

Results. Sixty-nine students (65%) completed the survey. Students highly rated the video, modules, and in-class cases (Table 1). Fewer students felt confident explaining the clinical microbiology process, compared to selecting antibiotics, interpreting cultures, explaining Gram stains, and interpreting an antibiogram (Table 2). Student comments highlighted the value of the video, modules, and instructor facilitation during the in-class session. Students also suggested improvements with the module user interface and reinforcement of certain topics (e.g. clinical breakpoints) during the in-class session.

Table 1: Student Ratings of the Quality of Instructional Materials

Instructional Materials	Number of responses (%)	Mean Rating (SD)*
Preparatory microbiology lab video	68 (99)	3.28 (0.68)
Preparatory online modules	68 (99)	3.31 (0.73)
In-class cases	67 (97)	3.25 (0.61)

*Students rated quality on a 4-point scale, where 4= excellent

Table 2: Student Self-Reported Agreement with Achievement of Session Objectives

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Description of Objective	Number of responses (%)	Mean Rating (SD)*
I feel confident in my ability to explain the primary steps involved within a clinical microbiology lab.	69 (100)	2.36 (0.74)
I can select appropriate definitive antibiotics based on an antimicrobial susceptibility report.	68 (99)	3.13 (0.59)
I can interpret microbiology culture results for decision-making	68 (99)	3.07 (0.6)
I can explain the role of Gram stains in identification and differentiation of gram-positive and gram-negative bacteria.	69 (100)	3.29 (0.51)
I can determine whether empiric antibiotics are appropriate based on an institutional antibiogram.	68 (99)	3.09 (0.56)

*Students rated agreement on a 4-point scale, where 4= strongly agree

Conclusion. We demonstrated successful implementation a virtual microbiology lab within a pharmacy course. Overall student ratings of materials were favorable. We plan to refine and re-offer the virtual micro lab next year and measure its association with student performance. To facilitate the adaptation of this virtual lab by other schools, our teaching materials are available for use via <https://vimeo.com/390087512> (video) and <http://tiny.ucsf.edu/atlas> (modules).

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1122. Improving Knowledge of Infectious Disease Fellows Regarding Infection Prevention & Antibiotic Stewardship Using a Multi-Faceted Approach

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Session: P-50. Infectious Diseases Medical Education

Background. Infection prevention and antibiotic stewardship are critical to the safe and effective delivery of patient care. The primary objective of this fellowship rotation is to train infectious diseases fellows to develop key competencies in the fields of infection prevention and antibiotic stewardship.

Methods. We implemented an infection prevention and antibiotic stewardship rotation for the first-year infectious disease fellows starting July 2017. This new one-month rotation included several lectures by infectious diseases physicians, infection preventionists and pharmacists. Fellows rounded with infection preventionists (isolation, device, environmental, and endoscopy rounds) and participated in infection control subcommittees (CLABSI, CAUTI, *Clostridioides difficile* colitis and surgical site infections). Fellows were required to present infection control data and develop a proposal for a quality improvement project using the Define, Measure, Analyze, Improve and Control (DMAIC) method. Knowledge was evaluated through a 25 item

questionnaire administered before (pre) and after (post) rotation. Topics included definitions, surveillance, isolation, preventive methods, outbreak investigation, policies, antibiotic stewardship, healthcare economics, and leadership.

Results. Sixteen fellows have participated in the rotation (2017-2019); all completed the pre- and post- evaluations (same questionnaire). Fellows answered a mean of 11.1/25 questions correctly pre-course (SD 2.3). Scores improved significantly to a mean of 21.2/25 correct answers at the end of the course (SD 2.6, P< 0.001). All fellows presented quality improvement proposals at the end of the rotation, with a mean score of 85.7% (SD 4.6). The fellows were highly satisfied with the course with mean evaluation score 6.2/7 (88.5%).

Conclusion. The one month duration infection control and antibiotic stewardship rotation that provides basic training in the field at the beginning of the fellowship led to significant improvement in the fellows' knowledge, and was very well received. An additional track has been implemented during the second year to prepare interested fellows for careers in infection control and/or antibiotic stewardship.

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1123. Improving Quality Improvement: Increasing QI Competency in Internal Medicine Subspecialty Fellows

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Session: P-50. Infectious Diseases Medical Education

Background. Medical errors contribute to 44,000 – 98,000 deaths annually, which can result in total national costs upwards of 17-29 billion dollars. The Institute of Medicine suggests the application of QI as one of its five core competencies for all health care providers. ACGME has recognized the importance of QI curriculum in the training of both residents and fellows. To date, most QI curriculums focus on participation rather than application proficiency. A review performed by ACGME found that participants appeared to have a limited understanding of QI even after partaking in QI curricula. An activity that emphasizes practical application and meets the time constraints of residents and fellows would prove more beneficial than standard approaches.

Methods. This study included 13 ID, Allergy and Immunology, and Endocrine fellows from the University of Kansas Medical Center. Utilizing a QIKAT-R assessment tool, fellows were given 3 cases for which they had to develop a QI project. The assessment was made based on the ability to make an aim, find a measurable outcome or process that could easily be tabulated, and propose a change that could be tested. Following this, a 1-hour power point presentation which included active learning prompts in developing a QI project was given to the fellows. At the conclusion of the presentation, 3 additional cases were given to the fellows. Their ability to develop a QI project was again evaluated using the QIKAT-R assessment tool. At the end of the session a 5-question satisfaction survey was completed. As a group mean, scores prior to the 1-hour presentation were compared to those afterwards. A paired, single-tail, t-test was utilized to obtain a p-value in order to determine significance of change.

Results. In total, there was a 42.2% (p=0.00001) increase in total QIKAT-R score after "QI Power Hour." 92.3% of participants had a positive perception (Agree/Strongly Agree) of the 1-hour session.

Conclusion. The findings suggest that fellows are able to show a higher proficiency in QI understanding as well as development of future QI projects. Fellows satisfaction of "QI Power Hour" was overall favorable. This study shows that it is possible to easily integrate QI understanding for practical application into the time constraints of a fellowship or residency curriculum.

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1124. Increasing Student Confidence in Antimicrobial Prescribing with a Novel Teaching Framework

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Session: P-50. Infectious Diseases Medical Education

Background. Physicians frequently prescribe antimicrobials inappropriately, increasing rates of resistance and adverse effects. Difficulty with antimicrobial reasoning likely begins during medical school, where many students learn infectious diseases by memorization. Past work has shown that learners benefit from tools such as schema and checklists. We report our experience using an antimicrobial reasoning teaching tool in a pilot medical student workshop.

Figure 1: Antimicrobial Selection Tool

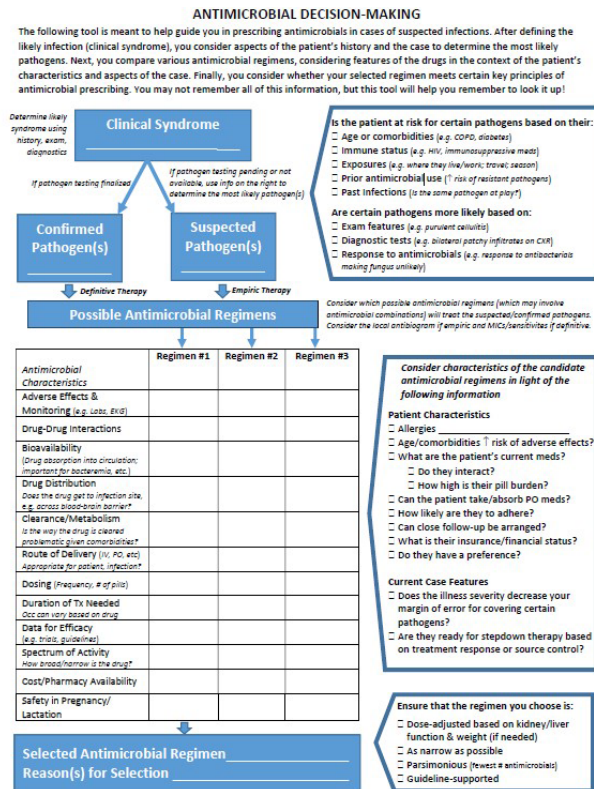


Figure 2: Usefulness of Session and Tool

Figure 2a: Usefulness of Knowledge Gained in Session

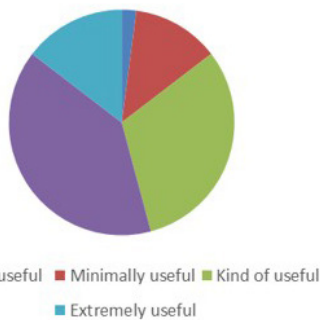
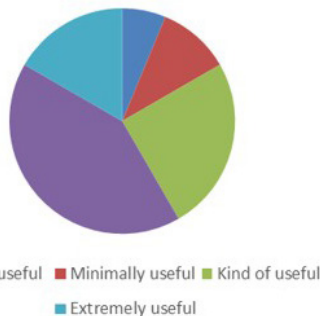


Figure 2b: Usefulness of Antimicrobial Decision-Making Tool



Methods. We converted a published antimicrobial reasoning framework into a teaching tool (Fig 1). Students enrolled in the 2020 Internal Medicine Residency

Preparation Course participated in one of two identical hour-long antimicrobial reasoning workshops. We started with an interactive didactic introducing the tool. Students used the tool to work through a clinical vignette in small groups, followed by a facilitated discussion. Students filled out pre- and post-surveys assessing their identification of factors impacting antimicrobial selection, and their self-efficacy regarding antimicrobial selection. The number of factors identified was analyzed using a t-test, while the change in self-efficacy scores was analyzed using a paired t-test. Students also rated the utility of the session.

Results. 87% of students (52/60) completed surveys. Prior to the session, only 59% (n=29) of students felt prepared to prescribe antimicrobials and the majority of students (59%, n=30) felt less confident managing infections than other conditions. After the session, there was a significant increase in students' perception of their preparation to prescribe antimicrobials (t=2.08, p=0.04) and ability to identify factors important to antimicrobial selection (t=2.13, p=0.036). The majority of students found both the session and tool to be useful for future practice (Fig 2).

Conclusion. At baseline, medical students felt unprepared to prescribe antimicrobials and are less confident managing infections than other conditions. This workshop assessed the feasibility of using an antimicrobial reasoning tool to teach students. Despite its brevity, students felt more prepared to prescribe antimicrobials after the session and rated it as useful for future practice. They felt a simpler tool and longer session would improve future efforts.

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1125. Innovative Virtual Learning in the Midst of a Pandemic - Patients, Populations, and Pandemics: Responding to COVID-19

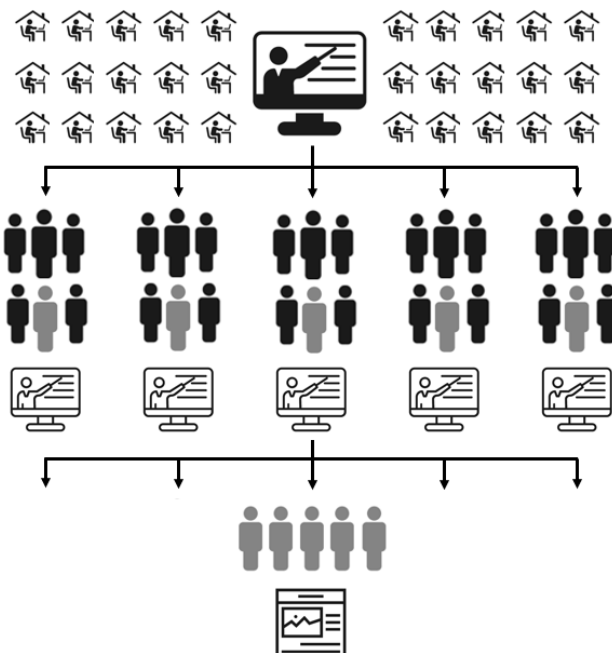
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Session: P-50. Infectious Diseases Medical Education

Background. The COVID-19 pandemic has posed a unique challenge to undergraduate medical education. Medical schools postponed student participation in direct patient care in mid-March 2020, creating the need for rapidly-designed, virtual, and innovative learning experiences.

Methods. Utilizing Kern's six-step approach to curriculum development, faculty and medical student liaisons rapidly designed a six-week online and interactive course for clerkship-year students and above, launched on March 30th, 2020. "Patients, Populations, and Pandemics: Responding to COVID-19" emphasized honing higher level skills of Bloom's taxonomy, namely evaluating, synthesizing, and creating. Following weekly faculty-led lectures, student groups identified research questions, analyzed literature, presented data, critiqued peer presentations, and created infographics for the public.

Figure. Graphic Representation of Course Design: Lecture, Small Group Meetings, Student Presentations, and Infographic Creation.



Results. We aimed to maintain quality and interactivity despite challenges posed by our timeframe, the evolving COVID-19 literature, and the virtual setting. We recruited frontline faculty and designed the course to facilitate discussion, thereby promoting real-time exploration of public health and clinical challenges. Encouraging student participation, we incorporated group synthesis sessions and instructed use of video, hand-raising, and chat features. In a survey administered at the end of the first