Neonatal Abstinence Syndrome (NAS) is a consequence of the abrupt discontinuation of chronic fetal exposure to drugs (illicit and prescribed) that were used during pregnancy. While non-opioids can cause NAS, opioid abuse has become a top public health concern due to the increased incidence in the past 9 years. The number of delivering mothers using or dependent on opiates rose nearly 5-fold from 2000 to 2009 in the U.S. There was also a 5-fold increase in the proportion of babies born with NAS from 2000 to 2012 in the U.S. and a 50% increase in the incidence of NAS in WA state between 1999-2013. In 2012, newborns with NAS were hospitalized 16.9 days on average (compared to 2.1 days for other newborns), costing hospitals an estimated $1.5 billion. NAS often results in central nervous system, respiratory, gastrointestinal, vasomotor, and metabolic disruptions.

Clinical Presentation of NAS

- Irritability
- Tremors
- Jitteriness
- Exaggerated Moro reflex
- Hypertonia
- Seizures (rare, 2-11% of neonates)
- Excessive high pitched crying
- Sleep disturbances
- Diarrhea
- Vomiting
- Feeding difficulties
- Poor Weight gain
- Hyperphasia
- Sneezing
- Yawning
- Sweating
- Hyperthermia

Evidence-Based Management: Eating, Sleeping Consoling (ESC) Method for NAS

At Yale New Haven Children’s Hospital, Dr. Matthew Grossman and a multidisciplinary team integrated nonpharmacologic interventions combined with evaluations of the functional well-being of infants with NAS. Additionally, there was a focus on the importance of parent participation being integral to the care. They developed and used their own assessment which focused on 3 simple parameters: the infant's ability to eat, to sleep, and to be consoled. If the infant was able to E) breastfeed effectively or to take ≥1 oz from a bottle per feed, S) to sleep undisturbed for ≥1 hour, and, C) be consoled within 10 minutes when crying, then morphine was neither started nor increased regardless of other signs of withdrawal. If the infant did not meet ESC criteria, staff first attempted to maximize nonpharmacologic interventions. If these attempts were unsuccessful, morphine was initiated or increased. As a result of their ESC method, they reduced their average length of stay from 22.4 days to 5.9 days, decreased morphine use from 98% to 14%, and cut cost of hospitalization from $44,824 to $10,289.

Dramatic Increases in Maternal Opioid Use and Neonatal Abstinence Syndrome

The use of opioids during pregnancy can result in a drug withdrawal syndrome in newborns called neonatal abstinence syndrome (NAS), which causes lengthening and costly hospital stays. According to a new study, an estimated 21,722 babies were born with this syndrome in the United States in 2012, a 5-fold increase since 2000.
What about breastfeeding?

The American Academy of Pediatrics removed the restrictions on breastfeeding for mothers on any dosage of methadone. Breastmilk contains only minimal quantities of methadone and buprenorphine. (Kocherlakota, 2014)

<table>
<thead>
<tr>
<th>Benefits:</th>
<th>Contraindications:</th>
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<td>- Enhances mother-infant bonding</td>
<td>- Mother is taking illicit drugs and not in recovery</td>
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<tr>
<td>- Encourages active maternal participation in her infant's care.</td>
<td>- Mother has polydrug abuse</td>
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<td>- Mother is infected with HIV</td>
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Long Term Management Considerations

There is limited information on long term outcomes in this population. It has been difficult to study this population due to psychosocial issues, mistrust of healthcare professionals, family instability, out of home placements, and poverty. Mothers of infants with NAS often have a complex history of having experienced trauma and/or abuse. Reducing the stigma for these mothers increases the quality of the care for the child.

Infants and children with a history of NAS are at increased risk for motor deficits, cognitive delays, hyperactivity, impulsivity, attention deficit, behavior problems, vision issues, and suboptimal growth. Primary care providers should closely monitor the development of patients with a history of NAS and have a low threshold for referring to a neurodevelopmental specialist. A referral for ophthalmologic assessment should also be considered to identify strabismus, nystagmus, refractive errors or other visual deficits. Growth and nutrition should be followed to identify failure to thrive or short stature.

SPECIAL NEEDS INFORMATION AND RESOURCES:

Clark County Public Health: Children & Youth with Special Health Care Needs
https://www.clark.wa.gov/public-health/children-special-needs
Connie Callahan, PHN 360.921.5052

Parent-Child Assistance Program (PCAP)  
http://depts.washington.edu/pcapuw/

WA State Health Care Authority First Steps Program  

WithinReach Family Health Hotline and Website  
Phone number: 1-800-322-2588, 1-800-833-6388 TTD  
Website: www.ParentHelp123.org

Early Support for Infants and Toddlers (ESIT) Program  
https://www.dcyf.wa.gov/services/child-development-supports/esit  
Phone number: 360-725-3500

Providence Drug Exposed Newborns: Neonatal Abstinence Syndrome Course  
https://www.providence.org/events/ewa/professional-education/neonatal-abstinence-syndrome

Substance Abuse & Mental Health Services Administration (SAMHSA) Buprenorphine Treatment Practitioner Locator  

SAMHSA Clinical Guidance for Treating Pregnant and Parenting Women With Opioid Use Disorder and Their Infants  

Partnership for Drug-Free Kids and The Medicine Abuse Project – Pregnancy & Opioids: What families need to know about opioid misuse and treatment during pregnancy  
https://drugfree.org/download/pregnancy-opioids/

Infants with Prenatal Substance Exposure: Yale New Haven Children's Hospital's Approach  
https://www.youtube.com/watch?v=7epcyi2mafY

Eating, Sleeping, Consoling (ESC) NAS Care Tool Instructional Manual  
http://files.constantcontact.com/dfa00fff501/ce6dfaf8-dc7c-4999-bfb2-fca3ac875c86.pdf


http://pediatrics.aappublications.org/content/132/3/e796.full


Buck, T. Maternal Impact from the Opioid Epidemic Presentation. WA State DOH [pdf document].

Local News & Services Highlights

Training Opportunities:

[Image of M.A.T. WAIVER TRAINING event]

[Image of PREGNANCY & OPIOIDS event]

Local Resources

The Parent-Child Assistance Program (PCAP)
The Parent-Child Assistance Program (PCAP) is an evidence-based home visitation case-management model for mothers who abuse alcohol or drugs during pregnancy. Its goals are to help mothers build healthy families and prevent future births of children exposed prenatally to alcohol and drugs. Referrals can be made for women who:

- Abuse alcohol/drugs during pregnancy or up to 12 months postpartum and are ineffectively connected to community services
- Have a child with Fetal Alcohol Spectrum Disorder (FASD), are currently using alcohol and are in their childbearing years.

Referrals can be made by calling 360-952-8300.

COMING SOON! Lifeline Connections will be opening up “The Women’s Recovery Center” which will be an intensive residential substance use treatment program for pregnant and parenting women. Women parenting children birth through age 5 can keep their children with them and pregnant women can engage in treatment at any point in their pregnancy with no interruption in services even after birth. Therapeutic childcare is provided Monday-Friday for children one month of age or older living with their mothers on site. During the 6 month inpatient program women and identified supports have access to wrap around treatment services including but not limited to family therapy, mental health support, job and school supports and parenting and life skills classes.

More information to come as available

🌟 April 2017 the Patient-Centered Primary Care Collaborative published a toolkit: “6 Steps to Creating a Culture of Person and Family Engagement in Health Care.”
- a helpful tool for P-TCPI clinic participants as they move through Phase 3 and 4 of transformation.

For other formats, contact the Clark County ADA Office: Voice (360) 397-2322; Relay 711 or (800) 833-6388; Fax (360) 397-6165; E-mail ADA@clark.wa.gov.