

## Emergence of *emm11.10* in Colorado

	<i>Emm11.10</i>		Non- <i>Emm11.10</i>	
	NH	Non-NH	NH	Non-NH
2015	1	0	13	180
2016	2	0	13	203
2017	10	12	31	246
2018	13	7	14	132

**Disclosures.** All Authors: No reported Disclosures.

### 1895. Serious Antibiotic-Related Adverse Effects Following Unnecessary Dental Prophylaxis in the United States

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**Session:** 201. SHEA Featured Oral Abstract

Friday, October 4, 2019: 4:45 PM

**Background.** Dentists prescribe 10% of outpatient antibiotics in the United States, with a significant portion of these being for prophylaxis. We previously found that 80% of prescriptions for prophylaxis prescribed prior to dental visits are unnecessary; however, the sequelae of these unnecessary antibiotics have not been characterized. Our objective was to assess the harms of unnecessary antibiotic prophylaxis using Truven, a national health claims database.

**Methods.** This was a retrospective cohort study of patients with dental visits from 2011 to 2015 linked to medical and prescription claims. Patients with commercial dental insurance without a hospitalization or extra-oral infection 14 days prior to antibiotic prophylaxis ( $\leq 2$  days supply dispensed within 7 days before a dental visit) were assessed for inclusion. Patients with unnecessary antibiotic prophylaxis (defined as antibiotic prophylaxis in patients who both did not undergo a procedure that manipulated the gingiva/tooth periapex and did not have an appropriate cardiac diagnosis) were included and assessed for serious antibiotic-related adverse effects (AAE). The primary endpoint was the cumulative incidence of any AAE within 14 days post-prescription (composite of allergy, anaphylaxis, *C. difficile* infection, or ED visit). The secondary analyses were the cumulative incidence of each individual AAE and the risk difference of the primary endpoint between amoxicillin and clindamycin.

**Results.** Of the 168,420 dental visits with antibiotic prophylaxis, 136,177 (80%) were unnecessary and included for analysis. 3.8% of unnecessary prescriptions were associated with an AAE; primary and secondary endpoints are listed in the Table. ED visits (1.2%) and new allergies (2.9%) were most frequent. Clindamycin was associated with more AAE than amoxicillin (risk difference 322.1 per 1000 person-years, 95% CI: 238.5 - 405.8).

**Conclusion.** Even though antibiotic prophylaxis is prescribed for a short duration ( $\leq 2$  days), it is not without risk. Since most AAE are diagnosed in medical settings, dentists may not be aware of these adverse effects. These data provide further impetus to decrease unnecessary prescribing of antibiotic prophylaxis prior to dental procedures.

**Table. Adverse effects among patients with unnecessary dental prophylaxis (n = 136,177)**

	Number of events	Total follow-up time in years**	Incidence rate Per 1000 person-years	95%CI	
Any Adverse Effect*	5260	5120.6	1027.2	999.5	1055.0
New Allergy	3912	5146.7	760.1	736.3	783.9
Any Anaphylaxis	0	5223.2	N/A		
<i>C. difficile</i> infection	9	5223.1	1.7	0.60	2.85
ED visit	1568	5193.4	301.9	287.0	316.9

\*Primary endpoint defined as an adverse event occurring within 14 days post-prescription (composite endpoint of allergy, anaphylaxis, *C. difficile* infection, or ED visit).

\*\*Subjects were censored at the occurrence of event of interest, lost-to-follow-up and end of enrollment.

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### 1946. An Exploratory Study of the Therapeutic Reasoning Underlying Antimicrobial Selection

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**Session:** 226. Advances/in/ID/Med/Ed

Saturday, October 5, 2019: 10:30 AM

**Background.** Clinical reasoning research has helped illuminate how clinicians make diagnoses but offers less insight into management decisions. The need to understand therapeutic choices is particularly salient within infectious diseases (ID), where antimicrobial prescribing has broad implications given increasing rates of resistance. Researchers have examined general factors underlying antibiotic prescribing. Our study advances this work by exploring the factors and processes underlying physician choice of specific antimicrobials.

**Methods.** We conducted individual interviews with a purposeful sample of Hospitalists and ID attendings. Our semi-structured interview explored the reasoning underlying antimicrobial choice through clinical vignettes. We identified steps and factors after 12 interviews then conducted 4 more to confirm and refine our findings. We generated a codebook through an iterative, inductive process and used Dedoose to code the interviews and facilitate analysis.

**Results.** We identified three antibiotic reasoning steps (*Naming the Syndrome, Delineating Pathogens, Antimicrobial Selection*) and four factors involved in the reasoning process (*Host Features, Case Features, Provider and Healthcare System Factors, Treatment Principles*) (Table 1). Participants considered host and case features when determining likely pathogens and antimicrobial options; the other two factors influenced only antimicrobial selection. From these data, we developed an antimicrobial reasoning framework (Figure 1). We also determined that participants seemed to have a "script" with specific content for each antimicrobial they considered, functioning much like the illness scripts common to diagnostic reasoning (Table 2).

**Conclusion.** Our antimicrobial reasoning framework details the cognitive processes underlying antimicrobial choice. Our results build on general therapeutic reasoning frameworks while elaborating factors specific to ID. We also provide evidence of the existence of "therapy scripts" that mirror diagnostic reasoning's "illness scripts." Our framework has implications for medical education and antimicrobial stewardship.

**Table 1: Factors involved in the antimicrobial reasoning process**

#### HOST FEATURES

Age

Allergies

Exposures

Medical History

-Current Conditions

-Ability to take Oral Medications

-Past Infections

Medications

-Prior Exposure to Antimicrobials

-Current Medications

-Existing Pill Burden

Social Factors

-Ability to Adhere

-Financial Factors

-Likelihood of Follow-Up

Preferences

#### CASE FEATURES

Differentiating Features of the Case

Microbiologic Data

Severity of Illness

Illness Trajectory

#### PROVIDER & HEALTHCARE SYSTEM FACTORS

Antibiogram

Clinical Experience

Consulting Colleagues

Consulting Resources

Institution-Specific Practices

Supporting Trainee Choices

#### TREATMENT PRINCIPLES

Pathogen-Based Treatment

Evidence-Based/Guideline-Supported Decisions

Narrow Coverage

Parsimony