



# A Public Health Response to Opioid Use in Pregnancy

Stephen W. Patrick, MD, MPH, MS, FAAP,<sup>a,b,c,d,e</sup> Davida M. Schiff, MD, FAAP,<sup>f</sup> COMMITTEE ON SUBSTANCE USE AND PREVENTION

The use of opioids during pregnancy has grown rapidly in the past decade. As opioid use during pregnancy increased, so did complications from their use, including neonatal abstinence syndrome. Several state governments responded to this increase by prosecuting and incarcerating pregnant women with substance use disorders; however, this approach has no proven benefits for maternal or infant health and may lead to avoidance of prenatal care and a decreased willingness to engage in substance use disorder treatment programs. A public health response, rather than a punitive approach to the opioid epidemic and substance use during pregnancy, is critical, including the following: a focus on preventing unintended pregnancies and improving access to contraception; universal screening for alcohol and other drug use in women of childbearing age; knowledge and informed consent of maternal drug testing and reporting practices; improved access to comprehensive obstetric care, including opioid-replacement therapy; gender-specific substance use treatment programs; and improved funding for social services and child welfare systems. The American College of Obstetricians and Gynecologists supports the value of this clinical document as an educational tool (December 2016).

## INTRODUCTION

Substance use during pregnancy occurs commonly in the United States. In 2009, the Substance Abuse and Mental Health Administration estimated that 400 000 infants each year are exposed to alcohol or illicit drugs in utero.<sup>1</sup> Although concern regarding substance use in pregnancy is not new, it has recently increased among health care providers, the public, and policy makers as the opioid epidemic's impact reached an increasing portion of the US population, including pregnant women and their infants.<sup>2,3</sup> Several recent studies highlighted an increase in prescription opioid use among women of childbearing age<sup>4</sup> and among pregnant women.<sup>5,6</sup> As opioid use among pregnant women increased, the rate of infants in the United States experiencing opioid withdrawal after

## abstract

FREE

<sup>a</sup>Departments of Pediatrics and <sup>b</sup>Health Policy, <sup>c</sup>Mildred Stahlman Division of Neonatology, <sup>d</sup>Vanderbilt Center for Health Services Research, and <sup>e</sup>Vanderbilt Center for Addiction Research, Vanderbilt University, Nashville, Tennessee; and <sup>f</sup>Department of Pediatrics, Boston Medical Center and Boston University School of Medicine, Boston, Massachusetts

Dr Schiff conceptualized and drafted the initial manuscript and critically reviewed the revised manuscript; Dr Patrick conceptualized the manuscript and critically reviewed and revised the manuscript; and both authors approved the final manuscript as submitted.

This document is copyrighted and is property of the American Academy of Pediatrics and its Board of Directors. All authors have filed conflict of interest statements with the American Academy of Pediatrics. Any conflicts have been resolved through a process approved by the Board of Directors. The American Academy of Pediatrics has neither solicited nor accepted any commercial involvement in the development of the content of this publication.

Policy statements from the American Academy of Pediatrics benefit from expertise and resources of liaisons and internal (AAP) and external reviewers. However, policy statements from the American Academy of Pediatrics may not reflect the views of the liaisons or the organizations or government agencies that they represent.

The guidance in this statement does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

All policy statements from the American Academy of Pediatrics automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

DOI: 10.1542/peds.2016-4070

Address correspondence to Stephen W. Patrick, MD, MPH, MS, FAAP. E-mail: stephen.patrick@vanderbilt.edu

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2017 by the American Academy of Pediatrics

**To cite:** Patrick SW, Schiff DM, AAP COMMITTEE ON SUBSTANCE USE AND PREVENTION. A Public Health Response to Opioid Use in Pregnancy. *Pediatrics*. 2017;139(3):e20164070

birth, known as neonatal abstinence syndrome (NAS), grew nearly fivefold over the past decade.<sup>2,7</sup> By 2012 in the United States, on average, 1 infant was born every 25 minutes experiencing signs of withdrawal, accounting for an estimated \$1.5 billion in hospital charges.<sup>2</sup> The issues surrounding substance use in pregnancy are complex and merit a thoughtful public health response focused on prevention, expansion of treatment to women with substance use disorder, and improved funding for child welfare systems to improve the health of the substance-exposed mother-infant dyad.

### Primary Prevention

A public health approach to substance use in pregnancy should begin with primary prevention: preventing substance and opioid misuse before pregnancy. In 2011, the White House Office of National Drug Control Policy released a plan to respond to the prescription opioid epidemic that has 4 main pillars: (1) improve public and provider education about the abuse potential of opioids, (2) reduce the abuse of prescription opioids by bolstering prescription drug monitoring programs, (3) ensure that unused opioids are properly disposed, and (4) provide law enforcement with the tools needed to stop illegal prescribing or dispensing of opioids.<sup>8</sup> Public health and policy approaches to the prescription opioid epidemic will help eliminate the burden of opioid use disorder before pregnancy begins.

Preconception and interconception (between pregnancies) care plays an important role in improving outcomes for pregnant women. Counseling during these crucial periods may play a role in identifying and mitigating risk to mothers and their infants.<sup>9</sup> Although 31% to 47% of US pregnancies are unintended, research suggests that, for women with opioid use disorder,

the proportion of unintended pregnancies was higher than 85%.<sup>10</sup> Education and expansion of access to effective contraception, particularly long-acting reversible contraception (LARC) methods,<sup>11</sup> are important components of primary prevention. Access to LARC methods is supported by both the American Academy of Family Physicians (AAFP) and the American College of Obstetricians and Gynecologists (ACOG)<sup>12,13</sup> during both the pre- and interconception periods. However, there remain barriers to highly effective contraception in many states. For example, the ACOG supports placement of LARC devices during the immediate postpartum period to improve the use of LARC among postpartum women<sup>13</sup>; however, bundled payments for delivery create a relative financial disincentive to place LARC devices at the time of delivery. State Medicaid programs play a critical role in ensuring access to highly effective contraception at the time when it is desired, including the time of delivery. However, recent research suggests that states are variable in aligning financial incentives to ensure access to LARC methods if elected at the time of delivery.<sup>14</sup>

### Improved Identification and Access to Treatment

The early identification of women who use illicit substances during pregnancy is vital to improving outcomes for both mothers and infants. Routine universal screening through brief questionnaires for drug, alcohol, and tobacco use before and throughout pregnancy is recommended by the ACOG and AAFP.<sup>9,15,16</sup> The ACOG recommends that screening consist of a mutual dialogue between clinician and patient and be performed in partnership with the woman with the use of validated screening tools,<sup>17,18</sup> with her consent, and screening should be applied equally to all

women, regardless of their age, race, ethnicity, or socioeconomic status.<sup>19</sup>

The benefits of drug testing in addition to screening during pregnancy remain uncertain. Targeted urine drug-testing programs have been shown to disproportionately affect low-income women of racial or ethnic minorities,<sup>20-23</sup> prompting some to develop universal urine toxicology testing protocols at the time of delivery.<sup>24</sup> Although urine toxicology tests can provide objective evidence of drug use at 1 point in time, they do not enable providers to determine the frequency of use or to characterize the frequency or degree of use.<sup>25,26</sup> Studies comparing the difference between verbal screening and urine drug testing are mixed; 1 study found superior identification with verbal screening and another identified individuals with positive urine drug test results who were not previously known to have used opioids.<sup>17,24</sup> Consistent with ACOG policy, informed consent should occur at the time of drug testing and a woman should be informed how a positive test result will be used for both medical treatment and reporting to child welfare agencies.<sup>19</sup>

Drug screening and testing in pregnancy should be used to identify women with substance use disorder and enable access to comprehensive treatment. Access to comprehensive prenatal care and treatment of women with substance use disorders is associated with fewer preterm deliveries, small-for-gestational-age infants, and infants with low birth weight.<sup>27-30</sup> The literature suggests that pregnancy can motivate women with substance use disorders to seek treatment.<sup>31</sup> However, there remains a dearth of comprehensive treatment programs geared toward pregnant and parenting women. Only 19 states have treatment programs specifically designed for pregnant women.<sup>32</sup> Furthermore, only 15% of current treatment centers across

the country offer specific services for pregnant women with substance use disorders, and the majority of these are located in urban areas.<sup>33</sup> Women with substance use disorder report high rates of past trauma, including physical and sexual abuse, and need access to gender-specific, family-friendly addiction treatment programs, psychosocial services, and mental health treatment.<sup>34–36</sup> Trauma-informed services should be framed by an understanding of the effects of interpersonal violence and victimization of women with substance use disorders, with a focus on creating a strengths-based environment to foster resiliency and to minimize the possibility of retraumatization.<sup>37</sup> In addition, pregnant and parenting women are likely to remain in treatment if on-site child care and child services are provided and staff work to develop collaborative and nonjudgmental therapeutic alliances through the use of trauma-informed care approaches.<sup>38,39</sup> Positive outcomes of treatment in pregnant and parenting women who complete treatment programs include employment, less engagement in criminal activity, and lower risk of relapse.<sup>40,41</sup>

For women with opioid use disorder, the abrupt discontinuation of opioids in pregnancy can result in preterm labor, fetal distress, or fetal demise. Furthermore, medically supervised withdrawal from opioids in opioid-dependent women is currently not recommended during pregnancy, because the literature suggests that withdrawal is associated with high relapse rates.<sup>16</sup> Opioid agonist therapy, also known as medication-assisted treatment, with methadone or buprenorphine has emerged as the standard for pregnant women with opioid use disorder.<sup>42</sup> Opioid agonist therapy has been shown to be safe and effective in pregnancy<sup>16,43,44</sup> and is associated with improved maternal and infant outcomes.<sup>45,46</sup>

Knowledge of substance use during pregnancy is vital to the pediatrician's ability to effectively provide care for substance-exposed infants. For example, exposure to opioids in utero may lead to an infant developing NAS. The presentation of NAS may be delayed for several days depending on several factors (eg, timing of maternal drug use, drug type, infant metabolism),<sup>47</sup> and clinical signs of NAS can be vague (eg, irritability, poor feeding). Each of these factors creates the possibility that a diagnosis of NAS may be missed without the knowledge of opioid exposure, potentially leading to poor outcomes for infants.<sup>47</sup> Teamwork between all health care providers, including but not limited to obstetric, pediatric, family, and addiction medicine, is vital to optimal care of substance-exposed infants. When inadequate information about drug exposure exists, testing an infant's urine, meconium, or umbilical cord tissue can be important in ensuring the optimal care of the infant.

### **Criminal Justice Approaches to Substance Use in Pregnancy**

In recent years, a number of state legislatures have passed new laws or applied existing child endangerment laws to prosecute pregnant women for illicit drug use during pregnancy.<sup>32,48</sup> The American Academy of Pediatrics (AAP) first published recommendations on substance-exposed infants in 1990 and reaffirmed its position in 1995 that “punitive measures taken toward pregnant women, such as criminal prosecution and incarceration, have no proven benefits for infant health” and argued that “the public must be assured of nonpunitive access to comprehensive care that meets the needs of the substance-abusing pregnant woman and her infant.”<sup>49,50</sup>

More than 20 national organizations have since published statements against the prosecution and

punishment of pregnant women who use illicit substances: these include the American Medical Association, the AAFP, the ACOG, the American Public Health Association, the American Nurses Association, the American Psychiatric Association, the National Perinatal Association, the American Society of Addiction Medicine, the March of Dimes, and the Association of Women's Health, Obstetric and Neonatal Nurses.<sup>51–60</sup> Despite the strong consensus from the medical and public health communities affirming that a punitive approach during pregnancy is ineffective and potentially harmful, there has been a recent increase in the number of states passing and considering criminal prosecution laws that selectively target pregnant women with substance use disorders.<sup>61–63</sup>

The existing literature supports the position that punitive approaches to substance use in pregnancy are ineffective and may have detrimental effects on both maternal and child health. Qualitative research performed in pregnant women with substance use disorders shows that women may avoid prenatal care for fear of being reported to the police and child protective services.<sup>23,64–66</sup> In addition, surveys of pregnant women found that punitive laws targeted at pregnant women who use drugs are a significant deterrent to obtaining regular prenatal care and agreeing to drug testing,<sup>67</sup> and women who deliver without receiving any prenatal care are more likely have a history of substance use.<sup>68</sup> For these reasons, the AAP supports an approach toward substance use in pregnancy that focuses on a public health approach of primary prevention, improving access to treatment, and promoting the provider-patient relationship rather than punitive measures through the criminal justice system.

## Role of Child Welfare Systems

The Child Abuse Protection and Treatment Act mandates that states have in place “policies and procedures to address the needs of infants born with and identified as being affected by illegal substance abuse or withdrawal symptoms from prenatal drug exposure.”<sup>69</sup> Reporting requirements for in utero illicit substance exposure to child welfare systems have been interpreted differently by each state. More than 25% of states currently have statutes that consider illicit substance use during pregnancy to be reportable as child abuse or neglect.<sup>32</sup> Health care providers caring for pregnant women with substance use disorders and their infants should be knowledgeable about their state requirements and be able to educate women during pregnancy. Notably, although the incidence of NAS has increased in recent years,<sup>2,7</sup> federal funding for child welfare systems has not changed,<sup>70</sup> even as some state child welfare systems are reporting an increased workload attributable to NAS.<sup>71</sup> In recent years, Congress has addressed the issue of substance-exposed infants in child welfare systems; however, there has not been a substantial increase in funding to state child welfare systems to bolster the response to the growing number of opioid-exposed infants. There is an urgent need for improved funding to child welfare systems to ensure the safety of infants and to promote the well-being of families.

## RECOMMENDATIONS

Opioid use in pregnancy is increasingly common, with an associated increase in opioid-exposed infants. This critical public health issue demands a public health approach grounded in science. For these reasons, the AAP recommends the following:

1. The treatment of pregnant women with substance use disorder requires a coordinated, evidence-based, public health approach. The AAP reaffirms its position that punitive measures taken toward pregnant women are not in the best interest of the health of the mother-infant dyad.
2. Primary prevention strategies should be bolstered to educate the public about the addictive potential of prescription opioids and enhance access to reproductive health services, including effective forms of contraception such as LARC.
3. The ACOG policy that universal substance use screening of all pregnant women via validated screening tools such as questionnaires should occur at routine health care visits and at several points throughout prenatal care and be applied equally to all women, regardless of age, race, ethnicity, or socioeconomic status, should be supported. If urine drug testing is performed, a reasonable effort to obtain a woman’s informed consent should be made before collecting the sample, and the woman should be aware of the results and who will have access to the results.
4. Access should be improved to comprehensive prenatal care for pregnant women with substance use disorders, including medication-assisted treatment and gender-specific substance use treatment programs that provide nonjudgmental, trauma-informed services.
5. Health care providers caring for women who use substances during pregnancy should be knowledgeable about their state’s reporting mandates around illicit drug use and educate pregnant women prenatally about these

requirements. In addition, states should clarify which substances constitute mandated reporting and explicitly define the health care provider’s role in reporting.

6. To adequately ensure the safety of substance-exposed infants and to provide optimal care to families, social support services and child welfare systems are in need of additional funding.

The American College of Obstetricians and Gynecologists supports the value of this clinical document as an educational tool (December 2016).

## AUTHORS

Stephen W. Patrick, MD, MPH, MS, FAAP  
Davida M. Schiff, MD, FAAP

## COMMITTEE ON SUBSTANCE USE AND PREVENTION, 2016–2017

Sheryl A. Ryan, MD, FAAP, Chairperson  
Joanna Quigley, MD, FAAP  
Pamela K. Gonzalez, MD, MS, FAAP  
Stephen W. Patrick, MD, MPH, MS, FAAP  
Leslie R. Walker, MD, FAAP

## FORMER COMMITTEE MEMBERS

Sharon J.L. Levy, MD, MPH, FAAP  
Lorena Siqueira, MD, MSPH

## LIAISONS

Vivian B. Faden, PhD – *National Institute on Alcohol Abuse and Alcoholism*  
Gregory Tau, MD, PhD – *American Academy of Child and Adolescent Psychiatry*

## STAFF

Renee Jarrett, MPH

## ABBREVIATIONS

AAFP: American Academy of Family Physicians  
ACOG: American College of Obstetricians and Gynecologists  
LARC: long-acting reversible contraception  
NAS: neonatal abstinence syndrome



**FINANCIAL DISCLOSURE:** The authors have indicated they do not have a financial relationship relevant to this article to disclose.

**FUNDING:** No external funding.

**POTENTIAL CONFLICT OF INTEREST:** The authors have indicated they have no potential conflicts of interest to disclose.

## REFERENCES

1. Young N, Gardner S, Otero C, et al. Substance-exposed infants: state responses to the problem. HHS Publication SMA09-4369. Available at: <https://ncsacw.samhsa.gov/files/Substance-Exposed-Infants.pdf>. Accessed August 23, 2016
2. Patrick SW, Davis MM, Lehmann CU, Cooper WO. Increasing incidence and geographic distribution of neonatal abstinence syndrome: United States 2009 to 2012 [published erratum appears in *J Perinatol*. 2015;35(8):667]. *J Perinatol*. 2015;35(8):650–655
3. Patrick SW, Dudley J, Martin PR, et al. Prescription opioid epidemic and infant outcomes. *Pediatrics*. 2015;135(5):842–850
4. Ailes EC, Dawson AL, Lind JN, et al; Centers for Disease Control and Prevention. Opioid prescription claims among women of reproductive age—United States, 2008–2012. *MMWR Morb Mortal Wkly Rep*. 2015;64(2):37–41
5. Epstein RA, Bobo WV, Martin PR, et al. Increasing pregnancy-related use of prescribed opioid analgesics. *Ann Epidemiol*. 2013;23(8):498–503
6. Desai RJ, Hernandez-Diaz S, Bateman BT, Huybrechts KF. Increase in prescription opioid use during pregnancy among Medicaid-enrolled women. *Obstet Gynecol*. 2014;123(5):997–1002
7. Patrick SW, Schumacher RE, Benneyworth BD, Krans EE, McAllister JM, Davis MM. Neonatal abstinence syndrome and associated health care expenditures: United States, 2000–2009. *JAMA*. 2012;307(18):1934–1940
8. Office of National Drug Control Policy. Epidemic: responding to America's prescription drug abuse crisis. Washington, DC: Office of National Drug Control Policy; 2011. Available at: [https://www.whitehouse.gov/sites/default/files/ondcp/policy-and-research/rx\\_abuse\\_plan.pdf](https://www.whitehouse.gov/sites/default/files/ondcp/policy-and-research/rx_abuse_plan.pdf). Accessed August 23, 2016
9. American Academy of Family Physicians. Position paper: preconception care. Leawood, KS: American Academy of Family Physicians; 2015. Available at: [www.aafp.org/about/policies/all/preconception-care.html](http://www.aafp.org/about/policies/all/preconception-care.html). Accessed August 23, 2016
10. Heil SH, Jones HE, Arria A, et al. Unintended pregnancy in opioid-abusing women. *J Subst Abuse Treat*. 2011;40(2):199–202
11. Winner B, Peipert JF, Zhao Q, et al. Effectiveness of long-acting reversible contraception. *N Engl J Med*. 2012;366(21):1998–2007
12. American Academy of Family Physicians. Policy: long-acting reversible contraceptives. Leawood, KS: American Academy of Family Physicians; 2015. Available at: [www.aafp.org/about/policies/all/longacting-reversiblecontraceptives.html](http://www.aafp.org/about/policies/all/longacting-reversiblecontraceptives.html). Accessed August 23, 2016
13. American College of Obstetricians and Gynecologists Committee on Practice Bulletins—Gynecology. Practice bulletin: long-acting reversible contraception: implants and intrauterine devices. Washington, DC: American College of Obstetricians and Gynecologists; 2011. Available at: [www.acog.org/Resources-And-Publications/Practice-Bulletins/Committee-on-Practice-Bulletins-Gynecology/Long-Acting-Reversible-Contraception-Implants-and-Intrauterine-Devices](http://www.acog.org/Resources-And-Publications/Practice-Bulletins/Committee-on-Practice-Bulletins-Gynecology/Long-Acting-Reversible-Contraception-Implants-and-Intrauterine-Devices). Accessed August 23, 2016
14. Moniz MH, Chang T, Davis MM, Forman J, Landgraf J, Dalton VK. Medicaid administrator experiences with the implementation of immediate postpartum long-acting reversible contraception. *Womens Health Issues*. 2016;26(3):313–320
15. Wright TE, Terplan M, Ondersma SJ, et al. The role of screening, brief intervention, and referral to treatment in the perinatal period. *Am J Obstet Gynecol*. 2016;215(5):539–547
16. ACOG Committee on Health Care for Underserved Women; American Society of Addiction Medicine. ACOG Committee Opinion No. 524: opioid abuse, dependence, and addiction in pregnancy. *Obstet Gynecol*. 2012;119(5):1070–1076
17. Chasnoff IJ, Wells AM, McGourty RF, Bailey LK. Validation of the 4P's Plus screen for substance use in pregnancy validation of the 4P's Plus. *J Perinatol*. 2007;27(12):744–748
18. Goodman DJ, Wolff KB. Screening for substance abuse in women's health: a public health imperative. *J Midwifery Womens Health*. 2013;58(3):278–287
19. American College of Obstetricians and Gynecologists. Committee Opinion No. 633: alcohol abuse and other substance use disorders: ethical issues in obstetric and gynecologic practice. *Obstet Gynecol*. 2015;125(6):1529–1537
20. Chasnoff IJ, Landress HJ, Barrett ME. The prevalence of illicit-drug or alcohol use during pregnancy and discrepancies in mandatory reporting in Pinellas County, Florida. *N Engl J Med*. 1990;322(17):1202–1206
21. Kerker BD, Horwitz SM, Leventhal JM. Patients' characteristics and providers' attitudes: predictors of screening pregnant women for illicit substance use. *Child Abuse Negl*. 2004;28(2):209–223
22. Kunins HV, Bellin E, Chazotte C, Du E, Arnsten JH. The effect of race on provider decisions to test for illicit drug use in the peripartum setting. *J Womens Health (Larchmt)*. 2007;16(2):245–255
23. Roberts SC, Nuru-Jeter A. Women's perspectives on screening for alcohol and drug use in prenatal care. *Womens Health Issues*. 2010;20(3):193–200
24. Wexelblatt SL, Ward LP, Torok K, Tisdale E, Meinen-Derr JK, Greenberg JM. Universal maternal drug testing

- in a high-prevalence region of prescription opiate abuse. *J Pediatr*. 2015;166(3):582–586
25. US Preventive Services Task Force. Final recommendation statement: drug use, illicit: screening. Rockville, MD: US Preventive Services Task Force; 2008. Available at: [www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/drug-use-illicit-screening](http://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/drug-use-illicit-screening). Accessed August 23, 2016
  26. Levy S, Siqueira LM, Ammerman SD, et al; Committee on Substance Abuse. Testing for drugs of abuse in children and adolescents. *Pediatrics*. 2014;133(6). Available at: [www.pediatrics.org/cgi/content/full/133/6/e1798](http://www.pediatrics.org/cgi/content/full/133/6/e1798)
  27. Goler NC, Armstrong MA, Taillac CJ, Osejo VM. Substance abuse treatment linked with prenatal visits improves perinatal outcomes: a new standard. *J Perinatol*. 2008;28(9):597–603
  28. El-Mohandes A, Herman AA, Nabil El-Khorazaty M, Katta PS, White D, Grylack L. Prenatal care reduces the impact of illicit drug use on perinatal outcomes. *J Perinatol*. 2003;23(5):354–360
  29. Armstrong MA, Gonzales Osejo V, Lieberman L, Carpenter DM, Pantoja PM, Escobar GJ. Perinatal substance abuse intervention in obstetric clinics decreases adverse neonatal outcomes. *J Perinatol*. 2003;23(1):3–9
  30. Lieberman L, Taillac C, Goler N. Vision, research, innovation and influence: Early Start's 15-year journey from pilot project to regional program. *Perm J*. 2005;9(1):62–64
  31. Davis KJ, Yonkers KA. Making lemonade out of lemons: a case report and literature review of external pressure as an intervention with pregnant and parenting substance-using women. *J Clin Psychiatry*. 2012;73(1):51–56
  32. Guttmacher Institute. Substance abuse during pregnancy. *State Policies in Brief*. December 1, 2015. Available at: [www.guttmacher.org/statecenter/spibs/spib\\_SADP.pdf](http://www.guttmacher.org/statecenter/spibs/spib_SADP.pdf). Accessed August 23, 2016
  33. Terplan M, Longinaker N, Appel L. Women-centered drug treatment services and need in the United States, 2002-2009. *Am J Public Health*. 2015;105(11):e50–e54
  34. Greenfield SF, Rosa C, Putnins SI, et al. Gender research in the National Institute on Drug Abuse National Treatment Clinical Trials Network: a summary of findings. *Am J Drug Alcohol Abuse*. 2011;37(5):301–312
  35. Liebschutz J, Savetsky JB, Saitz R, Horton NJ, Lloyd-Travaglini C, Samet JH. The relationship between sexual and physical abuse and substance abuse consequences. *J Subst Abuse Treat*. 2002;22(3):121–128
  36. McHugo GJ, Caspi Y, Kammerer N, et al. The assessment of trauma history in women with co-occurring substance abuse and mental disorders and a history of interpersonal violence. *J Behav Health Serv Res*. 2005;32(2):113–127
  37. Substance Abuse and Mental Health Services Administration. Substance abuse treatment: addressing the specific needs of women. A Treatment Improvement Protocol (TIP 51). Publication SMA 13-4426. Rockville, MD: US Department of Health and Human Services; 2009. Available at: <https://store.samhsa.gov/shin/content/SMA13-4426/SMA13-4426.pdf>. Accessed August 23, 2016
  38. Greenfield SF, Brooks AJ, Gordon SM, et al. Substance abuse treatment entry, retention, and outcome in women: a review of the literature. *Drug Alcohol Depend*. 2007;86(1):1–21
  39. Brady TM. *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
  40. Gregoire KA, Schultz DJ. Substance-abusing child welfare parents: treatment and child placement outcomes. *Child Welfare*. 2001;80(4):433–452
  41. Nishimoto RH, Roberts AC. Coercion and drug treatment for postpartum women. *Am J Drug Alcohol Abuse*. 2001;27(1):161–181
  42. Mattick RP, Breen C, Kimber J, Davoli M. Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. *Cochrane Database Syst Rev*. 2009;3:CD002209
  43. Jones HE, Heil SH, Baewert A, et al. Buprenorphine treatment of opioid-dependent pregnant women: a comprehensive review. *Addiction*. 2012;107(suppl 1):5–27
  44. Minozzi S, Amato L, Bellisario C, Ferri M, Davoli M. Maintenance agonist treatments for opiate-dependent pregnant women. *Cochrane Database Syst Rev*. 2013;12:CD006318
  45. 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 Can*. 2015;37(3):252–257
  46. Burns L, Mattick RP, Lim K, Wallace C. Methadone in pregnancy: treatment retention and neonatal outcomes. *Addiction*. 2007;102(2):264–270
  47. Hudak ML, Tan RC; Committee on Drugs; Committee on Fetus and Newborn. Clinical report: neonatal drug withdrawal. *Pediatrics*. 2012;129(2). Available at: [www.pediatrics.org/cgi/content/full/129/2/e540](http://www.pediatrics.org/cgi/content/full/129/2/e540)
  48. Paltrow LM, Flavin J. Arrests of and forced interventions on pregnant women in the United States, 1973-2005: implications for women's legal status and public health. *J Health Polit Policy Law*. 2013;38(2):299–343
  49. Committee on Substance Abuse. Drug-exposed infants [policy statement]. *Pediatrics*. 1990;86(4):639–642
  50. Committee on Substance Abuse. Drug-exposed infants. *Pediatrics*. 1995;96(2 pt 1):364–367
  51. American College of Obstetricians and Gynecologists Committee on Health Care for Underserved Women. AGOG Committee Opinion No. 473: substance abuse reporting and pregnancy: the role of the obstetrician-gynecologist. *Obstet Gynecol*. 2011;117(1):200–201
  52. American Academy of Family Physicians. Policy: substance Abuse and Addiction. Pregnant women, substance use and abuse by. Available at: [www.aafp.org/about/policies/all/substance-abuse.html#pregnant](http://www.aafp.org/about/policies/all/substance-abuse.html#pregnant). Accessed August 23, 2016

53. Cole HM. Legal interventions during pregnancy: court-ordered medical treatments and legal penalties for potentially harmful behavior by pregnant women. *JAMA*. 1990;264(20):2663–2670
54. American Public Health Association. Illicit drug use by pregnant women. Washington, DC: American Public Health Association; 1990. Available at: <https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/03/10/56/illicit-drug-use-by-pregnant-women>. Accessed August 23, 2016
55. American Nurses Association, Center for Ethics and Human Rights. Position statement: non-punitive alcohol and drug treatment for pregnant and breast feeding women and their exposed children. Washington, DC: American Nurses Association; 2011. Available at: [www.nursingworld.org/MainMenuCategories/EthicsStandards/Ethics-Position-Statements/Non-punitive-Alcohol-and-Drug-Treatment-for-Pregnant-and-Breast-feeding-Women-and-the-Exposed-Childr.pdf](http://www.nursingworld.org/MainMenuCategories/EthicsStandards/Ethics-Position-Statements/Non-punitive-Alcohol-and-Drug-Treatment-for-Pregnant-and-Breast-feeding-Women-and-the-Exposed-Childr.pdf). Accessed August 23, 2016
56. American Psychiatric Association, Board of Trustees. Position statement on care of pregnant and newly delivered women addicts. Washington, DC: American Psychiatric Association; 2007. Available at: [www.psychiatry.org/File%20Library/About-APA/Organization-Documents-Policies/Policies/Position-2007-Pregnant-Addiction.pdf](http://www.psychiatry.org/File%20Library/About-APA/Organization-Documents-Policies/Policies/Position-2007-Pregnant-Addiction.pdf). Accessed August 23, 2016
57. American Society of Addiction Medicine, Board of Directors. Chemically dependent women and pregnancy. Chevy Chase, MD: American Society of Addiction Medicine; 1989. Available at: [www.asam.org/advocacy/find-a-policy-statement/view-policy-statement/public-policy-statements/2011/12/16/chemically-dependent-women-and-pregnancy](http://www.asam.org/advocacy/find-a-policy-statement/view-policy-statement/public-policy-statements/2011/12/16/chemically-dependent-women-and-pregnancy). Accessed August 23, 2016
58. Criminalization of pregnant women with substance use disorders. *J Obstet Gynecol Neonatal Nurs*. 2015;44(1):155–157
59. March of Dimes. Policies and programs to address drug-exposed newborns. White Plains, NY: March of Dimes; 2014. Available at: [www.marchofdimes.org/materials/NAS-Policy-Fact-Sheet-December-2014.pdf](http://www.marchofdimes.org/materials/NAS-Policy-Fact-Sheet-December-2014.pdf). Accessed August 23, 2016
60. National Perinatal Association. Position paper: substance abuse among pregnant women. Lonedell, MO: National Perinatal Association; June 2012. Available at: [www.nationalperinatal.org/resources/Documents/Substance%20Abuse%20Among%20Pregnant%20Women%20Position%20Paper%2010-1-15.pdf](http://www.nationalperinatal.org/resources/Documents/Substance%20Abuse%20Among%20Pregnant%20Women%20Position%20Paper%2010-1-15.pdf). Accessed August 23, 2016
61. Lester BM, Andreozzi L, Appiah L. Substance use during pregnancy: time for policy to catch up with research. *Harm Reduct J*. 2004;1(1):5
62. Tennessee Senate Bill 1391 by Tate, House Bill 1295 by Weaver (2013). An Act to amend Tennessee code annotated title 39, relative to criminal law. Available at: [www.capitol.tn.gov/Bills/108/Bill/SB1391.pdf](http://www.capitol.tn.gov/Bills/108/Bill/SB1391.pdf). Accessed August 23, 2016
63. North Carolina Senate Bill 297 (2015). Prenatal narcotic drug use/criminal offense. Available at: [www.ncleg.net/Sessions/2015/Bills/Senate/PDF/S297v1.pdf](http://www.ncleg.net/Sessions/2015/Bills/Senate/PDF/S297v1.pdf). Accessed August 23, 2016
64. Roberts SC, Pies C. Complex calculations: how drug use during pregnancy becomes a barrier to prenatal care. *Matern Child Health J*. 2011;15(3):333–341
65. Jessup M, Humphreys J, Brindis C, Lee K. Extrinsic barriers to substance abuse treatment among pregnant drug dependent women. *J Drug Issues*. 2003;33(2):285–304
66. Schempf AH, Strobino DM. Drug use and limited prenatal care: an examination of responsible barriers. *Am J Obstet Gynecol*. 2009;200(4):412.e1–412.e10
67. Poland ML, Dombrowski MP, Ager JW, Sokol RJ. Punishing pregnant drug users: enhancing the flight from care. *Drug Alcohol Depend*. 1993;31(3):199–203
68. Maupin R Jr, Lyman R, Fatsis J, et al. Characteristics of women who deliver with no prenatal care. *J Matern Fetal Neonatal Med*. 2004;16(1):45–50
69. The Child Abuse Prevention and Treatment Act. 2010, as amended by Pub L No. 111-320, the CAPTA Reauthorization Act of 2010. Available at: <https://www.acf.hhs.gov/sites/default/files/cb/capta2010.pdf>. Accessed August 23, 2016
70. Stoltzfus E. Child welfare: an overview of federal programs and their current funding. Washington, DC: Congressional Research Service; 2015. Available at: <https://www.fas.org/sgp/crs/misc/R43458.pdf>. Accessed August 23, 2016
71. França UL, Mustafa S, McManus ML. The growing burden of neonatal opiate exposure on children and family services in Massachusetts. *Child Maltreat*. 2016;21(1):80–84