



Department of
Children's Services



Neonatal Abstinence Syndrome (NAS) & Safe Sleep

Facilitator Guide

Presented by the Tennessee Department of Children's Services

Outreach & Development Unit

In Cooperation With:

East Tennessee Children's Hospital

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Course Information

The Tennessee Department of Children's Services would like to sincerely thank the East Tennessee Children's Hospital for their expertise, shared knowledge, and dedication to Neonatal Abstinence Syndrome education and treatment.

The Tennessee Department of Children's Services would also like to thank Dr. Michael Warren and Rachel Heitmann, MS for their valuable contribution of the Safe Sleep module of this training. Teaching Tennessee's Foster Parents how to ensure our children sleep as safely as possible is priceless.

The Tennessee Department of Children's Services is grateful for Dr. Miriam Weinstein for graciously providing medical and educational information about the aging child with Neonatal Abstinence Syndrome.

The Tennessee Department of Children's Services would like to acknowledge and express gratitude for Jennifer Walkup, PT, DPT, PCS, and Crystal Henley, OTR/L, USC/WPS Sensory Integration Certification #3066, for contributing their physical therapy and occupational therapy techniques for the education of Tennessee's Foster Parents and the care of children diagnosed with Neonatal Abstinence Syndrome.

- Course credit -3 hours
- This class must be trained by a registered nurse and PATH Trainer

Materials Checklist

Materials needed for this curriculum

- Infant manikin (optional)
- Weighted blanket (optional)
- PowerPoint Presentation
- Facilitator Guide
- Participant Guide
- Projector
- Speakers

Standard Training Tote:

- Flip charts & Stands
- Markers
- White Board Markers
- Laptop & Projector
- Extension Cords
- Masking Tape
- Pencils
- Pens

Agenda and Objectives

Agenda

- Welcome & Introductions
- What is NAS?
- Symptoms & Soothing Techniques
- Preparing to go Home
- Transitioning Home
- ABC's of Safe Sleep
- Working with Birth Parents of an infant with NAS
- Therapy and NAS
- Closure

Learning Objectives

- Participants will have an understanding of the term Neonatal Abstinence Syndrome (NAS).
- Participants will be able to describe the differences between an infant with NAS and an Intrauterine Drug Exposure (IDE) infant.
- Participants will become familiar with the drug classification associated with NAS and the risk factors to the newborn infant.
- Participants will become familiar with the group of symptoms associated with NAS and techniques used to soothe these symptoms.
- Participants will learn what to expect in the NICU.
- Participants will be provided with information on how to care for the infant when transitioned to the home.
- Participants will gain information on Safe Sleep for all infants.
- Participants will become familiar with ways to build a working relationship with birth parents of an infant with NAS.
- Participants will become familiar with different forms of therapy and therapeutic techniques that may be prescribed for an infant with NAS.

Unit 1: – Welcome & Introductions

Unit Time: 15 minutes

Learning Objectives

Participants will be able to:

- Know the agenda for the training
- Understand the objectives of the training
- Discuss participants' thoughts on parenting an infant with NAS

Materials Needed:

- Card Stock
- Markers
- Flipchart Stand
- Flipchart titled, "Parenting an infant with NAS"

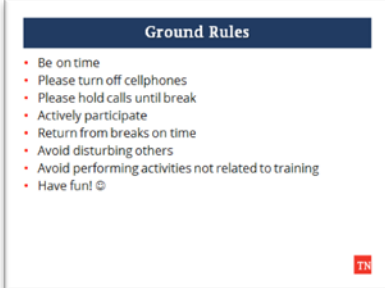
Key Points/Instructions:

Trainer Notes: *Instruct participants to complete a name tent when they first come into the training room using the markers on the table. Be aware of Foster Parents monopolizing if they have had experience with an NAS child.*

- **WELCOME** participants to the session on NAS (Neonatal Abstinence Syndrome) and Safe Sleep.
- **SHARE** housekeeping details with the participants, including the location of the restrooms, when breaks will occur during the training, and the importance of silencing cell phones
- **NEXT** introduce yourself to the group and briefly relate your previous experience working with foster parents and/or experience with working with children in the child welfare system.
- **ASK** participants to introduce themselves and briefly share information about

how long they have been foster parents and how many foster children they have parented during that time.

- **INFORM** participants that the purpose of this course is to improve foster parents' ability to care for an infant that has been given the medical diagnosis of NAS. Recognizing and managing the symptoms associated with NAS will help you more effectively care for drug exposed infants in your home.
- **ASK** the large group to provide information on what they already know about an infant with NAS or what their expectations are for parenting a baby with NAS. RECORD their answers on a brainstorming flipchart titled, "Parenting an infant with NAS."
- **INFORM** the group that we will be discussing the expectations and responsibilities for parenting an infant with NAS throughout this training.
- **REVIEW** the Ground Rules, Expectations, Agenda and Objectives for this training with the large group.
- **NEXT** let participants know that the topic of an infants with NAS may elicit emotional responses from the group since many foster parents have strong opinions regarding mothers of drug exposed babies. INFORM participants that during group discussions we want everyone to feel comfortable in expressing their opinions and sharing their thoughts with the group on this topic.
- **TRANSITION** to the next activity by explaining that we will define NAS and introduce the symptoms associated with a NAS diagnosis.



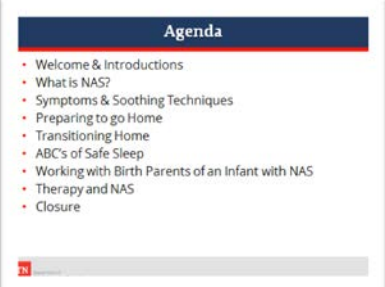
Ground Rules

- Be on time
- Please turn off cellphones
- Please hold calls until break
- Actively participate
- Return from breaks on time
- Avoid disturbing others
- Avoid performing activities not related to training
- Have fun! ☺



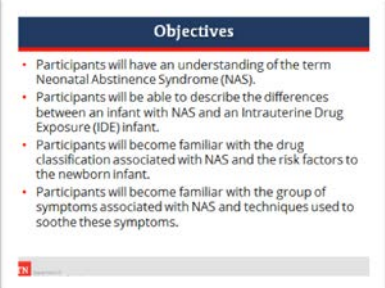
Expectations

- Be **R**esponsible for your own learning
- Have **E**njoyment of opportunity
- Be **S**ensitive to each other's needs and diversity
- Know **P**rofessionals are professional in their conduct
- Embrace **E**ducation as a continuous process that requires effort
- Cherish **C**ommitment to personal growth and development
- Acknowledge **T**ime management is personal management



Agenda

- Welcome & Introductions
- What is NAS?
- Symptoms & Soothing Techniques
- Preparing to go Home
- Transitioning Home
- ABC's of Safe Sleep
- Working with Birth Parents of an Infant with NAS
- Therapy and NAS
- Closure



Objectives

- Participants will have an understanding of the term Neonatal Abstinence Syndrome (NAS).
- Participants will be able to describe the differences between an infant with NAS and an Intrauterine Drug Exposure (IDE) infant.
- Participants will become familiar with the drug classification associated with NAS and the risk factors to the newborn infant.
- Participants will become familiar with the group of symptoms associated with NAS and techniques used to soothe these symptoms.

Unit 2: – What is NAS

Unit Time: 30 minutes

Learning Objectives

Participants will be able to:

- Become familiar with TN's prescription drug problem
- Gain an understanding of the term Neonatal Abstinence Syndrome (NAS)
- Understand that NAS is a medical diagnosis
- Differentiate between Intrauterine Drug Exposure (IDE) and NAS
- List some common opioids
- Observe infants in a hospital setting experiencing NAS Symptoms
- Know how to access the NAS Surveillance Summary
- Become familiar with the group of symptoms associated with NAS
- Become familiar with the soothing and calming techniques used to care for an infant with NAS

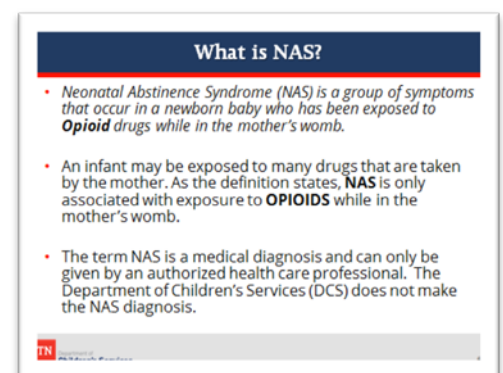
Materials Needed:

- Internet connection (the video is on your flash drive if you do not have the Internet)
- CNN clip titled, "Hospital seeing more babies born exposed to prescription drugs"
- Printed Handout NAS Surveillance Summary (from the most current week)
- <https://www.tn.gov/health/nas/nas-summary-archive.html>
- Cards that each have a NAS symptom listed on them along with a brief description of the symptom (Facilitator Guide)
- Blank flipchart paper and markers for activity
- Parent/Caregiver Education of NAS Symptoms (Participant Guide)

Key Points/Instructions:

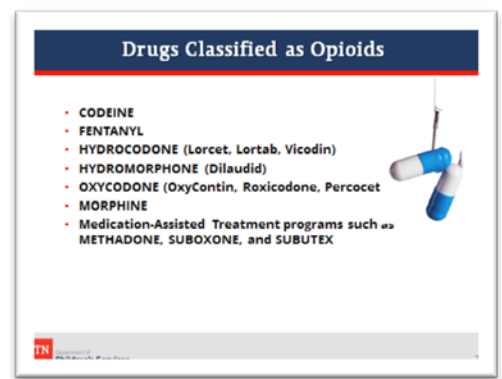
Trainer Note: ON FLIP CHART paper, write the definition of NAS and place it on the wall in the room.

- **STATE:** Tennessee has a prescription drug problem. The CDC reports that in 2012 we were tied with Alabama for 1st place for the most prescription painkillers prescribed per person. TN has more prescription drug overdose deaths than motor vehicle accidents, homicide, or suicide. Opioids are by far the most abused prescription drugs.
- **STATE:** Given our prescription drug epidemic, we are seeing a rise in infant drug exposure in utero. Almost every drug can pass from mother to baby through the mother's placenta. Ask participants why an expectant mother may use drugs? Allow for time to answer. Possible answers may include:
 - Prior injury/chronic pain
 - Medical need for pain management
 - In a substance abuse treatment program (MAT)
 - Confusion between symptoms of early withdrawal and early pregnancy
 - Family/social environment
- **STATE:** DCS classifies ANY infant born after being exposed to drugs in the womb as a "Drug Exposed Infant."
- **STATE:** Babies that have been diagnosed with NAS fall into the DCS "Drug Exposed Infant" category. But not all babies that are classified as "IDE infants" by DCS are diagnosed with NAS.
- **DEFINE:** Neonatal Abstinence Syndrome (NAS) is a group of symptoms that occur in a newborn baby who has been exposed to Opioid drugs while in the mother's womb. (This will be on your flipchart.)
- An infant may be exposed to many drugs that are



taken by the mother. As the definition states, NAS is only associated with exposure to OPIOIDS while in the mother's womb.

- **SHARE** that the term NAS is a medical diagnosis and can only be given by an authorized health care professional. The Department of Children's Services (DCS) does not make the NAS diagnosis.
- **STATE:** As stated in the definition, infants with NAS are classified as such because they have been exposed to Opioid drugs while in the womb. Soothing techniques used for infants exposed to Opioid drugs will be the focus of this course.
- **BRIEFLY** mention that these are just some of the examples of drugs falling into the classification of **OPIOID** drugs:
 1. CODEINE
 2. FENTANYL
 3. HYDROCODONE (Lorcet, Lortab, Vicodin)
 4. HYDROMORPHONE (Dilaudid)
 5. OXYCODONE (OxyContin, Roxicodone, Percocet)
 6. MORPHINE
 7. Medication-Assisted Treatment programs such as METHADONE, SUBOXONE, and SUBUTEX
- **STATE:** Some Opioids, such as heroin, are street drugs and illegal to use. Others, like OxyContin, Valium, and Methadone, are prescription drugs which the mother may be taking legally while under the care of her doctor.
- **ASK** the large group if they have any questions about the types of drugs that fall into the Opioid classification.
- **STATE:** This class is about the baby. However, if you're a numbers person you may be interested in knowing that due to the rise in reported NAS cases throughout the country, the Department of Health began tracking information for reported infants with NAS born in the State of Tennessee in January of 2013.
- The summary is updated every week and is published on the State of Tennessee's Department of Health website for public viewing: NAS

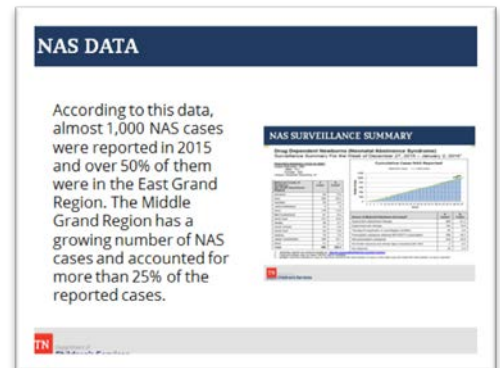


Surveillance Summary - <https://www.tn.gov/health/nas/nas-summary-archive.html>

- **DISTRIBUTE** the Drug Dependent Newborns (Neonatal Abstinence Syndrome)

Surveillance Summary Handout downloaded from the website: Surveillance Summary for the Week of December 27, 2015 – January 2, 2016 and INFORM participants that this is in their supplemental forms section.

- **EXPLAIN** that this is the data captured the last week of 2015 for the entire year.
- **STATE:** According to this data, almost 1,000 NAS cases were reported in 2015 and over 50% of them were in the East Grand Region. The Middle Grand Region has a growing number of NAS cases and accounted for more than 25% of the reported cases.



- **STATE:** Please note that over 80% of reported cases in 2016 were prescribed by a licensed medical provider. We have to be mindful of our prejudice towards a mother of a NAS baby – she may have simply been following her doctor’s orders.
- **ASK** so how does this affect you as a State of TN Foster Parent?
- **STATE:** It is important that you understand how critical your role as a foster parent is in the State of TN. In the United States, a baby is born dependent on opiates every 30 minutes. In TN, the rate is three times the national average.
- **STATE:** Let’s look at more data that is specific to Tennessee:
 - The TN Division of Health Care Finance & Administration reported that in 2014, 1,063 TennCare Newborns were treated for NAS compared to 264 in 2008.
 - They also reported that in 2014 the average cost per child that TennCare paid for live births was \$8,381 with an average length of stay being 3.3 days.
 - The average cost TennCare paid per NAS baby was \$48,854 with an average

length of stay being 24.1 days.

- In 2014 there were 661 infants in DCS custody within one year of birth – 201 of these were an infant with NAS.
- **SHARE** that it is interesting to note that 85% of women prescribed narcotics were not prescribed contraceptives that TennCare paid for.
- **STATE:** Next, we will view a video produced by CNN which reports on the Neonatal Intensive Care Unit (NICU) at East Tennessee Children's Hospital where infants with NAS are treated. The program at East Tennessee Children's Hospital is one of the first of its kind in Tennessee.
- **SHOW** the video (6 minutes) "Hospital seeing more babies born exposed to prescription drugs" by Julie O'Neill, CNN, updated 4:19 PM EDT, Mon April 30, 2012 Access to CNN News Clip via the internet: <http://www.cnn.com/2012/04/28/health/drug-babies/>
- **PROCESS** the video by asking participants the following questions:
 1. What are your thoughts on the information that was shared in the video?
 2. How did you feel seeing the NAS babies and the symptoms they were exhibiting?
 3. What are your thoughts on the mother that was interviewed in the video?



Trainer notes: Remind the group that it was mentioned in the video that if the mother were to stop taking the Opioid drug while pregnant, it could cause serious injury to the infant, even death. There is current published research regarding moms being weaned while pregnant. It is being done successfully and decreasing the incidence of NAS with these moms. Also, it is accurate to say that abruptly stopping any medication while pregnant could be harmful to fetus.

- Allow time for a brief discussion of the video and then let participants know that we will be discussing these subjects in more detail throughout the remainder of the class.

Unit 3: Symptoms and Soothing Techniques

Unit Time: 40 minutes

Objectives - Participants will be able to:

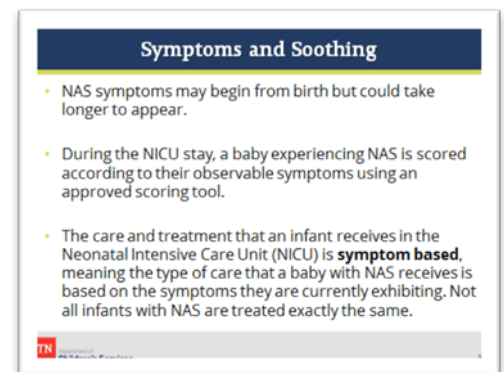
- Become familiar with the group of symptoms associated with NAS
- Become familiar with the soothing and calming techniques used to care for an infant with NAS

Materials Needed:

- Cards that each have a NAS symptom listed on them along with a brief description of the symptom (Facilitator Guide)
- Blank flipchart paper and markers for activity
- Parent/Caregiver Education of NAS Symptoms (Participant Guide)

Key Points/Instructions:

- **STATE:** Let's review some basic facts about infants with NAS as observed and reported while they are in a hospital setting:
 - NAS symptoms may begin from birth but could take longer to appear.
 - During the NICU stay, a baby experiencing NAS is scored according to their observable symptoms using an approved scoring tool.
 - There are varying scoring tools that are used to determine a baby's symptoms, and each hospital may use a different tool to do so. Most NICUs in Tennessee are using one of two tools: the Finnegan Scoring Tool and the Lipsitz Scoring Tool.
 - The care and treatment that an infant receives in the Neonatal Intensive Care Unit (NICU) is **symptom based**, meaning the type of care that an NAS baby receives is based on the symptoms they are currently exhibiting. Not all infants with NAS are treated exactly the same. Take twins, for example.



- **STATE:** The symptoms of NAS may vary with each infant for the following reasons:
 - The type and number of drugs used by the mother
 - When a drug was last used
 - How much and how long a drug was used
 - How a baby's body breaks down and gets rid of the drugs
- **STATE:** Let's break up into 2 groups and take a closer look at some of the specific symptoms that an infant with NAS may exhibit.
- **CONDUCT** NAS Soothing Techniques Activity (15 minutes):
 1. **DIVIDE** the class into 2 groups
 2. **GIVE** one group "Symptom Cards" and the other group "Definition Cards."
 3. **EXPLAIN** that they will match their "Symptom Card" with the correct "Definition Card" from the other group's participants. Once they locate their match, they will stand together.
 4. **ASK** each pair to read their cards beginning with the "Symptom Card" first then reading the "Definition Card." After each pair has read their cards out loud they will return to their seats and the trainer will review the remaining symptoms and definitions.

***Trainer Note:** You will not have a symptom card for all of the Symptoms listed. You will need to review the other Symptoms that are not on the cards with participants. **Further,** you may have foster parents in your audience that have experienced caring for infants with NAS. They will be a valuable resource for the soothing techniques activity as they have first-hand experience on how to respond to the various symptoms for a baby withdrawing from Opioids.*
- **REFER** participants to the **Parent/Caregiver Education of NAS Symptoms** located in their participant guide. Encourage participants to use this as a reference tool once they become a placement for an infant with NAS.
- **ANSWER** any questions the participants may have about soothing babies with NAS symptoms.

- **TRANSITION** to the place before an infant with NAS is discharged from the hospital next activity which will provide more information on what will take.

NAS

Symptom

Cards

<p>Excessive or Continuous High Pitched Cry</p>	<p>Drug withdrawal can be very uncomfortable, sometimes painful & make your baby irritable.</p>
<p>Increased Temperature</p>	<p>Your NAS baby's increased metabolism may cause your baby to run a fever.</p>
<p>Moro Reflex</p>	<p>The Moro Reflex is a normal reflex for newborn babies. Babies experiencing withdrawals have sensitive central nervous systems that can cause extra abnormal movements (jitters and/or jerks after the Moro Reflex).</p>

<p>Regurgitation/ Projectile Vomiting</p>	<p>Babies who are experiencing withdrawal often spit up more than is normal. It is not normal for a baby to vomit excessively during or after a feeding. This is called feeding intolerance.</p>
<p>Sweating</p>	<p>Babies usually do not sweat. Babies that are withdrawing have an increased metabolism which will sometimes cause them to sweat.</p>
<p>Excessive Sucking</p>	<p>Sometimes babies will act frantic when they are experiencing withdrawal. They will suck excessively on their pacifier, their hands, or anything else that comes near their mouth.</p>

Nasal Stuffiness	Babies are nose breathers. It can be frustrating for babies experiencing withdrawal to get stuffed up. This does not mean they are sick; it is a symptom of withdrawal.
Poor Feeding	Even when your baby sucks well on a pacifier, it may be difficult to coordinate sucking on a bottle. Babies experiencing withdrawal are easily over-stimulated which interferes with coordination while bottle feeding.
Nasal Flaring	It may be harder for your baby to breathe normally while they are withdrawing. One of the signs of this is flaring their nostrils when they breathe.

<p>Increased Respiratory Rate</p>	<p>Breathing fast is a symptom of drug withdrawal. Sometimes you can see your baby's ribs when they breathe; these are called retractions.</p>
<p>Tremors</p>	<p>A few tremors are normal for a baby to have. Babies experiencing withdrawal may have more tremors due to their sensitive central nervous systems.</p>
<p>Loose or Watery Stools</p>	<p>Babies experiencing withdrawal will sometimes get upset stomachs and stomach cramps. This can cause loose diarrhea-like stools. These loose stools can cause a red, irritated bottom.</p>

Parent/Caregiver Education of NAS Symptoms

Signs & Symptoms	What Is This?	What Parents & Caregivers Can Do
<p>Excessive High Pitched Cry</p> <p>Continuous High Pitched Cry</p>	<p>Drug withdrawal can be very uncomfortable, sometimes painful, and make your baby irritable.</p>	<p>Help soothe baby by swaddling, holding baby close, or offering a pacifier.</p>
<p>Sleeping Less Than 1 to 3 Hours</p>	<p>Withdrawal symptoms can make your baby uncomfortable - making it difficult for baby to sleep.</p>	<p>If baby wakes up, offer a pacifier to help baby go back to sleep. If your baby is asleep when you get to the bedside, let baby sleep until baby wakes up to eat. During a feeding is the best time to hold your baby.</p>
<p>Moro Reflex</p>	<p>Moro reflex is a normal reflex for newborn babies. Babies experiencing withdrawal have sensitive central nervous systems that can cause extra abnormal movements (jitters and/or jerks) after the Moro reflex.</p>	<p>Approach your baby quietly. Don't speak loudly and use gentle, firm pressure when touching your baby. Do not stroke your baby.</p>
<p>Tremors</p>	<p>A few tremors are normal for a baby to have. Babies experiencing withdrawal may have more tremors due to their sensitive central nervous systems.</p>	<p>Keep your baby swaddled. If your baby is having tremors, gently but firmly hold their arms and legs close to their bodies. Sometimes this will help stop the tremors. Always use a gentle but firm pressure when touching your baby.</p>

Signs & Symptoms	What Is This?	What Parents & Caregivers Can Do
Increased Muscle Tone	Withdrawal can make a baby stiff and hard to bend the arms and legs.	This will eventually go away after baby goes home. Be gentle when changing diapers. A physical therapist may work with you and your baby to help baby
Excoriation	Withdrawing babies are irritable and will rub their chins, knees, elbows, nose, and toes against blankets, sheets, or clothing.	Keep your baby swaddled. Sometimes nurses will place clear dressing on the knees to protect them. You can place mittens on your baby's hands to prevent scratching face.
Myoclonic Jerks (twitching or jerking of arms and/or legs)	Babies experiencing withdrawals can have very sensitive central nervous systems which can be easily stimulated by sound and/or touch.	Approach your baby quietly. Do not wake baby up unless it is time to eat. Speak softly to your baby and use a firm touch. Do not stroke or pat your baby.
Generalized Convulsions/Seizures	This is a rare but very serious symptom of drug withdrawal.	If you think your baby is having a seizure, call 911 immediately.
Sweating	Babies usually do not sweat. Babies who are withdrawing have an increased metabolism which will sometimes cause them to sweat.	Do not overheat your baby. Keep baby in light clothing or just a diaper while baby is swaddled.

Signs & Symptoms	What Is This?	What Parents & Caregivers Can Do
Increased Temperature (Hyperthermia)	Just like with sweating, your baby's increased metabolism may cause your baby to run a fever.	Do not overheat your baby. Keep baby swaddled in a light blanket. Do not give any medications to your baby without asking your doctor first.
Frequent Yawning	Babies normally do not yawn very much but may yawn often if your baby is in withdrawal.	This will improve as the withdrawal symptoms subside.
Mottling	Mottling is a marbled, discoloration of the skin, especially on baby's chest, trunk, arms, and legs.	This can be normal for babies in withdrawal and will go away. It is not harmful.
Nasal stuffiness	Babies are nose breathers. It can be frustrating for babies experiencing withdrawal to get stuffed up. This does not mean they are sick; it is a symptom of withdrawal.	Frequent suctioning of the nose can make the stuffiness worse. Do not suction baby's nose unless there is drainage.
Sneezing	Babies do not normally sneeze. Sneezing is a symptom of withdrawal.	Sneezing eventually goes away as symptoms of withdrawal subside. Let your nurse know if your baby sneezes.
Nasal Flaring	It may be harder for your baby to breathe normally while they are withdrawing. One of the signs of this is flaring their nostrils when they breathe.	Holding baby upright may help baby breathe easier.

Signs & Symptoms	What Is This?	What Parents & Caregivers Can Do
Increased Respiratory Rate	Breathing fast is another symptom of drug withdrawal. Sometimes you can see your baby's ribs when they breathe; these are called retractions.	Keep your baby calm and hold your baby upright, especially after they have eaten.
Excessive Sucking	Sometimes babies will act frantic when they are experiencing withdrawal. They will suck excessively on their pacifier, their hands, or anything else that comes near their mouth.	Try and keep your baby calm, especially before a feeding. Swaddle in a blanket and offer a pacifier.
Poor Feeding	<p>Even when your baby sucks well on a pacifier, it may be difficult to coordinate sucking on a bottle.</p> <p>Babies experiencing withdrawal are easily over stimulated which interferes with coordination while bottle feeding.</p>	Do not rock or stimulate your baby while bottle feeding. Keep swaddled during the feeding. Help pace your baby while you feed. Your nurse and the speech therapist can give you suggestions on how to help baby eat.

Signs & Symptoms	What Is This?	What Parents & Caregivers Can Do
<p>Regurgitation & Projectile Vomiting</p>	<p>It is normal for a baby to have a wet burp or spit up a little during or after a feeding. Babies who are experiencing withdrawal often spit up more than is normal. It is not normal for a baby to vomit excessively during or after a feeding. This is called feeding intolerance.</p>	<p>Your baby will be on a special formula while in the nursery which should help with feeding intolerance.</p> <p>Pacing your baby while bottle feeding may also help. Your baby may also be on other medications to help relieve symptoms. You can learn how to give these medications while you are with your baby. Your doctor will tell you if your baby is getting enough to eat in order to gain weight.</p>
<p>Loose or Watery Stools</p>	<p>Babies experiencing withdrawal will sometimes get upset stomachs and stomach cramps. This can cause loose, diarrhea like stools. These loose stools can cause a red, irritated bottom.</p>	<p>Be very gentle when changing your baby's diaper. Use sterile water wipes and put skin barrier on the bottom for protection even if his bottom is not red yet.</p>

This chart was provided by Cook, Kyle E. (2016). Neonatal Nurse Practitioner, East Tennessee Children's Hospital.

Unit 4: Preparing to go Home

Unit Time: 10 minutes

Objectives

Participants will be able to:

- Understand the importance of physical attention that an infant with NAS require
- Become familiar what they may expect at the hospital prior to discharge

Materials Needed:

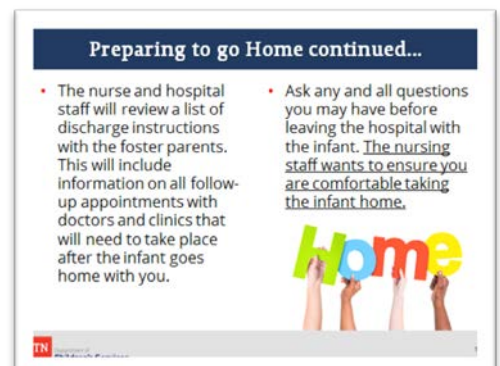
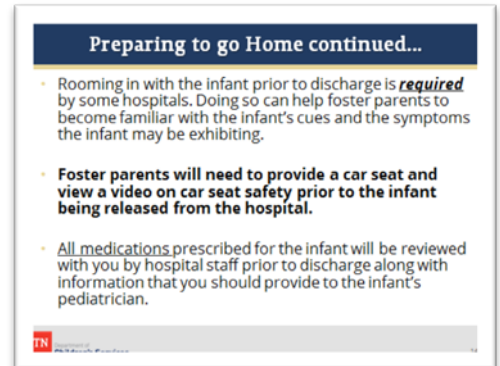
- Internet Connection (the video is on your flash drive if you do not have the Internet)
- "Cuddler Volunteer" video clip:
<http://www.cnn.com/2012/04/28/health/drug-babies/>

Key Points/Instructions:

- **INFORM** participants that the bonding between a foster parent and an infant with NAS can begin while the infant is still in the NICU.
- **STATE:** An infant with NAS requires a lot of physical attention and so East Tennessee Children's Hospital developed a "Cuddlers" program. Cuddlers are those who are willing to volunteer their time to provide extra one on one cuddling and rocking to infants with an NAS diagnosis.
- **STATE:** To see first-hand how this program works, we will next view another short video clip from CNN of a "Cuddler" at the East Tennessee Children's Hospital NICU and hear his story. The CNN video clip can be accessed on your flash drive or the Internet at (you will have to scroll down the page a little to get to the Cuddler video): <http://www.cnn.com/2012/04/28/health/drug-babies/>
- **SHOW** the video (2 minutes and 29 seconds).



- **ASK** the large group if there are any questions regarding the information in the news clip.
- **STATE:** Becoming a placement for an infant that has been diagnosed with NAS may require a lot of time and commitment from the foster parents before the baby is even released from the hospital.
- **DISCUSS** the following points with the large group:
 - Rooming in with the infant prior to discharge is required by some hospitals. Doing so can help foster parents to become familiar with the infant's cues and the symptoms the infant may be exhibiting.
 - Each hospital will have their own protocol as it relates to the expectation of foster parents staying in the same room as the an infant with NAS, the number of visitors allowed at any given time, and whether the hospital will provide meals to foster parents while they stay with the infant.
 - The foster parent might be expected to provide all infant care while the infant is still in the hospital setting.
 - Foster parents will need to provide a car seat and view a video on car seat safety prior to the infant being released from the hospital.
 - All medications prescribed for the infant will be reviewed with you by hospital staff prior to discharge along with information that you should provide to the infant's pediatrician.
 - The nurse and hospital staff will review a list of discharge instructions with the foster parents. This will include information on all follow-up appointments with doctors and clinics that will need to take place after the infant goes home with you.



- Ask any and all questions you may have before leaving the hospital with the infant. The nursing staff wants to ensure you are comfortable taking the infant home.
- You will have received Infant CPR/First Aid training prior to becoming an approved foster home. But if you would like a refresher on this course, the hospital staff can provide you with further instruction or a class can be located for you.
- **STATE:** Please note it is recommended that infants diagnosed with **NAS not be placed in a Day Care facility** for at least two months due to their need for minimal environmental stimulation. An infant with NAS need to be in a controlled environment as much as possible because they do not have the ability to regulate their bodies and they are very sensitive to noise and stimuli. Therefore, **foster parents should have a plan for an infant with NAS daily care needs, prior to the infant being discharged from the hospital.**
- **NEXT,** we will discuss transitioning the infant home from the hospital and the soothing techniques that foster parents can use for these infants.

Unit 5: Transitioning Home

Unit Time: 15 minutes

Objectives:

Participants will be able to:

- Describe resources available to caregivers of an infant with NASs
- Understand the importance of caring for yourself

Materials Needed:

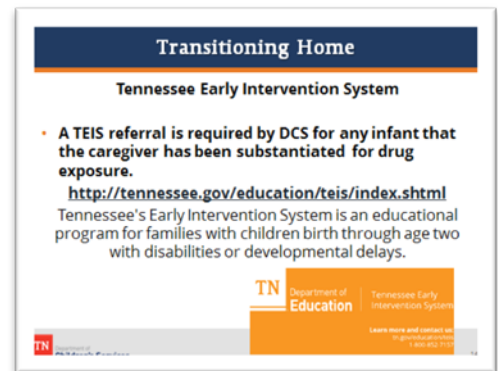
- Tennessee Early Intervention (TEIS) Information (Participant Guide)
- Help Us Grow Successfully (HUGS) Information (Participant Guide)
- Brainstorming flip chart titled, "Ways to Take Care of Yourself"

Key Points/Instructions:

- **STATE:** You will probably be anxious to have your infant with NAS discharged from the hospital so that you can start caring for them in your home.
- **STATE:** If you have been able to spend time with the infant in the hospital prior to discharge then you will know more about the symptoms and the soothing techniques that work best for that individual child.
- **PRESENT** the following highlights to participants about transitioning the infant with NAS to their home:
 - Continue the same comfort and soothing measures as the hospital staff instructed and/or the techniques that were discussed in the previous activity.
 - It is very important to keep all appointments that are scheduled by the hospital staff. There will be appointments with the child's pediatrician along with Physical Therapy, Speech Therapy, and Occupational Therapy, depending on the baby's needs.
 - The infant may take more time eating or falling asleep than non-drug exposed infants.

- Try to develop consistent eating and sleeping routines for the infant.
- Babies may be fussier later in the day.
- Infants need Tummy Time. Be sure to spend supervised Tummy Time every day with your infant to strengthen the neck and upper body and to prevent flat spots on the head. Tummy Time promotes motor development and facilitates development of the upper body muscles.
- **STATE:** In addition to the medical appointments that are necessary for an infant with NAS, there may be other services and possible resources to ensure the baby stays on track for its developmental stages.

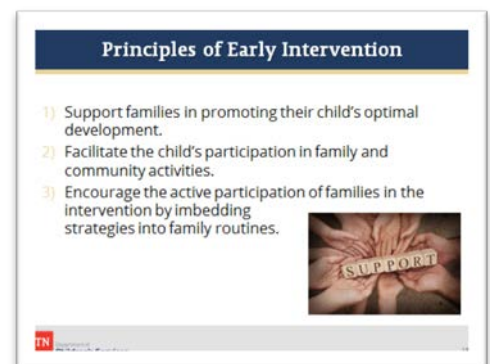
- **STATE:** Prior to the infant being discharged from the hospital, the Department of Children’s Services will make a referral to Tennessee Early Intervention Specialists (TEIS) which will conduct assessments on the child, and make recommendations and referrals to specialists if the child does not reach their age-appropriate milestones within the first three years. **Foster parents are required to participate with the TEIS program for any foster child placed in their home through the age of two with disabilities or developmental delays.**



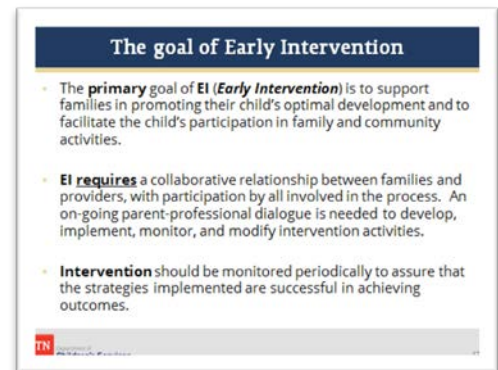
- **REFER** participants to the information about TEIS services provided in their participant guide. <http://tennessee.gov/education/teis/index.shtml>

- **STATE** that the Tennessee Early Intervention System or TEIS, is an educational program for families with children birth through age two with disabilities or developmental delays. The principles of Early Intervention are to

1. Support families in promoting their child’s optimal development.
2. Facilitate the child’s participation in family and community activities.



3. Encourage the active participation of families in the intervention by imbedding strategies into family routines.
- **SHARE** the following points:
 - It is the parents who provide the real early intervention by creatively adapting their child care methods to facilitate the development of their child, while balancing the needs of the rest of the family.
 - The primary goal of EI (Early Intervention) is to support families in promoting their child's optimal development and to facilitate the child's participation in family and community activities.
 - The focus of EI is to encourage the active participation of families in the intervention by imbedding strategies into family routines. It is the parents who provide the real early intervention by creatively adapting their child care methods to facilitate the development of their child, while balancing the needs of the rest of the family.
 - The family must be present and engaged in interventions at all times. The child should never be served by providers separate or isolated from the family.
 - EI requires a collaborative relationship between families and providers, with participation by all involved in the process. An on-going parent-professional dialogue is needed to develop, implement, monitor, and modify intervention activities.
 - Intervention must be linked to specific goals that are family-centered, functional, and measurable. Intervention strategies should focus on facilitating social interaction, exploration, and autonomy.
 - Intervention shall be integrated into a comprehensive plan that encourages



trans-disciplinary activities and avoids unnecessary duplication of services. The plan shall be built around family routines, with written home activity programs to encourage family participation in therapeutic activities on a daily basis.

- Intervention should be monitored periodically to assure that the strategies implemented are successful in achieving outcomes.
- Children and their families in Tennessee's Early Intervention System deserve to have services of the highest quality possible. High standards will be set for the training and credentialing of administrative and intervention staff. Training, supervision, and technology will be focused on achieving excellence.



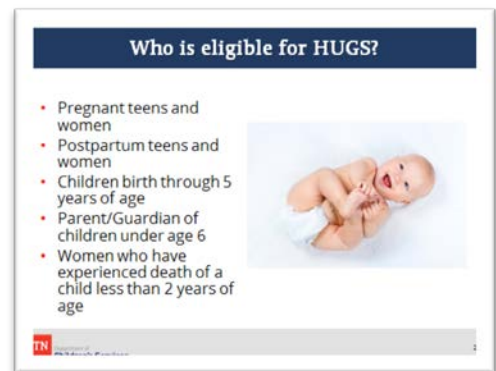
- **INFORM** participants that in addition to TEIS, the Health Department also has a program called HUGS that can provide assistance with assessments and referrals. The HUGS program works with children through the age of five years old. A HUGS referral may not automatically be completed by the child's FSW, but foster parents can request for this to be done if they are interested in assistance from this program.
- **REFER** participants to the information about the HUGS program located in their Participant guide.
- **EXPLAIN** that Help Us Grow Successfully (HUGS) is a home-based prevention and intervention program that provides services to prenatal/postpartum women, children from birth through age 5, and parents/guardians of these families.

The HUGS program is designed to:

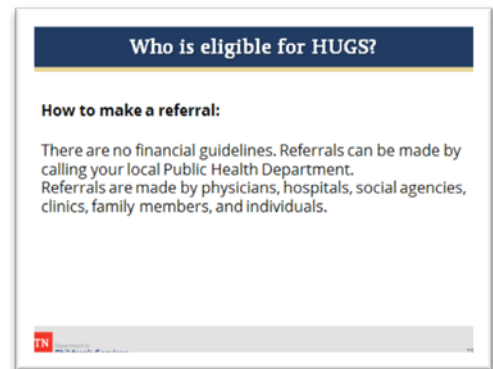
- Improve pregnancy outcomes
- Improve maternal and child health and wellness



- Improve child development
- Maintain or improve family strengths
- **STATE** that those eligible are:
 - Pregnant teens and women
 - Postpartum teens and women
 - Children birth through 5 years of age
 - Parent/Guardian of children under age 6
 - Women who have experienced death of a child less than 2 years of age



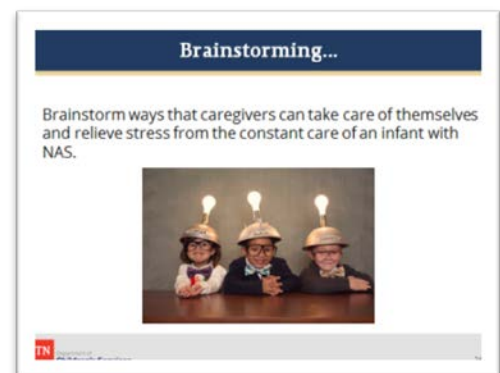
- **EXPLAIN** how to make a referral:
There are no financial guidelines. Referrals can be made by calling your local Public Health Department. Referrals are made by physicians, hospitals, social agencies, clinics, family members, and individuals.



- **STATE:** So far we have discussed the appointments, services, and soothing techniques that you will need to integrate into your schedule to care for the an infant with NAS placed in your home.
- **NEXT,** let's discuss how you will take care of yourself during this time. Caregivers will most likely need additional help from family and friends during this time based on the needs of the infant.

- **STATE:** For instance, we have already discussed that there will be a time in the beginning when the infant has short periods of sleep. It would be a good idea to enlist the help of friends, family members, and neighbors to relieve you for times when you may not be able to sleep due to the infant being restless and crying.

- **LEAD** the large group in brainstorming ways that



caregivers can take care of themselves and relieve stress from the constant care of an infant with NAS. RECORD these responses on a flipchart titled, "Ways to Take Care of Yourself". Some examples of answers may be:

- Date Nights with spouse or significant other
 - Plan regular times each week for a babysitter to stay for a few hours so you can run errands, take time for yourself, etc.
 - Nap when the infant is napping
 - Have good nutrition and eat regularly
 - Recognize the signs of fatigue and address the need for rest
 - Use Respite for weekends
- **STATE:** We are going to take a 15 MINUTE break. When we return we will take a close look at how to ensure that your infant sleeps safely.



Unit 6: ABC's of Safe Sleep

Unit Time: 30 minutes

Objectives:

Participants will be able to:

- Understand the importance of Safe Sleep
- Recognize the ABC's of Safe Sleep
- Identify the position for infants to sleep safely
- Identify a safe sleep environment

Materials Needed:

- Baby doll along with small doll crib for Visual Aid (Optional)

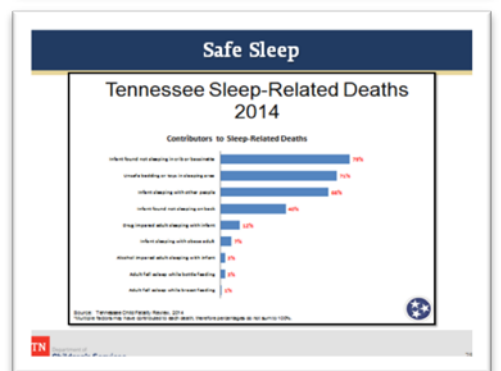
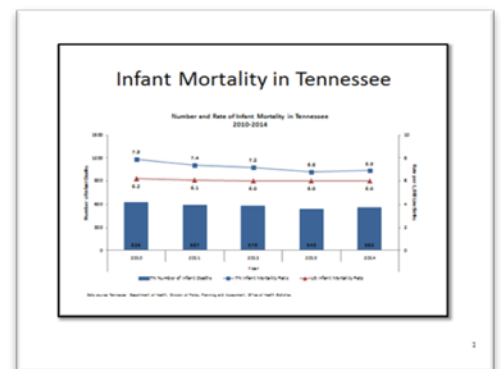
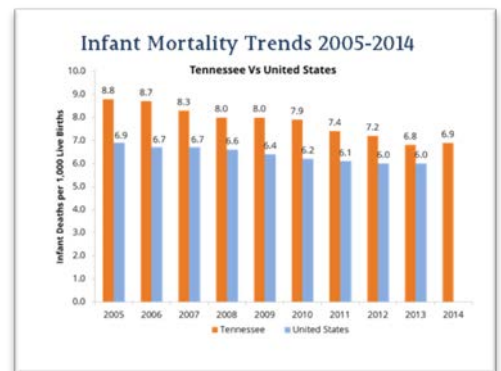
Key Points/Instructions:

- **STATE:** In the last activity, we discussed the sleep issues that NAS babies may have. Now let's talk about how foster parents can make an infant as safe as possible while they sleep.
- **ASK** the large group, "What do you know about Safe Sleep for infants?" Allow the group to provide a few answers and then move on to the discussion of what the American Academy of Pediatrics recommends for Safe Sleep of infants.
- **STATE:** Sleep-related deaths for infants are preventable.
- **PROVIDE** the following highlights to the large group:
 - The American Academy of Pediatrics (AAP) first released its recommendations in 1992 that infants should be placed for sleep in a non-prone position (not on stomach or side) in order to prevent the increase of infant death by SIDS.
 - Studies show that 90 percent of SIDS deaths occur before the infant



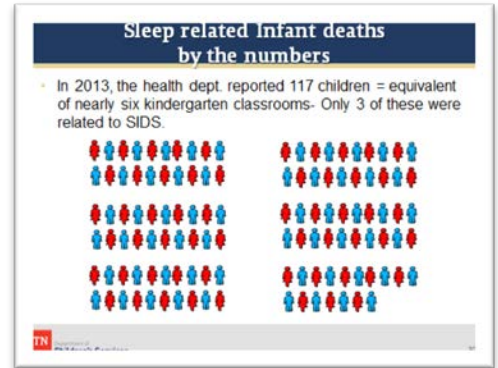
reaches the age of 6 months.

- Unfortunately, even after the AAP recommendations were made, infant sleep-related death numbers continued to rise. Therefore, the American Academy of Pediatrics has since expanded its recommendations from being only SIDS-focused to focusing on a Safe Sleep environment that can reduce the risk of ALL infant sleep-related deaths.
- Since the AAP's last publication in 2005, sleep-related infant deaths including suffocation, asphyxia, and entrapment; along with ill-defined or unspecified causes of death have slowly continued to decline.
- REVIEW the Infant Mortality Trends from 2005-2011 and 2010-2014 using the PowerPoint graphs from the Tennessee Department of Health. HIGHLIGHT the downward trend in infant mortality since 2005 when the Safe Sleep Initiative was set into motion. *Sources: Tennessee Department of Health, Division of Health Statistics; Centers for Disease Control and Prevention, National Center for Health Statistics.*
- **REVIEW** the Tennessee Sleep-Related Deaths Graph and discuss the Contributors to Sleep-Related Deaths. **STATE:** This information was taken from the Tennessee Child Fatality Review, 2014.
- **STATE:** The following data may be hard for you to hear AND this data is why you must know what Safe Sleep is:
 - In 2013, the TN Department of Health reported 117 **sleep-related** infant deaths; three of these were identified as SIDS.
 - Sleep-related deaths accounted for 21.5% of all infant deaths.
 - These infants died from suffocation, strangulation, or other causes in



the sleep environment.

- There was a 10% decrease from the 130 infants who died in 2012.
- A statewide public awareness campaign began in late 2012 and may have contributed to the decrease.
- **SHARE** that there are four main contributing factors are consistently present in sleep-related infant deaths:
 - Infant not sleeping in a crib or bassinette = 75% of cases
 - Unsafe bedding or toys in sleeping area = 62% of cases
 - Infant not sleeping on their back = 61% of cases
 - Infant not sleeping alone 57% of cases



- **INTRODUCE** the ABC's of Safe Sleep. POINT OUT A stands for "Alone"; B stands for "on my Back"; and C stands for, "in my Crib".
- **ASK** participants to take the Safe Sleep quiz provided on the PowerPoint presentation and identify the unsafe Sleep environment. Have participants to pick at least 2 unsafe places for a baby to sleep in.

ABC's of Safe Sleep

Babies should sleep...

Alone

- Not with an adult, another child, or pets
- Not with pillows or stuffed toys
- Not with crib bumpers

B on their Back

- Not on their side
- Not on their stomach

C in a Crib

- Not in an adult bed
- Not on a couch or sofa
- Not in a chair

The infographic includes three 3D block letters: a red 'A', a green 'B', and a blue 'C'. A small red 'TN' logo is in the bottom right corner.

Trainer Note: *They should pick the couch, bouncy chair/swing, or the car seat as unsafe places.*

- **STRESS** that infants should sleep without stuffed toys, bumper pads, pillows, blankets, or animals. Infants should always sleep on their back and never on their side or stomach. Infants should **NEVER** sleep in a bed with an adult, another child, or on a sofa.
- **STATE:** Other recommendations made by the AAP that can contribute to Safe Sleep for infants include:

Safe Sleep Quiz

The infographic shows five images of unsafe sleeping locations with labels below them:

- Bouncy chair or swing
- Baby Crib/ Bassinet
- Car seat or carrier
- Baby Pack n Play
- Sofa or couch

A small red 'TN' logo is in the bottom right corner.

- Use of a firm sleep surface
- Breastfeeding
- Room-sharing without bed-sharing
- Routine immunizations
- Consideration of a pacifier
- Avoidance of overheating
- Avoidance of exposure to tobacco smoke, alcohol, and illicit drugs

- **STATE:** The American Academy of Pediatrics recommends a pacifier for the infant, as it prevents the baby from sleeping too deeply.

- **REFER** participants to the Power Point slide that asks, "Which position shows safe infant sleep?"

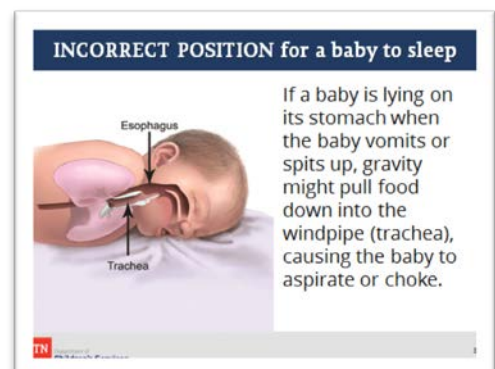
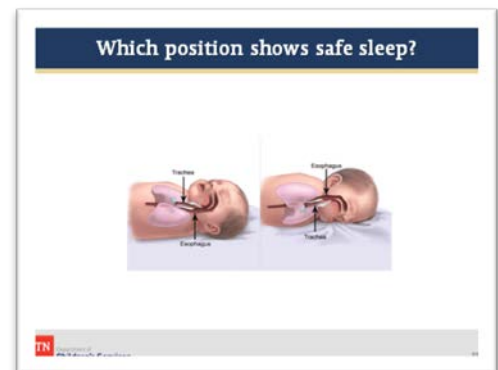
- **ASK** based on the information we have discussed so far, which position is the correct position for safe infant sleep?

- **STATE:** The answer is the baby on the left.

Trainer note: *At this point in the training, the trainer can demonstrate the proper placement of an infant by using a baby doll and small baby crib as a visual aid in addition to the PowerPoint slide(s) (optional).*

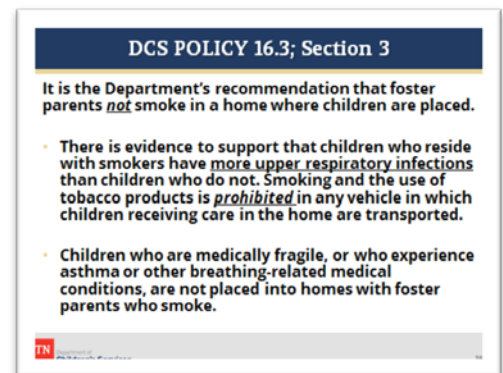
- **SHARE** that the INCORRECT POSITION for a baby to sleep is a baby lying on its stomach when the baby vomits or spits up, gravity might pull food down into the windpipe (trachea), causing the baby to aspirate or choke.

- **SHARE** that the CORRECT POSITION for baby to sleep is on its back and the position of the Esophagus and Trachea. Point out if the baby vomits or spits up while on its back, gravity might keep food from going into the windpipe (trachea), making it less likely for the baby to aspirate or choke.



making it less likely for the baby to aspirate or choke.

- **STATE:** Once an infant can roll over on its own and move its head, they may sleep in the position that is most comfortable for them.
- **STATE:** Never smoke around a baby. There are chemicals that can increase the risk of SIDS found in cigarette smoke.
- **STATE:** It is best not to smoke around the child at all and definitely not in the home or car where an infant lives or is transported. This is also a requirement by DCS Policy 16.3 (Desired Characteristics of Foster Parents), Section C, which states:
- **EXPLAIN** that it is the Department's recommendation that foster parents not smoke in a home where children are placed. There is evidence to support that children who reside with smokers have more upper respiratory infections than children who do not. Smoking and the use of tobacco products is prohibited in any vehicle in which children receiving care in the home are transported. Children who are medically fragile, or who experience asthma or other breathing-related medical conditions, are not placed into homes with foster parents who smoke.
- **STATE:** If a caregiver smokes outside the home, recommend they wear a shirt that is removed prior to coming back into the house, and it is recommended that they also wash their hands thoroughly before touching the infant.
- **REVIEW** the ABC's of Safe Sleep once again with participants: Babies should sleep Alone, on their Back, in a Crib!
- **STATE,** let's take a 10 minute break. When we return, we will take a look at working with the Birth Parents of an infant with NAS.



TRAINERS NOTE: *While they are on break, place your 4 prepared flipcharts around the room. Each will have the one of the following titles at the top: "Mentor," "Teacher," "Advocate," "Support System."*

Unit 7: Working with the Birth Parents of an Infant with NAS

Unit Time: 45 minutes

Objectives:

Participants will be able to:

- Understand that a significant amount of the mothers that gave birth to an infant with NAS were on medication that was prescribed for them by a licensed practitioner
- Acknowledge that a child has an attachment to his/her birth family
- Acknowledge that safety and well-being for the child is paramount
- Recognize that the interaction between foster parents and birth parents has an impact on the child

Materials Needed:

- Internet connection for the video from WBIR TV titled Video from WBIR TV titled, "Mother of drug-dependent baby tells her story "(4 minutes 11seconds).
- 4 Flipcharts titled with each role:
 - "Mentor"
 - "Teacher"
 - "Advocate"
 - "Support System"

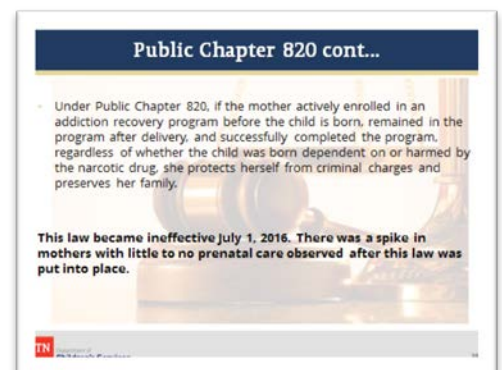
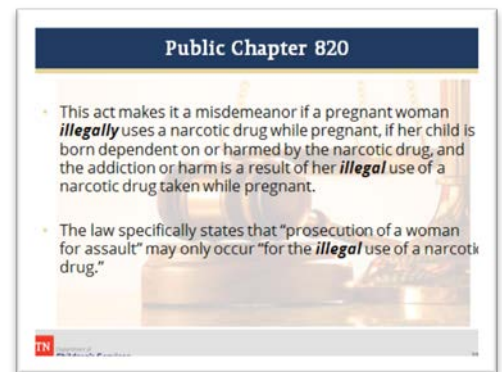
Key Points/Instructions:

- **STATE:** Now that we've talked about how you can best care for an infant that's been diagnosed with NAS, let's talk about how foster parents can effectively work with the birth parents of these children.
- **BEGIN** the activity by asking the group with a show of hands, "Are there any 'perfect parents' in the audience today?"

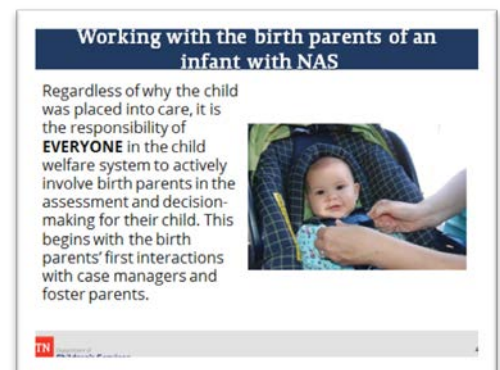
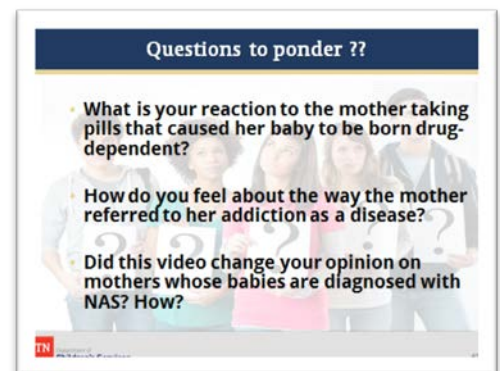
TRAINER NOTE: *No one should raise their hands. If someone does, ask them to describe the qualities of a "perfect parent."*

- **ASK:** "Do you believe parents want to be poor parents?"

- **STATE:** Children come into the foster care system for a variety of reasons. In instances when a child has been classified as a “Drug-Exposed Infant”, the mother’s drug use will be a primary concern that can lead to removal.
- **STATE:** A large number of the babies that are born with NAS are born dependent on prescription drugs. The mother may or may not have a prescription for the drug.
- **STATE:** In April of 2014, TN passed a controversial law, Public Chapter 820.
 - This act makes it a misdemeanor if a pregnant woman illegally uses a narcotic drug while pregnant, if her child is born dependent on or harmed by the narcotic drug, and the addiction or harm is a result of her illegal use of a narcotic drug taken while pregnant.
 - The law specifically states that “prosecution of a woman for assault” may only occur “for the illegal use of a narcotic drug.”
 - Under Public Chapter 820, if the mother actively enrolled in an addiction recovery program before the child is born, remained in the program after delivery, and successfully completed the program, regardless of whether the child was born dependent on or harmed by the narcotic drug, she protects herself from criminal charges and preserves her family.
 - This law became ineffective July 1, 2016. There was a spike in mothers with little to no prenatal care observed after this law was put into place.
- **STATE:** If a provider has knowledge of or is called upon to render aid to any child suffering from abuse or neglect, existing law requires healthcare providers to notify the Department of Children’s Services of suspected abuse or neglect of a child.
- **STATE:** We will now hear from a mom whose baby was born drug dependent with NAS.

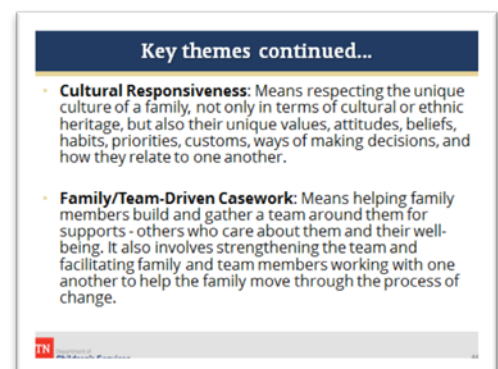
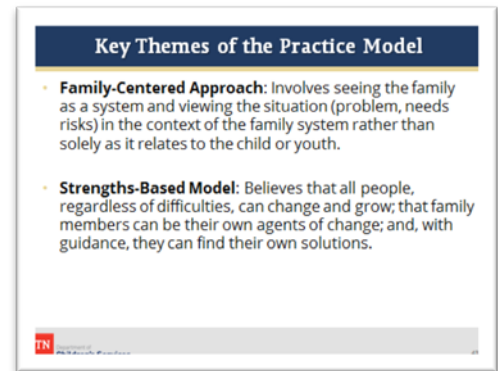


- **ESTABLISH** internet connection to the following web link to present the Video from WBIR TV titled “Mother of drug-dependent Brittney Hudson’s baby tells her story“(4 minutes 11seconds).
- **ASK** the large group if there are any questions regarding the information in the video clip. **PROCESS** the video clip with the large group. You may want to begin the discussion by eliciting responses to the following questions:
 - What is your reaction to the mother taking pills that caused her baby to be born drug-dependent?
 - How do you feel about the way the mother referred to her addiction as a disease?
 - Did this video change your opinion on mothers whose babies are diagnosed with NAS? How?
- **STATE:** Many people have their own opinions about mothers who use drugs while they are pregnant, but in order to have a successful working relationship with the birth parents, it will be important for foster parents to not prejudge the parents. Addiction to drugs usually has underlying issues, such as past histories of abuse or neglect, which the parents can work on during their treatment.
- **STATE:** Regardless of why the child was placed into care, it is the responsibility of **EVERYONE** in the child welfare system to actively involve birth parents in the assessment and decision-making for their child. This begins with the birth parents’ first interactions with case managers and foster parents.
- **STATE:** The safety and well-being of infants and children are crucial – this will always be the number one priority for DCS. But also keep in mind that the goal will more than likely be to reunite the child with their birth parents, even in



cases where the infant was drug-exposed.

- **STATE:** DCS must approach each family with several key themes in mind.
- **REFER** participants to the Key Themes of the Practice Model in their Participant Guide. Review the following Key Themes:
 - Family-Centered Approach: Involves seeing the family as a system and viewing the situation (problem, needs risks) in the context of the family system rather than solely as it relates to the child or youth.
 - The focus is not only on infants with NAS and their medical issues/needs.
 - DCS will evaluate the entire needs of the family, such as the mother's drug issues, and help her receive treatment so that it will be safe for the child to return home.
 - Strengths-Based Model: **Believes that all people, regardless of difficulties, can change and grow; that family members can be their own agents of change; and, with guidance, they can find their own solutions.**
 - DCS does not only focus on the problems that brought the child into care, but they also identify the strengths the family already has which can make them successful in being reunited.
 - Cultural Responsiveness: **Means respecting the unique culture of a family, not only in terms of cultural or ethnic heritage, but also their unique values, attitudes, beliefs, habits, priorities, customs, ways of making decisions, and how they relate to one another.**
 - DCS recognizes that not all families interact and function in the same way.

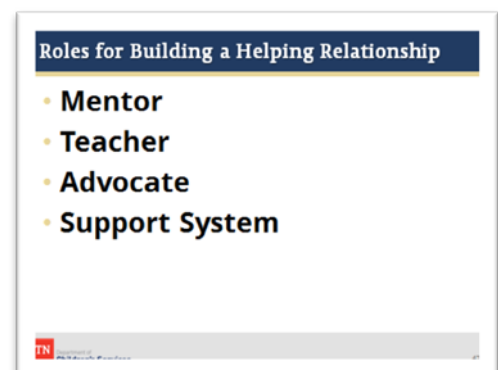


- DCS strives to respect each family's way of handling difficulties.
- Family/Team-Driven Casework: **Means helping family members build and gather a team around them for supports - others who care about them and their well-being. It also involves strengthening the team and facilitating family and team members working with one another to help the family move through the process of change.**
- **STATE** that the Child and Family Teams are developed to support the family while the child is in foster care as well as once they return home so that reunification can be successful. **STATE:** The strengths-based family-focused case management model requires that DCS staff and foster parents help birth families to identify their strengths. Many of the birth parents have only had people focus on their problems and are too overwhelmed to see their own strengths. These strengths can be used to help correct the dysfunction in the family that led to the child's removal.
- **ASK**, "So why is it important for DCS and foster parents to work with the birth parents of Drug-Exposed Infants?"
- **DISPLAY** visual aid Attachment.
- **STATE:** Attachment is an emotional bond that children have with their parents that time and space cannot diminish. Newborn infants have an attachment to their birth mother from the time they are born as they have heard the mother's voice and heartbeat the entire time they were developing in the mother's womb.
- **STATE:** Because of the powerful attachment that children have to their birth families and the tremendous impact breaking this attachment may have on a child in the future, it is imperative that the foster parents work toward building a relationship with the birth family.
- **STATE:** Foster parents who understand how important birth families are to the children in their care will encourage and support the continuing contact between the birth parents and the children. That contact is essential if



reunification is to be successful.

- **REMIND** participants that building a relationship with birth parents takes time. As the relationship progresses, the foster parent may feel comfortable enough to perform certain key roles to help the birth parent toward reunification with his/her child.
- **STATE:** The next activity will explore ways that foster parents can reach out to birth parents and build a helping relationship.
- **CONDUCT** the Building a Helping Relationship Activity:
 - Divide the class into small groups
 - Display 4 flipcharts around the room, each with a title of a role for working with birth parents.
 - Ask participants to discuss each of the 4 roles within their group and brainstorm ways they could assist birth parents in each role. Give the groups 5-10 minutes to discuss.
 - Instruct participants to pick a spokesperson for their group who will go up to each flipchart and write at least one way to help birth parents that was discussed in their group. Encourage them to come up with as many answers as they can to place on the flipcharts.
- **REVIEW** each flipchart with the large group and answer any questions that participants have about ways they can work with birth parents.
- **REFER** participants to the Roles for Building a Helping Relationship with Birth Parents located in their participant guide.
 - **Mentor:** *Webster's Dictionary* defines a mentor as a wise and trusted guide. Birth parents become stronger and more confident parents when you include them in as many activities as possible with their child such as doctor's appointments, haircuts, shopping



for clothes, birthdays, etc. Foster parents could also help birth parents role-play meetings with doctors or other professionals, coaching them in how to communicate. Children then see both families working together for their best interests and the birth family sees the foster family as a resource rather than a threat.

- **Teacher:** A foster parent can help the birth parent remain involved with their child in foster care through co-parenting. This means providing support and assistance to the birth parents while they continue to parent their child. Foster parents have taught birth parents how to fix formula, how to give medicine to their child, how to get the most for their money in a grocery store, how to fix nutritious meals, and how to follow a budget. Remember to focus on the birth parents' strengths.
- **Advocate:** *Webster's Dictionary* defines an advocate as "one who pleads the cause for another." An advocate might go with the birth parent to the utility company and help resolve payment problems in order to keep their utilities on or be an advocate for reunification during court hearings.
- **Support System:** Many birth families are isolated and have few people on whom they can call when they have questions about child care. As the goal of reunification gets closer, you can support the birth parent(s) in the eventual return home. The child will begin to spend increasing amounts of time at home with the birth parent(s), starting with occasional visits and working up to overnight and weekend visits. Foster parents can help the birth parent(s) adjust to having the child at home more during this time through phone calls and open communication. Foster parents can let the birth parent(s) know that they are "on call" for assistance if the birth parent(s) need them.
- **EMPHASIZE:** Many of the biological mothers of drug-exposed children do not have any supports outside of DCS. As a Mentor, Teacher, Advocate, and Support System, you can help the biological mother become a nurturing parent that will end a dangerous cycle and more than likely prevent another child being born with NAS. All people need support systems when they are in difficult situations.
- **TRANSITION** the participants into the Therapy and NAS session.

- **STATE:** So far we have discussed what NAS is as well as what to expect when you receive the phone call from DCS asking if you will foster a NAS baby that is in the NICU.
 - You are knowledgeable of the symptoms the infant may experience from opiate withdrawal and how to help soothe the baby.
 - You will ensure the infant sleeps Alone, on their Back, and in a Crib.
 - You are prepared to step into the role of Mentor, Teacher, Advocate, and Support System to help reunite a family and prevent another child from being born with NAS.
- **ASK,** what do you do as the baby ages?
- **SHARE** that the final section of this course will cover some possible long-term effects of prenatal drug-exposure and different forms of therapy that may help the child as he or she ages.
- **EXPLAIN** that this section has a lot of medical terminology. It will be helpful to understand what is going on within the child in order to understand the child's behaviors. This will help you to better care for the child.

Unit 8: Therapy and NAS

Unit Time: 30 minutes

Objectives:

Participants will be able to:

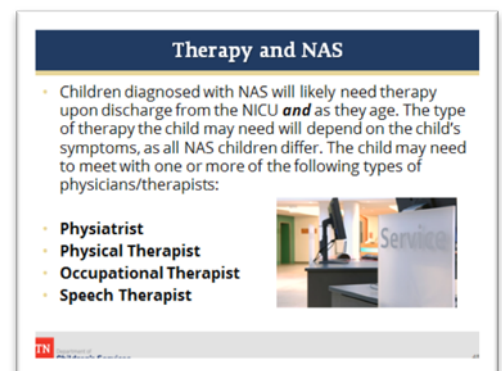
- Gain knowledge of the possible long-term effects that drug-exposure may have on infants and children
- Understand how therapy may improve a NAS child's well-being
- Understand the roles of the Physiatrist, the Physical Therapist, the Occupational Therapist, and the Speech Therapist have in the NAS child's treatment
- Knowledgeable of some therapeutic techniques that may be used at home

Materials Needed:

- PowerPoint

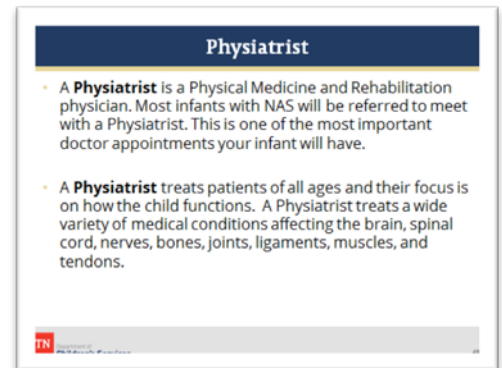
Key Points/Instructions:

- **STATE:** Although the main focus of today's course was on an infants with NAS, it's important for foster parents to understand that any time a child has been exposed to drugs while in the mother's womb, there is a chance that the child will also have long-term effects from the exposure.
- **STATE:** Drug use of any type during pregnancy may place a baby at risk for both immediate and lifelong concerns.
- **STATE:** Children diagnosed with NAS will likely need therapy upon discharge from the NICU and as they age. The type of therapy the child may be in need of will depend on the child's symptoms, as all children with NAS differ. The child may need to meet with one or more of the following types of physicians/therapists:
 - Physiatrist



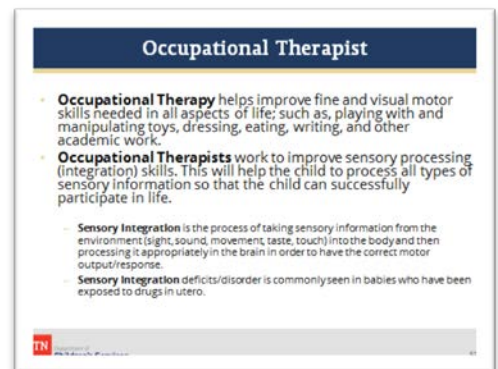
- Physical Therapist
- Occupational Therapist
- Speech Therapist
- **STATE:** The success rate of therapy depends on the follow-through of not only ensuring the child attends all appointments – but of the caregiver practicing the therapeutic techniques at home prescribed by the therapist. **THIS IS WHY YOU ARE SO CRITICAL TO THIS CHILD’S WELL-BEING!**
- **REFER** participants to the Therapy and NAS section in their Participant Guide.
- **STATE:** Before we learn some therapeutic techniques for your NAS child, let’s first talk about the different types of physicians/therapists you may encounter.
- **DESCRIBE** what a Physiatrist is:

- A **Physiatrist** is a Physical Medicine and Rehabilitation physician. Most infants with NAS will be referred to meet with a Physiatrist. This is one of the most important doctor appointments your infant will have.
- A **Physiatrist** treats patients of all ages and their focus is on how the child functions. A Physiatrist treats a wide variety of medical conditions affecting the brain, spinal cord, nerves, bones, joints, ligaments, muscles, and tendons.
- Because a **Physiatrist** has a broad medical expertise, they are able to treat disabling conditions throughout a person’s lifetime.
- **Physiatrists** utilize cutting-edge as well as time-tested treatments.
- **Physiatrists** will design a treatment plan for the NAS child and may collaborate with neurologists, orthopedists, neurosurgeons, physical therapists, occupational therapists, speech therapists, and primary care physicians



to look at the “big picture” of improving function.

- Because each NAS child’s symptoms are different, the **Physiatrist** may use a multitude of procedures/services.
- **DEFINE** Physical Therapy and what a Physical Therapist does:
 - **Physical Therapy** works to improve a child's gross motor function in order to promote independence and safety for the child in all environments.
 - **Physical Therapists** work on improving the child’s strength, balance, coordination, and transitional movements in order to improve their gross motor development.
- **DEFINE** Occupational Therapy and what an Occupational Therapist does:
 - **Occupational Therapy** helps improve fine and visual motor skills needed in all aspects of life; such as, playing with and manipulating toys, dressing, eating, writing, and other academic work.
 - **Occupational Therapists** work to improve sensory processing (integration) skills. This will help the child to process all types of sensory information so that the child can successfully participate in life.
 - **Sensory Integration is the process of taking sensory information from the environment (sight, sound, movement, taste, touch) into the body and then processing it appropriately in the brain in order to have the correct motor output/response.**
 - **Sensory integration deficits/disorder is commonly seen in babies who have been exposed to drugs in utero.**
- **Occupational therapists** address the three main foundational systems in order to produce a change in how the brain processes this information. These



are the proprioceptive, vestibular, and tactile systems.

- **Proprioceptive System** provides body awareness feedback to the brain (where you are in space and how far you are from objects). These receptors are located in the muscles and joints of the body.

- **Vestibular System** provides feedback to the brain regarding movement.

This is the system that tells your body where your head is in relation to your body and how your body is moving. The receptors are located in the inner ear.

- **Tactile System** provides information to the brain regarding touch. It provides feedback about the objects that you touch and when you are touched by objects and other people.

- **DEFINE** Speech Therapy and what a Speech Therapist does:

- **Speech Therapy** is the evaluation, diagnosis, and treatment of speech, language, communication, and swallowing disorders.
- **Speech-language pathologists** (sometimes called **speech therapists**) assess, diagnose, treat, and help to prevent communication and swallowing disorders in patients.

- **STATE:** Researchers have had a difficult time identifying potential long-term effects of NAS primarily because it is difficult to isolate the long-term effects of opioids on the unborn child for the following reasons:

- Scientific and ethical dilemmas in conducting this type of research
- Environmental and medical risk factors (e.g. low socioeconomic status,

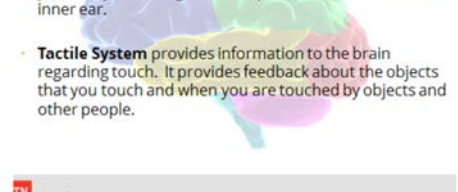
Occupational Therapist continued...

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Occupational Therapist continued...

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Speech Therapist

- **Speech Therapy** is the evaluation, diagnosis, and treatment of speech, language, communication, and swallowing disorders.
- **Speech-language pathologists** (sometimes called **speech therapists**) assess, diagnose, treat, and help to prevent communication and swallowing disorders in patients.



- poor prenatal care, severity and treatment for NAS)
 - Comorbid substance exposure by the mom (e.g. alcohol, tobacco, other illicit drugs)
- **STATE:** Research has found that a significant number of infants exposed to opioids in utero experience developmental delays, neurocognitive delays, and motor deficits.
- **STATE:** We are going to review some symptoms a child with NAS may experience as he/she ages.
- **REMEMBER,** the child's physician/therapist will give you specific activities and skills to work with the child on. For now, we are going to review what some of these may be and talk about some simple things you can do at home.
- **EMPHASIZE:** Before trying any of these techniques at home, ask the physician/therapist to instruct you how to use these for your particular child with NAS.
- **STATE:** Earlier we learned about some difficulties an infant with NAS may experience in the Early Phase of Infancy. This phase can last up to six months. During this phase, the infant may experience an increase in the following behaviors:
 - Crying/Irritability (especially due to hypersensitivity to touch)
 - Hyperactivity
 - Poor sleeping patterns such as difficulty going to sleep and/or staying asleep
- **STATE:** They may be calmed using the following methods:
 - Wrapping the baby firmly in a terry cloth towel
 - Towel baths
 - Dressing the infant in clothes that have texture because softer or silkier textures are often uncomfortable for children with sensory processing problems. The rough textures are

NAS Symptoms- Early Phase of Infancy

Before trying any of these techniques at home, ask the physician/therapist to instruct you how to use these for your particular child with NAS.

Early Phase of Infancy. This phase can last up to six months. During this phase, the infant may experience an increase in the following behaviors:

- Crying/Irritability (especially due to hypersensitivity to touch)
- Hyperactivity
- Poor sleeping patterns such as difficulty going to sleep and/or staying asleep

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NAS Symptoms- Early Phase of Infancy cont.

They may be calmed using the following methods:

- Wrapping the baby firmly in a terry cloth towel
- Towel baths
- Dressing the infant in clothes that have texture because softer or silkier textures are often uncomfortable for children with sensory processing problems. The rough textures are sending signals to the brain without feeling uncomfortable.


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sending signals to the brain without feeling uncomfortable.

- **STATE:** The **Later Phase of Infancy** may last long term. The infant may experience one or more of the following:
 - **Sensory Problems** (these tend to be the greatest):
 - Poor tolerance for handling and touch, sleeping and feeding problems, and poor tolerance for noise (may scream if taken to the mall or grocery store)
 - At the same time they may be under-responsive to painful experiences that should hurt or may be bothered by noises but not seem to follow simple commands or respond consistently when they are called
 - These are all possible symptoms of Sensory Integration Disorder (SID)
 - This is because the drugs affected the developing signal system between the sensory input from the skin, ears, joints, eyes, and the areas in the brain that “read” the input
 - These problems can be decreased or resolved with appropriate therapy and simple interventions like the towel wrap
 - An example of SID is food on their tongue doesn’t feel right
 - They may feel numb as well as hypersensitive - think of when your foot ‘falls asleep’ and is numb and yet prickly
 - **Motor Problems**

NAS Symptoms- Later Phase of Infancy

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NAS Symptoms- Later Phase of Infancy

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NAS Symptoms- the Later Phase of Infancy



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- These problems can be decreased or resolved with appropriate therapy and simple interventions like the towel wrap
- An example of SID is food on their tongue doesn't feel right
- They may feel numb as well as hypersensitive - **think of when your foot 'falls asleep' and is numb and yet prickly**



Additional NAS Symptoms in the Later Phase of Infancy

- **Motor Problems**
- **Developmental Delays**
- **Delays in Developmental Skills**
- **Delay in Speech and Language**
- **Delay in Coordination**
- **Delays in Fine Motor Skills**
- **Behavioral Problems**

It is important to understand that not every therapist or physician is aware of these problems or how to work with them.

- Stiffness/increased muscle tone may be present and delay achieving motor skills
- **Developmental Delays**
 - May be present from early infancy or baby may do well initially after the NAS has resolved
 - These delays do not always show at first, may seem mild, or the caregivers may not realize that there is a relationship between problems (such as being a picky eater) and having been drug-exposed (this is also a sensory processing issue)
- **Delays in Developmental Skills**
 - For example, delays in talking will not show up until the child is getting close to a year old or so
- **Delays in Speech and Language**
 - Early signs of delays may be present such as a lack of babbling or vocal turn taking - call TEIS if baby is not babbling/talking
 - It is important to get a Speech Therapy evaluation if a child is not saying at least 20–30 words and using two words together like “Mama by”
- **Delays in Coordination**
 - Mild problems are often present but do not show up usually until a child is a toddler
 - Balance problems may not show up until a child is still cruising around furniture when they are about 13 months or older
 - They are not able to walk independently or start walking but fall a lot and/or stay up on their toes
- **Delays in Fine Motor Skills**
 - May be present with poor finger feeding or not holding a toy in each hand
- **Behavioral Problems**
 - Baby may become easily overstimulated and have meltdowns when in a situation with too many noises, movements, and sounds (i.e. a large family gathering or places such as stadiums, malls, or supermarkets)
- **STATE:** When these problems are present, the baby would benefit from a

Physical Therapy, Occupational Therapy, and/or Speech Therapy (esp. for feeding problems) evaluation by a Pediatric Physiatrist or Developmental Pediatrician followed up with the recommended therapy.

- **SHARE** that it is important to understand that not every therapist or physician is aware of these problems or how to work with them.
- **STATE:** Now, let's take a look at some difficulties the child with NAS may experience as a **Toddler**.



- This is when problems with balance, coordination, language, fine motor skills, and difficulties with learning at a basic level begin to show up (i.e. counting, drawing a person, printing their name).

Other problems such as feeding issues and sensory problems may continue to be present.

- Unable or difficult to self-calm
 - Irritable
 - Does not like to be touched
 - Inability to sleep through the night
 - Increased amount of time to calm in order to go to bed
 - Prefers to be sedentary instead of active
 - Delayed grasping and visual motor skills
 - Delayed gross motor skills (such as stair climbing and jumping)
 - Abnormal muscle tone
 - Poor movement patterns (decreased use of trunk rotation, stiff movements)
 - Poor core strength (relies on surfaces to pull to stand or comes to stand using a wide base of support)
- **STATE:** The **Preschool Age** child with NAS may experience the

NAS Symptoms of a Toddler

- Unable or difficult to self-calm
- Irritable
- Does not like to be touched
- Inability to sleep through the night
- Increased amount of time to calm in order to go to bed
- Prefers to be sedentary instead of active

NAS Symptoms of a Toddler cont.

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- Delayed gross motor skills (such as stair climbing and jumping)
- Abnormal muscle tone
- Poor movement patterns (decreased use of trunk rotation, stiff movements)
- Poor core strength (relies on surfaces to pull to stand or comes to stand using a wide base of support)




following difficulties:

○ **Math learning problems**

- They may do okay with rote counting but not actually able to count things accurately which is called one-to-one correspondence. A child may be able to count to 30, for example, but not count five blocks accurately. A clue that the child may have problems with one-to-one correspondence is skipping a number consistently when counting (like always skipping 16). Working with the child on counting a variety of ordinary items will correct this and help a child to do well with learning simple addition and subtraction.


○ **Auditory processing problems**

- This is especially likely to be present in children who have a history of having had a lot of ear infections in the first two years of life. It is another sensory circuit problem. The screening tests that are done by the school only test the ears and not the circuit so they do not pick up that a child has this problem. This gives the child problems with following directions and with sounding out words.

- Constantly moving (unable to sit still at any time)
- Difficulty calming to go to sleep
- Unable to sleep for more than 4 hours at a time
- Always moving fast, no slow gear
- Picky eater
- Does not like to be touched and refuses to touch different textures (such as bare feet on the grass)
- Abnormal muscle tone
- Delayed gross motor skills (stair climb, jumping)
- Delayed fine motor skills (unable to draw single lines)
- Delayed ability to coordinate the use of both hands (lacing beads,

NAS Symptoms- Preschool Age

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NAS Symptoms- Preschool Age cont...


- Delayed gross motor skills (stair climb, jumping)
- Delayed fine motor skills (unable to draw single lines)
- Delayed ability to coordinate the use of both hands (lacing beads, snipping with scissors)
- Too still - would rather sit and watch others play
- Clumsy/Poor body coordination
- Poor balance - moves quickly through their environment

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- snipping with scissors)
- Too still - would rather sit and watch others play
 - Clumsy/Poor body coordination
 - Poor balance – moves quickly through their environment
- **ASK**, what are some signs of difficulty you think you may see in 5-6 year olds? (Allow time to answer, then review the following:
 - You may begin to see learning and behavior problems start to emerge at this stage. The child may have reading, math, and memory problems along with poor auditory processing and difficulty staying organized.
 - Hyperactive (cannot sit still in class)
 - Difficulty calming to go to sleep
 - Difficulty sleeping through the night without waking more than 1 time
 - Inability to make decisions without assistance (unable to decide on a game to play without assistance)
 - Poor auditory processing
 - Unable to tolerate being touched by others or touching different textures
 - Mixed hand dominance (does not have a dominant hand when writing and throwing a ball)
 - Delayed visual motor skills and grasping skills (should have a mature writing grasp by 6 years old)
 - Delayed gross motor skills (skipping, jumping, ball play)
 - Clumsy/Poor body coordination
 - Sedentary – prefers to watch others play and interact instead of join in with peers
 - Poor balance

NAS Symptoms- 5-6 year olds

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NAS Symptoms- 5-6 year olds cont.

- Poor auditory processing
- Unable to tolerate being touched by others or touching different textures
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NAS Symptoms- 5-6 year olds cont.

- Delayed gross motor skills (skipping, jumping, ball play)
- Clumsy/Poor body coordination
- Sedentary – prefers to watch others play and interact instead of join in with peers
- Poor balance



- **STATE:** The **Middle School and High School** age NAS child may begin to display some subtler cognitive problems:
 - Memory problems: Their reading content may become more of an issue as well as higher level cognitive skill problems.
 - If they experience psychiatric problems, it will likely show up in Middle School and Adolescence. These psychiatric problems may present as Attention Deficit Hyperactivity Disorder (ADHD), Anxiety, Bipolar Disorder, and Oppositional Defiant Disorder (ODD).
 - Making Inferences: For example, the teenager may remember the contents of a paragraph well, not have memory problems, but completely miss the inferences. This sort of problem will lead to poor scores on standardized tests and/or an inability to write an essay. There may be social communication problems because of not understanding figures of speech such as similes and metaphors (they don't get the joke or even realize that it was a joke).
 - Executive Skills: These higher order cognitive skills for organization, setting priorities, and keeping track of time do not develop until this age and may be impaired. This often leads to not keeping track of when homework is due, not turning it in, or losing it.
 - Flexibility of Thoughts: Typically someone has alternatives if the first idea does not work. The reverse of this is a tendency to stay stuck in one way of solving a problem, becoming repetitive, and/or having difficulty to "change set".
 - Anti-Social Behaviors: Often do not show up until the child is

NAS Symptoms- Middle and High School Age

Children may display more cognitive problems such as:

- > **Memory problems:** Their reading content may become more of an issue as well as higher level cognitive skill problems.
- > If they experience psychiatric problems, it will likely show up in Middle School and Adolescence. These psychiatric problems may present as Attention Deficit Hyperactivity Disorder (ADHD), Anxiety, Bipolar Disorder, and Oppositional Defiant Disorder (ODD).

NAS Symptoms- Middle and High School Age

Children may display more cognitive problems cont...

Making Inferences: For example, the teenager may remember the contents of a paragraph well, not have memory problems, but completely miss the inferences. This sort of problem will lead to poor scores on standardized tests and/or an inability to write an essay. There may be social communication problems because of not understanding figures of speech such as similes and metaphors (they don't get the joke or even realize that it was a joke).

NAS Symptoms- Middle and High School Age

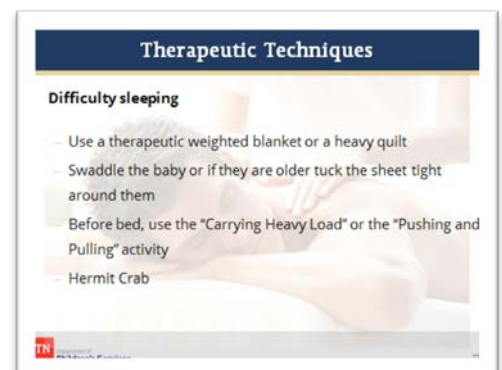
- **Executive Skills:** These higher order cognitive skills for organization, setting priorities, and keeping track of time do not develop until this age and may be impaired. This often leads to not keeping track of when homework is due, not turning it in, or losing it.
- **Flexibility of Thoughts:** Typically someone has alternatives if the first idea does not work. The reverse of this is a tendency to stay stuck in one way of solving a problem, becoming repetitive, and/or having difficulty to "change set".
- **Anti-Social Behaviors:** Often do not show up until the child is reaching puberty or adolescence.

reaching puberty or adolescence.

- **STATE:** It is important to remember that these problems can almost always be solved or at least decreased to manageable levels if they are addressed correctly. Sometimes medicine is part of the answer. For example, a psychotropic medication may be prescribed for ADHD or other Psychiatric problems.
- **STATE:** Now let's look at some common Sensory problems that the NAS child may experience and some therapeutic techniques that you can do at home after consulting with your child's healthcare provider. REFER participants to the handouts in their Supplemental Forms section:

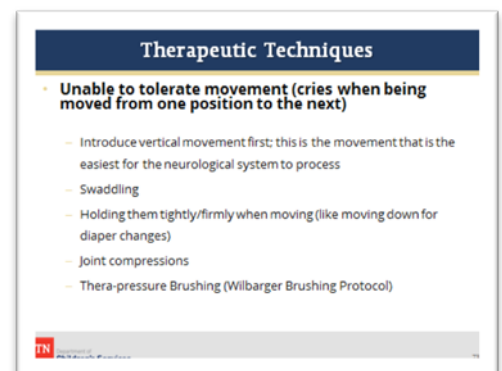
- Difficulty sleeping

- Use a therapeutic weighted blanket or a heavy quilt
- Swaddle the baby or if they are older tuck the sheet tight around them
- Before bed, use the "Carrying Heavy Load" or the "Pushing and Pulling" activity
- Hermit Crab



- Unable to tolerate movement (cries when being moved from one position to the next)

- Introduce vertical movement first; this is the movement that is the easiest for the neurological system to process
- Swaddling
- Holding them tightly/firmly when moving (like moving down for diaper changes)
- Joint compressions
- Therapressure Brushing (Wilbarger Brushing Protocol)




- Unable to tolerate being placed on his/her back or difficulty transitioning from one surface to the next

- These children have gravitational insecurity which is a vestibular processing problem
 - Provide lots of motor planning opportunities (e.g. climbing/crawling over, under, and through objects)
 - Instead of lying the baby down on his/her back, lie them down on their side
 - Roll them to their side before picking them up
 - Never pick them up from behind (anything behind them is fearful and anything that requires their head to be moving backward in space is also very fearful to their nervous system)
 - Therapressure Brushing
 - Unable to tolerate being touched
 - Therapressure Brushing (Wilbarger's Therapressure Protocol)
- **ASK**, when would you refer your child for occupational/physical/speech therapy?
 - **EXPLAIN** that you would refer your child for therapy if he/she has:
 - Delayed grasping and/or delayed visual motor skills
 - Poor sensory processing skills such as difficulty staying calm
 - Unable to perform daily activities such as dressing, eating, and/or sleeping
 - No internal motivation to play
 - Poor self-confidence
 - Unable to tolerate touch
 - Increased muscle tone or arching of their back

More Therapeutic Techniques

Unable to tolerate being placed on his/her back or difficulty transitioning from one surface to the next

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- Provide lots of motor planning opportunities (e.g. climbing/crawling over, under, and through objects)
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Therapeutic Techniques cont...

Unable to tolerate being touched


- Therapressure Brushing (Wilbarger's Therapressure Protocol)




When would you refer your child for therapy?

Forms of Therapy- Occupational/physical/speech

- Delayed grasping and/or delayed visual motor skills
- Poor sensory processing skills such as difficulty staying calm
- Unable to perform daily activities such as dressing, eating, and/or sleeping
- No internal motivation to play
- Poor self-confidence
- Unable to tolerate touch



- Increased resistance to movement in their extremities
- Prefer to sit/lie and play instead of attempting movement
- Increased falling during play or walking
- Difficulty playing on playground equipment
- **CONCLUDE:** In this class we learned about NAS and why you may be affected by this medical diagnosis as foster parents in the State of Tennessee. We learned the difference between IDE's and an infant with NAS and reviewed common opioids. We reviewed the symptoms an infant with NAS may experience and how you may soothe the infant. We discussed what to expect in the NICU, at discharge, and when you transition to your home with the infant. We reviewed the ABCs of Safe Sleep and how to best work with birth parents. We concluded this training with what to expect as a child with NAS ages and some therapeutic techniques that you may be expected to use to help improve a child with NAS well-being. Please remember to consult with the child's healthcare professional before practicing any technique at home. Don't forget the importance of your role in this child's life and follow through with all therapy appointments and prescribed therapeutic techniques at home.



Unit 9: Closure

Unit Time: 10 minutes

Objectives:

Participants will:

- Complete Course Reaction Survey
- Receive Certificate

Materials Needed:

- Course Reaction Surveys
- Certificates

Key Points/Instructions:

- **STATE:** We know the job you do every day as a foster parent can be challenging, particularly when you are caring for infants that have been drug-exposed prior to birth. Your main priorities will be to help soothe these infants, respond to their symptoms, ensure they are attending all scheduled appointments, and follow through with therapeutic techniques prescribed by the child's therapist(s).
- **STATE:** Keep in mind that it's a good idea to go ahead and enlist the help of friends, family members, and neighbors who will be able to assist you in times when you need relief, rest, or time for yourself.
- **REITERATE** that infants must always sleep **A**lone, on their **B**ack, and in a **C**rib.
- **STATE:** It is my duty to warn you – you may bond and fall deeply in love with a NAS baby. This happens more often than not. An infant with NAS are a lot of work – and they're worth it.
- **ASK** participants if they have any questions about the topics that were covered in this course.
- **PROVIDE** Course Evaluations and Certificates to each participant.
- **CONCLUDE** the training by thanking the parents for all their dedication to infants and children who are in need.

Supplemental Forms

- Therapy and NAS
- Fine/Visual Motor Developmental Milestones: 0-14 months
- Gross Motor Developmental Milestones : 0-12 months
- Core Strengthening Activities
- Coordination Activities

Therapy and NAS

Physical Therapy

- Physical Therapy works to improve a child's gross motor function in order to promote independence and safety in all environments.
- Physical Therapists work on improving strength, balance, coordination, and transitional movements in order to improve a child's gross motor development.

Occupational Therapy

- Helps improve fine and visual motor skills needed in all aspects of life; such as, playing with and manipulating toys, dressing, eating, writing, and other academic work
- Improves sensory processing (integration) skills in order to process all types of sensory information appropriately to successfully participate in life

Sensory Integration

- The process of taking sensory information from the environment (sight, sound, movement, taste, touch) into the body and then processing it appropriately in the brain in order to have the correct motor output/response. Sensory integration disorder occurs when there is a roadblock anywhere in the process of bringing sensory information to the brain, the brain processing the information, and the body's response to the information. Sensory integration deficits/disorder is commonly seen in babies who have been exposed to drugs in utero.
- Occupational therapy addresses the three main foundational systems in order to produce a change in how the brain processes information: the proprioceptive, vestibular, and tactile systems.

Proprioceptive System

- Provides body awareness feedback to the brain (where you are in space and how far you are from objects)

- Receptors are located in the muscles and joints of the body

Vestibular System

- Provides feedback to the brain regarding movement. This is the system that tells your body where your head is in relation to your body and how your body is moving. The receptors are located in the inner ear (semi-circular canals and the otolith organs).

Tactile System

- Provides information to the brain regarding touch. It provides feedback about the objects that you touch and when you are touched by objects and other people.

Abnormal Muscle Tone

- Typically individuals with increased muscle tone demonstrate: an overuse of their trunk extensor muscles, stiffness in their extremities, and difficulty with transitional movements.
- Abnormal muscle tone is commonly seen in babies/children who have been exposed to drugs in utero. Most commonly they have increased muscle tone (increased stiffness in their extremities and trunk), however, they can present with low muscle tone (decreased firmness of their muscles, “squishy muscles”).
- Increased muscle tone is demonstrated through
 - Arching backward when being carried
 - Difficulty maintaining a sitting position due to frequently arching backward because of abdominal weakness and increased strength of back extensor muscles
 - Arching back to initiate rolling instead of using their abdominal muscles and leading with their legs and hips
 - Transitioning from lying on their back to sitting – when you are trying to get them to pull to sit they will arch backward and typically come all the way to standing instead of coming to a sitting position
 - Difficulty assuming hands and knees in order to progress to crawling

- Decreased muscle tone is demonstrated through
 - Demonstrates increased propping with their hands or leaning forward when attempting to sit (at or after 5 months of age) due to decreased abdominal muscle strength
 - Unable to bring to feet to mouth or hands when lying on their back

Signs of Difficulty in Infancy

- Unable or difficulty self-calming
- Irritable
- Does not like to be touched
- Fearful or cries uncontrollably when moved from one surface to the other (being picked up from the floor to being upright in a caregiver's arms or being placed down on the changing table)
- Inability to sleep through the night
- Increased amount of time to calm in order to go to bed
- Prefers to be sedentary instead of an active baby
- Delayed reaching and visual motor skills
- Delayed grasping skills such as using a pincer grasp (picking up small objects with thumb and index finger, 12 months)
- Delayed gross motor skills (such as rolling, sitting and walking)
- Abnormal muscle tone
- Poor movement patterns (decreased use of trunk rotation, stiff movements)
- Poor initiation of movement/too much movement
- Prefers to use only one side of their body

How to help them improve their core strength

- **Transitional movements**
 - Encourage a chin tuck when coming to sit from lying on their back
 - Play in a side lying position in order to engage their abdominal muscles, making sure their chin is tucked down toward their chest or they are

looking down toward their belly.

- Encourage them to bring their feet to their hands/mouth when lying on their back
- When helping to them transition from lying to sitting roll them to their side and then help them push up into a sitting position
- **Tummy time**
 - Help them reach with one arm keeping the other in contact with a surface making sure they are able to reach with their right and left arms without rolling to their side or back

Signs of Difficulty in Toddlers

- Unable or difficulty self-calming
- Irritable
- Does not like to be touched
- Inability to sleep through the night
- Increased amount of time to calm in order to go to bed
- Prefers to be sedentary instead of active
- Delayed grasping and visual motor skills
- Delayed gross motor skills (such as stair climbing and jumping)
- Abnormal muscle tone
- Poor movement patterns (decreased use of trunk rotation, stiff movements)
- Poor core strength (increased lumbar lordosis, relies on surfaces to pull to stand or comes to stand using a wide base of support)

Signs of Difficulty in the Preschool Age Child

- Constantly moving (unable to sit still at any time)
- Difficulty calming to go to sleep
- Unable to sleep for more than 4 hours at a time
- Always moving fast, no slow gear

- Picky eater
- Does not like to be touched and refuses to touch different textures (such as bare feet on the grass)
- Abnormal muscle tone
- Delayed gross motor skills (stair climb, jumping)
- Delayed fine motor skills (unable to draw single lines)
- Delayed ability to coordinate the use of both hands (lacing beads, snipping with scissors)
- Too still (would rather sit and watch others play)
- Clumsy/Poor body coordination
- Poor balance – moves quickly through their environment

Signs of Difficulty in 5-6 Year Olds

- Hyperactive (cannot sit still in class)
- Difficulty calming to go to sleep
- Difficulty sleeping through the night without waking more than 1 time
- Inability to make decisions without assistance (unable to decide on a game to play without assistance)
- Poor auditory processing
- Unable to tolerate being touched by others or touching different textures
- Mixed hand dominance (does not have a dominant hand when writing and throwing a ball)
- Delayed visual motor skills and grasping skills (should have a mature writing grasp by 6 years old)
- Prefers to be sedentary and watch others play and interact
- Delayed gross motor skills (skipping, jumping, ball play)
- Delayed visual motor skills and grasping skills (should have a mature writing grasp by 6 years old)

- Clumsy/Poor body coordination
- Sedentary – prefers to watch others play and interact instead of join in with peers
- Poor balance

Common Sensory Problems:

- **Difficulty sleeping**
 - Use a therapeutic weighted blanket or a heavy quilt
 - Swaddle the baby or if they are older tuck the sheet tight around them
 - “Heavy Work” - proprioceptive input before bed - pushing or pulling something heavy
 - Hermit Crab
- **Unable to tolerate movement** (cries when being moved from one position to the next)
 - Provide Proprioceptive and/or Tactile input
 - Swaddling
 - Holding them tightly/firmly when moving (like moving down for diaper changes)
 - Joint compressions
 - Therapressure Brushing (Wilbarger Brushing Protocol)
 - Introduce vertical movement first - this is the movement that is the easiest for the neurological system to process
- Unable to tolerate being placed on back or difficulty transitioning from one surface to the next
- These children have gravitational insecurity which is a vestibular processing problem
- Provide Proprioceptive Input
 - Provide lots of motor planning opportunities- climbing/crawling over,

under, and through objects

- Instead of lying the baby down on his/her back, lie them down on their side
- Roll them to their side before picking them up
- Never pick them up from behind (anything behind them is fearful and anything that requires their head to be moving backward in space is also very fearful to their nervous system)
- Therapressure Brushing
- Unable to tolerate being touched
- Provide deep pressure/proprioception
- Therapressure Brushing (Wilbarger's Therapressure Protocol)

When to Refer for Occupational Therapy and Physical Therapy

If a child has:

- Delayed grasping and visual motor skills
- Poor sensory processing skills
 - Difficulty staying calm
 - Unable to perform daily activities (dressing, eating, sleeping)
 - No internal motivation to play
 - Poor self-confidence
 - Unable to tolerate touch
- If you notice increased muscle tone or arching of their back
- Increased resistance to movement in their extremities
- Prefer to sit/lie and play instead of attempting movement
- Increased falling during play or walking
- Difficulty playing on playground equipment



Fine/Visual Motor Developmental Milestones: 0-14 months

0-1 Month

- Able to visual fixate on rattle
- Able to close fingers in response to light pressure on palm
- Able to visually follow rattle 8 inches from midline

2-3 months

- Grasp rattle and shake on command
- Visually follow object 180° from one side to the other
- Reaches for rattle
- Regards hands – looks at hands from a few seconds after being waved in front of child

4-5 months

- Waves arms and hands when presented with toy
- Holds and moves rattle for one minute
- Brings hands within a few inches of midline when reaching for toys
- Grasps block with fingers in heel of palm
- Bring hands together during play

6-7 months

- Grasps cup by handle and lift off table
- Bangs objects after demonstration
- Grasps rattle in middle of palm with first two fingers against thumb side of palm
- Grasps block using palm and fourth and fifth fingers
- Transfers object from one hand to the other
- Use a raking motion with fingers to secure small objects, such as Cheerios

8-9 months

- Grasps block using thumb and first and second fingers
- Bang blocks/objects at midline
- Use a raking motion with predominantly thumb, first and second fingers to secure small objects
- Grasps small objects occasionally with thumb opposed to inside portion of second finger
- Claps hands after demonstration

10-11 months

- Removes one ring from stand
- Point with index finger and place in hole after demonstration
- Grasps small objects (i.e. Cheerios) using thumb and tip of first finger or second finger
- Release object deliberately into a container or in someone's hand on command

12-14 months

- Remove top of box to retrieve toys
- Turn bottle or small container over to dump out small objects
- Turns thick pages in book 1-2 at a time
- Grasps block with thumb on one side and index and second fingers in opposition
- Builds tower of two blocks
- Grasps two blocks in one hand
- Places one shape in a shape sorter

Fine / Visual Motor Developmental Milestones: 15 – 71 months

15-17 months

- Places seven blocks in cup on command
- Builds tower of 3-4 blocks
- Scribbles on paper
- Grasps marker with thumb and first finger directed toward paper and marker held in palm

18-23 months

- Places small pellets in bottle (i.e. beans, cheerios)
- Separates pop beads
- Turns thick pages in a book one at a time
- Inserts three shapes in a shape sorter
- Builds a tower of 6-8 blocks
- Imitates a vertical stroke with a marker
- Strings three beads
- Snips paper with scissors

24-29 months

- Turns knob to open door
- Places all rings on ring stand
- Removes cap from bottle
- Imitates a horizontal stroke with marker after demonstration
- Builds a simple block design after demonstration

30-35 months

- Builds tower of 9-10 blocks
- Draws a circle after demonstration
- Washes hands with good wrist movement and one palm to back of other hand
- Unbuttons small buttons
- Cuts paper from one side to the opposite side

36-41 months

- Begins to show hand preference, i.e. picks up blocks consistently with same hand
- Unscrew cap that is placed loosely on bottle
- Strings 4-5 beads
- Turns key of wind-up toy
- Cuts paper in 2 along a one inch line
- Draws intersecting lines within 20° of perpendicular (draws a cross)

42-47 months

- Traces a line drawn on paper with marker
- Holds marker with fingers in a mature position, i.e. with thumb and first and second digits
- Draws a square after demonstration
- Cuts out a circle with $\frac{3}{4}$ of the cutting on the line
- Laces 2-3 holes on shoe (does not have to cross)

48-59 months

- Places small pellets in bottle
- Buttons and unbuttons large buttons
- Builds a complex design with blocks after demonstration
- Folds paper in half with edges close to each other
- Cuts out square

60-71 months

- Connects dots
- Builds pyramid with blocks after demonstration
- Rapidly touch each finger with thumb in sequential order
- Colors within lines.

Gross Motor Developmental Milestones: 0-12 months

1 month

- Lifts head slightly when on tummy and rotates head from side to side
- Kicking of feet when laying on their back
- Minimal weight through legs when stood

2 months

- Holds head up to 45° while on tummy
- When laying on back moves head frequently (rotating from side to side)
- Collapses when supported in standing
- Rolls to back from right and left sides

3 months

- Lifts head to 90° while on tummy
- Props on forearms when on tummy
- Able to achieve a chin tuck (bring chin to chest) when laying on their back
- Head held steady when in supported sitting
- Back rounded when in supported sitting

4 months

- Rolls accidentally from tummy to back and from tummy to side (right and left)
- No head lag with pull to sit (grasping hands and bringing baby to sit from laying on his back)
- Sits with slight support for several seconds



5 months

- Pushes up onto arms when on tummy
- Pivots when on tummy, swimming is seen when they are on their tummy
- Plays with feet when laying on back
- Sits by propping on hands (still may require assistance)
- Rolls from tummy to back (over right and left)
- Rolls from back to side (right and left)

6 months

- Reaches for toys when on tummy
- Prop sit alone
- Rolls from back to tummy
- Rolls from tummy to back (rare)

7 months

- Sits without support
- Combat crawls on stomach
- Gets on all four and rocks
- Pulls to stand using arms to achieve standing



8 months

- Leans forward to get an object in sitting then returns to sitting
- Pulls to stand at surfaces (increased use of feet to achieve standing)
- Walks along furniture
- Crawling on hands and knees (main mode of movement)

9 months

- Uses various sitting postures (ring sit, side sit, long sit)
- Transitions out of sitting to crawling, standing, etc. with ease
- Uses kneeling and half kneeling (one foot on floor with other knee on floor)

10 months

- Climbing over obstacles (small such as parents legs or small toys)
- Walks along surfaces with one hand on surface
- Walks with one hand held
- Pivots in sitting

11 months

- Uses sitting for fine motor tasks (eating, dressing, etc.)
- When crawling attempts to put themselves inside and get out of containers/boxes
- Climbs up onto surfaces (chairs, couch) must be taught to climb down backwards
- Can squat to get a toy when standing at a surface
- Stands without support
- May take a few steps without support

12 months

- Walks independently
- Enjoy climbing
- Will play in a squatted position
- Transitions easily from crawling, sitting, standing and squatting



Gross Motor Developmental Milestones: 14 months – 5 years

14 months

- Walks without help at least 5 steps
- Stands from the middle of the floor alone
- Able to start and stop walking without falling
- Squats to pick up a toy then return to stand/walking without losing balance
- Able to maintain a kneeling position
- Able to corral a medium size ball when rolled to them
- Able to roll a medium size ball using hands and arms
- Throws a small ball

18 months

- Crawls backward down stairs (3-5 steps)
- Walks up 4 steps with hand held
- Walks while carrying a large toy
- Walks backward without falling
- Lifts foot to contact a ball, when asked to kick
- When standing throws a small ball without losing balance

24 months

- Runs 10ft.
- Walks sideways
- Jumps forward 4 inches
- Jumps up with both feet



- Jumps down 1 step
- Walks up 4 steps (both feet on the same step)
- Kicks a ball
- Throws a small ball over handed and under handed

30 months

- Walks down 4 steps (both feet on the same step)
- Walks upstairs one foot on each step
- Walks backward 10ft.
- Rides a tricycle with pedals with help
- Jumps down from higher surfaces
- Attempts to catch a ball
- Kicks a ball by bending knee prior to kicking

3 years

- Jumps over a small hurdle (2 inches off ground)
- Jumps forward 24 inches
- Walks upstairs alone with one foot on each step
- Stands on one foot for several seconds
- Rides a tricycle
- Catches a ball with arms away from body

4 years

- Walks down stairs alone with one foot on each step
- Hops forward on one foot (can hop on right and left foot)
- Walks on balance beam
- Stand on one foot with little movement of body
- Throw a ball at a target

5 years

- Gallops forward
- Skips
- Runs with control and without falling
- Walks on a balance beam with good balance
- Attempts skills such as jumping rope, dribbling, skating, etc.

Core Strengthening Activities

(Only try these activities if they are age appropriate for your child)

1. Airplane

The parent holds the child's hands, places their feet on the child's tummy/hips, and lifts them up to fly. The parent can count or sing a song to see how long the child stays up.

2. Wheel barrel Walk

Hold the child's feet and have them walk on their hands. Have a visual cue of "walk to Mommy, walk to the puzzle" to encourage the child to complete the task.

3. Sit Ups

Lay on your back with knees bent and feet on the floor. Place arms across their chest. Have them lift their head and shoulders off the surface. Breathe out as you lift and in as you lower. You can play catch while the child lifts and lowers for have them grab a puzzle piece with each lift in order to complete a puzzle.

4. Statue

The child holds different positions as a "statue" while the parent gently tries to "knock over" the child. Positions can include kneeling (both knees placed on the floor with bottom lifted off their feet, half-kneel (start in kneeling, lift one leg up and put one foot on the floor like you are standing up), standing, standing with eyes closed, standing on a pillow or cushion with eyes open or closed. Again, the parent can count or sing a song to see how long the child stays up.

5. Surf Board

Have the child stand on a pillow or sofa cushion and play catch, hit a balloon, or pop bubbles. Counting to 10 repetitions of an activity will help to keep some children engaged.

6. Obstacle Course

Create an obstacle course that includes climbing over, under, and through things. A way to make the course more fun is to use visual cues such as getting a piece of

the puzzle, go through the course, and then place it in the puzzle.

7. Scooter games

Square gym scooters can be used in a variety of ways. The child can lie on their belly and use their hands to move, they can sit on the scooter and ride with feet, or they can keep their knees on the scooter and propel with their hands on the floor.

8. Rock and Rolls

Have the child sit with knees curled up and arms wrapped around legs. Have them rock back and then sit right back up. The child can also do “egg rolls” in this position rocking side to side.

9. Animal Walks

Some examples are crab walk, worm wiggle, bear walk on hands and feet, stand on one foot like a flamingo and move like a turtle with a pillow as a shell. Take turns choosing the animal and then do the walk together. You can also print out animal pictures or use animal toys to choose an animal if the child would benefit from visual choices.

10. Build a Bridge

Have the child lie on their back with their knees bent and feet on the floor. The child will then lift their bottom up off the floor. Roll a toy car under the bridge. Remind the child to keep the bridge open!

11. Superman

Lay on stomach with arms overhead. Lift arms and legs so upper chest and upper thighs lift off the surface.

Arms and legs should be straight. You can have them reach for soft objects with their hands which they can “hide” under their body, have them pretend to fly to a special destination or for an increased challenge have them play catch from this position.

12. Planks

Have your child lay on his stomach on the floor with his hands flat on the floor at shoulder level and toes on the

floor. On the count of 3, have him push up on his hands to straighten his arms and lift his whole body all the way to his toes off of the floor. Have them see if they can stay longer than you or a friend. Or see if they can stay long enough for 2-3 small balls to roll under them.

Coordination Activities

Compiled by: Jennifer Walkup, PT, DPT, PCS

Side stepping: “step together”, feet point straight out, leading leg steps out and then the trailing leg comes together. Repeat to the right and left.

Galloping: “like a horse”, Place leading leg forward and back leg perpendicular to the lead leg (feet are in an L shape). Tummy and hips are facing forward. Smoothly and evenly step forward with the lead leg and then bring the back leg up to the lead leg without it touching or crossing. Hands are kept at your side and swing freely.

Marching: “opposite arm and leg”, March forward while lifting opposite arm and leg together. Make sure your arms and legs are moving at the same time and make sure you have controlled movements with all extremities. Also, make sure your arms do not cross your body.

Braiding: “cross in front, cross behind”, standing sideways down a hallway. Step out with your right foot and cross your left foot in front of your right foot. Then step out with your right foot. Then cross your left foot behind your right foot. Repeat to the opposite side with your right foot crossing in front then behind of your left foot.

Skipping: “step hop”, lift right foot off the ground, hop on your left foot, then return your right foot to the ground and repeat the pattern with your left foot off the ground. Keep switching between right and left legs without pausing or taking any extra steps in between.

Bird dog: Start on your hands and knees. Then slowly extend your right arm in front of you up by your ear and extend your left leg straight out. Hold 3-5

seconds then repeat with your left arm and right leg.

Doodle bugs: Start lying on your back with arms at your side and your legs extended. Lift your left arm and right leg into the air simultaneously, and then slowly lower to the start position. Then lift your right arm and left leg into the air simultaneously, then slowly lower to the start position. Then repeat alternating sides.

Doodle bugs on your belly (dolphins): Start lying on your belly with your legs straight and your arms in front of you. Slowly lift your left arm and right leg simultaneously. Then slowly lower. Then lift your right arm and left leg simultaneously. Then slowly lower. Then repeat alternating sides.

Jumping jacks: Start with your feet together and your arms down by your side (pencil). Then jump and bring your feet apart and your hands together over your head (rocket ship).

Scissor jumps: Place a target on the floor. Place your right foot on the target and your right arm extended forward in front of your body and your left foot off the target with our left arm extended behind you. Jump and switch your arms and legs. When you land, the left foot will be on the target and your left arm will be extended forward in front of the body and your right foot will be off the target and your right arm will be extended behind you. Make sure your tummy and hips remain facing forward.

Scissor jumps (opposite sides): Place a target on the floor. Place your right foot on the target and your left arm extended forward in front of your body and your left foot off the target with your right arm extended behind you.

Jump and switch your arms and legs. When you land, the left foot will be on the target and your right arm will be extended forward in front of the body and your right foot will be off the target and your left arm will be extended behind you. Make sure your tummy and hips remain facing forward.

CONTRIBUTOR BIOGRAPHIES

East Tennessee Children's Hospital

Children's Hospital has been recognized nationwide as both a leader and an innovator in the treatment and education of Neonatal Abstinence Syndrome. NAS is a group of problems that occur in a baby who has been exposed to certain drugs while in the mother's womb. Taking these drugs while pregnant puts a baby at risk for NAS. Once born, they no longer get these drugs and may start having symptoms of withdrawal. These babies are not born addicted to certain drugs. They are born drug dependent. In 2011, Children's Hospital staff created a new way to treat NAS babies. The NICU now uses small doses of morphine to help these babies through their withdrawal. Children's Hospital has a very experienced Cuddler Program in the NICU. These volunteers hold babies, rock them to sleep, and give them a human connection when parents are not present. In 2012, Children's Hospital built a brand new NICU with 16 private rooms just for NAS babies. In 2014, a \$75 million dollar expansion began, which includes the addition of 44 private NICU rooms to improve the environment for both babies and their families. The NICU's location in Children's Hospital means that that all staff members are highly trained to work with and understand the special needs of children and their families. The staff is dedicated to providing the best care for these babies. Their goal is to get these babies home as safely and as quickly as possible. After discharge, Children's Hospital offers these babies at risk for developmental delays a continuance of care while monitoring their growth.

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Miriam Weinstein, MD

Miriam L. Weinstein, M.D. is a Clinical Associate Professor of Pediatric Rehabilitation at the University of Tennessee Graduate School of Medicine. She did her residency in Physical Medicine and Rehabilitation at Tufts New England Medical Center and Louisiana State School of Medicine, New Orleans/Charity Hospital. She did her fellowship in Pediatric rehabilitation with cross training in Developmental Pediatrics at The Rose. F. Kennedy Center, Albert Einstein School of Medicine, Bronx, New York. She has over twenty years of experience working with children who have a history of drug exposure during pregnancy and Neonatal Abstinence Syndrome. She has given many different forums about the special needs of these children. Currently, she has a private practice in Knoxville, TN.

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Dr. Michael Warren is the Assistant Commissioner for Family Health and Wellness at the Tennessee Department of Health.

Dr. Warren is a board-certified pediatrician. He received his undergraduate degree from Wake Forest University and his medical degree from the Brody School of Medicine at East Carolina University. He completed his pediatrics residency, Chief Residency, and fellowship in Academic General Pediatrics at Vanderbilt, where he also obtained a Master's in Public Health. He is a fellow of the American Academy of Pediatrics.

Dr. Warren serves as Tennessee's Title V/Maternal and Child Health Director and oversees numerous child- and family-serving programs in all 95 counties, including programs related to Maternal and Child Health, Chronic Disease Prevention and Health Promotion, and Supplemental Nutrition.

Prior to joining the Department of Health, Dr. Warren served as an Assistant Professor in the Department of Pediatrics at Vanderbilt and as Medical Director in the Governor's Office of Children's Care Coordination. He currently serves as President-Elect for the Association of Maternal and Child Health Programs, the national professional organization for maternal and child health professionals.

He is actively involved in the community and in 2010 was recognized as the Nashville Emerging Leader in the area of Health and Medical Services and in 2013 with a Special Achievement Award from the Tennessee Chapter of the American Academy of Pediatrics.

Rachel Heitmann, MS

Rachel Heitmann, MS, is the Section Chief for Injury Prevention and Detection at the Tennessee Department of Health. She has over ten years in the injury prevention field and five years specifically working with infant safe sleep. Rachel has been responsible for the implementation of the statewide safe sleep campaign resulting in a 25% decrease in sleep-related deaths in two years. Rachel has a Bachelor's degree in Psychology and a Master's degree in Mental Health Counseling.

Jennifer Walkup, PT, DPT, PCS

Jennifer Walkup, PT, DPT, PCS graduated from East Tennessee State University as magna cum laude with a Bachelor's of Science degree in Biology. She then attended Belmont University and received her Doctorate degree in Physical Therapy. She has been practicing as a Physical Therapist for 10 years. She has experience treating outpatient pediatric patients and outpatient adult neurological and orthopedic patients. Jennifer received her Pediatric Clinical Specialist Certification through the American Board of Physical Therapy Specialists in 2012. She has received further education in the areas of torticollis treatment, neurodevelopmental technique (NDT) for infants and children, and orthotic management. She is also certified in the Interactive Metronome.

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Crystal Henley, OTR/L, USC/WPS

Crystal Henley, OTR/L, USC/WPS Sensory Integration Certification #3066, is the sole proprietor of Sensory Puzzles, Inc. She graduated from the University of Tennessee-Chattanooga as magna cum laude with a BS in Occupational Therapy in 2003. She has been practicing as an occupational therapist for 11 years. She has had experience with treating outpatient pediatric patients, inpatient and outpatient adult neurological and orthopedic patients, and wound care. Crystal received her comprehensive certification in Sensory Integration through USC/WPS in 2006. She has received further education in the areas of brain gym techniques, handwriting, NDT use with babies, and Torticollis treatment. She is also certified in the interactive metronome and the Wilbarger Therapressure Technique.

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Neonatal Abstinence Syndrome (NAS) & Safe Sleep
Foster Parent Training


Ground Rules

- Be on time
- Please turn off cellphones
- Please hold calls until break
- Actively participate
- Return from breaks on time
- Avoid disturbing others
- Avoid performing activities not related to training
- Have fun! ☺




Expectations

- Be **R**esponsible for your own learning
- Have **E**njoyment of opportunity
- Be **S**ensitive to each other's needs and diversity
- Know **P**rofessionals are professional in their conduct
- Embrace **E**ducation as a continuous process that requires effort
- Cherish **C**ommitment to personal growth and development
- Acknowledge **T**ime management is personal management




Agenda

- Welcome & Introductions
- What is NAS?
- Symptoms & Soothing Techniques
- Preparing to go Home
- Transitioning Home
- ABC's of Safe Sleep
- Working with Birth Parents of an Infant with NAS
- Therapy and NAS
- Closure




Objectives

- Participants will have an understanding of the term Neonatal Abstinence Syndrome (NAS).
- Participants will be able to describe the differences between an infant with NAS and an Intrauterine Drug Exposure (IDE) infant.
- Participants will become familiar with the drug classification associated with NAS and the risk factors to the newborn infant.
- Participants will become familiar with the group of symptoms associated with NAS and techniques used to soothe these symptoms.




Objectives continued...

- Participants will learn what to expect in the NICU.
- Participants will be provided with information on how to care for the infant when transitioned to the home.
- Participants will gain information on Safe Sleep for all infants.
- Participants will become familiar with different forms of therapy and therapeutic techniques that may be prescribed for an infant with NAS.





What is NAS?

- *Neonatal Abstinence Syndrome (NAS) is a group of symptoms that occur in a newborn baby who has been exposed to **Opioid** drugs while in the mother's womb.*
- An infant may be exposed to many drugs that are taken by the mother. As the definition states, **NAS** is only associated with exposure to **OPIOIDS** while in the mother's womb.
- The term NAS is a medical diagnosis and can only be given by an authorized health care professional. The Department of Children's Services (DCS) does not make the NAS diagnosis.





Drugs Classified as Opioids

- **CODEINE**
- **FENTANYL**
- **HYDROCODONE** (Lorcet, Lortab, Vicodin)
- **HYDROMORPHONE** (Dilaudid)
- **OXYCODONE** (OxyContin, Roxicodone, Percocet)
- **MORPHINE**
- **Medication-Assisted Treatment programs such as METHADONE, SUBOXONE, and SUBUTEX**

NAS DATA

According to this data, almost 1,000 NAS cases were reported in 2015 and over 50% of them were in the East Grand Region. The Middle Grand Region has a growing number of NAS cases and accounted for more than 25% of the reported cases.


CNN NEWS VIDEO

Hospital's seeing more Babies Exposed to Prescription Drugs video- [click here \(5:56\)](#)




Symptoms and Soothing



- NAS symptoms may begin from birth but could take longer to appear.
- During the NICU stay, a baby experiencing NAS is scored according to their observable symptoms using an approved scoring tool.
- The care and treatment that an infant receives in the Neonatal Intensive Care Unit (NICU) is **symptom based**, meaning the type of care that a baby with NAS receives is based on the symptoms they are currently exhibiting. Not all infants with NAS are treated exactly the same.



NAS Soothing Technique Activity

Activity (15 Minutes)

- Divide into 2 groups. One group has "Symptom Cards" and the other has "Definition Cards."
- Each group move around the room and match the symptom card to the definition card.
- After locating your match, stand together where you will read your cards aloud to the group, beginning with the symptom card.

Preparing to go Home


Cuddler Volunteer Video- click here (2:29)




13

Preparing to go Home continued...



- Rooming in with the infant prior to discharge is **required** by some hospitals. Doing so can help foster parents to become familiar with the infant's cues and the symptoms the infant may be exhibiting.
- Foster parents will need to provide a car seat and view a video on car seat safety prior to the infant being released from the hospital.**
- All medications prescribed for the infant will be reviewed with you by hospital staff prior to discharge along with information that you should provide to the infant's pediatrician.



14

Preparing to go Home continued...

- The nurse and hospital staff will review a list of discharge instructions with the foster parents. This will include information on all follow-up appointments with doctors and clinics that will need to take place after the infant goes home with you.
- Ask any and all questions you may have before leaving the hospital with the infant. The nursing staff wants to ensure you are comfortable taking the infant home.






15

Transitioning Home

Tennessee Early Intervention System



- A TEIS referral is required by DCS for any infant that the caregiver has been substantiated for drug exposure.**
<http://tennessee.gov/education/teis/index.shtml>
 Tennessee's Early Intervention System is an educational program for families with children birth through age two with disabilities or developmental delays.

16

Principles of Early Intervention

- Support families in promoting their child's optimal development.
- Facilitate the child's participation in family and community activities.
- Encourage the active participation of families in the intervention by imbedding strategies into family routines.

17

Principles of Early Intervention cont...

It is the parents who provide the real early intervention by creatively adapting their child care methods to facilitate the development of their child, while balancing the needs of the rest of the family.




18


The goal of Early Intervention

- The **primary** goal of EI (**Early Intervention**) is to support families in promoting their child's optimal development and to facilitate the child's participation in family and community activities.
- EI requires** a collaborative relationship between families and providers, with participation by all involved in the process. An on-going parent-professional dialogue is needed to develop, implement, monitor, and modify intervention activities.
- Intervention** should be monitored periodically to assure that the strategies implemented are successful in achieving outcomes.

TN Department of Children's Services 19

The goal of Early Intervention ...

Children and their families in Tennessee's Early Intervention System deserve to have services of the highest quality possible. High standards will be set for the training and credentialing of administrative and intervention staff. Training, supervision, and technology will be focused on achieving excellence.



TN Department of Children's Services 20

Help Us Grow Successfully (HUGS)

Help Us Grow Successfully (HUGS) is a home-based prevention and intervention program that provides services to prenatal/postpartum women, children from birth through age 5, and parents/guardians of these families.

The HUGS program is designed to:

- Improve pregnancy outcomes
- Improve maternal and child health and wellness
- Improve child development
- Maintain or improve family strengths



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Who is eligible for HUGS?

- Pregnant teens and women
- Postpartum teens and women
- Children birth through 5 years of age
- Parent/Guardian of children under age 6
- Women who have experienced death of a child less than 2 years of age



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Who is eligible for HUGS?


How to make a referral:

There are no financial guidelines. Referrals can be made by calling your local Public Health Department. Referrals are made by physicians, hospitals, social agencies, clinics, family members, and individuals.

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Brainstorming...

Brainstorm ways that caregivers can take care of themselves and relieve stress from the constant care of an infant with NAS.



TN Department of Children's Services 24

Ways to Take Care of Yourself

- Date Nights with spouse or significant other
- Plan regular times each week for a babysitter to stay for a few hours so you can run errands, take time for yourself, etc.
- Nap when the infant is napping
- Have good nutrition and eat regularly
- Recognize the signs of fatigue and address the need for rest
- Use Respite for weekends when needed



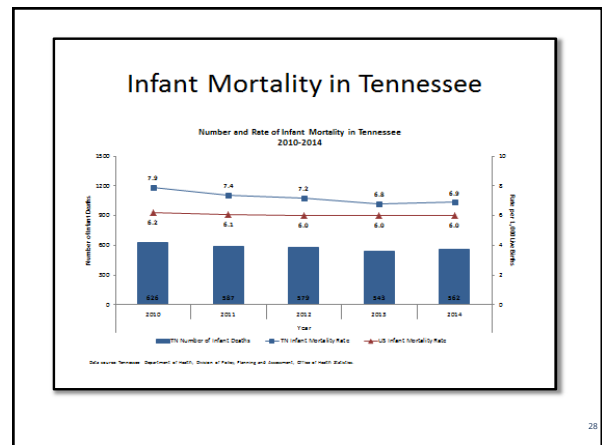
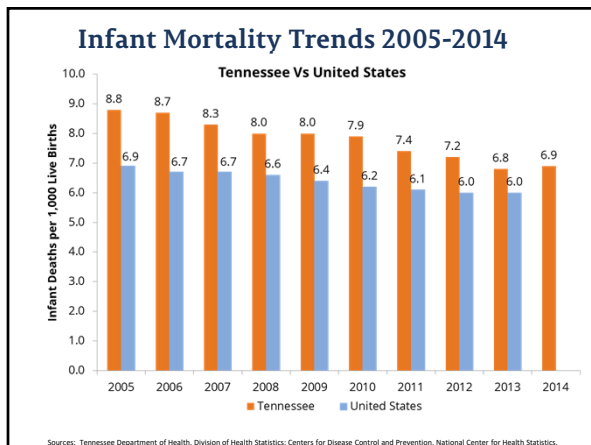

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Safe Sleep

What do you know about Safe Sleep?

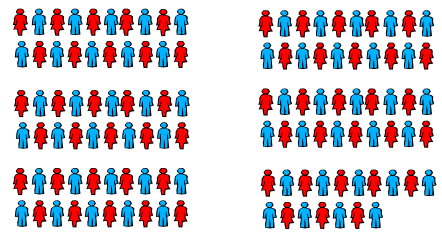




26



Sleep related Infant deaths by the numbers

- In 2013, the health dept. reported 117 children = equivalent of nearly six kindergarten classrooms- Only 3 of these were related to SIDS.




30

ABC's of Safe Sleep

Babies should sleep...

Alone

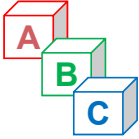

- Not with an adult, another child, or pets
- Not with pillows or stuffed toys
- Not with crib bumpers

On their **B**ack

- Not on their side
- Not on their stomach

In a **C**rib

- Not in an adult bed
- Not on a couch or sofa
- Not in a chair

Safe Sleep Quiz



Bouncy chair or swing



Baby Crib/ Bassinet



Car seat or carrier





Baby Pack n Play



Sofa or couch

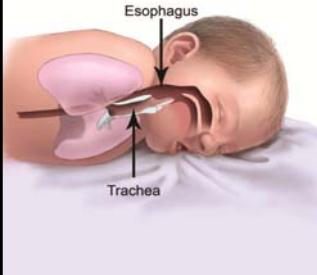


Which position shows safe sleep?





33

INCORRECT POSITION for a baby to sleep





If a baby is lying on its stomach when the baby vomits or spits up, gravity might pull food down into the windpipe (trachea), causing the baby to aspirate or choke.



34

CORRECT POSITION for a baby to sleep

Notice the position of the Esophagus and Trachea. Placing a baby on its back decrease the risk of choking. If the baby vomits or spits up while on its back, gravity might keep food from going into the windpipe (trachea), making it less likely for the baby to aspirate or choke.





35

DCS POLICY 16.3; Section 3

It is the Department's recommendation that foster parents ***not*** smoke in a home where children are placed.


- There is evidence to support that children who reside with smokers have **more upper respiratory infections** than children who do not. Smoking and the use of tobacco products is ***prohibited*** in any vehicle in which children receiving care in the home are transported.
- Children who are medically fragile, or who experience asthma or other breathing-related medical conditions, are not placed into homes with foster parents who smoke.



36

BREAK TIME

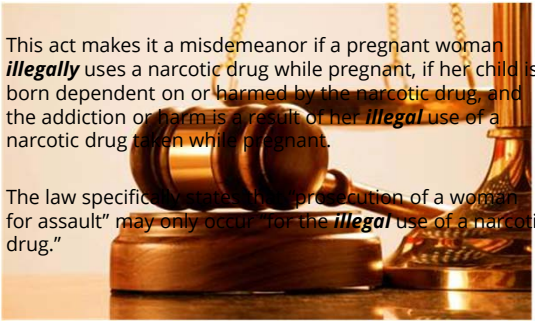
10 minute break



TN Department of Children's Services 37

Public Chapter 820

- This act makes it a misdemeanor if a pregnant woman **illegally** uses a narcotic drug while pregnant, if her child is born dependent on or harmed by the narcotic drug, and the addiction or harm is a result of her **illegal** use of a narcotic drug taken while pregnant.
- The law specifically states that "prosecution of a woman for assault" may only occur "for the **illegal** use of a narcotic drug."

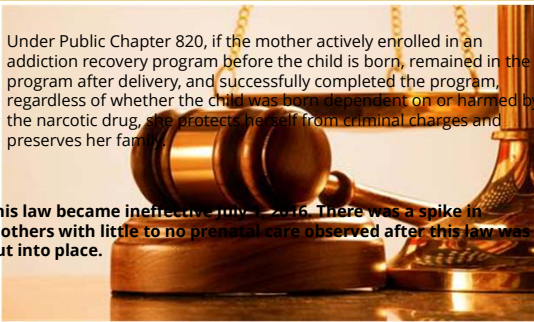


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Public Chapter 820 cont...

- Under Public Chapter 820, if the mother actively enrolled in an addiction recovery program before the child is born, remained in the program after delivery, and successfully completed the program, regardless of whether the child was born dependent on or harmed by the narcotic drug, she protects herself from criminal charges and preserves her family.


This law became ineffective July 1, 2016. There was a spike in mothers with little to no prenatal care observed after this law was put into place.



TN Department of Children's Services 39

Video "Brittney Hudson's"

Brittney Hudson's Story- [click here \(4:11\)](#)



TN Department of Children's Services 40

Questions to ponder ??

- What is your reaction to the mother taking pills that caused her baby to be born drug-dependent?
- How do you feel about the way the mother referred to her addiction as a disease?
- Did this video change your opinion on mothers whose babies are diagnosed with NAS? How?



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Working with the birth parents of an infant with NAS


Regardless of why the child was placed into care, it is the responsibility of **EVERYONE** in the child welfare system to actively involve birth parents in the assessment and decision-making for their child. This begins with the birth parents' first interactions with case managers and foster parents.



TN Department of Children's Services 42

Key Themes of the Practice Model


- **Family-Centered Approach:** Involves seeing the family as a system and viewing the situation (problem, needs risks) in the context of the family system rather than solely as it relates to the child or youth.
- **Strengths-Based Model:** Believes that all people, regardless of difficulties, can change and grow; that family members can be their own agents of change; and, with guidance, they can find their own solutions.



43

Key themes continued...



- **Cultural Responsiveness:** Means respecting the unique culture of a family, not only in terms of cultural or ethnic heritage, but also their unique values, attitudes, beliefs, habits, priorities, customs, ways of making decisions, and how they relate to one another.
- **Family/Team-Driven Casework:** Means helping family members build and gather a team around them for supports - others who care about them and their well-being. It also involves strengthening the team and facilitating family and team members working with one another to help the family move through the process of change.



44

Attachment

Newborn infants have an attachment to their birth mother from the time they are born as they have heard the mother's voice and heartbeat the entire time they were developing in the mother's womb

45


Building a Helping Relationship Activity




46

Roles for Building a Helping Relationship

- **Mentor**
- **Teacher**
- **Advocate**
- **Support System**



47

Therapy and NAS

- Children diagnosed with NAS will likely need therapy upon discharge from the NICU **and** as they age. The type of therapy the child may need will depend on the child's symptoms, as all NAS children differ. The child may need to meet with one or more of the following types of physicians/therapists:


- **Physiatrist**
- **Physical Therapist**
- **Occupational Therapist**
- **Speech Therapist**




48

Physiatrist



- A **Physiatrist** is a Physical Medicine and Rehabilitation physician. Most infants with NAS will be referred to meet with a Physiatrist. This is one of the most important doctor appointments your infant will have.
- A **Physiatrist** treats patients of all ages and their focus is on how the child functions. A Physiatrist treats a wide variety of medical conditions affecting the brain, spinal cord, nerves, bones, joints, ligaments, muscles, and tendons.



49

Physiatrist cont...

- **Physiatrists** will design a treatment plan for the NAS child and may collaborate with neurologists, orthopedists, neurosurgeons, physical therapists, occupational therapists, speech therapists, and primary care physicians to look at the “big picture” of improving function.

50

Physical Therapist


- **Physical Therapy** works to improve a child's gross motor function in order to promote independence and safety for the child in all environments.
- **Physical Therapists** work on improving the child's strength, balance, coordination, and transitional movements in order to improve their gross motor development.




51

Occupational Therapist

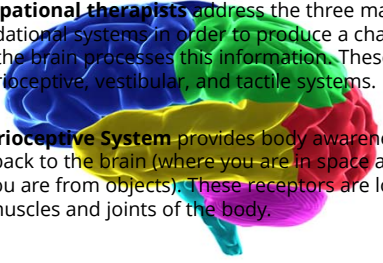

- **Occupational Therapy** helps improve fine and visual motor skills needed in all aspects of life; such as, playing with and manipulating toys, dressing, eating, writing, and other academic work.
- **Occupational Therapists** work to improve sensory processing (integration) skills. This will help the child to process all types of sensory information so that the child can successfully participate in life.
 - **Sensory Integration** is the process of taking sensory information from the environment (sight, sound, movement, taste, touch) into the body and then processing it appropriately in the brain in order to have the correct motor output/response.
 - **Sensory integration** deficits/disorder is commonly seen in babies who have been exposed to drugs in utero.



52

Occupational Therapist continued...

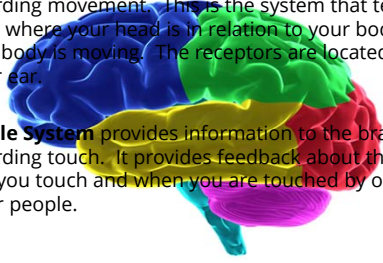

- **Occupational therapists** address the three main foundational systems in order to produce a change in how the brain processes this information. These are the proprioceptive, vestibular, and tactile systems.
- **Proprioceptive System** provides body awareness feedback to the brain (where you are in space and how far you are from objects). These receptors are located in the muscles and joints of the body.

53

Occupational Therapist continued...

- **Vestibular System** provides feedback to the brain regarding movement. This is the system that tells your body where your head is in relation to your body and how your body is moving. The receptors are located in the inner ear.
- **Tactile System** provides information to the brain regarding touch. It provides feedback about the objects that you touch and when you are touched by objects and other people.

54

Speech Therapist

- **Speech Therapy** is the evaluation, diagnosis, and treatment of speech, language, communication, and swallowing disorders.
- **Speech-language pathologists** (sometimes called **speech therapists**) assess, diagnose, treat, and help to prevent communication and swallowing disorders in patients.




NAS Symptoms- Early Phase of Infancy

Before trying any of these techniques at home, ask the physician/therapist to instruct you how to use these for your particular child with NAS.

Early Phase of Infancy. This phase can last up to six months. During this phase, the infant may experience an increase in the following behaviors:


- Crying/Irritability (especially due to hypersensitivity to touch)
- Hyperactivity
- Poor sleeping patterns such as difficulty going to sleep and/or staying asleep



NAS Symptoms- Early Phase of Infancy cont.


They may be calmed using the following methods:

- Wrapping the baby firmly in a terry cloth towel
- Towel baths
- Dressing the infant in clothes that have texture because softer or silkier textures are often uncomfortable for children with sensory processing problems. The rough textures are sending signals to the brain without feeling uncomfortable.



NAS Symptoms- Later Phase of Infancy

- The **Later Phase of Infancy** may last long term. The infant may experience one or more of the following:
- Sensory Problems (these tend to be the greatest)
- Poor tolerance for handling and touch, sleeping and feeding problems, and poor tolerance for noise (may scream if taken to the mall or grocery store)




NAS Symptoms- Later Phase of Infancy

- At the same time they may be under-responsive to painful experiences that should hurt or may be bothered by noises but not seem to follow simple commands or respond consistently when they are called.
- These are all possible symptoms of Sensory Integration Disorder (SID)




NAS Symptoms- the *Later Phase of Infancy*



- Because the drugs affected the developing signal system between the sensory input from the skin, ears, joints, eyes, and the areas in the brain that "read" the input
- These problems can be decreased or resolved with appropriate therapy and simple interventions like the towel wrap
- An example of SID is food on their tongue doesn't feel right
- They may feel numb as well as hypersensitive - **think of when your foot 'falls asleep' and is numb and yet prickly**



Additional NAS Symptoms in the Later Phase of Infancy

- **Motor Problems**
- **Developmental Delays**
- **Delays in Developmental Skills**
- **Delay in Speech and Language**
- **Delay in Coordination**
- **Delays in Fine Motor Skills**
- **Behavioral Problems**


It is important to understand that not every therapist or physician is aware of these problems or how to work with them.

61

NAS Symptoms of a Toddler

- Unable or difficult to self-calm
- Irritable
- Does not like to be touched
- Inability to sleep through the night
- Increased amount of time to calm in order to go to bed
- Prefers to be sedentary instead of active

62

NAS Symptoms of a Toddler cont.



- Delayed grasping and visual motor skills
- Delayed gross motor skills (such as stair climbing and jumping)
- Abnormal muscle tone
- Poor movement patterns (decreased use of trunk rotation, stiff movements)
- Poor core strength (relies on surfaces to pull to stand or comes to stand using a wide base of support)




63

NAS Symptoms- Preschool Age


- Constantly moving (unable to sit still at any time)
- Difficulty calming to go to sleep
- Unable to sleep for more than 4 hours at a time
- Always moving fast, no slow gear
- Picky eater
- Does not like to be touched and refuses to touch different textures (such as bare feet on the grass)
- Abnormal muscle tone

64

NAS Symptoms- Preschool Age cont...


- Delayed gross motor skills (stair climb, jumping)
- Delayed fine motor skills (unable to draw single lines)
- Delayed ability to coordinate the use of both hands (lacing beads, snipping with scissors)
- Too still - would rather sit and watch others play
- Clumsy/Poor body coordination
- Poor balance – moves quickly through their environment



65

NAS Symptoms- 5 -6 year olds



- You may begin to see learning and behavior problems start to emerge at this stage. The child may have reading, math, and memory problems along with poor auditory processing and difficulty staying organized.
- Hyperactive (cannot sit still in class)
- Difficulty calming to go to sleep
- Difficulty sleeping through the night without waking more than 1 time
- Inability to make decisions without assistance (unable to decide on a game to play without assistance)



66

NAS Symptoms- 5 -6 year olds cont.


- Poor auditory processing
- Unable to tolerate being touched by others or touching different textures
- Mixed hand dominance (does not have a dominant hand when writing and throwing a ball)
- Delayed visual motor skills and grasping skills (should have a mature writing grasp by 6 years old)

67

NAS Symptoms- 5 -6 year olds cont.

- Delayed gross motor skills (skipping, jumping, ball play)
- Clumsy/Poor body coordination
- Sedentary – prefers to watch others play and interact instead of join in with peers
- Poor balance




68

NAS Symptoms- Middle and High School Age

Children may display more cognitive problems such as:

- **Memory problems:** Their reading content may become more of an issue as well as higher level cognitive skill problems.
- If they experience psychiatric problems, it will likely show up in Middle School and Adolescence. These psychiatric problems may present as Attention Deficit Hyperactivity Disorder (ADHD), Anxiety, Bipolar Disorder, and Oppositional Defiant Disorder (ODD).

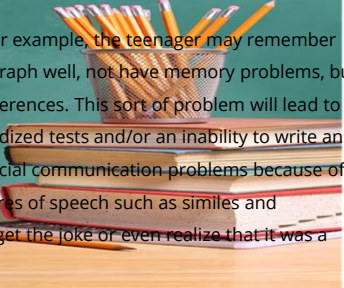



69

NAS Symptoms- Middle and High School Age

Children may display more cognitive problems cont...


Making Inferences: For example, the teenager may remember the contents of a paragraph well, not have memory problems, but completely miss the inferences. This sort of problem will lead to poor scores on standardized tests and/or an inability to write an essay. There may be social communication problems because of not understanding figures of speech such as similes and metaphors (they don't get the joke or even realize that it was a joke).

70

NAS Symptoms- Middle and High School Age

- **Executive Skills:** These higher order cognitive skills for organization, setting priorities, and keeping track of time do not develop until this age and may be impaired. This often leads to not keeping track of when homework is due, not turning it in, or losing it.
- **Flexibility of Thoughts:** Typically someone has alternatives if the first idea does not work. The reverse of this is a tendency to stay stuck in one way of solving a problem, becoming repetitive, and/or having difficulty to “change set”.
- **Anti-Social Behaviors:** Often do not show up until the child is reaching puberty or adolescence.



71

Therapeutic Techniques


- **Difficulty sleeping**
 - Use a therapeutic weighted blanket or a heavy quilt
 - Swaddle the baby or if they are older tuck the sheet tight around them
 - Before bed, use the “Carrying Heavy Load” or the “Pushing and Pulling” activity
 - Hermit Crab




72


Therapeutic Techniques

- **Unable to tolerate movement (cries when being moved from one position to the next)**
 - Introduce vertical movement first; this is the movement that is the easiest for the neurological system to process
 - Swaddling
 - Holding them tightly/firmly when moving (like moving down for diaper changes)
 - Joint compressions
 - Thera-pressure Brushing (Wilbarger Brushing Protocol)


73

More Therapeutic Techniques

- **Unable to tolerate being placed on his/her back or difficulty transitioning from one surface to the next**
 - These children have gravitational insecurity which is a vestibular processing problem
 - Provide lots of motor planning opportunities (e.g. climbing/crawling over, under, and through objects)
 - Instead of lying the baby down on his/her back, lie them down on their side
 - Roll them to their side before picking them up
 - Never pick them up from behind (anything behind them is fearful and anything that requires their head to be moving backward in space is also very fearful to their nervous system)


74

Therapeutic Techniques cont...

Unable to tolerate being touched

- Therapressure Brushing (Wilbarger's Therapressure Protocol)





75

When would you refer your child for therapy?

Forms of Therapy- Occupational/physical/speech

- Delayed grasping and/or delayed visual motor skills
- Poor sensory processing skills such as difficulty staying calm
- Unable to perform daily activities such as dressing, eating, and/or sleeping
- No internal motivation to play
- Poor self-confidence
- Unable to tolerate touch



76

Forms of Therapy-Conti...

- Increased muscle tone or arching of their back
- Increased resistance to movement in their extremities
- Prefer to sit/lie and play instead of attempting movement
- Increased falling during play or walking
- Difficulty playing on playground equipment


77

Thank you for your participation


78