

Geographic Distribution of Bronchitis vs. URI Diagnosis and Antibiotic Use: Eastern Wisconsin

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Context: Antibiotic overuse includes prescription for predominantly non-bacterial infections such as acute respiratory infection (ARI). **Objective:** Explore geographic and clinician specialty differences in treatment of ARI within a single integrated medical system. **Design:** Retrospective GIS clinical database analysis. Patient demographics, percent rural of clinic location, season, and provider specialty were tested for their association with diagnosis code and antibiotic prescription. Chi-square tests for categorical variables, T tests or Mann-Whitney test for continuous variables, binary logistic regression for multivariate analysis. **Setting:** 98 eastern Wisconsin primary care clinics. **Patients:** Random sample of 3,513 patients aged 8-49 with diagnosis of acute bronchitis or cold/URI, October, 2007 - September, 2008. **Results:** Overall, diagnosis of acute bronchitis (vs. cold/URI) was predictive of antibiotic prescribing; 1703/3,513 patients (48%) were given acute bronchitis diagnosis, 84% prescribed an antibiotic. Only 33% (604/1810) of patients diagnosed with common cold/URI were prescribed an antibiotic ($p < 0.001$). In patients 19-49 years of age diagnosed with either bronchitis or cold/URI, internists were found to be more likely than family medicine physicians to prescribe antibiotics ($p = 0.006$), however, no significant difference was found in the rate of diagnosis codes used ($p = 0.334$). In patients aged 8-18, family medicine physicians were more likely than pediatricians to use acute bronchitis code (37% vs. 21%, $p < 0.001$) and to prescribe an antibiotic given either diagnosis (53% vs. 34%, $p < 0.001$). There were no seasonal differences in diagnosis or prescribing. Rural clinic site was not a predictor of either diagnosis or prescribing, but Milwaukee County clinicians were more likely to diagnose bronchitis ($p = .002$) and prescribe antibiotics ($p < 0.001$). **Conclusions:** Assuming similar patient characteristics, significant differences exist by specialty regarding choice of diagnostic code and antibiotic prescription for ARI. Additional studies are needed to confirm these findings and to investigate whether choice of bronchitis diagnosis is sometimes used to “justify” antibiotic prescription by primary care clinicians.