NORTH CAROLINA’S RESPONSE TO OPIOID EXPOSED PREGNANCIES

By

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**Purpose**

The purpose of this paper is to provide a review of how North Carolina has responded to opioid exposed pregnancies. Opioid use is now referred to as a national epidemic (Hayes & Brown, 2012). Although North Carolina has not been immune to this public health epidemic, the Tar Heel state in many ways has been better positioned than other states to address the sharp rise of pregnant women dependent on opioids. This is due to North Carolina’s long history of leadership of substance use services and programs for women. The strength of these services is credited to years of consistent, focused, collaborative leadership from agencies across the state working together to best meet the needs of women and their children. Although, there are still tremendous needs to be addressed, this foundation of leadership has guided the state’s response to addressing the complex issues that encompass opioid exposed pregnancies.

**Methods**

The information presented in this report draws from a review of reported trends regarding opioid use and incidence of neonatal abstinence syndrome (NAS) in North Carolina and across the country. Further, evidence-based best practices of care for opioid exposed pregnancies are included. Information was gathered and analyzed from three sources: a review of recommended initiatives for addressing the issue, a review of existing literature and summaries of state policies and actions to address the issue, and a qualitative study based on interviews with key informants in North Carolina.

**Background**

North Carolina has experienced a sharp rise in opioid use (Modarai, 2013). Women of childbearing age have increased use of both prescription opioids and heroin. When this population of women becomes pregnant, one result is an increase in newborns being diagnosed with neonatal abstinence syndrome (NAS) as a consequence of their opioid exposure in utero and subsequent withdrawal symptoms (Association of State and Territorial Health [ASTHO], 2014). Nationally, there has been a significant increase in the prevalence of NAS, from 1.20 per 1,000 U.S. hospital births in 2000 to 3.39 per 1,000 U.S. hospital births in 2009. (Patrick et al., 2012). It is estimated that opioid exposed pregnancies in North Carolina has resulted in the 511% increase of NAS recently reported (North Carolina Center for Health Statistics, 2014). This rise in both opioid use and NAS has resulted in increased public health, medical, and political
attention to the issue (ASTHO, 2014).

There are multiple intervention opportunities across service systems and professionals engaging with this population, beginning before pregnancy and continuing throughout a child’s developmental milestones. The National Center on Substance Abuse and Child Welfare created a five-point framework that addresses prevention and intervention opportunities across all stages of development for children affected by substance use (Young et al., 2009). This framework organizes the engagement opportunities that states can utilize to address substance use among women of childbearing age and their children (Young et al., 2009). The five-points include: Preconception, pregnancy, birth, postpartum or neonatal, and childhood and beyond. States vary regarding how they have approached the issue of substance use pertaining to women, pregnancy, and children at the varying intervention points. The following report will explore how North Carolina has approached the issue of substance use and specifically opioid use among women of childbearing age and their children.

Concluding the review of intervention efforts based upon the five-point framework, an exploratory qualitative study aimed at identifying the current challenges regarding opioids and pregnancy in North Carolina and how the state should move forward to best address this public health concern is reviewed. The study includes key-informant interviews with six leaders in the field of opioid exposed pregnancies from across the state to gather information. What emerged from the data is a need for a comprehensive change in practice among the wide range of professionals and agencies that serve women of child-bearing age that may experience an opioid exposed pregnancy. This change in practice would include increased knowledge, but also enhanced skills that are required to treat this population. The data revealed that women often experience gaps in care that lead to substandard or even harmful care, and that increased substance use screening efforts and increased medication assisted treatment providers are needed to address the issue.

**North Carolina Pregnancy and Opioid Exposure Project**

The North Carolina Pregnancy and Opioid Exposure Project (NCPOEP) was established in 2015 as a response to the need for accurate information and service information on this escalating public health issue. NCPOEP serves as statewide source for information, resources and technical assistance regarding the subject of pregnancy and opioid exposure. The University
of North Carolina at Chapel Hill’s School of Social Work hosts NCPOEP. The project is funded by the federal Substance Abuse Prevention and Treatment Block Grant Fund as a project of the NC Division of Mental Health, Developmental Disabilities & Substance Abuse Services. NCPOEP is designed to inform a broader range of providers and settings that would interact with this population. The project is uniquely designed to provide information to three populations: (1) infant care providers working with families of an opioid-exposed newborn; (2) women of childbearing age and pregnant women who are taking opioids; (3) providers working with women of childbearing age or pregnant women who are taking opioids.

**Stakeholder Workgroup**

The project began out of a grassroots response to the concerns voiced by communities and individuals’ desire to work together and coordinate efforts to respond to this growing statewide problem. In the fall of 2012, a multidisciplinary workgroup of stakeholders from across the state came together to discuss opioid use in pregnancy. The workgroup was comprised of disciplines that included obstetrics, neonatology, pediatrics, substance use disorders treatment, social work, care management, and pharmacy. Workgroup members built consensus around key messages related to opioid use in pregnancy.

In October 2013, a member of the workgroup presented at the North Carolina Perinatal Health Committee, which is a subcommittee of the Child Fatality Task Force, a legislative study commission that examines the causes of child death and makes recommendations to the Governor and General Assembly on how to reduce child death, prevent abuse and neglect, and support the safe and healthy development of children. The presentation discussed the formation of the NC Pregnancy and Opioid Exposure Stakeholder Work Group and covered key topics regarding opioids and pregnancy in North Carolina. (North Carolina General Assembly, 2013; Godwin, 2013). The presentation included information about current intervention and prevention services available, evidence regarding the best approach for care, and facts about the harmful approach to remedy opioid exposed pregnancies through the threat of incarceration. Also shared was the needs around pregnancy and opioid exposure which included state-wide dissemination and adaption of fact-based information into practice, support of evidence based gender responsive substance use disorder treatment, and development of evidence based pain management protocols for pregnant women.
**Guidance Document and Website**

Out of the workgroup came the development of the document, *Pregnancy and Opioid Exposure: Guidance for North Carolina*. This comprehensive document is designed to be utilized by a wide variety of professionals who serve women and their families and need information on the topic of pregnancy and opioid exposure. This document outlines the use of best practices by professionals in North Carolina.

In addition to the development of the guidance document, NCPOEP has developed a user friendly website, ncpoep.org that was launched in March of 2015. The NCPOEP website provides access to information tailored for women seeking information about their pregnancy, specific guidance information for professionals working with women and their children, and a wealth of information regarding resources.

**Survey to Assess Professionals**

Women experiencing an opioid exposed pregnancy come in contact with many professionals who often have concerns and misinformation about the best practices in addressing the convergence of opioids and pregnancy (Center for Substance Abuse Treatment, 2009; National Collaborating Centre for Women’s and Children’s Health [NCCWCH], 2010). Lack of knowledge, proper skills, and poor attitudes among these professionals can negatively impact health outcomes for the woman and child (Association of State and Territorial Health Officials [ASTHO], 2014; American College of Obstetricians and Gynecologists [ACOG], 2012; Center for Substance Abuse Treatment, 2009). To determine the level of knowledge, skills and attitudes of professionals commonly working with this population in North Carolina a statewide survey was conducted by members of the workgroup. This survey sought to gather information regarding the readiness of the workforce to accurately address the unique needs of women who may experience an opioid exposed pregnancy and the needs of their infants.

Voluntary study participants were asked to complete a 30-item anonymous electronic survey focused on knowledge, skills and attitudes regarding pregnancy and opioids. An electronic link to the survey was emailed to professionals who commonly provide services to women of childbearing age who may be taking opioids. These include medical, behavioral health, justice and child welfare professionals. Respondents included 909 participants representing 93 out of 100 counties in North Carolina completed the survey.

The study found that participants were generally optimistic about women with substance
use disorders being able to make a change in their circumstances, with assistance from recovery support systems. The results from the skills questions suggest that the majority of participants are talking with women about essential aspects of their lives, including behavioral health symptoms, family planning and traumatic events. When this is contrasted with the knowledge level of the majority of the professionals in this study, it is unclear if professionals are providing accurate information. The knowledge of the professionals on the subject matter in this study, overall, was uneven. The results suggest that there is an opportunity for increasing provider knowledge on these topics. Given the significant implications to maternal and infant health, there is urgency to provide professionals education so they may provide accurate information to this population.

Conference

In March 2015, NCPOEP hosted the first statewide conference to address opioid exposed pregnancies. The conference titled, *It Takes a Community-Pregnancy and Opioid Exposure: Improving Outcomes for Women, Infants, and Families*, was held in Greensboro, NC. Individuals who work with women, infants, and families, who have experienced opioid exposure during pregnancy, were encouraged to attend the conference. Over 400 professionals from medical, behavioral health, child welfare, and justice divisions attended the conference. The various disciplines came together to learn and collaborate on how to maximize physical and emotional health outcomes. Existing knowledge and resources on the topic were shared. There was an emphasis on working in a manner that respects the individuals and families served. Included was a presentation by a nationally recognized expert in caring for women with opioid exposed pregnancies along with sixteen breakout sessions from a variety of expert perspectives.

Task Groups

The conference was designed to encourage and enhance collaboration across professional disciplines within geographic regions across North Carolina. From these meetings sixteen task groups were created to cover the various geographic groups across the state. These sixteens groups discussed activities currently going on in their regions to address the issue of opioid exposed pregnancies, recognized challenges within the regions in addressing the issue, identified organizations and groups that are not represented within the task group, and established the next steps for the group. The intent of forming the task groups was for each group to continue to meet and address issues specific to their regions regarding opioids and pregnancy after the conference.
In the year since the conference, many task groups have continued to meet and many are forming. It has been found that groups that have a champion to help facilitate continuous collaboration have been most successful. There is currently a formal follow-up being conducted to determine which groups have continued to meet, what new groups have formed, and what were the goals and outcomes of the task groups thus far. The goal of the follow-up is to two-fold, to identify groups that have made progress in addressing the issue of opioid exposed pregnancy through task groups and to provide any necessary technical support for regions where the task groups have not been as successful in meeting to address the needs of opioid exposed pregnancies in their region.

**State-wide Seminars on Opioid Use Disorders and Treatment**

In an effort to provide needed training and support to regions throughout the state, numerous one-day seminars focused on the challenge of opioid dependence with a focus on pregnant women, mothers, and their children were offered. Between 2012-2014, 470 health, behavioral health, child welfare, and criminal justice professionals participated in the one-day trainings. The seminars were offered to child welfare and foster care staff from departments of social services, family drug treatment court and family court teams, guardian ad litem staff, law enforcement and probation or parole officers, other health and domestic violence staff and volunteers, and substance abuse treatment staff. The trainings were provided through a Regional Partnership Grant from the US DHHS Administration for Children and Families, support from the North Carolina Division of MH/DD/SAS and the Governors Institute on Substance Abuse, Inc. The seminars focused on essential knowledge, skills, and attitudes to augment the effectiveness of those working with people with substance use disorders (SUD). Topics explored included medication-assisted treatment for SUD, pregnancy and drug use, alcohol and other drugs, medication management, HIV and hepatitis C, how infants are affected by in utero medication and drug exposure, how Neonatal Abstinence Syndrome is managed, and how to collaborate with treatment and medical providers.

**Intervention Points and Recommendations**

North Carolina’s opportunities to prevent the incidence of or to enhance the outcome of opioid exposed pregnancies can be measured along a continuum of care and services by applying this five-point framework. The framework asserts that there are five major intervention points to prevent prenatal substance exposure and ameliorate the impacts of substance-exposure in infancy
This framework will be applied to review services, policies, and programs that are in North Carolina to address this issue. In addition to the standard intervention opportunities regarding substance use, more specific recommendations regarding opioid use are provided. Further, particular examples of initiatives that North Carolina has implemented at each intervention point to address the issue will be highlighted.

**PRE-PREGNANCY** This timeframe offers the opportunity to promote awareness of the effects of prenatal substance use among women of childbearing age and their family members.

Intervention and prevention issues specific to opioids and pregnancy at the preconception point include family planning, information about opioid exposed pregnancies, screening, and measures to address opioid prescribing.

**Preconception Health and Family Planning Efforts**

North Carolina has a rich history of leadership in preconception health. North Carolina’s preconception strategic plan outlines six priorities, which include pregnancy intendedness and substance use. These priorities support initiatives that would prevent or ameliorate opioid exposed pregnancies (North Carolina Department of Health and Human Services [NCDHHS], 2008). North Carolina has made efforts to increase consumer and community awareness about preconception health (NCDHHS, 2008). While most people believe that women should be healthy while they are pregnant often there is little done to consider preparing for pregnancy. These efforts shift the current focus on health during pregnancy to focusing on wellness before pregnancy. Strategies across the state are being put in place to increase awareness of the importance of pregnancy intendedness and integrating preconception health messages that include substance use and family planning with more health and wellness providers. North Carolina’s most recent perinatal health strategic plan for 2016-2020 was developed by over 125 maternal and child health experts from across the state. The plan is based on a life-course approach. The plan includes initiatives that would help to prevent opioid exposed pregnancies through early substance use screening, increased availability of contraception for women, including long acting reversible methods, and more emphasis on care coordination that includes mental health screening, substance use, and reproductive life planning, and access to
health care.

North Carolina’s approach to preconception health include the recommendation of routine health promotion activities for all women of reproductive age should begin with screening women for their intentions to become or not become pregnant in the short and long term and their risk of conceiving either intended or not (NCDHHS, 2008). It is recommended that every woman of reproductive age should receive information and counseling about all forms of contraception (Moos et al., 2008). This strategy is beneficial for women using opioids because they are often being prescribed opioids for pain from a primary providers and chronic pain doctors, it is important for these providers to regularly engage in conversations about pregnancy. March of Dimes of North Carolina Preconception Health Campaign has an online site with resources for both providers and individuals that includes information about life planning (2015). The site also includes information about preconception health activities and projects in North Carolina (March of Dimes of North Carolina, 2015). The goal of reproductive life planning is to help clinicians engage with women who may become pregnant at each primary care visit with efficient, evidence-based strategies and resources to assist women to have healthier personal health outcomes, to decrease unintended pregnancies, and to decrease pregnancy complications. Further, women who are using opioids as prescribed or illegally should be counseled, when possible, regarding what are the recommendations for a woman who becomes pregnant and is using opioids.

Since it is important for women to be provided with information regarding the importance of early prenatal treatment coupled with MAT before they get pregnant (ASTHO, 2014). Women should also be made aware about the possible outcome of NAS due to opioid exposure (ASTHO, 2014). It is recommended that all providers regularly discuss pregnancy intendedness with women of childbearing age (NCDHHS, 2008). Issues of preconception health are especially critical when considering women dependent on opioids that have begun MAT. This population of women who are in the early phases of MAT often become pregnant unintentionally because their endocrine functions have been normalized, thus allowing pregnancy to occur (Center for Substance Abuse Treatment, 2005). Currently a pilot study is being conducted in North Carolina to determine the training needs of MAT providers, specifically in public methadone programs, on family planning topics. This study aims to determine what, if any, information regarding family planning is provided to clients utilizing
North Carolina implemented the family planning waiver act, *Be Smart*, in 2005 to reduce unintended pregnancies by expanding eligibility for family planning services to men and women at or below 185% of the federal poverty level who do not otherwise qualify for Medicaid services (NCDHHS, 2014). This is a critical service for many women to obtain important reproductive health services, including annual physical exam, testing and treatment for STIs, elective sterilization, and contraception, including long acting reversible contraception. This Family Planning Waiver has provided services to thousands of women across the state. During the first year roughly 10,000 women received services and that number has continued to grow each year (NCDHHS, 2009). The program has drastically reduced Medicaid-covered costs associated with unintended pregnancies. According to the January 2009 Interim Annual Report for the program, 1,139 pregnancies were averted by pregnancy prevention during the second year of the waiver due to the existence of the program (NCDHHS, 2009). This resulted in a Medicaid cost savings of nearly $12,000,000 in just the first year (NCDHHS, 2009).

**Preconception Health and Screening for Substance Use**

It is critical for women of childbearing age to be regularly screened for substance use, including opioid misuse, by various providers (ACOG, 2006; ACOG 2008). Regular and consistent use of Screening, Brief Intervention, and Referral to Treatment (SBIRT) by providers can help to provide early intervention, including connection to substance use disorder treatment. SBIRT is a an evidence-based, comprehensive, integrated public health approach to the delivery of early intervention and treatment services for persons with substance use disorders as well as those at risk for developing these disorders. Primary care centers, other medical providers, hospital emergency rooms, trauma centers and other community settings provide opportunity for early intervention with at-risk substance users before more severe consequences occur (Solberg et al., 2008). North Carolina is working to enhance substance use screening through SBIRTNC, including training to understand reimbursement (SBIRTNC, 2016).

In 2011, a five-year grant was awarded to the Division of Mental Health, Developmental Disabilities, and Substance Abuse Services of the North Carolina State Department of Health and Human Services (NC DHHS) by the Substance Abuse and Mental Health Services Administration (SAMHSA) (North Carolina Substance Abuse Professional Practice Board, 2013) to develop SBIRTNC. SBIRT NC is a joint effort of the Governor's Institute (GI), the NC
Division of Mental Health, Development Disabilities, and Substance Abuse Services (DMH, DD, SAS), SAMHSA/CSAT, the NC Center of Excellence for Integrated Care, and Community Care of North Carolina (CCNC). SBIRT is comprehensive, integrated health approach to the delivery of early intervention and treatment services for persons with substance use disorders and those who are at risk of developing these disorders. Part of this grant has been utilized to help train primary providers engaging with women of childbearing age to screen for substance use (SBIRTNC, 2016). The high rate of opioid use among women has placed special emphasis on screening for opioid use among this population at preconception and throughout pregnancy. In addition to training publicly funded obstetricians, the training is being extended to privately funded obstetrician practices as well.

**Opioid Prescriptions and Prevention Efforts**

A number of important initiatives in North Carolina have been implemented to address the epidemic of prescription opioid abuse and overdose. These initiatives help prevent a woman of childbearing age from developing opioid dependence, thus reducing the occurrence of an opioid exposed pregnancy. The Chronic Pain Initiative (CPI) led by Community Care of North Carolina (CCNC) is a statewide comprehensive approach to addressing chronic pain and opioid misuse. The CPI grew from the Project Lazarus pilot program developed in Wilkes County, North Carolina (Albert, 2011). Project Lazarus uses a community-based approach and includes emergency department policies and practices, safer prescription training for primary care and chronic pain care managers (Community Care of North Carolina, 2016).

Another effort to curb the opioid epidemic is North Carolina’s implementation of a prescription opioid reporting system (North Carolina General Assembly, 2005). The reporting system is designed to assist with two initiatives to deter prescription opioid misuse. To help doctors to identify and refer patients to treatment who are misusing these substances and improve the state’s ability to identify people who abuse and misuse prescription drugs classified as controlled substances. In 2013, changes were made to the Controlled Substance Reporting System (CSRS) to address three key issues: One, to deter what are referred to as pill mills, a term to describe a doctor, clinic or pharmacy that is prescribing or dispensing powerful narcotics inappropriately or for non-medical reasons; two, to make it easier for doctors to review previous prescription-fill history to avoid duplicate prescriptions and to offer treatment as needed; and three, to provide more timely data, and to allow data tracking relating to atypical prescribing or
filling, as well as other provisions (North Carolina General Assembly, 2013). This reporting system is an important preventative measure, but has been found to have issues regarding its effectiveness. This is mainly due to the relatively low number of providers who are registered with and use the NC CSRS in their clinical practice.

A further initiative to prevent opioid misuse and overdose has been through the support of an innovations grant from the Centers for Medicare & Medicaid Services, the Mountain Area Health Education Center (MAHEC) developed a comprehensive chronic pain program that employs a nurse practitioner as the primary care manager for patients with chronic pain (Centers for Medicare & Medicaid Services, 2012). The goal is for patients to receive consistent care from their regular physician and avoid situations in which patients present to another provider with an urgent need for an opioid prescription. The nurse practitioner shares responsibility for the patient’s care with the patient’s primary care physician and ensures completion of all elements in the chronic pain program is conducted including a pain-specific history and physical examination, screening for a history of substance abuse or risk factors for potential abuse, obtaining informed consent and a signed controlled-substance agreement, developing a self-management plan and goals for therapy, reviewing the NCCSRS database, and performing periodic urine drug screening. Further, MAHEC has expanded the role of behavioral health specialists to help patients strengthen their coping strategies. The goal is for patients to engage in the behavioral management of their pain.

A key contributor in policy leadership and advocacy efforts in the area of saving lives due to opioid use is the North Carolina Harm Reduction Coalition (NCHRC). NCHRC is North Carolina’s only comprehensive harm reduction program and engages in grassroots advocacy, resource development, coalition building and direct services for law enforcement and those made vulnerable by a variety risks including drug use and overdose. This grassroots advocacy organization has made tremendous strides in promoting the use and accessibility of naloxone. This is a critical issue within the state because North Carolina has been ranked 20th in the nation for opioid overdose death rates (Modarai, 2013). The greatest concentration of both high rates of prescription opioid sales and overdoses have occurred in the southern and western corners of North Carolina (Modarai, 2013).
2. Prenatal - This intervention point encourages health care providers to screen pregnant women for substance use as part of routine prenatal care and make referrals that facilitate access to treatment and related services for women who need those services.

Intervention and prevention issues specific to opioids at the prenatal or pregnancy point include substance use screening, MAT, and accessing treatment. Prenatal Screening:

Screening for substance use is important throughout the life course of a woman, including when she is pregnant. This is a critical point to identify a substance use issue and to provide the necessary care (Moyer, 2013; USPSTF, 2009). A 2009 mixed methods assessment of perinatal substance use screening was conducted across the state of North Carolina that revealed a troubling lack of prenatal screening (Louison, 2009). The survey suggested that maternal health program substance abuse screening and intervention policies and practices varied widely across the state. Many maternal health substance abuse polices were unclear or lacked detail about procedures and protocols in health departments. The results found that only about half (49%) of maternal health programs were screening all prenatal care patients at intake. The survey found that only 5% of programs screened at regular intervals throughout pregnancy. Of the programs that were screening for substance use only 23% are using validated screening tools. Since this survey was conducted there have been significant changes in maternal health programs in North Carolina. Maternal health programs that were part of the study have since transitioned and the majority of women of North Carolina covered by Medicaid are now served through Community Carolina of North Carolina (CCNC) Pregnancy Medical Home (PMH) (Community Carolina of North Carolina, 2016). The CCNC PMH has a policy and a standardized screening tool that is used with over 90% of women seen for prenatal care in the CCNC PMH setting.

A 2013 North Carolina survey of 104 prenatal healthcare providers designed to assess preparedness to engage women experiencing opioid exposed pregnancies, found only 17% prenatal care professionals stated that they had received SBIRT training. Although this sample reported a high level of comfort discussing substance use with women of childbearing age, it is possible that the high skill and attitude level, which was self-assessed, does not indicate that professionals are actually effective in their engagement with women experiencing opioid exposed pregnancies. It has been found that health professionals who ranked themselves as
“adequately trained” and “effective” at screening for substance use among women and referring to treatment actually did a very poor job of screening and referring their pregnant clients to treatment (Tandon, Parillo, Jenkins, 2005). This suggests that high levels of self-assessed skills and positive attitudes do not translate to clients being adequately screened and referred to needed treatment services. These studies provide support that the state needed to enhance their screening efforts and is moving in the right direction by ramping up their screening efforts since 2011 and by using an effective model, the SBIRT (SBIRTNc, 2016). CCNC PMH is helping to address this by working with SBIRTNc to provide training in the prenatal settings, including reimbursement information (Community Care of North Carolina, 2015). The scope of help goes beyond the target population of CCNC PMH, of publicly insured women, to include an important collaborative piece positioned to impact practices that include privately insured women. It will be important to continue to monitor and evaluate screening efforts and outcomes among pregnant women and among all women of childbearing age.

Medication Assisted Treatment (MAT)

There are different experiences that lead to an opioid exposed pregnancy and different paths for care and treatment. For example, some women are in active addiction who may be using prescription opioids or heroin, some women who are in recovery are enrolled in a MAT program receiving prescribed methadone or buprenorphine, and some women who experience chronic pain are taking opioids as prescribed (Center for Substance Abuse Treatment, 2005). When a pregnant woman is dependent on opioids due to chronic pain treatment and becomes pregnant, but does not have an opioid use disorder, it is recommended that she should continue with her pain prescriber with her pain prescriber working closely with her obstetrician to provide optimal care. If the woman has an opioid use disorder the best outcomes for mother and infant are achieved when the mother is involved in a comprehensive MAT program (Jones, Finnegan & Kaltenbach, 2012).

Research has demonstrated significant access barriers to MAT programs for both methadone and buprenorphine (Jones et al., 2015). For methadone the barriers include waiting lists for treatment, limited geographic coverage, limited insurance coverage, and the requirement that many patients receive methadone at clinics daily (Gryczynski et al., 2011; Andrews, Shin, Marsh, & Cao, 2001; Rosenblum et al., 2011; Sigmon, 2014). Similar to methadone, barriers exist for patients seeking MAT with buprenorphine, including provider availability and
willingness to prescribe, limited insurance coverage, and cost (Greenfield, Owens, Ley, 2014; Volkow, Frieden, Hyde, Cha, 2014; Sohler et al., 2013; Roman PM, Abraham AJ, Knudsen HK, 2011).

In North Carolina there are 34 certified physicians to prescribe MAT with buprenorphine to a limit of 34 patients while there are 22 certified physicians with who are permitted to prescribe to 100 patients (Substance Abuse and Mental Health Services Administration, 2015). However, not all providers who are DATA 2000 certified are not providing MAT services and many are not serving the maximum patient quota that is permitted (Jones et al., 2015). There are gaps between treatment need and capacity to meet those needs. This exists at the state and national levels. North Carolina, like the rest of the country, needs strategies to increase the number of MAT providers (Jones et al., 2015). This shortage of MAT providers is further complicated by a lack of access to care due to cost or distance to a provider based on geography (Jones et al., 2015). Pregnant women often face additional barriers in obtaining MAT, especially buprenorphine (Holbrook & Nguyen, 2015). This is because providers are often unwilling to prescribe to a woman when she becomes pregnant and many women who were receiving MAT from a provider will be discontinued care when the physician knows the woman is pregnant. Significant gaps between treatment need and capacity exist in North Carolina and many providers not treating the maximum clients that they are permitted contributes to this gap and strategies to increase the number of MAT providers are needed (Jones et al., 2015).

Statewide Hotline

Through the Alcohol/Drug Council of North Carolina the statewide Perinatal Substance Use Project is in place that provides a telephone hot-line, screening, information, and appropriate referrals for women throughout North Carolina who are pregnant or parenting and using substances. This project is funded jointly by NC DMH, DD, SAS, and the NC Division of Public Health. The project coordinator has noted that the majority of the calls that they receive currently are from pregnant women dependent on opioids seeking assistance. The project provides information on bed availability for substance use services in the residential treatment programs of the NC Perinatal Maternal and CASAWORKS Initiative, on a weekly basis. The project also provides training and technical assistance to agencies and providers working with women who are pregnant or parenting on issues related to substance use. The target population of this project is pregnant, parenting women and women seeking to regain custody, who are using substances.
Treatment Services

Women in North Carolina who are pregnant and using substances can access treatment through the North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services Perinatal and Maternal Substance Abuse Initiative. There are 28 specialized programs for substance using pregnant and parenting women and their children that provide evidence-based, comprehensive, gender-specific substance use treatment including outpatient and residential services (Division of Mental Health, Developmental Disabilities, and Substance Abuse Services, North Carolina Department, 2005). Women seeking to regain custody of their children are also included in this target population; however, they are only eligible for the outpatient treatment. For many women, experiencing a pregnancy is when they find themselves motivated to enter treatment (Mitchell, 2008). Research supports that receiving gender-specific substance abuse treatment positively impacts women’s length of stay in treatment and the likelihood of maintaining recovery after treatment (Ashley, Marsden, & Brady, 2003; Goler NC, Armstrong, Taillac, & Osejo, 2008).

North Carolina Policy and Prenatal Substance Use

It is thought that the rise in opioid exposed pregnancies contributed to the proposed 2015 North Carolina State Senate proposed bill, *an act to create the criminal offense of prenatal narcotic drug*, SB 297. The bill passed the first reading, but ultimately was not enacted. However, there is the possibility that it might be reintroduced in the next Legislative session. The bill would create a new crime of assault if a woman uses narcotic drugs during pregnancy and if this use results in her child being “born addicted” to or harmed by the narcotic drug taken while pregnant (North Carolina, 2015). Research shows that the threat of incarceration among pregnant substance using women results in worse birth outcomes (Association of Women's Health, Obstetric and Neonatal Nurses, 2015). This is due to women avoiding prenatal care, and missing opportunities to connect to substance use disorder treatment (Flavin & Paltrow, 2010). In the event that this bill would resurface it is important that advocates of maternal and child health are prepared to promote programs and policies that would produce greater maternal and infant outcomes during the prenatal period.
Intervention and prevention issues specific to opioids at the intervention point of birth include effective pain management during labor and delivery and screening and proper care for NAS.

**Labor and Delivery**

Community Care of North Carolina outlines, in their document that provides guidance for working with patients taking opioids during pregnancy, that providers should work with the patient and the delivery facility to establish a plan for pain management during labor and delivery. It is important that those providing care during labor and delivery understand that in general, patients undergoing opioid maintenance treatment will require higher doses of opioids to achieve pain relief than other patients and Narcotic agonist–antagonist drugs should be avoided because they may precipitate acute withdrawal (ACOG, 2012; Meyer et al., 2007; Jones et al., 2009).

**Infant Screening**

There is not a mandate for universal toxicology screening or even a set protocol for how hospitals in North Carolina should decide when to test for substance exposure for newborns in hospital maternity settings. Since this is not a standard policy for screening, it is typically up to the discretion of the hospital staff that may suspect substance use. This lack of protocol has likely led to bias practices regarding who is tested for substance use in hospitals because based on historical evidence there is a disparity among poor and women of color for being screened (Roberts, 1991; Center for Reproductive Rights, 2000).

The federal Child Abuse Prevention and Treatment Act’s (CAPTA) provision of the 2003 Keeping Children and Families Safe Act outlines that hospitals that suspect that a newborn infant was substance exposed in utero they should be screened in the hospital, if positive, then Child Protective Services (CPS) should be contacted (US Department of Health and Human Services [USDHHS], 2003). CAPTA requires states to create policies and procedures to address the needs of infants born and identified as being affected by illegal substance use or withdrawal symptoms resulting from prenatal substance exposure (USDHHS, 2003). This includes appropriate referrals to child protection service systems. CAPTA includes a requirement that health care providers
involved in the delivery or care of such infants notify the child protective services system of the occurrence of such condition of such infants (USDHHS, 2003). North Carolina’s policy and practice is consistent with this requirement, and includes prenatal alcohol exposure as cause to refer to child protective services (NCDHHS, 2005). Each County’s Department of Social Services (DSS) accepts referrals for infants reported to have been exposed to substances prenatally, at the time of birth. When a referral is made by the health care provider, DSS utilizes a structured intake tool (NCDHHS, 2005).

In North Carolina, substance use during pregnancy alone is not reportable to the Department of Social Services because this type of exposure is not in the state’s definitions of child abuse or neglect (Child Welfare Information Gateway, 2016). However, CAPTA does require hospital staff to refer newborns identified as exposed to illicit substances to the Department of Social Services (Child Welfare Information Gateway, 2016). North Carolina’s DSS policy for infants with positive toxicology at birth indicates that a mother's positive screening along with the infant's negative screening does not warrant a CPS assessment (NCDHHS, 2005). If a mother’s screen is positive while the infant's is negative and there is past account that specifies that a child may be at risk, a CPS assessment is merited. Also warranting a CPS report is when newborns who have a positive urine or meconium toxicology for drugs or alcohol. From this point the assessment would determine what the next steps would be, including removal of the infant.

Perinatal Quality Collaborative

Perinatal Quality Collaborative of North Carolina (PQCNC) is a statewide initiative with the mission to “make North Carolina the best place to give birth and be born” (2015). PQCNC has a number of initiatives, including NAS. PQCNC recognizes that while NAS is a growing problem in North Carolina hospitals there remains no standard of care or treatment. Additionally, there is wide variation in the care treatment offered such infants across and within hospitals across the state. Through a statewide collaboration, PQCNC has developed standards of care within in NC hospitals for the NAS. In 2013 NAS experts from across the state began the process of developing PQCNC’s new NAS initiative. What has since emerged are very specific measures that are being used to indicate adherence and outcomes. Included in this measure is the “bundles of care” which require full adherence to the standards of care by hospital providers of both pharmacological and non-pharmacological care in order for a patient’s care to be counted as
compliant. Pharmacological care, includes primary medication is recommended, escalations < 1 during stay, rescues < 1 during stay, and verbal communication of plan of treatment and follow up to outpatient doctor. Non-pharmacological care, includes breastfeeding or lactation consult if not breastfeeding, parents skin to skin once during stay (or more), parents participate in scoring once during stay (or more), and if infant not held by parent or family member then held by volunteer. The expert team working to coordinate this initiative has now completed the first stage of the project and is currently implementing the second phase of the initiative.

4. NEONATAL/POSTPARTUM- Provide developmental services. Ensure an environment safe from abuse and neglect. Respond to immediate needs of other family members, including treatment of the parent-child relationship.

Intervention and prevention issues specific to opioids at the intervention point of neonatal/postpartum include continued treatment and recovery support, pediatric support, and child development and parenting support.

Recovery and Treatment

It is essential for hospitalized pregnant women who initiated opioid-assisted therapy to make a next-day appointment with a treatment program before discharge (ACOG, 2012). It is important for women to be connected with treatment services as needed. If women are in recovery it is important for women to get the support required to cope with the stress of a newborn.

Pediatric Support

Infants born exposed to opioids in utero should be closely monitored for NAS and other effects of opioid use by a pediatric health care provider (Kocherlakota, 2014). Close communication between the obstetrician and pediatrician is necessary for optimal management of the infants experiencing NAS (ACOG, 2012).

Child Development and Parenting Supports

Often, infants who were exposed to substances or who were treated for NAS are also premature or were of low-birth weight. These infants and their families are routinely referred to early intervention services across the state. These programs include Care Coordination for
Children (CC4C), Children's Developmental Services Agencies (CDSAs), and four evidence-based home visiting programs. These programs help to enhance health outcomes of the infants while women and families with young children offers information, guidance, risk assessment, and parenting support at home.

**5. THROUGHOUT CHILDHOOD AND ADOLESCENCE** - Identify and respond to needs of exposed child. Respond to needs of mother and other family members. Provide an appropriate education, screening, and support as exposed children approach adolescence and adulthood to prevent adoption of high-risk behaviors such as substance abuse.

Intervention and prevention issues specific to opioids at the last intervention point of childhood and adolescents, include continued family support.

Data on long-term outcomes of infants experiencing utero opioid exposure are limited, however, earlier studies have not found significant differences in cognitive development between children up to five years of age exposed to methadone in utero and control groups (Kaltenbach & Finnegan, 1984). Preventive interventions are recommended at this intervention point that focus on early childhood development (Hans, 1989). Research findings suggest that maternal substance use is not the most important factor in how opioid exposed infants and children develop it is more, however, factors that pertain to family characteristics and functioning of the family that play a significant role (Kocherlakota, 2014). This supports the need for North Carolina to continue to address the needs of the entire family and provide support where it is required throughout the life course.

**Limitations and Strengths**

A weakness of this study is the author’s limited knowledge of the issue, which could have resulted in an incomplete review of the scope of interventions conducted across the state to address the issue. However, the author did receive guidance for the study from two leaders in the field of perinatal substance use in North Carolina, who served as faculty advisors for this study. Strengths of the study include the application of the five-point intervention framework to review efforts to address opioid exposed pregnancies. This approach allowed for a systematic review of
intervention-points where the state is having success addressing the issue and identifying areas that need further attention.

**Current Challenges and Recommendations**

A qualitative study was conducted by the author to further explore the current challenges facing North Carolina in addressing opioid exposed pregnancies and how to best address those challenges. Interviews were conducted with leaders in the field of opioid exposed pregnancies in North Carolina. The research question was: What are the current challenges facing North Carolina in addressing opioid exposed pregnancies and how should these challenges be addressed? This pilot study provided important insights from those working in the field from across the state as to what needs to be done to best address this issue.

Purposeful sampling and snowball sampling was applied for this research. The sample was selected based on the individual’s experience and knowledge of the issue of opioid exposed pregnancies and experience in addressing this issue in North Carolina. Effort was also made to recruit individuals from various regions in the state. The two faculty advisors for this project assisted with the recruitment of participants. Six individuals who were identified as leaders or experts who work in the field of opioid exposed pregnancies across the state of North Carolina participated in the research study. The sample included a prenatal nurse, a neonatologist, a substance use counselor, a behavioral health clinical director, a prenatal behavior health counselor, and a perinatal substance use project coordinator. Although, all participants are leaders in the field of opioid exposed pregnancies they represent a diverse range of professions within the field. They each bring a unique understanding of the issue because they work with women experiencing an opioid exposed pregnancy at different points of her pregnancy and often stages of treatment. Further, the sample represents experiences from regions across the state, including the east, the west, the piedmont, and the triangle. This strengthens the study because these regions vary greatly regarding their access to services. Some regions are more rural and lacking access to services, while others are suburban and urban and better connected to health and treatment services.

What emerged from the data is a consensus that North Carolina has enhanced its efforts to address opioids and pregnancy over recent years, however, the key concept that emerged from this study is the need for North Carolina to implement a change in practice regarding how the
state approaches treatment for opioid exposed pregnancies. Participants noted that increased knowledge, skills, and a shift in attitude would be required among a wide range of professionals serving and engaging this population. Participants stated that gaps in care were due largely to a lack of coordinated care, misinformation, and fear among providers. These gaps in care have resulted in substandard care at the minimum and egregious results at the worst. Participants highlighted specific changes that were needed, including increasing efforts to implement screening and increasing the number of physicians who prescribe Buprenorphine in general and specifically to pregnant women. Despite differences among those interviewed, including the needs and resources that are available by region, many of the same issues and trends emerged from all of the participants. Through the interviews the participants spontaneously arrived at many of the same issues. This suggests that this study has demonstrated a level of congruence regarding the leading challenges and suggested solutions as North Carolina addressed opioid exposed pregnancies.

As the numbers of opioid exposed pregnancies continue to rise in NC, it must be considered what the public health impact will be and how we can best address the medical and social needs of mothers and their children. Results from this research suggest that North Carolina program initiatives and policies aimed at addressing opioid exposed pregnancies should focus on a change in practice that would provide comprehensive training to increase knowledge, but also provide the skills needed to treat this population.

These recommendations are consistent with findings across the state, including the 2012 survey designed to assess the knowledge and skills of professionals in North Carolina that work with this population and these finding align with what the NCPOEP workgroup have identified as key challenges in treating opioid exposed pregnancies. North Carolina can continue to work to implement changes through on-going training of professionals that increases both knowledge and skills, but also to focus on policies that reinforce and support best practices.
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