



# Barton Schmitt, MD Pediatric Protocols

Table of Contents.....Page 2

Sample Protocol: FEVER .....Page 5

Overview .....Page 14

Review Process for New Protocols.....Page 15

Current Reviewers.....Page 16



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## Table of Contents

911 Symptoms	Ear, Swimmer's
Altitude Sickness	Earache
Abdominal Pain - Female	Electric Shock Injury
Abdominal Pain - Male	Eye, Allergy
Anaphylaxis	Eye, Chemical in
Animal or Human Bite	Eye, Foreign Body
Anus Symptoms: Rash, Pain, Itching, Swelling	Eye, Pus or Discharge
Arm Joint, Swelling of	Eye, Red without Pus
Arm Pain	Eye, Swelling of
Asthma Attack	Eyes, Dark Circles Under
Athlete's Foot	Face, Swelling of
Back Pain	Fainting
Bee or Yellow Jacket Sting	Fever
Blisters, Foot or Hand	Fever Blisters (Cold Sores)
Bluish Skin or Body Part (Cyanosis)	Fifth Disease
Bottle (Formula) Feeding Questions	Fluid Intake, Decreased (Dehydration)
Breast-Feeding Questions	Fontanel, Bulging
Breath-Holding Spell	Foot or Ankle, Swelling of
Breathing Difficulty, Severe (Respiratory Distress)	Foreskin Retraction Problems (Uncircumcised)
Breathing, Noisy: Protocol Selection	Frostbite and Cold Injuries
Bronchiolitis Follow-up Call	GI Symptoms, Multiple: Protocol Selection
Bruises	Hand-Foot-Mouth Disease
Burns	Hay Fever (Nose Allergies)
Cast Questions	Headache
Chest Pain	Hearing, Loss or Change
Chickenpox	Heat Injuries
Child Abuse Suspected	Heat Rash
Choking (Inhaled Foreign Body)	Hepatitis A Exposure
Chronic Diseases	Hernia, Inguinal
Circumcision Problems	Hiccups
Colds	Hives
Cold Injuries (Hypothermia)	Hoarseness
Coma	Hydrocele
Confusion (Delirium)	Immunization Reactions
Congestion: Protocol Selection	Impetigo (Infected Sores)
Constipation	Infection Exposure: Contagious Periods and Incubation Periods
Cough	Infection: Failure to Improve on Antibiotics
Cracked Skin - Foot, Hand or Lips	Influenza
Cradle Cap	Information Only Calls, No Triage
Croup	Insect Bites
Crying Baby < 3 mo (includes Colic)	Itching, Localized and Cause Unknown
Crying Child > 3 mo (Irritability, Fussiness)	Itching, Widespread and Cause Unknown
Cuts and Lacerations	Jaundice, Children or Teenagers
Diaper Rash	Jaundice, Newborn
Diarrhea	Leg Joint, Swelling of
Diarrhea, While on Antibiotics	Leg Pain
Difficult Caller	Lice
Dizziness	Limp
Ear Congestion	Lip, Swelling of
Ear Discharge	
Ear, Foreign Body	
Ear Infection Follow-Up Call	
Ear Pierced Problems	
Ear, Pulling at	

Lymph Nodes, Swollen  
Marine Animal Stings  
Medication Question Calls, No Triage  
Menstrual Cramps  
Menstrual Period, Missed or Late  
Mosquito Bites  
Motion Sickness  
Mouth Ulcers (Canker Sores)  
Muscle Jerks, Tics and Shudders  
Nausea  
Neck Pain or Stiffness  
Newborn Appearance: Common Questions  
Newborn Rashes and Birthmarks  
Newborn Reflexes and Behavior  
Newborn Urine: Pink or Brick-Dust  
No Contact or Duplicate Contact Calls  
No Protocol or Reference Book Available  
No Protocol Available: Triage and Advice per Reference Book  
Nose, Foreign Body  
Nosebleed  
Pain, Multiple Sites: Protocol Selection  
Pale Skin  
PCP Calls, No Triage  
Penis-Scrotum Symptoms: Rash, Pain, Discharge, Itching, Swelling  
Pinworms  
Poison Ivy, Oak or Sumac  
Poisoning (Ingestion)  
Post-Op Incision Symptoms  
Post-Op Symptoms and Questions  
Puncture Wound  
Rash, Amoxicillin  
Rash, Purple Spots or Dots  
Rashes, Localized and Cause Unknown  
Rashes, Widespread and Cause Unknown  
Rashes, Widespread on Drugs  
Rashes: Protocol Selection  
Respiratory Symptoms, Multiple: Protocol Selection  
Ringworm of the Body  
SARS Exposure  
Scarlet Fever  
Scorpion Sting, United States  
Scrapes  
Scrotum or Groin Swelling/Pain  
Seizure with Fever  
Seizure without Fever  
Sexual Abuse, Suspected  
Sexual Assault or Rape  
Sinus Infection Follow-Up Call  
Sinus Pain and Congestion  
Skin Glue Questions  
Skin, Swelling of  
Sleep, Increased  
Snakebite  
Spitting Up (Reflux)  
Splinter or Sliver (Foreign Body, Skin)  
Splint Questions  
Stingray Injury  
STD Questions  
STDs: Protocol Selection  
Stools, Blood in  
Stools, Unusual Color of  
Strep Exposure (Contacts)  
Strep Throat Infection Follow-Up Call  
Sty  
Substance Abuse  
Suicide Concerns  
Sunburn  
Suture Questions  
Swallowed Foreign Body  
Swallowing Difficulty  
Tear Duct, Blocked  
Teething  
Throat Culture Follow-Up Calls  
Thrush  
Tick Bites  
Toothache  
Trauma, Abdominal  
Trauma, Arm (Bone/Ligament/Muscle)  
Trauma, Back  
Trauma, Chest  
Trauma, Ear  
Trauma, Eye  
Trauma, Face  
Trauma, Finger  
Trauma, Genital: Female  
Trauma, Genital: Male  
Trauma, Head  
Trauma, Leg (Bone/Ligament/Muscle) (Sprains and Strains)  
Trauma, Mouth  
Trauma, Multiple Sites: Protocol Selection  
Trauma, Neck  
Trauma, Nose  
Trauma, Skin  
Trauma, Tailbone  
Trauma, Toe  
Trauma, Tooth  
Umbilical Cord, Bleeding  
Umbilical Cord, Delayed or Early Separation  
Umbilical Cord, Oozing or Infected  
Umbilical Hernia  
Urination, Pain With - Female  
Urination, Pain With - Male  
Urine, Blood in  
Vagina, Foreign Body  
Vaginal Bleeding (Before Puberty)  
Vaginal Bleeding, Excessive or Between Periods

Sore Throat  
Sores  
Spells: Protocol Selection  
Spider Bites  
Vaginal Itching or Irritation  
Vaginal Symptoms (After Puberty): Itching, Pain, Rash,  
Swelling, Discharge  
Vaginal Symptoms (Before Puberty): Itching, Pain, Rash,  
Swelling, Discharge  
Vision Loss or Change  
Vomiting  
Vomiting of Blood  
Vomiting, When Taking Medication  
Weakness  
Wheezing (other than Asthma)  
Worms, Other Than Pinworms  
Wound Infection

**12/12/2005 Version**

FEVER

After-Hours Version

**SYMPTOM DEFINITION**

- Rectal temperature > 100.4 F (38.0 C)
- Oral temperature > 99.5 F (37.5 C)
- Axillary (armpit) temperature > 99.0 F (37.2 C)
- Pacifier temperature > 99.5 F (37.5 C).
- Ear (tympanic) temperature > 100.4 F (if in rectal mode) or > 99.5 F (if in oral mode)  
(Note: Not reliable < 6 months old)

**BACKGROUND INFORMATION**

**INITIAL ASSESSMENT QUESTIONS**

1. FEVER LEVEL: "What is the most recent temperature?"
2. MEASUREMENT: "How was it measured?"
3. DURATION: "When did the fever start?"
4. CHILD'S APPEARANCE: "How does your child look when the fever comes down?"  
"What is he doing right now?"
5. SYMPTOMS: "Does he have any other symptoms besides the fever?"
6. CAUSE: If there are no symptoms, ask: "What do you think is causing the fever?"
7. CONTACTS: "Does anyone else in the family have an infection?"

**COMMON CAUSES**

- Main cause: colds and other viral infections. Fever may be the only symptom for the first 12-24 hours (i.e. viral fevers). The onset of localizing signs and symptoms (runny nose, cough, diarrhea, etc.) are often delayed. In the case of Roseola, fever may be the only symptom for 2 or 3 days. Parents often call at the start of a fever and want to know the cause of the fever. They need to be reassured that the cause often can't be determined during the first 24 hours of a fever.

**TACTILE FEVER**

Tactile fever means the child feels hot and the temperature hasn't been measured. Since 84% of mothers can accurately predict the presence of a fever (Graneto reference), these reports should be acceptable for most telephone advice if age > 12 weeks. If the exact level of fever or the duration of fever is important for decision making, ask the caller to borrow or buy a thermometer and call back if it's a fever.

**NORMAL VARIATION OF TEMPERATURE**

- RECTAL: A reading of 99.4 F is just the average rectal temperature. It normally can change from 98.4 F in the morning to a high of 100.3 F in the late afternoon.
- ORAL: A reading of 98.6 F is just the average oral temperature. It normally can change from a low of 97.6 F in the morning to a high of 99.5 F in the late afternoon.
- Calls from over-concerned parents about normal variations of temperature (ie children without fever or any symptoms) can be documented in Home Care using this protocol.

## RECORDING TEMPERATURES IN PRESENTING PROBLEM

- Record the actual temperature the parent gives you and the way they took it, e.g. 102 F (R) or (O) or (TM) or (AX). Since tympanic temperatures can be recorded in either the rectal or oral mode, list as (TM-R) or (TM-O).
- Don't add a degree to convert axillary temperatures to rectal temperatures (actually would need to add 1.4 F or 0.8 C) (Reason: causes confusion.)

## BIRTH TO 12 WEEKS OLD (90 DAYS): HOW TO TAKE THE TEMPERATURE

- See for rectal or axillary temperatures > 100.4 F (38 C)
- For axillary temperatures between 99.0 and 100.3 F: If the infant looks ill, see them. If the infant looks well, ask the parent to uncover the infant a bit AND retake the axillary temperature in 15 to 20 minutes. If it remains > 99 F, have them take a rectal temperature. (Reason: normal axillary temperatures can be > 99.0 F during the first 4 weeks of life. Also, transient elevations are common during heat waves.)
- Schedule a call-back in 30 minutes. Record the new temperature and finish your triage.
- If they don't have a rectal thermometer or refuse to take a rectal temperature, refer the infant in if the axillary temperature remains > 99 F after uncovering the infant.
- Axillary temperature: these readings are adequate for giving home care advice and reassurance after 3 months of age. In general, they are too inaccurate to use as criteria for referring a child in to an emergency department. They are most accurate, however, during the first 4 weeks of life.
- Note: all newborns (< 30 days old) who act sick must be seen (with or without fever).

## TAKING RECTAL TEMPERATURES IN INFANTS

- Tell parents to gently insert the rectal thermometer 1/4 to 1/2 inch (inserting until the silver tip disappears is about 1/2 inch). Caution them to never try to force it past any resistance. (Reason: risk of rectal perforation.)

## INDICATIONS FOR SEEING PATIENTS IMMEDIATELY FOR FEVER

- Associated serious symptom with any level of fever
- Age < 90 days (3 months) with any documented fever (regardless of level)
- Age > 90 days AND fever > 105 F rectally or orally. (Reason: increased risk of serious bacterial infection) (EXCEPTION: if the > 105 F temp. was taken by armpit, ear or pacifier, try to repeat it with rectal or oral thermometer.)

## FEVER IN PRETERMS

Current Approach: We refer immediately in for an evaluation any infant less than 90 days of age with a documented fever. There is a fair consensus about this in the U.S. At a minimum, preterms need a physical examination. Some require a septic work-up. What about the 28-week or 32-week preterm? Should we be adjusting our protocols for them?

Recommendation From Consultants: Evaluate preterms by chronological age (CA), not gestational age (GA). No adjustments in triage are needed.

- Reason: From the moment newborns enter extra-uterine life, their immune systems are activated. For this reason, we start immunizations at 2 months CA (even if they are still in the NICU). Research shows they can mount an immune response.
- Exception: If one wants to be extra cautious, refer in any preterm with a fever if it's been less than 1 month since discharge from the NICU. Triage nurses may implement this approach selectively, using nurse judgment.

Consultants: Dr. Myron Levin, Chief of Pediatric Infectious Disease and Dr. Adam Rosenberg, Neonatologist at The Children's Hospital of Denver.

### **DEFINITION OF LETHARGIC CHILD**

- To most physicians and nurses, lethargy is a serious, abnormal symptom usually due to a serious illness (e.g. sepsis). True lethargic children need to be seen immediately.
- When awake, lethargic children do not act normally. In addition to weakness (decreased movement), they also have decreased eye contact (don't look at parent), decreased babbling or speech, and decreased responses to all external stimuli.
- Callers, however, use the term lethargy to mean many different things. Complaints of lethargy, listless, sluggish, eyes are glassy or sleeping a lot need to be clarified.

### **ASSESSMENT OF LETHARGIC CHILD**

Ask the following questions to clarify the status of the child:

- "What do you mean by lethargic?" (or listless)
- "Is she difficult to awaken or unresponsive?"
- "How does she act when she's awake?"

Alert (up and about, able to play, good eye contact, recognizes parent, thinking clearly) vs. lethargic (little movement, stares into space, looks "sad", very quiet, altered mental status)

- For young infants: "How are feedings going?" (i.e. strong suck, normal length)
- If the child acts very sleepy, is it after the child's normal bedtime or after the child missed a nap? (i.e. normal sleepiness)
- If the child is mentally retarded or severely disabled, ask about the child's normal baseline behavior and ability to communicate. Then ask, "What's changed?"

### **ALTERNATING ACETAMINOPHEN AND IBUPROFEN**

Our program discourages this practice for the following reasons:

- The American Academy of Pediatrics has never recommended alternating antipyretics (see Mayoral reference)
- Alternating antipyretics has no scientific basis or research to support it.
- No added benefit in reducing fever faster or longer compared to using either product alone. (Reason: both drugs have the same mechanism of action.)
- Can cause confusion and dosage errors. Also poisoning can occur if the parent converts to giving just 1 drug but at the more frequent intervals
- Since it is an attempt to "control fever", the practice increases the parent's level of fever phobia and sense of vulnerability.
- Since the recommendation is driven by fever phobia, we need to counteract it by reassuring parents that fever is beneficial for fighting infections.

**EXCEPTION: PCP RECOMMENDS THIS**

- Caller states they were instructed by their PCP to alternate both products and is calling to check the dosage intervals.
- Indications: the fever is > 104 F and unresponsive to 1 medicine alone.
- Check the dosage of each medicine.
- Recommend giving a fever medicine q 4 hours (acetaminophen q 8 hours and ibuprofen q 8 hours)  
(Avoid q 3 hour intervals. Reason: although safe, it generally causes more confusion)
- Duration: use alternating meds for 24 hours or less.

**REFERENCES**

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**SEARCH WORDS**

CHILLS  
FEBRILE  
FEELS HOT  
FEELS WARM  
FEVER  
FEVERISH  
HIGH FEVER  
HYPERTHERMIA  
INFECTION

LETHARGIC  
LETHARGY  
LISTLESS  
TACTILE FEVER  
TEMPERATURE  
THERMOMETER  
WEAK  
WEAKER  
WEAKNESS

**- TRIAGE -**

**Call EMS 911 Now**

Limp, weak, or doesn't move (R/O: sepsis)

CA: 50

Unresponsive or difficult to awaken (R/O: sepsis)

CA: 50

[1] Difficulty breathing AND [2] severe (struggling for each breath, unable to speak or cry, grunting to push air out, severe retractions)

CA: 50

Bluish lips, tongue or face (R/O: cyanosis and need for oxygen)

CA: 50

[1] Rash AND [2] purple (or blood-colored) spots or dots (R/O: meningococemia)

CA: 50

**See More Appropriate Protocol**

Other symptom is present with the fever, see that protocol (e.g. COLDS, COUGH, SORE THROAT, EARACHE, SINUS PAIN, DIARRHEA, VOMITING, RASHES WIDESPREAD AND CAUSE UNKNOWN)

**Go to ED Now**

Had a febrile seizure with current fever (R/O: treatable cause)

CA: 51, 3, 4, 8

**See Physician Within 1 Hour (or PCP triage)**

[1] Age < 1 month AND [2] acts sick (e.g. poor suck, poor color, vomiting, diarrhea) (R/O: sepsis, necrotizing enterocolitis)

CA: 52, 12, 8

[1] Child is confused AND [2] fever < 103 F (39.5 C) or confusion present > 1 hour (Reason: not simple febrile delirium)

CA: 52, 3, 4, 8

Extremely irritable (e.g., inconsolable crying or cries when touched or moved)

CA: 52, 3, 4, 8

[1] Shaking chills AND [2] present > 1 hour (R/O: sepsis)

CA: 52, 3, 4, 8

[1] Difficulty breathing AND [2] not severe (R/O: pneumonia)

CA: 52, 3, 4, 8

[1] Drinking very little AND [2] signs of dehydration (no urine > 12 hours, very dry mouth, no tears, etc.)

CA: 52, 3, 4, 8

Stiff neck (can't touch chin to chest) (R/O: meningitis)

CA: 52, 3, 4, 8

[1] Age < 12 weeks AND [2] fever > 100.4 F (38.0 C) rectally  
(EXCEPTION: onset within 24 hours of DPT shot) (R/O: sepsis)

CA: 52, 12, 8

[1] Fever AND [2] > 105 F (40.6 C) rectal or oral (EXCEPTION: age > 1 yr, fever down AND child comfortable. If recurs, see now) (R/O serious bacterial infection)

CA: 52, 3, 4, 8

Chronic disease or medication that causes decreased immunity (e.g. immune-compromised, sickle cell disease, splenectomy, chemotherapy)

CA: 52, 3, 4, 8

Child sounds very sick or weak to the triager

(EXCEPTION: mild lethargy and hasn't received fever medicine) (R/O: sepsis)

CA: 52, 3, 4, 8

**See Physician Within 4 Hours (or PCP triage)**

Won't move one arm or leg (R/O: septic arthritis)

CA: 53, 3, 4, 13, 8

Burning or pain with urination (R/O: pyelonephritis)

CA: 53, 3, 4, 13, 8

**Call PCP Now**

[1] Has seen PCP for fever AND [2] fever worse AND [3] no other symptoms

CA: 59, 3, 4, 5, 8

**See Physician Within 24 Hours**

[1] Age 3-6 months AND [2] fever > 102 F (39 C) rectally

(EXCEPTION: onset within 24 hours of DPT shot) (Reason: difficult age to assess)

CA: 54, 1, 2, 3, 4, 5, 13, 8

[1] Age 3-24 months AND [2] fever present > 24 hours AND [3] without other symptoms (no cold, cough, diarrhea, etc.) (R/O: bacteremia, UTI)

CA: 54, 1, 2, 3, 4, 5, 13, 8

Fever lasts > 3 days (72 hours) (R/O: bacterial superinfection)

CA: 54, 1, 2, 3, 4, 5, 13, 8

### Home Care

Probably viral fever with no complications (all triage questions negative)

CA: 58, 1, 2, 3, 4, 5, 6, 7, 8

[1] Age < 12 weeks AND [2] no fever per protocol definition AND [3] no other symptoms (Triage is unnecessary, caller just needs reassurance)

CA: 58, 9, 10, 8

[1] Age > 12 weeks AND [2] no fever per protocol definition AND [3] no other symptoms (Triage is unnecessary, caller just needs reassurance)

CA: 58, 9, 11, 8

### - CARE ADVICE (CA) -

1. REASSURE the CALLER: Most fevers are good for children and help the body fight infection. The goal of fever therapy is to bring the fever down to a comfortable level. Use the following definitions to help put the child's level of fever into perspective:
  - 100-102 F - Low-grade fevers and beneficial (37.8 - 38.9 C)
  - 102-104 F - Moderate-grade fevers and beneficial (38.9 - 40 C)
  - > 104 F - High fevers and cause discomfort, but harmless (> 40 C)
  - > 105 F - Higher risk of bacterial infections (> 40.6 C)
  - > 107 F - The fever itself can be harmful (> 41.7 C)
2. FOR ALL FEVERS
  - Give cold fluids orally in unlimited amounts.
  - Dress in 1 layer of lightweight clothing and sleep with 1 light blanket (avoid bundling).
  - For fevers 100-102 F (37.8-38.9 C), this is the only treatment (acetaminophen is unnecessary).
3. FEVER MEDICINES: For fevers above 102 F (38.9 C) give acetaminophen q 4-6 hours (Adults 650 mg) OR ibuprofen q 6-8 hours (Adults 400 mg) (See Dosage table). (Note: ibuprofen is not approved for infants < 6 mo). The goal of fever therapy is to bring the fever down to a comfortable level. Remind parents that fever medicine usually lowers fever 2-3 degrees F (1- 1 1/2 degrees C). AVOID ASPIRIN: (Reason: risk of Reye's syndrome.) NO ANTIBIOTICS: antibiotics are not helpful for viral fevers.
4. AVOID ALTERNATING ACETAMINOPHEN AND IBUPROFEN (Reason: risk of parent error and overdose). Instead, give reassurance about the benefits of fever (ie counteract fever phobia). EXCEPTION: If PCP has recommended alternating, suggest a q 4 hour dosage interval (q 8 hours for each medicine).
5. SPONGE for [1] fever > 104 F (40 C) AND [2] doesn't come down with acetaminophen or ibuprofen AND [3] causes discomfort. How to sponge: Use lukewarm water (85-90 F). (Do not use rubbing alcohol). Always give fever medicine first. Sponge for 20-30 minutes. If your child shivers or becomes cold, stop sponging or increase the temperature of the water. (NOTE: sponging is optional for high fevers, not required)
6. EXPECTED COURSE of FEVER: Most fevers associated with viral illnesses fluctuate between 101- 104 F (38.3 - 40 C) and last for 2 or 3 days.  
CONTAGIOUSNESS: Your child can return to day care or school after the fever is gone.
7. CALL BACK IF
  - Looks very sick 1 hour after acetaminophen
  - Fever goes above 105 F (40.6 C)
  - Fever without a cause persists > 24 hours (if < 2 years old)

- The fever lasts > 3 days (72 hours)
- Your child becomes worse
- 8. CARE ADVICE given per Fever (Pediatric) protocol.
- 9. REASSURE the CALLER: Your child's temperature is normal. Your child doesn't have a fever.
- 10. CALL BACK IF
  - Your baby develops a true fever
  - Rectal temperature > 100.4 F (38.0 C)
  - Armpit temperature > 99.0 F (37.2 C)
- 11. CALL BACK IF
  - Your child develops a fever that goes above 105 F (40.6 C)
  - Fever without a cause persists > 24 hours (if < 2 years old)
  - Fever lasts for more than 3 days (72 hours)
  - Your child becomes worse
- 12. FEVER AND < 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)
- 13. CALL BACK IF
  - Your child becomes worse.
- 50. CALL EMS 911 NOW: Your child needs immediate medical attention. You need to hang up and call 911 (or an ambulance). 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 immediately. Go to the Emergency Room at \_\_\_\_\_ Hospital. Leave now. Drive carefully
- 52. SEE PHYSICIAN WITHIN 1 HOUR (or PCP triage)
  - IF NO PCP TRIAGE: Your child needs to be examined 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, call again. (Note: If PCP can't be reached, send to ED/UCC)
- 53. SEE PHYSICIAN WITHIN 4 HOURS (or PCP triage)
  - IF NO PCP TRIAGE: Your child needs to be examined within the next 3 or 4 hours. Go to \_\_\_\_\_ (ED/UCC or office if it will be open) 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.
  - 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.
- 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.

## Schmitt - Pediatric Protocols

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.

**Barton Schmitt, MD**

Practicing Pediatrician  
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**Overview**

Schmitt wrote the first book on pediatric telephone triage in 1980. Since 1988, he has been the Medical Director of the After-Hours Call Center at The Children's Hospital (TCH) in Denver. In 1994 he wrote the first computerized pediatric triage protocols. His pediatric protocols have become the standard of care for telephone triage in the United States. This is why:

**Most Pediatric Topics:**

This database contains 228 pediatric triage protocols (see table of contents). It covers all pediatric symptoms, including a comprehensive set of newborn and adolescent topics.

**Most Integrated Clinical Content:**

The nurse triage protocols are compatible and consistent with other health care materials written by Schmitt. This includes a parent book (Your Child's Health), an audio text version (Parent Advice Messages), and an Internet version (Pediatric HouseCalls Online).

**Reviews:**

The review process is rigorous (description follows). The standing review committee consists of 5 pediatricians, 5 triage nurses and 1 pediatric emergency medicine physician (list follows). Selected reviews are elicited from pediatric sub-specialists. Unsolicited reviews come from many triage nurses, PCPs, ED physicians and call centers.

**References:**

Each protocol is referenced to the current pediatric literature. The decision-making is evidence-based whenever possible.

**Tested:**

The protocols are initially tested at the call center at The Children's Hospital in Denver. The call center covers evenings, weekends and holidays for over 400 physicians. Over 1.5 million calls about sick children have been managed without adverse outcome (see fact sheet on TCH call center).

**Updated Yearly:**

All protocols are updated on a yearly basis and many new protocols are in process. Urgent changes are released on an as-needed basis.

**Research:**

Independent research is an ongoing part of the program. Research at 5 emergency departments showed over 90% appropriateness for after-hours referrals (Arch Pediatr Adolesc Med 2000;154:355-360). Another study demonstrated the benefit of retriage by the physician for emergent calls (Pediatrics 2000;106:226-230). A study from Alabama Children's Hospital demonstrated that using these protocols increased the appropriateness of ED referrals by 33% (Pediatrics 2000, 105:819-821).

### **American Academy of Pediatrics (AAP):**

The AAP publishes a printed office version of Schmitt's protocols. They are used in over 50% of pediatric practices.

### **Children's Hospitals:**

Of the children's hospitals in the US who have call centers, over 90% of them use Schmitt's protocols.

## **Steps In Review Process of New Protocols**

**Version 1:** Schmitt writes 1<sup>st</sup> rough draft based upon clinical experience and differential diagnosis. Then reviews literature (journals, textbooks, internet) and writes 2<sup>nd</sup> draft. Typed in Word. Then lets 1 week pass and writes 3<sup>rd</sup> draft.

**Review 1** by pediatric emergency medicine sub-specialist (100%) (Dr. Joan Bothner) AND pediatric sub-specialist (on selective basis).

**Version 2:** Schmitt discusses recommendations with reviewers and revises.

**Review 2:** Mailed out to 10 official reviewers (5 physicians and 5 nurses) (See that list)

**Version 3:** Based on these reviews, Schmitt discusses and revises the protocols.

**Review 3:** Any protocols that contain a controversial decision point are e-mailed to medical director and nurse manager of call centers at selected children's hospitals for their opinion.

**Version 4:** Dr. Schmitt revises protocols based on those opinions.

**Review 4:** Teresa Hegarty RN, systems specialist at TCH reviews proposed screen layout in Version 4. Kelli Massaro RN, QA/QI specialist, checks that all care advice matches triage questions.

**Version 5:** Hard copy of protocols revised and built into TCH call center LVM software.

**Review 5:** Documents proofed on screen by Kelli Massaro, RN. Documents activated at The Children's Hospital (TCH). TCH triage nurses use for 4 or more weeks with actual calls, looking for problems.

**Version 6:** Additional changes made based on testing by triage nurses. Final edition sent to LVM for general release.

10/2005 version

Barton Schmitt, MD

After-Hours Call Center, The Children's Hospital (TCH), Denver

1-303-861-6179

**Current Reviewers of New Protocols**

**Pediatric Emergency Medicine Specialists**

- Joan Bothner, MD, Denver, CO
- David Thompson, MD, Berwyn, IL (adult emergency medicine)

**Medical Directors, Pediatric Call Centers**

- Elaine Donoghue, MD, St. Peter's Medical Center, New Brunswick, NJ
- Andrew Hertz, MD, Rainbow Babies Children's Hospital, Cleveland, OH
- George Miller, MD, Salem, OR
- Hanna Sherman, MD, former medical director, Boston Children's Hospital, MA
- St. Louis Children's Hospital: Call Center Physician Advisory Board

**Telephone Triage Nurses**

- Nancy M. Berryman, RN, Minneapolis, MN
- Barbara Byrne, RN, Tigard, OR
- Katrina Davis, RN, CPNP, Salem, OR
- Jenny DuFresne, RN, Phoenix, AZ
- Teresa Hegarty, RN, Denver, CO
- Kris Light, RN, Denver, CO
- Kathleen Martinez, RN, Denver, CO
- Kelli Massaro, RN, Denver, CO
- Cindy Sharpe, RN, Shawnee Mission, KS
- Teresa Van Pelt, RN, Shawnee Mission, KS

**Primary Care Pediatricians**

- Robert Mauro, MD, Denver, CO
- Paul Tschetter, MD, Denver, CO

**Pediatric Subspecialists: Targeted Reviews**

Adolescent Medicine: Todd Jacobs, MD (Oakland), Trina Anglin, MD, David Kaplan, MD

Allergy: James Shira, MD

Breastfeeding: Marianne Neifert, MD, Lisbeth Gabrielski, RN

Dermatology: William Weston, MD

Gastroenterology: Judy Sondheimer, MD

Infectious Diseases: Mark Abzug, MD

Neonatology: Jacinto Hernandez, MD, Susan Niermeyer, MD, Elizabeth Thilo, MD Dentistry:

William Mueller, DDS

Neurology: Paul Moe, MD

Ear Nose and Throat: Kenneth Chan, MD

Ophthalmology: Robert King, MD

Orthopedics: Robert Eilert, MD

*Note: all subspecialists practice at The Children's Hospital, Denver unless otherwise listed.*

**Updated 09/2003**