Conclusion. Experienced travel medicine providers overestimated risk of several vaccine preventable illnesses, though risk estimates for others were close to published estimates. Most providers do not use quantitative risk in pre-travel consultations. Improved quantitative risk understanding may improve the quality of pre-travel consultations.

Table 1. Provider’s Risk Estimates for Selected Travel-Associated Illnesses

| Illness                  | Provider’s Estimate | Interquartile Range |
|--------------------------|---------------------|---------------------|
| traveler’s diarrhea (India) | 1:3                 | 1:2 – 1:5           |
| Malaria (W. Africa)      | 1:10                | 1:5 – 1:85          |
| Hepatitis A (Kenya)      | 1:100               | 1:25 – 1:1,000      |
| Influenza (Indonesia)   | 1:100               | 1:20 – 1:500        |
| Cholera (Vietnam)       | 1:100               | 1:500               |
| Japanese encephalitis (Vietnam) | 1:10,000          | 1:500 – 1:2,000     |
| Tick borne encephalitis (Austria) | 1:1,000          | 1:100 – 1:10,000    |
| Yellow fever (OV Africa) | 1:2,000             | 1:100 – 1:10,000    |
| Yellow fever (Brazil)   | 1:5,000             | 1:120 – 1:25,000    |

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545. Barriers and Facilitators to Control of Hospital Acquired Infections in Ethiopia

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Background. Given the complex, interdisciplinary nature of infection prevention, a systems approach may be useful to promote and sustain effective infection prevention practices. The Systems Engineering Initiative for Patient Safety (SEIPS) model provides a framework that can be used to identify barriers and facilitators of infection control practices and evaluate interactions between structures, processes, and outcomes.

Methods. A qualitative study was done to evaluate barriers and facilitators to implement effective infection control practices at Jimma University Hospital in Jimma, Ethiopia. Twenty-two semi-structured interviews of hospital employees, selected by convenience sampling, were conducted to assess the five components of SEIPS framework: person, physical environment, tasks, organization and tools. The interviews were transcribed, coded for themes, and analyzed using the software Dedoose.

Results. The primary facilitators to effective infection control were identified at the task, organization, and person level. Prominent themes included a manageable workload, a management system supportive of institutional feedback, sufficient budget, and positive individual attitude toward improving infection control. The primary barriers to effective infection control were found to be a lack of the technology and tools, person, and organization levels. The major themes within these levels include poor supply chain management leading to personal protective equipment (PPE) shortages, an inconsistent and incomplete training program for employees, a lack of infection control policies, a lack of involvement of environmental services, and a nurse rotation program that increases unit staff turnover.

Conclusion. To address the identified barriers, possible interventions to consider should include: developing infection control policies and protocols, using these to implement a regular staff training program, incorporation of environmental services to the infection control team, identify and train infection control team member to manage the PPE supply chain, and establishing an HA surveillance program to better identify current risk areas as well as track progress.

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546. Discrepant Trip Experiences Among Travelers Attending a Tertiary Care Center Family Travel Medicine Clinic

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Background. International travel can expose travelers to a number of health risks. Pre-travel consultation helps prepare travelers for health concerns that might arise. The assessment of risk, mitigation strategies, and relevance of pre-travel advice is dependent on whether travelers adhere to their planned travel itinerary and activities.

Objectives. We aimed to identify barriers that prevent travelers from practicing their planned trip itineraries (defined as discrepant trip experiences). We also aimed to identify travel-related risk or trip characteristics associated with discrepant trip experiences.

Methods. We conducted a prospective cohort study at the Hospital for Sick Children’s Family Travel Medicine Clinic between September 2014 and December 2015. Pre- and post-trip questionnaires were compared to identify discrepant trip experiences.

Results. Among 186 participants, 121 (65%) reported their actual travel itineraries upon their return. A preliminary analysis of 53 participants revealed a median participant age of 37 years. Most common reasons for travel were vacation (n = 29, 55%) and visiting friends or relatives (n = 12, 23%). The median trip duration was 17 days (IQR 13 days); most commonly visited regions were Central America (n = 19, 36%), Asia (n = 18, 34%), and South America (n = 5, 9%). In total, 51 actual travel itineraries (96.2%, 95% CI 91–100) were discrepant from the pre-travel plans that were made by travelers. Additional activities (e.g., hiking, caving) (n = 42, 82.3%) and unplanned environments visited (e.g., altitude, jungle) (n = 32, 62.7%) during travel were the trip characteristics most likely to be discrepant. We did not identify any traveler demographic features or planned trip characteristics that predicted either discrepant trip experiences.

Conclusion. Based on our preliminary analysis, the majority of travelers reported discrepant trip experiences. We plan to complete the analysis of the full cohort (N = 121) and also to quantify if the discrepant features meaningfully altered health risks during travel. This study informed practitioners providing pre-travel consultation to consider broader counseling as discrepancies from planned travel are common.

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547. Relationship Between Healthcare Worker (HCW) Perception of Safety and Rates of Healthcare-Associated Infections (HAI) and Hand Hygiene (HH) Compliance

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Background. Many facilities complete the Agency for Healthcare Research and Quality (AHRQ) patient safety culture survey. Our goal was to evaluate associations between healthcare worker (HCW) HAI and HH compliance perceptions and patient safety culture survey questions and unit performance on healthcare-associated infections (HAI) and hand hygiene compliance.

Methods. 11,257 HCW across 10 acute care hospitals and four rehabilitation facilities completed the 2016 AHRQ patient safety survey. Unit-level standardized
458. Using a Humanoid Robot to Improve Hand Hygiene Compliance

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Background. In a similar way that the Aedes aegypti mosquito is a vector for diseases such as dengue fever and Zika, healthcare workers can be vectors for hospital infections. Despite the fact that handwashing is the single most effective measure to prevent the transmission of disease, make handwashing a habit among healthcare workers remains a major challenge. Here we investigated whether or not it is possible to adapt a toy robot as a tool for continuous education of healthcare workers in the context of hand hygiene compliance. The objective was to answer two questions: (a) How to adapt a robot as a Meccnoid G15KS to be an instrument of health training and continuous education of healthcare workers? (b) What is the effectiveness of the use of a humanoid robot on the compliance with hand hygiene?

Methods. We got to adapt a toy programmable robot named Ozires, as an instrument of health training to improve the compliance with hand hygiene. The robot was adapted with mini projector, spy camera, an automatic alcohol hand sanitizer dispenser, a cell phone and a cell phone support and an audio amplifier. Ozires, accompanied by infection control practitioners, performs short video-lecture presentations and own reports of the institutions’ data regarding infections and the hand hygiene rate, working from 10 to 15 minutes in each target sector.

Results. After the insertion of Ozires in three ICUs, hand hygiene rate increased from around 36%, between January and July, to 65% in August–November 2016. In all months of 2017, consumption of alcohol preparation remained above 20 mL/patient-day, the minimum expected consumption recommended by the World Health Organization.

Conclusion. We succeeded in adapting a toy robot as instrument of continuous education of healthcare workers, creating a new education tool, the robot tutor. Hand hygiene compliance raised significantly after the intervention. We also achieved a consumption of alcohol preparation rate above the minimum expected rate by WHO, sustained and durable. With the continuing education approach based on Ozires, it is not necessary to withdraw healthcare workers from their work area, which can be a novel education strategy, more interactive, that can really personalize health education.

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