Cough

Pediatric After-Hours Version - Standard - 2015

DEFINITION

• A cough is the sound made when the cough reflex suddenly forces air and secretions from the lungs.
• A coughing spell or fit is over 5 minutes of continuous coughing. Paroxysmal coughing is even more prolonged and intense.
• The cough reflex protects the airways from infection.
• Caution: Must rule-out respiratory distress in this guideline

Respiratory Distress Severity is defined:

• **MILD:** no SOB at rest, mild SOB with walking, speaks normally in sentences, can lay down flat, no retractions.
• **MODERATE:** SOB at rest, speaks in phrases, prefers to sit (can't lay down flat), mild retractions.
• **SEVERE:** severe SOB at rest, speaks in single words, struggling to breathe, severe retractions. (Exception: these symptoms are transient and only present when coughing)

INITIAL ASSESSMENT QUESTIONS

Note to Triager - Respiratory Distress: Always rule out respiratory distress (also known as working hard to breathe or shortness of breath). Listen for grunting, stridor, wheezing, tachypnea in these calls. How to assess: Listen to the child's breathing early in your assessment. Reason: What you hear is often more valid than the caller's answers to your triage questions.
1. ONSET: "When did the cough start?"
2. SEVERITY: "How bad is the cough today?"
3. COUGHING SPELLS: "Does he go into coughing spells where he can't stop?" If so, ask: "How long do they last?"
4. CROUP: "Is it a barky, croupy cough?"
5. RESPIRATORY STATUS: "Describe your child's breathing when he's not coughing. What does it sound like?" (eg wheezing, stridor, grunting, weak cry, unable to speak, retractions, rapid rate, cyanosis)
6. CHILD'S APPEARANCE: "How sick is your child acting?" " What is he doing right now?" If asleep, ask: "How was he acting before he went to sleep?"
7. FEVER: "Does your child have a fever?" If so, ask: "What is it, how was it measured, and when did it start?"
8. CAUSE: "What do you think is causing the cough?" Age 6 months to 4 years, ask: "Could he have choked on something?"

- 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

[1] Difficulty breathing AND [2] SEVERE (struggling for each breath, unable to speak or cry, grunting sounds, severe retractions) AND [3] present when not coughing (Triage tip: Listen to the child's breathing.)

CA: 50, 9

Slow, shallow, weak breathing

R/O: respiratory depression with impending apnea
CA: 50, 9

Passed out or stopped breathing

R/O: apnea, anaphylaxis, cough syncope
CA: 50, 9

[1] Bluish lips, tongue or face now AND [2] persists when not coughing

R/O: cyanosis and need for oxygen
CA: 50, 9

[1] Age < 1 year AND [2] very weak (doesn't move or make eye contact)

R/O: sepsis or shock
CA: 50, 9

Sounds like a life-threatening emergency to the triager

CA: 50, 9

See More Appropriate Guideline

Stridor (harsh sound with breathing in) is present

Go to Guideline: Croup (Pediatric)

Constant hoarse voice AND deep barky cough

Go to Guideline: Croup (Pediatric)

Choked on a small object or food that could be caught in the throat

Go to Guideline: Choking - Inhaled Foreign Body (Pediatric)

Previous diagnosis of asthma (or RAD) OR regular use of asthma medicines for wheezing

Go to Guideline: Asthma Attack (Pediatric)

Bronchiolitis or RSV has been diagnosed within the last 2 weeks

Go to Guideline: Bronchiolitis Follow-Up Call (Pediatric)

[1] Age < 2 years AND [2] given albuterol inhaler or neb for home treatment within the last 2 weeks

Go to Guideline: Bronchiolitis Follow-Up Call (Pediatric)

[1] Age > 2 years AND [2] given albuterol inhaler or neb for home treatment within the last 2 weeks

Go to Guideline: Asthma Attack (Pediatric)

Wheezing is present, but NO previous diagnosis of asthma (RAD) or regular use of asthma medicines for wheezing

Go to Guideline: Wheezing - Other Than Asthma (Pediatric)

Whooping cough (pertussis) has been diagnosed

Go to Guideline: Whooping Cough Follow-up Call

[1] Coughing occurs AND [2] within 21 days of whooping cough EXPOSURE

Go to Guideline: Whooping Cough Exposure (Pediatric)

Go to ED Now

[1] Coughed up blood AND [2] large amount

CA: 51, 9

Ribs are pulling in with each breath (retractions) when not coughing AND [2] severe or pronounced

R/O: pneumonia
CA: 51, 9

Stridor (harsh sound with breathing in) is present

R/O: croup
CA: 51, 9

[1] Lips or face have turned bluish BUT [2] only during coughing fits

R/O: bronchiolitis, FB or pertussis
CA: 51, 9

[1] Age < 12 weeks AND [2] fever 100.4 F (38.0 C) or higher rectally

R/O: sepsis
CA: 51, 16, 9

Go to ED Now (or PCP triage)

[1] Difficulty breathing AND [2] not severe AND [3] still present when not coughing (Triage tip: Listen to the child's breathing.)

CA: 52, 9

[1] Age < 3 years AND [2] continuous coughing AND [3] sudden onset today AND [4] no fever or symptoms of a cold

R/O: airway FB
CA: 52, 9

Rapid breathing (Breaths/min > 60 if < 2 mo; > 50 if 2-12 mo; > 40 if 1-5 years; > 30 if 6-12 years; > 20 if > 12 years old)

R/O: respiratory distress
CA: 52, 9

[1] Age < 6 months AND [2] wheezing is present BUT [3] no severe trouble breathing

CA: 52, 9

[1] SEVERE chest pain (excruciating) AND [2] present now

R/O: pneumonia, pleurisy
CA: 52, 9

[1] Drooling or spitting out saliva AND [2] can't swallow fluids

R/O: peritonsillar abscess, retropharyngeal abscess
CA: 52, 9

[1] Shaking chills AND [2] present > 30 minutes

R/O: pneumonia, sepsis
CA: 52, 19, 9

[1] Fever AND [2] > 105 F (40.6 C) by any route OR axillary > 104 F (40 C)

R/O: serious bacterial infection
CA: 52, 18, 9

[1] Fever AND [2] weak immune system (sickle cell disease, HIV, splenectomy, chemotherapy, organ transplant, chronic oral steroids, etc)

R/O: serious bacterial infection
CA: 52, 9

Child sounds very sick or weak to the triager

Reason: severe acute illness or serious complication suspected
CA: 52, 9

See Physician within 4 Hours (or PCP triage)

[1] Age < 1 month old AND [2] lots of coughing

R/O: pneumonia
CA: 53, 17, 9

[1] MODERATE chest pain (by caller's report) AND [2] can't take a deep breath

R/O: pneumonia, pleurisy
CA: 53, 17, 9

[1] Age < 1 year AND [2] continuous (non-stop) coughing keeps from feeding and sleeping AND [3] no improvement using cough treatment per guideline

R/O: respiratory distress
CA: 53, 2, 4, 5, 6, 17, 9

Call PCP Now

High-risk child (e.g., underlying lung, heart or severe neuromuscular disease)

Reason: high risk for respiratory distress
CA: 59, 36, 2, 3, 4, 23, 19, 37, 9

See Physician within 24 Hours

Age < 3 months old (Exception: coughs a few times)

R/O: pneumonia, Chlamydia, pertussis

CA: 54, 29, 30, 5, 6, 23, 28, 9

[1] Age 6 months or older AND [2] mild wheezing is present BUT [3] no trouble breathing

CA: 54, 2, 29, 23, 30, 5, 6, 19, 17, 9

[1] Blood-tinged sputum has been coughed up AND [2] more than once

R/O: pneumonia, foreign body, TB
CA: 54, 2, 3, 4, 5, 6, 23, 17, 9

[1] Age > 1 year AND [2] continuous (non-stop) coughing keeps from feeding and sleeping AND [3] no improvement using cough treatment per guideline

R/O: pertussis, asthma
CA: 54, 2, 3, 4, 20, 5, 6, 23, 17, 9

Earache is also present

R/O: ear infection
CA: 54, 1, 2, 3, 4, 5, 6, 21, 22, 23, 17, 9

[1] Age > 5 years AND [2] sinus pain (not just congestion) is also present

R/O: cough triggered by sinusitis
CA: 54, 1, 2, 3, 4, 5, 6, 24, 25, 21, 23, 17, 9

Fever present > 3 days (72 hours)

R/O: pneumonia
CA: 54, 2, 3, 4, 5, 6, 19, 23, 17, 9

See PCP When Office is Open (within 3 days)

[1] Age 3 to 6 months old AND [2] fever with the cough

R/O: pneumonia
CA: 55, 2, 29, 23, 30, 5, 6, 19, 35, 9

[1] Fever returns after gone for over 24 hours AND [2] symptoms worse

R/O: otitis media, sinusitis, pneumonia
CA: 55, 2, 3, 4, 5, 6, 19, 23, 17, 9

[1] New fever develops after having cough for 3 or more days (over 72 hours) AND [2] symptoms worse

R/O: otitis media, sinusitis, pneumonia
CA: 55, 2, 3, 4, 5, 6, 19, 23, 17, 9

[1] Coughing has caused chest pain AND [2] present even when not coughing

R/O: pleurisy
CA: 55, 27, 2, 3, 4, 5, 6, 23, 17, 9

[1] Pollen-related cough (allergic cough) AND [2] not relieved by antihistamines

R/O: asthma
CA: 55, 32, 26, 33, 6, 17, 9

Cough only occurs with exercise

R/O: exercise-induced bronchospasm

CA: 55, 1, 2, 3, 4, 6, 23, 17, 9

[1] Vomiting from hard coughing AND [2] 3 or more times

CA: 55, 15, 10, 2, 3, 4, 5, 6, 17, 9

[1] Coughing has kept home from school AND [2] absent 3 or more days

CA: 55, 2, 3, 4, 5, 6, 23, 17, 9

[1] Nasal discharge AND [2] present > 14 days

R/O: strep rhinitis in infants, sinusitis, allergic rhinitis
CA: 55, 11, 13, 12, 2, 3, 4, 5, 6, 17, 9

[1] Whooping cough in the community AND [2] coughing lasts > 2 weeks

CA: 55, 1, 2, 3, 4, 5, 6, 31, 23, 17, 9

Cough has been present for > 3 weeks

R/O: asthma, foreign body, pertussis, smoking teens
CA: 55, 1, 2, 3, 4, 5, 6, 23, 17, 9

Home Care

Pollen-related cough (allergic cough) (all triage questions negative)

CA: 58, 32, 26, 33, 6, 34, 9

Cough with no complications (all triage questions negative)

CA: 58, 1, 2, 3, 4, 10, 5, 6, 19, 23, 7, 8, 9

ALSO, mild cold symptoms are present

CA: 58, 11, 13, 12, 14, 9

CARE ADVICE (CA) -

1. **Reassurance:** It doesn't sound like a serious cough. Coughing up mucus is very important for protecting the lungs from pneumonia. We want to encourage a productive cough, not turn it off.

2. **Homemade Cough Medicine:**
   - **Age**: 3 Months to 1 year:
   - Give warm clear fluids (e.g., water or apple juice) to thin the mucus and relax the airway. Dosage: 1-3 teaspoons (5-15 ml) four times per day.
   - Note to Triager: Option to be discussed only if caller complains that nothing else helps: Give a small amount of corn syrup. Dosage: ¼ teaspoon (1 ml). Can give up to 4 times a day when coughing. Caution: Avoid honey until 1 year old (Reason: risk for botulism).
   - **Age** 1 year and older: Use **Honey** 1/2 to 1 tsp (2 to 5 ml) as needed as a homemade cough medicine. It can thin the secretions and loosen the cough. (If not available, can use corn syrup.)
   - **Age** 6 years and older: Use **Cough Drops** to coat the irritated throat. (If not available, can use hard candy.)

3. **OTC Cough Medicine: DM**
   - OTC cough medicines are not recommended. (Reason: no proven benefit for children.)
   - Honey has been shown to work better. (Caution: Avoid honey until 1 year old.)
   - If the caller insists on using one and the child is over 4 years old (Canada: 6 years), help them calculate the dosage.
   - Use one with dextromethorphan (DM) that is present in most OTC cough syrups.
   - Indication: Give only for severe coughs that interfere with sleep, school or work.
   - DM Dosage: See Dosage table. Teen dose 20 mg. Give every 6 to 8 hours.
   - Don't use under 4 years of age (Canada: 6 years). Reason: cough is a protective reflex.

4. **Coughing Fits or Spells:**
   - Breathe warm mist (such as with shower running in a closed bathroom).
   - Give warm clear fluids to drink. Examples are apple juice and lemonade. Don't use before 3 months of age.
   - Amount. If 3 - 12 months of age, give 1 ounce (30 ml) each time. Limit to 4 times per day. If over 1 year of age, give as much as needed.
   - Reason: Both relax the airway and loosen up any phlegm.
   - What to Expect: The coughing fit should stop. But, your child will still have a cough.

5. **Humidifier**: If the air is dry, use a humidifier in the bedroom (Reason: dry air makes coughs worse). Avoid menthol vapors (Reason: makes coughs worse).

6. **Avoid Tobacco Smoke**: Active or passive smoking makes coughs much worse.

7. **Expected Course**: Viral bronchitis causes a cough for 2 to 3 weeks. Sometimes the child coughs up lots of phlegm (mucus). The mucus can normally be gray, yellow or green. Antibiotics are not helpful. **Contagiousness**: Your child can return to daycare or school after the fever is gone and your child feels well enough to participate in normal activities. For practical purposes, the spread of coughs and colds cannot be prevented.

8. **Call Back If**
   - Continuous cough persists over 2 hours after cough treatment
   - Signs of respiratory distress
   - Wheezing occurs
   - Fever lasts over 3 days
   - Cough lasts over 3 weeks
   - Your child becomes worse

9. **Care Advice** given per Cough (Pediatric) guideline.

10. **Vomiting with Coughing Fits**: Refeed your child after this type of vomiting. Offer smaller amounts with each feeding to reduce the chances of repeated vomiting (e.g., give less formula per feeding in infants). (Reason: Vomiting more likely with a full stomach.)

11. **Runny Nose: Blow or Suction the Nose:**
    - The nasal mucus and discharge is washing viruses and bacteria out of the nose and sinuses.
    - Having your child blow the nose is all that is needed. For younger children, use nasal suction.
    - If the skin around the nostrils becomes sore or irritated, apply a little petroleum jelly twice a day. (Cleanse the skin first with water.)

12. **Medicines For Colds**:
    - **Age Limit:** Before 4 years, never use any cough or cold medicines. Reason: Unsafe and not approved by the FDA. Also, do not use products that contain more than one medicine.
    - **Cold Medicines:** They are not advised. Reason: They can't remove dried mucus from the nose. Nasal washes are the answer.
    - **Decongestants:** Decongestants by mouth (such as Sudafed) are not advised. They may help nasal congestion in older children. Decongestant nasal spray is preferred after age 12.
    - **Allergy Medicines:** They are not helpful, unless your child also has nasal allergies. They can also help an allergic cough.
    - **No Antibiotics:** Antibiotics are not helpful for colds. Antibiotics may be used if your child gets an ear or sinus infection.

13. **Nasal Washes to Open a Blocked Nose:**
    - Use saline nose drops or spray to loosen up the dried mucus. If you don't have saline, you can use a few drops of clean tap water. (If under 1 year old, use bottled water or boiled tap water.)
    - **Step 1**: Put 3 drops in each nostril. (Age under 1 year old, use 1 drop.)
    - **Step 2**: Blow (or suction) each nostril separately, while closing off the other nostril. Then do other side.
    - **Step 3**: Repeat nose drops and blowing (or suctioning) until the discharge is clear.
    - How Often: Do nasal washes when your child can't breathe through the nose. Limit: If under 1 year old, no more than 4 times per day or before every feeding.
    - Saline nose drops or spray can be bought in any drugstore. No prescription is needed.
    - Saline nose drops can also be made at home. Use 1/2 teaspoon (2 ml) of table salt. Stir the salt into 1 cup (8 ounces or 240 ml) of warm water. Use bottled water or boiled water to make saline nose drops.
    - Reason for nose drops: Suction or blowing alone can't remove dried or sticky mucus. Also, babies can't nurse or drink from a bottle unless the nose is open.
    - Other option: use a warm shower to loosen mucus. Breathe in the moist air, then blow (or suction) each nostril.
    - For young children, can also use a wet cotton swab to remove sticky mucus.

14. **Call Back If**
    - Fever lasts over 3 days
    - Clear nasal discharge lasts over 14 days
    - Your child becomes worse

15. **Reassurance**:
    - Hard coughing commonly triggers vomiting, especially in young children or those with reflux.
    - Since your child has vomited several times from coughing, he should probably get his cough checked out.
    - If he's breathing normally, however, it's not urgent.
    - Here is some care advice that should help.

16. **Fever Under 3 Months Old**: 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.)

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

18. **Fever**: To bring down the fever, give acetaminophen every 4 hours **Or** ibuprofen every 6 hours (See Dosage table).

19. **Fever:**
    - For fever above 102 F (39 C) or child uncomfortable, give acetaminophen every 4 hrs **Or** ibuprofen every 6 hours (See Dosage table).
    - **For All Fevers**: Give cold fluids in unlimited amounts. Avoid excessive clothing or blankets (bundling).

20. **Benadryl for Coughing Fits or Spells:**
    - If swallowing warm fluids and breathing warm mist doesn't help, give honey. Age limit: Must be over 1 year. Reason: Can soothe the throat. Amount: 1-2 teaspoons (5-10 ml).
    - If honey doesn't help, give a single dose of Benadryl. (See Dosage Table). Age limit: Over 4 years (Canada: 6 years).
    - Reason: Benadryl may help the child relax enough to stop the coughing spell.

21. **Pain**: For pain relief, give acetaminophen every 4 hours **Or** ibuprofen every 6 hours as needed. (See Dosage table.)

22. **Local Cold for Ear Pain**: Apply a cold pack or a cold wet washcloth to outer ear for 20 minutes to reduce pain while medicine takes effect. Note: some children prefer local heat for 20 minutes. (Caution: cold or hot pack applied too long could cause frostbite or burn.)

23. **Fluids**: Encourage your child to drink adequate fluids to prevent dehydration. This will also thin out the nasal secretions and loosen the phlegm in the lungs.

24. **Nasal Washes to Open a Blocked Nose in Older Children:**
    - Use saline nose drops or spray to loosen up the dried mucus. If you don't have saline, you can use a few drops of clean tap water. Teens can just splash a little tap water in the nose and then blow.
    - **Step 1**: Put 3 drops per nostril.
    - **Step 2**: Blow each nostril out while closing off the other nostril. Then do other side.
    - **Step 3**: Repeat nose drops and blowing until the discharge is clear.
    - How Often: Do nasal washes whenever your child can't breathe through the nose.
    - Saline nose drops or spray can be bought in any drugstore. No prescription is needed.
    - Saline nose drops can also be made at home. Use 1/2 teaspoon (2 ml) of table salt. Stir the salt into 1 cup bottled water or boiled water to make saline nose drops.
    - Reason for nose drops: Nose blowing alone can't remove dried or sticky mucus.
    - Other option: Use a warm shower to loosen mucus. Breathe in the moist air, then blow each nostril.

25. **Decongestant Nose Spray** (No prescription needed):
    - Use this only if the sinus still seems blocked up after nasal washes **And** age 12 years or older. Use the long-acting type (e.g., Afrin).
    - Dose: 1 spray on each side 2 times/day.
    - Always clean out the nose before using.
    - Use routinely for one day, thereafter only for symptoms. Don't use for more than 3 days. (Reason: rebound congestion.)

26. **Antihistamines**:
    - Antihistamines can bring an allergic cough and nasal allergy symptoms under control within 2 hours.
    - Benadryl or Chlorpheniramine (CTM) products are very effective and OTC.
    - They need to be given every 6 to 8 hours (See Dosage table).
    - The bedtime dosage is especially important for healing the airway.
    - Zyrtec (CANADA: Reactine) or Claritin can also be used, but may not control allergy symptoms as well as Benadryl or CTM products (See Dosage table). They have FDA approval for children over age 2 years.

27. **Pain:** To relieve chest pain, give acetaminophen every 4 hrs **Or** ibuprofen every 6 hours. (See Dosage table.)

28. **Call Back If**
    - Fever occurs (rectal temp 100.4 F or 38.0 C or higher)
    - Trouble breathing occurs
    - Wheezing occurs
    - Cough becomes worse
    - Your child becomes worse

29. **Cough Medicines:** Cough medicines should not be used until your child is at least 4 years of age (Canada: 6 years).

30. **Warm Mist**: For coughing spasms, expose to warm mist (e.g., in foggy bathroom). (Reason: relaxes the airway and loosens the phlegm.)

31. **Cover Your Child's Mouth When Coughing:**
    - Loosely cover your child's mouth and nose with a disposable tissue (e.g., Kleenex, toilet paper, paper towel) or wash cloth.
    - Ask for a "surgical mask" upon arrival in doctor's office.

32. **Reassurance:**
    - Pollens usually cause a reaction in the nose and eyes.
    - Some children with hay fever have a cough as their main symptom.
    - Treatment of the nasal symptoms usually also brings the cough under control.

33. **Homemade Cough Medicine:**
    - Goal: Decrease the irritation or tickle in the throat that causes a dry cough.
    - You can use these home remedies in addition to an antihistamine.
    - AGE 1 year and older: Use HONEY ½ to 1 teaspoon (2-5 ml) as needed. It works as a homemade cough medicine. It can thin the secretions and loosen the cough. If you don't have any honey, you can use corn syrup. Caution: Do not use honey until 1 year old.
    - AGE 6 years and older: Use COUGH DROPS to coat the tickle in the throat. If you don't have any, you can use hard candy.

34. **Call Back If:**
    - Allergic cough not improved after 2 days on antihistamines
    - Wheezing occurs
    - Your child becomes worse

35. **Call Back If**
    - Continuous cough persists over 2 hours after cough treatment
    - Trouble breathing occurs
    - Wheezing occurs
    - Your child becomes worse

36. **Alternate Disposition:** Between the hours of 10 PM to 6 AM, if the symptoms sound very mild and the child has NO fever, ask the caller to call back after 6 AM to speak to the MD.

37. **Call Back If:**
    - Trouble breathing occurs
    - Fever develops (if hasn't had fever)
    - Your child becomes worse in any way

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 ER at _____ Hospital. Leave now. Drive carefully.

52. **Go To ED Now (or PCP Triage):**
    - **If No PCP Triage**: Your child needs to be seen within the next hour. Go to the ER/UCC at _____ Hospital. Leave as soon as you can.
    - **If PCP Triage Required**: Your child may need to be seen. Your doctor will want to talk with you to decide what's best. I'll page him now. If you haven't heard from the on-call doctor within 30 minutes, or your child becomes worse, go directly to the ER/UCC) at _____ Hospital.

53. **See Physician Within 4 Hours** (or PCP triage):
    • **If No PCP Triage**: Your child needs to be seen. Go to _____ (ED/UCC or office if it will be open) within the next 3 or 4 hours. Go sooner if your child becomes worse.
    • **If PCP Triage Required**: Your child may need to be seen. Your doctor will want to talk with you to decide what's best. I'll page him now. If you haven't heard from the on-call doctor within 30 minutes, call again. (Note: If PCP can't be reached, send to ED/UCC or office.)

54. **See Physician Within 24 Hours:**
    • **If Office Will Be Open:** Your child needs to be examined within the next 24 hours. Call your child's doctor when the office opens, and make an appointment.
    • **If Office Will Be Closed And No PCP Triage:** Your child needs to be examined within the next 24 hours. Go to _____ at your convenience.
    • **If Office Will Be Closed And PCP Triage Required:** Your child may need to be seen within the next 24 hours. Your doctor will want to talk with you to decide what's best. I'll page him now. (Exception: from 10 pm to 7 am. Since this isn't serious, we'll hold the page until morning.)

55. **See PCP Within 3 Days**: Your child needs to be examined within 2 or 3 days. Call your child's doctor during regular office hours and make an appointment. (Note: if office will be open tomorrow, tell caller to call then, not in 3 days.)

56. **See PCP Within 2 Weeks**: Your child needs an evaluation for this ongoing problem within the next 2 weeks. Call your child's doctor during regular office hours and make an appointment.

57. **Follow-Up**: Discuss _____ with your child's doctor at the next regular office visit. (Call sooner if you become more concerned.)

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. I'll page him now. If you haven't heard from the on-call doctor within 30 minutes, call again.

60. **Call PCP Within 24 Hours:** You need to discuss this with your child's doctor 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 him 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 within the next few days. Call him/her during regular office hours.

FIRST AID

N/A

BACKGROUND INFORMATION

Causes

• Main Cause: part of a cold, a viral infection of the large airway (viral bronchitis)

• The common cold is the single most common cause of acute cough (i.e., cough less than 3 weeks in duration).
• Other Common Causes: croup, bronchiolitis, asthma, allergic cough.
• Whooping cough (pertussis) causes 2 - 6 weeks of paroxysmal coughing with post-tussive emesis. The pertussis cough has distinguishing features. The child appears to be choking or suffocating. Ten or more coughs occur for each breath. The choking lasts for 1 to 2 minutes. In 50% of cases, the coughing attack ends with a whoop (like stridor). Between the coughing attacks, the child acts perfectly well. To teach pertussis recognition, go to the sound files on www.whoopingcough.net under symptoms (and sounds).
• Cough Variant Asthma: Asthma is the most common cause of a chronic cough. Some 25% of children with asthma only cough and never wheeze (called cough variant asthma). They respond best to antihistamines or inhaled steroids.

Cough Versus Croup Guideline: Tips

• For stridor, use the Croup guideline.
• For a barky cough with croup prevalent in the community, use the Croup guideline.
• For a barky cough with constant hoarseness, use the Croup guideline.
• For all other "maybe barky" coughs, use the Cough guideline.

Whooping Cough: How It's Detected in This Guideline

• Signs of respiratory distress (Go to ED Now)
• Lips turn bluish during coughing spasms (See within 4 hours)
• Continuous severe cough and < 1 y o (See within 4 hours)
• Continuous severe cough and > 1 y o (See within 24 hours)
• Cough present > 3 weeks (See in office within 3 days)

Return to School

• Your child can return to day care or school after the fever is gone and your child feels well enough to participate in normal activities. For practical purposes, the spread of coughs and colds cannot be prevented.

Sputum or Phlegm

• The presence of purulent sputum is a poor predictor of whether an infection is caused by a viral or bacterial respiratory infection.
• Yellow or green phlegm is a normal part of the healing process of viral tracheitis or bronchitis.
• This means the lining of the trachea was damaged by the viral infection and is being coughed up as new mucosa replaces it.
• Bacteria do not cause tracheitis or bronchitis in healthy children. Antibiotics are not indicated for the viral bronchitis seen with colds.
• The main treatment of a productive cough is to facilitate it with good fluid intake, a humidifier (if the air is dry) and warm chicken broth or apple juice for coughing spasms (if over age 1).
• Cough accounts for more visits to HCPs than any other symptom. Needless worry about productive coughs may be the underlying cause of these unnecessary visits.

Productive Coughs Don't Help with Etiology

• Dry coughs usually turn into wet (productive) coughs during the course of a lower respiratory tract infection.

- Few coughs remain only dry or only wet.
- The amount of mucus production does not help determine etiology.
- There are no nonproductive cough organisms or productive cough organisms.
- That is why there are no separate Productive Cough and Non-Productive Cough guidelines.

Respiratory Distress (Breathing Difficulty): Estimation By Telephone

- **Mild Respiratory Distress:** usually manifested by a rapid respiratory rate (tachypnea) (defined below). Mild stridor or wheezing may also be present. (Response: See Within 24 Hours, urgency varies)
- **Moderate Respiratory Distress:** manifested by labored breathing with some retractions and nasal flaring. If present, stridor and wheezing are now audible, tight and persistent (i.e. can hear over the telephone). (Disposition: Go to ED Now by car)
- **Severe Respiratory Distress:** marked respiratory effort (struggling to breathe) and severe retractions. Cyanosis may occur. Breathing may stop (apnea). The other extreme is the slow, weak breathing (agonal breathing) that precedes apnea. (Disposition for all of these: Call EMS 911 Now)

Life-Threatening Types of Severe Respiratory Distress

- **Apneic Episodes:** Apnea means that breathing stops for 15 seconds or longer. Prolonged apnea leads to loss of consciousness (hypoxic syncope) and is always a very serious symptom. All of these children need to be referred immediately via 911. Most of them are infants or young toddlers. Many of them have a viral respiratory infection. Etiologies commonly associated with apneic spells are RSV, pertussis, and Chlamydia.
- **Slow, Weak, Shallow Breathing:** This type of breathing precedes apneic spells. It is also called agonal breathing. It is seen in children with respiratory failure following prolonged dyspnea. It is also seen with sepsis, increased intracranial pressure, poisoning and drug overdose.
- **Stridor:** Stridor is a harsh, raspy, low-pitched sound heard during inspiration (breathing in). It's commonly associated with retractions and great effort at trying to breathe in. The abrupt onset of stridor (upper airway obstruction) is seen with laryngeal foreign bodies, epiglottitis and anaphylaxis, as well as croup.

Rapid Respiratory Rates (RR) Due to Mild Respiratory Distress

- Tachypnea is usually the earliest sign of respiratory distress.
- Normal RR for children depend on their age.
- RR apply to children who are not crying. When upset or crying, RR normally go up 10 to 20 breaths per minute.
- If the RR is high and the child seems well, recheck the RR while he is asleep.
- The following RR are abnormally fast:
- 2 months or younger: > 60 breaths per minute
- 2 to 12 months: > 50 breaths per minute
- 1 to 5 years: > 40 breaths per minute
- 6 to 12 years: > 30 breaths per minute
- 12 years or older: > 20 breaths per minute

Rapid Respiratory Rates (RR) Are Not Caused By Fever

When children have a fever, RR only rises by 2 breaths per minute for each degree F above normal (or 4 breaths per minute for each degree C). If the RR is slightly raised and not associated with dyspnea (increased work of breathing), the child probably does not have a breathing problem. The

main clinical lesson is not to attribute significant tachypnea to fever and thereby miss true respiratory distress.

Coughs and How They Sound

Caution: Cough characteristics generally are not helpful at telling us if the cause is serious. Asking about difficulty breathing or respiratory distress is the only way to determine seriousness. Coughs are also not helpful at determining etiology, except the barky cough of croup is fairly distinctive. The sound of the cough in patients can vary greatly over the course of the day. A rattly cough is simply a productive cough. The chest wall usually vibrates if you feel it during a bout of coughing. Describing the cough itself does not usually help with decision making.

Continuous or Nonstop Coughing: How to Define

- Caution: Don't directly ask the caller, "Is the coughing continuous or nonstop?" You will commonly trigger a positive response that is false. Instead, ask questions about what the cough keeps the child from doing (function).
- **First:** To qualify as continuous coughing, the coughing needs to greatly interfere with function in the following areas: sleeping, taking fluids and playing.
- ***Sleep:*** The baby or child is not able to sleep for more than a 30 minutes at a time. Then, he's fully awake crying and coughing again. Coughing during sleep does not count.
- ***Fluid Intake:*** Coughing should interfere with fluid intake. The baby or child cannot drink adequate fluids due to coughing. In babies, formula intake is less than half of normal intake. Recent research found this to be associated with hypoxia.
- ***Play:*** The baby or child is not able to play or do normal activity due to coughing.
- **Second:** Severe, tight, frequent coughing should be heard at the time of the call. In fact, for any respiratory call about a child less than 2 years old, our policy is that the nurse needs to listen to the child's breathing over the phone. Listening early in assessment may help reduce call time. It also helps to accurately assess the child leading to the most appropriate disposition decision.
- **Third:** The baby or child must fail to improve on standard treatment advice before referring them to be seen urgently. That means they have already tried warm fluids, honey (if 1 year or older), warm mist, nasal suctioning with saline drops (for babies/young children). It also means these interventions have not helped the cough at all. If partial or no home care has been tried, the nurse should proceed in triage and bypass the continuous coughing question.
- Reasons for seeing these children with continuous coughing: Many of them are hypoxic, especially if they are infants.

Cough and Cold Medicines: FDA Recommendation (October 2008)

In October 2007, the AAP and other experts testified before the FDA about the safety of cough and cold medicines for young children. According to FDA data from 1969 to 2006, adverse reactions included 54 deaths from decongestants and 69 deaths from antihistamines. To put this in perspective, that’s 3.3 reported deaths per year. The majority occurred in children younger than 2 years of age. In January 2008, the FDA issued a strong recommendation that parents "not use OTC cough and cold products to treat infants and children less than 2 years of age". In October 2008, the FDA changed the cutoff to 4 years of age. These recommendations have been implemented within the related guidelines. In addition, the information has been added to all the Dosage Tables for OTC medicines.

- Under 4 years (CANADA: 6 years) of age: advise callers that OTC cough and cold medicines should never be used in this age group because of potential serious side effects. They also lack efficacy. (FDA recommendation--October 2008)
- From 4 to 6 years of age: advise callers that cough and cold medicines are not recommended for this age group because they do not have any proven efficacy for relieving cough and cold symptoms.

(FDA advisory panel recommendation). However, if a parent insists on using them, help them calculate a safe dosage. (Exception: CANADA do not use under 6 years)
- Over 6 years of age: advise callers that the best treatment for coughs is honey or cough drops. The best treatment for nasal congestion is nasal washes with saline drops or spray. However, if a parent wants to use a cough or cold medicine, help them calculate a safe dosage. (FDA advisory panel has no recommendation at this time)
- For all ages, discourage the use of multiple-ingredient cough and cold medicines. (Reason: risk of overdosage).

Honey as a Cough Syrup: Proven Efficacy

- A 2007 study compared the efficacy of honey to DM to no treatment for nocturnal coughing.
- Honey consistently scored the best for reducing cough frequency and cough severity. It also scored best for improving sleep.
- DM did not score significantly better than no treatment at all.
- The study group contained 105 children age 2 to 18 years.
- The dose of honey used was ½ tsp (2 ml) for 2-5 year-olds, 1 teaspoon for 6 to 11 year-olds, and 2 tsp for 12 to 18 year-olds. A single dose was given at bedtime.
- One explanation for how honey works is that sweet substances naturally cause reflex salivation and increased airway secretions. These secretions may lubricate the airway and remove the trigger (or tickle) that causes a dry, nonproductive cough.
- Paul IM. Arch Pediatr Adolesc Med. 2007; 161(12):1140-1146.
- A 2012 study compared the efficacy of honey to a placebo.
- Honey showed the most improvement in cough frequency and severity during the night.
- Study group: 300 children age 1 to 5 years.
- Dosage of honey: 10 ml given as a single dose 30 minutes before bedtime.
- Cohen HA. Pediatrics 2012; 130:465-471.

Honey and Infantile Botulism

- Honey has a small association with infantile botulism
- Mechanism: Clostridium botulinum spores are present in some honey products
- Age range of disease onset: 1 to 44 weeks (median: 15 weeks)
- Therefore, honey is not recommended for any child less than 12 months of age in these guidelines for any symptom.
- Prevalence of infantile botulism: 91 cases were reported in the US in 2007.
- Cause: Honey is a minor cause. Approximately 10% of cases of infantile botulism are associated with honey. The other 90% are either idiopathic or associated with blowing dust (especially in areas of active housing development). Botulism spores are found ubiquitously in all soil. They are also present fairly uniformly in vacuum cleaner contents.
- Redbook 28th Edition, 2009

Corn Syrup as a Cough Syrup: No Risk for Botulism (2010)

- 2010 Care Advice change: Corn syrup has been added back as an option for a homemade cough syrup in children less than 1 year of age. Since honey has proven efficacy, corn syrup may share similar properties. (Note: corn syrup lacks evidence for efficacy). However, to keep the telephone advice compatible with office advice, corn syrup should only be mentioned if the parent complains that the cough is severe and nothing previously recommended has helped.
- Safety: In 2009, the AAP, CDC and Health Canada websites all continue to recommend avoiding honey in infants less than 1 year old. (Reason: risk of infant botulism) However, none of these websites mention any concerns about corn syrup or the need to avoid it in infants.

- We need to keep in mind that all infants who were not breastfed between 1940 and approximately 1970 received evaporated milk (EM) formulas that included corn syrup in their preparation (13 oz. EM, 19 oz. water and 2 Tbsp. corn syrup). Also, dark corn syrup has been used to treat constipated infants for generations. (Note: also lacks evidence for efficacy)
- The 2006 and 2009 AAP Red Book states clearly that “no case of infant botulism has proved to be attributable to consumption of corn syrup”.

Dextromethorphan Cough Medicines For Cough

- The most common cough suppressant in OTC cough medications is dextromethorphan. Usually the letters "DM" appear in the name. An example is Robitussin DM.
- Some research (Kelly 2004) suggests that dextromethorphan is no better than placebo at reducing the severity and frequency of coughing in children.
- The care advice in these guidelines continues to support DM containing cough syrups for children over 4 years (CANADA: 6 years) of age with SEVERE COUGHS if the caller insists on using one. The rationale for this is: patients may benefit from the placebo effect of DM, many parents demand a recommendation for a cough syrup even after being told about honey, and generally DM has no side effects.
- Cough drops can often be substituted for cough syrups after age 6. While some would consider them a placebo similar to cough medicines, they may actually reduce coughing by soothing an irritated throat. In addition they have the advantage of portability. While cough drops with DM are available, they offer no advantage over plain cough drops and are not worth the added expense.
- It is important to note that dextromethorphan has become a drug of abuse. This problem has been seen most commonly in the adolescent population. Overdose symptoms can range from giggling, euphoria, to hallucinations or coma. (See Substance Abuse guideline for details)

Cough Drops and Choking Risk

- Cough drops and throat lozenges pose the same choking risk for young children as hard candy.
- At age 4 years, candy (hard and other) accounts for 55% of choking episodes.
- The frequency of choking episodes by age trends downward until age 7 years.
- The Schmitt guidelines recommend 6 years and above as a cutoff for using cough drops. This is the policy in Canada. The AAP currently (2013) uses age 4 as a cutoff.
- Some hot dog manufacturers currently recommend age 6 years for eating their products.
- Resource: Gary Smith MD, FAAP

Vapor Rub and Coughs: Questionable Value

- Vick’s Vapor Rub (VR) active ingredients are camphor 4.8% and menthol 2.6%.
- Intervention group: VR applied to chest 30 minutes before bedtime.
- Control group: petrolatum applied in same manner.
- Subjects: 2 to 11 years old (N=44 and 47 respectively) with coughs and colds. Excluded children with croup, asthma or any chronic lung disease.
- Method: survey questionnaire to assess nocturnal symptoms was completed by parent on following morning.
- Results: cough severity (p=.06), cough frequency (p=.07), nasal congestion (p=NS), child’s ability to sleep (p=.006).
- Clinical significance: questionable.
- Guideline application: None. Honey for coughs and saline for nasal congestion are evidenced-based. VR is not. So, don’t bring it up.
- If caller asks about VR, tell them: Can approve applying a small amount of VR to the chest wall once at bedtime, but no proven benefit. Can be used if other methods fail and child is healthy and

over 2 years of age. (Reason: concerns about camphor toxicity in younger children. Poison centers receive 10,000 calls per year about camphor exposure).
- Avoid use if child has asthma or develops wheezing or a croupy cough.
- Avoid using VR in vaporizers or in the nose.
- Note: Each call center and medical director need to decide whether or not to approve the use of this product as described.
- Resource: Paul IM. Pediatrics 2010; 126:1092-1099

Antibiotics for Cough

- Acute Bronchitis: In healthy people, acute bronchitis is viral and part of a cold. Antibiotic therapy provides no benefit. There is no effect on duration of illness, severity of symptoms or return to school.
- Common Cold: Colds are caused by viruses. No medicine, "shot", or antibiotic will cure an uncomplicated cold.
- Pneumonia: Pneumonia in childhood is 90% viral and 10% bacterial. Antibiotic therapy is only helpful for bacterial pneumonia.
- Whooping Cough (Pertussis): Whooping cough is caused by a bacteria (Bordetella pertussis). Treatment with antibiotics is indicated when whooping cough is diagnosed.

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

ALLERGIC REACTION
ALLERGIES
ALLERGY
BRONCHITIS
CHEST
COUGH
COUGHING
COUGHING SPASMS
COUGHING SPELLS
COUGHING UP BLOOD
COUGHING UP MUCUS
COUGHS
CROUP
DRY COUGH
LRI
LUNGS
PEDIATRIC
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SHORT OF BREATH
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TROUBLE BREATHING
WET COUGH

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Content Set: Telephone Triage Protocols - Pediatric After-Hours Version - Standard Schmitt-Thompson Clinical Content

Version Year: 2015

Last Revised: 1/23/2015

Last Reviewed: 1/23/2015