#### Category 4: Written or electronic notification within 1 month of diagnosing by private and public health laboratories.

#### CARBAPENEM-RESISTANT ENTEROBACTERALES (PREVIOUSLY ENTEROBACTERIACEAE)

Disease epidemiology	Who must notify	What to notify		Confirmed case definition		
Carbapenem-resistant Enterobacterales (CRE) and/or carbapenem-producing Enterobacterales (CPE) are a group of Gram-negative bacteria that are resistant to the carbapenem class of antibiotics. CRE or CPE can produce enzymes that are able to break down carbapenems and survive if patients are treated with these antibiotics. Carbepenems are considered the last line of treatment against Gram-negative bacteria and they are categorized as reserve group of antibiotics by the World Health Organization. In patients with organism resistant to carbapenems alternative treatment is substandard and is difficult. People who are at risk of infections are usually those who are receiving health care in any setting (e.g., hospitals and long-term care facilities, dialysis centres, etc.) and received antibiotic therapy previously. CRE can cause many types of infections including bloodstream infections, urinary tract infections, surgical site infections, pneumonia and meningitis. People often get colonised first from coming into contact with contaminated medical devices, healthcare workers hands and/or equipment, and get infected following breaks in their skin or other tissue.	Laboratory making the diagnosis	Laboratories are to s with clinical specime include isolates when confirmatory method microdilutions test, of IMP, VIM, GES, etc. of Resistance should be inhibitory concentrating uidelines. <b>2021 guidelines for E</b> Antibiotic Ertapenem Meropenem (CSF) Imipenem Doripenem *These guidelines are s reporting should alway recommendations. In addition, laboratoo number of patients for test was done. If a pa same specimen, they	ns where a n resistance ds, including or PCR (OXA letected). based on i tions accord <b>nterobacte</b> <b>Resistanc</b> (MICs in <u>L</u> $\geq 2$ $\geq 4$ $\geq 2$ $\geq 4$ $\geq 4$ subject to chus s be in line we ries are req or which a atient has m	CRE was isola e was determ g Etest, broth -48 & varian nterpretation ding to EUCAS erales* e criteria lg/mL) EUCAST >0.5 >8* >2 >4 >2 ange annually vith the most r uested to rep microbiologic nultiple cultu	ated. Only ined using ts, NDM, KPC, n of minimum ST or CLSI and therefore ecent port the total cal culture res from the	A patient with an Enterobacterales that is resistant to either of the carbapenem (ertapenem, imipenem, meropenem or doripenem) cultured from any clinical specimen. Each CRE pathogen isolated from the same patient will be counted as a distinct case. A 30-day period will be used to deduplicate patients with more than one of the same CRE isolated.
		a patient has culture they should be count				

### Category 4: Written or electronic notification within 1 month of diagnosing by private and public health laboratories. GLYCOPEPTIDE-RESISTANAT ENTEROCOCCI

Disease epidemiology	Who must notify	What to notify			Confirmed case definition	
Glycopeptide-resistance Enterococci (GRE) are Gram- positive bacteria that have developed the ability to survive in the presence of the glycopeptide antibiotics (such as vancomycin), normally used to treat people who are infected with Gram-positive bacteria. Enterococci are present in the human intestines and in the female genital tract without causing harm. They are also found in the environment, including in healthcare settings. GRE typically affect people who are ill (particularly those who have weakened immune systems) and admitted to hospitals, and those receiving treatment that may be weakening their immune system.	Laboratory making the diagnosis	Laboratories an patients with c isolated. Only i determined us including Etest (vanA, vanB, va Resistance sho minimum inhit EUCAST or CLS <b>2021 guideline</b> Antibiotic Vancomycin Teicoplanin * These guidelin therefore report most recent reco In addition, lab the total numb microbiologica has multiple cu they should be has cultures do should be cour	linical spec include isol ing a confir , broth mic anC1/vanC2 uld be base bitory conce I guidelines <b>s for Enter</b> Resistanc (MICs in p $\geq$ 32 $\geq$ 32 es are subjecting should a boratories a ber of patien I culture te ultures from counted o one for multiple isol cone for multip	imens where ates when res matory methor rodilutions tes e, etc. detecte ed on interpre entrations acc ococci* e criteria ug/mL) EUCAST >4 >2 ct to change an lways be in line ns. re requested nts for which a st was done. I n the same sponce. Similarly,	a GRE was istance was ods, st, or PCR d). tation of ording to uually and with the to report a f a patient ecimen, if a patient	A patient with an Enterococci that is resistant to vancomycin (±teicoplanin) cultured from any clinical specimen. When multiple <i>Enterococcus</i> species are isolated from the same patient, each will be counted as a distinct case. A 30-day period will be used to deduplicate patients with more than one of the same Enterococci pathogen isolated.

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### GLYCOPEPTIDE-RESISTANT STAPHYLOCOCCUS AUEUS

Disease epidemiology	Who must notify	What to notify				Confirmed case definition			
Staphylococcus aureus is a common Gram-positive bacterium that causes healthcare-associated infections. Patients with Staphylococcus aureus infections that are resistant to first line antibiotic treatment (methicillin) are mainly treated with glycopeptides, another class of antibiotics. Although uncommon, resistance to glycopeptides can occur in patients who have prolonged stays in hospital stays and prolonged treatment with glycopentides. Vancemusin resistance is	Laboratory making the diagnosis	Laboratories ar with clinical sp <i>Staphylococcus</i> when resistand methods, inclu (vanA, vanB, va should be base concentrations	ecimens w s aureus w ce was dete ding Etest, anC1/vanC ed on inter	here a glycop as isolated. Or ermined using broth microc 2, etc. detecte pretation of m	A patient with <i>Staphylococcus aureus</i> that is resistant to vancomycin (±teicoplanin) cultured from any clinical specimen. A 30-day period will be used to deduplicate patients with multiple subsequent pathogens isolated.				
glycopeptides. Vancomycin resistance is uncommon is seldom through the pathogen	2021 guideline	s for Stap	hylococcus au						
acquiring the vanA gene. A few cases of vancomycin resistant <i>Staphylococcus aureus</i> infection have been reported globally.		Antibiotic Resistance criteria (MICs in µg/mL)							
			CLSI	EUCAST					
		Vancomycin	≥16	>2	_				
		Teicoplanin	≥32	>2					
		*These guideline reporting should recommendation	l always be i ns.	n line with the					
		In addition, lab number of pati was done. If a specimen, they patient has cul should be cour	ients for w patient has / should be tures done	hich a microb multiple cult counted onc					

### Category 4: Written or electronic notification within 1 month of diagnosing by private and public health laboratories. COLISTIN-RESISTANT PSEUDOMONAS AERUGINOSA

Disease epidemiology	Who must notify	What to no	otify			Confirmed case definition
<b>Disease epidemiology</b> <i>Pseudomonas aeruginosa</i> is a Gram-negative bacterium found everywhere in the environment and usually causes infections in people who are sick and are hospitalised. This bacterium can cause many types of infections, including bloodstream infections, surgical site infections and others. This bacterium can easily develop resistance to many classes antibiotics such as carbapenems, aminoglycosides and fluoroquinolones. When resistance to many antibiotic classes occurs at the same time, the bacteria is said to be multi-drug resistant or MDR. People who are infected with MDR <i>Pseudomonas aeruginosa</i> are often treated with colistin, but this bacterium is now developing resistance to colistin and patients in hospitals are increasingly infected with colistin-resistant <i>Pseudomonas aeruginosa</i> .		What to not Laboratories a patients with resistant <i>Pseu</i> Only include is determined us microdilutions detected). Resistance sho minimum inhi EUCAST or CLS <b>2021 guidelin</b> Antibiotic Colistin * These guidelin therefore repor recent recomm In addition, lal total number culture test wa cultures from	re to send a clinical spec domonas a solates whe sing confirm s test or PCF build be base bitory conc SI guidelines <b>es for Pseud</b> (MICs in <b>CLSI</b> ≥4 nes are subjecting should a endations. boratories a of patients as done. If a	timens where eruginosa was n resistance whatory method (mcr1, mcr2 ed on interpretentrations accost domonas aeru ce criteria µg/mL) EUCAST >2 et to change ar always be in line are requested for which a ma a patient has r	a colistin- sisolated. vas ds; broth mcr3, etc., etation of fording to <b>ginosa *</b> ginually and e with the most to report the forobiological nultiple	Confirmed case definition A patient with <i>Pseudomonas aeruginosa</i> that is resistant to colistin cultured from any specimen type. A 30-day period will be used to deduplicate patients with multiple subsequent pathogens isolated.
		counted once done for mult counted once	iple specim			

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### COLISTIN-RESISTANT ACINETOBACTER BAUMANII

Disease epidemiology	Who must notify	What to notify				Confirmed case definition
Acinetobacter baumannii is a Gram-negative bacterium that cause infections in hospitalised patients. It can cause serious infections such as pneumonia, sepsis, urinary tract infection and wound infections. Patients who are in intensive care units or those who have undergone surgery or those who have received antibiotic treatment have a higher risk of developing infections with this bacterium. Acinetobacter baumannii has developed antibiotic-resistance to many antibiotic classes, including carbapenems. Colistin is the antibiotic that is usually used for patients who have infections with multi-drug resistant Acinetobacter baumannii. Unfortunately, increased use of colistin has led to Acinetobacter baumannii developing resistance to it. Up to 40% of patients with colistin-resistant Acinetobacter baumannii infections may die.	Laboratory making the diagnosis	Laboratories a patients with o colistin-resista isolated. Only determined us microdilutions etc., detected) Resistance sho minimum inhil to EUCAST or o 2021 guideline Antibiotic Colistin * These guidelir and therefore re- the most recent	linical spec nt Acinetol isolates wh ing confirm test or PCF Juld be base bitory conc CLSI guideli es for Acine (MICs in CLSI ≥4 les are subje	timens where bacter bauma en resistance hatory method (mcr1, mcr2 ed on interpre entrations acc nes. etobacter bau ce criteria µg/mL) EUCAST >2 ct to change ar uld always be in	a nnii was was ds; broth , mcr3, etation of cording mannii *	A patient with Acinetobacter baumannii that is resistant to colistin cultured from any specimen type A 30-day period will be used to deduplicate patients with multiple subsequent pathogens isolated.

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## CLOSTRIDIOIDE (CLOSTRIDIUM) DIFFICILE

Disease epidemiology	Who must notify	What to notify	Confirmed case definition		
Clastridiaida (proviously Clastridium) difficila is a	Laboratory making	Laboratorios ara to condimentable line lists of all	Detions with a staal specimen positive for		
<i>Clostridioide</i> (previously <i>Clostridium</i> ) <i>difficile</i> is a Gram-positive bacterium that produces toxins that can cause disease in humans. This bacterium is the commonest cause of healthcare-associated infections globally and commonly affects patients who are receiving antibiotics for other infections. <i>Clostridioide difficile</i> lives in the gut and can cause mild to severe diarrhoea in patients who receive antibiotics. All antibiotic classes have been shown to cause infections with <i>Clostridioide difficile</i> . Patients with <i>Clostridioide difficile</i> infections can shed spores of this bacterium which can spread to other patients resulting in outbreaks in hospitals. The spores can be difficult to remove from the environment making outbreaks difficult to control. Some patients may develop severe infections such as toxic megacolon and die from this infection.	Laboratory making the diagnosis	Laboratories are to send monthly line lists of all patients with stool specimens were a toxin- producing <i>Clostridioide difficile</i> confirmed with one of the following tests should be sent: GDH antigen and toxin test OR Real-time PCR test for toxigenic <i>Clostridioide difficile</i> In addition, laboratories are to send the total number of stool tests for <i>Clostridioide difficile</i> (positive and negative). Only one test per patient should be counted in a 30-day period.	Patient with a stool specimen positive for toxigenic <i>Clostridioide difficile</i> . Only one positive test per patient in a 30-day period will be reported.		