1432. Medical Education in Infectious Diseases. Using Smartphone Apps for Active Learning

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Background. Active Learning using smartphone technology can be implemented as a tool for teaching medical students (MS) and residents (Rs). The use of technology would increase participation and enhance student learning by engaging them in solving ID clinical case scenarios. Our objective was to describe the methods used and to share the opinions of the users of such active learning methods.

Methods. The smartphone applications used were Socrative and WhatsApp. We used Socrative during the Universidad Peruana de Ciencias Aplicadas (UPC) ID course for MS in two different ways. In selected lectures (4 of 32), teacher paced questions (teaching the baseline MS exam and Rs mid-year exam and voluntary homework questions (student paced). Socrative is currently used at the BAH with questions send from Monday to Friday. Ms /Rs answer individually via WhatsApp to the mentor in charge. The right answer is given the next day. Quizzes using WhatsApp deal with recent cases seen at the wards or in the outpatient clinic, and are designed so that the MS/Rs must do quick literature searches in order to provide the right answer.

Results. Forty-one MS/Rs answered the survey on Socrative use, 25 of 48 (52%) of students indicating that the game increased their level of interest in ID was with regards to WhatsApp use 16 MS/Rs from BAH answered the survey. Six had used before WhatsApp as a teaching tool. All felt the methodology was useful for learning and promoting reading and would recommend this methodology to promote learning on a student paced way.

Conclusion. Socrative and WhatsApp can be used for teaching ID through MS/ Rs smartphones. Most MS/Rs who were interested in an ID career. Alternatives to memorization need to be found that memorization was the most common teaching method used for 78% of residents that were uninterested in a career in ID compared with only 33% for residents who were interested in an ID career. Alternatives to memorization need to be investigated and assessed.

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1431. A study assessing the educational value of serious games in infectious diseases - Going beyond memorization

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Background. The method in which infectious diseases (ID) content is taught influences the career choices of healthcare professionals. A survey of medical residents found that memorization was the most common teaching method used for 78% of residents that were uninterested in a career in ID compared with only 33% for residents who were interested in an ID career. Alternatives to memorization need to be investigated and assessed.

Methods. During a one-time 3 hour session, pharmacy students engaged in 6 game-based active learning strategies each lasting 20 minutes. These strategies included audience response (Kahoot), simulation (Septris), problem-based learning (Carmen STD-go), a card game (BugOut!), a board game (Chutes and Ladders), and a quiz game (Catchphrase). Students then completed a survey for each game.

Results. Forty-one students participated in the study and completed surveys. Students used a Likert scale from 1 to 10 (1=lowest value, 10=highest value) to evaluate aspects of each game. The mean educational value scores were Chutes and Ladders 5.28, Kahoot 7.24, Catchphrase 7.07, Septris 6.71, Carmen STD-go 6.20, and BugOut! 6.20. Educational value scores were statistically higher for the audience response, board, and quiz game compared with the simulation, card, and problem-based learning games. The percent of students that would recommend adding each game to the curriculum was 92.7% for Catchphrase, 88.7% for Chutes and Ladders, 82.9% for Kahoot, 78.0% for Carmen STD-go, 68.3% for Septris, and 61.0% for BugOut!. The percent of students indicating that the game increased their level of interest in ID was 92.7% for Chutes and Ladders, 75.6% for Kahoot, Carmen STD-go, and BugOut!, and 65.9% for Septris.

Conclusion. The majority of students indicated that all games increased their level of interest in ID and would recommend adding them to their schools curriculum. These six active learning games appear to be viable options for inclusion into teaching techniques and may increase healthcare students’ career interest in ID.

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1433. Use of simulation for antimicrobial stewardship Infectious Disease fellowship

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Background. Active Learning is an active learning process that adheres to key principles of adult learning theory. PBL is widely used in undergraduate medical education. To our knowledge there have been no published reports of PBL based curricula at the residency/fellowship level. Factors include time and labor for development, scheduling constraints, and competing clinical demands. We describe the implementation of a PBL based curriculum in an ID fellowship and its potential application to the American College of Graduate Medical Education (ACGME) Milestones.

Methods. From 2003–5 a PBL-based core curriculum was developed for the ID fellowship at the Cleveland Clinic, replacing a didactic lecture-based curriculum. The PBL group consisted of 6–7 fellows and one preceptor, 2 hours per week. Cases were presented as diagnostic unknowns including radiographs, images, and pathologic materials. Course materials were presented through MOODLE, a web-based, interactive platform. Fellows worked separately and were allowed access to reference materials. Answers were submitted in a standardized short-answer format. For each case, the fellow listed their top 3 differential diagnoses, described the pros and cons for each diagnosis, and then chose the best answer. Grade 1 was assigned if the actual diagnosis matched the fellow’s top choice; grade 2 if the actual diagnosis was one of the top 3 diagnoses; grade 3 if the actual diagnosis was not within the top 3. Descriptive statistics and repeated-measures ANOVA was used to analyze test scores.

Results. 33 fellows completed the PBL curriculum (2005–2015). Each trainee completed an average of 130 cases. About 60% of cases were derived from the preceptor’s patients, the remainder were abstracted from the literature. Year 2 fellows demonstrated significantly more grade 1 and 2 responses compared with Year 1 fellows. Diagnostic accuracy (grade 1 responses) increased for individual trainees when tracked serially over two years.

Conclusion. An on-line PBL curriculum can be successfully integrated into an ID fellowship. A simple scoring system can be used to grade PBLs, and track development of medical knowledge and medical decision making, two of the ACGME Milestones.

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Background. Effective antimicrobial stewardship (AS) requires interdisciplinary teamwork, quality improvement (QI), and knowledge of systems. Simulation (sim) is used to train and evaluate learners on processes. We developed a series of simulated AS committee meetings to train infectious disease (ID) fellows in synthesis of AS interventions. Sim debriefs and fellow/faculty surveys assessed the learners and the format.

Methods. 3 simulated AS committee meetings and pre-lectures were developed. Inauthentic roles were assigned with instructions to review AS literature pertinent to that role. Sims were conducted over 1.5 hours. Notional results of proposals were given, prompting new QI cycles. Sims concluded with debriefs. Individual and team performances were evaluated using a common tool. Pre and post surveys were collected from fellows and faculty members to assess the format.

Results. 6 fellows participated in the series. The 3 scenario tasks were as follows: decrease Clostridium difficile rates in a hospital, decrease outpatient antibiotic prescriptions for viral infections, and improve perioperative antibiotic use via telehealth. 83.3% of fellows pre and 100% post sim series reported educating others on AS principles in the previous 1 month. Fellows commented "I enjoy the format," "the sims were very engaging," and suggested more scenarios be added into the curriculum. 8 faculty members completed pre/post surveys. 25% of faculty pre and 0% post reported that fellow attitude on the existing preauthorization process was useless/unnecessary and 37.5% of faculty pre and 62.5% post reported it was useful/necessary. No changes were seen in other areas of AS performance queried. Comments included that allowed clinicians to assess the patient, review electronic health records, and make appropriate patient care strategies.

Conclusion. Sim based training is an effective and enjoyable way to train ID fellows in AS. Fellows improved in knowledge, skills, and attitudes. Plans exist to use the series in the next academic year with senior fellows acting as moderators, and to evaluate the involvement of graduates in AS.

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1434. Virtual Patient Simulation in HIV: An Online Educational Tool to Improve Evidence-Based Clinical Decision-Making

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Background. Approximately 1.2 million people in the United States are living with HIV. Although an HIV-positive individual taking antiretroviral therapy (ART) is now expected to live into their early 70s, fewer than 50% of people living with HIV receive regular care, and only 25% achieve viral suppression. This study investigated the impact of virtual patient simulation (VPS)-based education on the ability of Infectious Disease (ID)/HIV specialists and HIV Primary Care Physicians (PCPs) to develop appropriate patient care strategies.

Methods. The VPS consisted of 2 cases presented in an immersive environment that allowed clinicians to assess the patient, review electronic health records, and make open-ended decisions from an extensive database of diagnostic and treatment possibilities matching the scope and depth of clinical practice. The clinical decisions made by the participants were analyzed using a sophisticated decision engine, which provided instant feedback, 1:1 feedback, and performance reporting. The clinical decisions made by the participants were analyzed using a sophisticated decision engine, which provided instant feedback, 1:1 feedback, and performance reporting.

Results. During the study period, 23,783 queries were answered. The top three query topics were “multiple” (meaning one or more questions about more than one vaccine) (20%), influenza (14%), and miscellaneous (8%). HPV, miscellaneous, and multiple vaccine questions were most frequently rated the most difficult. The percentage of most difficult questions was similar among the public (10%) and providers (11%). HPV query questions were more likely than non-HPV query questions to be about safety (19% and 10% respectively; P < 0.001). HPV query questions were more likely to come from the general public (31%) compared with other types of questions (20%). The timing of CDC vaccine policy publications did not affect the volume of questions received on that topic after the policy was published.

Conclusion. The most common primary query topics were multiple vaccines, influenza, and miscellaneous. Safety of HPV vaccine is a topic that stimulates challenging questions. Publication of CDC vaccine recommendations did not affect timing or volume of queries in this evaluation.

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