Mental Health Services Administration, and the Society of Obstetricians and Gynaecologists of Canada (SOGC), have policy statements supporting breastfeeding for women on opioid maintenance therapy (Table 1).<sup>7,14,17-22</sup> In general, the policies support breastfeeding for women who are stable on opioid maintenance therapy, regardless of dose, and do not

have absolute contraindications to breastfeeding, such as HIV. Both methadone and buprenorphine are considered acceptable for breastfeeding women receiving opioid maintenance therapy.<sup>7,18,19,21</sup> Breastfeeding education and support for women on opioid maintenance therapy are strongly recommended by a number of the policies.<sup>19-21</sup> All the policies mention reduced severity of NAS and need for treatment as a reason to encourage breastfeeding, and some of the policies also mention further benefits of breastfeeding to the woman on opioid maintenance therapy and her newborn. No conflicting absolute contraindications between policy statements were noted (Table 1).

Policy statements differed from each other with regard to reasons to limit or not recommend breastfeeding. The most common example of this was what differing stakeholder organizations believe constitutes stability on opioid maintenance therapy. *Stability* is a subjective term but indicates consistency with prescribed opioid maintenance medication, such as buprenorphine or methadone, as opposed



to having a relapse. One policy recommended prohibiting breastfeeding if there has been a relapse in the 30 days prior to birth; another simply recommended suspending breastfeeding if there was a relapse without specifying time.<sup>7,19</sup> Breastfeeding is not recommended if women are actively using opioids or using other illicit substances.<sup>7,17–20</sup> What constitutes illicit substances in the context of breastfeeding is not always clear. Only the ABM statement indicates that a positive screening result for marijuana does not constitute a contraindication for breastfeeding; other policies do not make specific recommendations regarding how to address marijuana use in the context of breastfeeding and opioid maintenance therapy.<sup>19</sup> One policy mentions that marijuana use by the woman while breastfeeding is associated with negative outcomes for the newborn but does not make any subsequent recommendations regarding management.<sup>17</sup>

Although methadone and buprenorphine are both currently used for opioid maintenance therapy during pregnancy and the postpartum period, buprenorphine's acceptability for this purpose is more recent. AAP's statement, the oldest of the reviewed policies, recommended caution with regard to breastfeeding on buprenorphine because of the possibility of the drug being abused.<sup>17</sup> The statement also recommends gradual weaning to prevent NAS in the newborn.<sup>17</sup> A policy statement on NAS published by AAP in the following

year noted that, although it was not associated with worsening NAS, sudden discontinuation of breastfeeding by women using buprenorphine was not recommended.<sup>14</sup> This recommendation, based on one retrospective chart review of 128 newborns, has not been reiterated by any of the more recent policies, which all support breastfeeding on buprenorphine.<sup>23</sup> Based on the preponderance of policies supporting breastfeeding for women on opioid maintenance therapy, it is important to gain an understanding of the prevalence of breastfeeding among women in this population.

### Prevalence of Breastfeeding

All the studies that reported breastfeeding rates among women receiving opioid maintenance therapy were retrospective chart reviews (Table 2).<sup>15,24–26</sup> Three of these studies were conducted in the United States, and one was in Canada.<sup>15,24–26</sup> Low rates of breastfeeding initiation and continuation are seen in this population of women in the United States. The largest of the studies, conducted in New Mexico with a sample of 228 women reported that, although more than 80% of women on opioid maintenance therapy reported an intention to breastfeed, 31.4% and 19.6% of the women on buprenorphine and methadone, respectively, were exclusively breastfeeding at discharge.<sup>15</sup> At 2 months, 8.9% and 11.2%

<b>Table 2. Prevalence of Breastfeeding by Women Using Opioid Maintenance Therapy</b>			
<b>Author, Year</b>	<b>Study Purpose</b>	<b>Study Description</b>	<b>Main Findings and Additional Notes</b>
Cordero <sup>25</sup> 2016	Assessed factors associated with breastfeeding initiation failure among women with high-risk pregnancy conditions who intended to breastfeed	Retrospective cohort study (N = 229) 57 women were using opioid maintenance therapy	71% of the women on opioid maintenance therapy intended to breastfeed 19 (33%) did not initiate breastfeeding at all; no discussion as to why Buprenorphine plus naloxone is not typically used for opioid maintenance therapy in pregnancy and breastfeeding; this is not discussed in the study
Debelak <sup>24</sup> 2013	Examined maternal outcomes, including initiating breastfeeding, for women treated with buprenorphine + naloxone during pregnancy	Retrospective chart review (N = 10; 90% white)	3 of the 10 women began breastfeeding prior to discharge 4 of 10 newborns were treated for NAS
Ordean <sup>26</sup> 2015	Described maternal and newborn outcomes in a cohort of women on opioid maintenance therapy	Retrospective chart review (N = 94; 63% white and 23% aboriginal) in Vancouver, Montreal, and Toronto	17% of the women breastfed, and breastfeeding rates did not vary significantly between sites 27% of newborns required treatment for NAS; authors speculate low rate may be due to emphasis on rooming-in and support of breastfeeding
Yonke <sup>15</sup> 2018	Assessed intention to breastfeed in women on opioid maintenance therapy compared with breastfeeding at discharge and 2 months postpartum	Retrospective cohort study (N = 228; predominantly Hispanic) in New Mexico	87% and 81% women intended to breastfeed; 31.4% and 19.6% exclusively breastfed at discharge; 8.9% and 11.2% exclusively breastfed at 2 months for users of buprenorphine and methadone, respectively Authors note hunger cues may be more difficult to recognize in these newborns, leading to difficulty with breastfeeding

Abbreviation: NAS, neonatal abstinence syndrome.

of women on buprenorphine or methadone were exclusively breastfeeding.<sup>15</sup> A study of 57 women on opioid maintenance therapy reported that, although 71% reported an intention to breastfeed, 33% of these women did not initiate breastfeeding at all prior to discharge.<sup>25</sup> The smallest of the studies, reviewing the charts of 10 women, noted that only 3 began to breastfeed prior to discharge.<sup>24</sup>

Low rates of breastfeeding initiation among women receiving opioid maintenance therapy were also noted in Canada where, overall, 90.3% of women initiate breastfeeding.<sup>27</sup> SOGC's policy paper reports that breastfeeding initiation among women on opioid maintenance therapy is as low as 20% to 75% and decreases further by 6 to 12 weeks postpartum.<sup>22</sup> A retrospective chart review of 94 women on methadone maintenance therapy conducted in Vancouver,

Montreal, and Toronto who received care between 1997 and 2009 found a 17% initiation rate that did not vary significantly by city.<sup>26</sup> The low rate of breastfeeding among women on opioid maintenance therapy raises the question of why this is the case; the best way to answer such a question is to ask the women themselves.

### **Facilitators and Barriers to Breastfeeding for Women on Opioid Maintenance Therapy**

#### *Qualitative Study Findings*

Five studies, 4 qualitative and one that used a survey with qualitative questions, were found that explored women's perspectives about breastfeeding while receiving opioid maintenance therapy (Table 3).<sup>28-32</sup> One study was conducted in

Scotland, and 4 were conducted in the United States.<sup>28–32</sup> Study participants were predominantly white, except for one study that was mostly composed of Hispanic women.<sup>30</sup> Although these studies involved small numbers of women in different regions, similar themes were identified across the studies. Participants' primary motivation for desiring to breastfeed revolved around a desire to do their best by their newborn, ease newborns' withdrawal symptoms, assuage guilt, improve their newborn's health, and increase bonding.<sup>28–30,32</sup>

In 3 of these studies, women reported that health care providers and hospital nurses were barriers to breastfeeding, providing them with little to no support, misinformation and, occasionally, directly undermining or condemning their efforts to breastfeed.<sup>28–31</sup> One study of 30 women found that women who breastfed for shorter periods of time were also more likely to report that the hospital encouraged breastfeeding; although this finding runs counter to what might be expected, it was not further explained or commented upon by the authors.<sup>32</sup> Other barriers identified included newborn hospitalization (which included difficulty finding regular transportation to the hospital), misinformation, and a need for education, as well as lack of support from a partner, parents, or friends.<sup>28,29,31,32</sup> Facilitators for breastfeeding included provision of accurate information (individualized and especially tailored to the needs of women with newborns with NAS) and support, including from a peer group.<sup>28–30</sup>

#### Quantitative Study Findings

Eight studies were identified that sought to examine ways to improve breastfeeding rates for this population of women (Table 4). Two studies examined the use of treatment programs that included breastfeeding education, and one additional study examined breastfeeding education alone.<sup>33–35</sup> Three studies compared the implementation of new, breastfeeding-friendly policies with prior policies, and one study<sup>36</sup> described the management of NAS, including breastfeeding recommendations, in Canadian neonatal intensive care units (NICUs).<sup>37–39</sup> Finally, one of the studies evaluated multiple daily dosing of methadone in pregnancy and included breastfeeding as an outcome of interest.<sup>40</sup> All of the studies were retrospective chart reviews, except one study that used a survey to describe the array of NAS management practices in Canada.<sup>33–35,37–40</sup>

Krans et al compared breastfeeding rates between women on opioid maintenance therapy who received care in a woman-centered substance abuse program versus a standard program.<sup>33</sup> The woman-centered substance abuse program involved numerous interventions, such as pregnancy-specific methadone dosing, childcare during appointments, breastfeeding education, and group support.<sup>33</sup> The authors reported that, although breastfeeding was more common for initiation of breastfeeding among the women in the intervention arm compared with women in the standard care arm (55.4% vs 54.2% respectively;  $P = .83$ ) and decreased less at discharge (48.6% vs 40.7% respectively;  $P = .26$ ), these differences were not statistically significant.<sup>33</sup> O'Connor et al described breastfeeding rates in women participating in a medical and behavioral health program that included

breastfeeding education.<sup>34</sup> The authors reported that 65 (76%) women who participated in the program initiated breastfeeding and that 56 (66%) were still breastfeeding at their postpartum visit.<sup>34</sup> The authors noted that women were less likely to breastfeed if they used illicit substances in their third trimester; however, eligibility to breastfeed, when women used illicit substances in the third trimester, was evaluated on a case-by-case basis, which may have affected this finding.<sup>34</sup> Breastfeeding rates were reported by this study as percentages with no discussion of statistical significance.<sup>34</sup> Crook and Brandon examined a breastfeeding education intervention, aimed at women whose newborns were at risk for NAS, to determine whether participation increased breastfeeding initiation and decreased length of hospitalization for newborns.<sup>35</sup> Although the education opportunity was widely marketed and offered 4 times in a 6-month period, only 14 women and 8 support persons participated, and only 2 women finished the course; the resultant sample was insufficient to examine the effect of the intervention on the outcomes of interest.<sup>35</sup> Despite the small sample, the authors reported that the diagnosis of NAS was statistically significantly less (53.6% vs 85.5% or 78.9%, respectively;  $P < .001$ ) between the intervention (breastfeeding and education) arm compared with the baseline and the breastfeeding-only group.<sup>35</sup> The use of pharmacologic therapy was also statistically significantly less in the breastfeeding plus education arm compared with the baseline or breastfeeding-only group (51% vs 67.3% or 53.9%;  $P < .001$ ).<sup>35</sup> Overall length of stay for newborns also decreased significantly with both breastfeeding groups compared with the baseline group (10.41 days in the breastfeeding and education arm vs 13.14 in the breastfeeding-only group and 18.8 days in the baseline group;  $P < .001$ ).<sup>35</sup>

Policies can influence whether a woman receiving opioid maintenance therapy will breastfeed. Four studies examined institutional policies for obstetric and neonatal management of opioid exposure and included breastfeeding as a result of interest.<sup>36–39</sup> Two retrospective chart reviews were conducted at the Boston Medical Center in 2016 and 2018 that examined breastfeeding outcomes before and after the implementation of a hospital policy that was more supportive of breastfeeding by women receiving opioid maintenance therapy.<sup>37,39</sup> The change in hospital policy led to the formation of an NAS quality improvement team and the provision of breastfeeding education to women on opioid maintenance therapy.<sup>39</sup> The quality improvement team created a mandatory online module for nurses and health care providers that addressed the importance of breastfeeding for newborns with NAS.<sup>39</sup> The impact of the mandatory online education module on breastfeeding outcomes was not examined as an independent variable.<sup>39</sup> Both studies, however, found that breastfeeding rates in women on opioid maintenance therapy improved under the new supportive guidelines.<sup>37,39</sup> Schiff et al found a statistically significant increase between 2006 and 2016 in initiation (38% vs 56%;  $P < .001$ ) and continuation of breastfeeding (8% vs 34%;  $P = .001$ ) as the hospital policy became more supportive of breastfeeding for women using opioid maintenance therapy.<sup>39</sup> The authors also reported that the length of newborn hospital stay decreased significantly for women who initiated breastfeeding (17.6 days vs

<b>Table 3. Women's Perspectives on Breastfeeding while Dependent on Opioid Maintenance Therapy</b>				
<b>Author, Year</b>	<b>Study Purpose</b>	<b>Study Description</b>	<b>Main Findings</b>	<b>Additional Findings</b>
Demirci <sup>28</sup> 2015	Described perceptions and experiences around breastfeeding among pregnant and postpartum women on methadone	Semistructured interviews (N = 11; 100% white) in Pittsburgh, Pennsylvania	Three themes around breastfeeding while taking methadone: fears, barriers, and misconceptions; perceived benefits and motivation; sources of support, information and anxiety	Noted fear of newborn overdose, smoking as contraindication, desire to do best for and bond with the newborn and ease guilt Hospital-based nurses provided no support at all
Hicks <sup>32</sup> 2018	Examined intention to breastfeed among postpartum women on methadone, support they received, self-reported breastfeeding rates, and reasons for attrition	Survey with addition of qualitative questions (N = 30) in Tennessee	80% of women started breastfeeding, 37.5% stopped after one week Average breastfeeding duration 41.9 days None breastfed exclusively	Most common reason to quit was newborn hospitalization Most common reasons to breastfeed: better for newborn health; helping with newborn withdrawal Uncertainty among women as to safety of methadone while breastfeeding
MacVicar <sup>29</sup> 2017	Explored the views of women dependent on opioids on the acceptability and usability of a breastfeeding support intervention	Think aloud study, which was the qualitative portion of a mixed methods feasibility study (N = 6; white women) in Scotland	Need to learn breastfeeding practical skills Availability of accurate information Importance of emotional support Individualized approach to support 5 of 30 women reported any satisfaction with breastfeeding experience	Need for more breastfeeding education tailored for moms with newborns with NAS Reluctance, or lack of awareness, among some staff groups when the subject was broached Women who breastfed less or not at all more likely to report that the hospital encouraged breastfeeding
McGlothen <sup>30</sup> 2018	Described what influences the newborn-feeding decisions of women receiving opioid maintenance therapy	Descriptive study using semistructured interviews (N = 8; 7 Hispanic) in Southwest United States	5 of the women breastfed Frequent misinformation from health care providers Hospital nurses undermining feeding decision Peer groups supportive	Doing best for the newborn All women reported breast milk better than formula Most women breastfed to ease newborn withdrawal
Sobel (poster) <sup>31</sup> 2018	Identified factors that adversely affect the labor and birth experience for women with opioid use disorder and concomitant sexual trauma history	Semistructured interviews (N = 13)	Women reported receiving less breastfeeding encouragement than women without opioid use disorder Separation from newborns without adequate explanation concerned participants	Many feared they had lost custody Felt there was little institutional concern for maternal-newborn bonding Reported guilt about the impact of addiction on the newborn

Abbreviation: NAS, neonatal abstinence syndrome.



**Table 4. Barriers, Facilitators and Interventions related to Breastfeeding while on Opioid Maintenance Therapy**

Author, Year	Study Purpose	Study Description	Main Findings	Additional Findings
Crook <sup>35</sup> 2017	Examine breastfeeding education as intervention to increase breastfeeding initiation and decrease length of stay for newborns with NAS	Quality improvement project (N = 200 newborns; only 14 women and 8 support persons attended any classes; only 2 women completed all 3 classes; white women) in Wilmington, North Carolina	Exclusive breastfeeding increased from 9.1% to 14.5% to 24.6% in the cohorts Breastfeeding at discharge increased from 20%, 25%, and 31.9% in the cohorts Sample size of women who attended class too small to examine its impact on breastfeeding	Women could enroll in the classes if they were on opioid maintenance therapy, active illicit substance users, or prescribed medication putting their newborn at risk of NAS Health care providers received education regarding classes and breastfeeding for this group of women
Gadomski <sup>38</sup> 2018	Compared a rural level 1 NICU implementing new NAS guidelines with level 3 NICU data from a nationwide database	Retrospective chart review (N = 167)	6% exclusive and 44% some breastfeeding for newborns with NAS	37% exclusive and 61% some breastfeeding for newborns, overall No comparison with previous breastfeeding outcomes of the level 1 NICU or with other rural level 1 NICUs
Krans <sup>33</sup> 2018	Evaluated the impact of women-centered substance abuse treatment programming on outcomes among pregnant women with opioid use disorder	Retrospective cohort design (N = 248) in Pittsburgh, Pennsylvania	Intervention group more likely to: Have higher dose of opioid therapy at birth (16 mg vs 14.1 mg; <i>P</i> = .02) Attend postpartum visit (67.9% vs 52.6%; <i>P</i> = .05) Use a LARC (23.9% vs 13%; <i>P</i> = .03) Breastfeed more and longer; not significant	Women-centered care included: Pregnancy-specific opioid maintenance therapy dosing Trauma informed care Education around family planning Encouragement to breastfeed Parenting skills class Help with housing and resources Childcare during appointments Support for attending prenatal, postpartum, and behavioral health visits STI screening
McCarthy <sup>40</sup> 2015	Evaluated the effects of a multiple daily dose methadone regimen on neonatal outcomes	Retrospective cohort study (N = 62)	29% of newborns treated for NAS 92% of women were free of illicit drug use at birth	81% of participants breastfed
Murphy <sup>36</sup> 2017	Described NAS management practices	Telephone survey of all level 2 and 3 NICUs (63.1% response rate) in Canada	92.3% of sites had a written NAS policy 53.8% encouraged, 44.6% discouraged, breastfeeding if women using illicit substances	No distinction between active users of illicit substances and women stable on opioid maintenance therapy

(Continued)

<b>Table 4. Barriers, Facilitators and Interventions related to Breastfeeding while on Opioid Maintenance Therapy</b>				
<b>Author, Year</b>	<b>Study Purpose</b>	<b>Study Description</b>	<b>Main Findings</b>	<b>Additional Findings</b>
O'Connor <sup>34</sup> 2013	Described breastfeeding rates among women on buprenorphine and to examine whether breastfeeding was related to NAS in the newborn	Retrospective chart review (N = 85) at Maine General Medical Center	76% initiated breastfeeding 66% breastfeeding at 6 to 8 weeks postpartum Women with illicit substance use in third trimester less likely to breastfeed	Results suggestive of breastfeeding attenuating NAS symptoms, but not statistically significant Women met for weekly group visits that included review of information on breastfeeding eligibility and visits from a lactation consultant
Schiff <sup>39</sup> 2018	Examined breastfeeding in women with opioid exposure and hospital, maternal and newborn characteristics associated with breastfeeding	Retrospective chart review (N = 924) at Boston Medical Center	50.2% breastfeeding initiation 33.2% breastfeeding at discharge 6.2% breastfed exclusively	Reduced breastfeeding restrictions and prenatal breastfeeding education both increased rates of breastfeeding Hospital initiatives to improve breastfeeding outcomes successful
Wachman <sup>37</sup> 2016	Compared breastfeeding outcomes for women on opioid maintenance therapy between new and old set of hospital guidelines	Retrospective chart review (N = 122) at Boston Medical Center	56% of women eligible to breastfeed per old, 82% per new, guidelines Under old policy 64% initiated breastfeeding; 82% still providing some milk at discharge	15% increase in breastfeeding with new policy Did not report statistical significance Length of newborn stay with NAS decreased under new policy Authors report change in guidelines has led to increased harmony between health care providers and has assisted in promotion of nonpharmacologic care for NAS

Abbreviations: LARC, long-acting reversible contraceptive; NAS, neonatal abstinence syndrome; NICU, neonatal intensive care unit; STI, sexually transmitted infection.

20.6 days;  $P = .002$ ) and for those who continued breastfeeding versus those who did not (15 days vs 20.9 days;  $P < .001$ ).<sup>39</sup>

Two studies examined NICU policies regarding NAS and included breastfeeding as an outcome.<sup>36,38</sup> Murphy et al conducted a survey of Canadian level II and III NICUs and found that policy statements encouraging breastfeeding in the presence of OUD were not linked to unit type or size.<sup>36</sup> The authors also reported that 53.8% of 65 sites routinely encouraged breastfeeding, whereas 44.6% discouraged it if women continued illicit substance use.<sup>36</sup> No data were provided about breastfeeding initiation or continuation rates, and the policies did not appear to acknowledge differences between women on opioid maintenance therapy and women actively using illicit substances. Gadomski et al examined the effect of NAS

weaning guidelines on treatment duration, length of stay, and hospital charges in a rural NICU compared with a national NICU database.<sup>38</sup> The study also compared the demographics and length of stay for 33 newborns treated for NAS and 126 newborns with prenatal substance exposure but no NAS born at the rural hospital.<sup>38</sup> The NAS weaning guidelines included rooming-in to encourage breastfeeding. Despite rooming-in, newborns not treated for NAS were significantly more likely to be exclusively breastfed (6% vs 37%, respectively;  $P = .002$ ).<sup>38</sup>

One final study examined the effect of pregnant women receiving methadone doses multiple times per day on pregnancy and neonatal outcomes, including breastfeeding.<sup>40</sup> In the sample of 62 women, the mean dose of opioid maintenance therapy at birth was 152 mg given in 2 to 6 doses

per day, depending upon the woman's reported symptoms.<sup>40</sup> NAS treatment was needed for 29% of the newborns.<sup>40</sup> In this study, 81% of the women breastfed, and no specific intervention around breastfeeding was reported.<sup>40</sup>

Overall, the quantitative studies identified for the literature review focused on hospital policy, group education, and support as well as tailoring opioid maintenance therapy for the physiology of pregnancy. Hospital policies that supported breastfeeding in women receiving opioid maintenance therapy were associated with a statistically significant increase in breastfeeding initiation and duration as well as a decrease in newborn length of stay. Newborns were more likely to be breastfed if they did not have NAS. Research around group education and support either was not sufficiently powered or did not show a statistically significant increase in breastfeeding in the intervention arm. Some of the research, however, involved multiple interventions (eg, childcare during appointments, breastfeeding education, group support) that were not analyzed independently.

## DISCUSSION

Breastfeeding is one cost-effective and evidence-based means of improving maternal and neonatal health outcomes for women receiving opioid maintenance therapy and their newborns. Some of the improved maternal outcomes associated with breastfeeding in this population include increased confidence and participation in newborn care, as well as improved attachment and bonding.<sup>14</sup> With regard to neonatal outcomes, breastfeeding has been shown to decrease NAS symptoms, the need for pharmacotherapy, the length of hospital stays, and cost.<sup>7,12,13</sup> Three literature reviews published in 2016 and 2017 have focused on breastfeeding among women on opioid maintenance therapy.<sup>9,41,42</sup> In addition, 4 other literature reviews with varying purposes mention breastfeeding in the context of opioid use.<sup>43–46</sup> Of the 4 literature reviews that focused on varying aspects of opioid use (including NAS) with some mention of breastfeeding, all note that rates of breastfeeding among women using opioid maintenance therapy are low despite the recommendation of stakeholder policy organizations.<sup>43–46</sup>

Tsai and Doan reviewed interventions to improve breastfeeding outcomes for women using opioid maintenance therapy.<sup>9</sup> Although Tsai and Doan reviewed some of the same studies as the current review, the focus (and, therefore, the findings) of the 2 articles differ.<sup>9</sup> Both reviews, however, identify some similar limitations in the research, such as the lack of both control groups and distinctions between interventions.<sup>9</sup> Graves et al reviewed research that sought to understand breastfeeding experiences and newborn-feeding choices made by women receiving opioid maintenance therapy.<sup>41</sup> The barriers identified by the authors were similar to those identified in this literature review, namely, a lack of patient and health care provider education.<sup>41</sup> The review by Holmes et al covers an array of topics related to breastfeeding newborns with NAS.<sup>42</sup> The authors review policies from ABM, ACOG, and AAP but do not include other stakeholder statements.<sup>42</sup> Holmes et al discussed barriers to breastfeeding for women receiving opioid maintenance therapy and shared findings similar to the findings of this review, such as lack of

support and accurate information from health care providers, but the information was garnered from other literature reviews and the qualitative research was not analyzed.<sup>42</sup> One literature review noted that, despite the policies of stakeholder professional organizations, institutional policies may differ significantly from the recommendations, thereby creating further barriers to breastfeeding in this population of women.<sup>46</sup>

Policy statements from stakeholder professional organizations support breastfeeding for women who do not have an absolute contraindication and are stable on opioid maintenance therapy.<sup>7,17–19,21</sup> Definitions of what it means to be stable on opioid maintenance therapy vary by organization. For instance, ABM recommends against breastfeeding if the woman has had a relapse within the 30 days prior to birth, whereas ACOG recommends suspending breastfeeding if there is a relapse without reference to timing.<sup>7,19</sup> A standard definition of stability on maintenance medication is critical for guiding clinical practice and should be addressed as these policies are revised. Further clarification from other stakeholder professional organizations on whether marijuana constitutes a contraindicated substance for breastfeeding would also be useful.

Four small studies published in the past 10 years were found that focused on breastfeeding initiation among women on opioid maintenance therapy. The incidence of breastfeeding initiation in this population varied between 17% and 47%, which is significantly lower than the breastfeeding initiation rate of 83.2% for the general population in the United States.<sup>15,22,24,26</sup> These studies were small, had predominantly white participants, and provided little distinction between breastfeeding initiation, mixed feeding, and continuation of feeding. Despite their limitations, these studies provide preliminary evidence that, despite policy statements, women using opioid maintenance therapy are not breastfeeding to the extent they desire or to the extent recommended.

Several qualitative and quantitative studies that evaluated barriers and facilitators for breastfeeding by this population of women were analyzed. Most of the qualitative research identified for this analysis found that many women receiving opioid maintenance therapy were interested in breastfeeding.<sup>28–30,32</sup> Their interest in breastfeeding came not only from an understanding that breastmilk was the best option for their newborn, but also from a desire to ease a sense of guilt, do their best by their newborn, and ease the symptoms of NAS.<sup>28–30,32</sup> In this context, breastfeeding takes on added significance beyond a desire to bond with and nourish their newborn. Yet these women also reported experiencing barriers to breastfeeding. Some of these barriers, which were noted in multiple studies, include misinformation, a lack of support from health care providers and nurses, separation from their newborns because of hospitalization for NAS treatment, and physiologic difficulties related to NAS that complicate breastfeeding.<sup>28–31</sup> To address these barriers to successful breastfeeding, women who participated in the qualitative research identified the need for breastfeeding education specific to opioid maintenance therapy and newborns with NAS, support from peers and family members as well as health care providers, and a way to address separation from their newborns because of hospitalization. Women did report that breastfeeding education and support from peers and partners were important in helping them breastfeed.<sup>28–30</sup>

None of the qualitative studies included African American, Native American, or Asian American women, and the studies were predominantly urban, despite a severe opioid problem in rural areas. These qualitative research findings suggest that women using opioid maintenance therapy may not be receiving adequate care or support for breastfeeding. Although these studies provide insight that can help guide future quantitative research, little of the quantitative research seems to have developed from the qualitative findings.

In general, the quantitative studies analyzed for this review were small retrospective chart reviews that did not always include comparison groups and focused heavily on the effects of hospital policies.<sup>34,36-40</sup> Overall, hospital policies that were supportive of breastfeeding in women receiving opioid maintenance therapy were associated with a statistically significant increase in breastfeeding initiation and duration. Some studies did not report statistical significance or were not powered sufficiently to analyze it.<sup>34,35</sup> Interventions were frequently grouped together and not examined independently with regard to the outcome of interest.<sup>33,34,39</sup> All told, research and initiatives for improving breastfeeding rates for women receiving opioid maintenance therapy should consider the findings of qualitative research to best address the barriers and facilitators identified by women on opioid maintenance therapy themselves. Misinformation, lack of education, and judgement from health care providers and nurses were found in several qualitative studies, but no quantitative study specifically addressed this critical issue.

### Recommendations for Future Research

The findings of this analysis suggest that more research is needed regarding breastfeeding by women prescribed opioid maintenance therapy. Future qualitative research should include African American and Native American women. Qualitative studies seeking to understand the perspective of health care providers and nurses with regard to breastfeeding while on opioid maintenance therapy are also needed. Similarly, research in different geographic locales, especially in rural areas such as Vermont and West Virginia that have a high burden of OUD, is needed. Asking women what facilitators and barriers they experience could inform future policies that will increase breastfeeding initiation and duration.<sup>3</sup>

There is also a need for appropriately powered, more rigorous quantitative studies, including prospective studies, to better understand the impact of interventions designed to improve breastfeeding for women in this population. Researchers conducting intervention studies should consider the findings of qualitative research or develop a community board of women receiving opioid maintenance therapy to assist with the development of interventions to improve breastfeeding in this population. These quantitative studies also need to consider diversity in the study population and regional differences in OUD and breastfeeding rates.

### Clinical and Policy Implications

The research reviewed herein suggests several possibilities for improving care for women using opioid maintenance therapy and for their newborns. Midwife, physician, and nurse contin-

uing education is necessary for health care providers to understand current recommendations; reflect on their own attitudes regarding caring for women receiving opioid maintenance therapy; and provide appropriate information, resources, and support for women using opioid maintenance therapy who want to breastfeed. Breastfeeding education and ongoing lactation support that take into consideration the challenges of breastfeeding a newborn with NAS, including latching difficulties and NICU stays, is critical. Other ways to improve clinical care include incorporating peer support for breastfeeding into weekly group meetings and providing clinic nurses with information and resources on breastfeeding to give to expectant women. Another consideration, though not specifically addressed in the current research, is to work with NICU staff to encourage breastfeeding for newborns with NAS. Strategies to support breastfeeding for newborns admitted to the NICU might include lactation support and access to pumping supplies, as well as transportation vouchers to enable women to continue breastfeeding their newborns if the woman is discharged while the newborn is still admitted.

Midwives in the United States frequently, and increasingly, care for women with OUD. In some states, midwives can expand their scope of practice to include the prescription of medications for opioid maintenance therapy. Although the American College of Nurse-Midwives has a policy on breastfeeding and another on substance use disorder, it currently has no policy specifically addressing OUD and opioid maintenance therapy. The creation of such a policy, which addresses such critical topics as breastfeeding and pain management, is recommended to support and guide midwives as they care for women with OUD.

### CONCLUSION

Although the number of pregnant women affected by OUD remains relatively small compared with the number of women who are pregnant each year in the United States, OUD is costly and a critical area for intervention to improve maternal and neonatal health and outcomes. Stakeholder policy statements all support breastfeeding as the best option for women receiving opioid maintenance therapy and their newborns as long as the woman is HIV negative and stable on her maintenance medication. As the opioid epidemic in the United States continues, and as women using opioid maintenance therapy increasingly present for prenatal care, health care providers need additional education to provide the best evidence-based care. Midwives must offer education, resources, and support for the women they serve so women will not only be satisfied with the respectful care they receive but also experience the best possible outcomes for themselves and their newborns. Current evidence indicates that there is a long way to go to make care equitable, compassionate, and evidence based for women using opioid maintenance therapy and for their newborns. Ultimately, if midwives are to be with women, they need to listen to individual women and work with them to identify and implement strategies to help them breastfeed. The best time to change practice is now.

### CONFLICT OF INTEREST

The author has no conflicts of interest to disclose.

## ACKNOWLEDGMENTS

The author wishes to acknowledge Mrs. Anna Lyman for her support and encouragement.

## REFERENCES

- Centers for Disease Control and Prevention. *Applying CDC's Guideline for Prescribing Opioids: An Online Training Series for Providers. Module 5: Assessing and Addressing Opioid Use Disorder (OUD)*. Atlanta, GA: Centers for Disease Control and Prevention; October 27, 2017. <https://www.cdc.gov/drugoverdose/training/oud/>. Accessed January 21, 2019.
- Ahrnsbrak R, Bose J, Hedden SL, Lipari RN, Park-Lee E. *Key Substance Use and Mental Health Indicators in the United States: Results from the 2016 National Survey on Drug Use and Health*. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2017. <https://www.samhsa.gov/data/report/key-substance-use-and-mental-health-indicators-united-states-results-2016-national-survey>. Accessed November 3, 2018.
- Haight SC, Ko JY, Tong VT, Bohm MK, Callaghan WM. Opioid use disorder documented at delivery hospitalization - United States, 1999-2014. *MMWR Morb Mortal Wkly Rep*. 2018;67(31):845-849.
- Hand DJ, Short VL, Abatemarco DJ. Substance use, treatment, and demographic characteristics of pregnant women entering treatment for opioid use disorder differ by United States census region. *J Subst Abuse Treat*. 2017;76:58-63.
- Admon LK, Bart G, Kozhimannil KB, Richardson CR, Dalton VK, Winkelman TNA. Amphetamine- and opioid-affected births: incidence, outcomes, and costs, United States, 2004-2015. *Am J Public Health*. 2018;109(1):e1-e7.
- Short VL, Hand DJ, MacAfee L, Abatemarco DJ, Terplan M. Trends and disparities in receipt of pharmacotherapy among pregnant women in publicly funded treatment programs for opioid use disorder in the United States. *J Subst Abuse Treat*. 2018;89:67-74.
- American College of Obstetricians and Gynecologists, Committee on Obstetric Practice. Committee opinion no. 711: Opioid use and opioid use disorder in pregnancy. *Obstet Gynecol*. 2017;130(2):e81-e94.
- Centers for Disease Control and Prevention. The US opioid crisis: addressing maternal and infant health. Centers for Disease Control and Prevention website. <https://www.cdc.gov/reproductivehealth/opioid-use-disorder-pregnancy/index.html>. Published 2018. Accessed November 1, 2018.
- Tsai LC, Doan TJ. Breastfeeding among mothers on opioid maintenance treatment: a literature review. *J Hum Lact*. 2016;32(3):521-529.
- Krans EE, Patrick SW. Opioid use disorder in pregnancy: health policy and practice in the midst of an epidemic. *Obs Gynecol*. 2016;128(1):4-10.
- Patrick SW, Davis MM, Lehman CU, Cooper WO. Increasing incidence and geographic distribution of neonatal abstinence syndrome: United States 2009-2012. *J Perinatol*. 2015;35(8):650-655.
- Welle-Strand GK, Skurtveit S, Jansson LM, Bakstad B, Bjarko L, Ravndal E. Breastfeeding reduces the need for withdrawal treatment in opioid-exposed infants. *Acta Paediatr*. 2013;102(11):1060-1066.
- Short VL, Gannon M, Abatemarco DJ. The association between breastfeeding and length of hospital stay among infants diagnosed with neonatal abstinence syndrome: a population-based study of in-hospital births. *Breastfeed Med*. 2016;11(7):343-349.
- Kocherlakota P. Neonatal abstinence syndrome. *Pediatrics*. 2014;134(2):e547-e561.
- Yonke N, Maston R, Weitzen S, Leeman L. Breastfeeding intention compared with breastfeeding postpartum among women receiving medication-assisted treatment. *J Hum Lact*. 2019;35(1):71-79.
- Centers for Disease Control and Prevention. *Breastfeeding Report Card: United States, 2018*. Atlanta, GA: Centers for Disease Control and Prevention; 2018. <https://www.cdc.gov/breastfeeding/data/reportcard.htm>. Accessed October 29, 2018.
- Sachs H; Committee on Drugs. The transfer of drugs and therapeutics into human breast milk: an update on selected topics. *Pediatrics*. 2013;132(3):e796-e809.
- Cleveland LM. Breastfeeding recommendations for women who receive medication-assisted treatment for opioid use disorders: AWHONN Practice Brief Number 4. *Nurs Womens Health*. 2016;20(4):432-434.
- Reece-Stremtan S, Marinelli KA. ABM clinical protocol #21: Guidelines for breastfeeding and substance use or substance use disorder, revised 2015. *Breastfeed Med*. 2015;10(3):135-141.
- American Society of Addiction Medicine. *Public Policy Statement on Substance Use, Misuse, and Use Disorders During and Following Pregnancy, with an Emphasis on Opioids*. North Bethesda, MD: American Society of Addiction Medicine; January 18, 2017. <https://www.asam.org/advocacy/find-a-policy-statement/view-policy-statement/public-policy-statements/2017/01/19/substance-use-misuse-and-use-disorders-during-and-following-pregnancy-with-an-emphasis-on-opioids>. Accessed September 13, 2018.
- Substance Abuse and Mental Health Services Administration. *Clinical Guidance for Treating Pregnant and Parenting Women with Opioid Use Disorder and their Infants*. HHS Publication No. (SMA) 18-5054. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2018. <https://store.samhsa.gov/system/files/sma18-5054.pdf>. Accessed September 13, 2018.
- Ordean A, Wong S, Graves L. No. 349 - Substance use in pregnancy. *J Obstet Gynaecol Can*. 2018;39(10):922-937.e2.
- Isemann B, Meinzen-Derr J, Akinbi H. Maternal and neonatal factors impacting response to methadone therapy in infants treated for neonatal abstinence syndrome. *J Perinatol*. 2011;31(1):25-29.
- Debelak K, Morrone WR, Grady KEO, Jones HE. Buprenorphine + naloxone in the treatment of opioid dependence during pregnancy - initial patient care and outcome data. *Am J Addict*. 2013;22(3):252-254.
- Cordero L, Oza-frank R, Moore-Clingenpeel M, Landon MB, Nankervis CA. Failure to initiate breastfeeding among high risk obstetrical patients who intended to breastfeed. *J Neonatal Perinatal Med*. 2016;9(4):401-409.
- Ordean A, Kahan M, Graves L, Abrahams R, Kim T. Obstetrical and neonatal outcomes of methadone-maintained pregnant women: a Canadian multisite cohort study. *J Obstet Gynaecol Canada*. 2015;37(3):252-257.
- Chalmers B. Breastfeeding unfriendly in Canada? *CMAJ*. 2013;185(5):375-376.
- Demirci JR, Bogen DL, Klionsky Y. Breastfeeding and methadone therapy: the maternal experience. *Subst Abus*. 2015;36(2):203-208.
- MacVicar S, Humphrey T, Forbes-Mckay KE. Breastfeeding support and opiate dependence: a think aloud study. *Midwifery*. 2017;50:239-245.
- McGlothen KS, Cleveland LM, Gill SL. "I'm doing the best that I can for her": infant-feeding decisions of mothers receiving medication-assisted treatment for an opioid use disorder. *J Hum Lact*. 2018;34(3):535-542.
- Sobel L, O'Rourke-Suchoff D, Remis K, Sia M, Saia K, Bell SL. A qualitative study of pregnancy and birth experience for women with opioid use disorder and a history of sexual trauma [abstract]. *Obst Gynecol*. 2018;131(suppl 1):25S.
- Hicks J, Morse E, Wyant DK. Barriers and facilitators of breastfeeding reported by postpartum women in methadone maintenance therapy. *Breastfeed Med*. 2018;13(4):259-265.
- Krans EE, Bobby S, England M, et al. The Pregnancy Recovery Center: a women-centered treatment program for pregnant and postpartum women with opioid use disorder. *Addict Behav*. 2018;86:124-129.
- O'Connor AB, Collett A, Alto WA, Brien LM. Breastfeeding rates and the relationship between breastfeeding and neonatal abstinence syndrome in women maintained on buprenorphine during pregnancy. *J Midwifery Womens Health*. 2013;58(4):383-388.

35. Crook K, Brandon D. Prenatal breastfeeding education: impact on infants with neonatal abstinence syndrome. *Adv Neonatal Care*. 2017;17(4):299-305.
36. Murphy K, Coo H, Warre R, Shah V, Dow K. Variations and similarities in clinical management of neonatal abstinence syndrome: findings of a Canadian survey. *Pediatr Child Health*. 2017;22(3): 148-152.
37. Wachman EM, Saia K, Humphreys R, Minear S, Combs G, Philipp BL. Revision of breastfeeding guidelines in the setting of maternal opioid use disorder: one institution's experience. *J Hum Lact*. 2016;32(2): 382-387.
38. Gadowski A, Riley M, Ramiza K, et al. Treating neonatal abstinence syndrome in a rural hospital: lessons learned. *Acad Pediatr*. 2018;18(4):425-429.
39. Schiff DM, Wachman EM, Philipp B, et al. Examination of hospital, maternal, and infant characteristics associated with breastfeeding initiation and continuation among opioid-exposed mother-infant dyads. *Breastfeed Med*. 2018;13(4):266-274.
40. McCarthy JJ, Leamon MH, Willits NH, Salo R. The effect of methadone dose regimen on neonatal abstinence syndrome. *J Addict Med*. 2015;9(2):105-110.
41. Graves LE, Turner S, Nader M, Sinha S. Breastfeeding and opiate substitution therapy: starting to understand infant feeding choices. *Subst Abus Res Treat*. 2016;10(suppl 1):43-47.
42. Holmes A, Schmidlin H, Kurzum E. Breastfeeding considerations for mothers of infants with neonatal abstinence syndrome. *Pharmacotherapy*. 2017;37(7):861-869.
43. D'Apolito K. Breastfeeding and substance abuse. *Clin Obstet Gynecol*. 2013;56(1):202-211.
44. Grossman M, Seashore C, Holmes AV. Neonatal abstinence syndrome management: a review of recent evidence. *Rev Recent Clin Trials*. 2017;12(4):226-232.
45. Klamon SL, Isaacs K, Leopold A, et al. Treating women who are pregnant and parenting for opioid use disorder and the concurrent care of their infants and children: literature review to support national guidance. *J Addict Med*. 2017;11(3):178-190.
46. Saia KA, Schiff D, Wachman EM, et al. Caring for pregnant women with opioid use disorder in the USA: expanding and improving treatment. *Curr Obstet Gynecol Rep*. 2016;5:257-263.

Continuing education units (CEUs) are available for this article. To obtain CEUs online, please visit [www.jmwhce.org](http://www.jmwhce.org). A CEU form that can be mailed or faxed is available in the print edition of this issue.