DOI: 10.1097/JPN.0000000000000041

CE Continuing Education
J Perinat Neonat Nurs • Volume 28 Number 3, 169–177 • Copyright © 2014 Wolters Kluwer Health | Lippincott Williams & Wilkins

Psychosocial Interventions for Substance Use During Pregnancy

Anna R. Brandon, PhD, MSCS, ABPP

ABSTRACT

Psychosocial and behavioral interventions are used to address substance use and dependence during pregnancy, having particular value when providers and pregnant women are seeking to minimize drug exposures to the fetus. Numerous factors, including difficulty recruiting participants and the ethical challenges to conducting randomized controlled trials with women during pregnancy, have limited research in this area. The existing literature, however, does contain early investigations into the practicality and efficacy of contingency management, motivational support, and cognitive behavioral therapies adapted for pregnant women. This article describes these approaches to treatment, summarizes programmatic examples, and highlights the role nurses may play with this special population.

Key Words: addiction treatment, antenatal substance use, pregnancy, substance abuse during pregnancy, substance abuse treatment

Pregnancy can serve as a powerful motivator to pursue healthy behaviors, but the state of pregnancy itself is often not enough to end the use or abuse of substances thought to be dangerous to the fetus. The diagnostic criteria for substance abuse or dependence during pregnancy are no different from the criteria used in nonpregnant women. However, because all substances are transmitted through the placenta to the fetus, even social use of substances such as tobacco, alcohol, marijuana, opiates, benzodiazepines, psychostimulants, and inhalants during pregnancy is strongly discouraged if not prohibited.

The success of any intervention with this population of women largely depends upon the experience at the first point of contact with prenatal services,[1] emphasizing the important role nurses play in serving this patient population. Indeed, at the first visit, the identification of substance use/abuse can be facilitated by an empathic understanding of the problems and stigma such women face in disclosing past and current alcohol, drug, and tobacco behaviors.

The discipline of social work contributes one framework from which to view the complexity of services needed by substance-using pregnant women. In the social work model, interventionists might be called upon to fill 1 or more of 5 potential roles: teacher, broker, clinician, mediator, and advocate (see Table 1).[2] Considering the dire economic and social needs often accompanying substance abuse, nurses may, by necessity, be called upon to fill these roles, particularly as teachers, clinicians, and advocates.[3,4] A description of each of these multiple prongs of intervention for substance abuse or dependence is beyond the scope of this discussion. Therefore, this article focuses specifically upon the clinical role nurses occupy, describing the theoretically derived psychosocial/behavioral approaches with evidence of effects upon abstinence. The primary aim is to summarize the state of evidence regarding the psychosocial treatments available for pregnant women using substances.

SUBSTANCE USE DURING PREGNANCY

According to the 2010 National Survey on Drug Use and Health, approximately 4.4% of women used 1 or more substances at some point during an index pregnancy.[5] Considering alcohol alone, 10.8% of pregnant women between 15 and 44 years of age report the use of

Author Affiliations: Department of Psychiatry, Center for Women's Mood Disorders, University of North Carolina at Chapel Hill; and Department of Psychiatry, Neurosciences Hospital, Chapel Hill, North Carolina.

Disclosure: The author has disclosed that she has no significant relationships with, or financial interest in, any commercial companies pertaining to this article.

Corresponding Author: Anna R. Brandon, PhD, MSCS, ABPP, Department of Psychiatry, Neurosciences Hospital, 101 Manning Dr, CB 7160, Chapel Hill, NC 27599 (annarbrandonphd@me.com).

Submitted for publication: February 9, 2014; accepted for publication: April 29, 2014.

Table 1. **Intervention roles**[a]

Teacher	Provide information regarding prevention of unwanted pregnancy, drug effects upon the fetus both during development (eg, maternal nutrition, effects of maternal detoxification) and at birth (eg, neonatal abstinence syndrome), effects of potential concomitant behaviors of substance abuse (eg, sexually transmitted diseases), and available interventions for drug-exposed children
Broker	Manage case, standard tasks of the social worker, crisis interventions, prevention, rehabilitation, and outreach; be sensitive to the potential differences of treatment approaches across multiple agencies and/or disciplines
Clinician	Address shame and guilt, support self-efficacy, identify potential social supports, treat comorbidities, increase cultural sensitivity, facilitate peer counseling where appropriate
Mediator	Where necessary and applicable, conduct emergent or as-needed mediation with family members, community resources, and Child Protective Services
Advocate	Work toward establishing pregnancy-specific substance abuse programming, and address community stigma to reduce women's distrust of service providers

From Sun.[2]

alcohol, 3.7% report binge drinking, and 1.0% report heavy drinking.[5] About 16.3% of pregnant women reported cigarette smoking "in the past month." While in general these rates are lower than those reported by nonpregnant women, the rate of cigarette smoking by pregnant adolescents aged 15 to 17 years is actually higher than that in nonpregnant adolescents (22.7% vs 13.4%). Substance use during pregnancy is also differential across the life span: higher in adolescents aged 15 to 17 years (16.2%), declining to 7.4% in women aged 18 to 25 years, and 1.9% in women aged 26 to 44 years.[5] Furthermore, in a 2002-2007 data set, a substantial proportion of women endorsing substance use were in the first trimester of pregnancy (19% of first-trimester women had used alcohol, 21.8% had used tobacco, 4.6% had used marijuana in the previous month).[6] These are conservative estimations, as stigma and the resulting fear, guilt, and shame likely contribute to underreporting of substance use.[7]

Of all female populations, women in the perinatal period (pregnancy through the first postpartum year) may have greater access to women-only treatment programs secondary to the need for simultaneous prenatal care. Unfortunately, although the adverse effects of substance use during pregnancy are widely known and descriptive statistics are abundant, there are few empirical investigations described in the literature of psychosocial interventions targeting substance use in pregnant women.[8–11] This state of evidence exists because ethical challenges to conducting intervention research in any population of pregnant women effectively discourage research by the gold standard, the randomized controlled trial.[12,13] In fact, it has been highlighted that the population of substance-using pregnant women presents even more complex ethical dilemmas surrounding confidentiality, protection of the fetus/infant, and potential misconceptions about the role of researchers studying long-term treatment.[12] On a practical level, evidence is also limited because pregnant women, in general, pose recruitment and retention challenges for clinical researchers.[14,15]

For the aforementioned reasons, evidence for treatment effectiveness is also lacking. Although reduced substance use and abstinence are documented, the existing literature is dominated by studies lacking control groups or reporting on sample sizes too small to adequately power robust interpretation of significant differences.[9,16] This state of equipoise is being addressed in the most recent research. However, confident endorsement of any single treatment effectiveness would overstep the current evidence base.[10]

CURRENT PSYCHOSOCIAL TREATMENT APPROACHES FOR ANTENATAL SUBSTANCE USE

While pharmacologic treatment approaches of substance abuse are specific to particular substances, psychosocial and behavioral interventions are used across substances.[17] Psychosocial treatments can also augment pharmacologic treatment (methadone or buprenorphine) for opiate users.[18] Three basic approaches to intervention dominate treatment today: contingency management (CM; behavioral incentives), motivational interviewing (MI), and cognitive behavioral therapies (CBTs).

Contingency management

Behavioral incentives and CM, used since the 1970s in the area of substance use, are based on early behavioral theories (advanced by E. L. Thorndike and B. F. Skinner) that positive reinforcement will influence behavior change by means of operant conditioning. Working

on the premise that the act of taking a drug was a choice, rather than an uncontrollable compulsion, the most common forms of behavioral incentive and CM use monetary or prize vouchers redeemable for goods and services to reward the choice of abstinence, often established by urine toxicology.[19] In addition to rewarding abstinence, CM can also reinforce accomplished prescribed goal-related activities.[20,21] For example, successful investigators report evidence that pregnant substance users are significantly more likely to attend research visits and remain in study protocols when monetary incentives are attached to participation and not solely to drug-free urine screens or attending treatment.[14] This may suggest that reinforcement for a target behavior that is too difficult to achieve initially (ie, drug-free urine screens and visit attendance) may actually stall the process. One strategy to address this factor is to use a tiered approach, increasing the incentives as adherence becomes more difficult.[21]

Contingency management has robust empirical support across a range of substance use types, although research suggests that patient drug use often returns to baseline when the intervention is completed or stopped.[22–24] Given the time-limited nature of pregnancy, arguably even temporary reduction or discontinuance is beneficial, and the use of CM with perinatal women has improved fetal/infant outcomes.[14] Nevertheless, a considerable barrier to the community use of CM is the cost associated with administering and providing the monetary rewards.[24]

Motivational interviewing

Prominent in substance abuse intervention are techniques from MI, introduced by Rollnick and Miller in 1995,[25–27] specifically developed to support smoking-cessation intervention and later directed to the treatment of alcoholism.[28–31] On the basis of the trans-theoretical model of change proposed by DiClemente and Prochaska,[28] the high rates of recidivism in substance use across general populations are explained in this model as the result of treatment initiated before an individual is adequately motivated or prepared to change substance-using behaviors. Characterized as an empathic, patient-centered counseling approach, the MI style of intervention first identifies the patient's "readiness" to change a problem behavior by exploring the patient's ambivalence (eg, desire to drink co-occurring with the desire to abstain). Primary goals are to enhance the dissonance between the reasons for drinking and the reasons to stop drinking and then begin focus upon the reasons to discontinue or benefits that would come from stopping or changing a behavior.[32] An effective "interviewer" is accepting, warm, avoids argumentative confrontation, and maintains optimism about the patient's ability to change. Table 2 describes key principles and strategies of MI.

First applied to pregnant women using alcohol in 1999,[34] motivational enhancement therapy (MET) is a brief, manualized intervention based on MI and offered in formats of 1 to 12 individual sessions.[10,35–37] The MI protocol is augmented by a "personal feedback report," the distinguishing feature of MET. This report is used at the initiation of treatment and facilitates honest and objective discussion between the therapist and the client about the quantity of substances used, the level of intoxication, number and severity of risk factors, negative health and social consequences, and results from any testing that has been performed (blood, urine, neuropsychological). Across populations and substances, research findings have been equivocal in the use of MI and MET, with no clear support for the superiority of these interventions to treatment-as-usual (TAU) or educational control groups. One hypothesis for the failure to reach significance is that the brief nature of the intervention is simply too brief to fully engage patients/clients.[24] It has been proposed that MI strategies might be most helpful when integrated with other evidence-based approaches.

Table 2. Characteristics of motivational interviewing[a]

The underlying spirit of motivational interviewing
Partnership—A collaborative working relationship
Acceptance of the person, honoring autonomy
Compassion—Acting in the person's best interest
Evocation—Evoking the person's own motivation for change
Seven themes of "change talk" to listen for, evoke and strengthen:
Desire (I wish, I want, I like)
Ability (I could, I can, I am able to)
Reasons (desirable results of change, undesirable results of status quo)
Need (I ought to, I have to, I need to, I should)
Commitment (I am going to, I will, I promise)
Activation (I am willing to, I plan to, I am ready to)
Taking steps (actions taken toward change)
Four foundational skills (OARS)
Open questions (rather than closed, limiting questions)
Affirmation of strengths, skills, and efforts
Reflective listening
Summaries of motivation for change

From Miller and Rollnick.[33]

Cognitive behavioral therapies

On the basis of social learning theories and the principle of operant conditioning, CBTs seek to identify dysfunctional or maladaptive beliefs, demonstrate connections with emotional distress and unhelpful coping behaviors (such as substance use), and train individuals to use prescribed active healthy coping behaviors. The literature suggests that CBT demonstrates modest superiority to TAU in reductions of high-risk behaviors (needle use and unprotected sex) and in treatment retention.[11] The rationale proposed is that substance use is functionally related to distress and life problems, and addressing the range of difficulties brings more relief and a higher probability of success than focusing solely on the substance usage. Specific strategies include relaxation training, homework assignments that call attention to the close connection between unhelpful thoughts, emotions, and substance use, and cognitive exercises such as "examining the evidence" for closely held beliefs that may perpetuate substance dependence. These are taught, modeled, and practiced in session. Targeting drug use behaviors, skills are taught to specifically improve health outcomes (eg, identifying situations posing high risk for relapse, parenting skills, preventing needle sharing, and unsafe sex).[38] Sufficient research exists to support the use of CBT across treatments of alcohol, tobacco, and substance use in a range of populations.[24] A significant advantage of CBT lies in the ability of this intervention to go beyond addressing substance use to addressing co-occurring problems and/or comorbid psychiatric illness (ie, depression and anxiety), providing skills for managing future emotional distress. This "durability" of treatment has not been demonstrated in CM or pharmacologic approaches to substance dependence.[24] In addition to financial barriers, the primary community barrier to this approach is the need for skilled clinicians to provide what can be a relatively complex treatment.

Programmatic examples: Illicit substances

Early Start, developed by Kaiser Permanente Northern California and launched in 1990, is a prenatal substance abuse treatment program coordinated with standard prenatal care. As of 2008, it was offered in most Kaiser Permanente Northern California outpatient obstetric clinics, screening close to 40 000 pregnant women annually.[39] A licensed substance abuse expert is embedded in the obstetric and gynecologic practice, universally screening all women for drugs and alcohol, and providing education to nurses, physicians, and women about the effects of substance use during pregnancy. Women identified with some risk for substance use are referred for a psychosocial assessment, and those who meet the diagnosis of chemical dependency or substance abuse receive intensive intervention. Those not meeting full criteria for such a diagnosis but with a history of use prior to pregnancy are also offered counseling. Techniques used came from the approaches of MI, CBT, and psychodynamic therapy. Because the data were collected retrospectively from nonrandomized groups of women and included those using methamphetamines, tobacco, cannabinoids, and alcohol, conclusions about the intervention must be cautiously interpreted. Nevertheless, the study both documents birth outcomes and demonstrates the ability to implement the American Congress of Obstetricians and Gynecologists guidelines for universal screening of all pregnant women for substance use, followed by appropriate referral and treatment.[40] In data analysis, pregnant women were categorized into 4 groups, those who (1) screened positive for substance use, assessed and diagnosed as chemically dependent, and attended at least 1 program appointment; (2) screened positive, assessed as dependent, but did not present for follow-up; (3) screened positive by urine toxicology but not assessed or treated; and (4) women with no evidence of substance abuse. Data suggested consistent patterns in rates of neonatal-assisted ventilation, low birth weight, preterm delivery, preterm labor, placental abruption, and intrauterine fetal demise: Those women screened positive but neither assessed or treated had the highest rates, those screened and assessed dependent had intermediate rates, and those who attended at least one Early Start follow-up had rates similar to the women who did not screen positive for substance use during pregnancy.[39] These data indicate that simple screening, assessment, and as little as one follow-up meeting may provide maternal-fetal outcomes of significant importance to public health.

A novel approach to CM is demonstrated in the Silverman et al[21] Therapeutic Workplace (TW) project, tested in a small sample ($N = 40$) of perinatal drug abusers (opiates and cocaine). The women were randomly assigned to the usual care or TW group, a model work program in which work training and attendance were linked to abstinence (drug-free urine before entering the workplace). An escalating schedule of reinforcement was arranged, with the daily salary increasing according to the duration of abstinence and accumulated workplace attendance. Although the investigation focused upon the TW intervention, the women began treatment with a minimum length of 7 days in a residential unit, followed by participation in other programmatic services (group and individual therapy, obstetric and gynecologic treatment, transportation and child care provided at no cost; the participants were also paid for each urine sample collected). Those

assigned to the intervention group were encouraged to attend the TW intervention 3 hours per day, Monday through Friday, for 6 months. Each day the women provided a urine sample upon entering the facility; if negative for opiates and cocaine, they were allowed to participate in basic skills education and data entry job skills training. They received a base-pay voucher after completing an assigned work shift but could also receive additional vouchers for professional demeanor, punctuality, meeting daily learning goals, and productivity. Those who delivered while participating in the study were not allowed to attend the TW intervention for 8 weeks postpartum but continued to earn base-pay vouchers for drug-free urine samples until return to work. On average, 45% of the participants attended the TW intervention each day, and 40% of those in the intervention group maintained attendance through the study. The TW participants had almost twice as many negative urine samples as the control group, a statistically significant difference. Because of the small sample size, however, and considerable missing data, these results beg cautious interpretation.

One of the largest randomized controlled trials of pregnant substance users randomized 200 women to either 3 individual sessions of MET for Pregnant Substance Users (MET-PS) or the TAU intervention offered at 4 treatment programs.[37] Session 1, approximately 90 minutes to 2 hours' duration, focused upon building rapport in the MI fashion, enlarging the discussion to include the woman's feelings about pregnancy, perceptions regarding the pros and cons of using substances, and concerns about the potential adverse effects on the fetus. Sessions 2 and 3 were approximately 60 minutes' duration; the second session reviewed the participant's "personal feedback report," including the consequences of substance use for both the participant and the fetus, as well as the degree of engagement in healthy pregnancy behaviors. The final session was tailored to the "readiness to change" of the participant. Participants demonstrating readiness or commitment to abstain from substances engaged in the development of a "change plan," whereas those not yet demonstrating readiness continued to receive support toward the commitment to change. Those participants randomized to the TAU condition received 3 individual counseling visits, but no description is given regarding the approach used. All women were encouraged to take advantage of other programmatic elements at the treatment centers (eg, group therapy, case management). The primary outcomes (number of visits attended and completion or noncompletion of the program) did not differ significantly between the 2 groups, with 79.4% of the MET-PS women completing the 4-week active study phase compared with 82.7% of the TAU women. Investigators also failed to find a significant effect on decreasing substance use in the study sample as a whole, although there were significant Treatment × Week × Site effects.

Another adaptation of MET for hazardous substance use compared the efficacy of MET combined with CBT (MET-CBT) to brief advice in a sample of 183 women less than 28 weeks' estimated gestation across 2 hospital-based reproductive health clinics.[10] Because pregnant substance users will sometimes continue single substance use or replace a substance with another perceived to be "less" harmful,[10] the investigators aimed, in this protocol, to evaluate any changes in the use of a range of substances (with the exception of opiate users, who were excluded and referred for methadone treatment) from before delivery to 3 months postpartum. The experimental intervention, MET-CBT, was delivered in 6 individual 30-minute psychotherapy sessions by trained research nurse therapists. Adapted from existing manuals, session content blended the empathic MET approach with CBT skills training (safe sexual behavior, communication, problem solving) and relapse prevention. Participants in the control condition (brief advice), received about 1 minute of counseling from the obstetric provider about the risks of substance use during pregnancy, importance of abstinence, and benefits of substance abuse treatment outside of the prenatal setting. Substance use (assessed by self-report and urine toxicology) declined in both groups between intake and delivery but increased after delivery. Although there was a trend for the MET-CBT group toward reductions in use/abstinence, the differences between the groups did not reach significance on any measures.

Programmatic examples: Tobacco

Teen FreshStart (TFS), a modified version of the FreshStart program developed by the American Cancer Society, is an 8-week group intervention for pregnant adolescents using tobacco that uses techniques from CBT.[41] The intervention begins with one-to-one education on pregnancy and smoking and transitions to a support group with peer modeling and sanctions to promote cessation of tobacco use. Registered nurses, working in pairs, administer the intervention after completing a comprehensive training program. The intervention was tested by comparing it with the usual care group and an enhanced TFS with a buddy (TFS-B), a nonsmoking female of a similar age who accompanied the participant to the sessions and provided social support throughout the study. Investigators described a greater percentage of adolescents in the TFS-B group reported tobacco abstinence at 8 weeks following initiation of treatment than those in the usual care group, but this difference

was lost at 1-year follow-up. These findings demonstrate the difficulty in achieving long-term abstinence from tobacco but the importance of peer support in modifying adolescent behaviors.

Motivational interviewing has been featured in a number of studies for smoking cessation in pregnant and postpartum women. One novel investigation combined MI with ultrasound feedback with the aim of providing information to the pregnant woman about the potential effects of smoking upon the fetus.[42] Pregnant smokers ($N = 360$) in the second and third trimesters were randomly assigned to the Best Practice ($n = 120$), Best Practice plus ultrasound feedback ($n = 120$), or MI plus ultrasound feedback ($n = 120$) groups. The primary outcome, smoking, was assessed both by self-report and by salivary cotinine analysis at both baseline and during the eighth month of pregnancy. Nurses administered the Best Practice counseling, based on the Agency for Healthcare Research Quality practice guidelines,[43] and master's level counselors trained in MI delivered the MI counseling session in 2 sessions, the second of which was by telephone. Previous research reported that nurses were more likely to deliver this intervention than other types of intake clinicians.[44] In 10 to 15 minutes of Best Practice counseling, nurses followed the 5-step strategy outlined by the Agency for Healthcare Research Quality: (1) ask about smoking status; (2) advise women to quit; (3) assess the woman's readiness to quit; (4) provide counseling or referral to treatment center; and (5) schedule follow-up. Certified sonographers delivered the ultrasound feedback, incorporating smoking risk messages (reduction of oxygen to the fetus, accumulation of carbon monoxide in the amniotic fluid, low birth weight, placental separation, premature delivery) into the description of anatomical features of the fetus. Where there were no complications, the sonographers confirmed that the fetus appeared unaffected at the time but noted that most of these complications occurred in the third trimester. The first MI intervention occurred immediately after the ultrasound study. Participants were mailed a feedback form to complete, which was then discussed in the second intervention (by telephone) 2 weeks after the in-person meeting. There were no significant group differences in the primary outcome (smoking), but exploratory analyses suggested that the effects of the MI and ultrasound study might have been moderated by the level of smoking at baseline, with light smokers in this group quitting at significantly higher rates than those smoking more than 10 cigarettes a day. Interestingly, among the group of heavy smokers, the cessation rates were highest in the Best Practice group. Investigators opined that perhaps heavy smokers were reassured by the fetal image during sonography and had less motivation to quit than those who simply received the counseling regarding potential fetal impact of exposure.

DISCUSSION

Psychosocial treatments of substance use during pregnancy have limited support because of the paucity of empirical investigations, eliciting a "conditional" strength of recommendation by the World Health Organization.[11] However, these interventions continue to be the only viable treatment option for pregnant patients using cannabis, amphetamine-type stimulants, cocaine, alcohol, and inhalants. In addition, augmenting pharmacotherapy with psychosocial interventions for the treatment of opioid and benzodiazepine dependencies has been found superior to pharmacotherapy alone.[18]

Screening for substance use at the first point of contact should occur with all pregnant women.[40,43] Sensitivity to the stigma of substance use during pregnancy and the fear of punitive consequences such as loss of child custody, threat of incarceration, and loss of social services is essential for nurses in this role.[22,45] In one analysis, women who reported such external pressure were significantly more likely to remain in treatment, less likely to test positive for substances, attended more scheduled treatment sessions, and reported fewer days of substance use.[45] Investigators found no association, however, between these external pressures to participate in treatment and self-reported motivation, although approximately half of the sample (102/200) received the MET intervention. Although the positive maternal and fetal outcomes linked to reductions in substance use are desirable, ethical considerations regarding the fairness of using external pressures upon pregnant women for some substances (illicit drugs) but not for others that may be equally or more harmful (tobacco and alcohol), as well as the unintended side effects of coercion such as subsequent avoidance of health care settings or inhibited disclosures of substance use must also be considered.

Because of the aforementioned stigma, the attitudes of nurses are central to the screening and intervention planning process with pregnant women. Building a strong rapport requires caring and nonjudgmental communications, establishing and holding eye contact, active listening, clarification, and simple language.[1] Nursing behaviors that convey empathy may help build trust, increase the likelihood of accurate patient disclosure of substance use, and improve adherence to the recommended interventions. It is suggested that the nurse explore with pregnant women any barriers (eg, financial, transportation, child care, loss of time at work, community stigma) to treatment and, where possible,

Table 3. **Internet resources**

http://www.addictionpregnancy.ca
http://americanpregnancy.org/pregnancyhealth/illegaldrugs.html
http://americanpregnancy.org/pregnancyhealth/smoking.html
http://www.babycenter.com/0_how-smoking-during-pregnancy-affects-you-and-your-baby_1405720.bc
http://www.cdc.gov/nccdphp/publications/factsheets/prevention/pdf/smoking.pdf
http://www.drugabuse.gov/publications/topics-in-brief/prenatal-exposure-to-drugs-abuse
http://findtreatment.samhsa.gov (treatment facility locator by state)
https://www.guttmacher.org/statecenter/spibs/spib_SADP.pdf (state policies regarding substance abuse during pregnancy)
http://www.marchofdimes.com/pregnancy/illicit-drug-use-during-pregnancy.aspx#
http://www.marchofdimes.com/pregnancy/smoking-during-pregnancy.aspx
http://www.motivationalinterview.org
http://www.nlm.nih.gov/medlineplus/pregnancyandsubstanceabuse.html
http://www.samhsa.gov/data/spotlight/spot110-trends-pregnant-women-2013.pdf
http://www.samhsa.gov/co-occurring/topics/training/motivational.aspx
http://smokefree.gov
http://www.webmd.com/baby/drug-use-and-pregnancy
http://www.webmd.com/baby/smoking-during-pregnancy
https://www.youtube.com/watch?v=6EeCirPyq2w (Dr William Miller lecture, "Motivational Interviewing: Facilitating Change Across Boundaries")

directly communicate with the substance use specialist(s) to whom the woman is being referred.[1,46] Numerous Web sites are available for both nurses and women to gather information surrounding the impact of substance use on the fetus and birth outcomes as well as treatment resources (see Table 3).

Comorbid mental illnesses such as depression, anxiety, and posttraumatic stress disorder are highly associated with substance abuse and dependence in women, complicating treatment.[47] Research suggests that, particularly with regard to major depressive disorder, mental disorders are primary to the substance abuse and treatment is unlikely to be successful without addressing the coexisting mental illness.[4,48]

Programs must be responsive to the life complexities and diversity of participants, identifying and documenting realistic and measurable client and program outcomes. Women who screen positive for substances during pregnancy need accessible drug and alcohol abuse services that incorporate interventions that acknowledge the importance women place on the health and well-being of their families. Quantitative and

Table 4. **What nurses can do**

Ask	Empathy
	Nonjudgmental stance
	Specifics: What substances, duration of use, extent of use
Assess	Level of stigma and fears about disclosure
	Previous attempts to discontinue use and outcome
	Willingness to discontinue use
	Willingness to seek help and to what extent
	Resources available and barriers to the pursuit of treatment
Advise	Potential effects of substance use on maternal health
	Potential effects of substance use on fetal health and development
	Associations between substance use and birth outcomes
	Effectiveness of treatment
	Internet resources for additional information
Refer	Give specific referral sources in the community along with contact information
	Problem-solve around barriers to pursuit of recommended level of treatment
Follow-up	Schedule follow-up appointment
	At follow-up, repeat ask, assess, advise
	Provide encouragement
	If woman has not followed through on referral, problem-solve around barriers and elicit reasons to pursue treatment

qualitative data collection of outcomes can improve services by providing ongoing monitoring, evaluation, and refinement of the programs offered.[3] Alongside these proactive strategies, the multiple barriers to treatment must be acknowledged. Social stigma, shame, and guilt are perhaps the most intense challenges to pregnant women struggling with substance use. Financial barriers, poor access to care, young age, denial of the severity of substance use, transportation, and lack of access to child care services also discourage the presentation of women for treatment.[22,46]

SUMMARY

Behavioral treatments have demonstrated success in other populations of substance users, but there is a great need for increased research to establish evidence-based approaches that meet the unique needs of pregnant women.[8,9,49] Although contingency management, motivational support, and cognitive behavioral interventions have been tested in individual and group settings, sample sizes have been small and findings have been modest at best. Outside of research, progress in psychosocial interventions for pregnant women using substances has been made on community fronts, particularly as treatment of substance dependence is being increasingly embedded into prenatal care. From the first meeting, nurses play a valuable role in screening, assessment, and treatment recommendations for pregnant women who are struggling with substance use and dependence (see Table 4).

References

1. Jones HE, Deppen K, Hudak ML, et al. Clinical care for opioid-using pregnant and postpartum women: the role of obstetric providers. *Am J Obstet Gynecol.* 2013;210(4):302–310.
2. Sun AP. Principles for practice with substance-abusing pregnant women: a framework based on the five social work intervention roles. *Soc Work.* 2004;49(3):383–394.
3. Clayson Z, Berkowitz G, Brindis C. Themes and variations among seven comprehensive perinatal drug and alcohol abuse treatment models. *Health Soc Work.* 1995;20(3):234–238.
4. Jones HE, Svikis D, Rosado J, Tuten M, Kulstad JL. What if they do not want treatment? Lessons learned from intervention studies of nontreatment-seeking, drug-using pregnant women. *Am J Addict.* 2004;13(4):342–357.
5. Substance Abuse and Mental Health Services Administration. *Results From the 2010 National Survey on Drug Use and Health: National Findings.* Rockville, MD: Substance Abuse and Mental Health Services Administration; 2011.
6. Substance Abuse and Mental Health Services Administration. *The NSDUH Report: Substance Use Among Women During Pregnancy and Following Childbirth.* Rockville, MD: Substance Abuse and Mental Health Services Administration; 2009.
7. Wendell AD. Overview and epidemiology of substance abuse in pregnancy. *Clin Obstet Gynecol.* 2013;56(1):91–96.
8. Terplan M, Lui S. Psychosocial interventions for pregnant women in outpatient illicit drug treatment programs compared to other interventions. *Cochrane Database Syst Rev.* 2007;(4):CD006037.
9. Lui S, Terplan M, Smith EJ. Psychosocial interventions for women enrolled in alcohol treatment during pregnancy. *Cochrane Database Syst Rev.* 2008;(3):CD006753.
10. Yonkers KA, Forray A, Howell HB, et al. Motivational enhancement therapy coupled with cognitive behavioral therapy versus brief advice: a randomized trial for treatment of hazardous substance use in pregnancy and after delivery. *Gen Hosp Psychiatry.* 2012;34(5):439–449.
11. World Health Organization. *Guidelines for the Identification and Management of Substance Use and Substance Use Disorders in Pregnancy.* Geneva, Switzerland: World Health Organization; 2014. NLM Classification WQ 210.
12. Brandon AR, Shivakumar G, Inrig SJ, Ceccotti N, Sadler JZ, Craddock Lee SJ. Ethical challenges in designing, conducting, and reporting research to improve the mental health of pregnant women: the voices of investigators and IRB members. *AJOB Empirical Bioethics.* 2013;5(2):25–43.
13. Lyerly AD, Little MO, Faden RR. Pregnancy and clinical research. *Hastings Cent Rep.* 2008;38(6):inside back cover.
14. Brigham G, Winhusen T, Lewis D, Kropp F. Incentives for retention of pregnant substance users: a secondary analysis. *J Subst Abuse Treat.* 2010;38(1):90–95.
15. Svikis DS, Silverman K, Haug NA, Stitzer M, Keyser-Marcus L. Behavioral strategies to improve treatment participation and retention by pregnant drug-dependent women. *Subst Use Misuse.* 2007;42(10):1527–1535.
16. Brady TM, Ashley OS. *Women in Substance Abuse Treatment: Results From the Alcohol and Drug Services Study (ADSS).* Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies; 2005.
17. Kelly TM, Daley DC, Douaihy AB. Treatment of substance-abusing patients with comorbid psychiatric disorders. *Addict Behav.* 2012;37(1):11–24.
18. Amato L, Mitrova Z, Davoli M. Cochrane systematic reviews in the field of addiction: past and future. *J Evid Based Med.* 2013;6(4):221–228.
19. Stitzer M, Petry N. Contingency management for treatment of substance abuse. *Annu Rev Clin Psychol.* 2006;2:411–434.
20. Petry NM, Alessi SM, Carroll KM, et al. Contingency management treatments: Reinforcing abstinence versus adherence with goal-related activities. *J Consult Clin Psychol.* 2006;74(3):592–601.
21. Silverman K, Svikis D, Robles E, Stitzer ML, Bigelow GE. A reinforcement-based therapeutic workplace for the treatment of drug abuse: six-month abstinence outcomes. *Exp Clin Psychopharmacol.* 2001;9(1):14–23.
22. Ashley OS, Marsden ME, Brady TM. Effectiveness of substance abuse treatment programming for women: a review. *Am J Drug Alcohol Abuse.* 2003;29(1):19–53.
23. Chapman SL, Wu LT. Substance use among adolescent mothers: a review. *Child Youth Serv Rev.* 2013;35(5):806–815.
24. Carroll KM, Onken LS. Behavioral therapies for drug abuse. *Am J Psychiatry.* 2005;162(8):1452–1460.
25. Miller WR. Motivational interviewing: research, practice, and puzzles. *Addict Behav.* 1996;21(6):835–842.
26. Rollnick S. Behaviour change in practice: targeting individuals. *Int J Obes Relat Metab Disord.* 1996;20(suppl 1):S22–S26.
27. Miller WR, Rollnick S. *Motivational Interviewing: Preparing People to Change Addictive Behavior.* New York, NY: Guildford Press; 1991.
28. DiClemente CC, Prochaska JO. Self-change and therapy change of smoking behavior: a comparison of processes of change in cessation and maintenance. *Addict Behav.* 1982;7(2):133–142.

29. Snow MG, Prochaska JO, Rossi JS. Processes of change in Alcoholics Anonymous: maintenance factors in long-term sobriety. *J Stud Alcohol.* 1994;55(3):362–371.
30. Prochaska JO, Velicer WF, Rossi JS, et al. Stages of change and decisional balance for 12 problem behaviors. *Health Psychol.* 1994;13(1):39–46.
31. Prochaska JO, DiClemente CC. Stages of change in the modification of problem behaviors. *Prog Behav Modif.* 1992;28:183–218.
32. Handmaker NS, Wilbourne P. Motivational interventions in prenatal clinics. *Alcohol Res Health.* 2001;25(3):219-221-219.
33. Miller WR, Rollnick S. *Motivational Interviewing: Helping People Change.* 3rd ed. New York, NY: Guilford Press; 2013.
34. Handmaker NS, Miller WR, Manicke M. Findings of a pilot study of motivational interviewing with pregnant drinkers. *J Stud Alcohol.* 1999;60(2):285–287.
35. Miller WR, Zweben DSW, DiClemente C, Rychtarik RG. *Motivational Enhancement Therapy Manual: A Clinical Research Guide for Therapists Treating Individuals With Alcohol Abuse and Dependence.* Vol 2. Rockville, MD: US Department of Health and Human Services, Public Health Service, and the National Institutes of Health; 1995.
36. Miller WR. Motivational enhancement therapy with drug abusers. http://www.motivationalinterview.org/Documents/METDrugAbuse.PDF. Published 1995. Accessed February 4, 2014.
37. Winhusen T, Kropp F, Babcock D, et al. Motivational enhancement therapy to improve treatment utilization and outcome in pregnant substance users. *J Subst Abuse Treat.* 2008;35(2):161–173.
38. O'Neill K, Baker A, Cooke M, Collins E, Heather N, Wodak A. Evaluation of a cognitive-behavioural intervention for pregnant injecting drug users at risk of HIV infection. *Addiction.* 1996;91(8):1115–1125.
39. Goler NC, Armstrong MA, Taillac CJ, Osejo VM. Substance abuse treatment linked with prenatal visits improves perinatal outcomes: a new standard. *Am J Perinatol.* 2008;28(9):597–603.
40. American College of Obstetricians and Gynecologists Committee on Ethics. *At-Risk Drinking and Illicit Drug use: Ethical Issues in Obstetric and Gynecological Practice.* Washington, DC: American College of Obstetricians and Gynecologists; 2004.
41. Albrecht SA, Caruthers D, Patrick T, et al. A randomized controlled trial of a smoking cessation intervention for pregnant adolescents. *Nurs Res.* 2006;55(6):402–410.
42. Stotts AL, Groff JY, Velasquez MM, et al. Ultrasound feedback and motivational interviewing targeting smoking cessation in the second and third trimesters of pregnancy. *Nicotine Tob Res.* 2009;11(8):961–968.
43. Katz DA, Muehlenbruch DR, Brown RL, Fiore MC, Baker TB. Effectiveness of implementing the agency for healthcare research and quality smoking cessation clinical practice guideline: a randomized, controlled trial. *J Natl Cancer Inst.* 2004;96(8):594–603.
44. Katz DA, Brown RB, Muehlenbruch DR, Fiore MC, Baker TB. Implementing guidelines for smoking cessation: comparing the efforts of nurses and medical assistants. *Am J Prev Med.* 2004;27(5):411–416.
45. Ondersma SJ, Winhusen T, Lewis DF. External pressure, motivation, and treatment outcome among pregnant substance-using women. *Drug Alcohol Depend.* 2010;107:149–153.
46. Albright BB, Rayburn WF. Substance abuse among reproductive age women. *Obstet Gynecol Clin North Am.* 2009;36(4):891–906, xi–xii.
47. Kessler RC, Chiu WT, Demler O, Merikangas KR, Walters EE. Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication [comment] [erratum appears in: *Arch Gen Psychiatry.* 2005;62(7):709]. *Arch Gen Psychiatry.* 2005;62(6):617–627.
48. Zilberman ML, Tavares H, Blume SB, el-Guebaly N. Substance use disorders: sex differences and psychiatric comorbidities. *Can J Psychiatry.* 2003;48(1):5–13.
49. Paschetta E, Berrisford G, Coccia F, Whitmore J, Wood AG, Pretlove S, Ismail KMK. Perinatal psychiatric disorders: an overview [published online ahead of print October 7, 2013]. *Am J Obstet Gynecol.* doi:10.1016/j.ajog.2013.10.009.