Clostridioides difficile pre-operative patients. A household contact of C. difficile was colonized with the outbreak strain as well.

Figure 1

Conclusion. A carrier-disseminator investigation identified clusters of nosocomial postpartum GAS infections involving 6 patients, 4 HCWs and a HCW household contact that were highly related based on WGS. The outbreak strain of GAS was likely spread amongst HCWs via ping pong transmission on the unit. Transmission to patients was halted with implementation of strict infection prevention measures and mass screening and chemoprophylaxis of all colonized HCWs.

Disclosures. All Authors: No reported disclosures

874. Pseudo-outbreak of Adenovirus in Bronchoscopy Suite Jessica L. Seidelman, MD, MPH; Ibukunoluwa Akinboyewo, MD; Ronnie Taylor, MPH, BSN, RN, CIC; Carol McClay; DrPH, MPH, FAPIC, CIC; Becky Smith, MD; Sarah S. Lewis, MD, MPH; Duke University, Durham, North Carolina

Session: P-41. HA1: Outbreaks

Background. Adenoviruses (Adv) are non-enveloped viruses that can survive for long periods on environmental surfaces. However, only 1 prior publication describes an adenovirus pseudo-outbreak associated with bronchoscopes. In 1/2020 infectious disease physicians noted a cluster of Adv PCR-positive bronchial lavage (BAL) samples, which prompted an outbreak investigation.

Methods. We reviewed medical charts, clinical microbiology, procedure logs, bronchoscope reprocessing logs, bronchoscope cleaning, and high-level disinfection (HLD) practices.

Results. On 1/28/20 an infectious diseases physician alerted infection prevention to a cluster of 5 lung transplant patients diagnosed with Adv positive BAL samples. Four out of the 5 patients had the bronchoscopy in the same bronchoscopy suite. We reviewed BAL results from all bronchoscopies performed in this suite from 11/1/19 to 1/24/20 and found a total of 10 patients with positive Adv PCR results. Eight out of the 10 patients had bronchoscopies with one of two bronchoscopes. Of all patients who had a bronchoscopy with the bronchoscope from 11/19 to 1/24/20 and had respiratory viral panel sent at that time, 6 of 11 (55%) who underwent procedure with Scope A and 4 of 24 (17%) who underwent procedure with Scope B had positive Adv PCR results. Sham BALs were performed on both bronchoscopes and testing for Adv was negative. However, on inspection by the manufacturer, one scope failed both wet and dry leak tests and had several physical defects. Following removal of both bronchoscopes from service we did not find any positive Adv samples from the bronchoscopy unit.

Conclusion. Previously, very few pseudo-outbreaks of Adv have been linked to bronchoscopes. We identified a pseudo-outbreak of Adv associated with 2 bronchoscopes in a hospital-based bronchoscopy suite that stopped once we removed the associated bronchoscopes from the procedural unit. Bronchoscopy-related pseudo-outbreaks occur despite standardized procedures for HLD. Bronchoscopy clinics, particularly those with a high volume of immunocompromised patients, should prospectively review BAL cultures to identify unusual pathogen trends. These trends may be a sign of damaged equipment that would otherwise go undetected.

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875. Pseudo-outbreak of Clostridioides (Clostridium) difficile amongst post-operative Oncology Patients Daniel Kagedan, MD1; Roderich Schwarz, MD1; Jillianwa Wasuari, BSN, CIC1; Nikolaos Almyroudis, MD1; Robin Patel, MD2; Robin Patel, MD2; Brahm H. Segal, MD1; Katherine M. Mullin, MD1; Roswell Park Comprehensive Cancer Center, Buffalo, New York; Mayo Clinic, Rochester, Minnesota; Roswell Park Comprehensive Cancer Center, Buffalo, NY; Buffalo, New York

Session: P-41. HA1: Outbreaks

Background. Clostridioides difficile infection rates are subject to infection prevention surveillance as a quality measure within the hospital setting. A large spike in Clostridioides difficile infections in post-operative patients, the majority of whom were gastrointestinal surgery (GIS) patients, was noted within a six month period (June through November 2019) at our comprehensive cancer center. These patients had been housed in one of two inpatient units and there was appropriate concern that this represented a C. difficile outbreak possibly related some type of infection control breach.

Methods. In an effort to query case relatedness, whole genome sequencing was performed using Illumina MiSeq instrumentation and chemistry with Illumina Nextera XT library chemistry. Assembly and core genome multilocus sequence typing analysis were performed with Ridom SeqSphere+ software. Cases were classified as community or hospital acquired based on the National Healthcare Safety Network (NHSN) definitions.

Results. There were 23 samples submitted for possible whole genome sequencing (WGS). 5 samples were unable to be grown therefore WGS was not completed; 16 were found to be unrelated (51 or more allelic differences); 2 of the 18 isolates were found to be possibly related (7 to 50 allelic differences). There were no isolates found to be definitively related (zero to 6 allelic differences).

Conclusion. Given the overwhelming unrelatedness of the isolates via whole genome sequencing, this increase of C. difficile cases, identified by routine surveillance within the two inpatient units, was determined to be representative of a pseudo-outbreak rather than an outbreak. This study has implications on public health reporting. National Healthcare Safety Network definitions are used to identify healthcare facility-onset C. difficile infections (CDI). The majority of cases in this study met the definition of healthcare facility-onset, and thus were reported as such, despite being genetically unrelated. This raises the concern that a significant percentage of C. difficile infections may be currently misclassified as hospital-associated and this may have negative, unfair consequences for hospitals, such as implications on reimbursement.

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876. Use of Statistical Process Control Charts for Early Detection of Healthcare Facility-Associated Nontuberculous Mycobacterial Outbreaks Arthur W. Baker, MD, MPH1; Ahmed Maged, MD, MSc2; Salah Haridy, PhD1; Jason E. Stout, MD, MHS1; Jessica L. Seidelman, MD, MPH1; Sarah S. Lewis, MD, MPH1; Derick R. Anderson, MD, MPH1; Duke University, Durham, North Carolina; City University of Hong Kong, Kowloon, Not Applicable, Hong Kong; University of Sharjah, Sharjah, United Arab Emirates; Duke University School of Medicine, Durham, North Carolina; Duke Center for Antimicrobial Stewardship and Infection Prevention, Durham, NC

Session: P-41. HA1: Outbreaks

Background. Nontuberculous mycobacteria (NTM) are increasingly implicated in healthcare facility-associated (HCAF) outbreaks. However, systematic methods for NTM surveillance and outbreak detection are lacking, which identifies a need.

We examined how statistical process control (SPC) might perform in NTM outbreak detection.

Methods. SPC charts were optimized for surgical site infection surveillance and adapted for each of our 2 NTM outbreak. Data collected from 2013-2016 at a single hospital was used. The first 2 outbreaks occurred contemporaneously and consisted of pulmonary Mycobacterium abscessus complex (MAC) acquisition and cardiac surgery-associated extrapulmonary MAC infection, respectively. The third outbreak was a pseudo-outbreak of Mycobacterium avium complex (MAC).

We retrospectively analyzed monthly rates of unique patients who had: 1) positive respiratory cultures for MAC obtained on hospital day 3 or later; 2) positive non-respiratory cultures for MAC; and 3) positive bronchoalveolar lavage (BAL) cultures for MAC. We used these rates to construct a standardized moving average (MA) SPC chart with MA span of 3 months. Rolling baselines were estimated from average rates for months 7 through 12 prior to each monthly data point. SPC detection was identified by the first data point above the upper control limit (UCL) at 3 standard deviations. Traditional surveillance detection was defined as the time of outbreak detection by routine infection control procedures.

Results. SPC detection occurred 5, 4, and 9 months prior to traditional surveillance detection for the three outbreaks, respectively (Figures 1 and 2). Prospective NTM surveillance using the MA chart potentially would have prevented an estimated 19 cases of pulmonary MAC, 9 cases of extrapulmonary MAC, and 80 cases of BAL MAC isolation (Table). No data points exceeded the UCL during 95 cumulative months of post-outbreak surveillance, suggesting low burden of false positive SPC signals.

Figure 1. Use of a moving average statistical process control (SPC) chart for early detection of hospital-associated outbreaks of pulmonary Mycobacterium abscessus complex (MAC) and cardiac surgery-associated extrapulmonary MAC infection. The SPC chart analyzes cases of hospital-onset respiratory isolation of MAC. The extrapolated chart analyzes cases of positive non-respiratory cultures for MAC, CL, center line; LCL, lower control limit; UCL, upper control limit.