

CPO Investigation Steps for Local Health Departments

Some bacteria produce enzymes called carbapenemases which break down carbapenem antibiotics. These are called carbapenemase-producing organisms (CPO). CPO can be spread in healthcare settings from patient to patient, by healthcare workers' hands and through environmental contamination. CPO are of primary public health concern and as such, an investigation should be opened within 24 hours of confirming identification of CPO. Notify facilities, providers, and infected/colonized patients as appropriate. Conduct an investigation to assess the risk factors for transmission in the affected healthcare setting(s). Implement control measures such as contact precautions as soon as possible. Discuss the need for screening of potentially exposed individuals. The appropriate screening can be performed through the State Laboratory of Public Health (SLPH) and the Antibiotic Resistance Laboratory Network (ARLN) free of charge; the Communicable Disease Branch (CDB) is available to help coordinate these screenings. Screening recommendations may differ between healthcare settings. CDB is available for consultation regarding investigations - please contact nchai@dhhs.nc.gov or the Epidemiologist on Call at 919-733-3419. Refer to [MDRO Containment Strategy | HAIs | CDC](#) for additional information.

Basic Steps of a CPO Investigation

1. Confirm Case Meets Definition	<ul style="list-style-type: none"> Refer to the CPO case definition CPO Case Definition.pdf to determine if the case meets definition If carbapenemase testing has not been performed on the isolate, arrange to have it sent to the State Laboratory of Public Health (SLPH) for further testing CPO Isolate Submission Letter We request facilities capable of performing carbapenemase testing to forward positive isolates to the SLPH for additional characterization CPO Isolate Submission Letter
2. Implement Control Measures	<ul style="list-style-type: none"> Notify the ordering facility/provider(s) and any other healthcare providers/systems the patient is associated with <ul style="list-style-type: none"> <input type="checkbox"/> Review healthcare exposure(s) (typically for the past 90 days) <input type="checkbox"/> Notify identified healthcare facilities Implement appropriate precautions based on the healthcare setting as soon as CPO is identified (Contact Precautions or Enhanced Barrier Precautions [LTCF only]), private room, flag chart for future encounters, appropriate environmental cleaning)
3. Assess Healthcare Exposures	<ul style="list-style-type: none"> Review patient's recent (past 90 days) exposures and risk factors including: <ul style="list-style-type: none"> <input type="checkbox"/> International hospitalizations <input type="checkbox"/> Domestic hospitalizations (notify facility if appropriate) <input type="checkbox"/> Long term care admissions (document name of facility and notify facility) <input type="checkbox"/> Hemodialysis treatment <input type="checkbox"/> Procedures (endoscopies, surgeries, etc.) <input type="checkbox"/> Indwelling medical device use (intravenous catheters, urinary catheters, tracheostomy tubes, etc.) <input type="checkbox"/> Open wounds (if yes, inquire where wound care is received and notify if appropriate)
4. Perform a Risk Assessment	<ul style="list-style-type: none"> Assess opportunities for transmission and infection prevention practices <ul style="list-style-type: none"> <input type="checkbox"/> Patient's risk of transmission to others (indwelling devices, total care, etc.) <input type="checkbox"/> Shared areas within the healthcare facility (shared rooms, bathrooms, shower rooms) <input type="checkbox"/> Implementation of appropriate precautions for the healthcare setting during their healthcare encounters <input type="checkbox"/> Recent patient procedures involving reusable devices/instruments (endoscopes, etc.) <input type="checkbox"/> Environmental reservoirs (facility cleaning and disinfection practices) <input type="checkbox"/> Interfacility communication regarding multidrug-resistant organisms if the patient was transferred
5. Consult Communicable Disease Branch	<ul style="list-style-type: none"> Consult CDB HAI program (SHARPPS) to determine if CPO screening is necessary CDC recommends considering a point prevalence survey (PPS) and screening of epidemiologically linked patients at healthcare facilities where the CPO case is currently and was recently admitted The following will also be considered when determining who to screen: <ul style="list-style-type: none"> <input type="checkbox"/> Mechanism of resistance <input type="checkbox"/> When appropriate precautions (based on the healthcare setting) were initiated <input type="checkbox"/> Risk of transmission CDB is available to facilitate colonization screening and coordination with the Antibiotic Resistance Laboratory Network (ARLN) A site visit to one or more facilities may be recommended
6. Reevaluate	<ul style="list-style-type: none"> Expanded screening efforts may be necessary depending on the results of the initial screening Continue to respond to any infection prevention concerns at the facility Monitor for new CPO cases at the facility

For more information: <https://epi.publichealth.nc.gov/cd/lhds/manuals/cd/toc.html>