

# Opioid Use Disorder: Optimizing Obstetric and Neonatal Care

In Association with The American College of Obstetricians and Gynecologists  
Alliance for Innovation in Maternal Health  
and the Vermont Oxford Network

## Tennessee Initiative for Perinatal Quality Care Inter-Institutional Quality Improvement Project

Funded under a grant from the Tennessee Department of Health



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The Tennessee Initiative for Perinatal Quality Care (TIPQC) would like to thank other states who have shared and/or published their Opioid Use Disorder Quality Improvement toolkits. We have learned from your efforts and initiatives and have adapted portions from each state toolkit. All state initiatives that we have reviewed are included in the “Additional Resources” section of this toolkit. Together, we can make a difference!

### Specific Acknowledgments

- Maternal OUD Pilot Teams:
  - Jackson Madison County Medical Center
  - University of Tennessee Medical Center Knoxville
  - Vanderbilt University Medical Center
- Newborn Pilot Team: Monroe Carell Jr. Children’s Hospital at Vanderbilt
- Tennessee Department of Health
- Tennessee Hospital Association
- United HealthCare grant support for this project

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May 13, 2019

To: Tennessee Birthing Facilities

Re: Tennessee AIM Projects: Opioid Use Disorder (OUD) in Pregnant Mothers and Opioid Exposed Newborn (OEN)

We know that the impact of the opioid epidemic is far-reaching, devastating individuals, families and communities across Tennessee. The impact on the maternal and child population in the state is particularly striking. The Maternal Mortality Review Committee identified substance use disorder (SUD) as a contributing factor in thirty-three percent (33%) of the maternal deaths that occurred in 2017. Additionally, almost half of all deaths with SUD as a contributing factor had a co-occurring mental health diagnosis (46%). Additionally, there were a total of 927 neonatal abstinence syndrome (NAS) cases reported in 2018. While we celebrate the first decline in NAS rates since Tennessee began its NAS monitoring program in 2013, we also recognize the significant cost and familial burden that each of these cases represents.

The Department of Health (TDH) believes that healthcare delivery systems and care teams are critical to the opioid response for this vulnerable population of women and children in key time windows, and we recognize the ongoing efforts that health systems across Tennessee have committed to as we combat the opioid epidemic together. The Tennessee Initiative for Perinatal Quality Care (TIPQC), the state's perinatal quality improvement collaborative, is a key resource for that work.

TIPQC is currently kicking off a statewide quality improvement project to address the opioid crisis during and after pregnancy. The *Opioid Use Disorder (OUD) in Pregnant Mothers and Opioid Exposed Newborn (OEN)* projects will enable hospitals to implement nationally recognized evidence-based practices to optimize care and improve outcomes of pregnant women and infants affected by opioid use disorder. TIPQC has developed comprehensive materials based on the national Alliance for Innovation in Maternal Health (sponsored by ACOG and multiple partners) and modified based on countless conversations reflecting needs and resources across the state. TIPQC also provides quality improvement coaching, collaborative cross state learning communities, and data infrastructure for quality improvement.

We strongly urge your participation in this endeavor, as your partnership is critical to the success of our state in decreasing the effects of the opioid epidemic during and after pregnancy. Both obstetric teams and neonatal teams can join the project or either may participate independently.

Attached you will find two handouts providing additional information on TIPQC and the OUD/OEN quality improvement projects. Additional information is available below:

Maternal Project - <https://tipqc.org/tennessee-aim/>

Neonatal Project - <https://tipqc.org/opioid-exposed-newborn/>

Should you have questions, please do not hesitate to contact [Brenda.Barker@TIPQC.org](mailto:Brenda.Barker@TIPQC.org).



Thank you again for the work that you do in ensuring the safety and quality of care for mothers and infants in Tennessee. Your partnership is key to our statewide success.

Sincerely,

A handwritten signature in blue ink, appearing to read "Lisa Piercey".

Lisa Piercey, MD, MBA, FAAP  
Commissioner  
Tennessee Department of Health

A handwritten signature in black ink, appearing to read "Craig Becker".

Craig Becker  
CEO and President  
Tennessee Hospital Association

Attachments

## **INTRODUCTION TO THE TOOLKIT**

This toolkit is a collection of evidence-based practices based on a review of the current literature on maternal Opioid Use Disorder (OUD) and the Opioid Exposed Newborn (OEN). Any success realized from this toolkit is in part due to the generosity and collaborative spirit of the practices that participated in the TIPQC pilot projects and toolkits from states that have successfully implemented OUD and OEN bundles, as well as the American College of Obstetricians and Gynecologists (ACOG) Alliance for Innovation on Maternal Health (AIM) and the Vermont Oxford Network (VON).

Significant attention has been brought to the opioid “crisis” in the United States (US) since the first TIPQC Neonatal Abstinence Syndrome (NAS) project in 2012. That project demonstrated the effectiveness of the consistent application of diagnostic and treatment bundles and protocols to optimize the outcomes of patients with NAS. There has been an expansion of research into the entire spectrum of perinatal OUD, including prenatal care, medically assisted therapy (MAT), enhanced use of family support services, hospital care of the maternal infant dyad, and the recognized need for more outcome results after nursery discharge.

The current proposed project is unique for TIPQC, in that there are separate maternal and newborn “arms,” each with separate goals, aims and interventions, under the “umbrella” of a single project. It is expected that this approach will provide insight into the benefits of family-based interventions, rather than a focus solely on the maternal or newborn care.

This toolkit is intended for application in conjunction with a series of statewide learning sessions and webinars. Included in the toolkit are potentially better practices as a “menu” of changes for participating institutions to consider in the context of local needs, culture, and resources. As with any bundle, it is recommended the toolkit be implemented with all interventions undertaken. However, individualized institutional policy and ground work will be required as with any system process implementation and change. The TIPQC office is available to discuss implementation strategies with project leaders and teams as needed.

To facilitate quantitative, data-driven improvement, this project utilizes a web-based data entry system called REDCap. REDCap data entry will help each participating institution organize data entry so that only the minimum essential data is collected, and in turn, provide easily generated, on-demand run charts and control charts from your project data. Additionally, as all teams participate, automated on-demand comparison to the most current project-wide aggregate data will be possible in order to facilitate rapid PDSA cycles as each team works to improve its system. Balancing the cost vs. value of data collection in a quality improvement (QI) effort is challenging and the TIPQC office is available for consultation to assist project leaders and improvement teams in selecting the optimal approach for their institution.

## **CHARTER**

Tennessee has seen a marked increase in OUD related narcotic use in the general population in recent years, and this trend has resulted in a growing number of infants who require hospital care for management of opioid withdrawal following in-utero substance exposure. Additionally, TIPQC noticed “gaps” in statewide treatment of NAS and OEN affected infants. In response, the Opioid Use Disorder: Optimizing Obstetric and Neonatal Care Project was selected by an inter-professional team of Tennessee obstetric and pediatric providers. TIPQC’s maternal arm, in conjunction with the Alliance in Innovation on Maternal Care (AIM) collaborated to bring this project to fruition in Tennessee. AIM is a national data-driven maternal safety and quality improvement initiative based on proven implementation approaches to improving maternal safety and outcomes in the US. In parallel efforts, the Infant Arm worked with the Monroe Carell Jr. Children’s Hospital at Vanderbilt to spread their Team HOPE Project, with evidence supporting the efficacy of rapid identification and treatment of Neonatal Opioid Withdrawal Syndrome (NOWS; also known as Neonatal Abstinence Syndrome (NAS))\* , in affected newborns in order to minimize adverse impacts on the infant and family.

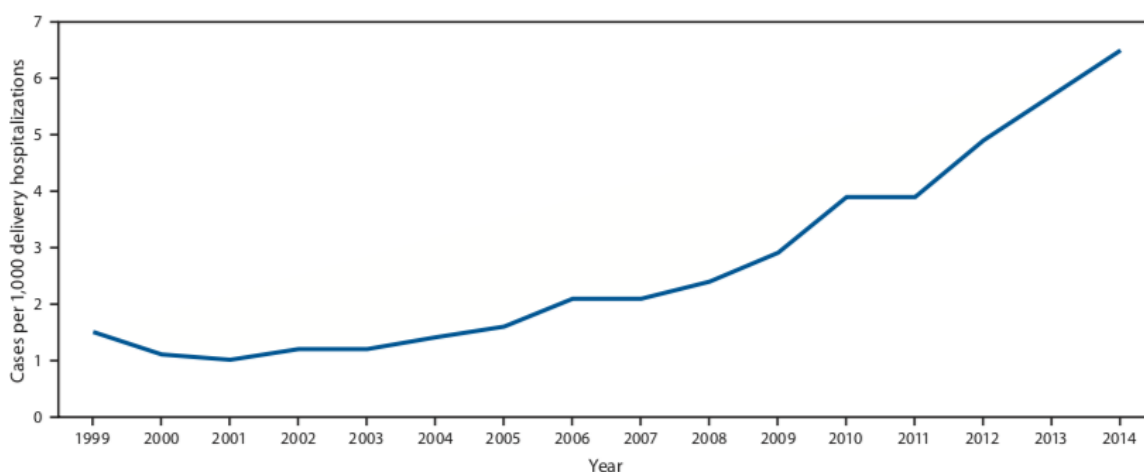
The OUD and OEN projects were selected by stakeholders at the 2018 TIPQC Annual Meeting. Participating institutions will agree to the following: implementing the project as designed, collecting and submitting the monthly data in a timely manner, and participating in monthly webinars and statewide meetings.

\*Note: Throughout this tool kit, we will refer to both NOWS and NAS. Both terms are commonly used within Tennessee and the US. There is a current shift in terminology from NAS to NOWS.

## SUMMARY OF THE EVIDENCE

Substance use in pregnancy is a significant public health issue crossing all racial, ethnic, socioeconomic, rural, urban, and suburban populations. With numerous adverse maternal and neonatal outcomes, including preterm labor and birth, stillbirth, NAS/NOWS, and severe maternal morbidity and mortality, it is essential that substance use is identified and managed according to best practice recommendations (Patrick, Davis, Lehmann, Cooper, 2015; Maeda, Bateman, Clancy, Creanga, Leffert, 2014). Specifically, OUD has increased 333% nationally from 1.5 cases per 1,000 delivery hospitalizations to 6.5 between the years 1999 - 2014 (Haight, Ko, Tong, Bohm, Callaghan, 2018).

FIGURE 1. National prevalence of opioid use disorder per 1,000 delivery hospitalizations\* — National Inpatient Sample (NIS),<sup>†</sup> Healthcare Cost and Utilization Project (HCUP), United States, 1999–2014



\* Prevalence numerator consisted of cases of opioid type dependence and nondependent opioid abuse based on *International Classification of Diseases, Ninth Revision* (ICD-9) codes (304.00–304.03, 304.70–304.73, 305.50–305.53), and denominator consisted of delivery hospitalization discharges.

<sup>†</sup> Includes data from all states participating in HCUP each year (<https://www.hcup-us.ahrq.gov/partners.jsp?NIS>), weighted to produce national estimates. Rates before 2012 are weighted with trend weights, and rates after 2012 are weighted using original NIS discharge weights to account for the change in NIS design in 2012.

Source: Haight, Ko, Tong, Bohm, Callaghan, 2018

Specific complications of opioid use during pregnancy include:

Maternal	Fetal/Newborn
Preterm labor	Intrauterine growth restriction
Preterm premature rupture of membranes	Low APGAR scores
Placental abruption	Stillbirth
Intraamniotic infection (Triple I)	NAS/NOWS
Preeclampsia	Higher risk for exposure to alcohol, tobacco, other substances
Increased risk of Hepatitis C, human immunodeficiency virus (HIV), and other infectious diseases	Sudden Infant Death Syndrome (SIDS)
Overdose	Higher risk for neurocognitive disorders
Untreated concomitant psychiatric disorders	
Bacteremia	
Septic thrombophlebitis	



Reference: Center for Substance Abuse Treatment. Medication-assisted treatment for opioid addiction during pregnancy. In: Medication-assisted treatment for opioid addiction in opioid treatment programs. Treatment Improvement Protocol (TIP) Series, No. 43. Rockville (MD): [Substance Abuse and Mental Health Services Administration; 2005. p. 211–24.](#)

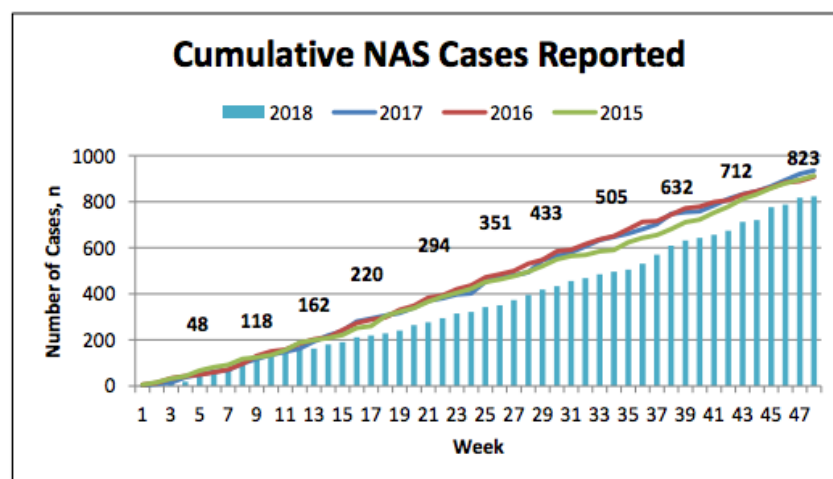
Improvements in care for these vulnerable populations can achieve the “triple aim” – improving outcomes for individuals, populations and reducing per capita costs. Because 80% of hospital costs for NAS/NOWS are born by state Medicaid programs, state Medicaid programs and Medicaid Managed Care Organizations (MCOs) are well-positioned to create innovative models of care for NAS/NOWS that achieve the triple aim.

### **Pregnancy**

Pregnancy provides an excellent opportunity to identify and treat substance use. Despite the recommendation of universal verbal screening for drug and alcohol with a validated tool at the first prenatal visit and throughout the pregnancy, it is often not standard practice. Screening allows for identification of women who are at risk for substance use disorder and subsequent referral for assessment, diagnosis, and treatment. OUD is considered a chronic, relapsing, but manageable disease with medication, behavioral, recovery therapy, and support. Once identified, obstetric providers may lack the knowledge regarding local and state resources for referral and treatment. The pregnant woman may also lack access or funding for highly effective treatment, including opioid agonist therapies and behavioral health. During delivery hospitalization, care teams require knowledge regarding intrapartum and postpartum pain management and psychosocial needs. In addition, there remain high rates of unintended pregnancies among women with opioid use disorder.

### **Neonatal**

Neonatal Opioid Withdrawal Syndrome (NOWS) or also known as Neonatal Abstinence Syndrome (NAS) is a post-natal withdrawal syndrome experienced by some opioid-exposed newborns. From 2000 to 2014, the number of newborns diagnosed with NAS/NOWS in the US grew nearly 8-fold, with a much faster rise among newborns enrolled in state Medicaid programs.



Source: More information on Neonatal Abstinence Syndrome in Tennessee can be found here: <http://tn.gov/health/nas>

Nationally, total hospital costs for NAS/NOWS births covered by Medicaid in the US were \$462 million in 2014, equaling 6.7% of total Medicaid expenditures on birth. Compared to newborns with NAS/NOWS covered by private insurance, newborns with NAS/NOWS covered by Medicaid have longer lengths of stay and are more likely to be transferred to another hospital (even after accounting for potential confounders).

Care for the OEN remains extremely inconsistent, leading to variable outcomes and prolonged lengths of stay. Many of the previous studies in this area have focused on symptomatic opioid exposed newborns; little information is available on those newborns who are exposed but not symptomatic. Further, many current in-patient care practices disrupt the maternal-newborn dyad and results in prolonged length of stay. There remains urgent need to 1) standardize care for the mother-infant dyad across the continuum from prenatal care throughout the early neonatal period, 2) improve family-centered care, and 3) enable care in the community, including in level 1 and 2 hospitals.

### **Tennessee Information**

- Ranks #1 in the country for opioid sales per capita by state
- In 2017, averaged 44.3 kilograms of opioid sales per 100,000 people. That is nearly double the national average of 24.4 kilograms per 100,000 people.

State-level quality improvement, policy, and program actions are necessary to limit and decrease the effects of the opioid epidemic during pregnancy and for the newborn. This is the first TIPQC project to encompass both a maternal and newborn project arm within a single project. The previous TIPQC NAS project in 2012 demonstrated the value and usefulness of a standardized approach to management of the opioid addicted newborn, using pharmacologic treatment protocols, environmental controls, and a team-based support network for the maternal infant dyad. The current project plans to expand on this initial work, and dive into specific components of care which may be beneficial to the family outcomes, and to demonstrate improved long-term care after nursery discharge.

## EXECUTIVE SUMMARY

**WHY:** Nationally, and throughout Tennessee (TN) there remain unmet needs for pregnant women and newborns impacted by the opioid epidemic. There is urgent need to 1) Reduce stigma surrounding Substance Use Disorder (SUD) and OUD in particular; 2) map state resources for the pregnant woman with SUD, particularly OUD ; 3) promote universal screening using evidenced based screening tools in all pregnant women and train providers on Screening, Brief Intervention, Referral to Treatment (SBIRT); 4) outline and provide evidence based care during the prenatal, intrapartum, and postpartum periods; 5) standardize care for the mother-newborn dyad throughout the early neonatal period; 6) improve family-centered care; and 7) enable care in the community including in Level 1 and 2 delivery hospitals.

**WHAT:** Tennessee has chosen to partner with ACOG in the AIM safety program to improve care for pregnant women impacted by the opioid epidemic. In addition to ACOG, AIM core partners include American College of Nurse Midwives (ACNM), Association of Maternal and Child Health Programs (AMCHP), Association of State and Territorial Health Officials (ASTHO), Association of Women’s Health, Obstetric, and Neonatal Nursing (AWHONN), California Maternal Quality Care Collaborative (CMQCC), and Society for Maternal-Fetal Medicine (SMFM). The newborn arm of the project will be done in collaboration with the Tennessee Dept of Health (TDH), Tennessee Regional Perinatal Centers, Vermont Oxford Network (VON), and in collaboration with other state’s initiatives. TIPQC also wants to thank United HealthCare for their grant support of this project.

**WHO:** Care of the pregnant woman will consist of all members of the outpatient and inpatient obstetric care teams, Psychiatric/Addiction/Behavioral Health providers and programs (inpatient and outpatient), lactation consultants, medication assisted treatment (MAT) clinics, Social Work, Case Management, Infectious Disease (as indicated), and Nutrition. Care of the infant will focus on assessment and provisions given in level 1-3 nurseries, and will involve inpatient personnel including providers, nurses, social workers, occupational/physical therapy, child life specialists, Department of Children’s Services (DCS), lactation specialists, discharge planners, and follow up systems such as developmental clinics, home visit programs, etc. Both arms require the support of hospital administration for team leadership, process development, implementation oversight, and quality measurement. In addition, both arms will include family participation and guidance.

**WHERE:** The maternal arm will involve outpatient obstetric clinics, inpatient and outpatient Psychiatric/Addiction/Behavioral Health programs/clinics, inpatient delivering hospitals, and birthing centers in Tennessee. The newborn arm will involve the inpatient delivery setting, as well as post nursery discharge data from primary care and payers to determine markers for adequate follow up and readmissions.

**HOW:** The maternal arm of the project will improve outcomes by addressing Readiness, Recognition and Prevention, Response, and Reporting. These 4 R’s provide a framework for tackling the numerous barriers and gaps to optimal care for women with OUD and their infants. **Readiness** focuses on patient, provider, and community education as well as resource mapping and development of institutional guidelines and protocols. **Recognition and Prevention** emphasizes the importance of universal screening

using validated screening tools as well as timely referrals and provision of treatment resources. Prevention also includes screening and evaluation for other medical and psychiatric co-morbidities that could negatively impact maternal health. The **Response** aspect of the bundle focuses on access to treatment, education on breastfeeding, pain control, and postpartum contraception, as well as care coordination throughout pregnancy and postpartum. This includes the development of safe care protocols in conjunction with child welfare services. Finally, **Reporting/Systems Learning** supports the development of mechanisms to collect data and outcomes.

The newborn arm of the project will begin with the mother/newborn “dyad” during the delivery admission process or where possible in conjunction with the affiliated AIM team in the prenatal clinic. The focus of this project will be on “ancillary” factors that have demonstrated improved outcomes and in which family centered care is supported. Examples will include education on proper scoring and screening for delivery centers, identification of barriers for maternal and newborn dyad care, and identification of key elements for those “other” issues shown beneficial during OUD management, such as physical/occupational therapy or child life services, appropriate developmental care, increased breastfeeding, and early engagement of community resources prior to discharge. In addition, this project will also collect outcome data, where possible, for the immediate 6 months after discharge from the nursery. This will be made possible by sharing of claims data from one of the MCO payers. The initial phase of this 3-year project will validate the toolkit revisions and “fine tune” the potential best practices. It will be initiated in level 1-3 centers. It is anticipated by year 3 to have a product which can be usefully initiated at all delivery centers in Tennessee.

A major focus of both arms will be a needs assessment and mapping of local resources, review of existing maternal and newborn protocols for the population, and extensive education for the care team on the perinatal effects of OUD on mothers and newborns. The overall format for coordination of the project, like other TIPQC projects, will be via a web-based conference system. There will be separate maternal and infant web conferences, with quarterly joint conferences. The purpose of the conferences is to share “what works and what does not work in our setting” as we realize that any global plan or protocol must work within the context of the local hospital, taking into account resources, staffing, time commitment, etc. This sharing will assist TIPQC to develop useful guidelines and management protocols/bundles that can be applied in most clinical settings. The final product will be a “living toolkit”, undergoing constant modification as needed based on the context into which it is applied.

**WHEN:** A limited number of hospitals will participate in the OUD pilot phase of implementation beginning in January 2019. A full kick off for all state hospital teams will be in March 2019. Kick off for the infant pilot arm will begin in March 2019 with plans to include existing pilot from Monroe Carell Jr. Children’s Hospital at Vanderbilt (Team HOPE).

## FOREWORD

It is no secret the opioid crisis has had a substantial effect on the lives of Tennesseans. In 2017, more than 1700 people died from an overdose and more than 1000 infants were diagnosed with NAS. Since the beginning of the opioid crisis we have learned a lot about how better to care for mothers and infants affected by opioids – the state of Tennessee and TIPQC in particular has been on the leading edge of many of these initiatives. Even though we have made progress over the last several years, there is much progress to be made.

For more than 10 years TIPQC has led the way in improving outcomes for mothers and newborns across the state. It has also been one of the most well-organized state perinatal collaborative and has served as a model for other states. The nurses, providers, lactation consultants, hospital leaders, who have participated in TIPQC have been a part of countless projects that reduced early term deliveries, reduced line infections, improved breastfeeding rates all while decreasing morbidity and mortality among our smallest patients.

From 2012 to 2015, TIPQC also worked to improve outcomes among infants diagnosed with NAS/NOWS. The collaborative is now expanding this work – now focusing on improving outcomes for mothers and infants. This new initiative is remarkably collaborative with national and state partners and is inclusive of maternal and pediatric providers.

While we focus generally on the toll the opioid crisis has taken on our patients, one clear benefit is how it has brought us together. This extraordinary partnership is an example of the interdisciplinary teamwork that is needed to stem the tide of this epidemic.

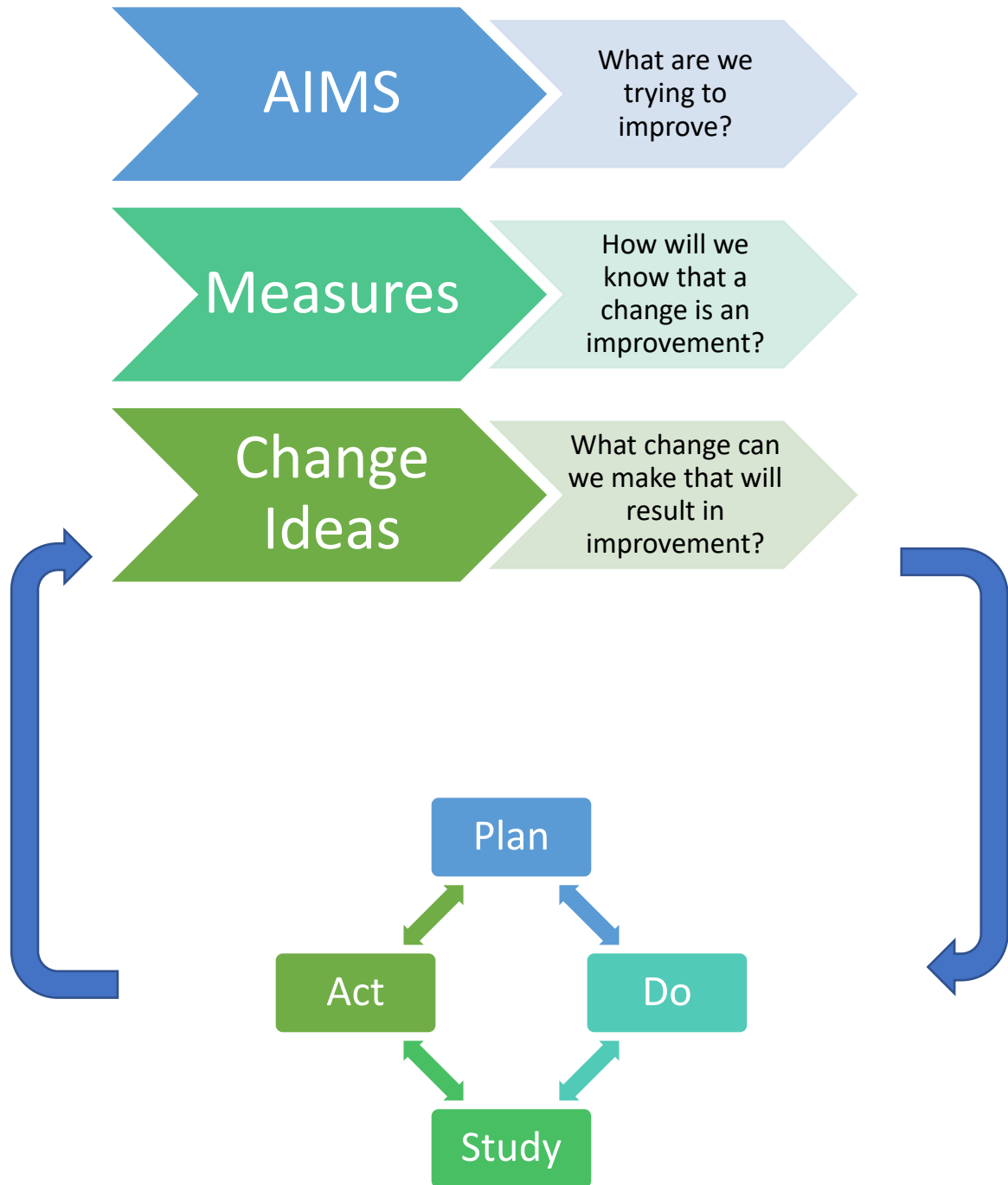
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[www.childpolicy.org](http://www.childpolicy.org)

## QUALITY IMPROVEMENT OVERVIEW

This QI Tool Kit is based on a set of clinical practices that have the potential to improve the outcomes of maternal and neonatal care, known as *Potentially Better Practices* (PBP's). They are labeled 'potentially better' rather than 'better' or 'best' because until the practices are evaluated, customized, and tested in your own institution, you will not know whether the practices are truly 'better' or 'best' (or 'worse'). Depending on the circumstances in your facility, you may have to implement other practices or modify existing ones to successfully improve maternal and infant outcomes. The PBP's in this collection are not necessarily the only ones required to achieve the improved outcomes targeted. Thus, this list of PBP's is not exhaustive, exclusive, or all inclusive. Changes in practice, guided by these PBPs, will require testing and adaptation to your circumstances and context to achieve measured improvements in outcomes. As you test and implement these PBP's, you should monitor the results closely to ensure that you are obtaining the desired results, that no harm is being done, and that no unanticipated results are seen. In addition to the suggested measures, you should track balancing measures. Your team can implement as many of the PBP's in this Tool Kit as you wish, based on an assessment of your unit's priorities, and based on availability of resources, time, and individuals with quality improvement skills.

### MODEL FOR IMPROVEMENT\*

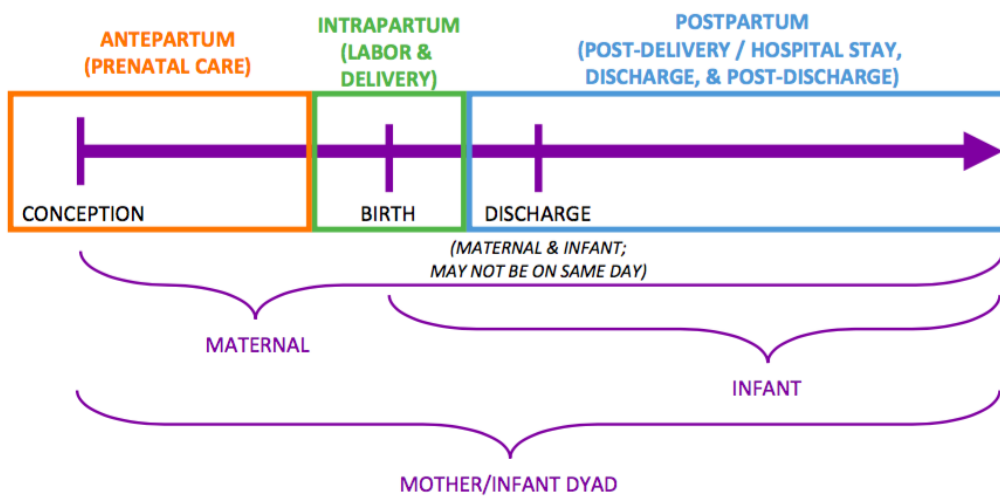
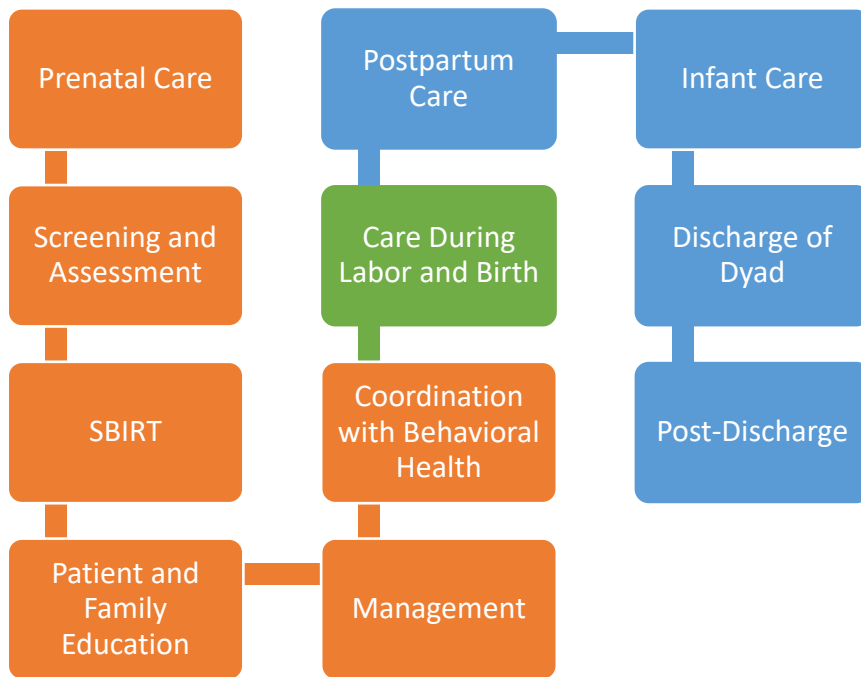


For more information, see <https://tipqc.org/jit-pdsa/>

\*Used by permission and adapted from: Langley, Nolan, Nolan, Norman, Provost. The Improvement Guide. San Francisco: Jossey-Bass Publishers; 1996.

## MATERNAL AND NEWBORN TOOLKIT OVERVIEW

This TIPQC toolkit combines elements from the evidence review as well as experience garnered by the pilot teams in the course of developing and pilot testing the tool kit. This is a combined maternal and neonatal toolkit. The following visual aids will help teams conceptualize the project.





## GETTING STARTED CHECKLIST

- Form a team (refer to TIPQC Just in Time Modules for more information: <https://tipqc.org/qi/>)
- Complete the TIPQC Project and Data Application: <https://tipqc.org/active-projects/>
- Ensure facility has current Data User Agreement (DUA) with TIPQC; if not current, complete DUA
- Complete Tennessee Department of Health required data access forms
- Research and determine current system and needs for project implementation
- Assign team members to data collection roles; notify TIPQC to set up REDCap User accounts and grant appropriate access
- Review TIPQC tool kit
- Begin prioritizing action items with Plan, Do, Study, Act (PDSA) cycles
- Attend kick off & data training sessions
- Gather any baseline data available, find data sources, define data workflow
- Team meeting times, PDSA cycles
- Attend monthly huddles & learning sessions

## DEFINITIONS

- **Clinical Opiate Withdrawal Scale (COWS):** a tool utilized in both outpatient and inpatient settings to assess for common signs and symptoms of opiate withdrawal and to monitor these symptoms over time. It contains an 11-item assessment that is scaled and scored.
- **Drug exposure screening test:** a screening test that requires a confirmatory laboratory test to ensure validity of the result.
- **Drug exposure confirmation test:** the definitive test confirming in-utero exposure to a substance.
- **Long-acting reversible contraception (LARC):** Long-acting reversible contraceptives are methods of birth control that provide effective contraception for an extended period without requiring user action.
- **Medication Assisted Treatment (MAT):** the use of Federal Drug Administration (FDA) approved medications, in combination with counseling and behavioral therapies, to provide a ‘whole-patient’ approach to the treatment of SUD. (SAMHSA, 2018)
- **Neonatal Neonatal Opioid Withdrawal Syndrome (NOWS):** Also known as Neonatal Abstinence Syndrome (NAS), NOWS is a drug withdrawal syndrome that most commonly occurs in a newborn after in utero exposure to opioids, although other substances have also been associated with the syndrome. Associated symptoms may include neurologic, gastrointestinal, and musculoskeletal disturbances. Symptoms of NAS/NOWS generally include:
  - Irritability
  - Inconsolable, high-pitched cry
  - Fever
  - Feeding difficulties
  - Poor weight gain
  - Vomiting and diarrhea
  - Skin breakdown
  - Sleep issues

- **Clinical Neonatal Opioid Withdrawal Syndrome (NOWS):** an infant with clinical signs which are consistent with NOWS in the context of a maternal history of exposure in the absence of laboratory confirmation. Previously known as Neonatal Abstinence Syndrome (NAS).
- **Laboratory confirmed NOWS:** newborn with clinical signs consistent with NOWS with a positive drug exposure confirmation test. **Neonatal Opioid Withdrawal Syndrome Rx:** NAS/NOWS treatment plan, to include non-pharmacologic and pharmacological components
- **Neonatal Opioid Withdrawal Syndrome Score:** formal, validated score for NAS/NOWS severity (e.g. Finnegan, modified Finnegan, or another validated score)
- **Opioid Exposed Newborn (OEN):** A newborn of a mother with OUD if mother has:
  - positive self-report screen or positive opioid toxicology screen during pregnancy and assessed to have OUD, **or**
  - patient endorses or reports misuse of opioids / opioid use disorder, **or**
  - using non-prescribed opioids during pregnancy, **or**
  - using prescribed opioids chronically for longer than a month in the third trimester, **or**
  - if newborn has an unanticipated positive neonatal cord, urine, or meconium screen for opioids, **or**
  - if newborn affected by maternal use of opioids including NOWS.
- **Opioid Use Disorder (OUD):** a problematic pattern of opioid use leading to clinically significant impairment or distress. Pregnant women identified to have OUD are those:
  - with a positive self-report screen during pregnancy and assessed to have OUD, or
  - who endorses or reports misuse of opioids/opioid use disorder in pregnancy, or
  - using any non-prescribed opioids during pregnancy, or
  - using prescribed opioids chronically for longer than a month in the third trimester of their pregnancy.
- **Polysubstance NAS/NOWS:** newborn with clinical signs consistent with NAS/NOWS due to positive drug exposure to two or more substances, regardless of substance class.
- **Screening, Brief Intervention and Referral to Treatment (SBIRT):** an evidence-based practice used to identify, reduce, and prevent problematic use, abuse, and dependence on alcohol and illicit drugs. Interventions may include:
  - Engaging the woman in short conversations
  - Providing feedback and advice.
- **Screening tool:** verbal or written questions regarding substance use.
- **Severe Maternal Morbidity:** unintended outcomes of the process of labor and delivery that result in significant short-term or long-term consequences to a woman's health.
- **Substance Use Disorder (SUD):** patterns of symptoms resulting from the use of a substance that continues to be taken, despite experiencing problems as a result.

**GLOBAL PROJECT AIM:** Optimize the care and improve the outcomes of pregnant women and their newborns affected by opioid use disorder.

**MATERNAL AIM:** Decrease complications of OUD in pregnancy by optimizing the care for women through education, resource mapping, screening, access to treatment services, and protocols for antepartum, intrapartum, and postpartum care by the end of June 2020.

**TARGET POPULATION – MATERNAL**

Women diagnosed with OUD during pregnancy.

**METRIC LEVEL MATERNAL AIMS**

Increase each of the following metrics by 10% with the completion of the project:

1. Number of prenatal care sites who have a SUD universal screening protocol
2. Percent of pregnant women with OUD who have screening for HIV, Hepatitis B, and Hepatitis C completed and documented prenatally or prior to birth
3. Percent of pregnant women with OUD who have screening completed and documented for Psychiatric disorders
4. Percent of pregnant women diagnosed with OUD receiving MAT and/or Behavioral health treatment
5. Percent of women with OUD who receive contraception counseling and a documented plan prenatally or during delivery admission prior to maternal discharge
6. Percent of women with OUD who receive naloxone HCl (Narcan®) counseling and prescription documented prenatally or during delivery admission prior to maternal discharge
7. Number of delivery sites with OUD specific pain management and opioid prescribing guidelines
8. Number of opioid exposed neonates receiving mothers' milk at newborn discharge
9. Number of OENs who room in with the mother
10. Number of OENs who go home to their biological mother

**NEWBORN AIM:** Optimize the care and improve outcomes of opioid exposed newborns by improving recognition, pharmacologic and non-pharmacologic treatment, and the referral to follow-up services by December of 2019.

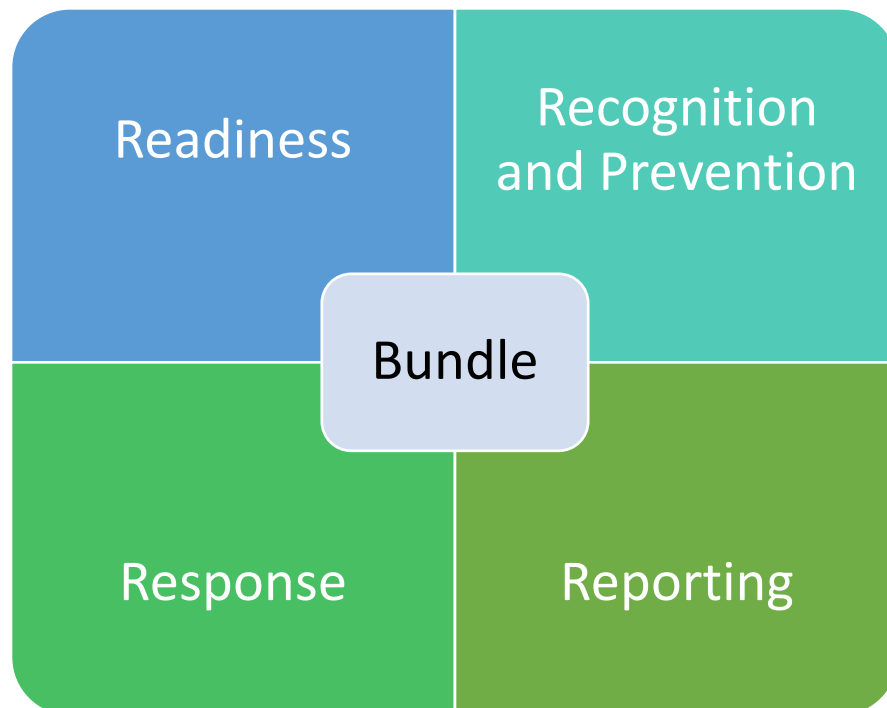
**TARGET POPULATION – NEWBORN**

Infants, without significant medical issues, born at an estimated gestational age of  $\geq 35$  weeks admitted to the newborn nursery or Neonatal Intensive Care Unit (NIC) for management of opioid exposure.

**METRIC LEVEL NEWBORN AIMS:**

1. Increase the number of OEN receiving mother's milk at newborn discharge by 10%
2. Increase by 10% the number of OEN who room in with their mother
3. Increase the use of appropriate developmental care by ancillary staff by 10%
4. Decrease the number of OEN requiring pharmacologic management by 10%
5. Decrease the number of OEN being transferred to a higher level of care for management by 10%
6. Reduce the length of stay for pharmacologically treated NAS/NOWS newborns by 10%
7. Increase the number of OEN who go home in the care of their biological mother by 10%
8. Achieve the AAP recommendation of 80% (4 out of 5 visits) compliance with scheduled primary care visits in the first 6 months post-hospital discharge.

## MATERNAL OUD TOOLKIT



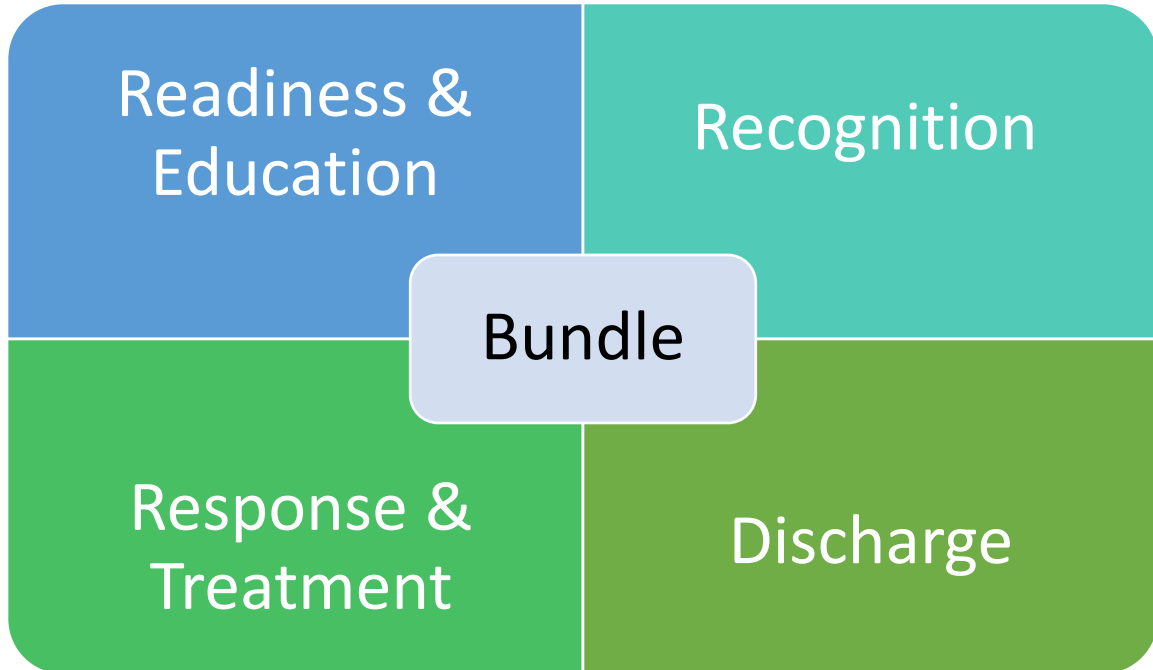
<b>READINESS</b>	
<b>Every Patient/Family</b>	<ul style="list-style-type: none"> <li>● Provide education to promote understanding of OUD as a chronic disease               <ul style="list-style-type: none"> <li>○ Emphasize that SUD is a chronic medical condition, treatment is available, family and peer support is necessary, and recovery is possible</li> <li>○ Emphasize that opioid pharmacotherapy (i.e. methadone, buprenorphine) and behavioral therapy are effective treatments for OUD</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>● Provide education regarding NAS/NOWS and newborn care               <ul style="list-style-type: none"> <li>○ Awareness of the signs and symptoms of NAS/NOWS</li> <li>○ Interventions to decrease NAS/NOWS severity</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>● Engage appropriate partners (i.e. social workers, case managers) to assist women and families in the development of a “plan of safe care” for mom and baby</li> </ul>
<b>Every Clinical Setting/Health System</b>	<ul style="list-style-type: none"> <li>● Provide staff-wide (clinical and non-clinical staff) education on SUD               <ul style="list-style-type: none"> <li>○ Emphasize that SUD is a chronic medical condition that can be treated</li> <li>○ Emphasize that stigma, bias and discrimination negatively impact pregnant women with OUD and their ability to receive high quality care</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>● Provide training regarding trauma-informed care</li> </ul>
	<ul style="list-style-type: none"> <li>● Establish specific prenatal, intrapartum, and postpartum clinical pathways for women with OUD that incorporate care coordination among multiple providers</li> </ul>
	<ul style="list-style-type: none"> <li>● Develop pain control protocols that account for increased pain sensitivity and avoidance of mixed agonist-antagonist opioid analgesics</li> </ul>
	<ul style="list-style-type: none"> <li>● Know state reporting guidelines regarding the use of opioid pharmacotherapy and identification of illicit substance use during pregnancy</li> </ul>
	<ul style="list-style-type: none"> <li>● Know federal (Child Abuse Prevention Treatment Act - CAPTA), state and county reporting guidelines for substance-exposed infants</li> </ul>
	<ul style="list-style-type: none"> <li>● Understand “Plan of Safe Care” requirements</li> </ul>
	<ul style="list-style-type: none"> <li>● Know state, legal and regulatory requirements for SUD care</li> </ul>
	<ul style="list-style-type: none"> <li>● Identify local SUD treatment facilities that provide women-centered care               <ul style="list-style-type: none"> <li>○ Ensure that OUD treatment programs meet patient and family resource needs (i.e. wrap-around services such as housing, child care, transportation and home visitation)</li> <li>○ Ensure that drug and alcohol counseling and/or behavioral health services are provided</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>● Investigate partnerships with other providers (i.e. social work, addiction treatment, behavioral health) and state public health agencies to assist in bundle implementation</li> </ul>

RECOGNITION AND PREVENTION	
<b>Every Provider/Clinical Setting</b>	<ul style="list-style-type: none"> <li>● Assess all pregnant women for SUD               <ul style="list-style-type: none"> <li>○ Utilize validated screening tools to identify drug and alcohol use</li> <li>○ Incorporate SBIRT approach in the maternity care setting</li> <li>○ Ensure screening for polysubstance use among women with OUD</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>● Screen and evaluate all pregnant women with OUD for commonly occurring co-morbidities               <ul style="list-style-type: none"> <li>○ Ensure the ability to screen for infectious disease (e.g. HIV, Hepatitis and other sexually transmitted infections [STIs])</li> <li>○ Ensure the ability to screen for psychiatric disorders, physical and sexual violence</li> <li>○ Provide resources and interventions for smoking cessation</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>● Match treatment response to each woman’s stage of recovery and/or readiness to change</li> </ul>
RESPONSE	
<b>Every Provider/Clinical Setting/Health System</b>	<ul style="list-style-type: none"> <li>● Support all pregnant women with OUD to enroll in a woman-centered treatment program               <ul style="list-style-type: none"> <li>○ Establish communication with OUD treatment providers and obtain consents for sharing patient information</li> <li>○ Assist in linking to local resources that support recovery, such as peer navigator programs, Narcotics Anonymous (NA), and support groups</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>● Incorporate family planning, breastfeeding, pain management and newborn care counseling, education and resources into prenatal, intrapartum and postpartum clinical pathways               <ul style="list-style-type: none"> <li>○ Provide breastfeeding and lactation support for all postpartum women on pharmacotherapy</li> <li>○ Provide postpartum contraceptive options prior to hospital discharge</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>● Promote coordination among providers during pregnancy, postpartum and the inter-conception period               <ul style="list-style-type: none"> <li>○ Provide referrals to providers (e.g. social workers, psychiatry, and infectious disease) for identified co-morbid conditions</li> <li>○ Identify a lead provider responsible for care coordination, specify the duration of coordination and assure a “warm handoff” with any change in the lead provider</li> <li>○ Develop a communication strategy to facilitate coordination among the obstetric provider, OUD treatment provider, health system clinical staff (i.e. inpatient maternity staff, social services) and child welfare services</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>● Engage state agencies and other professionals in developing safe care protocols tailored to the patient and family’s OUD treatment and resource needs</li> <li>● Guide priority access to quality home visiting services for women and families affected by SUD as indicated</li> </ul>

<b>REPORTING AND SYSTEMS LEARNING</b>	
<b>Every Clinical Setting/Health System</b>	<ul style="list-style-type: none"> <li>• Develop mechanisms to collect data and monitor metrics to ensure high quality healthcare delivery for women with SUD. Develop a data dashboard to monitor process and outcome measures (i.e. number of pregnant women in OUD treatment at specified intervals)</li> </ul>
	<ul style="list-style-type: none"> <li>• Create multidisciplinary case review teams to evaluate patient, provider, and system-level issues</li> </ul>
	<ul style="list-style-type: none"> <li>• Develop continuing education and learning opportunities for providers and staff regarding SUD</li> </ul>
	<ul style="list-style-type: none"> <li>• Identify ways to connect non-medical local and community stakeholders with clinical providers and health systems to share outcomes and identify ways to improve systems of care</li> </ul>
	<ul style="list-style-type: none"> <li>• Engage state and public health agencies, court systems, and law enforcement to assist with data collection, identify existing problems, and help drive initiatives</li> </ul>



## NEWBORN OEN TOOLKIT



### **Step 1: Readiness & Education**

1. Provide education to all hospital caretakers regarding:
  - a. The physiologic and psychosocial reasons for addiction
  - b. How to recognize and address the stigma of caring for opioid using mothers and their newborns.
2. Assess and provide education to the family unit during the hospital stay regarding:
  - a. The overall management of the OEN, and the signs of withdrawal.
  - b. The criteria for treatment, for both the OEN and NAS/NOWS patient, and how the decision is made regarding appropriate care.
  - c. The role of the parents as part of the care team, assisting the hospital staff in evaluation and care of the newborn.

### **Step 2: Recognition**

1. Detection of the OEN or the newborn with NAS/NOWS requires both attention to maternal history and risk factors as well as vigilance for the emergence of signs in the newborn where maternal history is non-informative.
2. Review newborn care (NICU, newborn nursery, pediatric unit, Emergency Department) screening paradigm with careful attention to communication gaps between newborn and maternal healthcare teams.
3. Devise and implement a unified screening approach that consistently identifies the OEN in your facility. This could include urine, meconium, and/or umbilical cord testing, as well as maternal screening efforts.
4. Assess all OEN for signs of withdrawal using an objective and standardized tool. The scoring tool should be used in conjunction with the clinical exam and staff/family input to aid in the decision to initiate or escalate pharmacologic care

### **Step 3: Response and Treatment**

1. Provide ***non-pharmacologic care*** to newborns suspected or proven to be opioid exposed. There are several non-pharmacologic treatments that can be used to support newborns who are opioid exposed. These treatments are considered first-line care and are implemented on admission. Non-pharmacological therapy is easily accessible, less expensive, and replicable in the family home. In cases of mild withdrawal, this may be the care needed (Kocherlokata, 2014). Non-pharmacologic care may include, but is not limited to:
  - a. Provide extensive support of the family care network.
  - b. Provide an environment that limits stimulation – dim lights, low noise, swaddling, kangaroo care, pacifiers, continuous minimal stimulation, gentle handling, and on-demand feeding. This includes the use of “rooming in” the mother and newborn, which facilitates these modifications and has been shown to decrease the severity of withdrawal and improve outcomes.
  - c. Support breastfeeding in women without contraindications. Ample evidence demonstrates the many benefits of breastmilk feedings for newborns exposed to opioids. According to the Academy of Breastfeeding Medicine (ABM) (2015), women, without other contraindications to breastfeeding such as positive HIV status, who are engaged in and continuing to participate in substance use treatment

should be encouraged to breastfeed. Other criteria include an appropriate maternal drug screen at the time of delivery, abstinence from drug use for 90 days prior to delivery, and engaged in perinatal care with a post partum follow up plan.

Mothers who are not in treatment or not compliant with the prescribed treatment regimen, formula feedings are recommended. Some newborns may benefit from a higher calorie formula if newborn weight gain is not adequate.

- d. Implement safe sleep practices during the newborn's hospitalization. Demonstration by nursing staff also reinforces these practices to parents and caretakers.
- e. Support active maternal participation.
- f. Utilize trained cuddlers and volunteers to assist in calming the newborn when a parent is not available.

2. Provide **pharmacologic care** to the newborn with a clinical diagnosis of NOWS.

- a. Continue to provide non-pharmacologic care mentioned above.
- b. Providers and facilities should review the literature to identify a pharmacologic treatment regimen to utilize with newborns as indicated. Consistency with evaluation and treatment is crucial to the care of these patients.

→Examples of pharmacologic treatment plans:

- <http://www.childhealthnetwork.com/chn/pdfs/Guidelines%20&%20Transfer%20Protocols%20%20Management%20of%20Perinatal%20Substance%20Use%20and%20Abuse%20-%20June%202002.pdf>
- Jansson LM, Velez M, Harrow C. The opioid-exposed newborn: assessment and pharmacologic management. *J Opioid Manag.* 2009 Jan-Feb;5(1):47-55.
- Osborn, D., (2007). Neonatal abstinence syndrome. Department of Neonatal Medicine Protocol Book.  
<http://www.cs.nsw.gov.au/rpa/neonatal/html/newprot/nas.htm>.
- Snyder, G., et al., (2011). NAS Management Algorithm. Permission to publish. Presented at a conference in Nashville, TN. Title of presentation: Length of Stay Reduction: A Quality Improvement Project for Neonatal Abstinence Syndrome by Richard McClead, MD, Medical Director, Quality Improvement Services, Nationwide Children's Hospital, Columbus, Ohio.

**Step 4: Facilitate discharge**

1. Discharge is indicated when the newborn shows no major signs of withdrawal, is feeding well with stable weight, and sleeping well.
2. If DCS involvement is needed, social services and DCS will be responsible for the safety of the newborn's home environment. In the small number of cases where the home environment is not suitable, social services and the DCS will identify an appropriate alternative. These services should be accessed as soon as possible in the peripartum hospital period.
3. Educate parents in the importance of routine newborn follow-up care with the newborn's primary care provider. Review with parents the management of ongoing withdrawal symptoms after hospital discharge and provide linkage to support services.

## POTENTIALLY BETTER PRACTICES

This toolkit contains numerous potentially better practices that teams will implement. The PPBs are color-coded based on maternal, dyad, and newborn practices. The following is the color coding:

**All teams (OUD and OEN):** grey

**Maternal OUD teams:** orange

Potentially Better Practice Index	Team(s)
#1: Provide Education to Reduce Stigma and Knowledge Deficit Related to Care of the Pregnant Woman with SUD and OUD and the Opioid Exposed Newborn	Maternal and Infant
#2: OUD and OEN/NAS/NOWS Resource Mapping	Maternal and Infant
#3: Provide Universal Screening for Drug and Alcohol Use in All Pregnant Women	Maternal
#4: Provide Education for the Pregnant and Postpartum Woman With OUD	Maternal
#5: Establish a Plan of Care For the Out-Patient Prenatal/Antepartum Management of Women Who Screen Positive	Maternal
#6: OUD Treatment and Risk Reduction	Maternal
#7: Develop an Intrapartum Plan of Care for the Woman With OUD	Maternal
#8: Develop a Postpartum Plan of Care for the Woman with OUD	Maternal
#9: Provide NAS/NOWS Screening	Maternal and Infant
#10: Promotion of Breastfeeding	Maternal and Infant
#11: Non-Pharmacologic Care of the OEN and/or NAS/NOWS Newborn	Maternal and Infant
#12: Prepare the infant for discharge, and when required engage Department of Children’s Services in developing safe care protocols tailored to the patient and family’s OUD treatment and resource needs	Maternal and Infant
#13: Develop Monitoring and Reporting Systems	Maternal and Infant

### Potentially Better Practice #1: Provide Education to Reduce Stigma and Knowledge Deficit Related to Care of the Pregnant Woman with SUD and OUD and the OEN

**Rationale:** Stigma surrounding SUD in general and OUD in particular creates several barriers for patients. Patients may fear disclosing SUD due to concerns about judgement or how such a disclosure could impact their care. Stigma around SUD within the clinical setting may result in a patient feeling isolated, judged, and devalued. Creating an environment where all women are treated with dignity and respect is essential to building the therapeutic relationship necessary for women and families with SUD to engage and remain in treatment. A positive environment for the mother and family will translate into a therapeutic environment for the infant as well.

### **Implementation Strategies:**

1. Ensure budgetary funding for education.
2. Determine who will provide education.
3. Create and provide evidence-based education with the following considerations:
  - a. Professionalism
  - b. Medical ethical principles
  - c. Chronic medical disease pathophysiology of SUD/ODU
  - d. Pathophysiology of OEN/NAS/NOWS
  - e. Trauma informed care
  - f. Patient/family confidentiality
  - g. Emphasize that stigma, bias, and discrimination negatively impact pregnant women with OUD and their ability to receive high quality care.
4. Consider interprofessional education that allows teams to reflect on clinical practice.
5. Strive to use language that helps reduce stigma, accurately reflects science, promotes evidence-based practices, and demonstrates respect for patients. For example, replace “drug abuser” with “person with a substance use disorder” and “in recovery” rather than using “being clean”.
6. Determine time, dates, and location for training that will allow the highest number of attendees.
7. Consider on-line or E-learning modules for training to increase participation and provide flexibility in training.
8. Provide tools and resources needed for training including opportunities for ongoing continuing education on SUD/ODU/OEN/NAS/NOWS.
9. Provide feedback during and after training.
10. Allow time for questions and answers following education and training.
11. Ensure that participants in the education program have a pathway for follow up education and training as needed.
12. Get feedback from patients on their experiences both inpatient and outpatient and use that feedback to target educational initiatives and staff trainings.

Consider utilizing the Factsheet 1 of the 2018 SAMHSA guidelines for a review of supporting evidence for an empathetic approach at: <https://store.samhsa.gov/product/SMA18-5054>

### **Potential Challenges:**

- Funding, cost, and in kind donation for training time away from patient care
- Funding only focused on care of the NAS/ NOWS infant instead of the pregnant woman with SUD/ODU
- Staff buy-in
- Stigma regarding SUD/ODU/OEN/NAS/NOWS is pervasive throughout society
- Time constraints to conduct training
- Presence of stigma is difficult to measure
- Measuring progress of stigma reduction is difficult
- Leadership buy-in regarding the necessity of training
- Inability to get all providers and staff trained prior to implementation

- Challenge for providers to conduct education if they don't have a large OUD patient population
- Previous education programs have focused on care of the newborn with OEN/NAS/NOWS and not the pregnant woman with SUD/ODU
- Lack of involvement and feedback from patients
- Providers are not incentivized or mandated to do training

**Who:** All obstetric and newborn healthcare providers who care for women and infants with OUD or OEN/NOWS including physicians, nurse practitioners, nurse midwives, staff nurses, social workers, lactation consultants, and pharmacists

### **Potentially Better Practice #2: OUD and OEN/NAS/NOWS Resource Mapping**

**Rationale:** Ending the opioid epidemic requires a coordinated community response. Hospitals and health systems are actively partnering with organizations and people in their communities to address the epidemic together. It is important to connect with community opioid treatment programs, buprenorphine and methadone providers, and explicitly encourage communitywide conversations and coordination of care.

#### **Implementation Strategies:**

1. Identify in-patient residential treatment programs in each region of the state.
  - Pregnant Women
  - Parenting Women (mother and newborn)
2. Identify out-patient treatment programs/services in each region of the state including methadone clinics that provide woman-centered care.
  - Ensure that OUD treatment programs meet patient and family resource needs (e.g. wrap-around services such as housing, child care, transportation, and home visitation).
  - Include links to local resources (e.g. peer navigation programs, narcotics anonymous (NA), support groups) that support recovery.
3. Determine providers in each region of the state who are trained and qualified to prescribe buprenorphine.
4. Determine mental health programs that specialize in substance use in each region of the state.
5. Outline state, legal, and regulatory requirements for SUD care.
6. Outline federal (Child Abuse Prevention Treatment Act – CAPTA), state, and county reporting guidelines for substance-exposed infants.
7. Understand “Plan of Safe Care” requirements.
8. Investigate partnerships with other providers (e.g. social work, addiction treatment, behavioral health) and state and public health agencies to assist in bundle implementation.
9. Distribute resource maps to out-patient and in-patient obstetric service providers.
10. Consider alternative payment options for treatment resources.

#### **Potential Challenges:**

- Lack of resources to develop resource mapping

- Lack of residential treatment programs in each region of the state who treat the pregnant and/or parenting woman
- Lack of out-patient treatment program services in each region of the state that provide woman-centered care
- Too few methadone clinics in each region of the state
- Too few providers with ability to prescribe and manage women on buprenorphine in each region of the state
- No coordination of resources
- Duplication of efforts
- Lack of support from other organizations
- Lack of awareness of state laws for reporting OUD, OEN, NAS/NOWS
- Insurance plans differ for reimbursement, thereby effecting resource availability
- Loss of maternal insurance funding during the postpartum period and prior to completion of treatment
- Care for women from differing states with different coverage

**Who:** Health Department providers and administrators, hospital providers and administrators, out-patient prenatal care clinic providers and administrators, social workers, case managers

### **Potentially Better Practice #3: Provide Universal Screening for Drug and Alcohol Use in All Pregnant Women**

**Rationale:** Pregnancy provides an opportunity for detection and management of substance use and associated disorders. All pregnant women should be screened for drug and alcohol use at the first prenatal visit and subsequently, including women for whom substance use has already been identified as a concern. (WHO, 2014; SAMHSA, 2018) Screening should be done with empathy, using a validated screening instrument. (ACOG, 2012) All healthcare professionals providing obstetric care should feel empowered to respond to disclosure of prenatal drug or alcohol use with concern and assist women to obtain further evaluation and/or treatment as indicated. (ACOG, 2015a; Wright, 2016; Reddy, 2016)

#### **Implementation Strategies:**

1. Determine which validated tool will be utilized for drug and alcohol screening. Specific screening tools are outlined in the AIM resources at:  
<https://safehealthcareforeverywoman.org/wp-content/uploads/2018/08/AIM-Opioid-Screening-Tools.pdf>  
*NOTE: there are no head-to-head comparative studies that have determined the best screening tool. In addition, some electronic medical records have developed their own screening tools that may be utilized across the life span.*
2. Implement universal screening as part of comprehensive obstetric prenatal care. Perform at the first prenatal visit or entry into the healthcare system.
3. Consider patient confidentiality issues that may arise.
4. Train providers on SBIRT and implementation strategies.

### Potential Challenges:

- Inability of providers to reach agreement on best practices
- Lack of understanding of what “screening” means
- Screening approaches and tools are not well understood
- Lack of screening by providers due to education
- Lack of screening by providers due to time and process barriers
- Lack of clinical guidelines and protocols regarding management of positive screen
- Lack of resources for women who screen positive

**Who:** Physicians, midwives, nurse practitioners, and staff nurses providing prenatal and inpatient obstetric care

### Potentially Better Practice #4: Provide Education for the Pregnant and Postpartum Woman With OUD

**Rationale:** Educating women and their families on OUD during pregnancy, intrapartum, and postpartum will improve maternal and neonatal outcomes.

#### Implementation Strategies:

1. Establish and maintain rapport with SUD patients.
2. Engage the woman and her family/support persons early on in the process and plan of care.
3. Provide education to promote understanding of OUD as a chronic, treatable disease.
4. Develop culturally sensitive educational materials and shared decision making practice processes regarding OUD during pregnancy/postpartum.
5. Assure that documentation systems are updated to include teaching materials on screening and treatment of OUD in pregnancy.
6. Have an inter-professional team review patient education materials for relevance, clarity, and accuracy.
7. Develop patient education materials that are written using understandable terminology for all educational levels.
8. Determine the process for non-English speaking women to obtain education materials.
9. Confirm the woman’s understanding of OUD in pregnancy by asking her to repeat information provided.
10. Encourage questions.
11. Educational topics include, but are not limited to:
  - a. OUD in pregnancy
    - i. Complications for mother and baby
    - ii. Treatment plan
      - MAT
      - Behavioral health
    - iii. Available resources
  - b. Other substance exposure
    - i. Nicotine



- ii. Cocaine
- iii. Amphetamine/Methamphetamine
- iv. Benzodiazepine
- v. Alcohol
- vi. Marijuana
- c. Preparation for labor and birth
- d. Breastfeeding (see PBP #10)
  - i. Safety with medication use
  - ii. Benefits
- e. Newborn care and child safety (See PBP # 11)
  - i. Rooming in
  - ii. Signs of withdrawal
  - iii. Management of withdrawal
    - Non-pharmacologic
    - Pharmacologic
  - iv. Tobacco exposure
- f. NAS/NOWS and strategies to decrease severity
- g. Home safety
- h. Domestic violence prevention
- i. Narcan for overdose

**Potential Challenges:**

- Inability for the woman to understand or accept the education presented and/or materials provided
- Education not provided
- Education and materials are not effective

**Who:** Obstetric healthcare providers, nursing educator or clinical nurse specialist, lactation consultants, pharmacist

**Potentially Better Practice #5: Establish a Plan of Care for the Out-Patient Prenatal/Antepartum Management of Women Who Screen Positive**

**Rationale:** Formulating an evidence-based practice procedure for management of women with OUD will provide consistency in practice, coordination of care, and optimization of outcomes. All women who screen positive for SUD will have access to nonjudgmental, compassionate treatment. It is important to note, treatment may consist of in-patient, out-patient, and behavioral health programs as determined by the woman’s plan of care and willingness to consider portions of the plan.

**Implementation Strategies:**

1. Establish an inter-professional team (including representatives of all key sectors) to develop policy, practice, and process.
2. Review scientific evidence regarding OUD in pregnancy.

3. Review concepts regarding change theory.
4. Utilize “lessons learned” from other institutions who are implementing an OUD bundle.  
*Note: several other state quality improvement teams have previously implemented components of an OUD bundle (see resource section of this document)*
5. Set up a process for women with OUD to be screened for polysubstance use and offered appropriate treatment such as stimulant dependence, and benzodiazepine detoxification.
6. Screen and evaluate all pregnant women with OUD for commonly occurring co-morbidities.
  - a. Co-occurring psychiatric disorders e.g. depression, anxiety, Post Traumatic Stress Disorder
  - b. Infectious Diseases e.g. hepatitis C, human immunodeficiency virus (HIV), hepatitis B, gonorrhea, chlamydia, syphilis
  - c. Nicotine dependence and smoking cessation education and interventions.
7. Caffeine reduction
8. Consider impact on patient satisfaction.
9. Consider patient confidentiality issues that may arise.
10. Identify a lead provider responsible for care coordination, specify the duration of coordination and assure a “warm handoff” with any change in the lead provider.
11. Develop a communication strategy to facilitate coordination among the obstetric provider, OUD treatment provider, health system clinical staff, and DCS.
12. Consider Anesthesiology consultation prior to admission for labor to plan individualized pain management strategy.
13. Assist in linking to local resources that support recovery, such as peer navigator programs, NA, and support groups.
  - a. 180 Health Partners
  - b. MCO case management programs
14. Consider using established clinical pathway protocols that are based on best practice recommendations.

**Example Protocols/Best Practice Recommendations/ Checklists**

<https://safehealthcareforeverywoman.org/wp-content/uploads/2018/08/Opioid-Use-Disorder-Clinical-Pathway.pdf>

<http://www.ilpqc.org/docs/toolkits/MNO-OB/Example-Checklist-for-Care-of-Pregnant-Women-with-SUD.pdf>

[http://www.ilpqc.org/docs/toolkits/MNO-OB/Example-Checklist-for-Women-with-OUD\\_Chart-Template.pdf](http://www.ilpqc.org/docs/toolkits/MNO-OB/Example-Checklist-for-Women-with-OUD_Chart-Template.pdf)

**Potential Challenges:**

- Resistance to new policies and practices
- Lack of support from key stakeholders (e.g. administrative, medical, nursing, etc.)
- Lack of champions to help to establish policy and practice process for facility
- Lack of “buy-in” from providers and staff
- Patient refuses monitoring and treatment.
- Concern regarding cost and reimbursement

- Disagreement regarding safety, validity, or importance
- Lack of communication and education for orientation of providers and staff to new policy or new hires to existing policies
- Difficulty blending and accessing resources
- Program is not woman-centered
- Program does not provide care for pregnant women
- Lack of communication between providers/teams

**WHO:** Obstetric healthcare providers, leadership

### **Potentially Better Practice #6: OUD Treatment and Risk Reduction**

**Rationale:** MAT, either with methadone or buprenorphine, and behavioral health treatment are essential components of treatment for OUD in pregnancy. MAT is recommended to prevent complications from continued illicit opioid use and narcotic withdrawal, encourage prenatal care, and reduce criminal activity. Combining prenatal care, MAT, and behavioral health treatment reduces the risks of obstetric complications and leads to improved outcomes for mothers and their infants.

#### **Implementation Strategies:**

1. Match treatment response to each woman's stage of recovery and/or readiness to change.
2. Refer patients to woman-centered treatment programs that specialize in the care of pregnant women.
3. Establish communication with OUD treatment providers and obtain consents for sharing patient information.
4. Encourage obstetric providers to get buprenorphine training and Drug Enforcement Agency (DEA) waiver.
5. Create inpatient and outpatient treatment protocols regarding MAT induction and maintenance therapy.
6. Develop protocols for women who choose to taper or wean during pregnancy.
7. Provide narcan education, counseling, and prescriptions for all women with OUD.

## Examples/Resources for OUD Treatment Protocols

# COWS Wesson & Ling, J Psychoactive Drugs. 2003 Apr-Jun;35(2):253-9. Clinical Opiate Withdrawal Scale

Resting Pulse Rate: _____ beats/minute <i>Measured after patient is sitting or lying for one minute</i> 0 Pulse rate 80 or below 1 Pulse rate 81-100 2 Pulse rate 101-120 4 Pulse rate greater than 120	GI Upset: <i>over last 1/2 hour</i> 0 No GI symptoms 1 Stomach cramps 2 Nausea or loose stool 3 Vomiting or diarrhea 5 Multiple episodes of diarrhea or vomiting
Sweating: <i>over past 1/2 hour not accounted for by room temperature or patient activity.</i> 0 No report of chills or flushing 1 Subjective report of chills or flushing 2 Flushed or observable moistness on face 3 Beads of sweat on brow or face 4 Sweat streaming off face	Tremor <i>observation of outstretched hands</i> 0 No tremor 1 Tremor can be felt, but not observed 2 Slight tremor observable 4 Gross tremor or muscle twitching
Restlessness <i>Observation during assessment</i> 0 Able to sit still 1 Reports difficulty sitting still, but is able to do so 3 Frequent shifting or extraneous movements of legs/arms 5 Unable to sit still for more than a few seconds	Yawning <i>Observation during assessment</i> 0 No yawning 1 Yawning once or twice during assessment 2 Yawning three or more times during assessment 4 Yawning several times/minute
Pupil size 0 Pupils pinned or normal size for room light 1 Pupils possibly larger than normal for room light 2 Pupils moderately dilated 5 Pupils so dilated that only the rim of the iris is visible	Anxiety or irritability 0 None 1 Patient reports increasing irritability or anxiousness 2 Patient obviously irritable anxious 4 Patient so irritable or anxious that participation in the assessment is difficult
Bone or Joint aches <i>If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored</i> 0 Not present 1 Mild diffuse discomfort 2 Patient reports severe diffuse aching of joints/ muscles 4 Patient is rubbing joints or muscles and is unable to sit still because of discomfort	Gooseflesh skin 0 Skin is smooth 3 Piloerection of skin can be felt or hairs standing up on arms 5 Prominent piloerection
Runny nose or tearing <i>Not accounted for by cold symptoms or allergies</i> 0 Not present 1 Nasal stuffiness or unusually moist eyes 2 Nose running or tearing 4 Nose constantly running or tears streaming down cheeks	Total Score _____ The total score is the sum of all 11 items Initials of person completing Assessment: _____

Score: 5-12 mild; 13-24 moderate; 25-36 moderately severe; more than 36 = severe withdrawal

### Sample Protocol for Inpatient Induction to Buprenorphine in Pregnant Women

- Fetal assessment prior to buprenorphine administration:
  - If < 24 weeks Estimated Gestational Age (EGA), fetal heart tones should be confirmed via Doppler or ultrasound prior to first dose of buprenorphine.
  - If > 23 6/7 weeks EGA, nonstress test should be obtained prior to initiation of buprenorphine. Continuous fetal monitoring should be implemented if the woman is having regular and/or painful uterine contractions or there are concerns regarding fetal status.
- Urine drug screen (UDS) negative for opioids or UDS positive for opioids other than methadone:
  - Begin buprenorphine at 4 mg sublingual if COWS  $\geq 10$
  - Re-score patient in 1 hour, and if COWS  $\geq 10$ , supplement initial buprenorphine dose with additional 2 mg sublingual.
  - Continue hourly scoring and administer buprenorphine 2mg SL for COWS  $\geq 10$
  - Once COWS <5 on hourly scoring, initiate q4-6 hours COWS scoring as indicated by patient complaints; administer buprenorphine 2mg SL for COWS >10
  - Tally total doses administered during the first day in hospital at morning rounds and administer this dose in AM; thereafter COWS scoring q8 hours and administer buprenorphine 2mg SL for COWS >10

- Adjust actual daily dose based on clinical response, especially COWS score, but also historical severity of opioid use, time of last opioid use, effective dose of buprenorphine if previously maintained
- UDS positive for methadone:
  - Observe for presence of signs of withdrawal prior to administering any buprenorphine
  - Administer “test dose” of buprenorphine at 2 mg SL if COWS  $\geq 10$
  - Recheck COWS in 0.5 to 1 hour and supplement initial dose with 2 mg SL, if COWS score suggests that withdrawal is either ameliorated, or not significantly worsened by test dose
  - If COWS score *increased* significantly within an hour of the test dose of buprenorphine and the patient feels substantially worse, methadone stabilization and maintenance may be the most desirable option
  - Continue hourly scoring and administer buprenorphine 2mg SL for COWS  $\geq 10$
  - Once COWS  $< 5$  on hourly scoring, initiate COWS scoring q4-6 hours as indicated by patient complaints; administer buprenorphine 2mg SL for COWS  $\geq 10$
  - Tally total doses administered during the first day in hospital at morning rounds and administer this dose in AM; thereafter COWS scoring q8 hours and administer buprenorphine 2mg SL for COWS  $\geq 10$
  - Adjust actual daily dose based on clinical response, especially COWS score, but also historical severity of opioid use, time of last opioid use, effective dose of buprenorphine if previously maintained

### **Sample Protocol for Inpatient Methadone Induction in Pregnant Women**

- Fetal assessment prior to methadone administration:
  - If  $< 24$  weeks EGA, fetal heart tones should be confirmed via Doppler or ultrasound prior to first dose of buprenorphine.
  - If  $> 23 \frac{6}{7}$  weeks EGA, nonstress test should be obtained prior to initiation of buprenorphine. Continuous fetal monitoring should be implemented if the patient is contracting or there are concerns about fetal status.
- Consider electrocardiogram if maintenance dose will be  $> 120$ mg PO or the woman has other risk factors for QT prolongation.
- “Start low and go slow” on dosing
- Obtain baseline COWS score.
- Give initial dose of 10-20 mg methadone PO.
- Give additional 5 mg methadone PO every 4-6 hours for COWS score  $> 10$  with total first day dose not to exceed 40 mg.
- After induction, dose can be increased by 5-10 mg PO weekly.

### **Potential Challenges:**

- Inability of providers to reach agreement on best practices
- Lack of consideration for the woman’s choice of management plan
- Lack of woman-centered treatment programs
- Lack of insurance coverage for inpatient admissions or residential programs
- Lack of affordable or covered behavioral health treatment providers and facilities

**Who:** Obstetricians, Psychiatrists, Maternal Fetal Medicine Specialists, Addiction Medicine Specialists, Certified Nurse Midwives, Nurse Practitioners, leadership, staff nurses

## **Potentially Better Practice #7: Develop an Intrapartum Plan of Care for the Woman With OUD**

**Rationale:** Women with OUD have intrapartum needs that are unique. Coordination and documentation of the plan of care prior to birth hospitalization may facilitate implementation.

### **Implementation Strategies**

1. Establish an inter-professional team (including representatives of all key sectors) to develop policy, practice, and processes for the OUD woman.
2. Review scientific evidence re. best practices for intrapartum management for the woman diagnosed with OUD.
3. Develop pain control protocols that account for increased pain sensitivity.
4. Women receiving MAT should be offered pain relief during labor as desired. MAT does not provide adequate analgesia for labor.
5. Daily doses of methadone or buprenorphine should be maintained during labor to prevent withdrawal.
6. Reassure the woman and family regarding pain management plan to reduce anxiety.
7. Regional neuraxial anesthesia should be offered when appropriate and as desired by the woman.
8. Narcotic agonist-antagonist medications such as butorphanol (Stadol), nalbuphine (Nubain), and pentazocine (Talwin) must be avoided to prevent acute opioid withdrawal.
9. Consider using established clinical pathway protocols that are based on best practice recommendations.

### **Example Protocols/Best Practice Recommendations/ Checklists**

<https://safehealthcareforeverywoman.org/wp-content/uploads/2018/08/Opioid-Use-Disorder-Clinical-Pathway.pdf>

<http://www.ilpqc.org/docs/toolkits/MNO-OB/Example-Checklist-for-Care-of-Pregnant-Women-with-SUD.pdf>

[http://www.ilpqc.org/docs/toolkits/MNO-OB/Example-Checklist-for-Women-with-OUD\\_Chart-Template.pdf](http://www.ilpqc.org/docs/toolkits/MNO-OB/Example-Checklist-for-Women-with-OUD_Chart-Template.pdf)

### **Potential Challenges:**

- Lack of consideration for the woman's choice of management plan
- Management of women who present with no prenatal care
- Complexity of care
- Stigma of OUD during pregnancy leading to biased care
- Lack of buy-in from providers and staff

- Lack of physician and nursing champions
- Culture and attitudes conflict with management plans
- Lack of coordination between obstetric and neonatal providers/teams
- Refusal to abide by treatment recommendations

**Who:** Obstetric providers, labor and delivery nurses and administrators, Anesthesiology providers

### **Potentially Better Practice # 8: Develop a Postpartum Plan of Care for the Woman with OUD**

**Rationale:** Women with OUD have postpartum needs that are unique. Inpatient postpartum needs include support of the maternal-infant dyad, contraceptive counseling, planning and provision, and ensuring outpatient continued care. Outpatient postpartum needs include continued OUD treatment plan, screening for postpartum depression, contraception education and provision, and treatment of comorbid conditions.

#### **Implementation Strategies:**

1. Establish an inter-professional team (including representatives of all key sectors) to develop policy, practice, and processes for the woman with OUD.
2. Review scientific evidence regarding best practices for postpartum management for the woman diagnosed with OUD.
3. Develop pain control protocols that account for increased pain sensitivity.
4. Women receiving MAT should be offered pain relief during the postpartum period as desired. MAT does not provide adequate analgesia for postpartum pain.
5. Injectable, non-steroidal, anti-inflammatory agents are highly effective in postpartum and post-Cesarean birth pain control.
6. Daily doses of methadone or buprenorphine should be maintained during postpartum hospitalization to prevent withdrawal.
7. Reassure the woman and family/support persons regarding pain management plan to reduce anxiety.
8. Consider using established clinical pathway protocols that are based on best practice recommendations.

#### **Example Protocols/Best Practice Recommendations/ Checklists**

<https://safehealthcareforeverywoman.org/wp-content/uploads/2018/08/Opioid-Use-Disorder-Clinical-Pathway.pdf>

<http://www.ilpqc.org/docs/toolkits/MNO-OB/Example-Checklist-for-Care-of-Pregnant-Women-with-SUD.pdf>

[http://www.ilpqc.org/docs/toolkits/MNO-OB/Example-Checklist-for-Women-with-OUD\\_Chart-Template.pdf](http://www.ilpqc.org/docs/toolkits/MNO-OB/Example-Checklist-for-Women-with-OUD_Chart-Template.pdf)



9. Encourage rooming in practices. (See PBP #11)
10. Provide breastfeeding and lactation support for eligible postpartum women with OUD. (See PBP #10)
11. Provide woman centered contraceptive education, counseling, and provision including access to long-acting contraceptive options (LARC) prior to hospital discharge as allowed by hospital policy.
12. Provide supportive care of the OEN. (See PBP #11)
13. Provide coordination among providers during postpartum and the inter-conception period.
14. Ensure screening and treatment for postpartum depression and any other concomitant psychiatric disorders.
15. Provide referrals to providers (e.g. social workers, psychiatry, and infectious disease) for identified co-morbid conditions as indicated.
16. Identify a lead provider responsible for care coordination, specify the duration of coordination and assure a “warm handoff” with any change in the lead provider
17. Develop a communication strategy to facilitate coordination among the obstetric provider, OUD treatment provider, health system clinical staff (i.e. inpatient maternity staff, social services) and DCS.
18. Implement post-discharge prescription guidelines for pain management.
19. Engage appropriate partners (i.e. social workers, case managers) to assist patients and families in the development of a “plan of safe care” for mom and baby.
20. Engage DCS in developing safe care protocols tailored to the woman and family’s OUD treatment and resource needs
21. Ensure priority access to quality home visiting services as indicated.
22. Determine if the woman has Narcan or a prescription prior to discharge.

**Potential Challenges:**

- Lack of consideration for the woman’s choice of management plan
- Complexity of care
- Stigma of OUD during pregnancy leading to biased care
- Previously developed guidelines for the care of the postpartum woman that conflict with new guidelines
- Lack of buy-in by providers and staff
- Lack of physician and nursing champions
- Culture and attitudes conflict with management plans
- Lack of coordination between obstetric and neonatal providers/teams
- Inability to buy prescriptions
- Lack of buy in and coordination with DCS
- Refusal of contraception
- Refusal to abide by treatment recommendations
- Lack of transportation for follow-up treatment

**Who:** Obstetric providers, staff nurses, administrators, Anesthesiology providers



## Potentially Better Practice #9: Provide NAS/NOWS Screening

**Rationale:** The AAP Committee on Drugs recommends that all newborns of women with OUD be screened for signs and symptoms of withdrawal. Symptoms of opioid withdrawal in the newborn vary depending on the type of maternal opioid used during pregnancy, dose and timing of last exposure, gestational age, maternal metabolism, and exposure to other substances. Following birth, diagnosis and management of NAS/NOWS may be facilitated by the use of a reliable assessment tool.

### Implementation Strategies:

1. Provide a non-judgmental and compassionate approach to care.
2. Encourage maternal/family participation in care with explanation of scoring tool and inclusion in scoring process.
3. Assess the newborn for signs of withdrawal. Abnormal assessment parameters may include:
  - a. Excessive or continuous high pitched cry
  - b. Decreased sleep patterns after feeding
  - c. Hyperactive Moro reflex
  - d. Tremors
  - e. Increased muscle tone
  - f. Excoriation of skin – look for areas on ankles, elbows, and chin due to excessive movement  
*NOTE: Do not include diaper rash*
  - g. Myoclonic jerks
  - h. Generalized seizures
  - i. Fever
  - j. Frequent yawning
  - k. Mottling of skin
  - l. Nasal stuffiness and/or flaring
  - m. Sneezing > 3-4/interval
  - n. Increased respiratory rate
  - o. Excessive sucking
  - p. Poor feeding
  - q. Regurgitation or projectile vomiting
  - r. Loose or watery stools
  - s. Seizures.
4. Determine which OEN/NAS/NOWS screening/scoring tool will be utilized to assess the severity of withdrawal to help determine whether additional monitoring, nursing, medical, and pharmacologic care is indicated.
5. Specific education on the OEN/NAS/NOWS tool should be provided to the staff along with ongoing education and a plan for testing/documenting interrater reliability. Examples of NAS/NOWS scoring tools include:
  - a. Lipsitz Neonatal Drug-Withdrawal Scoring System
  - b. Finnegan Neonatal Abstinence Scoring Tool (FNAST) (*Note: the modified Finnegan is the most commonly used tool*)
  - c. Neonatal Withdrawal Inventory
  - d. Neonatal Network Neurobehavioral Scale Part II: Stress Abstinence Scale

e. Eat Sleep Console.

*NOTE: Each method of scoring is subject to strong interobserver variability.*

6. Reassess NAS/NOWS scoring at recommended intervals (clustered with other care every 3-4 hours immediately after feeding and while held by family during rooming in). Newborns should never be woken to score. The score should be reflective of the newborn's status at the time of the evaluation and for the period of time preceding the evaluation.
7. Determine length of time for scoring assessments to be carried out.
8. Provide all other assessments and care recommended for non-affected newborns.

**Potential Challenges:**

- Lack of agreement on which tool to use
- Assessment is not completed
- Assessment is not documented
- Assessment is not understood
- Appropriate follow-up based on screening is not done
- Lack of initial and/or ongoing education on the tool
- Interobserver variability
- Parental concerns/questions regarding scoring

**Who:** Nurses working on Mother/Baby or Newborn Nursery unit, pediatric providers, parents

**Potentially Better Practice #10: Promotion of Breastfeeding**

**Rationale:** Breastfeeding is the optimal source of newborn nutrition with numerous and well documented newborn and maternal benefits. Breastfeeding is generally recommended, unless an associated risk outweighs the benefits, with true contraindications to breastfeeding being rare. Generally accepted contraindications to breastfeeding in the US include HIV infection, herpes lesion on the breast, active tuberculosis, human T-cell lymphocytic virus infection, exposure to radioactive isotopes or antimetabolites, galactosemia (in the newborn), and **illicit drug use**.

Mothers with OUD who are not actively using illicit substances > 30 days prior to birth are eligible to breastfeed. Professional organizations including the AAP, ACOG, and ABM recommend breastfeeding for mothers receiving MAT for OUD. Minimal amounts of methadone, and even less buprenorphine, have been demonstrated in breast milk; therefore, any risk of adverse effects from this exposure is outweighed by the benefits of breastfeeding. Because recovery from OUD is complicated by relapse and women present in various stages of recovery during pregnancy, the ABM has published guidelines to assist in identifying which mothers are candidates for breastfeeding.

Not only is breastfeeding considered safe for OEN, human milk is associated with additional benefits. Breastfeeding has been shown to reduce the severity of NAS/NOWS. In particular, breastfed compared to formula-fed newborns tend to have lower NAS/NOWS scores, require less pharmacologic interventions, and spend fewer days in the hospital. Breastfeeding may also delay or dampen the onset of withdrawal symptoms.

Despite demonstrated safety and benefits, breastfeeding rates among mothers with substance use disorder are lower than the national average and there are high rates of discontinuing breastfeeding early. Many barriers to breastfeeding exist in this population. This potentially better practice aims to improve NAS/NOWS outcomes by the promotion of breastfeeding as part of optimal nonpharmacologic care.

### **Implementation Strategies:**

1. Educate women with OUD and their partners/family about the safety and benefits of breastfeeding. Include information about criteria for breastfeeding eligibility.
2. Consider small group classes.
3. Collaborate with mothers prenatally to develop a plan of care re: feeding and ability to room-in with the newborn.
4. Documentation of eligibility and feeding plan in the electronic medical record.
5. Assess the providers' perceptions of breastfeeding to examine barriers and the need for further education.
6. Develop clear concise hospital guidelines to support breastfeeding including indications and contraindications to breastfeeding in SUD.
7. Educate providers and staff on the specific benefits and barriers to breastfeeding for this population.
8. Give accurate and consistent information about breastfeeding in substance use disorder across the spectrum from prenatal care to L&D to postpartum care and across the spectrum of providers involved in patient care.
9. Provide lactation support and protect maternal milk supply if the newborn is unable to latch directly at the breast.
10. Provide information on pumping and post discharge resources.
11. Educate the mother on the importance of providing a consistent breast milk supply and possible risk of rebound withdrawal symptoms if breast milk is weaned abruptly.

### **Potential Challenges:**

- Time required to educate mothers during prenatal visits
- Administration buy-in to provide staff education
- Separation of mother and newborn for treatment of NAS/NOWS
- Lack of adequate rooming-in facilities after delivery
- Time commitment required for maternal recovery treatment
- Limited maternal financial and transportation resources
- Maternal medical and psychiatric comorbidities
- Frequency of sexual abuse history in this population leading to PTSD with physical act of nursing newborn and/or pumping
- NAS/NOWS symptoms interfering with effective latch and milk transfer
- Increased caloric needs of the newborn undergoing withdrawal may result in exaggerated weight loss and need for fortification of expressed breast milk supplementation with formula
- Maternal frustration with perceived or actual inconsistent information

- Maternal or staff discord regarding individual patient eligibility to breast feed
- Newborn disposition to DCS (not to mother)
- Social judgment and bias regarding mother’s suitability to breastfeed
- Lack of family support and/or knowledge about breastfeeding

**Who:** Nurses working on Mother/Baby or Newborn Nursery unit, pediatric providers, lactation consultants

### **Potentially Better Practice #11: Non-Pharmacologic Care of the OEN or NAS/NOWS Newborn**

**Rationale:** The AAP Report recommends a 2-tiered approach in the management of OEN and NAS/NOWS. The first tier focuses on non-pharmacologic interventions such as swaddling, skin-to-skin care, on-demand feeding, rocking, and care in a low-stimulation environment. These interventions may be facilitated with newborn rooming-in with the mother and a support system for the mother and newborn. Data suggest decreased pharmacologic treatment with implementation of non-pharmacologic interventions. In addition, when medications are initiated, the newborn’s length of stay and cost of care increase.

#### **Implementation Strategies:**

There are several non-pharmacologic care initiatives that can be used to support newborns who are opioid exposed. These treatments should be implemented whether the newborn requires pharmacologic management or not.

1. Assess for signs of newborn withdrawal using an objective and a standardized NAS/NOWS scoring tool.
2. Encourage rooming in with the parents. If parents are readily available to soothe their newborn, this may decrease irritability and excessive crying. If parents are not available, consider the use of volunteers and cuddlers to soothe the newborn.
3. Reduce ambient light exposure.
4. Minimize excessive noise. Place the newborn in a quiet environment. This may help reduce sleep disturbances. Limit talking near the newborn’s bed and place the newborn’s bed in a quiet section of the nursery if possible. If a private room cannot be provided, consider the use of an incubator for sound control.
5. Swaddle the newborn in a sleep sack to provide containment. Swaddling may assist the newborn in their ability to control tremors or a hyperactive Moro reflex. Swaddling may also stop newborn thrashing due to disorganization of the central nervous system. It is helpful to position the newborn’s knees and hips in flexion when swaddled and the ankles dorsiflexed. Flexion counteracts the high extensor tone and the tendency of the newborn to arch his/her back (common in NAS/NOWS). Keeping the newborn dressed in a shirt and diaper or in a sleep sack may also help to distinguish between a fever due to withdrawal or over dressing.
6. Discourage the use of mechanical rocking beds. Some studies show a significantly higher NAS/NOWS score and more sleep disruption with use.
7. Encourage use of skin-to-skin “kangaroo care”. Data suggests that newborns with NAS/NOWS

experience longer sleep times and mothers had increased feelings of contribution when skin-to-skin care is provided. In addition, data show an increase in measures of growth, breast feeding, and maternal-newborn attachment.

8. Consider the use of massage therapy to decrease stress behaviors, support motor and tone control, and improve maternal-newborn attachment. Massage may be performed by trained therapists, care team members, or patient/family.
9. If the mother is not breastfeeding or the newborn has impaired feeding behaviors, consider small frequent feedings of a hypercaloric (22 - 24 cal/oz) formula for proper growth since many newborns have an increased caloric requirement due to rigid tone, hyperactivity, poor feeding and suck regulation. Caloric intake should be calculated daily to provide 150-250 cal/kg/day. It is important not to over-feed newborns who exhibit excessive sucking or increased irritability. Excessive sucking may be interpreted as hunger and over feeding may result in regurgitation or vomiting. Maintain the newborn on the appropriate number of calories/kg/day to promote growth. Gavage feeding may be necessary if the newborn is unable to take the necessary amounts of nutrition by breast or bottle.
10. Consider offering the newborn a pacifier. Providing sucking with a pacifier may satisfy the newborn with excessive sucking needs. The use of a pacifier may assist in the organization of a dysregulated newborn.
11. Avoid unnecessary handling and abrupt changes in the newborn's environment.
12. Do not wake the newborn for routine vital signs, scoring, etc. if possible. If care needs demand waking the newborn i.e. time for feeding, move the newborn slowly and contain the newborn's extremities while undressing to diminish tremors and/or a hyperactive Moro reflex. These interventions may also decrease the newborn's respiratory rate by decreasing startles from unexpected activity.
13. Consider applying clear transparent dressings over reddened or excoriated areas on the elbows, heels as indicated.
14. Implement safe sleep practices should be implemented with reinforcement teaching provided to parents and caretakers.

**Potential Challenges:**

- Patient care model of unit does not support rooming-in
- Lack of knowledge regarding infant care needs
- Knowledge and attitudes of staff and providers does not support rooming-in
- Nursing protocols and/or staffing do not support rooming-in or other non-pharmacologic interventions
- Newborn is transferred to another unit or hospital
- Gestational age and/or abnormal assessment does not allow for rooming-in due to the need for closer observation or higher level of care
- Mother is discharged from the hospital
- Mother does not desire to provide non-pharmacologic care of the newborn
- Mother's condition does not allow non-pharmacologic care of the newborn

**Who:** Providers (Pediatric, NICU, Obstetric), Nursing (Obstetric, Neonatal, Newborn Nursery, Postpartum), Leadership, Pharmacy, Parents

**Potentially Better Practice #12: Prepare the Newborn for Discharge, and When Required Engage DCS in Developing Safe Care Protocols Tailored to the Patient and Family's OUD Treatment and Resource Needs**

**Rationale:** Discharge of the newborn is indicated when the newborn shows no major signs of withdrawal, is feeding well with stable weight, and sleeping well.

Effective January of 2013, all newborns born in Tennessee diagnosed with NAS/NOWS should be reported to the TDH via the NAS/NOWS Reporting Portal. This report should be filed at the time of diagnosis. The purpose of the report is for surveillance and does not include a referral to any other agency. The hospital (or provider if diagnosis occurs as an outpatient) is also required to report this information to DCS in the county that the newborn will reside. This includes cases in which the mother has a prescription for the opioid. For more information: <https://tn.gov/health/nas.html>.

A DCS report is required for concerns of abuse /neglect, non compliance or diagnosis with NAS/NOWS. When DCS is involved, they will determine the plan for final disposition of the newborn after discharge from the hospital.

**Implementation Strategies:**

1. Social service support within the hospital is needed to link families to community resources.
2. Develop hospital policy to meet the TDH/DCS reporting requirements.
3. Educate parents/family in the importance of routine newborn follow-up care with the newborn's primary care provider.

**Potential Challenges:**

- Workload of the social service department within the hospital
- Parental concern regarding involvement of DCS
- Potential loss of custody depending on DCS decision
- Maternal fear of criminalization
- Availability of outpatient treatment programs for mothers/babies
- Lack of available social work coverage

**Who:** Social services, medicine, nursing, parents, DCS

## Potentially Better Practice #13: Develop Monitoring and Reporting Systems

**Rationale:** Development of monitoring and reporting systems allows for the determination of progress with implementation of the OUD and OEN/NAS/NOWS bundles.

### Implementation Strategies:

1. Determine informatics team members who will assist in data collection. Involve them in project early on in order to gain buy-in, strategies, and feedback.
2. Develop mechanisms to collect data and monitor metric measures.
3. Determine process for collection of data.
4. Determine who will collect data.
5. Determine barriers to collection and reporting data. Determine strategies to overcome barriers.
6. Create multidisciplinary case review teams to evaluate patient, provider, and system-level issues.
7. Determine need for electronic medical record changes to capture data.

*Note: this should be done early in the project in order to provide time for completion prior to project implementation and the need for data collection.*

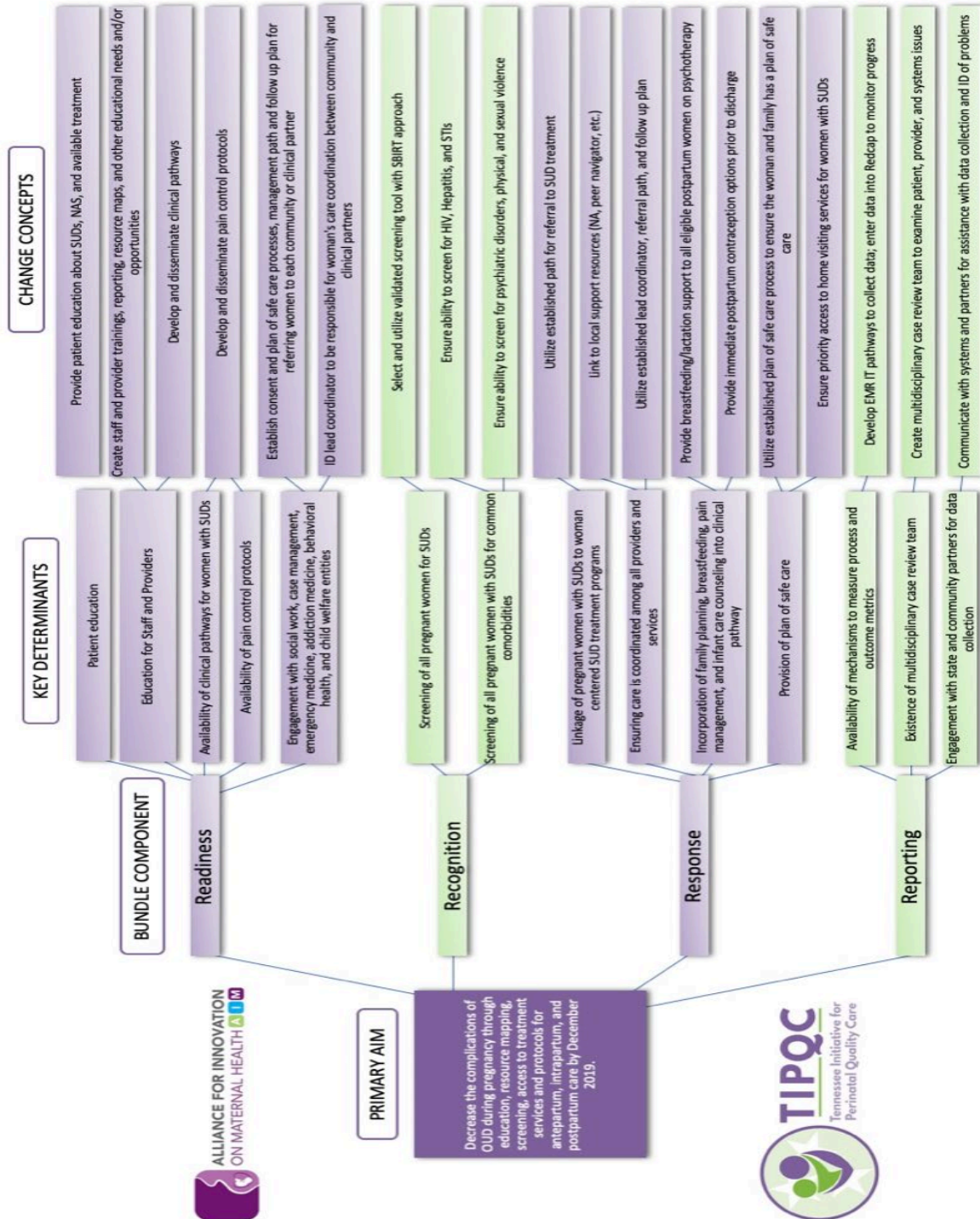
### Potential Challenges:

- Lack of quality monitoring to indicate if practice is consistent with policy
- Inpatient teams more experienced with quality improvement programs
- Data collection (outpatient more difficult; linking outpatient to inpatient)
- Duplication of data between mother and newborn teams
- Lack of reimbursement and funding for development of data monitoring system and data collection
- Delay in informatic changes
- Difficulty extracting data from electronic medical records
- Difficulty extracting data due to mixed formats (electronic and paper documentation systems)
- Extraction of data is delayed
- Data is incomplete

**Who:** Informatics and billing personnel, EMR personnel, Medicine, Nursing

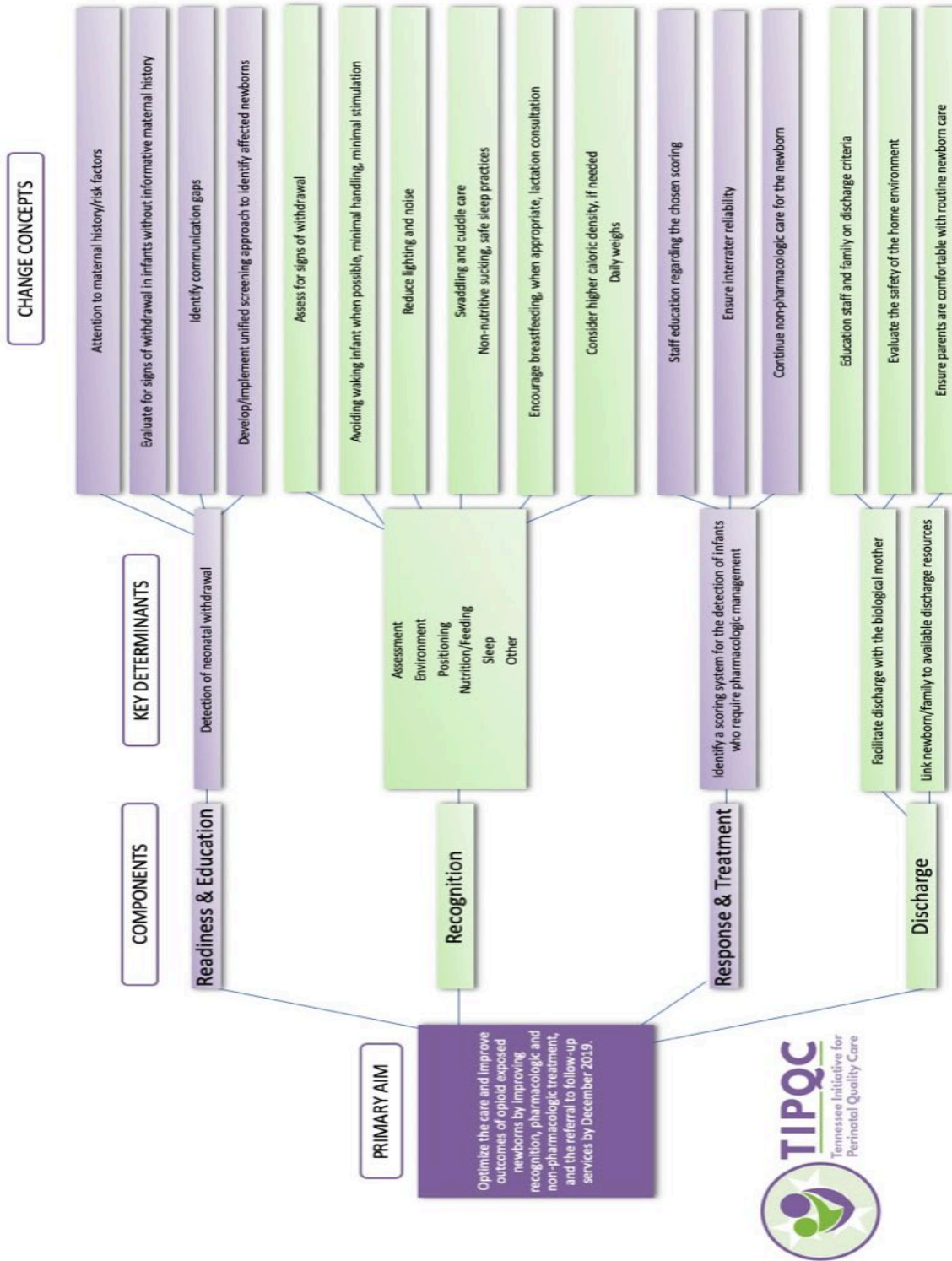


## APPENDIX A: MATERNAL KEY DRIVER





## APPENDIX B: NEONATAL KEY DRIVER



## APPENDIX C: AIM BUNDLE AND RESOURCE LISTING

- Bundle <https://safehealthcareforeverywoman.org/wp-content/uploads/2017/11/Obstetric-Care-for-OUD-Bundle.pdf>
- Implementation Guide: <https://safehealthcareforeverywoman.org/wp-content/uploads/2018/08/AIM-Opioid-Implementation-Guide.pdf>
- Resource Listing: [https://safehealthcareforeverywoman.org/wp-content/uploads/2017/08/Obstetric-Care-for-Women-with-Opioid-Use-Disorder-Bundle\\_Resource-Listing.pdf](https://safehealthcareforeverywoman.org/wp-content/uploads/2017/08/Obstetric-Care-for-Women-with-Opioid-Use-Disorder-Bundle_Resource-Listing.pdf)

## OTHER RESOURCES

- ACOG  
[Opioid Use Disorder in Pregnancy PDF File](#)  
acog.org | American Congress of Obstetricians and Gynecologists
- ACOG District II. Opioid Use Disorder in Pregnancy Bundle. Available at <https://www.acog.org/-/media/Districts/District-II/Public/PDFs/ACOGOpioidUseReadinessRecognitionPreventionFINAL.pdf?dmc=1&ts=20180412T2013551033>
- American Society of Addiction Medicine. The ASAM Buprenorphine Course Slides
- [ASTHO Prescription Drug Misuse and Abuse: Neonatal Abstinence Syndrome](#)  
astho.org | Association of State and Territorial Health Officials
- [ASTHO State Action to Prevent and Treat Prescription Drug Abuse](#)  
astho.org | Association of State and Territorial Health Officials
- Buprenorphine Training  
American Academy of Addiction Psychiatry (AAAP)  
<https://www.aaap.org/clinicians/education-training/mat-waiver-training/>  
Substance Abuse and Mental Health & Human Services (SAMHSA)  
<https://www.samhsa.gov/medication-assisted-treatment/training-resources/buprenorphine-physician-training>  
American Society of Addiction Medicine (ASAM)  
<https://www.asam.org/education/live-online-cme/waiver-training>

Providers Clinical Support System for Medication Assisted Treatment (PCSSMAT)

<https://aoaam.org/?page=PCSSMAT&hhSearchTerms=%22PCSS-MAT%22>

- Centers for Disease Control:  
<https://na01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.cdc.gov%2Freproductivehealth%2Fmaternalinfanthealth%2Fsubstance-abuse%2Fsubstance-abuse-during-pregnancy.htm&data=02%7C01%7Cbrenda.barker%40vumc.org%7C9536979e251b44488fed08d6a19900bb%7Cef57503014244ed8b83c12c533d879ab%7C0%7C0%7C636874075847505575&sdata=yuJgVxLx9l1OyQhyYTfilg9zU4NgZkQY%2FLeKhVLQJEg%3D&reserved=0>
- [Childbirth, Breastfeeding and Infant Care: Methadone and Buprenorphine Brochure PDF File](#)  
pcss-o.org | Providers' Clinical Support System for Opioid Therapies
- [Health Coverage Options for Pregnant Women](#)  
nashp.org | National Academy for State Health Policy
- [Improving Opioid Addiction Treatment for Pregnant Women](#)  
podbean.com | Journal of Addiction Medicine: Beyond the Abstract
- Institute for Patient-Family Centered Care  
<http://ipfcc.org/bestpractices/opioid-epidemic/index.html>
- Maternal Opiate Medical Support. Decision trees for care of opiate dependent-women. Available at: [http://momsohio.org/healthcare-providers/decision-trees/decisiontree-attributes/MOMS%20Decision%20Tree\\_F4\\_6-27-16.pdf](http://momsohio.org/healthcare-providers/decision-trees/decisiontree-attributes/MOMS%20Decision%20Tree_F4_6-27-16.pdf).
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- [National Commission on Correctional Health Care: Women's Health Care in Correctional Settings PDF File](#)  
ncchc.org | National Commission on Correctional Health Care
- Substance Abuse and Mental Health Services Administration. Clinical Guidance for Treating Pregnant and Parenting Women with Opioid Use Disorder and Their Infants. HHS Publication No. (SMA) 18-5054. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2018. Available at: <https://store.samhsa.gov/shin/content/SMA18-5054/SMA18-5054.pdf>
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## **TENNESSEE RESOURCES**

- Tennessee Overdose Prevention <http://www.tnoverdoseprevention.org/news/date/2018-11>

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