

# Antibiotic Prescriptions for Acute Gastroenteritis During Office and Emergency Department Visits—United States, 2006–2015

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## BACKGROUND

- Acute gastroenteritis (AGE) is a major cause of office and emergency department (ED) visits in the United States
- Most patients with AGE can be managed with supportive care alone, although some require antibiotics
- Limiting unnecessary antibiotic use can minimize side effects and the development of resistance

## OBJECTIVE

- Assess antibiotic prescribing for AGE using national data in order to target areas for stewardship efforts

## METHODS

- We used National Hospital Ambulatory Medical Care Survey (NHAMCS) of EDs and National Ambulatory Medical Care Survey (NAMCS) data from 2006–2015
- We included **AGE visits**, defined as visits for
  - a new problem (duration <3 months) with
  - an ICD-9 code for a bacterial or viral gastrointestinal infection or AGE symptoms (nausea, vomiting, and/or diarrhea)
- We excluded visits with an ICD-9 code for *Clostridium difficile* or an infection usually requiring antibiotics (e.g., pneumonia, urinary tract infection)
- We calculated national annual percentage estimates and confidence intervals based on weights of sampled visits using complex sample methods
- We used an alpha level of 0.01, recommended for this data by the National Center for Health Statistics

## RESULTS

- Of the 12,191 sampled AGE visits, **antibiotics were prescribed for 13.2 %** (99% CI: 11.6–14.9%)
- This equates to approximately **1.3 million AGE visits with antibiotic prescriptions annually** in the United States

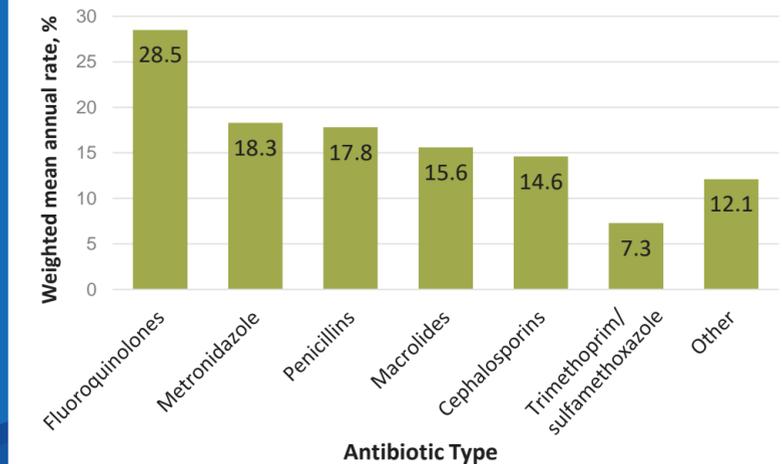
**Table 1. Patient demographic and clinical characteristics of AGE visits with antibiotic prescriptions**

Variable	Unweighted # of sampled visits with antibiotics prescribed	Weighted mean annual rate of visits with antibiotics prescribed, % (99% CI)	P-value*
<b>Age</b>			
0–4 years	197	11.3 (7.1–15.5)	<0.001
5–17 years	108	7.0 (3.9–10.0)	
18–64 years	820	15.7 (12.1–19.3)	
≥65 years	220	13.9 (9.7–18.1)	
<b>Sex</b>			
Female	804	12.9 (9.9–16.0)	0.65
Male	541	13.7 (10.5–16.9)	
<b>Insurance type</b>			
Private	419	13.4 (10.4–16.3)	0.28
Medicare/Medicaid	472	11.8 (8.4–15.2)	
Other	145	18.5 (4.3–32.7)	
Unknown	59	11.1 (5.0–17.2)	
<b>Practice setting</b>			
Office	230	15.8 (11.6–19.9)	<0.001
ED	1,115	10.6 (9.4–11.8)	
<b>ICD-9 diagnostic code<sup>†</sup></b>			
Bacterial AGE	50	24.7 (7.8–41.6)	n/a
Diarrhea without nausea or vomiting	381	16.4 (12.3–20.5)	
Nausea, vomiting, or both without diarrhea	628	11.4 (7.9–14.8)	
<b>Fever (T≥100.9°F) at the visit</b>			
Yes	98	21.0 (11.0–31.1)	0.018
No	1,247	13.0 (10.7–15.3)	

\*Chi-square test was used to compare the mean annual rate of antibiotic prescriptions between strata

<sup>†</sup>ICD-9 codes are not mutually exclusive

**Frequency of prescriptions by antibiotic type among AGE visits with an antibiotic prescribed**



## CONCLUSIONS:

- Patients treated for AGE in office settings were significantly more likely to receive prescriptions for antibiotics compared with those seen in an ED, despite likely lower acuity
- Antibiotic prescribing was also high for visits for nausea or vomiting, conditions that usually do not require antibiotics
- Fluoroquinolones, which can cause serious side effects, were the most frequently prescribed antibiotic type
- Antimicrobial stewardship for AGE is needed, especially in office settings

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