

**Perceptions of Medical Students
Regarding their Learning
Experience of the Pediatric Ear
Exam During a Pediatric Clerkship**

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“I think my child has an ear infection”

- Acute Otitis Media (AOM) is the most commonly treated bacterial infection in children



Common Diagnosis Which Can Be Difficult

- Physicians prescribe antibiotics even when on they are only 50% certain of an AOM diagnosis



Difficult Diagnosis

Difficulty to diagnose AOM →

Over diagnosis →

Misuse of antibiotics →

Antibiotic resistance



Public Health Call to Curb Use of Antibiotics

- In 2004, the American Academy of Pediatrics attempted to change pediatric practice behavior and restrict antibiotic use
- However, a 2006 survey shows that this call had no real effect on practice behavior
- Inappropriate use of antibiotics may partially stem from lack of skill in AOM diagnosis



Educational Need

Rather than focusing only on changing practice behavior, perhaps we should emphasize the improvement in ear exam skills



Educational Need in Residency

- Curricula with measurable learning outcomes in clinic settings are limited
- Residents still report their need to learn more
 - They wonder if they “saw what they were supposed to see”



Educational Need in Medical School

- It is often assumed that otoscopy is learned in medical school years, yet skills are not well documented
- Completion of medical school not associated with otoscopy competency
 - Only 5% of students report being able to consistently perform an ear assessment on most of their patients at the end of their clerkship



Study Objective

- To assess our students' perceptions of their learning experiences with the pediatric ear exam in their pediatric clerkship



Methods

- Web-based survey administered to all students at *end* of Pediatric clerkship
- Study period: July 2008-June 2009
- IRB approved



Survey Content

- Learning expectations regarding knowledge and clinical skills for the ear exam
- Reported anxiety during performance of pediatric ear exam
- Preferred learning format for gaining this knowledge and skill



Survey

Most items used Likert-type scale with

1 = Strongly Agree

2 = Agree

3 = Disagree

4 = Strongly Disagree

Combined (1 and 2) as Agree

Combined (3 and 4) as Disagree





Survey Content

- Teaching behaviors of attending physician
 - Demonstration of pediatric ear exam to student
 - Observation of student performing pediatric ear exam
 - Providing feedback on student's performance of pediatric ear exam



Survey

- Scale itemized for frequency of teaching behavior
 - Example: Please indicate on how many occasions your teaching attending demonstrated the pediatric ear exam to you



Results

- N= 66 (66/88)
- 83% response rate
- Completed survey within 2 weeks of completing 6-week pediatric clerkship



Results

97% Expected to learn how to perform the ear exam during their clerkship

62% Have some anxiety performing the ear exam at the end of the clerkship



Results:

Clinical Knowledge

79% Reported confidence in their knowledge in the diagnosis of AOM

61% Would have liked to have acquired more knowledge regarding AOM



Results:

Clinical Skills

67% Reported confidence in their clinical skills in the pediatric ear exam

74% Would have liked to have acquired more clinical skills in the pediatric ear exam



Results

- Preferred way for increasing *knowledge*
 - 55% Small groups
 - 44% Web-based
 - 36% Lecture
- Preferred way for increasing *clinical skills*
 - 89% Mini-lab with hands on training
 - 44% Web-based
 - 24% Lecture





Results

Attending Teaching Behaviors

% of students	Teaching Behavior
97%	Reported attending gave demonstration of the ear exam
94%	Reported attending observed their ear exam
86%	Reported attending provided feedback on their ear exam



Results

Attending Teaching Behaviors

Frequency in 6 weeks	Teaching Behavior
3.9	Demonstration of exam
3.8	Observation of performance
3.1	Gave feedback



Results

Teaching Behaviors

- 18% of students reported no attending teaching in one of those three areas
- Frequency of each teaching behavior was negatively correlated with student desire for more clinical skills
 - (Pearson $r = -.19$ to $-.29$; all $p < 0.03$)





Discussion

- Students expect to learn the pediatric ear exam during the pediatric clerkship
 - This parallels the assumption that somewhere during the medical school years, the ear exam is taught to the student



Discussion

- Students' preferred mode to increase clinical skills was “hands-on” lab training
 - Web-based far less popular (although, a current trend with image-rich topics)
 - Didactic not popular with many



Discussion

- At end of pediatric clerkship, students still reported:
 - anxiety during pediatric otoscopy
 - desire to increase skills





Discussion

- Students reported high rates of attending teaching behaviors which may seem reassuring
- However, at the end of the clerkship, a high number of students (2/3) report having anxiety with the ear exam



Discussion

- What is the quality and the *appropriate* quantity of the teaching behaviors?
- Is getting feedback about once every other week in a 6 week rotation sufficient for a skill that is so expected and assumed to be learned during this core clerkship?



Limitations

- Study at one site
- Data from student self-reports
 - Limited by memory
- The study focused on quantity of teaching activity and not quality of teaching activity



Next Steps

- Improve attending teaching behaviors
- Develop curricula to capture opportunity to teach this skill in clerkship
- Build on skills learned in clerkship as a base for future competency in AOM

