Conclusion. Although a small study, there was no trend toward association of time underestimation and enjoyment of these teaching methods. Students enjoyed the board game PP the most yet the time estimation ratio was 1.0, indicating estimated and actual time on task were the same. Students enjoyed FF the least but this was the only game they underestimated time spent on task.

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

1314. From Book to Bedside: Theoretical and Applied Knowledge on the Topic of Healthcare-Associated Infections in Second-Year Nursing Students from a Croatian University

Tomislav Mestrovic, MD, PhD[1,2]; Goran Kozina, PhD[2]; Marijana Neuberg, PhD[2] and Rosana Ribic, PhD[2]; [1]Clinical Microbiology and Parasitology Unit, Polyclinic Dr. Zora Profozic, Zagreb, Croatia, [2]University Centre Varazdin, University North, Varazdin, Croatia

Session: 143. Medical Education

Friday, October 5, 2018: 12:30 PM

Background. Adequate training of health workers is pivotal in the prevention of healthcare-associated infections (HAI). Our aim was to assess the theoretical and applied knowledge about the risk factors and effective measures of HAI prevention (most notably the use of standard precautions and hand hygiene practices) in second year undergraduate university nursing students that have already completed obligatory courses in microbiology, infectious diseases and epidemiology.

Methods. This study included a whole generation of second year undergraduate nursing students, comprised of 161 female and 25 male participants (186 in total), from a public university in Croatia (University Centre Varaždin, University North). They were given an anonymous questionnaire (developed on the model used by Tavolacci *et al.* in 2008) covering three domains: General Knowledge of HAI, Standard Precautions (SP) and Hand Hygiene (HH). The acceptable score overall (max. 30) and for each area (max. 10) was arbitrarily set at ≥ 20 and ≥ 7, respectively (in accordance with prior research).

Results. The age range of surveyed students was 19–37 (mean: 21.97, median: 21, mod: 20). An accurate definition of nosocomial infections was provided by 98.92% students (with 60.75% of them defining it as the infection occurring 48 hours after hospital admission). The overall score was 21.5, which indicates sufficient level of applied knowledge of healthcare-associated infections. Very high level of knowledge was observed for the SP area (total score of 9.5); however, the level of knowledge in HAI and HH domains was inadequate (5.9 and 6.1, respectively). There was no statistically significant difference in the overall or specific scores between male and female students ($P > 0.05$). Formal teaching during the curriculum was students' primary source of information (60.22%), followed by practical learning in the ward during work (23.65%), formal teaching in the ward (9.68%) and self-learning (6.45%).

Conclusion. Periodical checking of nursing students' knowledge on HAI and corresponding curriculum modifications in obligatory courses tackling this topic are advised in order to fill the knowledge gaps, improve training, reduce infection rates and increase compliance with prevention measures.

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

1315. Mind the Gap: Medical Trainees Require Training in Hepatitis C, Drug Use and Mental Health to Help Address the Opioid Crisis

Kimberly Corace, PhD[1,2,3]; Isabelle Ares, PhD[3]; Nicholas Schubert, MA[3]; Jason Altenberg, MSW[4]; Melanie Willows, MD[1,3]; Mark Kaluzienski, MD[1,3,5] and Gary Garber, MD, FACP, FIDSA[1,5,6,7]; [1]University of Ottawa, Ottawa, ON, Canada, [2]University of Ottawa Institute of Mental Health Research, Ottawa, ON, Canada, [3]The Royal Ottawa Mental Health Centre, Ottawa, ON, Canada, [4]South Riverdale Community Health Centre, Toronto, ON, Canada, [5]The Ottawa Hospital, Ottawa, ON, Canada, [6]University of Toronto, Toronto, ON, Canada, [7]Infection Prevention and Control, Public Health Ontario, Toronto, ON, Canada

Session: 143. Medical Education

Friday, October 5, 2018: 12:30 PM

Background. Dramatic increases in acute hepatitis C (HCV) incidence is linked to the opioid epidemic and increased injection drug use. Over 50% of people with HCV also have a mental illness. IDSA/HIVMA calls for the integration of infectious diseases, addiction medicine, and mental health as key to addressing the opioid epidemic. Barriers identified include limited physician education and stigma. This study examined medical trainees' gaps in training and attitudes toward HCV, drug use, and mental illness.

Methods. Medical students and residents ($N = 98$) at a large Canadian University completed questionnaires assessing stigma, attitudes, knowledge, and training related to HCV, drug use, and mental illness.

Results. Most participants were medical residents (71%). Within-subjects ANOVAs showed that trainees worked with more patients with mental illness (71%) than drug use (55%) or HCV (21%) (P's < 0.001). Trainees reported less positive experiences with patients with drug use (34%) and HCV (36%) compared with those with mental illness (55%) (p's < 0.05). They reported that injection drug use (68%), prescription opioids (66%), and heroin use (59%) were the most challenging substance use problems to treat ($P < 0.001$). They were less satisfied working with patients with drug use (40%) or HCV (40%) than mental illness (59%) (P's < 0.01). Trainees reported they were more able to help patients with mental illness (83%) than HCV (65%) or drug use (73%) (P's < 0.01). Only 34% saw HCV treatment as central to their professional role. Their training better prepared them to treat mental illness (58%) than drug use (41%) or HCV (19%) (P's < 0.001). They were more interested in training in drug use (76%) and mental health (71%) than HCV (62%) (P's < 0.01).

Conclusion. Medical trainees report being ill-equipped to treat patients with HCV and drug use (specifically opioids) and are less satisfied with this work. Many report attitudes that may be viewed by patients as stigmatizing. There is a large knowledge gap related to the effectiveness of HCV treatment. Addressing the opioid crisis requires a physician workforce that is prepared to integrate treatment for HCV, drug use, and mental illness. Infectious disease specialists can take a leadership role in building capacity to foster integration.

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

1316. An Integrative Approach to Teaching History of Medicine in Medical School

Magdalena Slosar-Cheah, MD[1,2]; Joshua Nosanchuk, MD, FIDSA[2] and Liise-Anne Pirofski, MD, FIDSA[3]; [1]Medicine (Infectious Diseases), Montefiore Medical Center, Bronx, New York, [2]Medicine (Infectious Diseases), Albert Einstein College of Medicine, Bronx, New York, [3]Department of Medicine, Division of Infectious Diseases, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, New York

Session: 143. Medical Education

Friday, October 5, 2018: 12:30 PM

Background. Medical history plays a foundational role in shaping the characters and habits of thought of developing physicians. Specifically, it cultivates an ability to assess the quality and durability of current knowledge and contributes to the growth of resilience, humility and intellectual curiosity. Especially for Infectious Diseases, knowledge of its history fosters an appreciation for our evolving understanding of the field and an opportunity to spark interest in a future career. Nevertheless, it is hard to find the space for this content amidst competing priorities in the medical school curriculum. An integrative approach has been described as a way to introduce history as a longitudinal component of the existing curriculum. Our aim, using this approach, was to pilot the incorporation of history modules into the Microbiology and Infectious Diseases (Micro/ID) course at Albert Einstein College of Medicine.

Methods. Students participating in Micro/ID were shown four history modules integrated into the existing course. The first was embedded within the introductory lecture and the remaining three were prerecorded videos available through the virtual learning environment. The modules offered context to course material and introduced principles of medical history, such as the potential pitfalls of retrospective diagnosis and changing definitions of disease over time. Comprehension and retention were assessed via two questions on each of two exams. Students had the opportunity to evaluate the course material in both their examination and end-of-course evaluations.

Results. On the first examination, 99% and 68% of students answered correctly. On the second examination, 92% and 54% answered correctly. Student evaluation of the content was positive overall with 91% rating the content satisfactory, very good or excellent. However, some questioned the value of the material while others requested expansion of the modules to include topics such as history of research ethics (Tuskegee and syphilis) and more recent history (the HIV epidemic).

Conclusion. An integrative approach to teaching medical history is largely well-received by students and offers a way to introduce historical topics to an entire class. Comments from students serve as a guide to topics of interest for future iterations of the course.

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

1317. Online Simulation-Based Education to Improve Primary Care Providers' Knowledge About Best Practices in HIV Preexposure Prophylaxis Care

Allison Gardner, PhD[1]; David Evans, -[2]; Alan McCord, BA[2] and Douglas Krakower, MD[3]; [1]Med-IQ, Baltimore, Maryland, [2]Project Inform, San Francisco, California, [3]Infectious Disease Division, Beth Israel Deaconess Medical Center, Boston, Massachusetts

Session: 143. Medical Education

Friday, October 5, 2018: 12:30 PM

Background. Primary care providers' (PCPs') lack of knowledge about and use of pre-exposure prophylaxis (PrEP) represent important barriers to its effective implementation on a national scale. To address these barriers, a collaboration of infectious diseases clinicians, patient advocates, and continuing medical education (CME) specialists developed and tested an educational intervention for PCPs to increase their knowledge about best practices for providing PrEP-related care.

Methods. An interactive, online CME-accredited simulation prompted PCPs to make clinical decisions about a hypothetical case of a 44-year-old African-American man seeking treatment for rectal gonorrhea who thus had indications for PrEP. The intervention included real-time educational feedback on clinical decisions and an opportunity to revisit suboptimal care decisions after feedback. PCPs were recruited via email and links on CME/patient advocacy websites and public health listservs. Outcomes included proportions of learners selecting correct answers prior to and after receiving feedback on their decisions.

Results. During October 2017–April 2018, 234 PCPs (88% physicians, 7% NP, 5% PA) completed the simulation for a total of 4,701 unique clinical decisions. Less than half (45%) of PCPs elicited a comprehensive sexual health history to begin the visit, which improved to 83% after feedback. Two-thirds (67%) of PCPs sought permission before asking about sexual behaviors, which increased to 82% after feedback. Nearly one-quarter of PCPs (24%) needed corrective action to nonjudgmentally ask about condom use. Almost all PCPs (91%) identified that PrEP was appropriate for the case patient on their first attempt. However, only 54% of PCPs initially selected all recommended baseline laboratory tests for PrEP; 75% did so after feedback. Of providers recommending PrEP, 29% selected regimens not FDA approved for this indication.

Conclusion. Many PCPs participating in an online simulation enacted clinical decisions that were inconsistent with best practices for providing PrEP-related care, but

hypothetical care decisions improved after real-time educational feedback. Future studies to test the impact of this educational intervention on clinical practices are warranted.

Disclosures. **D. Evans**, Project Inform: Employee, Educational grant. **A. McCord**, Project Inform: Employee, Educational grant. **D. Krakower**, Gilead Sciences: Grant Investigator, Research grant.

1318. Are We PrEPared? Awareness and Prescribing Patterns of HIV Pre-Exposure Prophylaxis (PrEP) by Internal Medicine Resident Physicians at an Academic Medical Center

J. Patrik Hornak, MD; Internal Medicine, University of Texas Medical Branch, Galveston, Texas

Session: 143. Medical Education
Friday, October 5, 2018: 12:30 PM

Background. HIV PrEP uptake remains low by primary care physicians, amongst whom increased awareness has been positively associated with its adoption. Prior studies have also revealed deficits in knowledge and comfort providing PrEP amongst internal medicine (IM) trainees. This is among the first reports of assessing PrEP uptake by IM residents; this appears to be the first examining pre- and post-instruction assessment of prescribing attitudes following a single lecture on the topic.

Methods. An anonymous, online survey was distributed to all IM residents at our institution to measure baseline PrEP awareness and prescribing patterns. A comprehensive PrEP lecture was formulated with assistance from infectious diseases (ID) faculty; focus was paid to addressing concerns about cost, safety, risk behavior compensation, and drug resistance. The lecture was made available electronically to those unable to attend the live session. PrEP knowledge and prescribing attitudes were measured and compared pre- and post-lecture. Fisher's exact test was used for descriptive statistics.

Results. Of 97 initial surveys distributed, 41 were completed. A majority of respondents were aware of PrEP (68%). A modest number had either prescribed PrEP or referred a prospective patient to an ID specialist in the prior year (15%). The majority preferred to learn about PrEP with a dedicated didactic session (76%). Compared with baseline data, following the lecture, residents were better able to identify both the number of daily pills required (100% vs. 49%, $P = 0.007$) and the proper medication regimen (100% vs. 49%, $P = 0.007$); there was no significant difference in self-reported comfort with providing PrEP (89 vs. 65%, $P = 0.25$). In the post-lecture survey, nearly half reported a preference to refer a PrEP candidate to an ID specialist or PrEP clinic (43%).

Conclusion. These findings suggest value in providing PrEP education to IM trainees, but indicate that a single lecture may not be effective for ultimately improving its adoption by this important group of physicians. Determining the optimal method for incorporating PrEP into residency curricula deserves further study. Despite efforts to expand PrEP into the realm of primary care, many of these physicians may continue to defer management of these patients to ID/HIV clinicians.

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

1319. Examining PrEP Knowledge and Prescribing Likelihood Among Medical Residents Before and After PrEP Education

Elizabeth Christian, MD[1,2]; Wendy Craig, PhD[3] and Kinna Thakarar, DO, MPH[2,3,4,5]; [1]Internal Medicine and Pediatrics, Maine Medical Center, Portland, Maine, [2]Tufts University School of Medicine, Boston, Massachusetts, [3]Maine Medical Center Research Institute, Scarborough, Maine, [4]Infectious Disease, Maine Medical Center, Portland, Maine, [5]InterMed Infectious Disease, Portland, Maine

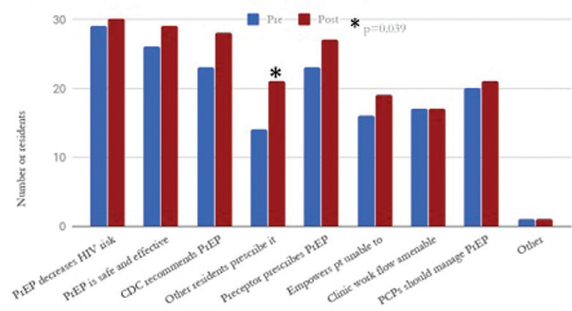
Session: 143. Medical Education
Friday, October 5, 2018: 12:30 PM

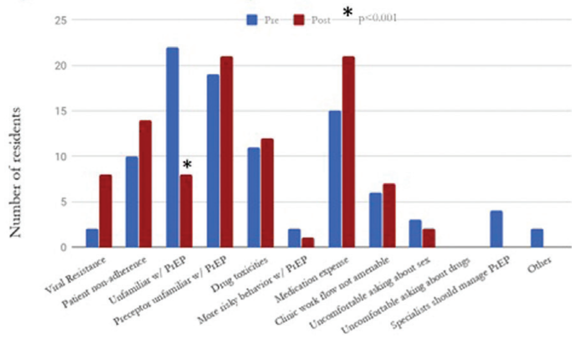
Background. Pre-exposure prophylaxis (PrEP) is effective for HIV prevention, but prescribing rates remain low. We examined the effect of an educational intervention on PrEP knowledge and prescribing likelihood among medical residents.

Methods. This was a prospective study using a convenience sample of Internal Medicine and Internal Medicine-Pediatrics residents at a tertiary care center in Portland, Maine. Participants attended a resident-led teaching session on PrEP and completed pre- and post-session surveys. PrEP knowledge was measured with five questions (definition, evidence, patient selection criteria, medication choice, and guidelines), and prescribing likelihood was assessed on a Likert scale. Participants identified motivating factors and barriers to prescribing. Survey data were analyzed with McNemar's test or a paired Student's *t* test as appropriate.

Results. Thirty residents completed the study; of these, 24 (83%) had at least 1 patient that they considered at high risk for HIV, and 14 (46%) reported having >5 such patients. None had ever prescribed PrEP. Average PrEP knowledge score increased after the intervention (pre = 2.33 vs. post = 4.1, $P < 0.001$). After the intervention, more participants reported that they would be likely to prescribe PrEP (pre = 76% vs. post = 90%, $P = 0.014$), fewer identified unfamiliarity with PrEP guidelines as a barrier (pre = 73% vs. post = 27%, $P < 0.001$), and Òother residents are prescribing PrEPÓ became a significant motivating factor (pre = 47% vs. post = 70%, $P = 0.04$). Preceptor comfort with prescribing PrEP was a consistently important influence on prescribing likelihood (90% vs. 82%, $P = 0.22$).

Conclusion. Familiarity with PrEP is relevant to resident practice, and an educational intervention is effective in the short term for addressing inadequate knowledge as a barrier to offering PrEP. Resident practice is influenced by preceptors and peers, suggesting that it may be helpful to include attending physicians in future PrEP education efforts at our institution.





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

1320. Continuing Education Improves HIV Screening and Use of PrEP in High-Risk Patients

Katie Robinson, PhD[1]; Derek Dietze, MA[2]; Robert Esgro, MA[1] and Richard Elion, MD[3]; [1]Vindico Medical Education, Thorofare, New Jersey, [2]Improve CME, Queen Creek, Arizona, [3]Whitman Walker Clin., Washington, DC

Session: 143. Medical Education
Friday, October 5, 2018: 12:30 PM

Background. Since approval in 2012, the uptake of PrEP in high-risk patients remains low, especially among primary care providers (PCPs) who lack knowledge and confidence regarding its use. Continuing education (CE) has been extensively used to address such knowledge and practice gaps, yet little evidence exists supporting the impact of these initiatives on direct patient care and cost.

Methods. Vindico Medical Education partnered with Improve CME to assess the impact of seven CE programs targeted to PCPs from 2015 to 2017 regarding the use of PrEP in high-risk patients. An outcomes analysis model was used and designed to estimate (1) patients newly identified as HIV+ or HIV−, (2) patients newly on PrEP or HIV treatment, and (3) associated costs of care due to the CE.

Results. Prescribing providers ($n = 4{,}550$) who each see an average of 16.8 patients at high-risk for HIV infection per month, participated. Prior to learning only 44% of participants reported that they frequently offer HIV testing to high-risk patients; and only 13% frequently use PrEP clinical guidelines. Six-month post-education, however, 83% and 68% of providers reported using HIV testing and PrEP guidelines, respectively. We then used evidence-based parameters to project the number of high-risk patients who, based on our pool of patients directly impacted by the education, would be willing to accept an HIV test, those who would be HIV+ vs. HIV−, and those who would be willing to accept and adhere to either HIV treatment or PrEP. The model estimated that over the course of 1 year, 135,941 high-risk patients would be newly offered an HIV test. Of those accepting the test ($n = 54{,}376$), 163 would be newly identified as HIV+. Of the 54,213 newly identified as HIV−, at least 3,914 would be placed on PrEP. Using accepted values for direct cost of care, this translates to $1.26 million per year for patients newly treated for HIV and $92.4 million per year for those patients newly on PrEP.

Conclusion. Targeted CE to PCPs increased screening rates for HIV infection in high-risk patients, increased awareness and use of PrEP, and linked patients with appropriate care. These findings validate the need for ongoing CE programs to address persisting unmet needs and show that modeling can be used to estimate patient outcomes from CE programs.

Disclosures. **R. Elion**, gilead: Investigator, Scientific Advisor and Speaker's Bureau, Consulting fee, Research support and Speaker honorarium. ViiV: Consultant, Consulting fee.

1321. The UNZA/UMB MMed ID Collaboration: Training and Retaining HIV Specialist Physicians in Zambia

Lottie Hachaambwa, MBChB[1,2]; Cassidy Claassen, MD, MPH[1,2]; Lloyd Mulenga, MBChB, MMED[2,3]; Nason Lambwe, MBChB, MMED[2,3]; Izukanji Sikazwe, MBChB, MPH[4]; Douglas Watson, MD[1]; Devang Patel, MD[1]; Christopher Bositis, MD[5] and