

# Barton Schmitt, MD

## Pediatric Protocols

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Update 4/13/09

## Earache

### - SYMPTOM DEFINITION -

- \* Pain or discomfort in or around the ear
- \* Child reports an earache
- \* Younger nonverbal child acts like he did with previous ear infection (e.g. new onset of crying and awakening during a cold)
- \* Includes child who recently FINISHED antibiotics for an ear infection and an earache has returned
- \* Ear pain is not due to a traumatic injury

### - INITIAL ASSESSMENT QUESTIONS -

1. LOCATION: "Which ear is involved?"
2. ONSET: "When did the ear start hurting?"
3. SEVERITY: "How bad is the pain?" (Dull earache vs screaming with pain)
  - MILD: doesn't interfere with normal activities
  - MODERATE: interferes with normal activities or awakens from sleep
  - SEVERE: excruciating pain, can't do any normal activities
4. URI SYMPTOMS: "Does your child have a runny nose or cough?"
5. FEVER: "Does your child have a fever?" If so, ask: "What is it, how was it measured and when did it start?"
6. CHILD'S APPEARANCE: "How does your child look?" "What is he doing right now?"
7. CAUSE: "What do you think is causing this earache?"

### - BACKGROUND INFORMATION -

#### CAUSE

- \* Usually due to an ear infection (otitis media)
- \* Ear infections peak at age 6 months to 2 years
- \* The onset of ear infections peak on day 3 of a cold

#### AAP GUIDELINES: TREATING MILD OTITIS MEDIA WITH ANALGESICS RATHER THAN ANTIBIOTICS (2004)

- \* Because of rising antibiotic resistance, recent AAP clinical practice guidelines (2004) for the management of otitis media discourage the use of antibiotics for non-severe cases (called the 'observation option').
- \* 'Non-severe otitis is defined as MILD ear pain and fever < 39 C (or no fever). The safest age group for observation is children over age 2 years.
- \* If all 3 criteria are present, these children can be offered symptomatic care and safely observed for 48 to 72 hours.
- \* In follow-up, ear symptoms improved in 60% by 24 hours and resolved spontaneously in 75%

by 7 days.

\* This approach assumes that all children with ear pain are examined but the AAP does not give a timeline.

\* If the children over age 2 years with mild earache and no fevers were seen within 72 hours during office hours (rather than within 24 hours), many weekend ED referrals could be prevented.

\* The 2008 Earache guideline now uses these recommendations to defer visits of low-risk children with earache until office hours. Again, the 3 low risk factors used in the guideline are: age > 2 years, MILD otalgia (earache) and no fever (rather than the AAP cutoff of fever < 102 F or 39 C).

#### ANALGESIC EARDROPS

Analgesic eardrops are helpful for relieving severe pain (Hoberman 1997). Generic analgesic eardrops are recommended over Auralgan eardrops (both are prescription drugs in U.S.) because of cost savings (\$8 versus \$30 per bottle). The ingredients are identical. CANADA: Use Auralgan eardrops for severe pain. Available OTC in Canada.

#### RETURN TO SCHOOL

\* An earache or ear infection is not contagious. No need to miss any school or daycare.

#### FIRST AID

N/A

#### REFERENCES

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2. Canto RM. Otitis externa and otitis media: A new look at old problems. *Emerg Med Clin North Am*. 1995;13:445-455.
3. Hoberman A, et al. Efficacy of Auralgan for treating ear pain in children with acute otitis media. *Arch Pediatr Adolesc Med*. 1997;151:675-678.
4. Licameli GR. Diagnosis and management of otalgia in the pediatric patient. *Pediatr Ann*.1999;28(6):364-368.
5. Maxson S and Yamauchi T. Acute otitis media. *Pediatr Rev*. 1996;17:191-195.
6. McWilliams DB, Jacobson RM, Van Houten HK. A program of anticipatory guidance for the prevention of emergency department visits for ear pain. *Arch Pediatr Adolesc Med*. 2008;162(2):151-156.
7. Pirozzo S, Del Mar C. Otitis media. In: Moyer V, Davis RL, Elliott E, et al, eds. *Evidence Based Pediatrics and Child Health*. London, England: BMJ Publishing Group; 2000. p. 238-247.

**SEARCH WORDS**

BLOCKAGE OF EUSTACHIAN TUBES  
BLOCKED EUSTACHIAN TUBES  
EAR ACHE  
EAR CANALS  
EAR DRAINAGE  
EAR INFECTIONS  
EAR PAINS  
EARACHE  
EARDRUMS  
EARS

EUSTACHIAN TUBES  
OTITIS EXTERNA  
OTITIS MEDIA  
OUTER EARS  
PAINFUL EAR CANALS  
PERFORATED EARDRUMS  
PULLING AT EARS  
RUPTURED EARDRUM  
SWIMMER'S EARS

**- TRIAGE -**

**Call EMS 911 Now**

Sounds like a life-threatening emergency to the triager

*CA: 50, 7*

**See More Appropriate Guideline**

[1] Diagnosed ear infection AND [2] taking antibiotic AND [3] symptoms continue

*Go to Guideline: Ear Infection Follow-Up Call (Pediatric)*

[1] Painful ear canal AND [2] has been swimming

*Go to Guideline: Ear - Swimmer's (Pediatric)*

Full or muffled sensation in the ear, but no pain

*Go to Guideline: Ear - Congestion (Pediatric)*

Due to airplane or mountain travel

*Go to Guideline: Ear - Congestion (Pediatric)*

[1] Crying AND [2] cause is unclear

*Go to Guideline: Crying Child > 3 mo (Pediatric)*

Follows an injury to the ear

*Go to Guideline: Trauma - Ear (Pediatric)*

**Go to ED Now**

[1] Stiff neck (can't touch chin to chest) AND [2] fever

*R/O: meningitis*

*CA: 51, 7*

**Go to ED Now (or PCP triage)**

Long, pointed object was inserted into the ear canal (e.g. a pencil or stick)

*R/O: perforated eardrum, damaged ossicles, FB*

*CA: 52, 7*

[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, 15, 7*

Child sounds very sick or weak to the triager

*CA: 52, 7*

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

[1] SEVERE pain (excruciating) AND [2] not improved 2 hours after analgesic eardrops and ibuprofen

*R/O: severe otitis media, severe headache*

*CA: 53, 13, 14, 3, 8, 7*

[1] Pink or red swelling behind the ear AND [2] fever

*R/O: mastoiditis*

*CA: 53, 2, 8, 7*

Walking is very unsteady

*R/O: associated labyrinthitis*

*CA: 53, 8, 7*

**See Physician within 24 Hours**

Fever

*CA: 54, 1, 2, 3, 4, 16, 5, 6, 7*

[1] Earache AND [2] MODERATE pain

*R/O: ear infection*

*CA: 54, 1, 2, 3, 4, 16, 5, 6, 7*

[1] Age < 2 years AND [2] ear infection suspected by triager

*Reason: recognizes child too young to report earache*

*CA: 54, 1, 2, 3, 5, 8, 7*

**Call PCP within 24 Hours**

[1] Child has frequent ear infections AND [2] caller insists prescription for antibiotic be called in

*CA: 60, 19, 2, 3, 4, 18, 7*

**See PCP When Office is Open (within 3 days)**

[1] Earache AND [2] MILD pain AND [3] no fever AND [4] age > 2 years

*CA: 55, 17, 13, 3, 18, 7*

Recurrent transient ear pain

*CA: 55, 10, 11, 8, 7*

**Home Care**

[1] Transient ear pain AND [2] lasted < 20 minutes

*Reason: probably due to a blocked eustachian tube or cold weather*

*CA: 58, 9, 10, 11, 12, 7*

**- CARE ADVICE (CA) -**

1. REASSURANCE: Your child may have an ear infection, but it doesn't sound serious. Diagnosis and treatment can safely wait until morning if the earache begins after office hours.
2. PAIN OR FEVER: For ear pain or fever > 102 F (39 C) give acetaminophen every 4 hours OR ibuprofen every 6 hours, as needed. (See Dosage table)
3. LOCAL COLD:
  - Apply a cold pack or a cold wet washcloth to outer ear for 20 min. to reduce pain while medicine takes effect
  - Note: some children prefer local heat for 20 minutes
  - (CAUTION: hot or cold pack applied too long could cause burn or frostbite.)
4. ANALGESIC EARDROPS: (Requires PCP prior approval)
  - (Exception: ear discharge, ear tubes or hole in eardrum)
  - If severe pain or earache unresponsive to oral pain medicine, call in a prescription for generic analgesic eardrops.
  - Instill 3 drops every 4 hours as needed.
  - CANADA: Use Auralgan eardrops for severe pain. Available OTC in Canada.
5. EAR DISCHARGE:
  - If pus or cloudy fluid is draining from the ear canal, this means the eardrum has a small tear in it caused by the pressure.
  - This usually heals nicely after the ear infection is treated.
  - Wipe the discharge away as it appears.
  - Avoid plugging with cotton. (Reason: retained pus can cause infection of the lining of the ear canal)
6. CALL BACK IF
  - Severe pain persists > 2 hours after analgesic eardrops and oral pain medicine
  - Your child becomes worse
7. CARE ADVICE given per Earache (Pediatric) guideline.
8. CALL BACK IF
  - Your child becomes worse
9. RECENT- ONSET EARACHE (LESS THAN 20 MINUTES)  
REASSURANCE: It could be a mild earache from a blocked eustachian tube. Let's see what happens.
10. INCREASE SWALLOWING and CHEWING:

- Assume the cause is a blocked eustachian tube.
  - Help your child swallow water while the nose is pinched closed. (Reason: creates a vacuum in the nose that helps open up the eustachian tube)
  - After age 4, can also use chewing gum.
11. NO MEDS: Don't give pain medicines. (Reason: if earache persists, needs to be seen within 24 hours)
  12. CALL BACK IF
    - Pain recurs
  13. PAIN: Continue acetaminophen every 4 hours OR ibuprofen every 6 hours, until seen. (See Dosage table)
  14. EAR DROPS: Continue analgesic ear drops, 3 drops q 4 hrs prn until seen.
  15. FEVER: To bring down fever, give acetaminophen every 4 hours OR ibuprofen every 6 hours (See Dosage table)
  16. OLIVE OIL EARDROPS:
    - If the caller can't obtain analgesic eardrops or PCP doesn't approve the prescription, recommend 3 drops of olive oil or another, plain cooking oil.
    - (Exception: ear discharge, ear tubes or hole in eardrum)
    - Instill 3 drops every 4 hours as needed.
  17. REASSURANCE:
    - Children over 2 years of age with MILD earaches and no fever usually have viral ear infections that heal on their own.
    - Since 2004, the AAP has recommended that these children do not need antibiotics.
    - They usually do fine just with treatment for pain and other symptoms.
    - This approach also reduces the rate of antibiotic resistance.
    - Your child's PCP can check the ears during regular office hours.
  18. CALL BACK IF:
    - Fever occurs
    - Pain becomes worse
    - Your child becomes worse
  19. REALITY CHECK:
    - Inform caller that PCPs rarely call in antibiotics without examining the ear.
    - Reassure that ear pain can be controlled with analgesics and eardrops.
    - Reassure that examining child within 24 hours is quite safe.

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.
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.

**Author:** Barton D. Schmitt, M.D.  
**Content Set:** Telephone Triage Algorithms - Pediatric After-Hours Version  
**Version Year:** 2008  
**Last Revised:** 4/2/2008  
**Copyright:** 1994-2008 Barton D. Schmitt, M.D.

### **Barton Schmitt, MD**

Dr. 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 which covers evening and weekend calls for over 55 pediatricians in Colorado and Wyoming. He is the author of more than 100 articles, 6 books and 6 decision-support programs for physicians, nurses and parents.

#### **Clinical Work Experience**

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- Professor of Pediatrics at the University of Colorado School of Medicine.
- Medical Director of the After-Hours Call Center at Children's Hospital since 1988. The call center covers evening and weekend calls for over 550 pediatricians in Colorado and Wyoming.
- Director of the Sleep Disorder Clinic, Diagnostic Dilemma Clinic and Enuresis-Encopresis Clinic.
- Author of over 100 articles, 6 books and 6 decision-support programs for physicians, nurses and parents.
  - The first book on pediatric telephone triage (Pediatric Telephone Advice, 1980). 3<sup>rd</sup> edition 2004.
  - The first computerized pediatric telephone triage algorithms (NHES, 1994). 14<sup>th</sup> edition 2008.
  - The American Academy of Pediatrics publishes the printed version of his triage guidelines (Pediatric Telephone Protocols). 12<sup>th</sup> edition 2008.
- The award-winning child care book for parents (Your Child's Health). 3<sup>rd</sup> edition 2005.
- Honors: Received the American Academy of Pediatrics C. Anderson Aldrich award for contributions in Child Development in 1994. Received the A.A.P. Education award for contributions in Pediatric Education in 2004.

#### **Education**

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- Degree in Chemical Engineering from Yale University
- Doctorate of Medicine from Cornell University
- Pediatric residency completed at the University of Minnesota.

#### **Professional Organizations**

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- American Academy of Pediatrics
- Section on Telehealth Care (AAP)
- Academic Pediatric Association

### Pediatric Protocol Review Process

- **Version 1:**

Dr. Schmitt writes first rough draft based upon clinical experience and differential diagnosis.  
Reviews literature (journals, textbooks, internet) and writes second draft. After 1 week he writes third draft.
- **Review 1:**

Conducted by pediatric emergency medicine sub-specialist (100%) (Dr. Joan Bothner) AND pediatric sub-specialist (on selective basis).
- **Version 2:**

Dr. Schmitt discusses recommendations with reviewers and revises.
- **Review 2:**

Protocol(s) mailed out to 10 official reviewers (5 physicians and 5 nurses) (See that list)
- **Version 3:**

Based on these reviews, Dr. 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, Call Center Clinical Manager 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.

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<b>Neonatology</b>	<b>Jacinto Hernandez M.D. Susan Niermeyer, M.D. Elizabeth Thilo, M.D.</b>
<b>Nutrition</b>	<b>Nancy Krebs, M.D.</b>
<b>Neurology</b>	<b>Paul Moe, M.D. Paul Levinson, M.D.</b>
<b>Ear Nose and Throat</b>	<b>Kenneth Chan, M.D.</b>
<b>Ophthalmology</b>	<b>Robert King, M.D.</b>
<b>Orthopedics</b>	<b>Robert Eilert, M.D.</b>
<b>Pulmonary Medicine</b>	<b>Jeffrey Wagener, M.D. Gwendolyn Kerby, M.D.</b>
<b>Sports Medicine</b>	<b>Brooke Pengel, M.D.</b>
<b>Toxicology</b>	<b>Richard Dart, M.D. Medical Director Rocky Mountain Poison and Drug Center</b>

NOTE: All subspecialists practice at The Children's Hospital, Denver unless otherwise listed.

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