Health Care, Chapel Hill, North Carolina; [2]UNC Hospitals, Chapel Hill, North Carolina; [3]Infection Prevention, Chapel Hill, North Carolina; [4]University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

Session: 57. HAI: MDRO – GNR Prevention
Thursday, October 3, 2019: 12:15 PM

Background. In January 2018, the first case of anOXA-48 carbapenem-resistant *Klebsiella pneumoniae* (OXA-48 CRKP) was identified in a North Carolina hospital in a patient arriving from Eastern Europe. Over the next year across multiple inpatient adult units, 14 patients had clinical isolates and 2 patients had positive rectal surveillance screens for OXA-48 CRKP.

Methods. Investigation activities to characterize the OXA-48 CRKP epidemiology included: >1000 rectal colonization screens of epidemiologically linked patients, chart reviews of infected and colonized patients, hand hygiene and environmental cleaning observations on affected units, environmental sampling to include endoscopes, sinks and toilets, and molecular analyses (pulsed-field gel electrophoresis and whole-genome sequencing).

Results. Molecular analyses confirmed a clonal outbreak. All environmental cultures including endoscope cultures performed were negative for OXA-48 CRKP. All cases were explained by at least one of three mechanisms: (1) time/space overlap on same unit (presumed lack of hand hygiene or contamination of shared patient equipment), (2) patient housed in room where previously infected patient was housed (presumed inadequate terminal disinfection/contaminated environment), or (3) a single upper gastrointestinal endoscope. Interventions included surveillance to identify and isolate colonized patients, discharge room cleaning of OXA-48 CRKP patients enhanced by ultraviolet light disinfection, curtain laundering, and discarding unused patient supplies, and monitoring and feedback for compliance with hand hygiene, cleaning, and use of personal protective equipment. A single endoscope used between multiple OXA-48 CRKP patients with no other known transmission link was quarantined upon identification, sterilized with ethylene oxide, and ultimately placed out of service.

Conclusion. A clonal outbreak of a novel carbapenemase-producing Enterobacteriaceae likely spread via multiple modes of transmission. The investigation was complicated by infrequent identification of colonization among patients epidemiologically linked to known cases. Multiple interventions based on epidemiological links were necessary to halt hospital-wide transmission.

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

530. Sequential Screening of High-Risk Patients for Carbapenemase-Producing *Enterobacteriaceae* Colonization

Elizabeth Brodkin, MD, FCFP, MHSc, FRCPC; Katy Short, MPH and Dale Purych, MD, FCFP; Fraser Health, Surrey, BC, Canada

Session: 57. HAI: MDRO – GNR Prevention
Thursday, October 3, 2019: 12:15 PM

Background. Early identification of patients colonized with carbapenemase-producing *Enterobacteriaceae* (CPE) facilitates the implementation of appropriate infection control measures and reduces nosocomial transmission. Sequential screening for CPE colonization of close contacts of known cases to confirm initial negative results is recommended. Fraser Health (FH) expanded sequential screening to patients with recent exposure to other risk factors following the identification of CPE in patients who initially screened negative.

Methods. FH screens patients for CPE who report healthcare outside of Canada or travel to endemic countries within the previous 12 months. Patients remain on contact precautions and are re-screened 7 and 21 days after the last known exposure date. We reviewed CPE cases with foreign healthcare or travel to endemic countries who screened negative on admission but subsequently screened positive within 30 days. Patients without confirmation of colonization through a rectal screen or possible exposure to a current nosocomial source were excluded. Whole-genome sequencing results were examined to confirm foreign healthcare or travel as the likely source of acquisition. Medical records were reviewed to obtain patient history and clinical details.

Results. Between November 2015 and January 2019, 21 patients had a positive CPE screen within 30 days of a negative screen, with no known CPE exposures during that time. The median time between the last date of known exposure and positive CPE screen was 20 days (range: 7–77 days). Twelve (57%) cases were hospitalized outside of Canada, 8 (38%) reported other foreign healthcare encounters, and 1 (5%) had no reported healthcare outside of Canada but had traveled to an endemic country. Sixteen (71%) cases received antibiotics prior to the positive CPE screen.

Conclusion. Patients with unrecognized CPE colonization are a source for nosocomial transmission. Patients screening negative for CPE with recent exposure to risk factors other than contact with a known case may screen positive at a later date. This may be due to higher colonization levels or antibiotic selection pressures. Consideration should be given to sequential CPE screening of high-risk patients based on the last day of exposure.

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

531. Practical and Evidence-Based Considerations for Implementation of Bacterial Whole-Genome Sequencing Within Longitudinal Infection Control Practice

Donald S. Chen, MD[1]; Moira Quinn, BSN, RN, CIC[1];
Rita M. Sussner, BSN, RN, CIC[1]; Guiqing Wang, MD, PhD[2];
John T. Fallon, III, MD, PhD[3]; Melissa Chanza, BA[4];
Alan J. Doty, MT(ASCP), MBA[5]; Judy L. Ashworth, MSCS, MT(ASCP)[6];
Steven W. Kelleher, BS, RN, CCRN [6]; Devon J. Holler, BS, EMT[6];
Mary M. Fortunato-habib, DNP, MS, RN[6]; Joshua Loving, PhD, MS [6];
Amir Abdolahi, PhD, MPH[6]; Juan J. Carmona, PhD, MPH, MBE[5] and
Brian D. Gross, MSc, RRT, SMIEEE[6]; [1]Westchester Medical Center, Valhalla, New York; [2]New York Medical College, Valhalla, New York; [3]Professor and Chairman of Pathology, New York Medical College, Valhalla, New York; [4]NYMC, Mohegan Lake, New York; [5]Philips Health Care, Cambridge, Massachusetts; [6]Philips Healthcare, Cambridge, Massachusetts

Session: 57. HAI: MDRO – GNR Prevention
Thursday, October 3, 2019: 12:15 PM

Background. Whole-genome sequencing (WGS) of bacteria is becoming a routine tool within microbiology, yet its utility to help guide infection control (IC) practice longitudinally is underexplored. As with any technology adopted in the hospital, the integration of WGS into IC practice must be carefully managed and considered. We qualitatively report an evidence-based implementation workflow that considers WGS to help proactively guide IC professionals during investigation of infectious outbreaks.

Methods. We built upon lessons learned in an ongoing surveillance effort at a tertiary care hospital—utilizing retrospective WGS data within the Philips IntelliSpace Epidemiology system—to understand facilitators and barriers to the use of bacterial WGS longitudinally to inform IC workflow. Our team established a 9-month workgroup to study the practical aspects of implementing WGS in routine IC practice. From expert opinion collected via the workgroup, in addition to evidence from the literature, a workflow guidance document and checklist were codified. New ideas included incorporating education to promote the establishment of an IC triage process.

Results. Facilitators to implementation included ability to display genomic relatedness alongside relevant patient data to enable clinical actionability, ability to pivot time and resources rapidly when infections are a pseudo outbreak (false positive) or missed outbreak (false negative), opportunities for nuanced staff education, and willingness to be a first-of-kind adopter. Barriers were communication of genomic concepts to IC professionals and relevant institutional stakeholders, maintaining sharable notes of active investigations to promote data-sharing practices, and timing and review of relevant interventions into the facility workflow. Strategies to address these issues are considered.

Conclusion. This study provides a novel framework for adaptation of existing IC workflow strategies to leverage the utility of bacterial WGS, and it presents a schema to effectively engage relevant stakeholders, based on an analysis of the unique challenges inherent within IC practice. It also offers an innovative model for the development and implementation of IC workflows to account for, and adapt to, site-specific conditions.

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

532. Can *Saccharomyces boulardii* Therapy Be Effective in Decolonizing Rectal Carbapenem-Resistant *Enterobacteriaceae* (CRE) Colonization?

Oguz Resat Sipahi, MD[1]; Gunel Quliyeva, MD[1];
Feriha Cilli, Professor Doctor[2]; Nilgun Deniz Kucukler[1]; Demet Dikis[1];
Nilay Bilgili-Korkmaz[1]; Sukran Barik-Aksit[1]; Nurhayat Kepeli[1];
Bilgin Arda, MD[1] and Serçan Ulusoy, Professor Doctor[3]; [1]Ege University Faculty of Medicine, Izmir, Turkey; [2]Medical Microbiology, Bornova, Izmir, Turkey; [3]Professor Doctor, Izmir, Turkey

Session: 57. HAI: MDRO – GNR Prevention
Thursday, October 3, 2019: 12:15 PM

Background. CRE are globally important pathogens associated with significant morbidity and mortality. The problem of carrying CRE may continue to create a problem in discharged cases in the community. *Saccharomyces boulardii* sachet therapy (SBST) is reported to cause decolonization in several MDR bacteria carriers. Herein, it is aimed to present the decolonizing rates of rectal CRE colonized cases after SBST treatment.

Methods. The study period was August 2018–March 2019. Inclusion criteria were: (i) age >18, (ii) receiving *Saccharomyces boulardii* 250 mg sachets q12h for 7 days, (iii) being proven CRE carrier on rectal swab culture (RSC) up to 5 days period before SBST. The first repeated RSC was performed 3–5 days after the end of SBST. Data were retrieved from the hospital electronic database. Cases with three consecutive weekly performed negative RSC were considered to be decolonized. RSC were processed according to CDC protocol; briefly, the swab was inoculated into 10 mL of trypticase soy broth (bioMérieux Inc., Marcy-l'Étoile, France) with the addition of one 10-µg ertapenem disk (Oxoid, Altrincham, UK) and incubated at 35°C for 18–20 h. The next day, after vortexing, 100 µL of the inoculum was subcultured (8) onto chromID CARBA agar plates (bioMérieux) and incubated at 35°C for 18–20 h. Suspected CRE colonies on chromID CARBA (blue/green to blue/gray in color) were identified by the VITEK MS system (bioMérieux). Susceptibility testing of the isolates was performed with the VITEK 2 system (bioMérieux). Isolates were tested for their resistance phenotypes to imipenem, ertapenem, and meropenem by E-test (bioMérieux). The results were interpreted according to the EUCAST criteria.

Results. Fifteen cases [2 women, mean age 60.6 ± 18.3 (min. 18–max. 83)] fulfilled the inclusion criteria. All had a history of carbapenem usage. Five cases (33%) had three consequent negative RSC after SBST and were considered to be decolonized. Twelve cases were receiving concomitant antibiotic during SBST (10 carbapenem based regimens). Three cases who received no concomitant antibiotic were decolonized.

Conclusion. SBST may be a promising tool for decolonizing CRE carriers. These data need to be validated in larger cohorts preferably via randomized-controlled trials.

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