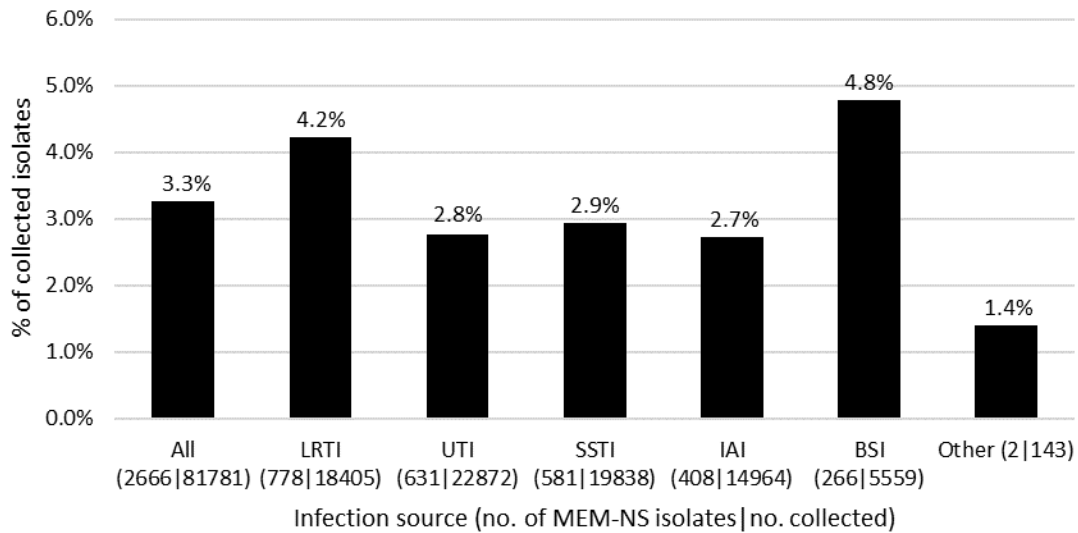


1 AAC02000-20R1

2 **Supplementary material**

3

4 **Figure S1.** Distribution of meropenem-nonsusceptible Enterobacterales isolates collected  
5 globally from 2012 to 2017, by infection source



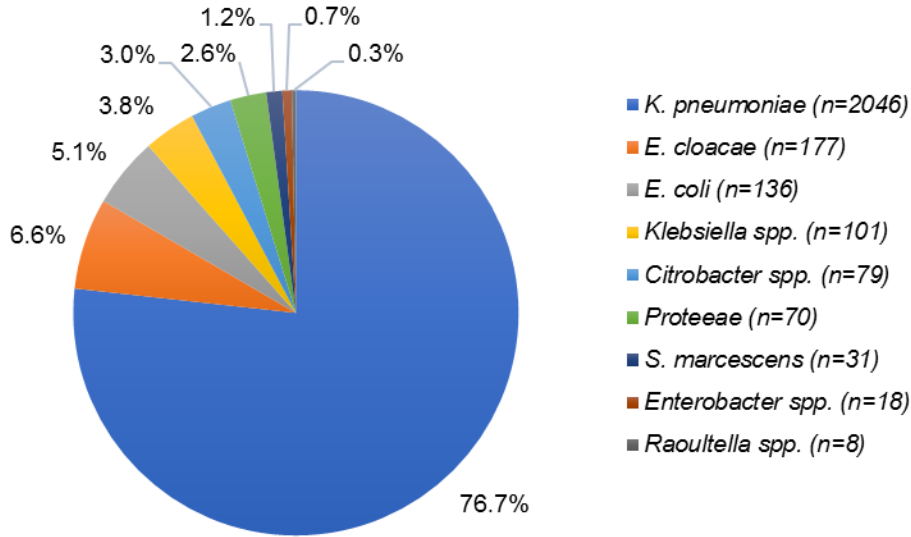
6

7 LRTI, lower respiratory tract infection; UTI, urinary tract infection; SSTI, skin and soft tissue  
8 infection; IAI, intra-abdominal infection; BSI, bloodstream infection; MEM-NS, meropenem-  
9 nonsusceptible.

10

11 **Figure S2.** Species composition of meropenem-nonsusceptible Enterobacterales isolates  
 12 collected globally from 2012 to 2017

13



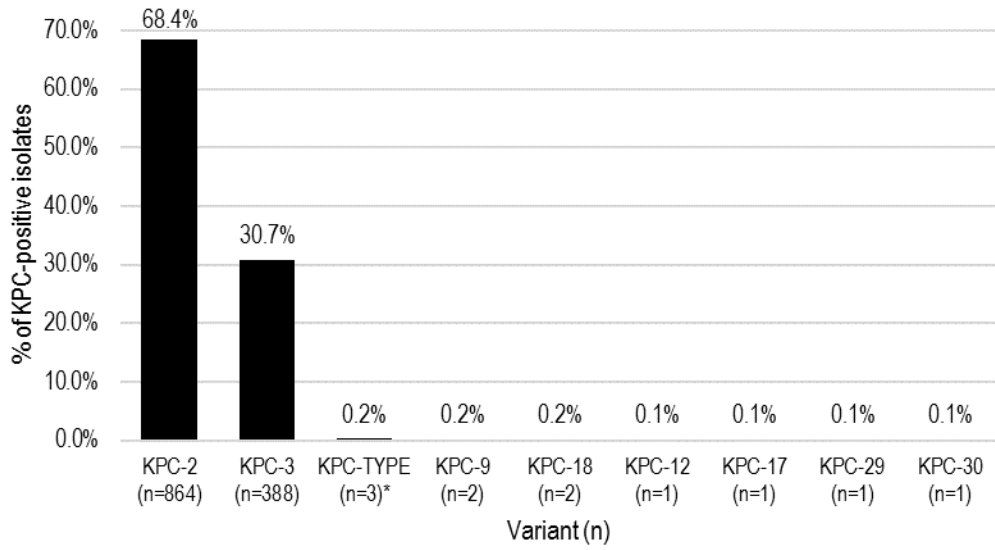
14

15 *Klebsiella spp.* were composed of *Klebsiella aerogenes* (n=51), *Klebsiella oxytoca* (n=47), and  
 16 *Klebsiella variicola* (n=3). *Citrobacter spp.* were composed of *Citrobacter freundii* (n=64),  
 17 *Citrobacter koseri* (n=7), *Citrobacter farmeri* (n=4), *Citrobacter amalonaticus* (n=2),  
 18 *Citrobacter braakii* (n=1), and *Citrobacter*, species not determined (n=1). The Proteeae were  
 19 composed of *Providencia rettgeri* (n=27), *Proteus mirabilis* (n=21), *Providencia stuartii* (n=19),  
 20 *Proteus hauseri* (n=2), and *Proteus vulgaris* (n=1). *Enterobacter spp.* were composed of  
 21 *Enterobacter asburiae* (n=15) and *Enterobacter kobei* (n=3). *Raoultella spp.* were composed of  
 22 *Raoultella ornithinolytica* (n=5) and *Raoultella planticola* (n=3).

23

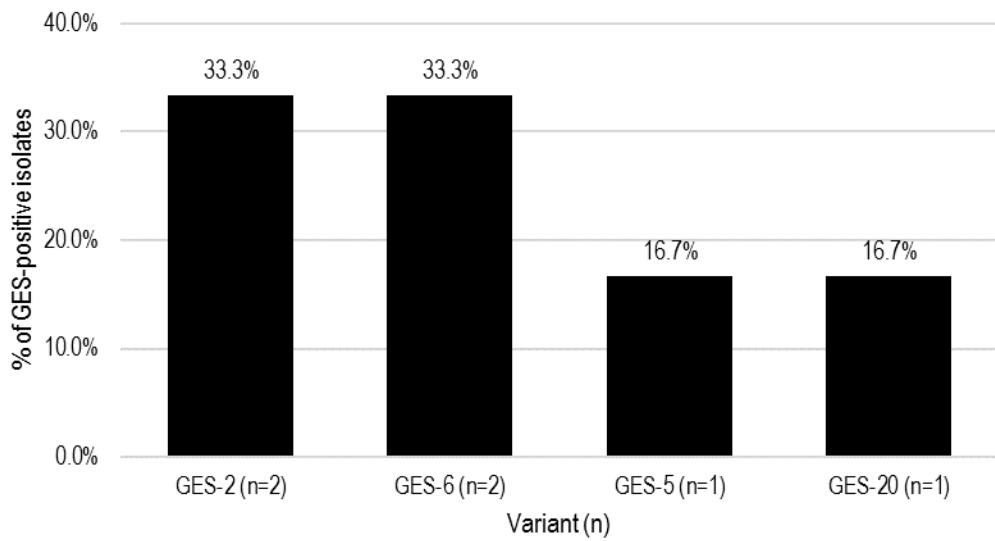
24 **Figure S3.** Diversity and relative prevalence of sequence variants carried by meropenem-  
25 nonsusceptible Enterobacterales isolates collected globally from 2012 to 2017

26



27

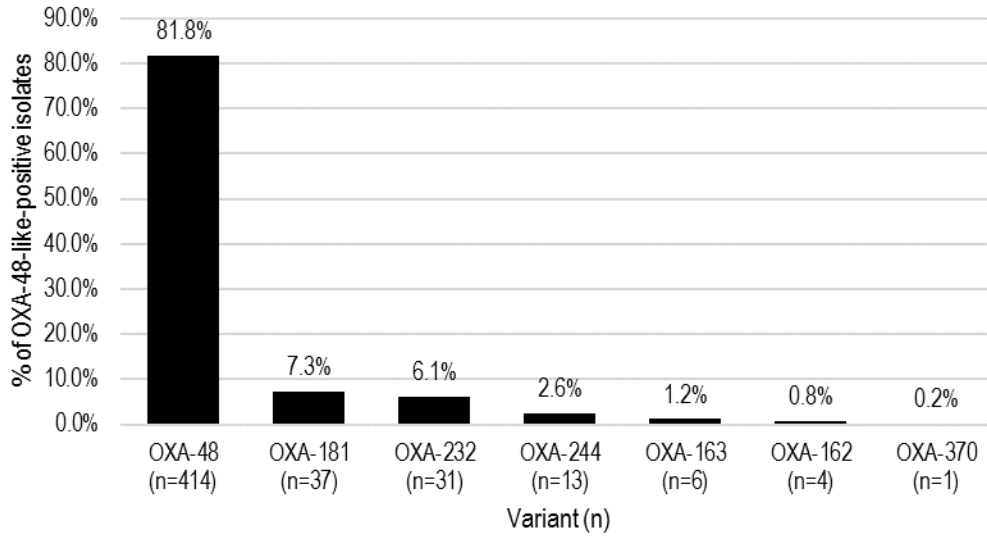
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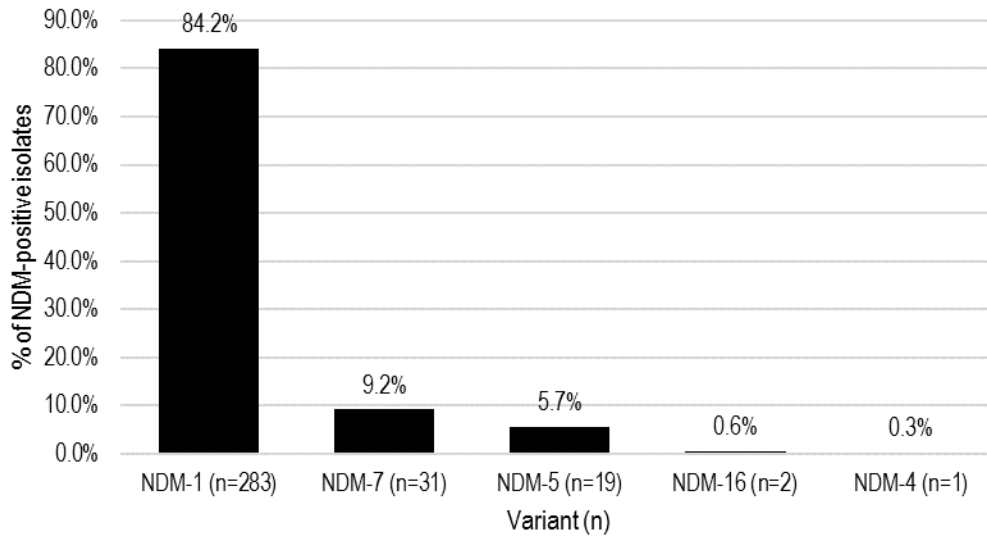
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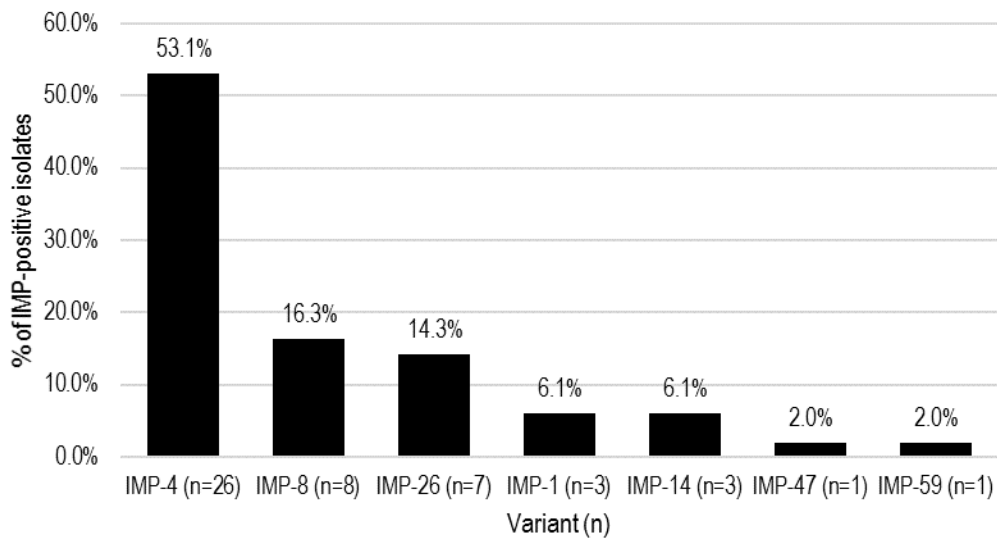
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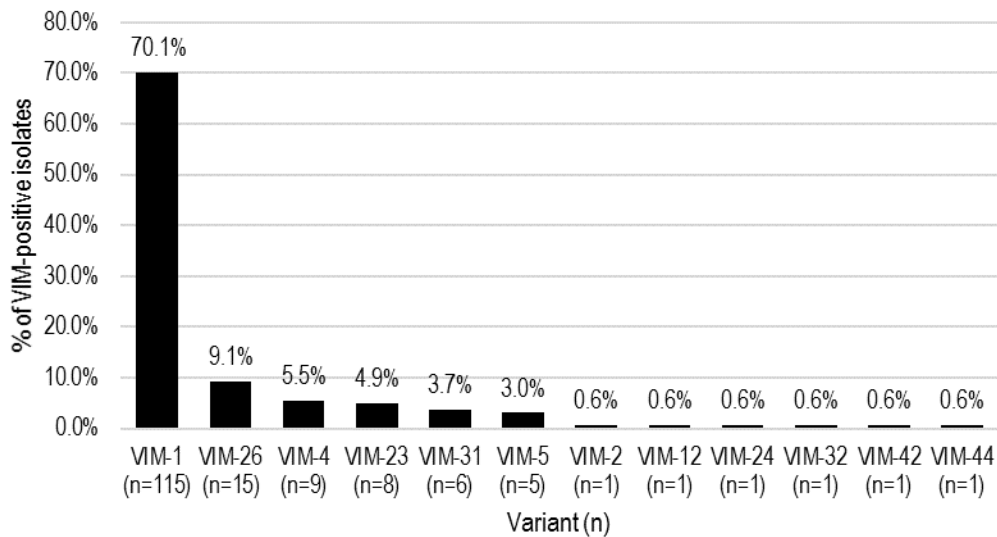
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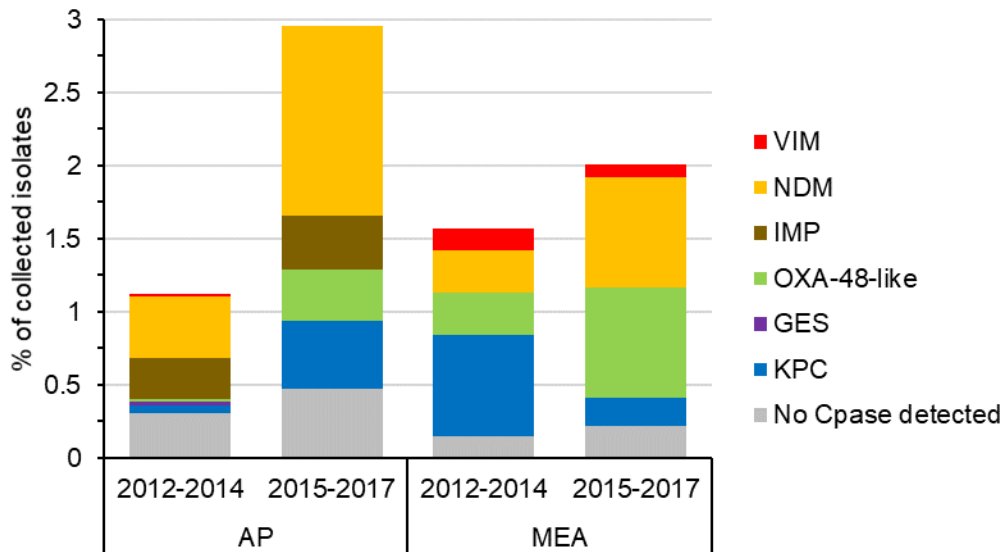
39

40 \*KPC-type; the *bla*<sub>KPC</sub> could not be amplified for sequencing using flanking primers that  
41 hybridized entirely outside of the coding sequence and instead was amplified using primers that  
42 overlap the ends of the gene. For this reason, a sequence variant was not assigned.

43

44 **Figure S4.** Comparison of the distribution of carbapenem-resistance mechanisms identified in  
 45 meropenem-nonsusceptible Enterobacterales isolates collected in countries in Asia/South Pacific  
 46 and Middle East/Africa that participated in all 6 years surveyed

47



48

49 Region (countries; no. of isolates collected in 2012-2014|no. of isolates collected in 2015-2017):

50 AP, Asia/South Pacific (Australia, Japan, the Philippines, South Korea, Taiwan and Thailand;

51 5,268|6,831); MEA, Middle East/Africa (Israel, Kuwait, and South Africa; 2,739|3,690).

52 Countries that were removed from analysis (years of participation): China (2012-2013), Hong

53 Kong (2012-2014), and Malaysia (2013-2015) (AP); Kenya (2013-2014) and Nigeria (2013-

54 2014) (MEA). No Cpase detected, no gene encoding a carbapenemase was detected by PCR.

55 Isolates carrying multiple carbapenemases were counted for each individual carbapenemase type.

56 **Table S1.** Countries participating in a global surveillance study from 2012 to 2017

57

Region	Country	Years of participation <sup>a</sup>					
		2012	2013	2014	2015	2016	2017
Europe	Austria	X	X	X	X	X	—
	Belgium	X	X	X	X	X	X
	Czech Republic	X	X	X	X	X	X
	Denmark	X	X	X	X	X	X
	France	X	X	X	X	X	X
	Germany	X	X	X	X	X	X
	Greece	X	X	X	X	X	X
	Hungary	X	X	X	X	X	X
	Italy	X	X	X	X	X	X
	Netherlands	X	X	X	X	X	X
	Poland	—	X	X	X	X	X
	Portugal	X	X	X	X	X	X
	Romania	X	X	X	X	X	X
	Russia	X	X	X	X	X	X
	Spain	X	X	X	X	X	X
	Sweden	X	X	X	—	—	X
Turkey	X	X	X	X	X	X	
United Kingdom	X	X	X	X	X	X	
Latin America	Argentina	X	X	X	X	X	X
	Brazil	X	X	X	X	X	X
	Chile	X	X	X	X	X	X
	Colombia	X	X	X	X	X	X
	Mexico	X	X	X	X	X	X
	Venezuela	X	X	X	X	X	X
Asia/ South Pacific	Australia	X	X	X	X	X	X
	Mainland China	X	X	NA <sup>b</sup>	NA <sup>b</sup>	NA <sup>b</sup>	NA <sup>b</sup>
	Hong Kong <sup>c</sup>	X	X	X	—	—	—
	Japan	X	X	X	X	X	X
	Malaysia	—	X	X	X	—	—
	Philippines	X	X	X	X	X	X
	South Korea	X	X	X	X	X	X
	Taiwan	X	X	X	X	X	X
	Thailand	X	X	X	X	X	X
Middle East/ Africa	Israel	X	X	X	X	X	X
	Kenya	—	X	X	—	—	—
	Kuwait	X	X	X	X	X	X
	Nigeria	—	X	X	—	—	—
	South Africa	X	X	X	X	X	X
North America	United States	X	X	X	X	X	—

58 <sup>a</sup> “X” denotes participation during the indicated year. “—” denotes no participation during the indicated year.

59 <sup>b</sup> “NA”, isolates were collected from patients in mainland China but were not available due to export restrictions.

60 ° Isolates were obtained from patients in Hong Kong during the first three years of the study (2012-2014). Hong  
61 Kong is listed separately from mainland China for this reason.