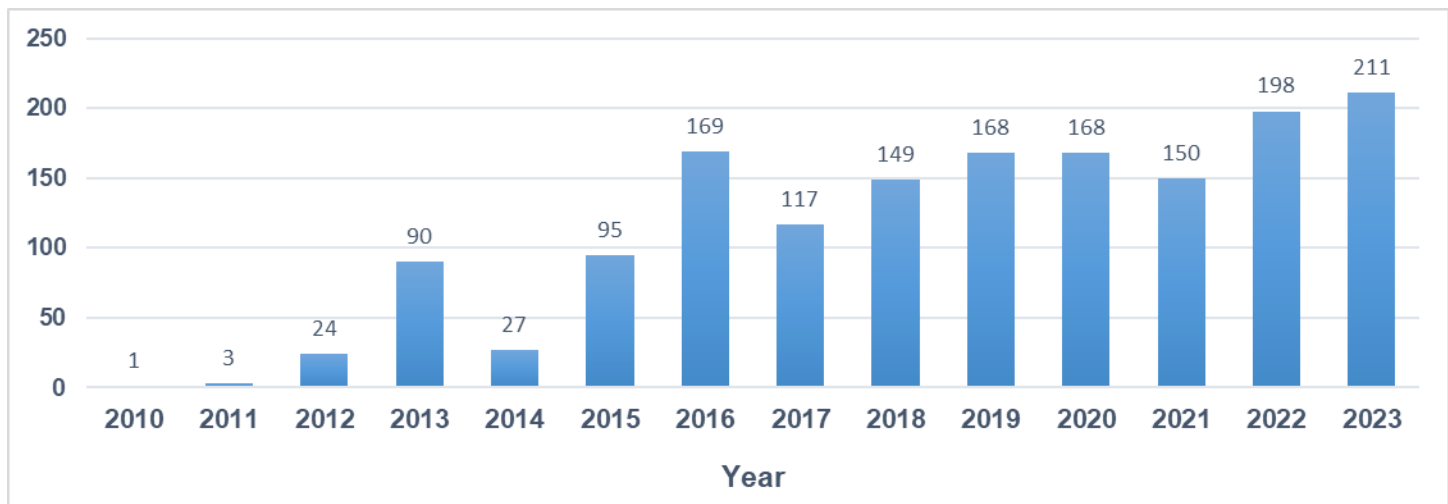


Figure 1. CRE cases of infection or colonization in Oregon residents by year, Jan 2011 – Dec 2023



About carbapenem-resistant Enterobacteriales¹ (CRE):

Carbapenems are broad-spectrum antibiotics frequently used to treat severe infections caused by Gram-negative bacteria. Carbapenem resistance in the Enterobacteriales order emerged as a public health concern over the past decade, as few treatment options remain for some severely ill patients.

For more information about CRE surveillance in Oregon including the specifics of our definition, see <http://public.health.oregon.gov/DiseasesConditions/DiseasesAZ/Pages/disease.aspx?did=108>

CRE Resistance. Carbapenem resistance emerges through various mechanisms, including impaired membrane permeability and the production of carbapenemases (enzymes that break down the carbapenems). Carbapenemase-producing CRE (CP-CRE) are associated with rapid spread and require the most aggressive infection control response; however, all CRE call for certain infection control measures, including contact precautions, and should be considered a public health and infection prevention priority.

CRE Infection. CRE can cause pneumonia, bloodstream infections, surgical site infections, urinary tract infections, and other conditions, frequently affecting hospitalized patients and persons with compromised immune systems. Infections with CRE often require the use of very expensive antibiotics that may have toxic side effects.

While CP-CRE have spread rapidly throughout the United States, they are still not endemic in Oregon. We strive to prevent or delay their spread through surveillance and infection control.

CRE Definition

In July of 2015, Oregon Public Health Division changed its CRE surveillance definition. The current definition is: resistance to any carbapenem including doripenem, ertapenem, imipenem or meropenem using the current M100-S25 CSLI breakpoints. The new definition has been applied to previously reported cases for this report.

¹Previously *Enterobacteriaceae*. In 2016 the family *Enterobacteriaceae* was divided into seven different families under the order Enterobacteriales.

Epidemiology of CRE in Oregon

Laboratories have reported 1570 cases of infection or colonization with CRE in Oregon residents between November 2010 and December 2023. Six hundred ninety-four (44%) of the CRE cases were hospitalized at the time of culture collection; 835 (53%) were outpatients and specimens were collected in a variety of locations including clinics, emergency departments, long-term care facilities or home health settings. The setting for specimen collection was unknown for 41 (3%).

Table 1 displays the frequencies of each organism type (genus and species) and anatomical site of culture among these cases.

CRE have been isolated from clinical cultures collected from residents of 34 Oregon counties. Figure 2 shows case numbers by age and sex.

Eighty-two carbapenemase producing (CP-CRE) have been identified by Oregon labs (figure 3). Seventy-three of the CP-CRE were from Oregon residents; 23 *Klebsiella pneumoniae* carbapenemase (KPC), 30 New Delhi metallo- β -lactamase (NDM), 15 Oxacillinase-48 (OXA-48), 2 imipenemase metallo- β -lactamase (IMP), 2 with NDM and OXA-48, and one with KPC and OXA-48. Forty (55%) of the Oregon CP-CRE cases were from patients with histories of healthcare exposure in other states or countries.

Table 1. Organism and anatomical site of culture

Organism	Anatomical site of culture					Total
	Urine	Blood	Respiratory	Wound	Other	
<i>Enterobacter cloacae</i>	613	21	52	93	30	809
<i>Escherichia coli</i>	173	12	5	17	8	215
<i>Klebsiella aerogenes</i>	131	6	15	11	7	170
<i>Klebsiella pneumoniae</i>	127	7	8	12	6	160
<i>Serratia marcescens</i>	52	3	16	7	1	79
Other	94	2	6	28	7	137
Total	1190	51	102	168	59	1570

Figure 2. Oregon cases, (Nov 2010 – Dec 2023), by age group and sex

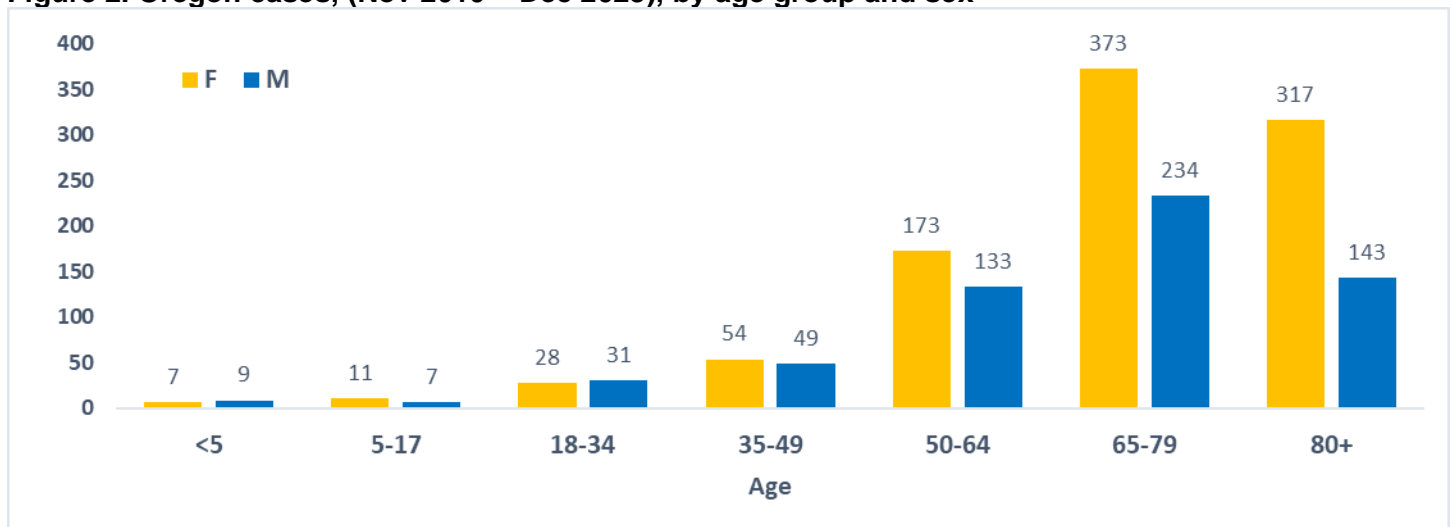


Figure 3. CP-CRE identified by Oregon laboratories by year, Nov 2010 - Dec 2023

