

***Carbapenem- resistant organisms (CRO) and Carbapenemase Producing Organisms (CPO)***

Event Name:	MDRO	
Event Time Period:	Lifelong	
Clinical Description:	N/A	
CDC Event classification: CSTE 2022 22-ID-04	<i>Confirmed</i>	<p>Any organism which demonstrates a</p> <ul style="list-style-type: none"><li>• Positive phenotypic test (e.g., mCIM, CIM, etc.) result for carbapenemase production in a specimen,</li></ul> <p>OR</p> <ul style="list-style-type: none"><li>• Positive molecular test (e.g., Xpert Carba-R, VERIGENE, Cepheid, etc.) result detecting a carbapenemase gene (with or without organism identification),</li></ul> <p>OR</p> <ul style="list-style-type: none"><li>• Detection of a carbapenemase gene (e.g., KPC, NDM, OXA-48, VIM, IMP) by NGS<sup>‡</sup></li></ul> <p><sup>‡</sup>It is not necessary to report organisms with known chromosomal carbapenemase genes, including but not limited to SME+ <i>Serratia marcescens</i>, unless they have additional non-chromosomal carbapenemase genes.</p>
Massachusetts Event Classification (2023):	<i>Confirmed (CPO Status= Yes)</i>	Same as CDC Event Classification.
	<i>Probable (CRO status = Yes)</i>	Any carbapenem-resistant organism ( <b>excluding</b> organisms with intrinsic resistance – e.g., <i>Proteus spp.</i> , <i>Morganella spp.</i> , and <i>Providencia spp.</i> showing resistance to imipenem only)
	<i>Suspect</i>	Any other organism with any other demonstrated resistance, including intrinsic resistance to carbapenem antibiotics (like those noted above)
	<i>Contact</i>	Events created for an individual who had a potential exposure to a CPO case but does not meet the criteria for Confirmed, Probable or Suspect.
	<i>Revoked</i>	Out of state cases, out of country cases, or cases with identified organisms without any resistance to any antibiotic.

**\* NOTE: Do not enter individual labs for *Pseudomonas aeruginosa* unless they have a gene target detected, positive mCIM test, other displayed novel resistance mechanism, or are identified as Pan-Nonsusceptible or Pan-Resistant. This includes entering specimen submission forms. Please file those not entered in the folder CRO-not in MAVEN in the MDRO Labs folder.**

**\*\*CPO Status corresponds to the variable “Is this a carbapenemase producing organism?” in the admin question package.**

**\*\*CRO Status corresponds to the variable “Is this case a CRO?” in the admin question package.**

**\*\*\**Proteus*, *Morganella*, and *Providencia spp.* AST values for imipenem are not considered for case classification due to intrinsic resistance characteristics.**

Report Type	Test Type	Source	Result	New event or beyond report period?	Data Entry
Laboratory report	Culture and appropriate sensitivity testing	Clinical specimen	Organisms in Enterobacterales (includes Citrobacter, Enterobacter, Escherichia, Klebsiella, Morganella, Salmonella, Serratia, Stenotrophomonas, Proteus, and Providencia species) Acinetobacter baumannii Pseudomonas aeruginosa*	Yes	New event SUSPECT
				No	Same event
Select:	Microorganism identified : PrId : Pt : xxx : Nom : Culture				
Laboratory report	Bacterial identification by laser desorption ionization	Clinical specimen	Organisms in Enterobacterales (includes Citrobacter, Enterobacter, Escherichia, Klebsiella, Morganella, Salmonella, Serratia, Stenotrophomonas, Proteus, and Providencia species) Acinetobacter baumannii Pseudomonas aeruginosa*	Yes	New event SUSPECT
				No	Same event
Select:	Bacteria identified in Isolate by MS.MALDI-TOF				
Laboratory report	Aerobic culture and appropriate sensitivity testing	Clinical specimen	Organisms in Enterobacterales (includes Citrobacter, Enterobacter, Escherichia, Klebsiella, Morganella, Salmonella, Serratia, Stenotrophomonas, Proteus, and Providencia species) Acinetobacter baumannii Pseudomonas aeruginosa*	Yes	New event SUSPECT
				No	Same event
Select:	Microorganism identified : PrId : Pt : xxx : Nom : Aerobic culture				
Laboratory report	Carbapenemase production detection	Clinical specimen	Positive Negative Equivocal	Yes	New event SUSPECT
				No	Same event
Select:	Carbapenem Inactivation Method (CIM)				
Laboratory report	Carbapenemase production detection	Clinical specimen	Positive Negative Equivocal Intermediate	Yes	New event SUSPECT
				No	Same event
Select:	Modified Carbapenem Inactivation Method (mCIM)				

Report Type	Test Type	Source	Result	New event or beyond report period?	Data Entry
Laboratory report	Carbapenemase production detection	Clinical specimen	Positive Negative Equivocal Intermediate	Yes	New event SUSPECT
				No	Same event
Select:	Carbapenemase [Type] in Isolate by Carba NP				
Laboratory report	Carbapenemase production detection	Isolate	Positive Negative	Yes	New event SUSPECT
				No	Same event
Select:	Carbapenemase Islt Q1				
Laboratory report	Probe and Target amplification	Clinical specimen	Positive Negative Equivocal	Yes	New event SUSPECT
				No	Same event
Select:	Bacterial colistin resistance mcr-1 gene				
Laboratory report	Probe and Target amplification	Clinical specimen	Positive Negative Equivocal	Yes	New event SUSPECT
				No	Same event
Select:	Bacterial colistin resistance mcr-2 gene				
Laboratory report	Probe and Target amplification	Clinical specimen	Positive Negative Equivocal	Yes	New event SUSPECT
				No	Same event
Select:	Bacterial colistin resistance mcr-3 gene				
Laboratory report	Probe and Target amplification	Clinical specimen	Positive Negative Equivocal	Yes	New event SUSPECT
				No	Same event
Select:	Bacterial colistin resistance mcr-4 gene				
Laboratory report	Probe and Target amplification	Clinical specimen	Positive Negative Equivocal	Yes	New event SUSPECT
				No	Same event
Select:	Bacterial colistin resistance mcr-5 gene				
Laboratory report	Nucleic Acid and Probe Detection	Isolate or Clinical Specimen	Positive Negative	Yes	New event SUSPECT
				No	Same event

Report Type	Test Type	Source	Result	New event or beyond report period?	Data Entry
Select:	bla(IMP) QI Prb Mag				
Laboratory report	Nucleic Acid and Probe Detection	Isolate or Clinical Specimen	Positive Negative	Yes	New event SUSPECT
				No	Same event
Select:	bla(KPC) QI Prb Mag				
Laboratory report	Nucleic Acid and Probe Detection	Isolate or Clinical Specimen	Positive Negative	Yes	New event SUSPECT
				No	Same event
Select:	bla(NDM) QI Prb Mag				
Laboratory report	Nucleic Acid and Probe Detection	Isolate or Clinical Specimen	Positive Negative	Yes	New event SUSPECT
				No	Same event
Select:	bla(OXA) QI Prb Mag				
Laboratory report	Nucleic Acid and Probe Detection	Isolate or Clinical Specimen	Positive Negative	Yes	New event SUSPECT
				No	Same event
Select:	bla(VIM) QI Prb Mag				
Laboratory report	Nucleic Acid and Probe Detection	Isolate or Clinical Specimen	Positive Negative	Yes	New event SUSPECT
				No	Same event
Select:	Carbapenem resistance blaOXA-48-like gene [Presence] by Molecular method				
Laboratory report	Nucleic Acid and Probe Detection	Isolate or Clinical Specimen	Positive Negative	Yes	New event SUSPECT
				No	Same event
Select:	Carbapenem resistance blaOXA-23-like gene [Presence] by Molecular method				
Laboratory report	Nucleic Acid and Probe Detection	Isolate or Clinical Specimen	Positive Negative	Yes	New event SUSPECT
				No	Same event
Select:	Carbapenem resistance blaOXA-24-like gene [Presence] by Molecular method				
Laboratory report	Nucleic Acid and Probe Detection	Isolate or Clinical Specimen	Positive Negative	Yes	New event SUSPECT
				No	Same event
Select:	Carbapenem resistance blaOXA-24-like gene [Presence] by Molecular method				
Laboratory report	Nucleic Acid and Probe Detection	Isolate or Clinical	Positive Negative	Yes	New event SUSPECT

		Specimen		No	Same event
Select:	Carbapenem resistance blaOXA-58-like gene [Presence] by Molecular method				
Laboratory report	Carbapenemase Detection by Lateral Flow	Isolate	Detected Not Detected Invalid KPC NDM OXA-48 VIM IMP	Yes	New event SUSPECT
				No	Same event
Select:	Carbapenemase Detection Lateral Flow (ICT)				