



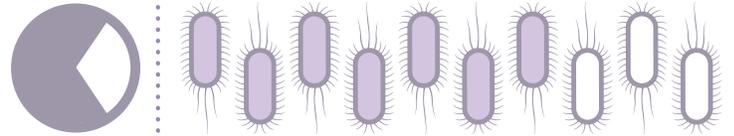
# THE RISE OF RESISTANT GRAM-NEGATIVE BACTERIA IN THE U.S.

There has been increasing attention around serious antibiotic resistant Gram-negative infections. The U.S. Centers for Disease Control and Prevention (CDC) has categorized certain Gram-negative bacteria among the top most serious threats to public health. These pathogens include multidrug-resistant (MDR) *Pseudomonas aeruginosa* and MDR *Acinetobacter*, as well as extended-spectrum beta lactamase (ESBL)-producing bacterial strains of *E. coli* and *Klebsiella pneumoniae*.

In the U.S. the prevalence of resistant Gram-negative bacteria in certain parts of the country varies but the incidence of these pathogens in common infections has been steadily increasing. Recently, carbapenem-resistant Enterobacteriaceae (CRE), including strains producing *Klebsiella pneumoniae* carbapenemase (KPC), has been deemed by the CDC as an urgent public health threat and has received increased attention and concern from the medical community. However, CRE is still considered isolated by area or region.

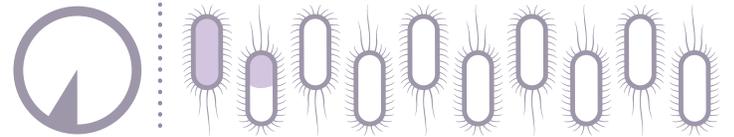
# 70%

*E. coli*, *Klebsiella pneumoniae*, and *Pseudomonas aeruginosa* account for 70% of all Gram-negative pathogens causing healthcare-associated infections.<sup>1</sup>



# 12% PLUS

The prevalence of ESBL-producing bacterial strains has reached more than 12% across the U.S., and these infections are beginning to infiltrate community settings.<sup>2</sup>

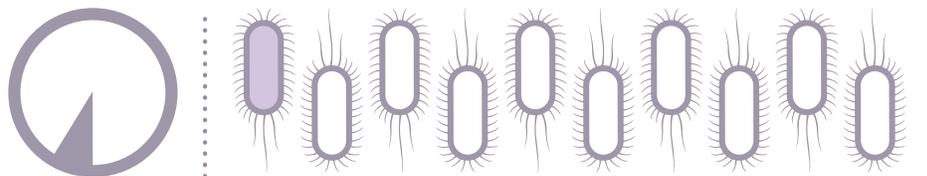


# 15X

In the U.S. the prevalence of MDR *Pseudomonas aeruginosa* is about 15 times higher than the prevalence of carbapenem-resistant Enterobacteriaceae (CRE) in certain common infections.<sup>3</sup>

# 10% PLUS

In the U.S., the prevalence of MDR *Pseudomonas aeruginosa* remained above 10% for more than a decade up through 2010.<sup>4</sup>



<sup>1</sup>Sievert DM, Ricks P, Edwards JR, et al. Antimicrobial-resistant pathogens associated with healthcare-associated infections: summary of data reported to the National Healthcare Safety Network at the Centers for Disease Control and Prevention, 2009-2010. *Infect Control Hosp Epidemiol.* 2013;34(1):1-14

<sup>2</sup>Castanheira M, Farrell SE, Krause KM, et al. Contemporary diversity of  $\beta$ -lactamases among Enterobacteriaceae in the nine U.S. census regions and ceftazidime-avibactam activity tested against isolates producing the most prevalent  $\beta$ -lactamase groups. *Antimicrob Agents Chemother.* 2014;58(2):833-838

<sup>3</sup>Zilberberg MD, Shorr AF. Prevalence of multidrug-resistant *Pseudomonas aeruginosa* and carbapenem-resistant Enterobacteriaceae among specimens from hospitalized patients with pneumonia and bloodstream infections in the United States from 2000 to 2009. *J Hosp Med.* 2013;8(10):559-563

<sup>4</sup>The Center for Disease Dynamics, Economics, & Policy. Resistance Map. <http://cd-dep.org/node/4954#.U31XtJRdVUM>. Accessed May 21, 2014.



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