



Guide to NAS

What to expect
for your baby



VIDANT HEALTH

GENERAL INFORMATION

Neonatal Abstinence Syndrome

Neonatal Abstinence Syndrome (NAS) is a term for a group of problems a baby may have when withdrawing from exposure to narcotics, opiates or other substances. It happens in about 3 of every 5 babies exposed to drugs during the mother's pregnancy. The start of withdrawal symptoms may vary from minutes to weeks after birth. Most of the time symptoms will begin within the first 72 hours.

Severity of withdrawal symptoms depends on:

- the type of substance used
- the amount used
- how it was used by the mother (pills, shots, liquid, etc)
- time of last use before delivery
- the number of drugs used (this can cause a combined effect)
- whether the baby is full-term or premature

When a baby with NAS is first born some of the following symptoms may be seen:

- restlessness
- tremors/ jitteriness
- excessive sucking
- high-pitched cry
- vomiting
- diarrhea
- sleep problems
- poor feeding
- poor weight gain
- yawning a lot
- sneezing or stuffy nose
- fever
- rapid breathing
- sweating
- tight muscle tone
- excessive crying that may be high-pitched or shrill
- seizures

Some babies have behavioral issues such as: poor motor coordination, shorter attention spans, marked irritability, impaired socialization, increased anxiety and emotional tension, sucking and feeding difficulties, and a higher incidence of sleep disorders when compared to non-NAS newborn.

TESTING

Drugs can be detected by testing your baby's meconium, cord blood, urine, nails or hair. Normally the hospital staff will test the meconium (the first black tarry stools of the newborn). Drug exposure can be detected from the 2nd trimester until birth. Urine screening can detect recent drug use. Marijuana will show up in urine test from 7-30 days after use. Cocaine use can be shown in urine test for 3-4 days after use. Heroin shows up for 1-2 days after use. Methadone will show up for 1-10 days after use.



WITHDRAWAL SIGNS AND SYMPTOMS

Some drugs are more likely to cause NAS than others, but nearly all have some effect on the baby. Opiates such as heroin and methadone cause significant withdrawal in over half of babies exposed prenatally.

Methadone withdrawal:

Symptoms usually appear within 48-72 hours but may take up to 3 weeks. Classic withdrawal symptoms include: wakefulness, excessive crying, sleep disturbances, tremors, myoclonic jerks (involuntary muscle twitches), seizures, high pitched cries (that hurt your ears), increased muscle tone, disorganized sucking (hard to suck, swallow & breathe at the same time), trouble breathing or fast breathing, runny nose, apnea (long pauses in breathing), weight loss, vomiting, poor feeding, sneezing, yawning, fever, sweating, tears in the eyes and mottling (marbled looking color) of the skin.

Buprenorphine (subutex or suboxone) withdrawal:

Symptoms generally peak at 3 days of life in over half of infants exposed. Symptoms include: hypertonia (tight muscles, hard to straighten arms & legs), tremors, agitation, myoclonic jerks (involuntary muscle twitches), apnea (pauses in breathing), bradycardia (drop in heart rate) or seizures.

Cocaine withdrawal:

Symptoms can be seen in the first 72 hours of life. Classic symptoms include: hyperactive Moro reflex (startles easily), increased jitteriness and excessive sucking. Symptoms are usually short-term and no medical treatment is necessary.

Marijuana withdrawal:

Mild signs of withdrawal may occur within the first 10 days. Symptoms include jitteriness, irritability, increased sensitivity to sounds, light or touch, feeding problems, and hyperactive Moro reflex (startles very easily.) These symptoms usually do not need treatment.

Barbituate withdrawal:

Usually starts within first 48 hours and lasts through the first week of life. Signs may include: irritability, severe tremors, does not like loud sounds, excessive crying, diarrhea, restlessness, increased muscle tone (tightness of the arms or legs), increased appetite, vomiting and trouble sleeping.

Alcohol withdrawal:

Alcohol use causes withdrawal in the baby as well as a group of problems including birth defects that is called Fetal Alcohol Syndrome. Symptoms usually appear within 3-12 hours of life and can continue until 18 months of age. Signs may include hyperactivity, crying, irritability, poor sucking, tremors, seizures, poor sleeping patterns, increased appetite and sweating.

Opiate withdrawal:

Opiate withdrawal can take as long as 4-6 months & in rare cases it can continue up to a year. Signs include increased irritability, gastrointestinal issues (diarrhea, vomiting, increased appetite), trouble breathing, yawning, sneezing, mottling (marbled skin color), fever, tremors, jittery movements, high-pitched cries, increased muscle tone (tightness of the arms or legs), hyperactive reflexes, increased sensitivity to sounds, lights and touch. Symptoms appear to be less severe if mom's last dose was more than a week before delivery.

Heroin withdrawal:

Signs usually start within 24-72 hours, but may begin anytime up to 7 days of age. Symptoms include wakefulness, irritability, trouble sleeping, tremors, myoclonic jerks (involuntary muscle twitches), seizures, hyperactive reflexes, high pitched crying (that hurts your ears), increased tone, diarrhea, disorganized suck (can't suck, swallow & breath at the same time), trouble breathing or fast breathing, runny nose, apnea (long pauses in breathing), weight loss, poor feeding, repeat sneezing (at least 5 sneezes at a time), yawning, fever, mottling (marbled skin color), sweating and tears.

Anti-depressant drugs:

Anti-depressant drugs (fluoxetine, paroxetine, sertraline, or citalopram) given in the 3rd trimester may cause withdrawal. Symptoms include: irritability, agitation, tremors, nasal congestion, fast breathing, vomiting and diarrhea. These symptoms are usually mild & go away by 2 weeks of age.

SCORING

Neonatal Abstinence Scoring (NAS)

If there is a known history of drug exposure, your baby will be tested at 2 hours of age using the Neonatal Abstinence Scoring system. (Sample NAS sheet located on page 6.) This system looks at 21 symptoms or behaviors in 3 areas:

1. The central nervous system: type of crying, sleeping pattern, muscle tone (stiff or floppy), tremors.
2. The metabolic vasomotor/respiratory systems: sweating, fever, yawning, mottling (marble color) of the skin, nasal stuffiness, sneezing, nasal flaring, and rate of breathing.
3. Gastrointestinal system: excessive sucking, poor feeding, vomiting and loose/watery stools.

These areas will be tested and given a number from 0-5. The numbers are added together for the score. This score is used to tell if extra care or medicine is needed for your baby. Scores are done again every 2-4 hours as needed allowing staff to compare results. The score helps staff see if your baby is getting better with treatment.

NEONATAL ABSTINENCE SCORING SYSTEM

Date _____

Systems Signs and Symptoms Score Time

CENTRAL NERVOUS SYSTEM DISTURBANCES	Excessive High Pitched (or other) cry	2															
	Continuous High Pitched (or other) cry	3															
	Sleeps < 1 Hour After Feeding	3															
	Sleeps < 2 Hours After Feeding	2															
	Sleeps < 3 Hours After Feeding	1															
	Markedly Hyperactive Moro Reflex	3															
	Hyperactive Moro Reflex	2															
	Moderate-Severe Tremors Disturbed	2															
	Mild Tremors Disturbed	1															
	Moderate-Severe Tremors Disturbed	4															
	Mild Tremors Undisturbed	3															
	Increased Muscle Tone	2															
	Excoriation (Specific Area)	1															
METABOLIC VASOMOTOR/RESPIRATORY DISTURBANCES	Sweating	1															
	Fever < 101 (99-100.8F/37.2-38.2C)	1															
	Fever > 101 (38.4C and Higher)	2															
	Frequent Yawning (>3-4 times/Interval)	1															
	Mottling	1															
	Nasal Stuffiness	1															
	Sneezing (> 3-4 Times/Interval)	1															
	Nasal Flaring	2															
	Respiratory Rate > 60/min	1															
Respiratory Rate > 60/min with Retractions	2																
GASTRO- INTESTINAL DISTURBANCES	Excessive Sucking	1															
	Poor P O Feeding	2															
	Regurgitation	2															
	Projectile Vomiting	3															
	Loose Stools	2															
Watery Stools	3																
SUMMARY	Total Score																
	Scorer's Initials																

Adapted from Finnegan L. Neonatal abstinence syndrome: assessment and pharmacotherapy. Neonatal Therapy: An update, F. F. Rubaltelli and B. Granti, editors. Elsevier Science Publishers B. V. (Biomedical Division). 1986: 122-146.

SCORING GUIDELINES

Signs To Watch For:

- **High-pitched cry**
Score 2 if high-pitched at it's peak; 3 if high-pitched throughout.
- **Tremors**
Undisturbed refers to the baby being asleep or at rest in the bassinet.
- **Increased muscle tone**
Score if the baby has generalized muscle tone greater than the upper limit of normal.
- **Excoriation**
Score only when excoriations (red areas caused by rubbing against something) first appear, increase or appear in a new area. This does not include the diaper area; only areas that are irritated while moving about during fussy times.
- **Yawning and sneezing**
Score if yawning or sneezing occurs more than 3-4 times in 30 minutes.
- **Nasal flaring/increased respiratory rate**
Score only if present without other evidence of lung or airway disease.
- **Excessive sucking**
Score if more than that of an average hungry baby.
- **Poor feeding**
Score if baby is very slow feeding, takes inadequate amounts, or has uncoordinated sucking and swallowing.
- **Vomiting**
Score only if occurring more frequently than would be expected in a newborn baby.

DIET

Poor feeding is a common problem when babies withdraw from drugs. Their suck and swallow abilities may be affected. Small frequent feedings are usually recommended.

Babies withdrawing from drugs also need more calories. They may lose calories from vomiting, diarrhea, sweating, drooling, increased activity, crying, lack of sleep or from irregular feedings. If your baby loses too much weight during the first week of life, the doctor may change to a higher calorie formula, or add human milk fortifier to your expressed breastmilk. Sometimes babies will continue to lose weight due to higher caloric demands and then take longer to gain it back.

If you are taking Methadone or Buprenorphine only, breastfeeding is recommended. A very small amount of these drugs pass into the breastmilk. Also Buprenorphine is not readily absorbed when taken by mouth. If other drugs or medications are being used, please ask your baby's nurse or doctor about breastfeeding.

ACTIVITY

NAS babies are often very irritable, have sleep problems, have changing body temperatures, rapid breathing, and poor feeding & suck reflexes as they withdraw. Stress responses are triggered by bright lights, loud sounds, quick movements and the anxiety or stress felt by their caregiver.

A quiet room, dim lights, soft sounds, gentle movements and soft colors & textures will help soothe NAS babies. NAS infants often calm quickly with swaddling, rocking, and sucking on a pacifier. However, because of the baby's poorly coordinated suck, they often have trouble keeping the pacifier in their mouth. When the baby loses the pacifier, he/she is easily upset.

Your baby's comfort is very important. Being a newborn is very stressful because everything is a new experience. Therefore, you need to plan care around feeding times to allow for longer periods of quiet or sleep.

Do not wake your baby unless necessary.

Sometimes if withdrawal is mild, comfort measures are enough to control symptoms. **The following things can be effective in preventing the use of medications to control withdrawal symptoms and will assist in the weaning process:**

1. Swaddling, loose light clothes; avoid heavy, bulky extra bedding
2. Holding, cuddling, skin to skin contact, slowly rocking, swinging, oscillating cribs (has a device that rocks the crib automatically) are also recommended. An infant sling can be used to carry your baby.
3. Lower the room temperature. Keep room temperature at 68-75 degrees.
4. If your baby is sleeping, do not wake or disturb him/her. Your baby's sleep is very important. Use very little handling. Get everything ready that you will need, before caring for your baby. Your baby will wake up ready to eat.

5. Control the noise level. Use low lights and gentle handling. Avoid sudden changes in the environment. Play quiet, soothing music and speak softly to your baby. Use white noise or a battery operated infant vibrating machine to encourage sleep and limit arousal states.
6. Use a pacifier for excessive sucking.
7. Frequent diaper changes are needed to prevent or control skin rash from loose stools. It is best to use baby soap and warm water rather than baby wipes to cleanse the diaper area. Baby wipes may contain alcohol which further irritates the baby's skin.
8. Clean the baby's skin often, change his/her clothes and bedding to prevent skin reddening from sweating or loose stools.
9. Feed on demand. Several small feedings are best at first. Feed in quiet, calm surroundings with minimal noise and disturbance.
10. Frequent visits while your baby is hospitalized will help you understand the unique needs of your baby and may shorten the length of the hospital stay,

MEDICATION TREATMENTS

Some babies may need medication to treat severe withdrawal symptoms. Your baby may be given Morphine and Clonidine (most commonly used at our hospital), Methadone, or Phenobarbital depending on the drug(s) he/she was exposed to and how strong the withdrawal symptoms are. Medication is usually given if your baby shows some of the following signs (especially A&B):

- A. Neonatal Abstinence Scores of 8 or higher for 3 scores in a row
- B. Seizures
- C. Fever not related to infection
- D. Not able to sleep or wakes easily
- E. Poor feeding and/or quick weight loss that is not normal
- F. Dehydration, diarrhea, and/or vomiting.

If your baby is started on medication, it will be given by mouth every 3-12 hours. Once the signs of withdrawal have been controlled for at least 3-5 days, weaning off the medication can be started. The dose can be reduced by about 10% every 2-3 days, if the withdrawal symptoms are controlled. Sometimes, it is necessary to increase the dosage if your baby is not doing well with the weaning process.

When the medication has been stopped, neonatal abstinence scoring should continue for another 2-3 days, to make sure your baby has been fully weaned.

Since all babies are individuals, some can be weaned easier than others. This means the length of time needed to be weaned can only be estimated. There is no definite time we can tell you that your baby is going home. This means your baby could stay in the hospital 4-6 weeks while weaning from the medication.

NOTES

Reviewed by
patients and families

Vidant Health promotes and supports an
approach to care that puts the patient
and family at the center of the care team.