



COLORADO

Department of Public Health & Environment

HEALTH ALERT NETWORK BROADCAST

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FROM: CO-CDPHE

SUBJECT: HAN Update - Updated guidance for screening and containment of *Candida auris* and carbapenemases

RECIPIENTS: Local Public Health Agencies / IPs / Clinical Labs / EDs / ID Physicians

RECIPIENT INSTRUCTIONS: Local Public Health Agencies - please forward to health care providers

HEALTH ADVISORY | Updated guidance for screening and containment of *Candida auris* and carbapenemases | April 6, 2023

Health care providers: Please distribute widely in your office

This information is for the public health and health care community. Do not post this document on a public web or social media site.

Key points

- The Colorado Department of Public Health and Environment (CDPHE) is updating guidelines and procedures for antimicrobial resistance containment in response to the increased spread of antimicrobial resistance in the U.S. and Colorado.
- Health care providers should conduct admission screening tests for *Candida auris* and carbapenemase-producing organism (CPOs: KPC-, NDM-, VIM-, IMP-, OXA-48-producing carbapenem-resistant *Enterobacterales*, *Acinetobacter spp.*, and *Pseudomonas aeruginosa*) colonization in patients with the following exposures:
 - Patients who have had an overnight stay or invasive medical or surgical procedure in a healthcare facility outside the U.S. in the previous year.
 - Patients who have had an overnight stay in a long-term acute care hospital (LTACH) or ventilator-capable skilled nursing facility (vSNF) anywhere in the U.S. in the previous year.
- Contact CDPHE for detailed instructions on how to collect and submit specimens for colonization screening tests to the [Regional Antimicrobial Resistance Laboratory](#) in Utah.
- Health care providers should implement [Contact Precautions](#) (or [Enhanced Barrier Precautions](#) in skilled nursing facilities) for confirmed cases as well as patients who meet screening criteria and contacts of cases until infection or colonization can be ruled out.
- Once a case of *C. auris* or CPO is identified, health care providers should work with CDPHE to conduct contact tracing and an investigation according to updated [CDC guidance](#). This will include broader colonization screening of patients who are health care contacts within facilities to which the patient was admitted in the 30 days prior to identification, even if transmission-based precautions were in place. Colonization screening should begin within one week of initiation of the public health response.
- CDPHE can coordinate colonization screening testing at the Regional Antimicrobial Resistance Laboratory free of charge. Facilities can also conduct testing at a clinical laboratory with appropriate testing options. Call the CDPHE Healthcare-Associated Infections and Antimicrobial Resistance Program at 303-692-2700 during business hours or e-mail cdphe_hai_ar@state.co.us.
- Screening and clinical cases of *C. auris* are immediately reportable to CDPHE by lab or providers. Carbapenem-resistant *Enterobacterales*, *Acinetobacter baumannii* complex spp., and *Pseudomonas aeruginosa* are four-day laboratory-reportable conditions (303-692-2700; 303-370-9395 after hours). Isolate or clinical material must be submitted to the CDPHE laboratory.
- On April 28 at noon, CDPHE and ECHO Colorado will host the monthly call Colorado Updates in Public Health, which will include a *C. auris* update. Register at: <https://echocolorado.org/echo/covid-19/>

Background information

Epidemiology in the U.S.

Candida auris, carbapenem-resistant *Enterobacterales* (CRE), carbapenem-resistant *Acinetobacter spp.* (CRAB), and carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) are urgent public health threats that contribute to [2.8 million antibiotic resistant infections and 35,000 deaths](#) each year in the U.S. These organisms spread undetected in health care settings and cause infections in vulnerable patients that can be extremely difficult to treat. After experiencing decreases in the numbers of antibiotic resistant infections and deaths over several years in association with dedicated prevention and infection control efforts, there was a [15% increase in hospital-onset infections](#) in 2020 compared to 2019.

Case counts of *C. auris*, an antifungal resistant yeast, have [grown exponentially](#) in recent years with increasing involvement of contiguous states. Some states without any cases in 2019, such as Nevada, have experienced hundreds of cases since. On March 20, 2023, [CDC issued a press release](#) describing the increasing threat of spread of *C. auris* in health care facilities.

Numbers of hospital-onset CRE and CRAB cases increased 35% and 78% in 2020, respectively. Carbapenemase-producing organisms (CPOs), a subset of CRE, CRAB, and CRPA that acquire antibiotic resistance through the production of a carbapenemase enzyme. CPOs are of particular concern to public health due to their high level of antibiotic resistance, the ability to spread the carbapenemase quickly to other bacteria, and their ability to cause severe disease.

Epidemiology in Colorado

After identifying no *C. auris* cases in 2020 or 2021, four cases of *C. auris* were detected in Colorado in 2022 involving patients who are presumed to have acquired infection in other states or internationally. There were 68 CPO cases detected in Colorado in 2022, which represents a 65% increase over 41 CPOs detected in 2021. Surveillance data suggest that the most commonly detected carbapenemase in the U.S., known as KPC, is likely being transmitted between health care facilities in Colorado that share patients; CDPHE is actively working with these facilities. In addition, carbapenemases that are sporadically detected and are associated with health care exposures in other parts of the world have been detected in Colorado with increased frequency. The epidemiology suggests that Colorado is currently experiencing an increase in antibiotic resistance similar to what has occurred in other parts of the U.S., and that asymptomatic colonization and healthcare-related patient movement are contributing to that spread.

Transmission

To protect the public's health, it is important to contain the spread of novel or targeted antimicrobial resistance threats. *C. auris* and CPOs spread through person-to-person contact and indirectly through contact with a contaminated environment. They can cause prolonged asymptomatic colonization of patients, typically acquired through health care exposures. Individuals who are colonized can travel to multiple different health care facilities within and between states, or internationally, during which time the organisms can spread to other patients or the environment. Higher acuity post-acute care settings such as long-term acute care hospitals (LTACHs) and ventilator-capable skilled nursing facilities (vSNFs) most commonly experience outbreaks, although short-term acute care hospitals in the U.S. saw more outbreaks of *C. auris* in 2020 than in previous years.

CDC Guidance

The goals of CDC's containment strategy are to: 1) identify infected and colonized patients, 2) ensure appropriate control measures are promptly implemented to limit further spread, 3) determine if transmission within a health care facility and dissemination to other facilities are occurring, 4) characterize novel organisms and mechanisms to guide further response actions, patient management, and future responses, and 5) coordinate response with ongoing prevention activities in the region. CDPHE considers *C. auris* and CPOs in Colorado to be Tier 2 organisms as defined in CDC guidance with limited spread (although KPC may exhibit moderate spread). Tier 2 response measures include case identification and implementation of Contact Precautions (or Enhanced Barrier Precautions in skilled nursing facilities), investigation of health care exposures starting 30 days prior to initial positive culture, assessment of infection prevention, laboratory surveillance, contact investigation, and interfacility communication. Contact investigation includes screening epidemiologically linked patients for the target organism **even if the index patient was being managed with Contact Precautions or Enhanced Barrier Precautions**. Full updated CDC guidance can be found [here](#).

CDC has previously recommended that health care facilities should have a system to assess, at admission, if a patient has received medical care somewhere else, including other facilities or other countries and conduct admission screening for patients in order to assure appropriate infection control precautions are in place as follows:

- [Screen](#) patients who have had an overnight stay in a healthcare facility outside the U.S. in the previous year, especially if in a country with documented *C. auris* cases. (Strongly consider screening when patients have had such inpatient health care exposures outside the U.S. and have infection or colonization with carbapenemase-producing Gram-negative bacteria as co-colonization is observed regularly).
- [Screen](#) patients who have had an overnight stay in a healthcare facility outside the U.S. in the prior six months for the presence of carbapenemase-producing CRE.

At this point, there is no reliable mechanism to identify *C. auris* transmission in other countries. It is also evident that *C. auris* infection today is more commonly related to health care exposures within the U.S. The same is likely true for many CPOs. However, CDC does not define criteria for admissions screening related to health care exposures within the U.S. Tracking data for [C. auris](#) and [CPOs](#) indicate increased case counts in some states, most recently *C. auris* in Nevada and NDM in Arizona, but it can be difficult to infer risk of health care transmission from tracking data. Given similar risk factors, routes of transmission, asymptomatic colonization, and health care-related travel, it is reasonable to consider screening all patients who have had exposures to health care facility types at greatest risk for *C. auris* and CPOs. Currently, these include LTACHs and vSNFs.

Recommendations / guidance

Admissions screening

- Health care providers should conduct admission screening tests for *C. auris* and CPO (KPC-, NDM-, VIM-, IMP-, OXA-48-producing CRE, CRAB, and CRPA) colonization in patients with the following exposures:
 - Patients who have had an overnight stay or invasive medical or surgical procedure in a healthcare facility outside the U.S. in the previous year.
 - Patients who have had an overnight stay in a LTACH or vSNF anywhere in the U.S. in the previous year.

- Contact CDPHE for detailed instructions on how to collect and submit specimens for colonization screening tests to the [AR Lab](#) in Utah. CDPHE can coordinate the delivery of sample collection kits and timing of specimen submission via FedEx. Specimens include:
 - rectal or stool swab screening carbapenemases.
 - skin swab screening of the bilateral axilla and groin for *C. auris*.
- Health care facilities should have a system to assess, at admission, if a patient has received medical care somewhere else, including other facilities, states, or other countries.
- Health care providers should implement [Contact Precautions](#) (or [Enhanced Barrier Precautions](#) in skilled nursing facilities) for confirmed cases as well as patients who meet screening criteria and contacts of cases until infection or colonization can be ruled out.
- Repeat admissions screening for *C. auris* or individual CPOs (KPC, NDM, VIM, IMP, OXA-48) is unnecessary if a patient is known to have previously tested positive or has a documented negative test within 30 days prior to admission in the absence of a recent exposure. Once a patient has a clinical infection or colonization with *C. auris* or a CPO, they are considered to be colonized indefinitely and require transmission-based precautions during admission to a health care setting. Screening tests may be intermittently positive. A negative test cannot be used to indicate clearance. A patient with one CPO (e.g., KPC-producing CRE) can acquire another CPO (e.g., NDM-producing CRE). Screening for additional CPOs may be indicated.

Containment

- Once a case of *C. auris* or CPO is identified, health care providers should work with CDPHE to conduct contact tracing and an investigation according to updated [CDC guidance](#). This will include broader colonization screening of patients who are health care contacts within facilities to which the patient was admitted in the 30 days prior to identification, even if transmission-based precautions were in place. Colonization screening should begin within one week of initiation of the public health response.
- CDPHE's approach to contact investigation in long-term acute care and long-term care settings, hospital intensive care units, and hospital units with longer lengths of stay and patients at higher risk of acquisition and infection (e.g., burn intensive care units, units that care for solid organ or hematopoietic transplant patients) is a combination of point prevalence surveys (colonization screening testing of all patients currently admitted) on affected units and targeted colonization screening testing of overlapping patients transferred to other units or discharged to long-term care:
 - Roommates and patients who shared a bathroom with the index patient.
 - Patients currently admitted to room(s) and bed spaces where the index patient stayed at least one night.
 - Patients currently on the unit where the index patient is/was admitted.
 - Overlapping patients transferred to other units.
 - Overlapping patients discharged to long-term care (CDPHE will request a list of discharged patients and will facilitate screening with the admitting facility).
- Targeted colonization screening of overlapping patients and patients with a risk factor for acquisition (e.g., bedbound, high levels of care, receipt of antimicrobials, or mechanical ventilation) who are still admitted may be appropriate for most other settings unless it will take several days to identify higher risk contacts or if most higher risk contacts have been discharged from the facility.
- Additional point prevalence surveys are indicated if there is evidence or suspicion for ongoing transmission (e.g., isolates from multiple patients) or if initial targeted screening of high-risk patients identifies new cases.

- If new cases are identified, periodic (e.g., every two weeks) point prevalence surveys should be conducted until transmission is controlled. Control is generally defined as two consecutive point prevalence surveys with no new cases identified.
- CDPHE will conduct an outbreak investigation if new cases are identified.

Laboratory methods

- CDPHE can coordinate colonization screening testing at the [Regional Antimicrobial Resistance Laboratory](#) free of charge.
- ARLN laboratory methods include culture, PCR, and whole genome sequencing to detect organisms and carbapenemases.
- Facilities can also conduct testing at a clinical laboratory with appropriate testing options.
- Call the CDPHE Healthcare-Associated Infections and Antimicrobial Resistance Program at 303-692-2700 or e-mail cdphe_hai_ar@state.co.us during business hours to coordinate sample collection and testing.

Reporting

- Screening and clinical cases of *C. auris* are immediately reportable to CDPHE by lab or providers.
- CRE, CRAB, and CRPA are four-day laboratory-reportable conditions.

Treatment of infection

- Consultation with an infectious disease specialist is recommended when caring for patients with *C. auris* or CPO infection.
- The Infectious Diseases Society of America has guidelines for treatment of CRE, CRAB, and CRPA ([AMR Guidance 1.0](#) and [AMR Guidance 2.0](#)) and for [candidiasis](#).
- CDC has treatment [guidance](#) for *Candida auris*.
- There are no vaccines for *C. auris* or CPOs.

More information

Links in order of appearance

- Antimicrobial Resistance Laboratory Network - Utah: <https://uphl.utah.gov/arln-utah/>.
- CDC. Isolation Precautions: <https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>.
- CDC. Implementation of Personal Protective Equipment (PPE) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms (MDROs): <https://www.cdc.gov/hai/containment/PPE-Nursing-Homes.html>.
- CDC. Containment Strategy: <https://www.cdc.gov/hai/mdro-guides/containment-strategy.html>.
- CDC. 2019 AR Threats Report: <https://www.cdc.gov/drugresistance/biggest-threats.html>.
- CDC. COVID-19 & Antimicrobial Resistance: <https://www.cdc.gov/drugresistance/covid19.html>.
- Lyman M, Forsberg K, Sexton DJ. Worsening Spread of *Candida auris* in the United States, 2019 to 2021. *Annals of Internal Medicine* 2023: <https://doi.org/10.7326/M22-3469>.
- CDC press release - Increasing Threat of Spread of Antimicrobial-resistant Fungus in Healthcare Facilities: <https://www.cdc.gov/media/releases/2023/p0320-cauris.html>
- CDC. Screening for *Candida auris* colonization: <https://www.cdc.gov/fungal/candida-auris/c-auris-screening.html>.
- CDC. Healthcare facilities: information about CRE: <https://www.cdc.gov/hai/organisms/cre/cre-facilities.html>.
- CDC. Tracking *Candida auris*: <https://www.cdc.gov/fungal/candida-auris/tracking-c-auris.html>.

- CDC. Antibiotic Resistance & Patient Safety Portal: <https://arpsp.cdc.gov/>.
- IDSA. IDSA Guidance on the Treatment of Antimicrobial-Resistant Gram-Negative Infections: Version 1.0: <https://www.idsociety.org/practice-guideline/amr-guidance/>.
- IDSA. IDSA Guidance on the Treatment of Antimicrobial-Resistant Gram-Negative Infections: Version 2.0: <https://www.idsociety.org/practice-guideline/amr-guidance-2.0>.
- IDSA. Clinical Practice Guideline for the Management of Candidiasis: 2016 Update by the Infectious Diseases Society of America: <https://www.idsociety.org/practice-guideline/candidiasis/>.
- CDC. Treatment and Management of *C. auris* Infections and Colonization: <https://www.cdc.gov/fungal/candida-auris/c-auris-treatment.html>.

Additional resources

- CDC. Prevention Strategies: <https://www.cdc.gov/hai/mdro-guides/prevention-strategy.html>.

Keeping up to date

CDC: Register for CDC HANs: <https://emergency.cdc.gov/han/>

CDC: Sign up for COCA calls and emails: <https://emergency.cdc.gov/coca/calls/index.asp>

CDPHE: Register for Colorado HANs: <https://cdphe.colorado.gov/health-alert-network>

ECHO Colorado and CDPHE: Sign up for monthly Colorado Updates in Public Health webinar: <https://echocolorado.org/echo/covid-19/>

CDPHE Disease Reporting Line: 303-692-2700 or 303-370-9395 (after hours)