



Antibiotic Prescribing for Adults with Sore Throat in the US, 1997-2010

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Background

Among adults with sore throat, the prevalence of Group A streptococci – the only common cause of sore throat requiring antibiotic treatment – is about 10%.

Despite this prevalence, we previously found that physicians between 1989 and 1999 prescribed antibiotics to 73% of adults with sore throat.

Since 2001, the Centers for Disease Control and Prevention (CDC) and others have continued efforts to reduce antibiotic prescribing for acute respiratory infections (ARIs) including sore throat.

Penicillin remains the antibiotic-of-choice for streptococcal sore throat. In addition, in 2012 the IDSA listed amoxicillin as an acceptable first-line antibiotic as well as 1st generation cephalosporins, clindamycin, clarithromycin, or azithromycin.

Study Objective

To determine if the rate of antibiotic prescribing for adults with sore throat has decreased in the past decade, with particular attention to the rate of penicillin prescribing.

Methods

Cross-sectional analysis of the National Ambulatory Medical Survey and National Hospital Ambulatory Medical Survey (NAMCS/NHAMCS), representative national surveys conducted annually by the CDC.

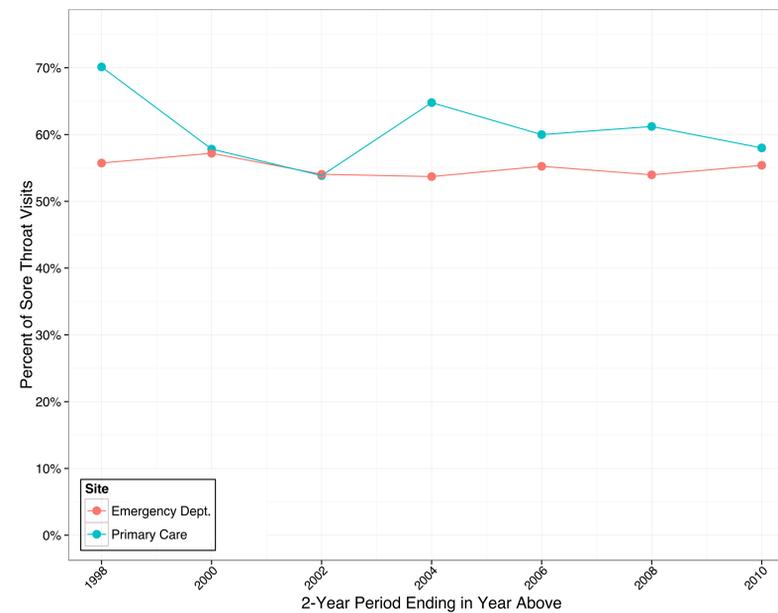
We examined "new problem" visits by adults with a chief complaint of sore throat to primary care physicians and emergency departments (EDs) between 1997 and 2010 in 2-year periods (n = 8191 sampled visits).

We analyzed the overall antibiotic prescribing rate as well as the prescribing rate for specific antibiotics including penicillin and other antibiotics suggested by the IDSA guidelines.

All analyses take the multistage probability design of the surveys into account. Survey-weighted logistic regression models controlling for all available demographic factors were used to estimate adjusted relative risk of antibiotic prescription.

Results

Figure 1: Antibiotic Prescribing Rates for Sore Throat Visits by Site of Care, 1997-2010

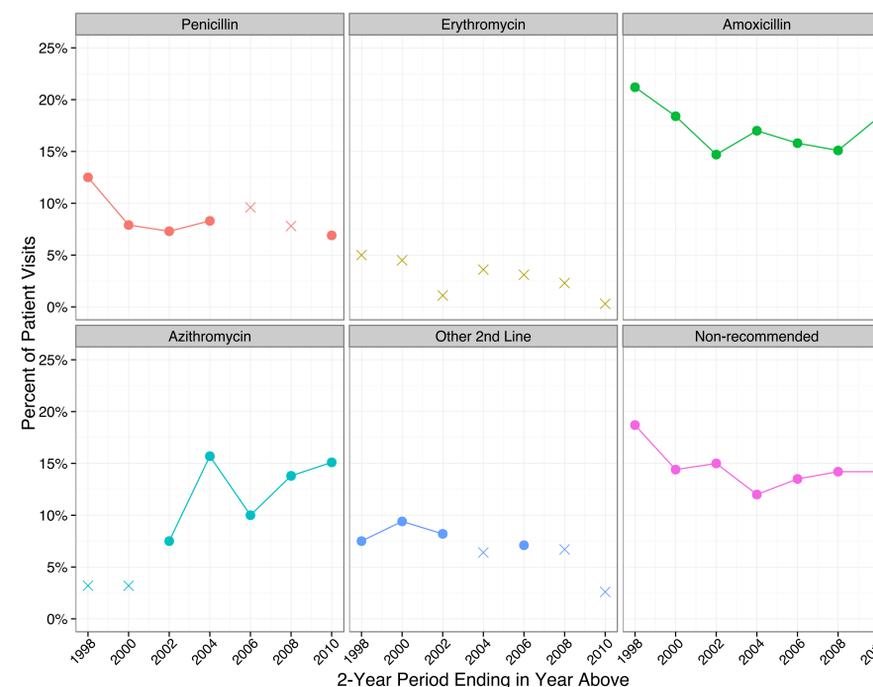


Between 1997 and 2010, there were 94 million (95% confidence interval [CI], 86 to 102 million) visits by adults with a chief complaint of sore throat in the US.

Overall, physicians prescribed antibiotics to 60% (95% CI, 57 to 63) of patients with a chief complaint of sore throat from 1997-2010.

From 1997 to 2010, p for trend >0.35 for both primary care physicians (61%; 95% CI, 58 to 64) and EDs (55%; 95% CI, 53 to 57).

Figure 2: Antibiotic Prescribing Rates for Sore Throat by Type of Antibiotic, 1997-2010



"X" points represent values not estimated within threshold of reliability set by the CDC.

Penicillin prescribing averaged 9% during 1997-2010 and did not change significantly over time.

Erythromycin prescribing was consistently below the threshold of reliability set by the CDC.

Azithromycin prescribing increased from less than 5% to 15% of visits from 1997-2010 (p<0.001).

There was no significant change in the prescribing rate for amoxicillin or non-recommended antibiotics.

Results (cont'd)

Table 1: Sore Throat Visit Demographic Characteristics and Prescription of Antibiotics, 1997-2010

Year, per decade	Proportion of Visits, %	Any Antibiotics (n = 4534)		
		% Receiving	Adjusted OR	95% CI
Age, y				
18-44	71%	63%	-	-
45-64	22%	55%	0.69	(0.53-0.92)
65+	7%	47%	0.34	(0.20-0.58)
Gender				
Female	65%	57%	-	-
Male	35%	66%	1.48	(1.15-1.89)
Race				
White	84%	60%	-	-
Black	11%	60%	1.03	(0.73-1.45)
Other	5%	52%	0.77	(0.45-1.34)
Insurance				
Private	65%	60%	-	-
Medicare	7%	57%	1.79	(1.10-2.92)
Medicaid	9%	47%	0.70	(0.51-0.97)
Uninsured/Other	19%	66%	1.35	(1.03-1.75)
Specialty/Setting				
Primary Care	82%	61%	-	-
Emergency Dept.	18%	55%	0.71	(0.59-0.85)
Region				
Northeast	20%	57%	-	-
Midwest	27%	62%	1.19	(0.85-1.67)
South	35%	64%	1.34	(0.97-1.87)
West	18%	53%	0.84	(0.58-1.21)
MSA				
Rural	17%	60%	-	-
Urban	83%	60%	1.03	(0.75-1.43)

Demographic factors associated with a significant difference in risk of antibiotic prescription include age greater than 45, male gender, insurance, and the ED setting.

Limitations

NAMCS/NHAMCS are cross-sectional national surveys that cannot assess causality and rely on the accuracy of the sampling method used.

Key Findings

Physicians are still prescribing antibiotics at very high rates for sore throat, overall 60% of visits from 1997-2010 with no significant change.

The antibiotic of choice, penicillin, was only prescribed for 9% of sore throat visits, also with no significant change over this period.

Prescription rates for azithromycin climbed from 5% to 15% of all sore throat visits.