

Fig. 1.

required guidelines, policies, and the appropriate COVID-19 case definitions. 67% of the facilities had updated supply inventories for past week. Only 50% of the facilities had adequate supplies of N95 masks. The assessment revealed that 52% of healthcare facilities had trained their healthcare workforce; morticians were the least trained (only 17% of facilities). Moreover, 41% of the facilities had clear work plans for monitoring healthcare workers exposures to COVID-19, but only 33% of the facilities had policies on the management of infected healthcare workers. **Conclusions:** The findings provided critical information for stakeholders at all levels to be used for policy decisions, to prioritize key intervention areas in leadership and governance of facility IPC programs, for guideline development, and for capacity building and targeted investment in IPC to improve COVID-19 facility preparedness.

**Funding:** None

**Disclosures:** None

*Antimicrobial Stewardship & Healthcare Epidemiology* 2022;2(Suppl. S1):s79–s80

doi:10.1017/ash.2022.207

#### Presentation Type:

Poster Presentation - Oral Presentation

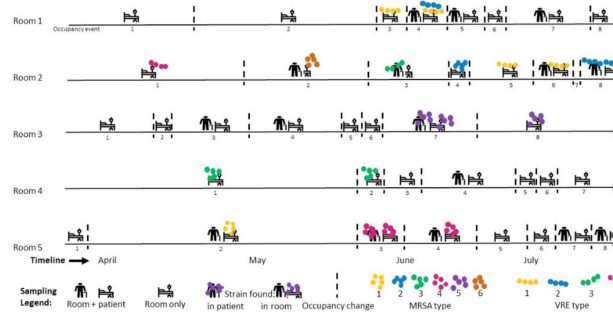
**Subject Category:** Long-Term Care

#### Diversity and persistence of MRSA and VRE in nursing homes: Environmental screening and whole-genome sequencing

Marco Cassone; Joyce Wang; Bonnie Lansing; Julia Mantey; Kristen Gibson; Kyle Gontjes and Lona Mody

**Background:** Transmission of methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant *Enterococcus* (VRE) is of special concern among frail patients in nursing homes. To understand environmental contamination patterns in this setting, we screened a suitable section of a nursing home over time and assessed MRSA and VRE prevalence in patients and their rooms. We were especially interested in assessing whether MRSA and VRE strains persist in rooms during changes of occupancy after patient discharge. **Methods:** We conducted a prospective cohort study of MRSA and VRE colonization and contamination among successive patients in a cluster of 9 single-occupancy rooms. Using flocked swabs, 5 high-touch surfaces were screened 3 times a week for 34 weeks. Patients were also screened (ie, nares, groin, and hands), if they agreed to participate. Whole-genome sequencing was performed on 67 nonredundant MRSA and VRE strains. Single-nucleotide polymorphism heatmaps and similarity trees were generated to evaluate strain diversity and persistence the facility. **Results:** Overall, 146 distinct occupancy events were captured during the study (16.5 average per room; range, 11–22), with 387 study visits and 4,670 total swabs collected. All rooms were contaminated with VRE, and 8 of 9 were contaminated with MRSA at least once during the study period. New contamination of a room with MRSA or VRE was observed in 43 (23%) of 185 opportunities, with potential persistence during occupancy changes in 25 (32.9%) of 76 opportunities. Sequencing of 67 nonredundant isolates identified at least 6 enterococcal clades and 10 MRSA clades (6 USA100 and 4 USA300), indicating a high degree of

Figure. Schematic diagram exemplifying MRSA and VRE strain type persistence and diversity in five of the study rooms over a partial (four-month) time span. Only MRSA and VRE strains typed using whole genome sequencing are shown.



diversity and probably multiple introductions in the facility during the study time. In 3 separate cases, whole-genome sequencing confirmed persistence of a specific MRSA strain during a change of room occupancy, including 1 case of a MRSA strain persisting in a clean room before admission of the next patient. For VRE, 2 cases of persistence during room occupancy changes were confirmed, along with 6 cases of possible persistence (contamination across noncontiguous room occupancy events). **Conclusions:** Active surveillance screening and a recurring evaluation of terminal cleaning procedures should be considered due to high levels of circulation and persistence of MRSA and VRE in the nursing home setting.

**Funding:** None

**Disclosures:** None

*Antimicrobial Stewardship & Healthcare Epidemiology* 2022;2(Suppl. S1):s80

doi:10.1017/ash.2022.208

#### Presentation Type:

Poster Presentation - Oral Presentation

**Subject Category:** MDR GNR

#### Characteristics of patients positive for COVID-19 and multidrug-resistant organisms in Tennessee, 2020–2021

Carolyn Stover; Erin Hitchingham; Kristina McClanahan; Zoe Durand; Rany Octaria; Christopher Wilson and Allison Chan

**Background:** Multidrug-resistant organisms (MDROs) are a global threat. To track and contain the spread, the Tennessee Department of Health (TDH) performs targeted surveillance of carbapenemase-producing and pan-nonsusceptible organisms. When these MDROs are identified, TDH conducts a containment response and collects epidemiological data, which includes risk factors such as indwelling devices and previous hospitalizations. The impact of the COVID-19 pandemic on these MDROs is not well understood. Therefore, we have described the characteristics of cases positive for both COVID-19 and select MDROs. **Methods:** MDRO investigation data from January 1, 2020–September 30, 2021 were matched with all COVID-19 case data from the TDH statewide surveillance system, National Electronic Disease Surveillance System Base System. MDRO-positive date was defined as the specimen collection date; COVID-19 case date was first defined as the date of symptom onset and if missing, then diagnosis date, and investigation creation date, respectively. Descriptive statistics and Fisher exact tests were calculated using SAS version 9.4 software. **Results:** Among 336 MDRO cases, 50 had a reported SARS-CoV-2-positive result. MDRO types were Enterobacterales (CRE) (n = 31), *Acinetobacter* spp (CRA) (n = 18), and *Pseudomonas aeruginosa* (n = 1). Of these 50 cases, 20 were MDRO-positive before and 30 days after the COVID-19 case date, respectively. Of the 18 CRA cases, 16 (89%), were positive after the COVID-19 case date, compared to 13 (42%) among 31 CRE cases (P < .01). Also, 35 patients (70%) had a record of hospitalization, and 22 (63%) had their MDRO specimen collected after the COVID-19 case date (P = .37). Of these 22 patients, 4 had their MDRO specimen collected during their COVID-19 hospitalization, with an average duration from admission to MDRO collection date of 17 days (range, 4–36).

Among the 50 coinfecting cases, 8 died, 7 (88%) of whom were MDRO-positive after their COVID-19 case date. Data on indwelling devices at time of MDRO positivity were completed for 17 cases; 14 had an indwelling device and, among these, 13 (93%) were MDRO-positive after their COVID-19 case date. **Conclusions:** MDRO cases with specimen collections after COVID-19 comprised the majority of hospitalized patients, patients who died, and patients with indwelling devices compared to those with MDROs collected before their COVID-19 case date. These results show a stark difference with CRA as the most common MDRO among post-COVID-19 cases. Our data were limited by reporting gaps. We recognize that patients can remain colonized with MDROs for lengthy durations, which could have resulted in undetected MDRO cases prior to the COVID-19 case date. More data and analyses are needed to make targeted public health recommendations. However, these findings highlight the burden of MDROs among COVID-19 cases, including adverse health outcomes.

**Funding:** None

**Disclosures:** None

*Antimicrobial Stewardship & Healthcare Epidemiology* 2022;2(Suppl. S1):s80–s81  
doi:10.1017/ash.2022.209

### Presentation Type:

Poster Presentation - Oral Presentation

**Subject Category:** Medical Informatics

### Creation of data application to facilitate device-monitoring safety for infection prevention

Julia Moody; Quint Robinson; Trevor Townsend; Tyler Forehand; E. Jackie Blanchard and Kenneth Sands

**Background:** Efficient monitoring of devices to ensure timely removal is an ongoing challenge. There is a need for data visualization products that can aggregate disparate data streams to support device reviews, increase consistency across changes in caregiver teams, and synergize with people and operational processes within and across regional acute-care facilities. **Methods:** A data display application was developed to provide data from nearly any source in a consistent visual representation that could be used in real time. The infection prevention (IP) overlay combined data related to urinary catheters, central vascular catheters, and femoral vascular catheters from the electronic health record system. Clinical and data experts collaborated to develop data definitions, inclusion criteria, and report components. The application display indicated the current catheter or device status of each patient facility-wide, organized by service unit (Fig. 1). Additional patient information could be accessed from within the application, and a comment feature allowed caregivers to communicate directly through the tool (Fig. 2). **Results:** Pilot implementation began February 2021, and the NATE IP application was live for all users (unit and facility



Fig. 2.

leaders, providers, infection preventionists, etc) as of July 2021. The tool is currently available for use at 171 acute-care hospitals within the HCA healthcare system, and it accommodated 3 different electronic medical record systems. Usage peaked in August 2021, with an average of 1,700 views per day. Daily utilization maximum ranges from 1,100 to 1,500 views per day, with an average of ~1,300 views per day. The tool is used during daily patient safety rounds, including weekends and holidays. User feedback was overwhelmingly positive, with users reporting an increase in communication, streamlined documentation, improved tracking of reasons to retain, and increased accountability for daily updates. During the proof-of-concept implementation, zero bugs were identified and several feature enhancements were implemented, including addition of port status and device-day reporting counts. Planned enhancements include mupirocin and chlorhexidine bathing use, isolation precaution use, and blood cultures ordered >3 days after admission. **Conclusions:** The NATE IP tool brings together data related devices into a single view for use by direct caregivers and all levels of leadership. Development of this or similar tools to consolidate various data streams into a central tool facilitates improved communication and consistency between caregiver teams. It also drives operational efficiencies and improves safety. Expansion to incorporate notifications related to potential issue will expand the proactive utility of this tool.

**Funding:** None

**Disclosures:** None

*Antimicrobial Stewardship & Healthcare Epidemiology* 2022;2(Suppl. S1):s81  
doi:10.1017/ash.2022.210



Fig. 1.