Conclusion. An ID specialist-led *C. difficile* testing approval process was feasible and associated with a significant decrease in HO-CDI testing and infection rates, due to enforcement of appropriate testing. ID specialists can provide a key role in enforcing appropriate *C. difficile* testing, but more experience is needed with respect to sustainability.

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975. *Clostridium difficile* Infection and Antibiotic Prescription Rates in the Community: Explaining the Gender Gap

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Session: 126. Healthcare Epidemiology: The Poop Pager and Other Novel Perspectives on C. difficile in the Healthcare Setting

Friday, October 5, 2018: 10:30 AM

Background. Previous studies have reported higher incidence rates of community-associated *Clostridium difficile* infection (CA-CDI) in women than in men. This cross-sectional population-based study examines whether this difference in CA-CDI rates across genders is driven by or independent of antibiotic use.

Methods. Medicaid and State Employee Health Plan pharmacy claims for outpatient oral antibiotics and associated medical claims were utilized for estimation of community antibiotic prescription rates in South Carolina population 18 to 64 years of age from January 1, 2015 to December 31, 2015. CA-CDI cases were identified from National Healthcare Safety Network (NHSN) and South Carolina Infectious Disease and Outbreak Network (SCION) through complete enumeration of South Carolina population of the same age and study period as above. Incidence rates of CA-CDI were reported in both men and women 18–39 and 40–64 years of age before and after adjustments for antibiotic prescription rates in the same gender and age group. The 95% confidence intervals (CI) were calculated to examine statistical difference in incidence rates across genders within the same age group.

Results. During the calendar year 2015, a total of 1,564 CA-CDI cases were identified in South Carolina residents 18–64 years of age. The incidence rate of CA-CDI per 100,000 person-years was higher in women than in men in age groups 18–39 years (37.3 [95% CI: 32.8–41.8] vs. 21.0 [95% CI: 17.6–24.4]) and 40–64 years (86.4 [95% CI: 80.1–92.8] vs. 56.6 [95% CI: 51.2–61.9]. Similarly, antibiotic prescription rates per 100 person-years were higher in women than men in the 2 respective age groups (118.8 [95% CI: 118.3–119.3] vs. 54.3 [95% CI: 53.9–54.8] and 130.4 [95% CI: 129.8–130.9] vs. 83.8 [95% CI: 83.3–84.4]. After adjustments for antibiotic prescriptions, there was no significant difference in the incidence rates of CA-CDI per 100,000 prescriptions between women and men 18–39 years of age (31.4 [95% CI: 27.6–35.2] vs. 38.6 [95% CI: 32.4–44.8] and 40–64 years old (66.3 [95% CI 61.5–71.2] vs. 67.5 [95% CI: 61.1–73.8]).

Conclusion. Higher crude incidence rates of CA-CDI in women are likely due to higher outpatient antibiotic prescription rates in women when compared with men.

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976. *Clostridium difficile* Colonization Molecular Epidemiology and Anti-toxin Serological Responses in Healthy Infants: A Prospective Cohort Study

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Session: 126. Healthcare Epidemiology: The Poop Pager and Other Novel Perspectives on *C. difficile* in the Healthcare Setting

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Background. Infant *C. difficile* colonization is common, but the molecular epidemiology and immunologic consequences of colonization are poorly understood.

Methods. In this prospective cohort study of healthy infants, serial stools collected between 1–2 and 9–12 month olds were tested for glutamate dehydrogenase (detects nontoxigenic or toxigenic *C. difficile* [TCD]), *tcdB* PCR (detects TCD), and cultured for *C. difficile*. Isolates underwent whole genome sequencing and multilocus sequence typing (MLST). Clonal strains were identified by single nucleotide variant (SNV) analysis. TCD was confirmed by BLAST identification of *tcdA*/*tcdB*. Serum collected at 9–12 month olds underwent ELISA for measurement of IgA, IgG, and IgM against TCD toxins A and B. For comparison, anti-toxin IgG was measured in cord blood of 50 consecutive full-term deliveries (unrelated to study infants). Arbitrary ELISA units were compared by Wilcoxon rank-sum test.

Results. Among 32 infants, 16 (50%) had at least one TCD+ stool, 12 of whom were colonized at least 1 m prior to serology measurements (Figures 1 and 2). A variety of STs were identified, and evidence of putative in-home (enrolled siblings) and outpatient clinic transmission was identified (Figure 3). Infants with TCD colonization had significantly greater levels of anti-toxin IgA and IgG compared with non-colonized infants and IgG compared with unrelated cord blood (Table 1).

Conclusion. Infant *C. difficile* colonization is a dynamic process with variable strain types and duration. Outpatient clinics may be a *C. difficile* reservoir for some patients. TCD colonization is associated with a humoral immune response against toxins A and B, but whether natural TCD immunization protects against CDI later in life requires further investigation.

Table 1: Anti-toxin Serology (Arbitrary ELISA Units)

Group	Tox A IgA	Tox A IgG	Tox A IgM	Tox B IgA	Tox B IgG	Tox B IgM
Not colonized with TCD ($n = 16$)	1.37	10.14	2.74	0.8	6.50	6.14
Colonized with TCD for at least 1 month ($n = 12$)	4.23*	37.87*	2.54	1.73*	20.76*	5.96
Cord Blood ($n = 50$)		10.81^			8.34^	

*$P < 0.05$ (colonized vs. non-colonized); ^$P < 0.05$ (colonized vs. cord blood)

Figure 1: Infant Classification

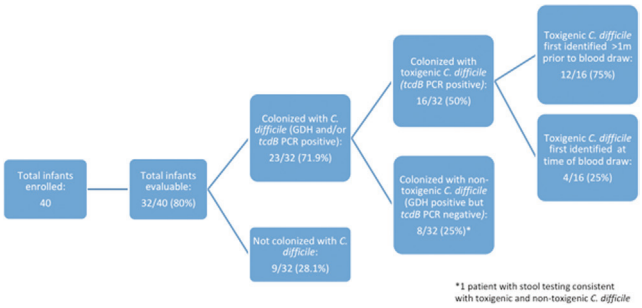

Figure 2:Chronology and Results of Infant Stool *C. difficile* Testing

Figure 3: Molecular Epidemiology of Infant *C. difficile* Isolates

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977. An Innovative 3-Year Medical Student Spiral Curriculum in Antimicrobial Stewardship and Infectious Diseases

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Session: 127. Medical Education
Friday, October 5, 2018: 10:30 AM

Background. By 2050, infections due antimicrobial-resistant organisms are predicted to account for 10 million deaths/year worldwide. Physician antibiotic prescribing patterns are a significant factor in the development of antibiotic resistance organisms. Early, continual, and integrated medical student education may help students develop a framework for responsible antimicrobial use as they develop prescribing patterns.

Methods. We designed a spiral antimicrobial stewardship curriculum (defined as revisiting the same concept but with increasing complexity) for medical students in years 2–4. Data provided by the Graduation Questionnaire (GQ) administered by the US Association of American Colleges were used. We compared student responses during the curriculum rollout in 2013–2015 between students at our institution and other schools. We also surveyed graduating seniors in 2015 about antimicrobial stewardship training.

Results. Using GQ data for the class of 2013 (preintervention), a similar proportion of UCSF medical students compared with other US medical students rated microbiology clinical preparation as excellent (43.6% vs. 45.1%, $P > 0.20$). For the 2014 class, we developed interactive case-based sessions at the beginning of years 3 and 4. After this first intervention, a higher proportion of UCSF students rated the microbiology clinical preparation as excellent (51.3%) compared with responses at all schools (39.8%, odds ratio [OR] 1.59, 95% confidence interval [CI] 1.1–2.3, $P = 0.013$). For the class of 2015, we added content during the medicine clerkship and 1 week before graduation. For the 2015 class, an even higher proportion of UCSF students rated microbiology preparation as excellent (57.6%), compared with all schools (41.2%, OR 2.23, 95% CI 1.54–3.22, $P < 0.0001$). From our survey, 88% were very or extremely satisfied with antimicrobial stewardship training.

Conclusion. A spiral curriculum focusing on antimicrobial stewardship and infectious diseases increases student perception of clinical preparation prior to graduation. As the curriculum was incrementally introduced, students' knowledge increased indicating a dose–response pattern. Based on these positive results, we plan to introduce more content throughout UME, and link to curriculum for GME and practicing clinicians.

Disclosures. **All authors:** No reported disclosures.

978. Assessing the Impact of a Mobile Device-Based Clinical Decision Support Tool on Guideline Adherence and Mental Workload

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Background. Fever in infants <90 days old can indicate a serious bacterial infection (SBI) such as urinary tract infection, bacteremia, or meningitis. Clinical management of febrile infants varies widely. Implementing clinical practice guidelines (CPGs) can help standardize care, and electronic clinical decision support (eCDS) tools are a potential means of distributing CPGs. Little is known regarding the individual-level impact of eCDS tool use on medical decision-making. Children's Mercy Kansas City developed a mobile eCDS tool (CMPeDS: Pediatric Decision Support) that was used internationally in a practice standardization project focused on the management of febrile infants.

Methods. We conducted a prospective cross-over simulation study amongst pediatric healthcare providers. Attending and resident physicians performed simulated patient scenarios using either CMPeDS or a standard text reference (the Harriet Lane Handbook). Participants' responses in the simulation were evaluated based on adherence to evidence-based guidelines. Participants' mental workload was assessed using the NASA Task Load Index survey (NASA-TLX, in which lower scores are optimal) to assesses mental, physical, and temporal demand, as well as performance, effort, and frustration when completing a series of tasks. Paired *t*-test and ANOVA were used to determine significance for case performance scores and NASA-TLX scores, respectively. A System Usability Scale (SUS) was used to determine usability of the CMPeDS app.

Results. A total 28 of 32 planned participants have completed trial procedures to date. Mean performance scores on the cases were significantly higher with CMPeDS vs. standard reference, (87.7% vs. 72.4% [$t(27)$ 3.22, $P = 0.003$]). Participants reported lower scores on the NASA-TLX when using CMPeDS compared with standard reference tool (Figure 1). Mean score on SUS was 88.2 (scale 0–100) indicating excellent tool usability (Figure 2).

Conclusion. Using the eCDS tool CMPeDS was associated with significantly increased adherence to evidence-based guidelines for febrile infant management and decreased mental workload in simulation. Our findings highlight the potential value of eCDS deployment as part of CPG implementation projects.

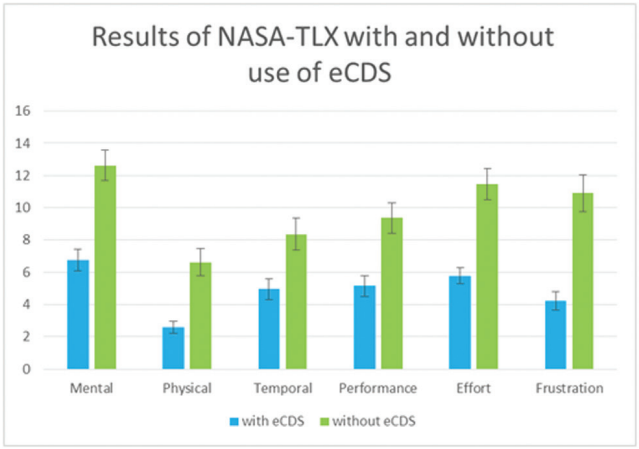

Figure 1

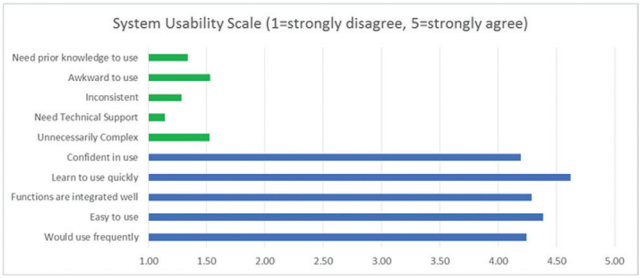

Figure 2

Disclosures. **All authors:** No reported disclosures.

979. Standardizing Medical Student Learning for Infectious Diseases Consult Electives: Prioritizing Content

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Background. The goals of 4th-year medical student electives vary, and students' learning during clinical electives may occur solely through the subspecialty cases that students encounter. We aim to standardize learning during electives by creating a toolkit to guide elective directors in the development of curricula that reinforce basic science principles, highlight areas for high-value care, and provide opportunities for further inquiry. The first step is to determine the core specialty topics applicable to students regardless of career choice. Here, we describe this content prioritization process within the context of an infectious diseases (ID) elective pilot curriculum.

Methods. We conducted a modified, 2-round Delphi process to develop consensus on ID topics that all graduating medical students should know. Through review of the literature for common diagnoses and high value care, and the medical school curriculum, the authors generated an initial list of 16 topics. An interdisciplinary group of 90 expert faculty educators from Internal Medicine, Family Medicine, Emergency Medicine, and Surgery rated these topics' importance using a 5-point Likert scale, from 0 (absolutely do not include) to 4 (very important). We considered items rated at least 3 (important) by at least 80% of participants to have reached consensus.