Newborn Reflexes and Behavior

Schmitt-Thompson Clinical Content

DEFINITION

Many parents have concerns about normal newborn noises, reflexes and behaviors that are not signs of illness. These harmless behaviors fall into 8 general groups. After reading the definitions in Background Information and deciding which one pertains to your caller, go to the Triage screen.

- Normal primitive reflexes from immature nervous system
- Normal jitteriness when crying
- Normal sleep movements
- Normal breathing sounds and noises
- Normal irregular breathing patterns
- Normal GI sounds and noises
- Normal sleep sounds and noises
- Normal feeding reflexes
- Normal protective reflexes

INITIAL ASSESSMENT QUESTIONS

1. SYMPTOM: "What newborn behavior are you concerned about?"
2. FREQUENCY: "How many times did it happen?" or "How many times today?"
3. LENGTH of BEHAVIOR: "How long does it last?"
4. ONSET: "On which day of life did this begin?"
5. CAUSE: "What do you think is causing the ______________?"
6. SEVERITY: "Is your newborn acting sick in any way?"

- Author's note: IAQ's are intended for training purposes and not meant to be required on every call.

TRIAGE ASSESSMENT QUESTIONS

Call EMS 911 Now

Unresponsive or difficult to awaken

CA: 50, 3

Not moving or very weak

CA: 50, 3

[1] Weak or absent cry AND [2] new-onset

R/O: sepsis, respiratory distress

CA: 50, 3

[1] Breathing stopped AND [2] hasn't returned

First Aid: Begin mouth-to-mouth breathing

CA: 50, 3

Severe difficulty breathing (struggling for each breath)

CA: 50, 3

Unusual moaning or grunting noises with each breath

R/O: respiratory distress

CA: 50, 3

Sounds like a life-threatening emergency to the triager

CA: 50, 3

See More Appropriate Guideline

[1] Age < 12 weeks AND [2] acts sick AND [3] no obvious physical symptoms

Go to Guideline: Newborn (Up to 3 Months) Acts Sick (Pediatric)

Spitting up milk excessively

Go to Guideline: Spitting Up (Reflux) (Pediatric)

Crying excessively

Go to Guideline: Crying - Before 3 Months Old (Pediatric)

[1] Questions about stools AND [2] breastfed

Go to Guideline: Breastfeeding - Baby Questions (Pediatric)

[1] Questions about stools AND [2] formula-fed

Go to Guideline: Bottle-Feeding Questions (Pediatric)

Air travel (flying) or mountain travel for newborns, questions about

Go to Guideline: Altitude Sickness (Pediatric)

Go to ED Now

[1] Breathing stopped for over 20 seconds AND [2] now it's normal

R/O: apneic episode

CA: 51, 3

[1] Age < 12 weeks AND [2] fever 100.4 F (38.0 C) or higher by any route (Note: Preference is to confirm with rectal temperature)

R/O: sepsis

CA: 51, 9, 3

Go to ED/UCC Now (or PCP triage)

[1] Difficulty breathing (per caller) AND [2] not relieved by cleaning the nose

CA: 52, 3

[1] Newborn (< 1 month old) AND [2] starts to look or act abnormal in any way (e.g., decrease in activity or feeding)

R/O: sepsis

CA: 52, 3

[1] Low temperature < 96.8 F (36.0 C) rectally AND [2] doesn't respond to warming

R/O: sepsis

CA: 52, 3

[1] Jitteriness of arms or legs AND [2] only on 1 side of body

R/O: seizure

CA: 52, 3

Seizure suspected

CA: 52, 3

See HCP (or PCP Triage) Within 4 Hours

[1] Jitteriness of arms and legs AND [2] occurs when NOT crying, startled or asleep

R/O: seizure, hypocalcemia, hypoglycemia, drug withdrawal

CA: 53, 17, 3

Call PCP Now

[1] Newborn (< 1 month old) AND [2] change in behavior or feeding AND [3] triager unsure if baby needs to be seen urgently

CA: 59, 17, 3

Home Care

[1] Jitteriness of arms and legs AND [2] only when crying

CA: 58, 1, 2, 3

[1] Few jerks or twitches of arms, hands or legs AND [2] only when asleep

Reason: sleep myoclonus

CA: 58, 19, 20, 3

Nasal congestion or blocked-up nose

CA: 58, 4, 5, 6, 7, 3

Frequent sneezing

CA: 58, 8, 5, 6, 10, 3

Hiccups

CA: 58, 11, 10, 3

Normal primitive reflex

CA: 58, 13, 10, 3

Normal breathing sounds

CA: 58, 14, 10, 3

Normal irregular breathing pattern

CA: 58, 15, 16, 3

Normal GI sounds and noises

CA: 58, 14, 10, 3

Normal sleep sounds and noises

CA: 58, 14, 10, 3

Normal sleep pattern

CA: 58, 18, 10, 3

Normal feeding reflex

CA: 58, 13, 10, 3

Normal protective reflex

CA: 58, 13, 10, 3

CARE ADVICE (CA) -

1. **Reassurance and Education:**
   • Jitteriness or trembling during crying is normal in newborns.
   • It should stop in 1 to 2 months.

2. **Call Back If**:
   • Jitteriness becomes worse

3. **Care Advice** given per Newborn Reflexes and Behavior (Pediatric) guideline.

4. **Reassurance and Education - Normal Nasal Noises:**
   • Nasal noises are usually caused by dried mucus in the nose. Your baby most likely doesn't have a cold.
   • A blocked or stuffy nose can interfere with feeding. This is because your baby can't breathe when the mouth is closed with feeding.
   • Therefore, babies need help opening the nasal passages.

5. **Nasal Saline to Open a Blocked Nose in a Newborn:**
   • Use saline (salt water) nose drops or spray to loosen up the dried mucus. If not available, can use bottled water.
   • Use 1 drop and do one side at a time. Repeat this several times.
   • This will loosen up the dried mucus. Then it can be sneezed out or swallowed.
   • If needed, use a suction bulb. Avoid Q-tips which can injure the lining of the nose.
   • Reason for saline nose drops: suction alone can't remove dried or sticky mucus.
   • Importance for a young infant: can't nurse or drink from a bottle unless the nose is open.

6. **Avoid Tobacco Smoke**:
   • Avoid tobacco smoke which can cause nasal congestion or sneezing.
   • Avoid fuzz, dust, or any strong odors for the same reason.

7. **Call Back If**:
   • Nasal washes don't work
   • Breathing becomes hard
   • You have other questions or concerns

8. **Reassurance and Education:**
   • Sneezing is a protective mechanism to open the nose.
   • It's usually caused by dust, fuzz, tobacco or other strong odors.
   • If sneezing becomes frequent, use nasal washes.
   • It is not caused by an allergy.

9. **Fever Under 3 Months Old - Don't Give Fever Medicine:**
   • Don't give any acetaminophen before being seen.
   • Need accurate documentation of temperature in medical setting to decide if fever is really present. (Reason: may require septic work-up.)

10. **Call Back If**:
    • You have other questions or concerns

11. **Reassurance and Education - Hiccups:**
    • Hiccups are usually caused by overeating or a little acid irritating the lower esophagus.
    • Hiccups are not caused by an allergy.
    • They will go away on their own without treatment.

12. **NA**

13. **Reassurance and Education**:
    • This behavior is a normal, harmless reflex, not a sign of illness.

14. **Reassurance and Education:**
    • These noises are normal and harmless, not a sign of illness.

15. **Reassurance and Education**:
    • This breathing pattern is normal for newborns.

16. **Call Back If**:
    • Breathing becomes difficult
    • Breathing pauses last more than 10 seconds
    • You have other questions or concerns

17. **Call Back If:**
    - Your child becomes worse

18. **Reassurance and Education**:
    - From what you have told me, your child is sleeping a normal amount for his age.

19. **Reassurance and Education:**
    - Having a few jerks or twitches of the arms, hands, or legs that only occur during sleep is normal.
    - Should only last a few seconds, but can recur.
    - Does not go away. Can occur normally at any age.

20. **Call Back If**:
    - Jerks last more than 10 seconds
    - Jerks occur when awake
    - Baby becomes stiff or tight

50. **Call EMS 911 Now**:
    - Your child needs immediate medical attention. You need to hang up and call 911 (or an ambulance).
    - Triager Discretion: I'll call you back in a few minutes to be sure you were able to reach them.

51. **Go To ED Now**:
    - Your child needs to be seen in the Emergency Department immediately.
    - Go to the ED at ___________ Hospital.
    - Leave now. Drive carefully.

52. **Go To ED/UCC Now (or PCP Triage):**
    - **If No PCP (Primary Care Provider) Second-Level Triage**: Your child needs to be seen within the next hour. Go to the ED/UCC at _____________ Hospital. Leave as soon as you can. **Caution**: See Sources of Care below when considering where to send the patient.
    - **If PCP Second-Level Triage Required**: Your child may need to be seen. Your doctor (or NP/PA) will want to talk with you to decide what's best. I'll page the on-call provider now. If you haven't heard from the provider (or me) within 30 minutes, go directly to the ED/UCC at _____________ Hospital.

    Note to Triager:
    - Use nurse judgment to select the most appropriate source of care.
    - Consider both the urgency of the patient's symptoms AND what resources may be needed to evaluate and manage the patient.
    - Do not send these patients to Retail Clinics. Retail Clinics have limited services and are not able to manage these patients.

    Sources of Care:
    - **ED:** Patients who may need surgery, need hospitalization, sound seriously ill or may be unstable need to be sent to an ED. Likewise, so do most patients with complex medical problems and serious symptoms.
    - **UCC is Open:** Some Urgent Care Centers (UCCs) can manage patients who are stable and have less serious symptoms (e.g., minor illnesses and injuries). The triager must know the UCC capabilities before sending a patient there. If unsure, call ahead.
    - **Office is Open**: If patient sounds stable and not seriously ill, consult PCP (or follow your office policy) to see if patient can be seen NOW in office.

53. **See HCP (or PCP Triage) Within 4 Hours**:

• If Office Will Be Open: Your child needs to be seen within the next 3 or 4 hours. Call your doctor's (or NP/PA) office as soon as it opens.

• If Office Will Be Closed and No PCP (Primary Care Provider) Second-Level Triage: Your child needs to be seen within the next 3 or 4 hours. A nearby Urgent Care Center (UCC) is often a good source of care. Another choice is to go to the ED. Go sooner if your child becomes worse.

• If Office Will Be Closed and PCP Second-Level Triage Required: Your child may need to be seen. Your doctor (or NP/PA) will want to talk with you to decide what's best. I'll page the on-call provider now. If you haven't heard from the provider (or me) within 30 minutes, call again. **Note:** If on-call provider can't be reached, send to UCC or ED.

Note to Triager:

• Use nurse judgment to select the most appropriate source of care.

• Consider both the urgency of the patient's symptoms AND what resources may be needed to evaluate and manage the patient.

Sources of Care:

• **ED:** Patients who may need surgery or hospital admission need to be sent to an ED. So do most patients with serious symptoms or complex medical problems.

• **UCC:** Some UCCs can manage patients who are stable and have less serious symptoms (e.g., minor illnesses and injuries). The triager must know the UCC capabilities before sending a patient there. If unsure, call ahead.

• **OFFICE:** If patient sounds stable and not seriously ill, consult PCP (or follow your office policy) to see if patient can be seen NOW in office.

54. **See PCP Within 24 Hours:**

• If Office Will Be Open: Your child needs to be examined within the next 24 hours. Call your child's doctor (or NP/PA) when the office opens and make an appointment.

• If Office Will Be Closed: Your child needs to be examined within the next 24 hours. A clinic or an urgent care center is often a good source of care if your doctor's office is closed or you can't get an appointment.

• If Patient Has No PCP: Refer patient to a clinic or urgent care center. Also try to help caller find a PCP (medical home) for future care.

Note to Triager:

• Use nurse judgment to select the most appropriate source of care.

• Consider both the urgency of the patient's symptoms AND what resources may be needed to evaluate and manage the patient.

55. **See PCP Within 3 Days**:

• Your child needs to be examined within 2 or 3 days.

• **PCP Visit:** Call your doctor (or NP/PA) during regular office hours and make an appointment. A clinic or urgent care center are good places to go for care if your doctor's office is closed or you can't get an appointment. **Note:** If office will be open tomorrow, tell caller to call then, not in 3 days.

• If Patient Has No PCP (Primary Care Provider): Try to help caller find a PCP for future care (e.g., use a physician referral line). Having a PCP or "medical home" means better long-term care.

56. **See PCP Within 2 Weeks**:
- Your child needs an evaluation for this ongoing problem within the next 2 weeks.
- **PCP Visit:** Call your child's doctor (or NP/PA) during regular office hours and make an appointment.
- **If Patient Has No PCP (Primary Care Provider):** A primary care clinic is where you need to be seen for chronic health problems. **Note:** Try to help caller find a PCP (e.g., use a physician referral line). Having a PCP or 'medical home' means better long-term care.

58. **Home Care**:
- You should be able to treat this at home.

59. **Call PCP Now**:
- You need to discuss this with your child's doctor (or NP/PA).
- I'll page the on-call provider now. If you haven't heard from the provider (or me) within 30 minutes, call again.

60. **Call PCP Within 24 Hours:**
- You need to discuss this with your child's doctor (or NP/PA) within the next 24 hours.
- **If Office Will Be Open**: Call the office when it opens tomorrow morning.
- **If Office Will Be Closed**: I'll page the on-call provider now. Exception: From 9 pm to 9 am. Since this isn't urgent, we'll hold the page until morning.

61. **Call PCP When Office Is Open**:
- You need to discuss this with your child's doctor (or NP/PA) within the next few days.
- Call the office when it is open.

FIRST AID

N/A

BACKGROUND INFORMATION

Normal Primitive Reflexes From Immature Nervous System

- Startle reflex (Moro or embrace reflex): Brief stiffening of the body, straightening of arms and opening of hands. Follows noise, abrupt movement or other stimulation. Frequent at birth, then gradually resolves by 4 months of age.
- Tonic-neck reflex (fencer's reflex): When head is turned to 1 side, the arm and leg on that side straightens and the opposite arm and leg flexes. Disappears by 4 months of age.
- Chin trembling
- Lower lip quivering

Normal Jitteriness When Crying

- Jitteriness or trembling of the arms and legs during crying is normal in newborns. It should stop by 1 or 2 months of age. If your baby is jittery when not crying, it could be abnormal. Give her something to suck on. (Reason: normal trembling should stop with sucking.)
- Convulsions are rare. During convulsions, newborns are more than jittery. They also have muscle jerking, blinking of the eyes, rhythmic sucking movements of the mouth, and they don't cry. Stimulation

doesn't bring them on and comfort can't stop them.
• Unilateral jitteriness or twitching are seizures until proven otherwise.

Normal Sleep Movements (Newborns)

• Sleep is not motionless. Expect some of the following:
• Sudden jerks or twitches of the arms, hands or legs during sleep are usually normal.
• Duration: last a few seconds
• Timing: usually soon after falling asleep
• Normal at all ages, not just in newborns
• Called “sleep myoclonus”
• Suspect a seizure if: jerking occurs when awake or persists for over 10 seconds

Normal Breathing Sounds And Noises

• Nasal noises caused by irritants or dried mucus in the nose, not due to a cold. Since newborns are obligate nasal breathers for 3-6 months (so they can breathe while nursing), they sometimes need help opening the nasal passages.
• Throat noise caused by air passing through normal saliva or refluxed milk. These gurgling noises are especially likely to build up during sleep. Eventually the newborn learns to swallow more frequently.

Normal Irregular Breathing Patterns

Breathing can be irregular during the first month or so:

• Transient breathing pauses of < 10 seconds (also called periodic breathing). Often the pause is followed by some faster breathing to "catch-up". These are normal if the baby is comfortable during these, the rate is < 60 breaths per minute, and the baby doesn't turn blue. Usually resolves by 1 month of age.
• Transient rapid breathing: Occasionally newborns take rapid, progressively deeper breaths to expand their lungs completely. These are normal if the breathing slows to normal within a minute or so.
• Seesaw breathing: With breathing, the chest seems to contract when the abdomen expands. The cause is the soft rib cage of some newborns that tends to pull in during normal downward movement of the diaphragm.
• Yawning or sighing (intermittent) to open up the lungs

Normal GI Sounds And Noises

• Belching gas
• Passing gas per rectum
• Note: Both of these mechanisms release swallowed air. They are normal, harmless, lifelong and do not cause pain or crying.
• Gurgling or growling noises from normal movement of digested food through the intestinal tract (peristalsis)
• Normal grunting with passage of stools

Normal Sleep Sounds And Noises

Normal sleep is not quiet. Expect some of the following:

• Breathing noises - especially gurgling from secretions that accumulate in the throat
• During light sleep, babies can normally whimper, cry, groan or make other strange noises. Parents who use a nursery monitor commonly become concerned about these normal sleep sounds.

Normal Feeding Reflexes

- Rooting reflex: When the side of the mouth or cheek is touched, your baby turns to that side and opens mouth in preparation for nursing. Present until 6 months of age.
- Sucking reflex: Will suck on anything placed in the mouth. This survival reflex does not imply hunger and is even present right after a feeding. This reflex fades between 6 and 12 months of age.

Normal Protective Reflexes

- Sneezing to clear nose of any irritant. This is not an allergy.
- Coughing to clear lower airway
- Blinking: After spending 9 months in darkness, newborns have light-sensitive eyes and initially prefer to keep their eyes closed. They blink frequently with light exposure.

Newborns (Age less than 4 weeks) Are High-Risk Group

- Newborns are the highest risk age group for rapid deterioration with subtle symptoms.
- For this reason, they are triaged in a much more conservative manner in all the guidelines.
- If a triage nurse is worried for any reason about a newborn, refer them in to be evaluated now or put the call back to the PCP.
- Also, infants age 1 to 3 months have stricter criteria for being seen in most guidelines. This population is also at high-risk and should be triaged with caution.

The Sick Newborn: Subtle Symptoms

- Newborn vulnerability: Newborns are a very high-risk age group, especially during the first 7 days of life. Over 90% of underreferrals that result in a serious adverse outcome involve newborns. Newborns with serious chronic diseases may look good at birth, but abruptly change during the first week of life. Examples are congenital heart disease and metabolic disease. Newborns are at special risk for sepsis and can deteriorate very rapidly.
- The symptoms of serious illness in newborns can be very subtle. That is why the statement "[1] Newborn (< 1 month old) AND [2] starts to look or act abnormal in any way" is found in the "See Immediately" category of at least 20 guidelines.
- Keep in mind that when a parent denies that their newborn is acting "sick", they may simply mean that the newborn doesn't have a cough, runny nose, or diarrhea. Always ask them, "What's normal for your baby?, What's different (or abnormal)? and What is your baby doing right now?"
- Feeding behavior is the one universal and reliable measure of a newborn’s well being. Newborns should be vigorous eating-machines. (EXCEPTION: never a vigorous feeder, but takes adequate amounts and nothing has changed).

Symptoms of illness in a newborn includes the following:

- Poor feeding behavior or a sudden change in feeding behavior (has to be repeatedly awakened to feed or can't stay awake for feedings)
- Poor suck or inability to sustain sucking
- Sweating during feedings
- Sleeping excessively (EXCEPTION: normally parent has to awaken for feeds, but is easy to arouse, alert for feedings and nothing has changed)
- Change in muscle tone (decreased or limp)
- Decreased activity or movement
- Change in color (i.e., pallor, cyanosis or gray extremities)
- Fever or low temperature

• Unusual crying, moaning, grunting
• Tachypnea
• Parent who calls back about the same concerns

Birth To 3 Months Old: Indications For Seeing Patients Immediately With Fever

• The triage question, "Age < 12 weeks AND fever 100.4 F (38.0 C) or higher rectally", is found in multiple symptom-based and newborn guidelines.
• Rectal temperatures are preferred before sending babies into the Emergency Room. (Reason: EDs/offices perform rectal readings to guide ED work-ups). If a caller is unable to take a rectal temp, the following definitions of fever can apply to this question as well:
• Rectal or Temporal Artery temperature: 100.4 F (38.0 C) or higher
• Pacifier temperature: 100 F (37.8 C) or higher
• Axillary (armpit) temperature: 99 F (37.2 C) or higher
• Tympanic temperatures are not reliable before 6 months of age.
• Temporal artery and skin infrared temperatures may be reliable in young infants. (De Curtis 2008)
• Note: Rectal temperatures always preferred over axillary readings (Reason: axillary often inaccurate). (EXCEPTION: Axillary temp above 100.4 F (38 C), just see them)

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SEARCH WORDS

ADMINISTRATIVE ISSUES AND GENERAL HEALTH INFO
BABIES
BABY
BEHAVIORS
BELCHING
BLINKING
BREATHING PAUSES
BREATHING SOUNDS

CRYING BABY
FEEDING REFLEXES
GRUNTING
JITTERINESS
JITTERY
MORO REFLEX
NEWBORN REFLEXES AND BEHAVIOR
NEWBORNS
NOISES
PASSING GAS
PERIODIC BREATHING
PRIMITIVE REFLEXES
REFLEXES
ROOTING REFLEX
SEESAW BREATHING
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SOUNDS
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Content Set: After Hours Telehealth Triage Guidelines | Pediatric

Version Year: 2025

Last Revised: 3/14/2025

Last Reviewed: 1/5/2024