Notes from UHIP Meeting
3/30/2022

Alessandro Rossi:

- UPHL role in AR testing:
    - UPHL is the regional lab for the Mtn Region States of the ARLN
    - They support the characterization of MDROs/containments in the healthcare setting & the community
    - Provide assistance in infection control testing & surveillance
    - Highly focused on identifying CROs, CREs, CRPAs, CRAB, etc. that are reportable
- How can UPHL Help:
    - Surveillance: Characterization of CRE, CRPA, CRAB, C. auris, VRSA, Yeast speciation and AFST
    - IP support: outbreak investigation and colonization screening fro CRE, CRPA, CRAB and C. auris
    - Expand AST for difficult to treat infections
    - Provides training and education
    - Facilities can send specimens for testing to local labs for minimal testing to confirm species identity, but they can then send it to UPHL for a wider testing menu for characterization
        - Genome sequencing, outbreak investigations, etc.
    - Collaborate with the CDC who have isolate banks where they perform research and other testing not available at UPHL
- Capacity of UPHL if expansion of admission screenings?
    - Depends on the methodology, such as culture base. UPHL cannot go above 1 colonization screening/wk due to the intensive nature of having it processed
- Characterization of Isolate at UPHL:
    - Automated ID and AST in healthcare labs
    - Machines: Phoenix, Vitek, and Microscan
    - Performance of the three automated identification systems in detection of carbapenemase production in the CRE isolates
    - The clinical lab identifies organisms without the needed detection to specify correctly, at times there may be misidentification or other issues
    - UPHL can test and confirm the reported susceptibility profile with an antimicrobial susceptibility test broth microdilution dilution
    - If a CRE is identified, UPHL confirms that it is a legitimate CRE and to see if it is CRE-producing or if it is due to some other mechanism
    - Detection of carbapenemases include molecular detection of AMR genes (IMP, VIM, KPC, CRAB, etc.)
    - Colonization screening: CRE/CRPA: rectal swabs by CARBA-R and culture; CRAB: sputum, wounds by culture; C. auris: axilla by PCR and culture; Environmental cultures: for Tier 1 organism (pan resistant)
- Outbreak support by WGS

    - UPHL can link an infection to a source through a phylogenetic tree
    - Follow the HAI spread across facilities and/or units
    - Can study the outbreak at a high resolution, especially in a facility
    - Rule out an Outbreak through pairwise nucleotide distance
    - Expand AST for hard-to-treat infections for Enterobacterales resistant, novel antifungals - they have been underutilized
    - UPHL participated in national surveillance for AR in GC infections - started in 2021 - UPHL receives the isolates from sites within UPHL's jurisdiction
    - Upcoming participation in GC-AST for clinical use: UPHL received isolates from clinical labs and UPHL will perform tests for drugs (z-pack, cipro, etc.) Already available to send out to Maryland PHL
- Dr. Jeannie Mayer: Has KPC-producing Citrobacter undergone WGS? Yes and the same organism is being seen in wastewater
    - Does UPHL immediately go to PCR testing for CRE? Yes.
    - Some facilities will perform a stool sample instead of a rectal swab - too much stool will inhibit the PCR - UPHL can test it, but it is not the preferred method for testing
    - Important to inform the clinics to obtain the appropriate specimens for each test
    - Administrator Rule of Reportable Diseases & Mandatory Clinical Submission list shows that certain infections (citro) that is resistant to a carbapenem is not reportable to the health department unless it is checked for carbapenemase production
    - Could the labs just send up the carbapenemase production isolates up to the lab? Yes.
    - The current Administrator Rule of Reportable Diseases & Mandatory Clinical Submission has been in place for several years, Jeannie suggested that since it often takes months to change an administrator rule, that if they can voluntarily report when they have a carbapenem resistant in another carbapenem species
    - There is no current requirement for reporting/submission of other members of Enterobacterales order? UPHL encourages submission of these isolates to rule out carbapenemase production
    - Showed a table of the different labs/facilities (ARUP, IH, IH PCH, Western peaks LTACH) and how each facility collect/test specimens for CRE, CRA, and C. auris
    - Showed a table of the healthcare systems (IH, U Health, Ogden (MStar), VA, and UPHL) fo what they are doing for MDRO surveillance:
        - The population/criteria, the MDRORs, process to identify, and specimen source
        - Facilities have a hard time screening pts from LTACs

Josh Mongillo: MDRO Situational Report

- C. auris:
    - No cases in UT, but has become widespread - important to review travel history and surgical procedures abroad

    - C. auris in the US: reported clinical cases Jan 01, 2021-Dec.31, 2021: clinical cases seen in over 20 US states, OR, WI, LA, TN - have reported their first case
    - Had a meeting with LHD to go over the Disease Response Plan of when UT will have their first case
    - Isolates submitted from 2019-2021 (CRE, CRA and CRPA) reported to public health
        - CREs (E. coli, Enterobacter spp., Klebsiella spp. Other Enterobacterales) with 173 in 2019, 223 in 2020 and 268 in 2021. CRA has 95 isolates in 2021
    - CRAB cases in 2018-2022: cases and carbapenemase producers both spike in 2021 and steady declining in 2022
        - Cases represent unique individuals testing positive for CRA per year
        - Outbreaks of OXA-23 CRAB in N. UT and Salt Lake County starting end of 2021 and continuing into 2022
        - OXA-235 heavily seen in the UT
    - CRE, 2017-2022
        - Currently monitoring an outbreak of Citrobacter freundii with KPC resistance in SW UT
        - KPC and NDM genes have the highest prevalence

Jeff Rodgers:

- Coordinated Approach to KPC Citrobacter freundii in SW UT
    - Regional circulation of carbapenemase-producing Citro in SW UT health district involving multiple facilities in Washington, Iron and Garfield counties from July 2019 to Nov. 2021
    - Cases have epidemiological links with multiple interfacility transfers and clinical isolates that show genetic relatedness
    - A regional investigation with stakeholders has been the recommended approach
    - Coordinated Approach: acute care hospitals, care facilities and public health are all in communication with one another
        - Goals: making improvements in communication between facilities as pts move around the healthcare network as well as increased communication of the active surveillance of MDROs
    - Chronological Distribution of Cases: 2 cases in 2019, 1 case in 2020 and 3 cases in Q3 of 2021 with 1 additional case in Q4 of 2021
        - Identified by clinical cultures
        - No surveillance cultures were collected
        - 7 pts were at 4 facilities prior to being culture positive for CP CRE, ultimately at 7 facilities
        - No active surveillance during 2020

Chrissy Radloff:

- MDRO Registry

    - Purpose: facilitate timely sharing of relevant pt, facility, and pathogen information to trigger appropriate action in anticipation of or as soon as possible in a pt encounter
    - Accessed: Users (IP or Epi at facility) onboarded by UDOH for a login
        - It is a web-based portal connected to UDOH Epitrax with all MDRO case data
        - Inputs: Pt first and last name & DOB will be needed for the query system
        - Manual entry or multiple pt queries, cvs file upload
    - MDRO included: All MDRO cases reported to UDOH. Labs should follow mandatory reporting Utah Code
    - Other info included: Organism, specimen source, date of collection, CP, link to CDC fact sheet, TBP and EBP guidance for cases based on facility type
    - Manual query should go live within the next 6 months

Dr. Jeannie Mayer:

- Discussion: Situational awareness
    - Active surveillance testing is recommended
        - Facilities think that it would be helpful to be notified from UDOH if there is an outbreak that way they can be prepared on who and how to screen properly on a regular basis
        - The LHD may be able to help communicate and need to be involved in MDRO response
        - April suggested talking with LHD about creating a epi list serve that would be helpful for all
        - Dr. Mayer suggested starting on the main epi list stating that UDOH is aware of an outbreak being investigated by LHD of the certain organism at a number of facilities in a certain county. They would then be alert and know we would have the LHD contact so they could get in touch with them without names being given.
        - April agreed that it was a good way to start
        - Dr. Mayer: What active surveillance testing is recommended? If facilities have patients from LTACs, they are the epi center where everyone sends their information, so focusing on patients coming from LTACHs and from VSNP, along with admissions screening, even though it sounds challenging. Nielsen Rehab Hospital has a pretty good process and Dr. Mayer could look into their patient flow and case management. They could ask the admitting nurse to at least ask if the patient is being admitted from another facility and if so, it would prompt surveillance testing.
        - Julia Lewis: Asking for clarification on whether screening admissions from the unit, the unit the pt is coming from or the unit they are going to?
        - Dr. Mayer: Yes, if they discovered that a pt they admitted has KPC citro and have been on the unit for a couple of days, we would need to see if

        they could’ve transferred it to others. The LHD and HAI Team would assist in surveillance with LTACs and VSNFs.
    - April will send an updated list of these facilities
    - Bert: Promise test cultures upon admission. Unsure if it is routine or not.
    - Dr. Mayer: The facilities who would have an easier time with screening admissions would be LTACs. Western Peaks is doing admissions sputum, but not making it so every pt has to be screened, only those pts who are on a vent, trac, or wound they would get screened for CRA and then do peri rectal for CREs?
    - April: LTACs will push back on the rectal screenings.
  - Communication across facilities
    - Relay more on LHDs for communication across facilities
    - Tried with the interfacility transfer form, but due to being paper instead of a part of the EHR, it was being neglected ~ 40% of time was being completed
    - Dr. Mayer: When there is a CRE or CRA is there verbal communication occurring and is there help from LHDs?
    - Josh: LHD can help with this. Being a paper form it is a drawback.
    - Dr. Mayer: LHDs can track where the pt has been (different facilities) while the other facilities that are receiving the pt understands where the pt was just transferred from and then document it. It will also be helpful when the MDRO registry is up and going.
    - Dr. Mayer: We are refreshing our memories, remembering what our problems are, knowing that there are more CROs circulating throughout the state. There is KPC Citro in the state that if we try to double down and recognize what we can do internally at our processes are there ways that additional admissions screenings could take place
    - Dr. Mayer: Within the facilities, if we know there are CROs with the pt to a new facility, that is indicated. Be sure to send in isolates.