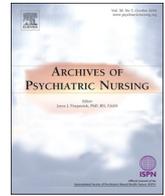




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## Policy perceptions of US state public health and child and family services regarding maternal opioid use and neonatal exposure<sup>☆</sup>



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## ABSTRACT

**Objective:** To explore how state legislatures and departments of health are responding to the public health and economic issues of increases in opioid use disorder and the impact on pregnant women and infants.

**Design:** The design was a non-experimental descriptive study using a mixed methods survey research approach.

**Setting:** Electronic and telephone survey of individuals from state departments of health associated with departments of behavioral health and substance use, or child and family services.

**Participants:** Fifty-two respondents employed by individual state departments of health and child and family services.

**Methods:** Univariate analysis and frequency distribution of ordinal variables was completed. Thematic analysis was used to analyze free text questions and identify themes.

**Results:** All states reported recent changes or plans to address the problem of opioid misuse in their state. Many respondents feel their state continues to lack adequate services for treatment. Some states are exploring unique methods for addressing this in a safe and timely fashion, such as moving medication-assisted treatment to primary care and expanding licensure to Primary Care Physicians (PCPs) and nurse practitioners.

**Conclusions:** Our findings demonstrate an increased commitment throughout the United States to enhance access to clinically appropriate treatment of substance use disorder particularly during pregnancy, consider unique methods for addressing the problem of opioid dependency, and increase education and primary prevention programs.

## Introduction

Increasing mortality and morbidity associated with opioid misuse and abuse is a significant public health problem in the United States (US) and around the world. These concerns have been most urgently addressed in the United States, but opioid analgesic misuse and abuse in other countries was also highlighted by a Global Drug Survey in 2015 which included participants from the US, United Kingdom, France, Germany, and Australia (Morley, Ferris, Winstock, & Lynskey, 2017). Opioid misuse among women of child-bearing age and pregnant women presents unique and complex health concerns for the women and their children. Opioid misuse in this population has reached epidemic proportions in the US and has influenced maternal child health policy at the federal, state, and local levels. The number of women taking opioids

during pregnancy increased five-fold between 2000 and 2009 (1.2 per 1000 live births to 5.6 per 1000) (Patrick, Davis, Lehmann, & Cooper, 2015). Much of this increase was related to prescription opioid use and abuse. Between 1992 and 2012, the proportion of pregnant women admitted for treatment for substance use disorder that reported a history of prescription opioid misuse increased from 2% to 28% (Krans & Patrick, 2016). The rapid increase in the incidence of this problem, as well as the accompanying economic and societal costs, has attracted attention and research focus by many health care professionals and policymakers. It is essential that health care policy be informed by research and evidence-based guidelines which support optimal outcomes for both pregnant women and their infants.

The purpose of this study was to examine current U.S. state policies and services related to treating opioid use during pregnancy and

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neonatal opioid withdrawal syndrome (NOWS), specifically, how these policies have evolved recently related to the increased population of women of childbearing age with opioid use disorder and how well current policies align with the federal and state objectives for women and infants outlined in the *Protecting Our Infants Act of 2015* and in the National Governor's Association (NGA) statement on *Priorities for Addressing the Nation's Opioid Crisis* (National Governors' Association (NGA), 2015).

Through the *Protecting Our Infants Act of 2015* (S.799/H.R.1462) (Congress, 2016), the federal government has described objectives for establishing and disseminating best practice strategies and recommendations for the diagnosis and treatment of infants who develop neonatal opioid withdrawal syndrome (NOWS) (White House, 2016). State priorities have been described by the National Governors Association (NGA) concerning prevention and treatment of OUD (Desai, Hernandez-Diaz, Bateman, & Huybrechts, 2014). Private and public healthcare payers are also developing strategies to mitigate their costs and limit patient exposure to potentially addictive opioid medications (Katz et al., 2013).

The recent NGA statement addresses opioid use and misuse as a public health crisis and describes states' priorities. Priorities can include preventing and identifying addiction, developing best practice guidelines for addiction treatment services, increasing access to treatment programs, and eliminating regulations on Medicaid funding which restrict reimbursement for inpatient treatment for substance abuse and mental illness (National Governors' Association (NGA), 2015).

Previous surveys have been conducted on this topic to assess state policies and practices concerning OUD in pregnancy. A survey of policies regarding substance use in pregnancy was conducted to assess the impact of decreased federal oversight and the transfer of budget and regulatory control to the states which both occurred in 1994 (Chavkin, Breitbart, Elman, & Wise, 1998). Their survey of state directors of addiction treatment services and child protective services showed an increase between 1992 and 1995 in mandatory drug testing of pregnant women and neonates (2% to 12%; 0.05% to 7%), increased mandatory reporting of positive maternal toxicology screens (2% to 17%), and an increase in criminal prosecution of women who used drugs (45% to 71%). There was also a trend toward mandating or prioritizing addiction treatment services for pregnant women (24% of states). They found a general delay between the development of policy and the establishment of related services. There were gaps identified in policy, such as policy that mandated treatment didn't address the lack of available treatment providers and whether they were eligible for reimbursement (Chavkin et al., 1998). This was the most comprehensive survey on the issues but was completed 20 years ago.

The most recent survey of this type had a specific focus of examining state policies concerning mandatory reporting of substance use during pregnancy and it found twenty states had laws requiring health care providers to report perinatal substance use to child protective authorities, and four states required reporting only when a health care provider thought child maltreatment was involved. Only about 50% of states with a mandatory reporting law had a provision facilitating treatment for substance use disorder in the perinatal period (Jarlenski et al., 2017).

In 2004, a review was published summarizing policy research findings related to substance use during pregnancy (Lester, Andreozzi, & Appiah, 2004). Policy is usually shaped by elected officials within the context of social norms and public perception. There are two competing discussions involving attitudes about maternal substance use which have shaped public perception and consequently informed policy. One discussion centered on the assertion that science defines substance use disorders as a mental health or medical illness. This leads to policies which emphasize treatment and prevention strategies. The competing approach centered on the premise that public safety is punitive and views pregnant women who misuse drugs as criminals who are placing their infants at risk. Proponents of both these approaches agree that a

significant problem exists and should be addressed but disagree on many other points such as the appropriate clinical approach and availability of treatment, women's autonomy, the legal status of the fetus, the formation of public health policy, and the usefulness of punitive measures. (Lester et al., 2004).

This study will describe the impact of published federal and state objectives and professional organizations' guidelines on current state programs and policies for pregnant women with OUD and infants with NOWS as perceived by personnel in addiction treatments services, departments of health, and child and family services from individual US states.

#### Research Aims

- Assess U.S. state legislatures current response to the public health and economic issue of increases in opioid use disorder (OUD) and its impact on pregnant women and infants as reported by survey respondents.
- Assess the impact of federal and state policy objectives (*Protecting Our Infants Act of 2015* and NGA priorities statement) and professional guidelines concerning OUD in pregnancy on public health and legislative initiatives as reported by survey respondents.

## Methods

### Sample

Participants were a convenience sample of 145 representatives from multiple U.S. state departments of child welfare, child and family services, and divisions of mental health and addiction. The sampling frame and contact information was obtained from departmental contact listing from the Child Welfare Information Gateway, Substance Abuse and Mental Health Services Administration's (SAMHSA) state profiles on substance abuse services, and individual [states.gov](http://states.gov) websites and later by a respondent's referral to the National Association of State Alcohol and Drug Abuse Directors. Participants were invited to participate by email contact with link to the electronic survey. They were initially contacted by email and were assured of confidentiality and given an opportunity to decline to participate in the study. The study was approved by the Institutional Review Board of the affiliated university. Identifiable data were stored securely in REDCap through a secured university account and password protected. Only coded or de-identified data were stored on portable devices.

### Design and materials

The design was a non-experimental descriptive study using an electronic survey with telephone follow-up for non-respondents. Study data were collected and managed using REDCap electronic data capture tools hosted at a large midwestern university (Harris et al., 2009). A 19-question survey instrument with a total of 54 discrete answers and two items with free text was developed (Appendix A). A pilot study to assess clarity and accessibility was conducted with five volunteer respondents who work in similar positions as the designated participants, within state child protective services or as health care social workers. The survey was revised to address any technical issues or ambiguity noted by the pilot volunteers.

### Procedure

The survey link and a brief email introduction describing the goals of the survey and allowing participants to decline to participate by responding to the email (Appendix A) was sent to the selected agency representatives. The survey link remained open for two months, during which time reminders and telephone contacts were also being sent. No response to the email implied consent as stated in the letter. If no response was received within six weeks of the email with two reminder

emails sent at two-week intervals, a telephone contact was attempted to offer the individual the opportunity to complete the survey via telephone conversation; in this way individuals with technical or user problems could still participate reducing potential nonresponse error. Early returns of the survey were scrutinized for any patterns of missed responses, skipped questions, or technical difficulties. Corrections of these problems were addressed in follow-up reminder surveys to avoid an unnecessary number of non-respondents or increased measurement error due to technical issues.

The initial survey was sent with a unique individual identifier and could not be forwarded to closely control and identify respondents. This proved too cumbersome for respondents, as it required contacting the study team by email or telephone to refer the survey to co-workers who they felt could provide more complete information. In subsequent electronic mailings, a public link was included and allowed recipients to forward the survey.

Responses to surveys completed online were downloaded into an electronic database spreadsheet (Excel) per REDCap®. Responses to surveys conducted by telephone were manually entered into the database. Out of a total of 145 survey invitations sent electronically, 52 (36%) responses were received either online (33) or by telephone (19). The 52 respondents represented 42 different states (84% of US states). Eight states had two respondents and one state had three respondents. Two question responses from one state were dropped due to conflicts in answers from multiple participants from the state. The states participating are listed in Table 1.

#### Data analysis

The data were first reviewed to find and delete incomplete and duplicate responses. The two open-ended questions were analyzed with a qualitative descriptive approach. The researcher conducted a thematic analysis (Sandelowski, 2010; Vaismoradi, Turunen, & Bondas, 2013) of the two items requiring free text. Coding and thematic analysis were conducted using the thematic analysis process described by Vaismoradi et al. (2013). The data analysis consisted of organizing data, including generating initial codes, searching for themes, and reviewing and naming themes (Table 3). Descriptive statistics and relative frequency statistics were calculated on the ordinal data using REDCap® and the SPSS statistical package (IBM, 2015).

## Results

#### Respondents' information and demographics

Responses received were evenly split between agencies. Of the 52 respondents, 31% came from children and family services staff and 46% from behavioral health/substance use/addiction services staff. Twenty-three percent were from other divisions which included public education and communication. Professional credentials were not captured for

**Table 1**  
Participating states.

Northeast	South	Midwest	West
Connecticut	Alabama	Illinois	Alaska
Maine	Arkansas	Indiana	California
Maryland	Florida	Iowa	Colorado
Massachusetts	Georgia	Kansas	Hawaii
New Hampshire	Louisiana	Minnesota	Idaho
Pennsylvania	Mississippi	Missouri	Montana
Vermont	North Carolina	Nebraska	Nevada
	South Carolina	North Dakota	New Mexico
	Tennessee	Ohio	Oregon
	Texas	South Dakota	Utah
	Virginia	Wisconsin	Washington
	West Virginia		Wyoming

**Table 2**  
Respondents demographic information.

Respondents N = 52	N	%
Agency/division		
Child and family services	16	31
Substance abuse/addiction	24	46
Other	12	23
Professional credentials		
Social worker	7	13.5
Nurse	7	13.5
Physician	3	6
Psychologist	1	2
Communication/education	19	37
Other	15	29
Years of experience		
< 1 year	1	2
1–2 years	8	27
3–4 years	12	23
5 or more years	25	48

29% of respondents (online respondents without possibility of follow up). Of those respondents who indicated their professional credentials, social workers and nurses both comprised 13.5% of respondents, 6% were physicians, and psychologists were 2%. Many respondents in the telephone interviews indicated a professional role in public communication or community education (37%). Nearly half of respondents reported 5 or more years of experience in their position (48%), nearly one-quarter had 3–4 years of experience (23%), and slightly more than one quarter had 2 or fewer years' experience (29%). A summary of respondents' information can be found in Table 2.

*Research aim one: assess U.S. state legislatures' response to increases in opioid use disorder*

#### Screening and services

Respondents from all participating states indicated they were responding in some way to the public health and economic impact of increases in OUD. These actions included a combination of public health initiatives, surveillance, and clinical treatment. Thirty-one percent of states (13) represented indicated screening of either mothers or infants, or both was required in their state. Nine states indicated mandatory screening for both mother and infant, two for mothers only, and two for infants only. Forty-three percent of the states (18) responding indicated their state required mandatory reporting of a positive screen in pregnant women to child protective services. Sixty-four percent (31) indicated their state required mandatory reporting of positive screens in newborn infants to child protective services and one state (2%) required reporting to the state department of health. No states required reporting to law enforcement. A positive maternal or infant toxicology screen was categorized as child abuse or neglect in 38% (16) of the states. Twenty-three percent of the states (10) indicated their state has criminally prosecuted women for using illicit drugs during pregnancy at some time, 76% (32) indicated their state never utilizes criminal prosecution for abuse, neglect or other charges.

No state responded that enrollment in treatment services was always mandatory for women with positive toxicology screens during pregnancy. Treatment enrollment was required most of the time in 10% of states responding (4 of 41) and some of the time in 32% (13). Of those states responding, 58% (24) replied that treatment was never mandatory. Only 5% (2 of 40) states felt availability of treatment services was always adequate in their state, 25% (10) responded there were adequate treatment services available most of the time, 52% (21) felt service availability was sometimes adequate, and 18% (7) reported that services were never adequate.

Medicaid coverage for the expense of opioid dependence treatment was reported as always available by 23 of 41 states (one states did not report) for 56% of states, 24% (10) reported it was available most of the

time, and 20% (8) reported it was available some of the time. Some additional services for pregnant women with opioid dependence were offered in 98% (41 of 42 reporting) of states. Only one state reported their state never offered additional services or prioritized pregnant women for opioid dependence programs. Forty-five percent (19) reported additional services were available some of the time, 17% (7) most of the time, and 36% (15) said they were always available. Additional strategies to facilitate participation which were reported included prioritizing pregnant women with SUD for available treatment, waiving fees and co-pays, providing social support services including transportation and childcare, and coordinating services which combined prenatal care, behavioral health, and treatment for opioid dependence.

Routine developmental follow up for infants exposed to opioids during pregnancy was provided by 36% (15) of the 42 states some of the time and 43% (18) most of the time. Fourteen percent of states (6) said they always provide routine developmental follow up while 7% (3) reported that they never provide developmental services. Thirty-one of 42 states (74%) had recently either passed legislation or increased funding related to opioid dependence. Most states, 27 of 42 or 64%, reported plans to increase funding or programs related to opioid use. The results of the multiple-choice responses are also summarized in Table 3.

*Research aim two: assessing the impact of federal and state policy objectives and professional guidelines on states' response*

Eighty percent of states (34) who participated in the survey had recently passed laws to increase funding, or added programs and services related to opioid use. Plans to increase funding or programs were also common among the states participating with 64% ( $n = 27$ ) answering yes, 12% ( $n = 5$ ) responding no, and 24% ( $n = 10$ ) unsure of plans. Respondents from 32 of the 42 (76%) states participating described recent increases in funding or programs and plans for increasing funding or additional programs in the free text portion of the survey.

In the qualitative portion of the analysis, seven themes were

identified in the narrative responses: *Increased availability of medication assisted treatment (28 of 32), Education and regulation of safe prescribing practices (5), Increased availability of naloxone (7), Increasing services in rural areas (13), Increased availability of services for pregnant women & families (9), Increased funding & reimbursement for treatment services both outpatient and residential (17), and Plans for education and prevention programs (12)*. A summary of the themes identified in the narrative responses with participant quotations can be found in Table 4.

The exact impact of federal and state policies (i.e. *Protecting Our Infants Act of 2015* and NGA priorities statement) and guidelines developed by professional organizations (ACOG, AAP) designed to influence the incidence and severity of maternal opioid use and NOWS on public health and legislative initiatives at the state level is difficult to assess from the responses to the survey. There are many instances in the states participating in the survey where recent state policy changes and plans align with recommendations from these documents. Points identifiable include developing guidance of best practice to treat NOWS, adoption of the effective evidence-based guidelines for care of pregnant women with opioid use disorder and decreasing the likelihood of illicit prenatal opioid exposure by improving screening for OUD and increasing access to treatment interventions that prevent misuse of opioids by women of childbearing age (SAMHSA, 2017). It is difficult to determine from the respondents' comments if objectives such as treating both the mother and the infant and providing accessible family friendly services for pregnant and parenting women with OUD and their infants are included in current services or plans.

Comments on recent changes included descriptions of programs aimed at the states' general population, as well as some programs which specifically targeted pregnant women and infants. One participant stated, "funding was not directly impacting pregnant women but does not exclude them either." Focus areas for treatment for the general population included additional funding for medication assisted treatment services, expanded Medicaid coverage for treatment services, and liberalizing licensure practices for OUD treatment programs. Other recent changes included establishing care coordination positions within the state and counties, expanded services to rural areas through primary

**Table 3**  
Summary of multiple-choice question responses by state.

Question	All the time	Most of the time	Some of the time	Never
Does your state criminally prosecute mothers for illicit drug use during pregnancy?	0%	0%	23% ( $n = 10$ ) <sup>a</sup>	77% ( $n = 32$ )
Is the availability of addiction treatment services adequate in your state?	5% ( $n = 2$ )	25% ( $n = 10$ )	52% ( $n = 22$ )	18% ( $n = 8$ )
In your state, is participation in treatment mandatory in cases of positive toxicology screen during pregnancy?	0%	10% ( $n = 4$ )	32% ( $n = 13$ )	58% ( $n = 24$ )
Does your state provide Medicaid coverage for opioid use disorder (OUD) treatment?	55% ( $n = 23$ )	24% ( $n = 10$ )	21% ( $n = 9$ )	0%
Does your state offer additional services which facilitate OUD treatment during pregnancy?	36% ( $n = 15$ )	17% ( $n = 7$ )	45% ( $n = 19$ )	2% ( $n = 1$ )
Does your state provide developmental follow up services for infants exposed to opioid during pregnancy?	14% ( $n = 6$ )	43% ( $n = 18$ )	36% ( $n = 16$ )	7% ( $n = 3$ )
Does your state require universal toxicology screening?	<b>Yes</b>	<b>No</b>		
For Mothers	30% ( $n = 13$ )	70% ( $n = 29$ )		
For Infants	30% ( $n = 13$ )	70% ( $n = 29$ )		
Does your state require mandatory reporting of positive infant toxicology screens?				
Child Protective Services	64% ( $n = 27$ )	36% ( $n = 15$ )		
Department of Health	2% ( $n = 1$ )	98% ( $n = 41$ )		
Is a positive maternal toxicology screen considered abuse or neglect?	38% ( $n = 16$ )	62% ( $n = 26$ )		
Has your state recently passed legislation or increased funding of programs for OUD?	74% ( $n = 31$ )	26% ( $n = 11$ )		
Does your state have plans to increase funding for programs for OUD treatment in the future?	64% ( $n = 27$ )	12% ( $n = 5$ )	Unsure 24% ( $n = 10$ )	

<sup>a</sup>  $n$  = number of states (52 total respondents representing 42 states).

**Table 4**  
Qualitative analysis: current and future plans for treatment of opioid use disorder.

Themes	Representative quotes
Increased availability of medication assisted treatment	<i>Allows all medication approved by FDA to be used in licensed narcotic treatment programs</i> <i>More liberal licensing for suboxone providers (PCP)</i>
Education and regulation of safe prescribing practices	<i>Expansion of the number of OTPs and OBOTs with tripling of number of people in treatment</i> <i>Recent laws passed affect prescription of opioids</i> <i>Clinical practice measures for safer opioid prescribing</i> <i>Prescription monitoring and electronic tracking of opioid prescribing patterns</i>
Increased availability of naloxone	<i>Naloxone standing orders</i> <i>Increased Narcan availability to the public</i>
Increasing services in rural areas	<i>Pilot of expansion of MAT services in rural areas using advanced practice nurses</i> <i>Through grant funding office-based narcotic treatment programs will be available in rural (state)</i> <i>...looking at recruiting MAT providers in rural areas</i>
Increased availability of services for pregnant women & families	<i>Increasing targeted outreach services to engage women earlier in care</i> <i>Increasing the availability of intervention and treatment services for pregnant women</i> <i>Development of NAS peer recovery support specialists</i> <i>Addition of Family Task Force</i> <i>Pilot treatment programs for mothers with children</i> <i>Developed clinical guidelines to assist providers in care of pregnant women and infants</i> <i>Private grant funded program offering addit assistance to pregnant women such as transportation, child care, and durable good</i>
Increased funding & reimbursement for treatment services outpatient and residential	<i>Obtained additional federal funds for medication assisted treatment</i> <i>Additional funding related to opioid treatment</i> <i>Increase in funding for all SUD services</i> <i>Funding for and certification of recovery housing</i> <i>Approval of Medicaid waiver to pay for residential services</i> <i>Include coverage for adult residential and partial hospitalization programs</i>
Plans for education and prevention programs	<i>Increase education and prevention efforts</i> <i>Implement programs for the prevention ... of opioid misuse</i> <i>Enhance prevention education focusing on parents and adolescents</i> <i>Statewide public awareness campaign</i>

care engagement in treatment, additional oversight and tracking of prescribing practices, and increased availability of naloxone for overdose treatment. Increasing education and prevention efforts was also described in response to recent changes in programs or funding, including education to providers on appropriate opioid prescribing and public education on safe use of opioids and early identification of opioid misuse.

Specifically, for women and children, recent enhancement of programs included increasing targeted outreach programs to engage women earlier in care, expansion of high-risk pregnancy services to include opioid dependence, and increasing availability of opioid use disorder treatment and behavioral health services within prenatal care. Some states also reported establishing care coordination services for pregnant women to include treatment for opioid dependence and behavioral health services, and implementing specialized programs targeted for pregnant women and families designed to reduce the severity of neonatal opioid withdrawal syndrome, such as additional education and clinical care guidelines for obstetric and pediatric care providers, embedding opioid use disorder treatment within primary and obstetric services, and prenatal education for mothers on opioid effects on infants and expected care after delivery.

Comments related to plans included comments to continue to enhance, expand, and integrate recovery support and services. Some participants who offered specific comments mentioned increased access to naloxone, increased funding for medication assisted treatment, expanding to primary care-based programs with family physicians and advanced practice nurses in rural areas, expanding residential services, and enhancing community-based recovery support. Two respondents mentioned their future planning is dependent on the future of the patient protection and affordable care act (ACA) which will determine available funding for OUD both at the federal and state level. Other common areas mentioned in plans to increase funding or programs in the future were initiatives for primary prevention, early intervention, and public health education (Table 4).

## Discussion

These findings capture a particular moment when there is heightened attention by the public and by policymakers on the public health issue of opioid misuse (Blendon & Benson, 2018; Blendon, McMurtry, Benson, & Sayde, 2016). The survey reflects US states are universally recognizing the need for additional services and funding in the area of opioid use and dependence. All respondents indicate either recent changes, or plans to make changes in funding, education, surveillance, and availability of services. Opinion and policy in this area are rapidly evolving making it difficult to precisely track the changes. One respondent simply replied to the question about recent changes, “unable to name all our recent changes.”

Many of the states surveyed reported recent changes which were directed at early identification and facilitating entry into treatment however states also reported their state lacks adequate services for referral to treatment once substance abuse has been identified. Many states indicate they are examining unique methods for addressing this in a safe and timely fashion, such as moving medication-assisted treatment to primary care and expanding licensure to PCPs and nurse practitioners. Several states reported public education about safe opioid use and primary prevention as priorities in their plans to increase programs or funding.

Medical evidence support substance use disorder is a chronic and treatable disease, but public opinion continues to be mixed with conflicts apparent in some policies which reflect the continued view of substance use as a moral issue (Angelotta, Weiss, Angelotta, & Friedman, 2016; McGinty et al., 2015). Evidence of these attitudes is apparent in our survey results with 10 states (24%) indicating prosecution of maternal substance abuse is sometimes pursued. These punitive responses continue in some areas even though they have been shown to be costly and ineffective (Kovac, 2013; Paltrow & Flavin, 2013). This attitude may be driven by policymakers' constituents who sometimes continue to see substance abuse as a criminal and moral issue, rather than as a chronic disease (Blendon & Benson, 2018; Stone, 2015). Results of a study analyzing media coverage of opioid misuse

indicated the issue is most often presented as a criminal justice issue mentioning illegal drug trafficking and law enforcement solutions (McGinty et al., 2015) which may contribute to the continued discussion of punitive responses. However, it is encouraging that the program responses described by the states included in this survey indicate policy and program changes in recent years and their future plans emphasize a public health approach, addressing issues with safety such increased naloxone availability, screening to identify those in need of treatment and a focus on increasing (Blendon et al., 2016) availability and funding of effective treatment. There were no comments related to increasing criminal justice approach and the only mention of law enforcement was in the theme of education.

Previous research in this area indicated, state policy around perinatal substance misuse was shaped through two objectives; the state has a concern for the welfare of its citizens, and then the overall cost to the state (medical care, child protective services, public assistance and foster care are some of the state budget areas impacted by OUD in pregnancy) (Bishop et al., 2017). State approaches included prosecutorial strategies with a variety of potential charges for pregnant women who use substances (child abuse, delivery of controlled substances to a minor, manslaughter) (Flavin & Paltrow, 2010). At the time of a prior review, three states mandated universal screening of pregnant women for substance use, fifteen (30%) mandated reporting prenatal substance misuse as child abuse and > 25% of states (13) had passed laws that defined maternal substance use as child abuse (Lester et al., 2004). Fifteen states provided treatment programs for substance use disorder or coordination of services of prenatal care and substance use disorder, and four states gave priority access for addiction treatment services to pregnant women (Lester et al., 2004).

Plans for programs and funding also need to continue to address outdated and stigmatizing beliefs as they inhibit both individuals with SUD and the public from effectively responding to the epidemic. Studies of attitudes of health care professionals demonstrated that stigmatizing beliefs contributed to suboptimal care for SUD patients. Exposure to these attitudes negatively impacted both the patients' feelings of empowerment and their treatment success (Van Boekel, Brouwes, Van Weeghel & Garretsen, 2013). For individuals with SUD, marginalization resulting from continued social stigma associated with substance use inhibits their help-seeking behavior and limits access to and use of harm reduction and treatment and recovery resources. Marginalization and stigma have been shown to increase the harm for any given level of substance use and increase the likelihood of adverse outcomes (Room, 2005). For public health policy, outdated and stigmatizing beliefs will continue to interfere with the development and funding of innovative and effective substance use prevention and treatment programs. Implementation of evidence-based public health-oriented approaches are essential for progress toward the state and federal goals of reducing OUD and its consequences.

### Limitations

There are several limitations to this study, the first of which is the representativeness of the sample. Self-directed sampling was utilized, soliciting representatives assigned as state contacts on the online SAMHSA and the Child Welfare Gateway directories who the researchers felt might increase the likelihood they were interested and informed on substance misuse, perinatal substance use, and NODS. Choosing potential participants from a public list presents several problems: the contact list may not be accurate and up to date, and the recipient may not be familiar with the topic areas. The demographic information was limited because the survey did not allow a free text answer for the question concerning professional credentials. Many of our respondents recorded "other". The telephone respondents in the "other" category indicated their roles were in, case management or communication/public relations, but the online survey was not constructed to obtain complete information in this area.

The decision to provide a public link and permit forwarding increased the number of respondents. The public link was forwarded a total of 39 times and resulted in thirteen additional electronic surveys returned, unlike the invited participants, in this group identifying and demographic information were completed entirely by self-report and accuracy cannot be verified. The state field was completed in all the surveys completed by public link, but email address and name, which was available for the invited surveys, was not collected. Response bias is always a concern for survey research and there may be respondents who viewed their state response to OUD in either an overly positive or negative way. Respondents also may not feel comfortable providing answers that present themselves, or their state, in an unfavorable manner.

The survey was sent to two or three representatives from each state to increase the likelihood of obtaining information from a high percentage of states. More than one response was received from some states and in some instances different answers were recorded from the same state. In two instances, one respondent had left a question blank and another had answered. In these cases, the answers were used in the analysis. Three respondents from the same state had conflicting answers on multiple-choice questions and their responses to those question were dropped from the analysis. The ability to reach respondents is one challenge of surveys. Technical difficulties which may limit access to the online survey is a potential threat. There was a significant technical issue with one electronic follow up mailing preventing the personal link from working correctly, and some participants could not access the survey. The researcher was notified, and the issue corrected, but this technical issue may have discouraged and frustrated some potential respondents.

Some of the survey response options may have been unclear, leading to variations in interpretation and responses. For example, the response option "some of the time" may represent different amounts to different respondents. There were also respondents who requested a response of "not applicable", although we had purposely not included this as an option as we felt it was not an appropriate answer. However, another available option such as "unsure", or "I do not know" may have been an accurate alternative option.

The survey represents a very limited snapshot of the OUD epidemic. OUD is a public health emergency which is currently receiving tremendous attention by public health officials, policymakers, and the public. Policies and practices are very fluid and are evolving regularly. There may have been significant changes in policies and services, even during the relatively brief time it took to collect and analyze this data. There is also a predictable lag between development of policy and the offering of program services, so responses concerning plans or policy may not reflect actual availability of services.

### Conclusions

Numerous initiatives have been undertaken at the federal and state level to address opioid use and dependency (Krans & Patrick, 2016; Madras, 2017). Overwhelmingly, states have recently initiated programs and the majority continue to plan for additional programs. The responses indicate most states have enacted changes such as expanding services, increasing reimbursement, prioritizing evidence-based care with development of clinical guidelines, and increasing availability of treatment for the general population with OUD. The responses did not indicate recent changes or future plans which specifically addressed gender-related issues for women with OUD, such as responsibility for children, increased need for social support and services and greater incidence of comorbidities such as behavioral health issues (Greenfield et al., 2007). However, most states who participated in the survey indicated they have prioritized or expanded services for pregnant women and infants or have plans to do so in the future. There are important state level disparities in screening, reporting, availability of treatment, Medicaid coverage for treatment, and available developmental follow

up for infants. Although decreased in numbers from past surveys cited in the literature review there are still some states continuing to pursue outdated and stigmatizing policies of criminal prosecution which is an important area to address in future planning through education of the public and reframing of media coverage of the opioid misuse issue. Global research indicates misuse and abuse of opioids is a problem that

is not limited to the United States and may warrant attention and cooperation on an international scale (Morley et al., 2017). Approaches to the prevention and treatment of maternal OUD and Nows will develop rapidly in the current climate and remaining up-to-date will continue to be a challenge.

Appendix A

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## Survey of State Policy and Practices Concerning Maternal Opioid Use

Instructions:

Representatives from the State Department of Health in the areas of Children’s and Family Services/ Child Protective Services and in Behavioral Health/Substance Abuse/ Addiction Services please select the best answers for your state. Thank you!

- 1) Name \_\_\_\_\_
- 2) Profession
  - RN
  - MD
  - MSW
  - Psychologist
  - Caseworker
  - other
- 3) Time in current role
  - < 1 year
  - 1-2 years
  - 3-4 years
  - 5 years or more
- 4) State \_\_\_\_\_
- 5) Agency
  - Department of Health and Family Services or Child Protective Services
  - Substance Abuse/ Addiction Services
  - Other
- 6) Does your state require universal toxicology screening of pregnant women and/ or infants?
  - Yes-Mothers
  - Yes-Infants
  - No-Mothers
  - No-Infants
- 7) In your state is a maternal positive toxicology defined as abuse/ neglect?
  - Yes
  - No
- 8) Does your state require mandatory reporting of positive toxicology screen in pregnant users to?
  - child protective services
  - department of health
  - criminal justice system
- 9) Does your state have mandatory reporting of positive toxicology screen in newborns to?
  - child protective services
  - department of health
  - criminal justice system
- 10) Does your state criminally prosecute women using illicit drugs during pregnancy for child abuse, neglect or other charge?
  - Never
  - Some of the time
  - Most of the time
  - Always
- 11) is the availability of addiction treatment services adequate in your state?
  - Never
  - Some of the time
  - Most of the time
  - Always
- 12) In your state is participation in treatment mandatory in cases of positive toxicology screen during pregnancy?
  - Never
  - Some of the time
  - Most of the time
  - Always

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- 13) Does your state provide Medicaid coverage for the expense of opioid dependence treatment?
- Never  
 Some of the time  
 Most of the time  
 Always
- 14) Does your state offer additional state sponsored services which facilitate opioid dependence treatment for pregnant women are available?
- Never  
 Some of the time  
 Most of the time  
 Always
- 15) Does your state provide developmental follow up services for infants exposed to opioids during pregnancy?
- Never  
 Some of the time  
 Most of the time  
 Always
- 16) Has your state recently passed laws to increase funding or programs for opioid dependence?
- Yes  
 No
- 17) Please describe recent changes:
- \_\_\_\_\_
- 18) Does your state have plans to increase funding or program for opioid dependence treatment in the future?
- yes  
 no  
 unsure
- 19) Please describe future plans:
- \_\_\_\_\_

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