SHARPPS Program
MDRO Containment and Response

SHARPPS Team
Communicable Disease Branch
North Carolina Division of Public Health

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What to report for CRE and Candida auris
For the purposes of reporting, Carbapenem-Resistant *Enterobacteriaceae* (CRE) are defined as:

(1) *Enterobacter* spp., *E.coli* or *Klebsiella* spp. positive for a known carbapenemase resistance mechanism or positive on a phenotypic test for carbapenemase production

or

(2) *Enterobacter* spp., *E.coli* or *Klebsiella* spp. resistant to any carbapenem in the absence of carbapenemase resistance mechanism testing or phenotypic testing for carbapenemase production.
What to report - CRE

• Identification of CRE from a clinical specimen associated with either infection or colonization –AND–

• All susceptibility results (if available) – AND –

• All phenotypic or molecular test results (if conducted and available)
What to report – *Candida auris*

Any patient or laboratory finding that meets either of the following criteria

- Detection of *C. auris* in a specimen using either culture or culture independent diagnostic test (CIDT) (e.g., Polymerase Chain Reaction [PCR])

-OR-

- Detection of an organism that commonly represents a *C. auris* misidentification (refer to table of common misidentifications based on the identification method used located at [http://www.cdc.gov/fungal/candida-auris/recommendations.html](http://www.cdc.gov/fungal/candida-auris/recommendations.html)) in a specimen by culture
• Updated January 2019
• In depth explanation of Tiered Response to MDROs including CRE
• Excellent resource for local health departments and facilities conducting CRE investigations

https://www.cdc.gov/hai/containment/guidelines.html
Tier 3 Organisms:

Organisms identified numerous times in a region but not considered to be endemic (e.g. KPC CRE)
Initial response measures

- Notify NC DPH, the local health department, and/or infection preventionists
- Notify patient, patient caregiver, and other healthcare staff
- Implement appropriate precautions (e.g. Contact Precautions) – varies by facility setting
- Discontinuing appropriate precautions is performed in consultation with NC DPH
Conduct a healthcare investigation

- Review patient’s current healthcare exposures (overnight stays in healthcare facilities)
Conduct a contact investigation

• Any roommates or those that shared bathrooms with the index case should be screened for colonization

• If there is evidence of transmission:
  - Wider surveys and ongoing point prevalence surveys extending beyond roommates and high risk patients are recommended
    • Generally, if there are 2 consecutive screenings that identify no new cases, discontinuation of screenings is considered
Implement a system to ensure adherence of infection control measures

- Educate and inform the HCP and visitors to the index patient about the organism and recommended interventions
- If transmission is identified, health departments and other experts should conduct on-site visits and use a standard assessment tool to evaluate infection control practices at facilities that have cared for the index case
- Healthcare facilities should conduct ongoing adherence monitoring
- Should ensure index patient’s MDRO status is communicated during transfers
- The patient’s record should be flagged for appropriate precautions upon readmission
- Discontinuation of precautions should be made in consultation with NC DPH
Tier 2 Organisms:

Organisms that are primarily associated with healthcare settings and are not commonly identified in the region (e.g. novel carbapenemase producers)
Conduct a healthcare investigation

- Review patient’s healthcare exposures prior and after initial positive culture
- Healthcare exposures in the preceding 30 days should be investigated
  - Overnight stays in healthcare settings outside the US are of particular interest
Conduct a contact investigation

- Any roommates or those that shared bathrooms with the index case should be screened for colonization
- If adherence to precautions is not high, the index case is high risk for transmission, or the index case was not on Contact Precautions, screening beyond roommates is recommended
- High risk contacts that have been discharged should be flagged for screening on admission in the following 6 months
- If there is evidence of transmission:
  - Wider surveys and ongoing point prevalence surveys extending beyond roommates and high risk patients are recommended
  - Generally, if there are 2 consecutive screenings that identify no new cases, discontinuation of screenings is considered
Tier 1 Organisms:

Pan-resistant organisms and resistance mechanisms very rarely seen in the United States (eg *Candida auris*)
Initial response measures

- Notify NC DPH, the local health department, and/or infection preventionists
- Notify patient, patient caregiver, and other healthcare staff
- Implement appropriate precautions (e.g. Contact Precautions) – varies by facility setting
- Conduct periodic testing of index patient and/or others found to be colonized
  - Minimum criteria: 2 consecutive screenings where there is failure to detect the organism or mechanism of resistance
- Discontinuation of precautions is performed in consultation with NC DPH
Conduct a contact investigation

• Perform colonization screening of epidemiologically linked patients

• At minimum: screen roommate(s) and patients that shared a bathroom regardless of whether or not the index case was on Contact Precautions

• Patients that overlapped with the index case for 3 or more days that have been discharged should be flagged for screening on admission in the following 6 months

• If there is evidence of transmission:
  − Wider surveys and ongoing point prevalence surveys extending beyond roommates and high risk patients are recommended
  − Admission screening may be warranted
  − An investigation should be initiated in facilities known to regularly share patients in facilities where transmission occurred
Screening Protocol
Positive KPC case

No roommate

Roommate at Facility (LTCF, LTACH, ACH)

Screening of roommate

Negative

Positive

Expand screening to hallway/floor/facility

No new positives

New positives

Point Prevalence Screenings until no new cases are identified, then prospective surveillance

Prospective surveillance

Positive non-KPC case

Point Prevalence Survey of residents that overlapped with the case for more than 24 hours

No new positives

New positives

Point Prevalence Screenings until no new cases are identified, then prospective surveillance

Prospective surveillance
Site Visit: Observations

- Hand hygiene
- Direct patient care (including wound care)
- Environmental health
- General infection prevention
Contact Investigation: Screening

- In consultation with DPH,
  - Screen roommates, potentially the hall/unit, that are epidemiologically linked because of healthcare exposure
  - A screen is a rectal swab
Contact Investigation: Screening

Specimens: Swabbing

- Cepheid testing for CRE performed on rectal or fecal swabs

Acceptable Specimens

Unacceptable Specimens

Acceptable packaging of multiple swabs in one bag
Site Visit: Control Measures

Communicate CRE status to transferring and receiving facilities

https://epi.publichealth.nc.gov/cd/hai/docs/InterfacilityTransferInstructionsandForm.pdf