

Children's Mercy Kansas City

SHARE @ Children's Mercy

Research Days

Diagnosis and Management of Otitis Media with Effusion in Pediatric Urgent Care Clinics

Ashley DeSchepper

Follow this and additional works at: <https://scholarlyexchange.childrensmercy.org/researchdays>



Part of the [Bacterial Infections and Mycoses Commons](#), [Diagnosis Commons](#), [Higher Education and Teaching Commons](#), [Infectious Disease Commons](#), and the [Pediatrics Commons](#)

Diagnosis and Management of Otitis Media with Effusion in Pediatric Urgent Care Clinics

Submitting/Presenting Author (must be a trainee): Ashley DeSchepper B.S.

Primary Email Address: andt3q@umsystem.edu

X Medical Student

Resident/Psychology Intern (\leq 1 month of dedicated research time)

Resident/Ph.D/post graduate ($>$ 1 month of dedicated research time)

Fellow

Primary Mentor (one name only): Rana E. El Feghaly MD, MSCI

Other authors/contributors involved in project: Brian R. Lee Ph.D. MPH, Amanda Nedved MD, Donna Wyly RN, MSN, CPNP-AC, PPCNP-BC

IRB Number: Exempt – Part of a Quality improvement project

Describe role of Submitting/Presenting Trainee in this project (limit 150 words):

Ashley reviewed the literature pertinent to otitis media with effusion and acute otitis media extensively, and helped design this retrospective chart review, deciding on pertinent information to request for a report to be built, and what information she would need to gather from chart review.

We had originally planned on reviewing 25% charts of all patients evaluated in our 3 urgent care clinics with a final billing diagnosis of OME for the year 2019, but she ended up reviewing 75% charts with almost 1000 charts reviewed. She helped analyze the data, wrote the abstract, and now is working on a manuscript to summarize her data.

Background, Objectives/Goal, Methods/Design, Results, Conclusions limited to 500 words

Background: Otitis media with effusion (OME)'s clinical presentation is often confused with acute otitis media (AOM) by providers. Despite OME guidelines recommending watchful waiting with no antibiotics, rates of antibiotic use remain elevated. In our pediatric urgent care clinics (UCCs), an estimated 50% of patients diagnosed with OME receive antibiotic prescriptions.

Objectives/Goal: To determine the provider diagnosis validity and the rates of antibiotics prescribed among pediatric OME patients evaluated in 3 UCCs within a pediatric healthcare system.

Methods/Design: We randomly selected 75% of encounters for children age 0-18 years who had a billing diagnosis of OME in 2019. Charts were reviewed retrospectively and the onset and degree of otalgia, presence of middle ear effusion (MEE), bulging and erythema of the tympanic membrane (TM), otorrhea, antibiotic prescribed, and the providers' diagnosis were recorded. The American

Academy of Pediatrics (AAP) guidelines were used to assign an AOM diagnosis using strict and liberal criteria listed in table 1. Providers' final diagnoses was compared to diagnosis by AAP guidelines. We compared rates of diagnoses and rates of antibiotics prescribed among the 3 locations using Pearson's chi square.

Results: A total of 957 charts were reviewed. We excluded 45 (4.7%) charts due to a concomitant diagnosis that may require antibiotics. Of the 912 eligible charts, providers' final diagnoses were: AOM for 271 (29.7%) patients, OME for 638 (70.0%) patients, and no ear pathology for 3 (0.3%) patients. Antibiotics were prescribed for 519 (56.9%) patients; of those, only 242 (46.6%) had a final provider diagnosis of AOM. Antibiotic prescribing rates were similar between patients with provider diagnosis of AOM and OME (52.8% vs. 58.9%; $p=0.086$). Applying the liberal AAP criteria, 273 (29.9%) patients qualified for an AOM diagnosis, but the patients qualifying were not the same as those diagnosed by providers ($p<0.001$) (table 2). Comparing the 3 locations, we found location-specific differences in the rates of provider AOM diagnoses and the rates of antibiotic use ($p<0.001$) (table 3).

Conclusions: When evaluating children with a billing diagnosis of OME, 30% fit a diagnosis of AOM, using liberal AAP criteria. Antibiotic prescribing rates were similar between patients with provider diagnosis of AOM and OME. This data will be used to develop antibiotic stewardship projects for UCCs.

Table 1. Criteria Used to Diagnose Acute Otitis Media.

AOM diagnosis	Strict criteria	Liberal criteria
Middle ear effusion	Present	Present or unknown
AND one of the following:		
TM bulge	Moderate to severe	Moderate to severe, or unspecified
	Mild AND intense erythema	Mild or unspecified with intense or unspecified erythema
	Mild AND onset of otalgia \geq 48 hours	Mild or unspecified, and onset of otalgia \geq 48 hours or unknown
Otorrhea	Present without otitis externa	Present without otitis externa

AOM = acute otitis media; MEE = middle ear effusion; TM = tympanic membrane

Table 2. Frequency of Patient Diagnoses and Antibiotic Use with Different Diagnosis Criteria.

N (%)	Strict Criteria	Liberal Criteria	Provider Diagnosis	Liberal Criteria & Provider Diagnosis
AOM				
- Diagnosed	52 (5.7)	273 (29.9)	271 (29.7)	156
- Antibiotics given	36 (69.2)	225 (82.4)	242 (89.3)	
OME or no Pathology				
-Diagnosed	860 (94.3)	639 (70.1)	641 (70.3)	524

- Antibiotics given	483 (56.2)	294 (46.0)	276 (43.1)	
---------------------	------------	------------	------------	--

AOM = acute otitis media; OME = otitis media with effusion

Table 3: Rates of Diagnoses and Antibiotic Use by Location.

N (%)	UCC 1	UCC 2	UCC 3	Overall
Provider diagnosis: OME	125 (44.8)	231 (85.6)	282 (77.7)	638 (70.0)
Provider diagnosis: AOM	153 (54.8)	37 (13.7)	81 (22.3)	271 (29.7)
Liberal criteria AOM diagnosis	134 (48.0)	56 (20.7)	83 (22.9)	273 (29.9)
Antibiotics prescribed	191 (68.5)	139 (51.5)	189 (52.1)	519 (56.9)

UCC = urgent care clinic; AOM = acute otitis media; OME = otitis media with effusion