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Brief Report

Group Prenatal Care for Women Receiving Medication-Assisted Treatment for Opioid Use Disorder in Pregnancy: An Interprofessional Approach

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Opioid use disorder among pregnant women is common and rapidly increasing nationwide. Group prenatal care is an innovative alternative to individual care for pregnant women and has been shown to improve women's and health care providers' satisfaction and adherence to care. We describe a novel group prenatal care program colocated in an opioid treatment program that integrates prenatal care, substance use disorder counseling, and medication-assisted treatment. Our interprofessional model draws on the unique contributions of physicians, midwives, nurses, and mental health professionals to address the complex needs of pregnant women with opioid use disorder. Participants reported increased trust and engagement with health care providers and peers, improved prenatal care and birth experience, and increased resilience for relapse prevention. Group prenatal care is an accepted and promising model for women with opioid use disorder in pregnancy and has the potential to improve outcomes for women and newborns.

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INTRODUCTION

Opioid use disorder among pregnant women is increasingly common throughout the United States. According to the 2013 National Survey on Drug Use and Health, 5.3% of pregnant women aged 15 to 44 years report illicit drug use.[1] Despite low rates of self-reported use, both prescribed and illicit opioid use is rising. One in 5 women fills an opioid prescription during pregnancy,[2] and the largest increase in heroin use in the past 9 years is among women.[3] Between 1992 and 2012, women reporting opioid abuse in substance abuse treatment facilities rose from 2% to 28%.[4] Between 1999 and 2014, there was a 333% increase in the prevalence of opioid use during pregnancy, with 6.5 cases per 1000 births in 2014.[5] Evidence for the rise of opioid dependence in pregnancy also comes from the well-documented rise in neonatal opioid withdrawal syndrome (NOWS), characterized by central nervous system irritability, gastrointestinal effects, and poor weight gain. Both the incidence and the associated costs of NOWS have risen over the last 10 years, with incidence increasing from 3.4 to 5.8 per 1000 live births and hospital charges associated with NOWS totaling more than $1.5 billion in 2012.[6]

Medication-assisted treatment (MAT) with methadone or buprenorphine remains the standard of care for pregnant women with opioid use disorder.[7] Methadone is a schedule II drug that can only be dispensed for opioid addiction in opioid treatment programs. Buprenorphine is a schedule III drug that can be prescribed in an outpatient office through a waiver from the Drug Enforcement Administration.[7] Since the 1970s, methadone has been the standard of care for MAT in pregnancy, although recent studies have demonstrated less severe neonatal withdrawal symptoms and decreased length of hospital stay associated with buprenorphine.[8]

Perinatal outcomes improve when maternity care is combined with treatment for substance use disorders. Although high-quality evidence is limited, a meta-analysis of pregnancy and parenting-specific substance abuse treatment programs found that women engaged in substance abuse treatment have lower rates of ongoing substance use than those who do not receive treatment.[9] A retrospective cohort study of more than 49,000 pregnant women found that women with substance use disorders who received both prenatal care and substance abuse treatment together through the Kaiser Early Start program had decreased rates of preterm birth, low birth weight, and placental abruption compared with women who only had prenatal care and did not receive substance abuse treatment.[10] In an analysis controlling for maternal age, ethnicity, and prenatal care, women with substance use disorders who only received prenatal care and did not receive substance abuse treatment had increased adverse outcomes. Subsequent analyses have shown when substance abuse treatment is linked with prenatal visits, costs of care are lower.[11]

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Quick Points

- Group prenatal care is desired and well accepted by women enrolled in a substance use disorder program as an alternative to individual care, despite initial concerns regarding confidentiality among health care providers.
- Women engaged in group prenatal care find increased social support and increased engagement with health care providers, which may protect against relapse.
- Interprofessional collaboration in group care addresses the complex health and psychosocial needs of pregnant women with opioid use disorder.

Despite these promising findings, access to care for pregnant women with substance use disorders remains limited. Only 19 states have substance abuse treatment programs specifically designed to treat pregnant women.[12] Transportation difficulties, childcare needs, housing insecurity, and comorbid mental illness pose major barriers to receiving health care in this population, even when services are available. Given these barriers, integrating prenatal care and MAT in the same location and assessing and addressing women's unmet social needs during visits could improve access to health care for this high-risk population. One innovative model of colocated maternity care at a substance abuse treatment center in New Hampshire showed high satisfaction for women and health care providers, improved care coordination, and increased prenatal care attendance.[13]

Many models of substance abuse treatment include group counseling; therefore, introducing group prenatal care is a logical progression. Group prenatal care models facilitate pregnant women taking increased ownership of their care, resulting in increased confidence, empowerment, and social support.[14] A systematic review demonstrated high satisfaction for women and health care providers with group models of care in various settings, including community health centers and academic teaching centers.[15] Group prenatal care is associated with increased attendance, improved prenatal knowledge, increased satisfaction for women, and higher rates of breastfeeding initiation.[16] Social bonds can be strengthened by group care, potentially protecting against toxic stress that may mediate adverse perinatal outcomes.[17] Interventions that target the psychosocial needs of pregnant women with opioid use disorders are also critical in the treatment of NOWS and the long-term developmental outcomes of their infants.[18] To our knowledge, there are no published analyses of group prenatal care for women with opioid use disorders, although given high rates of poverty, social isolation, and adverse childhood events in this population, group care could allow a collaborative approach to psychosocial needs and minimize barriers to comprehensive care.[19]

The purpose of this article is to describe a novel, integrated group prenatal care program for pregnant women with opioid use disorder colocated in an opioid treatment program. We describe our program structure, group prenatal care curriculum, and key lessons for adapting group prenatal care for women with opioid use disorder. Further study is needed to describe qualitative and quantitative pregnancy and newborn outcomes associated with group prenatal care for women with substance use disorders.

SETTING

Our urban university-affiliated perinatal substance abuse treatment program cares for approximately 200 women per year. Our interprofessional team consists of residents, fellows, family medicine attending physicians, a certified nurse-midwife, nurses, medical assistants, a community support worker, and counselors. Individual prenatal care is offered at 3 different clinic locations, 6 half-days per week. Eighty percent of our patients are on MAT for opioid use disorder in pregnancy, and two-thirds of these patients receive MAT with buprenorphine. All attending physicians who provide prenatal care have training and obtained waivers to prescribe buprenorphine.

Approximately one-third of our patients are treated with methadone at an off-site university-affiliated opioid treatment program. This opioid treatment program functions as a substance use disorder treatment-focused health care home providing MAT, primary care services, psychiatry, and therapy on site. Prior to the initiation of the group care program, pregnant women on methadone received MAT and drug counseling at the opioid treatment program and received prenatal care in a traditional individual 20-minute office visit at the 3 affiliated family medicine clinics located several miles across town.

PROGRAM DEVELOPMENT

Internal case conferences among the care team at both the perinatal substance abuse treatment program and the university-affiliated opioid treatment program expressed concern that pregnant women receiving MAT with methadone were less engaged with care, kept fewer routine prenatal visits, and had anecdotally higher rates of adverse pregnancy outcomes than those receiving MAT with buprenorphine. Several barriers to accessing prenatal care were identified, including transportation difficulties, housing insecurity, social isolation, and concurrent mental health problems. Group prenatal care was identified as a potential intervention to improve adherence to care for the high-risk methadone population. We hypothesized that the social connectedness and empowerment that group prenatal care promotes could be helpful for women in recovery, and we chose colocation of the group at the opioid treatment program site to improve attendance. In contrast to individual visits for women receiving methadone for MAT, women enrolled in the group are able to receive combined substance use disorder counseling, MAT, and prenatal care on site to maximize engagement and ease barriers to care.

Over the course of several months, planning meetings were held including physicians, the team midwife, nurses,

and behavioral health professionals to identify group space, develop curricula, and brainstorm potential barriers to implementation. Health care providers raised several potential concerns, including how to ensure patient confidentiality, whether group care would allow adequate time to address other health complications of pregnancy, and whether women would be too fatigued after methadone dosing to participate fully in group activities. To address the shared concerns of patient confidentiality, the team agreed to discuss confidentiality during the first visit's session about group ground rules and to readdress the importance of confidentiality during subsequent groups. Opioid treatment program staff suggested a midmorning schedule so that women would be able to attend group soon after dosing, which would improve adherence and participation. The team agreed that staffing the group with 2 physicians or a physician and a nurse-midwife would allow more time in the individual check-ins to ensure appropriate follow-up plans for other health complications of pregnancy such as intrauterine growth restriction or hypertensive disorders.

GROUP CARE MODEL

Group prenatal care was started in July 2016 and continues as of November 2018 at the university-affiliated opioid treatment program. Women are referred by maternity care providers, self-refer, or are brought to obstetrical triage in opioid withdrawal when arrested or incarcerated. At prenatal intake, women are offered participation in the group model. If interested, women self-select to participate in the group prenatal care model (Figure 1).

Women attend weekly alternating medical or psychosocial group visits facilitated by family physicians, a nurse-midwife, a registered nurse, a community support worker, and a social worker. The majority of group participants enter care prior to 20 weeks' gestation, although exceptions have been made for late entry to the group for those who were late to prenatal care and strongly preferred group care over individual care (rolling model). Given the risk of relapse in early pregnancy, need for dose titration of MAT, later entry to prenatal care, and multiple health comorbidities in our patient population, we typically see women with opioid use disorder weekly or every other week in early pregnancy.[20] We continued the standard of increased frequency of visits in the group care model.

The schedule for the group medical visit includes 60 minutes for self-directed vital signs and staggered brief examinations with a physician or nurse-midwife. We allow 60 minutes for the health assessment rather than the traditional 30 minutes of other group care models because of the complexity of our patient population. Women socialize, complete self-assessment sheets, eat snacks, and visit our community support worker for infant supplies and social work needs while waiting for their examination.

Curriculum

Examinations are followed by 60 minutes of a facilitative model discussion, including topics relative to both routine prenatal care and substance use disorder. Each week of the curriculum alternates a health topic (Table 1) with a psychosocial topic (Table 2). Physicians, a nurse-midwife, a nurse, and a community support worker facilitate the medical visits; a substance abuse counselor, a community support worker, and a nurse facilitate the psychosocial curriculum. To keep track of individual women's progress through the rolling curriculum, facilitators make note of key curriculum components in the electronic health record (eg, plans for contraception, breastfeeding, and pain control during labor) and address any deficiencies during the brief examinations before the group or during individual visits after the group, if needed. During medical visit weeks, at least 2 clinicians (2 physicians or a physician and a nurse-midwife) are present for staggered examinations and to facilitate the group. Immediately after the group, volunteer community yoga instructors lead an optional prenatal yoga class that focuses on breathing techniques, gentle stretching, and birthing positions.

Curriculum topics are discussed in an interactive group style, with health care providers taking a facilitative role. Team building games such as musical chairs, true-or-false voting, and continuum spectrum decision making are used to encourage active participation. The curriculum combines prenatal education topics relevant for all pregnant women with content specific to women with opioid use disorder. The curriculum for general prenatal education was adapted from other models of group prenatal care and includes sessions on healthy eating, family planning, and preparation for labor.[14]

The substance abuse-specific curricula are based on previously published guidelines for prenatal care of women with substance use disorders and include the evaluation and management of NOWS, the benefits of breastfeeding for women on MAT, and how to mitigate the risk of relapse.[20–22] A sample activity from the session on NOWS is presented in Table 3. To counter the feeling of helplessness and guilt that many women describe when their newborns require pharmacologic treatment for withdrawal, the session on NOWS empowers women to learn the Finnegan's scoring system and enables them to process guilt and practice soothing techniques, such as swaddling, before their fetus is born. When coupled with hospital policies that support rooming-in, prenatal education on caregiver involvement in the treatment of NOWS has been associated with decreased length of stay for newborns exposed to opioids in utero.[23] Given the well-documented benefits of breastfeeding and rooming-in for the treatment of NOWS, the curriculum includes a full session on breastfeeding but also readdresses it during several other sessions, including during sessions on basic newborn care and the postpartum visit.[24,25] Relapse prevention is targeted specifically in the Wellness Recovery Action Plan session led by our substance abuse counselor and reinforced during medical visits on substance abuse in pregnancy, breastfeeding, and well infant care. Psychosocial education topics alternate with health topics and include mindfulness practices, stress management, self-care, building a social network, assertiveness and boundaries, intimate partner violence, and managing anxiety and depression. In addition to scheduled topics, facilitators elicit current concerns of the group.

MAT and substance use disorder counseling are fully integrated into the group care model. MAT is addressed with methadone dosing on site prior to group or with

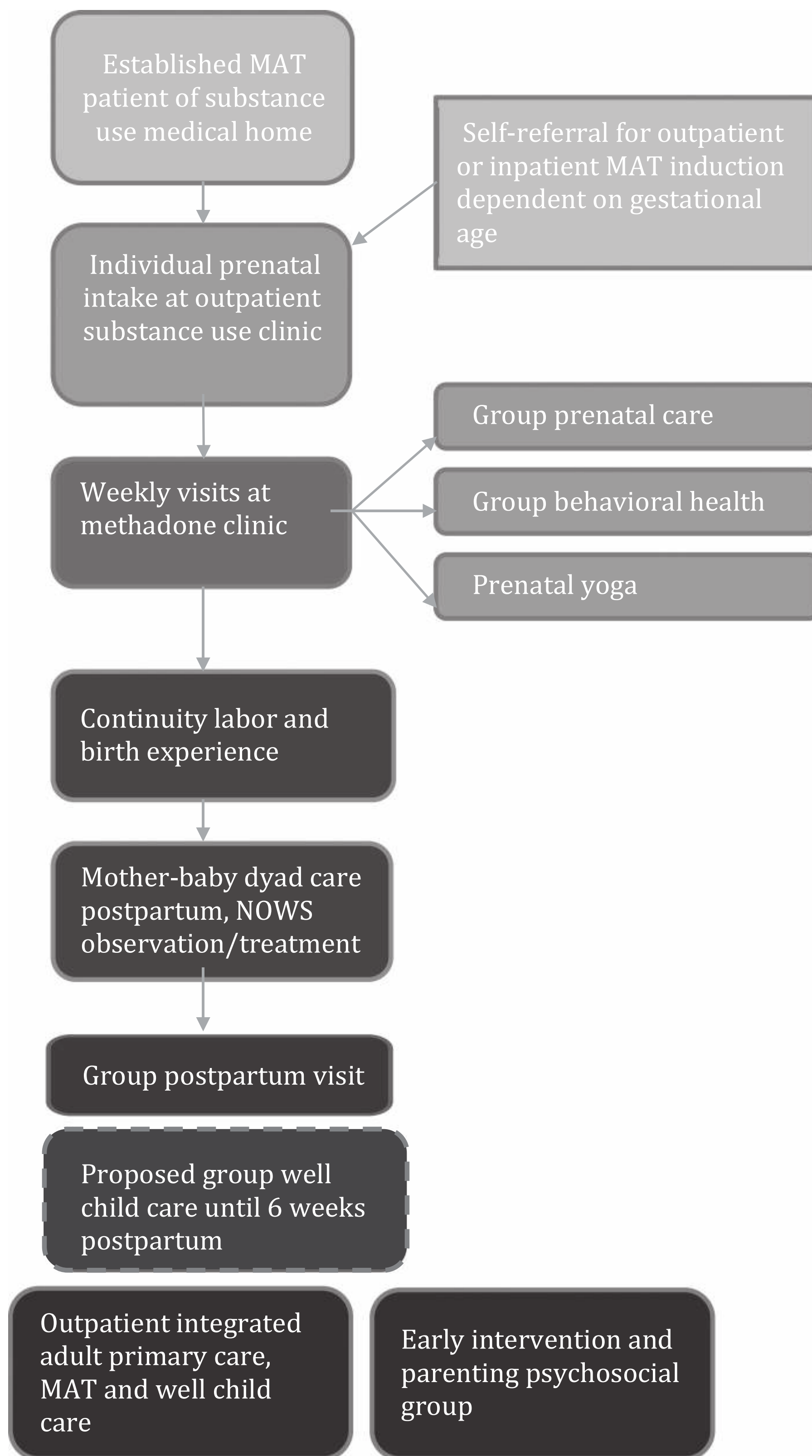

Figure 1. **Interprofessional Group Care Model**
Referral, intake, prenatal, birth, postpartum care.
Abbreviations: MAT, medication-assisted treatment; NOWS, neonatal opioid withdrawal syndrome.

Table 1. Medical Visit Group Prenatal Care Curriculum by Week

Visit	Curriculum Topic	Activity	SUD-Specific Points Addressed
20 weeks	Nutrition in pregnancy, dental health	Healthy or Not Healthy? Flip chart game	Dental health and amphetamines
22 weeks	Discomforts of pregnancy while on MAT	Celebrity or charades game about discomforts	Constipation on MAT, nonpharmacologic pain relief methods, avoiding marijuana for nausea
24 weeks	Substance abuse in pregnancy myths and facts	Myths-and-facts voting about substance abuse in pregnancy	Prevalence of SUD, dispelling myths of teratogenicity of substances other than alcohol, review of state policies regarding SUD, child abuse, and mandatory reporting
26 weeks	Intimate partner violence	Developing a safety plan	Relationship of intimate partner violence to SUD, importance of partner sobriety
28 weeks	Breastfeeding	Musical Chairs: Breastfeeding benefits	Safety of breastfeeding on MAT, breastfeeding and hepatitis C or HIV, contribution of breastfeeding to reduction of severity of neonatal opioid withdrawal syndrome
30 weeks	Preterm labor	Myths and facts about preterm labor	Higher risk with tobacco and stimulants, risk with withdrawal or abrupt MAT cessation
32 weeks	Comfort in birth while on MAT	Pass the Basket: Share and discuss comfort measures	Efficacy of intravenous narcotic and epidural analgesic and safety with MAT, non pharmacologic pain relief methods, pain relief after cesarean while on MAT
34 weeks	Family planning	Floor Cards: What I used before, what I want now	Importance of pregnancy spacing for recovery, medical eligibility criteria of contraception with MAT, hepatitis C, HIV
36 weeks	Neonatal opioid withdrawal syndrome	Review Finnegan's scoring, practice swaddling, and massage oil take-home	Importance of skin-to-skin and breastfeeding, review of process in hospital, facilitation by nurse-midwife responsible for inpatient rounding
38 weeks	Basic newborn care	Sleep safety, feeding, when to call the doctor	SIDS risk reduction, caring for a newborn with higher needs, pediatric hepatitis C screening
40+ weeks	Postpartum depression	Musical Chairs: Symptoms of postpartum depression	Relationship of mental health and relapse
Postpartum	Relapse prevention	Newborn safety, breastfeeding support	Increased risk of relapse postpartum, safety of breastfeeding on MAT, soothing techniques for newborns with NAS

Abbreviations: MAT, medication-assisted treatment; NAS, neonatal abstinence syndrome; SIDS, sudden infant death syndrome; SUD, substance use disorder.

buprenorphine discussion and prescribing during the brief health assessment by the physician.

Curricular content was developed from our clinical experience and is supported by the emerging evidence base on care for pregnant women with opioid use disorder.[20,26] The social connectedness fostered by group care may be a protective factor for women in recovery. Indeed, a qualitative analysis of shared clinical appointments for nonpregnant persons with opioid use disorder found that group care promoted direct emotional support between participants, cultivated a sense of accountability for group members, and a created a supportive community for patients in recovery.[27] The group check-ins and games in our curriculum foster relationship building between women, which has been shown in previous qualitative analyses to be an important source of support in recovery for pregnant and postpartum women with substance abuse and depression.[28] Sessions on trauma and intimate partner violence were chosen given the high documented rate of prior sexual and physical abuse for pregnant women with opioid use disorder.[19,29] The postpartum relapse prevention curriculum is founded in principles of functional analysis and other cognitive behavioral therapy techniques that are frequently used in the treatment of substance use disorders.[30,31] We adopt a participant-centered, harm-reduction approach during group

Table 2. Psychosocial Curriculum by Week

Visit	Psychosocial Topic
21 weeks	Goal setting
23 weeks	Community resources
25 weeks	Functional analysis
27 weeks	Family influences
29 weeks	Healthy boundaries
31 weeks	Mindfulness
33 weeks	Labor support plan
35 weeks	Relationship assertiveness
37 weeks	Self-forgiveness
39 weeks	Becoming a parent
Postpartum	Relapse prevention, Wellness Recovery Action Plan (WRAP)

visits to encourage women to share their progress and pitfalls openly.[32]

TEAM ROLES AND RESPONSIBILITIES

Our interprofessional model highlights the important contributions of each member of the team. Physicians and the nurse-midwife are responsible for performing the brief staggered examinations, maintaining prenatal care plans in the electronic health record, and serving as cofacilitators during group activities. The substance abuse counselor is the primary facilitator for the alternating psychosocial curriculum. The clinic charge nurse plays a key organizational and facilitative role in the group care model. During individual prenatal intakes, she identifies women who would be especially interested in group care, provides key case management services, and ensures continuity between the alternating medical and psychosocial visits. The community support worker routinely assesses the social determinants of health and refers women to local resources when needed.

Although each member contributes specific expertise, our team-based model of care is more than the sum of its parts. When nurses, community support workers, and clinicians see patients together, information is shared seamlessly between patients and the entire care team. Watching each member of the team respond to a patient's concerns in real time with their particular skillset builds understanding, trust, and respect. Although interprofessional collaboration occurs in individual visits as well, there is even greater synergy when patients, clinicians, and ancillary staff communicate in a group. For example, in individual care, health care providers may see referrals for supplemental nutrition programs as an afterthought at the end of a busy visit. During group discussions of nutrition, many participants may share similar concerns about access to quality, affordable food, and the community support worker can respond to these concerns with immediate referrals to community resources. In real time, the health care provider may then understand why women are struggling with adequate weight gain in pregnancy. In this way, principles of collaborative care, including trust, shared decision making, and coordination, are streamlined in the group visit.[33]

GROUP CARE AND THE SOCIAL DETERMINANTS OF HEALTH

A recent analysis found that pregnant women with opioid use disorder have high rates of unstable housing, more than half have been incarcerated, and only a third are employed.[29] Although social needs are also addressed in traditional individual prenatal care visits, the extended time and increased frequency of group visits promote trusting relationships between women and health care providers and allow a more thorough assessment of our patients' complex needs.[34] We find that women are more likely to self-disclose social needs and accept support after establishing more trusting relationships with group facilitators. By targeting unmet social needs prenatally, including addressing food insecurity, housing insecurity, and basic childcare needs such as free car seats, pack and play cribs, and infant clothes, families are better prepared for the

Table 3. Neonatal Opioid Withdrawal Syndrome (NOWS) Sample Activity

Myth or Fact?	Facilitator Response
"Babies must stay in the hospital for 96 hours for observation for withdrawal."	Fact. Most newborns show signs of withdrawal within the first 2 days of life, but we monitor closely for 4 days.
"Babies should stay with their mothers during observation or treatment for withdrawal whenever possible."	Fact. Rooming-in improves outcomes for babies showing signs of withdrawal.
"Breastfeeding is not recommended when mothers are taking buprenorphine or methadone. Breastfeeding is also not recommended if a woman has hepatitis C."	Myth. Breastfeeding improves outcomes for NOWS. As long as you don't have cracked and bleeding nipples it is safe to breastfeed with hepatitis C.
"Doctors use a scoring sheet to determine withdrawal severity and whether or not babies need medication."	Fact. The Finnegan's score isn't a perfect measure of withdrawal, but we use these symptoms to help guide treatment decisions.
"If medications are needed for withdrawal, babies can go home on them."	Myth. Babies complete all medication treatment for NOWS in the hospital.
"There is about one baby born per minute in America that will undergo withdrawal."	Fact. You are not alone. NOWS is very common.

Abbreviations: NOWS, neonatal opioid withdrawal syndrome.

care of the newborn. Providing support prenatally serves as a bridge between group prenatal care and care of the woman and newborn in the postpartum period during transition to an early parenting support group.

CONTINUITY OF CARE DURING BIRTH AND POSTPARTUM

During group visits, participants identified continuity of care at their birth as a key priority, so every effort was made to ensure that physicians and a nurse-midwife could provide continuity and labor support during inpatient stay and birth. Whenever possible, the family physician who led the group attended the birth for women in the group. The nurse-midwife is the primary inpatient care provider for postpartum women and newborns in an extended dyad model. After hospital discharge, women transition to a nonclinical parenting support group and individual primary care and substance use treatment for women and newborns at a family medicine clinic. Women have identified continuity of care as especially important in both prenatal care and the postpartum period, so we felt it was especially important to extend continuity of the group care model from prenatal care to birth and postpartum and link this care back to group parenting support in our high-risk population.[35,36]

PARTICIPANT FEEDBACK

After participants in the second group cycle gave birth, the facilitators met to review successes and challenges and elicited feedback from group participants by asking specific open-ended questions in a group setting. Important themes emerged from this informal group discussion. Participants noted that group care fostered social connectedness and that the frequency of group visits and continuity with 1 or 2 health care providers fostered an important sense of trust. Having a team checking in motivated women to remain sober. Women reported visiting each other in the hospital, reaching out to each other in moments of crisis, and using social media to continue friendships after their participation with group ended. None of the women mentioned confidentiality as a concern with group care. Group participants were overwhelmingly positive about the continuity of relationships with their prenatal care providers. The only constructive feedback facilitators noted was participants requesting improved communication with ancillary clinic staff regarding group start times and improved relationships with hospital staff on the postpartum unit regarding scoring and treatment for NOWS.

LESSONS LEARNED

We found a high rate of participant attendance and engagement in group prenatal care. Participants often stated to the facilitators that group care inspired trust between health care providers and women and among their peers, which was a valuable part of their engagement with care and a motivation for abstinence. This is in contrast to other studies that have found high rates of mistrust, demeaning interactions with physicians, and delays in referral to treatment.[37] Concerns that were expressed by health care providers about privacy were not reported by women in group care during the informal group feedback session. In fact, we learned that the continuity model provided by group care was especially important for women who initially reported feeling judged or excluded in health care. Prior to starting the group, health care providers expressed concern that women might be too sedated to participate in group care immediately after dosing with methadone. We did not find this to be the case and instead found high levels of participant engagement during group visits. We found high levels of staff and clinician satisfaction with the integrated group model. Anecdotally, health care providers enjoyed spending more time with their patients and witnessing families undergoing dynamic self-driven change to better their lives.

Group care also gave women a space to learn about and enjoy normal pregnancy. The focus of the curriculum was enhancing maternal and newborn health and wellness. Longer group appointment times allowed more in-depth discussion of these topics that, because of time constraints, are often not covered in individual visits. Women were able to learn from each other about common challenges of pregnancy and birth, enhancing their trust with care and strengthening their support network for relapse prevention.

There is a baseline high rate of poor outcomes in our population, including preterm birth, placental abruption, neonatal intensive care unit stay, and perinatal death. Group prenatal care studies of women without substance use disorders have shown mixed results with regard to perinatal outcomes. In some populations with high baseline rates of preterm birth and low birth weight, early studies showed improvements after the addition of group care.[17] A meta-analysis of pooled data from several randomized group care studies, however, failed to find any benefit in birth outcomes over standard individual care.[10] Quantitative outcomes are currently being collected and will be reported in the future, including adherence to prenatal, postpartum, and well child care visits, rates of preterm birth, rates of neonatal opioid withdrawal, rates of breastfeeding, rates of long-acting reversible contraceptive methods, and adherence to MAT.

CONCLUSION AND FUTURE DIRECTIONS

The burden of opioid use disorder in pregnancy and high rates of associated adverse outcomes for women and neonates necessitate innovative approaches to improve care for this high-risk population. In this novel program, integrated group prenatal care in the setting of an opioid treatment program achieves goals of improved participant engagement, health care provider-patient relationships, and social connectedness, which may mitigate the risk relapse before and after birth. Our interprofessional approach that targets unmet social needs prenatally has the potential to improve care of the newborn and potentially mitigate adverse childhood events.

Group prenatal care is feasible and desirable in this patient population and is associated with high rates of satisfaction for women and health care providers. Future research directions for this group include investigation of the effects of group care on posttraumatic stress disorder and depression and comparison of clinical and woman-centered outcomes of group prenatal care versus individual care. The initial success of the group model has led to plans to expand the model to include

integrated well child care for the first 6 weeks, partner participation in groups, and integrated doula care. Given the multiple health and psychosocial challenges faced by pregnant women with substance use disorders, group prenatal care is a promising intervention to improve maternal and neonatal outcomes.

CONFLICT OF INTEREST

The authors have no conflicts of interest to disclose.

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