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## Further Considerations Regarding Duration of Antibiotic Therapy for Sinusitis—Reply

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We appreciate the suggestion by Drs. Chang, Fatima, and Stevens in their response to our article, “Antibiotic Therapy Duration in US Adults with Sinusitis.”<sup>1</sup> to evaluate prescribing for adults with sinusitis by specialty, particularly since previous studies have found that outpatient antibiotic prescribing practices vary by clinician specialty.<sup>2,3</sup>

We examined the duration of antibiotic courses prescribed for adult acute sinusitis visits to family practice, general practice, geriatrics, internal medicine, pediatrics, emergency medicine, and non-pediatric osteopathic primary care physicians. The non-pediatric osteopathic primary care physician category included both family practice and internal medicine specialties within the dataset, so we were unable to differentiate whether osteopathic medicine clinicians were family practitioners or internists. We described the duration of therapy for all oral antibiotics prescribed for sinusitis and for all oral antibiotics for sinusitis excluding azithromycin. We specifically excluded azithromycin due to its unique pharmacokinetics and persistent tissue concentration; a five-day course of azithromycin is equivalent to a 10-day course of erythromycin.<sup>4</sup> In addition, the Infectious Diseases Society of America (IDSA) clinical practice guidelines specifically recommend against the use of azithromycin in acute sinusitis in adults.<sup>5</sup>

In our original study, we found that an estimated 3.7 million antibiotic courses were prescribed for acute sinusitis in adults in 2016 and over 24% of these were azithromycin (Table 1). Replicating our previous analysis by physician specialty, we found that in all specialties at least 75% of non-azithromycin antibiotic prescriptions for sinusitis were 10 days or longer. The median duration of non-azithromycin antibiotic courses was 10 days (interquartile range 10–10) for every included physician specialty (Table 1). IDSA clinical practice guidelines recommend 5–7 days of antibiotic therapy for uncomplicated cases of acute bacterial sinusitis.<sup>5</sup> Our analysis shows that there are opportunities in all clinician specialties to improve antibiotic prescribing for acute sinusitis by using the minimum effective therapy duration when antibiotics are needed.

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Beyond efforts to ensure an appropriate antibiotic course duration, our analysis also indicates an opportunity to improve clinician agent selection across specialties by minimizing the use of azithromycin in sinusitis. In addition, as Dr. Chang and colleagues also noted, antibiotics may not be needed at all in many sinusitis cases as most sinusitis cases are caused by viruses.<sup>5</sup>

By incorporating antibiotic stewardship activities into practice, clinicians can improve patient safety and deliver the best quality care. The Centers for Disease Control and Prevention (CDC) Core Elements of Outpatient Antibiotic Stewardship document (<https://www.cdc.gov/antibiotic-use/community/improving-prescribing/core-elements/core-outpatient-stewardship.html>) provides guidance on how to implement antibiotic stewardship in outpatient settings.<sup>6</sup> Physicians and other clinicians can apply the Core Elements to their practice to improve antibiotic prescribing for acute sinusitis and other common outpatient conditions.

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**Table 1.**

Characteristics of antibiotic courses prescribed to adults for acute sinusitis by physician specialty, National Disease and Therapeutic Index (NDTI), 2016

Physician specialty	Estimated no. of all antibiotic prescriptions (95% CI), in thousands	Estimated % (95% CI) of all antibiotic prescriptions that are azithromycin	Median duration (IQR) in days of non-azithromycin antibiotic courses
All specialties	3,697 (3,124–4,270)	24.4 (18.9–30.0)	10 (10–10)
Emergency Medicine	17 (0–49)	0	10 (10–10)
Family Practice <sup>A</sup>	1,726 (1,393–2,059)	21.0 (14.0–28.0)	10 (10–10)
General Practice <sup>B</sup>	25 (5–45)	18.6 (0.0–40.4)	10 (10–10)
Geriatrics	43 (5–81)	47.9 (3.7–92.2)	10 (10–10)
Internal Medicine	792 (591–992)	25.8 (14.4–37.2)	10 (10–10)
Osteopathic Medicine – Primary Care <sup>C</sup>	1,011 (597–1,425)	28.4 (15.6–41.2)	10 (10–10)
Pediatrics <sup>D</sup>	84 (30–138)	28.2 (0.3–56.2)	10 (10–10)

CI: confidence interval; IQR: interquartile range.

<sup>A</sup> Includes full and part-time Family Practice physicians.

<sup>B</sup> Includes full and part-time General Practice physicians, categorized as separate group within the NDTI dataset.

<sup>C</sup> Categorized separately within the NDTI dataset, does not include osteopathic pediatric specialty.

<sup>D</sup> Includes only adult visits to pediatricians.