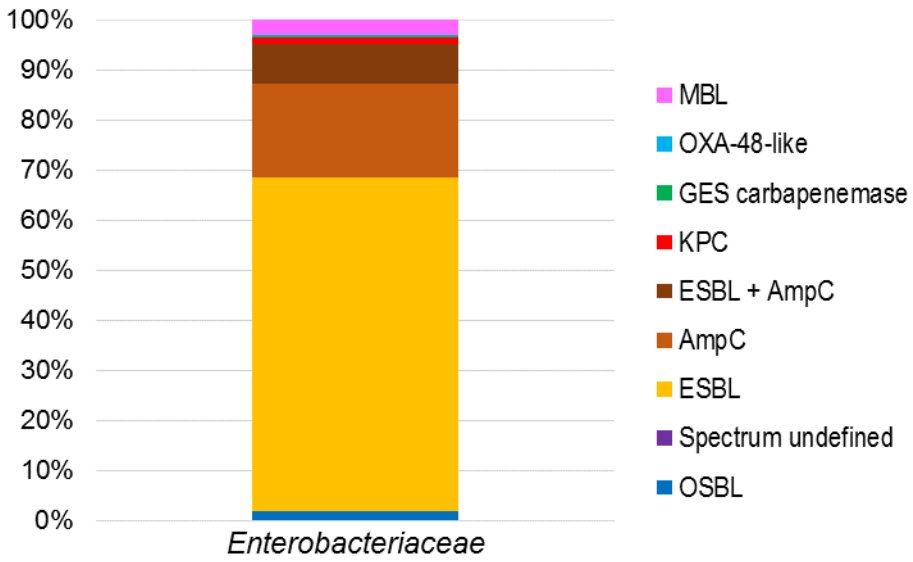
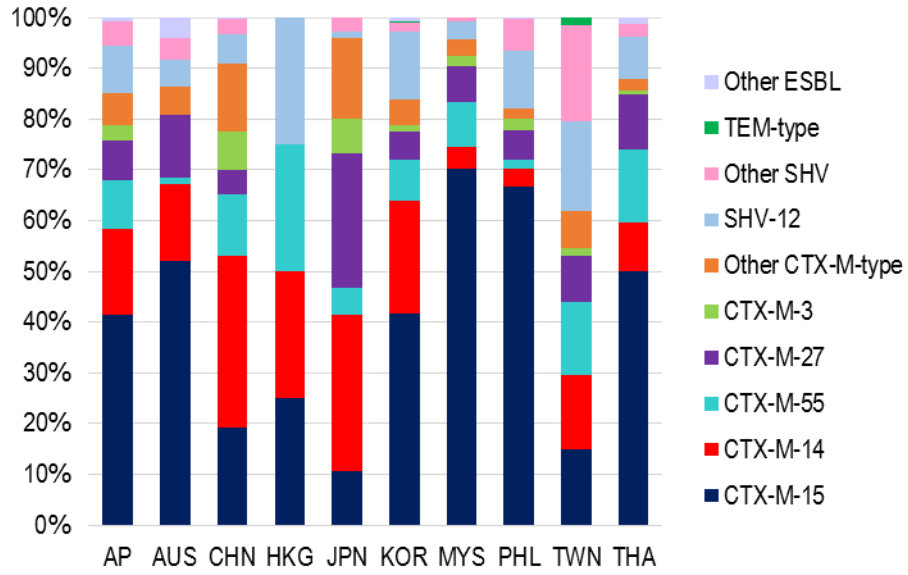
Supplementary Material – Karlowsky *et al*, "*In Vitro* activity of ceftazidime-avibactam against clinical isolates of *Enterobacteriaceae* and *Pseudomonas aeruginosa* collected in Asia-Pacific countries: Results from the INFORM Global Surveillance Program, 2012–2015"

Figure S1A. Distribution of genes encoding β–lactamase enzyme types among 2,388 molecularly characterized *Enterobacteriaceae* isolates collected in Asia–Pacific countries from 2012–2015



The β–lactamase content of each subset is described in the footnote to Table 2; includes intrinsic and acquired β–lactamases. OSBL, original–spectrum β–lactamase (e.g. TEM–1, SHV–1, SHV–11); Spectrum undefined, SHV–type and/or TEM–type β–lactamase with undefined spectrum of activity; ESBL, extended–spectrum β–lactamase; MBL, metallo–β–lactamase.

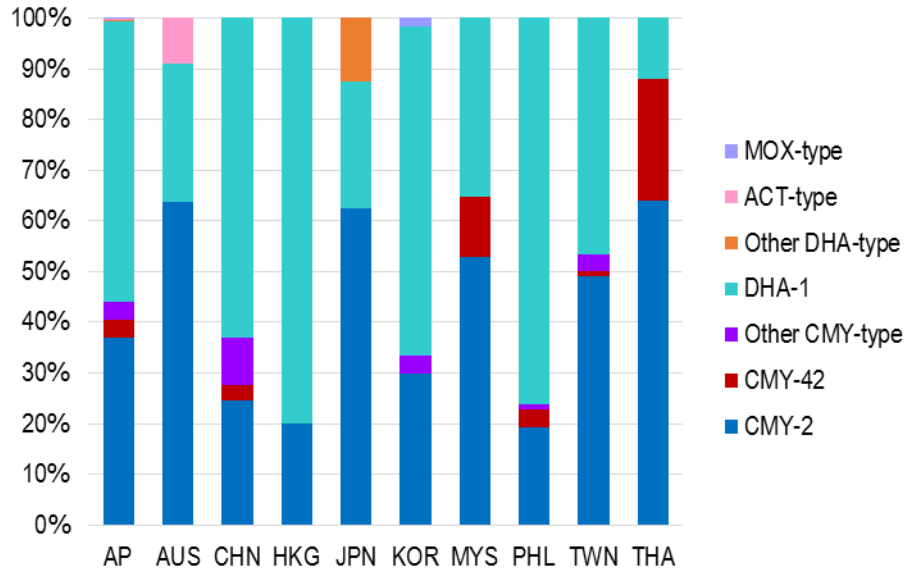
Figure S1B. Distribution of genes encoding acquired ESBLs in molecularly characterized isolates of *Enterobacteriaceae* collected in Asia–Pacific countries



Region/Country (no. of ESBL genes detected | no. of ESBL–producing isolates): AP, Asia–Pacific (2010 | 1839); AUS, Australia (73 | 69); CHN, China (452 | 402); HKG, Hong Kong (8 | 8); JPN, Japan (75 | 73); KOR, South Korea 285 | 261); MYS, Malaysia (145 | 140); PHL, Philippines (358 | 329); TWN, Taiwan (200 | 183); THA, Thailand (414 | 374). Some isolates carried more than one ESBL.

ESBL subtypes identified (total no. of genes): CTX–M–15 (832), CTX–M–14 (339), CTX–M–55 (193), CTX–M–27 (160), CTX–M–3 (62), CTX–M–65 (44), CTX–M–24 (19), CTX–M–79 (13), CTX–M–9 (7), CTX–M–2 (4), CTX–M–22 (4), CTX–M–90 (4), CTX–M–28 (3), CTX–M–130 (3), CTX–M–1 (2), CTX–M–8 (2), CTX–M–13 (2), CTX–M–19 (2), CTX–M–40 (2), CTX–M–104 (2), CTX–M–12 (1), CTX–M–64 (1), CTX–M–74 (1), CTX–M–75 (1), CTX–M–101 (1), CTX–M–116 (1), CTX–M–125 (1), CTX–M–134 (1), CTX–M–145 (1), CTX–M–149 (1), CTX–M–161 (1), CTX–M–179 (1), CTX–M–type (1), SHV–12 (186), SHV–5 (39), SHV–28 (19), SHV–2A (15), SHV–31 (10), SHV–2 (7), SHV–38 (2), SHV–45 (1), SHV–55 (1), SHV–90 (1), SHV–115 (1), TEM–12 (1), TEM–20 (1), TEM–25 (1), TEM–29 (1), VEB–1 (4), VEB–6 (2), VEB–1A (1), VEB–14 (1), VEB–17 (1), PER–1 (2), PER–3 (1).

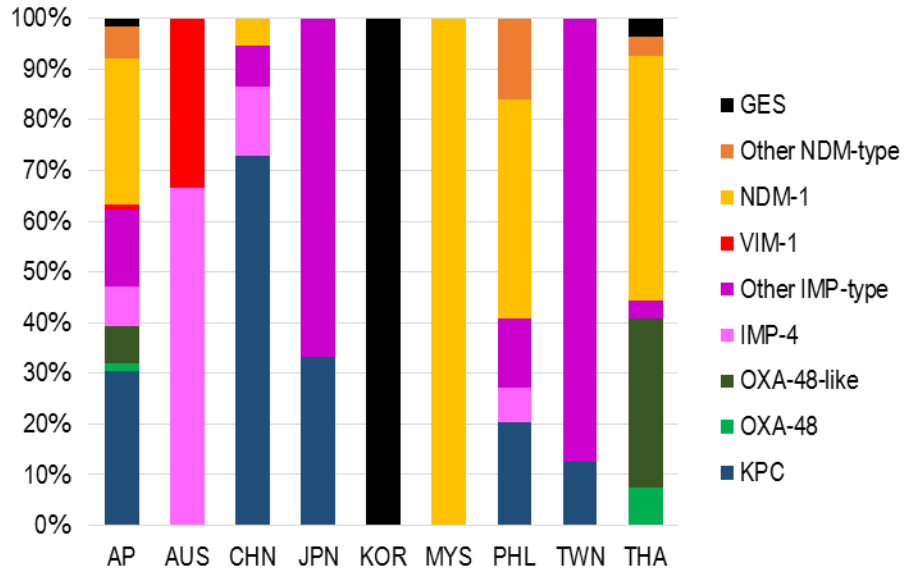
Figure S1C. Distribution of genes encoding acquired AmpC β–lactamases in molecularly characterized isolates of *Enterobacteriaceae* collected in Asia–Pacific countries



Region/Country (no. of AmpC genes detected | no. of AmpC–producing isolates): AP, Asia–Pacific (394 | 387); AUS, Australia (11 | 11); CHN, China (65 | 65); HKG, Hong Kong (5 | 5); JPN, Japan (8 | 8); KOR, South Korea (57 | 57); MYS, Malaysia (17 | 16); PHL, Philippines (88 | 86); TWN, Taiwan (118 | 114); THA, Thailand (25 | 25). Some isolates carried more than one AmpC.

AmpC subtypes identified (total no. of genes): CMY–2 (146); CMY–42 (14), CMY–32 (2), CMY–34 (2), CMY–4 (1), CMY–6 (1), CMY–10 (1), CMY–11 (1), CMY–59 (1), CMY–62 (1), CMY–81 (1), CMY–88 (1), CMY–type (1), DHA–1 (218), DHA–type (1), ACT–type (1), MOX–type (1).

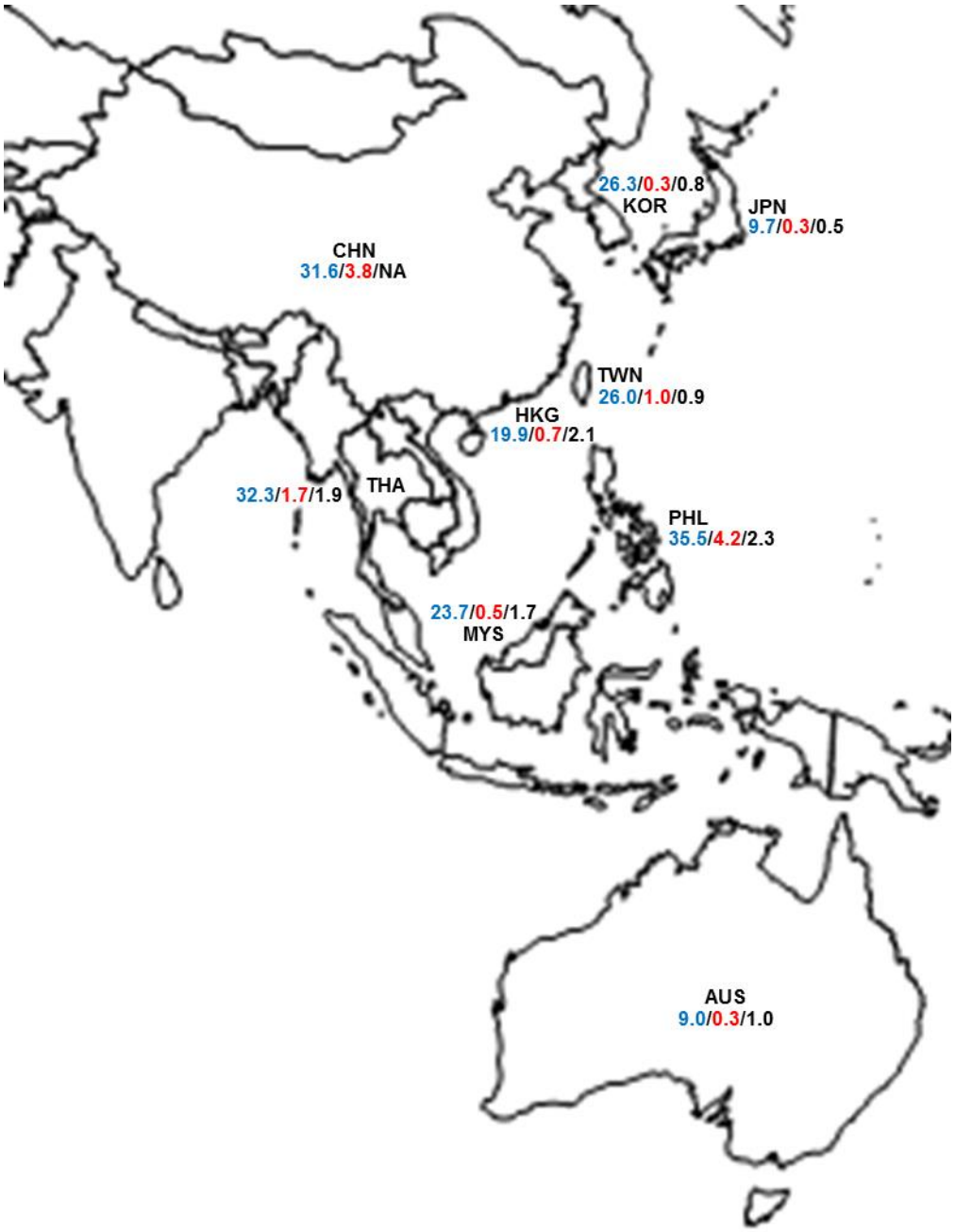
Figure S1D. Distribution of genes encoding acquired carbapenemases in molecularly characterized isolates of *Enterobacteriaceae* collected in Asia–Pacific countries



Region/Country (no. of carbapenemase genes detected | no. of carbapenemase–producing isolates): AP, Asia–Pacific (125 | 118); AUS, Australia (3 | 3); CHN, China (37 | 35); HKG, Hong Kong (0 | 0); JPN, Japan (3 | 3); KOR, South Korea (1 | 1); MYS, Malaysia (2 | 2); PHL, Philippines (44 | 44); TWN, Taiwan (8 | 8); THA, Thailand (27 | 22). Some isolates carried more than one carbapenemase.

Carbapenemase subtypes identified (total no. of genes): KPC–2 (37), KPC–12 (1), OXA–232 (6), OXA–181 (3), OXA–48 (2), IMP–4 (10), IMP–8 (7), IMP–26 (6), IMP–1 (4), IMP–14 (1), IMP–47 (1), VIM–1 (1), NDM–1 (36), NDM–7 (7), NDM–5 (1), GES–5 (1), GES–13 (1).

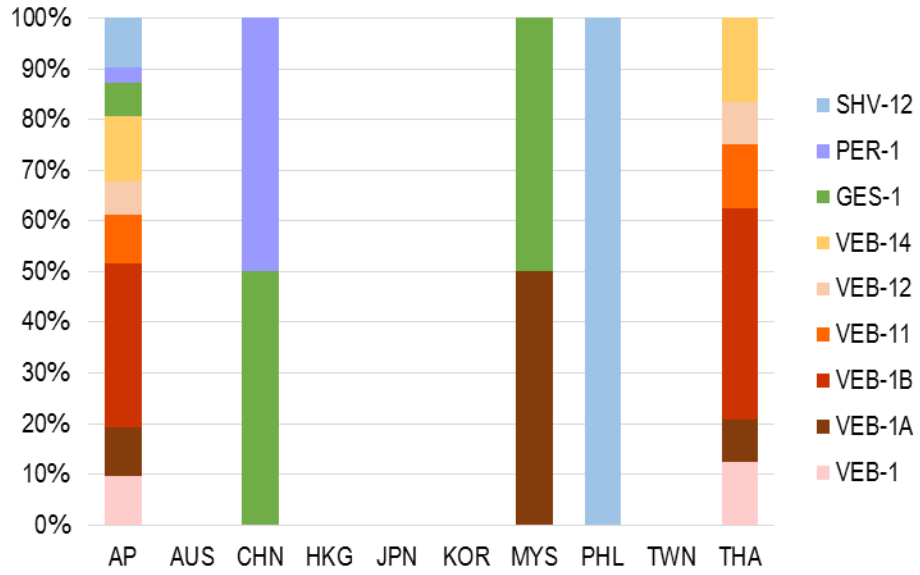
Figure S2. Percentage of isolates of *Enterobacteriaceae* collected in 2012–2015 with resistant phenotypes, by Asia–Pacific country.[a]



[a]Percentages of collected isolates that were ceftazidime-nonsusceptible (MIC ≥8 µg/ml; blue font), meropenem-nonsusceptible (MIC ≥2 µg/ml, red font), and colistin-resistant (MIC ≥4 µg/ml, black font) are indicated for each country. Colistin was tested against isolates collected in 2014-2015 only. Country abbreviations were: AUS, Australia; CHN, China; HKG, Hong Kong; JPN, Japan; KOR, South Korea; MYS, Malaysia; PHL, Philippines; TWN, Taiwan; THA,

Thailand. No isolates were obtained from patients in mainland China in 2014–2015 or patients in Hong Kong in 2015 due to export restrictions.

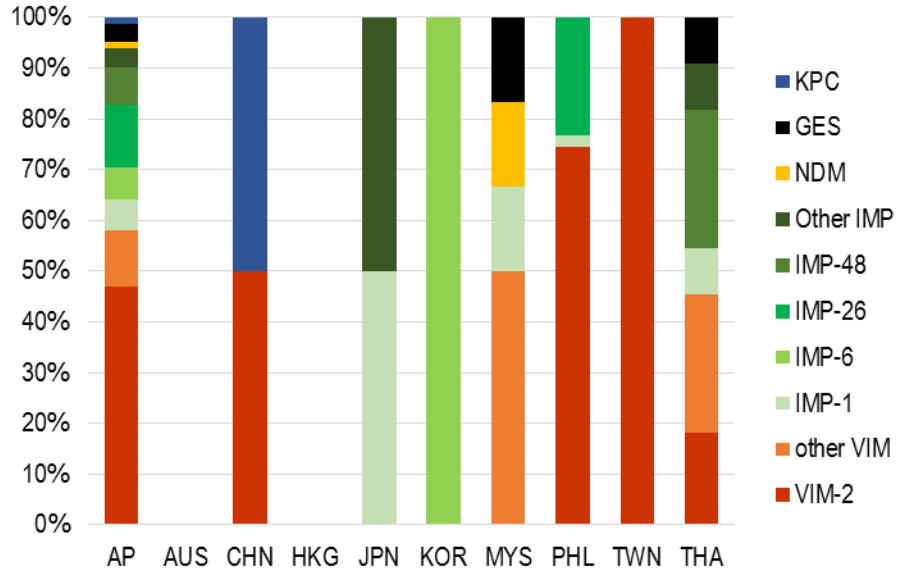
Figure S3A. Distribution of genes encoding acquired ESBLs in molecularly characterized isolates of *P. aeruginosa* collected in Asia–Pacific countries



Region/Country (no. of ESBL genes detected | no. of ESBL–producing isolates): AP, Asia–Pacific (31 | 31); AUS, Australia (0 | 0); CHN, China (2 | 2); HKG, Hong Kong (0 | 0); JPN, Japan (0 | 0); KOR, South Korea (0 | 0); MYS, Malaysia (2 | 2); PHL, Philippines (3 | 3); TWN, Taiwan (0 | 0); THA, Thailand (24 | 24). No isolate carried more than one ESBL.

ESBL subtypes identified (total no. of genes): VEB–1B (10), VEB–14 (4), VEB–1 (3), VEB–1A (3), VEB–11 (3), VEB–12 (2), GES–1 (2), PER–1 (1), SHV–12 (3).

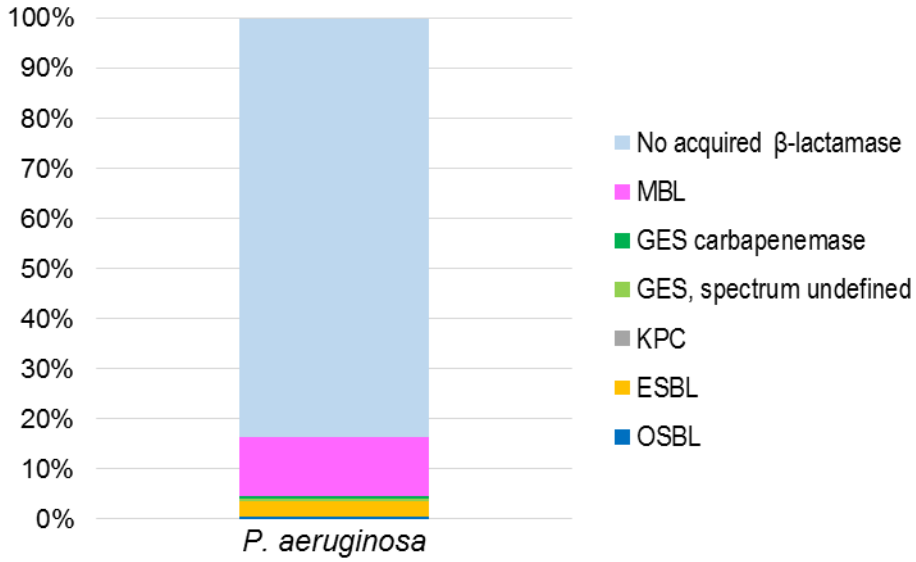
Figure S3B. Distribution of genes encoding acquired carbapenemases in molecularly characterized isolates of *P. aeruginosa* collected in Asia–Pacific countries.



Region/Country (no. of carbapenemase genes detected | no. of carbapenemase–producing isolates): AP, Asia–Pacific (81 | 78); AUS, Australia (0 | 0); CHN, China (2 | 2); HKG, Hong Kong (0 | 0); JPN, Japan (2 | 2); KOR, South Korea (5 | 5); MYS, Malaysia (6 | 6); PHL, Philippines (43 | 40); TWN, Taiwan (1 | 1); THA, Thailand (22 | 22). Some isolates carried more than one carbapenemase.

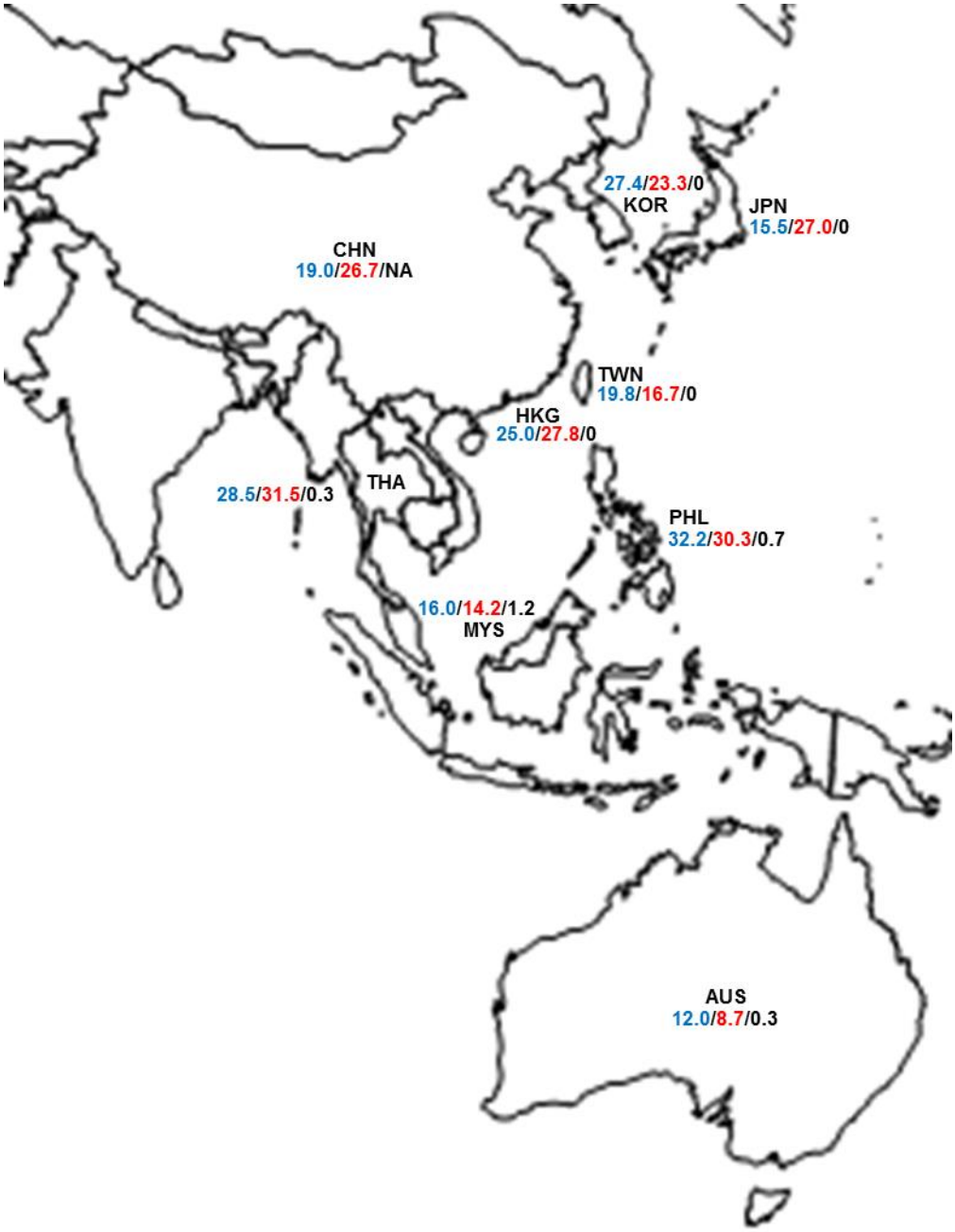
Carbapenemase subtypes identified (total no. of genes): VIM–2 (38), VIM–6 (3), VIM–5 (2), VIM–45 (2), VIM–49 (2), IMP–26 (10), IMP–48 (6), IMP–1 (5), IMP–6 (5), IMP–7 (2), IMP–14 (1), NDM–1 (1), KPC–2 (1), GES–5 (2), GES–13 (1).

Figure S3C. Distribution of genes encoding β–lactamase enzyme types among 632 molecularly characterized carbapenem–nonsusceptible isolates of *P. aeruginosa* collected in Asia–Pacific countries from 2012–2015



The acquired β–lactamase content of each subset is described in the footnote to Table 2. OSBL, original–spectrum β–lactamase (e.g. TEM–1, SHV–1, SHV–11); ESBL, extended–spectrum β–lactamase; GES, spectrum undefined, enzymes with undefined spectrum of activity (ESBL and/or carbapenemase); MBL, metallo–β–lactamase.

Figure S4. Percentage of *P. aeruginosa* isolates collected in 2012–2015 with resistant phenotypes, by Asia–Pacific country.[a]



[a]Percentages of collected isolates that were ceftazidime-nonsusceptible (MIC ≥16 µg/ml; blue font), meropenem-nonsusceptible (MIC ≥4 µg/ml, red font), and colistin-resistant (MIC ≥8 µg/ml [M100–S26, 2016 CLSI MIC resistant breakpoint]; black font) are indicated for each country. Colistin was tested against isolates collected in 2014-2015 only. Country abbreviations were: AUS, Australia; CHN, China; HKG, Hong Kong; JPN, Japan; KOR, South Korea; MYS,

Malaysia; PHL, Philippines; TWN, Taiwan; THA, Thailand. No isolates were obtained from patients in mainland China in 2014–2015 or patients in Hong Kong in 2015 due to export restrictions.

Supplemental Table S1. Demographic information associated with the 11,187 Gram-negative bacilli tested by the INFORM global surveillance program from 2012 to 2015

		Enterobacteriaceae (no. of isolates)	*P. aeruginosa* (no. of isolates)
Total no. of isolates		9,149	2,038
Specimen source			
	Intra-abdominal	2,104	268
	Urinary tract	2,661	296
	Skin and soft tissue	1,835	482
	Lower respiratory tract	2,190	932
	Bloodstream	321	57
	Other	38	3
Country (number of participating medical centers)			
	Australia (9)	1,331	300
	China (12)[a]	1,242	195
	Hong Kong (1)[b]	146	36
	Japan (4)	783	174
	Malaysia (3)	651	169
	Philippines (3)	1,299	304
	South Korea (3)	1,184	270
	Taiwan (3)	1,247	288
	Thailand (4)	1,266	302
Year of isolation			
	2012	2,160	317
	2013	2,849	443
	2014	2,078	632
	2015	2,062	646

[a] No isolates were obtained from patients in mainland China in 2014-2015 due to export restrictions.

[b] No isolates were obtained from patients in Hong Kong in 2015 due to export restrictions.

Supplemental Table S2A. Australia – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 1,331 isolates of *Enterobacteriaceae* and 300 isolates of *P. aeruginosa* collected as part of the INFORM global surveillance program in 2012–2015.

Organism, phenotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae					
All (1,331)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 128	99.7
	Ceftazidime	0.12	2	≤0.015 – >128	91.0
	Cefepime	≤0.12	0.5	≤0.12 – >16	93.8
	Aztreonam	0.06	4	≤0.015 – >128	90.9
	Piperacillin–tazobactam	2	8	≤0.25 – >128	94.5
	Doripenem	0.06	0.25	0.015 – >4	99.2
	Imipenem	0.25	2	0.06 – >8	84.5
	Meropenem	0.03	0.12	0.008 – 8	99.7
	Amikacin	2	4	≤0.25 – >32	99.2
	Colistin (*n*=622)[d]	1	>4	≤0.12 – >4	82.8
	Tigecycline	0.5	2	0.06 – 8	94.4
	Levofloxacin	0.06	0.5	≤0.03 – >4	94.5
All, MBL-negative (1,328)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 16	99.9
	Ceftazidime	0.12	2	≤0.015 – >128	91.2
	Cefepime	≤0.12	0.5	≤0.12 – >16	94.0
	Aztreonam	0.06	4	≤0.015 – >128	91.0
	Piperacillin–tazobactam	2	8	≤0.25 – >128	94.7
	Doripenem	0.06	0.25	0.015 – >4	99.4
	Imipenem	0.25	2	0.06 – >8	84.6
	Meropenem	0.03	0.12	0.008 – 2	99.9
	Amikacin	2	4	≤0.25 – >32	99.3
	Colistin (*n*=621)[d]	1	>4	≤0.12 – >4	82.8
	Tigecycline	0.5	2	0.06 – 8	94.4
	Levofloxacin	0.06	0.5	≤0.03 – >4	94.6
Ceftazidime-nonsusceptible (120)	Ceftazidime–avibactam	0.25	1	0.03 – 128	96.7
	Ceftazidime	32	>128	8 – >128	0
	Cefepime	4	>16	≤0.12 – >16	46.7
	Aztreonam	32	128	0.03 – >128	10.8
	Piperacillin–tazobactam	16	>128	≤0.25 – >128	59.2
	Doripenem	0.06	0.25	0.015 – >4	95.8
	Imipenem	0.25	2	0.06 – >8	87.5
	Meropenem	0.06	0.12	0.015 – 8	96.7
	Amikacin	2	8	0.5 – >32	94.2
	Colistin (*n*=53)[d]	1	1	≤0.12 – >4	92.5
	Tigecycline	0.5	1	0.06 – 4	95.8
	Levofloxacin	0.5	>4	≤0.03 – >4	62.5
Ceftazidime-nonsusceptible, MBL-negative (117)	Ceftazidime–avibactam	0.25	1	0.03 – 16	99.2
	Ceftazidime	32	>128	8 – >128	0
	Cefepime	4	>16	≤0.12 – >16	47.0
	Aztreonam	32	128	0.03 – >128	10.3
	Piperacillin–tazobactam	16	>128	≤0.25 – >128	59.8
	Doripenem	0.06	0.25	0.015 – 2	98.3
	Imipenem	0.25	2	0.06 – 8	89.7
	Meropenem	0.06	0.12	0.015 – 2	99.2
	Amikacin	2	8	1 – >32	94.9
	Colistin (*n*=52)[d]	1	1	≤0.12 – >4	92.3
	Tigecycline	0.5	1	0.06 – 4	96.6
	Levofloxacin	0.5	>4	≤0.03 – >4	62.4
Meropenem-nonsusceptible (4)	Ceftazidime–avibactam	—[b]	—	4 – 128	25.0

Organism, phenotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	—	—	64 – >128	0
	Cefepime	—	—	2 – >16	25.0
	Aztreonam	—	—	0.25 – >128	25.0
	Piperacillin–tazobactam	—	—	4 – >128	25.0
	Doripenem	—	—	2 – >4	0
	Imipenem	—	—	0.25 – >8	25.0
	Meropenem	—	—	2 – 8	0
	Amikacin	—	—	0.5 – >32	50.0
	Colistin (n=1)[d]	—	—	1	100
	Tigecycline	—	—	0.5 – 4	75.0
	Levofloxacin	—	—	0.5 – >4	50.0
Meropenem-nonsusceptible, MBL-negative (1)	Ceftazidime–avibactam	—[b]	—	4	100
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	2	0
	Imipenem	—	—	0.25	100
	Meropenem	—	—	2	0
	Amikacin	—	—	>32	0
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	>4	0
Colistin–resistant (13)[f,g]	Ceftazidime–avibactam	0.12	0.5	0.06 – 1	100
	Ceftazidime	0.25	32	0.12 – 64	84.6
	Cefepime	≤0.12	2	≤0.12 – >16	92.3
	Aztreonam	0.12	16	0.03 – 16	84.6
	Piperacillin–tazobactam	4	16	2 – 16	100
	Doripenem	0.12	0.25	0.03 – >4	92.3
	Imipenem	1	4	0.06 – 4	61.5
	Meropenem	0.06	0.12	0.03 – 0.25	100
	Amikacin	1	4	1 – >32	92.3
	Colistin (n=13)[d]	>4	>4	4 – >4	0
	Tigecycline	0.5	1	0.12 – 1	100
	Levofloxacin	0.06	0.12	≤0.03 – 0.5	100
Multidrug–resistant (36)	Ceftazidime–avibactam	0.25	1	0.06 – 32	97.2
	Ceftazidime	32	>128	0.25 – >128	2.8
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	64	128	0.12 – >128	2.8
	Piperacillin–tazobactam	8	>128	≤0.25 – >128	72.2
	Doripenem	0.06	0.25	0.015 – >4	91.7
	Imipenem	0.25	2	0.06 – >8	88.9
	Meropenem	0.06	0.12	0.015 – 2	94.4
	Amikacin	8	32	1 – >32	83.3
	Colistin (n=19)[d]	1	1	0.5 – >4	94.7
	Tigecycline	0.5	4	0.06 – 4	88.9
	Levofloxacin	>4	>4	0.06 – >4	8.3
Multidrug–resistant, MBL-negative (35)	Ceftazidime–avibactam	0.25	1	0.06 – 4	100
	Ceftazidime	32	>128	0.25 – >128	2.9
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	64	128	0.12 – >128	2.9
	Piperacillin–tazobactam	8	>128	≤0.25 – >128	74.3
	Doripenem	0.06	0.25	0.015 – >4	94.3
	Imipenem	0.25	1	0.06 – 4	91.4
	Meropenem	0.06	0.12	0.015 – 2	97.1
	Amikacin	8	32	1 – >32	85.7
	Colistin (n=19)[d]	1	1	0.5 – >4	94.7
	Tigecycline	0.5	2	0.06 – 4	91.4
	Levofloxacin	>4	>4	0.06 – >4	8.6

Organism, phenotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Escherichia coli[g]					
All (433)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 1	100
	Ceftazidime	0.12	8	0.03 – >128	89.4
	Cefepime	≤0.12	4	≤0.12 – >16	89.2
	Aztreonam	0.12	8	≤0.015 – 128	88.7
	Piperacillin–tazobactam	2	8	≤0.25 – >128	96.5
	Doripenem	0.03	0.06	0.015 – 0.25	100
	Imipenem	0.12	0.25	0.06 – 2	99.8
	Meropenem	0.03	0.03	0.008 – 0.12	100
	Amikacin	2	4	0.5 – >32	99.3
	Colistin (*n*=205)[d]	0.5	1	≤0.12 – >4	99.5
	Tigecycline	0.25	0.5	0.06 – 1	100
	Levofloxacin	0.03	>4	≤0.03 – >4	88.7
Ceftazidime-nonsusceptible (46)	Ceftazidime–avibactam	0.25	0.25	0.03 – 0.5	100
	Ceftazidime	32	64	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	21.7
	Aztreonam	32	64	2 – 128	6.5
	Piperacillin–tazobactam	4	16	1 – >128	91.3
	Doripenem	0.06	0.06	0.015 – 0.25	100
	Imipenem	0.25	0.5	0.06 – 2	97.8
	Meropenem	0.03	0.06	0.015 – 0.12	100
	Amikacin	4	16	1 – >32	93.5
	Colistin (*n*=22)[d]	0.5	1	≤0.12 – 1	100
	Tigecycline	0.25	0.5	0.06 – 1	100
	Levofloxacin	>4	>4	≤0.03 – >4	32.6
Colistin-resistant (1)	Ceftazidime–avibactam	—[b]	—	0.12	100
	Ceftazidime	—	—	0.12	100
	Cefepime	—	—	≤0.12	100
	Aztreonam	—	—	0.12	100
	Piperacillin–tazobactam	—	—	8	100
	Doripenem	—	—	0.12	100
	Imipenem	—	—	0.25	100
	Meropenem	—	—	0.03	100
	Amikacin	—	—	4	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	0.25	100
	Levofloxacin	—	—	≤0.03	100
Multidrug-resistant (23)	Ceftazidime–avibactam	0.25	0.5	0.06 – 0.5	100
	Ceftazidime	32	64	8 – >128	0
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	64	64	16 – 128	0
	Piperacillin–tazobactam	4	16	1 – 128	95.7
	Doripenem	0.06	0.06	0.015 – 0.12	100
	Imipenem	0.12	0.25	0.06 – 0.25	100
	Meropenem	0.03	0.06	0.015 – 0.12	100
	Amikacin	4	16	2 – 32	95.7
	Colistin (n=12)[d]	0.5	1	0.5 – 1	100
	Tigecycline	0.25	0.5	0.06 – 0.5	100
	Levofloxacin	>4	>4	>4 – >4	0
Klebsiella pneumoniae					
All (347)	Ceftazidime–avibactam	0.12	0.25	0.03 – 128	99.7
	Ceftazidime	0.12	0.5	0.06 – >128	95.4
	Cefepime	≤0.12	0.25	≤0.12 – >16	95.4
	Aztreonam	0.06	0.25	≤0.015 – >128	95.7
	Piperacillin–tazobactam	4	8	≤0.25 – >128	95.1
	Doripenem	0.06	0.12	0.03 – >4	99.1
	Imipenem	0.25	0.5	0.06 – 8	98.6
	Meropenem	0.03	0.06	0.015 – 8	99.4
	Amikacin	1	2	≤0.25 – >32	99.1
	Colistin (*n*=173)[d]	1	1	0.25 – >4	97.7

Organism, phenotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Tigecycline	0.5	1	0.06 – 4	99.1
	Levofloxacin	0.06	0.5	≤0.03 – >4	96.3
All, MBL-negative (346)	Ceftazidime–avibactam	0.12	0.25	0.03 – 4	100
	Ceftazidime	0.12	0.5	0.06 – >128	95.7
	Cefepime	≤0.12	0.25	≤0.12 – >16	95.7
	Aztreonam	0.06	0.25	≤0.015 – >128	95.7
	Piperacillin–tazobactam	4	8	≤0.25 – >128	95.4
	Doripenem	0.06	0.12	0.03 – >4	99.4
	Imipenem	0.25	0.5	0.06 – 4	98.8
	Meropenem	0.03	0.06	0.015 – 2	99.7
	Amikacin	1	2	≤0.25 – >32	99.1
	Colistin (*n*=173)[d]	1	1	0.25 – >4	97.7
	Tigecycline	0.5	1	0.06 – 4	99.1
	Levofloxacin	0.06	0.25	≤0.03 – >4	96.2
Ceftazidime-nonsusceptible (16)	Ceftazidime–avibactam	0.5	4	0.12 – 128	93.8
	Ceftazidime	64	>128	16 – >128	0
	Cefepime	16	>16	≤0.12 – >16	18.8
	Aztreonam	64	>128	0.25 – >128	12.5
	Piperacillin–tazobactam	32	>128	2 – >128	37.5
	Doripenem	0.06	2	0.03 – >4	87.5
	Imipenem	0.25	1	0.12 – 8	93.8
	Meropenem	0.06	2	0.03 – 8	87.5
	Amikacin	2	8	1 – >32	93.8
	Colistin (*n*=6)[d]	—[b]	—	1 – 1	100
	Tigecycline	1	2	0.25 – 4	93.8
	Levofloxacin	2	>4	0.06 – >4	50.0
Ceftazidime-nonsusceptible, MBL-negative (15)	Ceftazidime–avibactam	0.5	1	0.12 – 4	100
	Ceftazidime	64	>128	16 – >128	0
	Cefepime	16	>16	≤0.12 – >16	20.0
	Aztreonam	64	>128	2 – >128	6.7
	Piperacillin–tazobactam	32	>128	2 – >128	40.0
	Doripenem	0.06	0.25	0.03 – 2	93.3
	Imipenem	0.25	1	0.12 – 1	100
	Meropenem	0.06	0.12	0.03 – 2	93.3
	Amikacin	4	8	1 – >32	93.3
	Colistin (*n*=6)[d]	1	1	1 – 1	100
	Tigecycline	1	2	0.25 – 4	93.3
	Levofloxacin	>4	>4	0.06 – >4	46.7
Meropenem-nonsusceptible (2)	Ceftazidime–avibactam	—[b]	—	4 – 128	50.0
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	0.25 – >128	50.0
	Piperacillin–tazobactam	—	—	32 – >128	0
	Doripenem	—	—	2 – >4	0
	Imipenem	—	—	0.25 – 8	50.0
	Meropenem	—	—	2 – 8	0
	Amikacin	—	—	2 – >32	50.0
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Tigecycline	—	—	1 – 1	100
	Levofloxacin	—	—	0.5 – >4	50.0
Meropenem-nonsusceptible, MBL-negative (1)	Ceftazidime–avibactam	—[b]	—	4	100
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	2	0
	Imipenem	—	—	0.25	100
	Meropenem	—	—	2	0
	Amikacin	—	—	>32	0

Organism, phenotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	>4	0
Colistin–resistant (4)[g]	Ceftazidime–avibactam	—[b]	—	0.12 – 0.25	100
	Ceftazidime	—	—	0.12 – 0.25	100
	Cefepime	—	—	≤0.12 – >16	75.0
	Aztreonam	—	—	0.06 – 0.12	100
	Piperacillin–tazobactam	—	—	2 – 4	100
	Doripenem	—	—	0.03 – >4	75.0
	Imipenem	—	—	0.06 – 4	75.0
	Meropenem	—	—	0.03 – 0.06	100
	Amikacin	—	—	1 – >32	75.0
	Colistin (n=4)[d]	—	—	4 – >4	0
	Tigecycline	—	—	0.12 – 0.5	100
	Levofloxacin	—	—	0.06 – 0.12	100
Multidrug-resistant (9)[g]	Ceftazidime–avibactam	—[b]	—	0.25 – 4	100
	Ceftazidime	—	—	0.25 – >128	11.1
	Cefepime	—	—	16 – >16	0
	Aztreonam	—	—	0.12 – >128	11.1
	Piperacillin–tazobactam	—	—	4 – >128	22.2
	Doripenem	—	—	0.03 – >4	77.8
	Imipenem	—	—	0.12 – 4	88.9
	Meropenem	—	—	0.03 – 2	88.9
	Amikacin	—	—	1 – >32	77.8
	Colistin (n=7)[d]	—	—	1 – >4	85.7
	Tigecycline	—	—	0.5 – 4	88.9
	Levofloxacin	—	—	0.06 – >4	22.2
Klebsiella oxytoca					
All (82)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 64	98.8
	Ceftazidime	0.12	0.5	≤0.015 – 64	98.8
	Cefepime	≤0.12	0.25	≤0.12 – 4	98.8
	Aztreonam	0.12	1	≤0.015 – 64	92.7
	Piperacillin–tazobactam	2	4	≤0.25 – >128	93.9
	Doripenem	0.06	0.12	0.03 – 2	98.8
	Imipenem	0.25	0.5	0.06 – 2	98.8
	Meropenem	0.03	0.06	0.015 – 4	98.8
	Amikacin	1	2	0.5 – 8	100
	Colistin (*n*=35)[d]	1	1	0.5 – 2	100
	Tigecycline	0.25	0.5	0.06 – 2	100
	Levofloxacin	0.06	0.06	≤0.03 – 2	100
All, MBL-negative (81)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 0.5	100
	Ceftazidime	0.12	0.5	≤0.015 – 2	100
	Cefepime	≤0.12	0.25	≤0.12 – 4	98.8
	Aztreonam	0.12	0.5	≤0.015 – 64	93.8
	Piperacillin–tazobactam	2	4	≤0.25 – >128	93.8
	Doripenem	0.06	0.12	0.03 – 0.12	100
	Imipenem	0.25	0.5	0.06 – 1	100
	Meropenem	0.03	0.06	0.015 – 0.12	100
	Amikacin	1	2	0.5 – 8	100
	Colistin (*n*=34)[d]	1	1	0.5 – 2	100
	Tigecycline	0.25	0.5	0.06 – 2	100
	Levofloxacin	0.06	0.06	≤0.03 – 2	100
Ceftazidime-nonsusceptible (1)[h]	Ceftazidime–avibactam	—[b]	—	64	0
	Ceftazidime	—	—	64	0
	Cefepime	—	—	2	100
	Aztreonam	—	—	32	0
	Piperacillin–tazobactam	—	—	4	100
	Doripenem	—	—	2	0
	Imipenem	—	—	2	0

Organism, phenotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Meropenem	—	—	4	0
	Amikacin	—	—	0.5	100
	Colistin (*n*=1)[d]	—	—	1	100
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	1	100
Meropenem-nonsusceptible (1)[h]	Ceftazidime–avibactam	—[b]	—	64	0
	Ceftazidime	—	—	64	0
	Cefepime	—	—	2	100
	Aztreonam	—	—	32	0
	Piperacillin–tazobactam	—	—	4	100
	Doripenem	—	—	2	0
	Imipenem	—	—	2	0
	Meropenem	—	—	4	0
	Amikacin	—	—	0.5	100
	Colistin (n=1)[d]	—	—	1	100
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	1	100
Enterobacter spp.[g]					
All (163)[i]	Ceftazidime–avibactam	0.25	0.5	0.03 – 1	100
	Ceftazidime	0.25	64	0.03 – >128	76.1
	Cefepime	≤0.12	2	≤0.12 – >16	92.6
	Aztreonam	0.12	32	≤0.015 – >128	78.5
	Piperacillin–tazobactam	4	64	≤0.25 – >128	84.1
	Doripenem	0.06	0.25	0.015 – 1	100
	Imipenem	1	2	0.06 – >8	77.9
	Meropenem	0.06	0.12	0.015 – 1	100
	Amikacin	1	2	≤0.25 – 8	100
	Colistin (*n*=70)[d]	1	4	0.25 – >4	88.6
	Tigecycline	0.5	1	0.06 – 4	98.8
	Levofloxacin	0.06	0.12	≤0.03 – 4	99.4
Ceftazidime-nonsusceptible (39)	Ceftazidime–avibactam	0.5	1	0.12 – 1	100
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	1	8	≤0.12 – >16	69.2
	Aztreonam	32	128	1 – >128	10.3
	Piperacillin–tazobactam	64	>128	4 – >128	35.9
	Doripenem	0.12	0.25	0.06 – 0.5	100
	Imipenem	0.5	2	0.25 – 4	89.7
	Meropenem	0.12	0.25	0.06 – 0.5	100
	Amikacin	1	4	1 – 8	100
	Colistin (n=14)[d]	1	4	0.25 – >4	85.7
	Tigecycline	0.5	1	0.25 – 4	97.4
	Levofloxacin	0.06	1	≤0.03 – 4	97.4
Colistin-resistant (8)	Ceftazidime–avibactam	—[b]	—	0.06 – 1	100
	Ceftazidime	—	—	0.12 – 64	75.0
	Cefepime	—	—	≤0.12 – 2	100
	Aztreonam	—	—	0.03 – 16	75.0
	Piperacillin–tazobactam	—	—	2 – 16	100
	Doripenem	—	—	0.06 – 0.25	100
	Imipenem	—	—	0.25 – 4	50.0
	Meropenem	—	—	0.03 – 0.25	100
	Amikacin	—	—	1 – 2	100
	Colistin (n=8)[d]	—	—	4 – >4	0
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	≤0.03 – 0.5	100
Multidrug-resistant (1)	Ceftazidime–avibactam	—[b]	—	1	100
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0

Organism, phenotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Doripenem	—	—	0.12	100
	Imipenem	—	—	0.5	100
	Meropenem	—	—	0.25	100
	Amikacin	—	—	1	100
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Tigecycline	—	—	2	100
	Levofloxacin	—	—	2	100
Citrobacter spp.[g,]					
All (93)[j]	Ceftazidime–avibactam	0.12	0.5	0.03 – 0.5	100
	Ceftazidime	0.25	64	0.06 – >128	87.1
	Cefepime	≤0.12	1	≤0.12 – 4	97.9
	Aztreonam	0.12	16	≤0.015 – 128	88.2
	Piperacillin–tazobactam	2	16	1 – >128	90.3
	Doripenem	0.06	0.06	0.03 – 0.12	100
	Imipenem	0.25	2	0.06 – 4	89.3
	Meropenem	0.03	0.06	0.015 – 0.25	100
	Amikacin	2	4	≤0.25 – 16	100
	Colistin (*n*=43)[d]	1	1	0.25 – 2	100
	Tigecycline	0.25	0.5	0.06 – 1	100
	Levofloxacin	0.06	0.5	≤0.03 – >4	97.9
Ceftazidime-nonsusceptible (12)	Ceftazidime–avibactam	0.5	0.5	0.12 – 0.5	100
	Ceftazidime	128	128	16 – >128	0
	Cefepime	1	2	≤0.12 – 2	100
	Aztreonam	32	64	4 – 128	8.3
	Piperacillin–tazobactam	64	>128	16 – >128	25.0
	Doripenem	0.06	0.12	0.06 – 0.12	100
	Imipenem	1	2	0.25 – 4	83.3
	Meropenem	0.06	0.12	0.03 – 0.25	100
	Amikacin	2	2	1 – 4	100
	Colistin (n=8)[d]	—[b]	—	0.5 – 1	100
	Tigecycline	0.5	0.5	0.25 – 0.5	100
	Levofloxacin	0.12	0.5	0.06 – 2	100
Proteeae					
All (183)[k]	Ceftazidime–avibactam	0.06	0.12	≤0.015 – 32	98.9
	Ceftazidime	0.06	0.25	≤0.015 – >128	96.7
	Cefepime	≤0.12	0.25	≤0.12 – >16	97.8
	Aztreonam	≤0.015	0.12	≤0.015 – 64	97.3
	Piperacillin–tazobactam	≤0.25	1	≤0.25 – 128	99.5
	Doripenem	0.25	0.5	0.03 – 4	96.2
	Imipenem	2	4	0.12 – >8	18.6
	Meropenem	0.12	0.25	0.015 – 2	99.5
	Amikacin	4	8	≤0.25 – >32	97.3
	Colistin (*n*=80)[d]	>4	>4	2 – >4	1.3
	Tigecycline	2	4	0.5 – 8	61.8
	Levofloxacin	0.06	0.5	≤0.03 – >4	95.6
All, MBL-negative (182)	Ceftazidime–avibactam	0.06	0.12	≤0.015 – 16	99.5
	Ceftazidime	0.06	0.25	≤0.015 – >128	97.3
	Cefepime	≤0.12	≤0.12	≤0.12 – >16	98.4
	Aztreonam	≤0.015	0.12	≤0.015 – 64	97.8
	Piperacillin–tazobactam	≤0.25	1	≤0.25 – 8	100
	Doripenem	0.25	0.5	0.03 – 4	96.7
	Imipenem	2	4	0.12 – >8	18.7
	Meropenem	0.12	0.12	0.015 – 1	100
	Amikacin	4	8	≤0.25 – >32	97.8
	Colistin (*n*=80)[d]	>4	>4	2 – >4	1.3
	Tigecycline	2	4	0.5 – 8	62.1
	Levofloxacin	0.06	0.5	≤0.03 – >4	96.2
Ceftazidime-nonsusceptible (6)	Ceftazidime–avibactam	—[b]	—	0.06 – 32	66.7
	Ceftazidime	—	—	16 – >128	0

Organism, phenotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	—	—	≤0.12 – >16	50.0
	Aztreonam	—	—	0.03 – 64	50.0
	Piperacillin–tazobactam	—	—	≤0.25 – 128	83.3
	Doripenem	—	—	0.12 – 2	66.7
	Imipenem	—	—	2 – >8	0
	Meropenem	—	—	0.06 – 2	83.3
	Amikacin	—	—	2 – >32	50.0
	Colistin (n=2)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	2 – 4	50.0
	Levofloxacin	—	—	0.5 – >4	16.7
Ceftazidime-nonsusceptible, MBL-negative (5)	Ceftazidime–avibactam	—[b]	—	0.06 – 16	80.0
	Ceftazidime	—	—	16 – >128	0
	Cefepime	—	—	≤0.12 – >16	60.0
	Aztreonam	—	—	0.03 – 64	60.0
	Piperacillin–tazobactam	—	—	≤0.25 – 1	100
	Doripenem	—	—	0.12 – 2	80.0
	Imipenem	—	—	2 – 8	0
	Meropenem	—	—	0.06 – 1	100
	Amikacin	—	—	2 – 32	60.0
	Colistin (n=2)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	2 – 4	60.0
	Levofloxacin	—	—	0.5 – >4	20.0
Meropenem-nonsusceptible (1)[h]	Ceftazidime–avibactam	—[b]	—	32	0
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	16	0
	Aztreonam	—	—	16	0
	Piperacillin–tazobactam	—	—	128	0
	Doripenem	—	—	2	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	2	0
	Amikacin	—	—	>32	0
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Tigecycline	—	—	4	0
	Levofloxacin	—	—	>4	0
Multidrug–resistant (3)	Ceftazidime–avibactam	—[b]	—	1 – 32	66.7
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	16 – >16	0
	Aztreonam	—	—	16 – 64	0
	Piperacillin–tazobactam	—	—	≤0.25 – 128	66.7
	Doripenem	—	—	0.12 – 2	66.7
	Imipenem	—	—	2 – >8	0
	Meropenem	—	—	0.06 – 2	66.7
	Amikacin	—	—	32 – >32	0
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Tigecycline	—	—	4 – 4	0
	Levofloxacin	—	—	>4 – >4	0
Multidrug-resistant, MBL-negative (2)	Ceftazidime–avibactam	—[b]	—	1 – 4	100
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	32 – 64	0
	Piperacillin–tazobactam	—	—	≤0.25 – ≤0.25	100
	Doripenem	—	—	0.12 – 0.25	100
	Imipenem	—	—	2 – 4	0
	Meropenem	—	—	0.06 – 0.06	100
	Amikacin	—	—	32 – 32	0
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Tigecycline	—	—	4 – 4	0
	Levofloxacin	—	—	>4 – >4	0
Other *Enterobacteriaceae*[g]					

Organism, phenotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
All (30)[l]	Ceftazidime–avibactam	0.25	0.5	0.03 – 0.5	100
	Ceftazidime	0.12	0.5	0.06 – 0.5	100
	Cefepime	≤0.12	≤0.12	≤0.12 – 0.25	100
	Aztreonam	0.12	0.25	≤0.015 – 0.5	100
	Piperacillin–tazobactam	2	2	≤0.25 – 4	100
	Doripenem	0.12	0.25	0.06 – 1	100
	Imipenem	0.5	2	0.25 – 4	83.3
	Meropenem	0.06	0.12	0.03 – 0.12	100
	Amikacin	2	4	≤0.25 – 8	100
	Colistin (*n*=16)[d]	>4	>4	1 – >4	6.3
	Tigecycline	1	2	0.25 – 2	100
	Levofloxacin	0.12	0.25	≤0.03 – 1	100
Pseudomonas aeruginosa[g]					
All (300)	Ceftazidime–avibactam	2	4	0.12 – 128	99.0
	Ceftazidime	2	16	0.5 – >128	88.0
	Cefepime	2	16	≤0.12 – >16	89.7
	Aztreonam	8	32	0.25 – >128	73.7
	Piperacillin–tazobactam	8	64	≤0.25 – >128	84.0
	Doripenem	0.5	2	0.03 – >4	92.7
	Imipenem	2	8	0.06 – >8	72.3
	Meropenem	0.5	2	0.015 – >8	91.3
	Amikacin	4	8	≤0.25 – >32	97.3
	Colistin (*n*=175)[d]	2	2	0.5 – 8	93.1
	Levofloxacin	0.5	4	≤0.03 – >4	87.3
Ceftazidime-nonsusceptible (36)	Ceftazidime–avibactam	4	8	0.25 – 128	91.7
	Ceftazidime	64	128	16 – >128	0
	Cefepime	16	>16	1 – >16	36.1
	Aztreonam	32	128	4 – >128	19.4
	Piperacillin–tazobactam	128	>128	16 – >128	5.6
	Doripenem	1	>4	0.12 – >4	69.4
	Imipenem	2	>8	0.5 – >8	58.3
	Meropenem	1	>8	0.25 – >8	72.2
	Amikacin	4	32	≤0.25 – >32	88.9
	Colistin (n=23)[d]	2	2	0.5 – 4	95.7
	Levofloxacin	0.5	>4	0.12 – >4	66.7
Meropenem-nonsusceptible (26)	Ceftazidime–avibactam	4	16	0.5 – 128	88.5
	Ceftazidime	8	128	2 – >128	61.5
	Cefepime	8	>16	2 – >16	65.4
	Aztreonam	16	64	1 – 128	38.5
	Piperacillin–tazobactam	16	>128	4 – >128	57.7
	Doripenem	4	>4	0.5 – >4	26.9
	Imipenem	>8	>8	2 – >8	7.7
	Meropenem	8	>8	4 – >8	0
	Amikacin	4	32	2 – >32	84.6
	Colistin (n=18)[d]	2	2	0.5 – 2	100
	Levofloxacin	2	>4	0.25 – >4	53.9
Colistin-resistant (1)	Ceftazidime–avibactam	—[b]	—	2	100
	Ceftazidime	—	—	8	100
	Cefepime	—	—	2	100
	Aztreonam	—	—	32	0
	Piperacillin–tazobactam	—	—	4	100
	Doripenem	—	—	0.5	100
	Imipenem	—	—	2	100
	Meropenem	—	—	0.25	100
	Amikacin	—	—	2	100
	Colistin (n=1)[d]	—	—	8	0
	Levofloxacin	—	—	0.5	100
Multidrug-resistant (17)	Ceftazidime–avibactam	8	32	1 – 128	82.4
	Ceftazidime	128	128	4 – >128	5.9

Organism, phenotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	>16	>16	8 – >16	5.9
	Aztreonam	64	>128	16 – >128	0
	Piperacillin–tazobactam	>128	>128	16 – >128	11.8
	Doripenem	2	>4	0.5 – >4	58.8
	Imipenem	8	>8	2 – >8	41.2
	Meropenem	2	>8	0.25 – >8	58.8
	Amikacin	8	32	2 – >32	88.2
	Colistin (n=11)[d]	2	2	0.5 – 2	100
	Levofloxacin	4	>4	0.12 – >4	47.1

[a] MBL-negative, no gene encoding a metallo–β–lactamase was detected by PCR.

[b] —, MIC_{50} and MIC_{90} were not calculated for *n* <10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] ND, not determined; MIC range and % susceptible were not calculated for n=0 isolates.

[f] Excludes isolates of Proteeae and *Serratia* spp. that are intrinsically resistant to colistin.

[g] All isolates were MBL–negative.

[h] All isolates were MBL–positive.

[i] *Enterobacter* spp. includes *Enterobacter aerogenes* (*n*=67), *Enterobacter asburiae* (*n*=9), *Enterobacter cloacae* (*n*=79), *Enterobacter kobei* (*n*=5), and *Enterobacter ludwigii* (*n*=3).

[j] *Citrobacter* spp. includes *Citrobacter amalonaticus* (*n*=3), *Citrobacter braakii* (*n*=1), *Citrobacter freundii* (*n*=41), *Citrobacter koseri* (*n*=47), and *Citrobacter* of unknown species (n=1).

[k] Proteeae includes *Morganella morganii* (*n*=37), *Proteus mirabilis* (n=86), *Proteus penneri* (n=4), *Proteus vulgaris* (n=41), *Providencia rettgeri* (*n*=11), and *Providencia stuartii* (*n*=4).

[l] Other *Enterobacteriaceae* includes *Raoultella ornithinolytica* (*n*=2), *Serratia liquefaciens* (*n*=1), and *Serratia marcescens* (*n*=27).

Supplemental Table S2B. Australia – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 204 isolates of β–lactamase–positive *Enterobacteriaceae* (n=134) and *P. aeruginosa* (n=70) collected as part of the INFORM global surveillance program in 2012–2015.

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae (134)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.5	100
OSBL–positive (4)	Ceftazidime	—	—	0.12 – 64	75.0
	Cefepime	—	—	≤0.12 – 1	100
	Aztreonam	—	—	0.03 – 32	75.0
	Piperacillin–tazobactam	—	—	0.5 – >128	25.0
	Doripenem	—	—	0.06 – 0.25	100
	Imipenem	—	—	0.12 – 2	75.0
	Meropenem	—	—	0.03 – 0.06	100
	Amikacin	—	—	0.5 – >32	75.0
	Colistin (n=2)[d]	—	—	0.5 – 1	100
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	0.06 – 0.12	100
ESBL–positive (66)[e]	Ceftazidime–avibactam	0.25	0.5	0.03 – 4	100
	Ceftazidime	16	128	0.05 – >128	24.2
	Cefepime	>16	>16	2 – >16	7.6
	Aztreonam	32	128	2 – >128	12.1
	Piperacillin–tazobactam	4	>128	≤0.25 – >128	78.8
	Doripenem	0.06	0.12	0.015 – 2	98.5
	Imipenem	0.25	0.5	0.06 – 4	95.5
	Meropenem	0.03	0.06	0.015 – 2	98.5
	Amikacin	4	16	1 – >32	93.9
	Colistin (n=33)[d]	1	1	≤0.12 – 1	100
	Tigecycline	0.25	1	0.06 – 4	95.5
	Levofloxacin	>4	>4	≤0.03 – >4	36.4
AmpC–positive (57)[f]	Ceftazidime–avibactam	0.25	0.5	0.03 – 1	100
	Ceftazidime	0.5	128	0.06 – >128	66.7
	Cefepime	≤0.12	4	≤0.12 – 8	87.7
	Aztreonam	0.12	32	0.03 – 128	75.4
	Piperacillin–tazobactam	4	64	≤0.25 – >128	84.2
	Doripenem	0.12	0.5	0.03 – 2	96.5
	Imipenem	2	4	0.25 – 8	28.1
	Meropenem	0.06	0.25	0.03 – 0.5	100
	Amikacin	2	4	1 – >32	94.7
	Colistin (n=17)[d]	1	>4	0.5 – >4	82.4
	Tigecycline	0.5	2	0.06 – 8	96.5
	Levofloxacin	0.06	2	≤0.03 – >4	94.7
ESBL–positive + AmpC–positive (4)[g]	Ceftazidime–avibactam	—[b]	—	0.25 – 1	100
	Ceftazidime	—	—	32 – 128	0
	Cefepime	—	—	0.25 – >16	75.0
	Aztreonam	—	—	32 – 128	0
	Piperacillin–tazobactam	—	—	16 – >128	25.0
	Doripenem	—	—	0.06 – 0.5	100
	Imipenem	—	—	0.5 – 2	75.0
	Meropenem	—	—	0.06 – 0.25	100
	Amikacin	—	—	1 – 8	100
	Colistin (n=2)[d]	—	—	0.5 – 1	100
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	≤0.03 – >4	50.0
MBL–positive (3)[h]	Ceftazidime–avibactam	—[b]	—	32 – 128	0
	Ceftazidime	—	—	64 – >128	0

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	—	—	2 – >16	33.3
	Aztreonam	—	—	0.25 – 32	33.3
	Piperacillin–tazobactam	—	—	4 – 128	33.3
	Doripenem	—	—	2 – >4	0
	Imipenem	—	—	2 – >8	0
	Meropenem	—	—	2 – 8	0
	Amikacin	—	—	0.5 – >32	66.7
	Colistin (n=1)[d]	—	—	1	100
	Tigecycline	—	—	0.5 – 4	66.7
	Levofloxacin	—	—	0.5 – >4	66.7
P. aeruginosa (70)	Ceftazidime–avibactam	—[b]	—	128	0
GES, Spectrum undefined (1)[i,j]	Ceftazidime	—	—	>128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	16	0
	Piperacillin–tazobactam	—	—	16	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	8	0
	Amikacin	—	—	>32	0
	Colistin (n=1)[d]	—	—	2	100
	Levofloxacin	—	—	>4	0
No acquired β–lactamase detected (69)[i]	Ceftazidime–avibactam	2	4	0.12 – 32	97.1
	Ceftazidime	4	64	0.5 – 128	81.2
	Cefepime	4	16	≤0.12 – >16	81.2
	Aztreonam	8	32	0.5 – >128	65.2
	Piperacillin–tazobactam	8	128	0.5 – >128	78.3
	Doripenem	1	>4	0.12 – >4	69.6
	Imipenem	4	>8	2 – >8	5.8
	Meropenem	2	>8	0.12 – >8	63.8
	Amikacin	4	16	≤0.25 – >32	92.8
	Colistin (n=34)[d]	2	2	0.5 – 4	94.1
	Levofloxacin	0.5	>4	0.12 – >4	73.9

[a] OSBL, original–spectrum β–lactamase (e.g. TEM–1, SHV–1, SHV–11); ESBL, extended–spectrum β–lactamase; MBL, metallo–β–lactamase.

[b] —, MIC_{50} and MIC_{90} were not calculated for n <10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] Includes isolates carrying CTX–M–1; CTX–M–14; CTX–M–15; CTX–M–27; CTX–M–55; CTX–M–65; CTX–M–14 and CTX–M–79; CTX–M–14 and CTX–M–145; CTX–M–15 and SHV–12; SHV–2; SHV–38; VEB–6; and the chromosomal ESBL common to *K. oxytoca* with or without SHV–OSBLs and/or TEM–OSBLs.

[f] Includes isolates carrying ACT–type; CMY–2; DHA–1; and the chromosomal AmpC common to *Citrobacter* spp., *Enterobacter* spp., *M. morganii*, *Providencia* spp., and *Serratia* spp. with or without SHV–OSBLs and/or TEM–OSBLs.

[g] Includes isolates carrying CTX–M–15 and DHA–1, SHV–12 and the chromosomal AmpC common to *Citrobacter* spp., and SHV–12 or CTX–M–15 and the chromosomal AmpC common to *Enterobacter* spp.

[h] Includes isolates carrying IMP–4; IMP–4 and SHV–12; and VIM–1, VEB–1, SHV–5 and the chromosomal AmpC common to *Providencia* spp. with or without SHV–OSBLs and/or TEM–OSBLs.

[i] Assumed to carry the chromosomal AmpC common to *P. aeruginosa*.

[j] Isolate carrying GES–29.

Supplemental Table S3A. China – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 1,242 isolates of *Enterobacteriaceae* and 195 isolates of *P. aeruginosa* collected as part of the INFORM global surveillance program in 2012–2013[a].

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae					
All (1,242)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	98.8
	Ceftazidime	0.5	128	≤0.015 – >128	68.4
	Cefepime	0.25	>16	≤0.12 – >16	64.6
	Aztreonam	0.25	64	≤0.015 – >128	62.2
	Piperacillin–tazobactam	2	64	≤0.25 – >128	84.0
	Doripenem	0.06	0.25	≤0.008 – >4	96.5
	Imipenem	0.25	2	≤0.03 – >8	82.3
	Meropenem	0.03	0.12	0.008 – >8	96.2
	Amikacin	2	8	≤0.25 – >32	94.3
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	2	≤0.015 – 8	92.3
	Levofloxacin	0.5	>4	≤0.03 – >4	62.7
All, MBL–negative (1,232)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	99.5
	Ceftazidime	0.5	64	≤0.015 – >128	68.9
	Cefepime	0.25	>16	≤0.12 – >16	65.1
	Aztreonam	0.25	64	≤0.015 – >128	62.7
	Piperacillin–tazobactam	2	64	≤0.25 – >128	84.6
	Doripenem	0.06	0.25	≤0.008 – >4	97.2
	Imipenem	0.25	2	≤0.03 – >8	82.9
	Meropenem	0.03	0.12	0.008 – >8	96.9
	Amikacin	2	8	≤0.25 – >32	94.5
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	2	≤0.015 – 8	92.2
	Levofloxacin	0.5	>4	≤0.03 – >4	62.9
Ceftazidime-nonsusceptible (393)	Ceftazidime–avibactam	0.25	2	≤0.015 – >128	96.2
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	26.0
	Aztreonam	64	>128	1 – >128	5.9
	Piperacillin–tazobactam	16	>128	≤0.25 – >128	54.7
	Doripenem	0.06	2	0.015 – >4	89.6
	Imipenem	0.5	4	≤0.03 – >8	79.1
	Meropenem	0.06	4	0.015 – >8	88.8
	Amikacin	2	>32	≤0.25 – >32	85.8
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	2	0.06 – 8	94.7
	Levofloxacin	>4	>4	≤0.03 – >4	36.9
Ceftazidime-nonsusceptible, MBL–negative (383)	Ceftazidime–avibactam	0.25	1	≤0.015 – >128	98.4
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	26.6
	Aztreonam	64	>128	1 – >128	5.7
	Piperacillin–tazobactam	16	>128	≤0.25 – >128	55.9
	Doripenem	0.06	0.5	0.015 – >4	91.6
	Imipenem	0.5	4	≤0.03 – >8	80.9
	Meropenem	0.06	0.5	0.015 – >8	90.9
	Amikacin	2	>32	≤0.25 – >32	86.2
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	2	0.06 – 8	94.5
	Levofloxacin	>4	>4	≤0.03 – >4	36.8
Meropenem-nonsusceptible (47)	Ceftazidime–avibactam	2	>128	0.06 – >128	70.2
	Ceftazidime	128	>128	0.5 – >128	6.4
	Cefepime	>16	>16	2 – >16	2.1

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
	Aztreonam	>128	>128	1 – >128	6.4
	Piperacillin–tazobactam	>128	>128	1 – >128	8.5
	Doripenem	>4	>4	0.03 – >4	8.5
	Imipenem	>8	>8	0.12 – >8	6.4
	Meropenem	>8	>8	2 – >8	0
	Amikacin	8	>32	≤0.25 – >32	70.2
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	4	0.06 – 4	89.4
	Levofloxacin	>4	>4	0.25 – >4	25.5
Meropenem-nonsusceptible, MBL–negative (38)	Ceftazidime–avibactam	1	16	0.06 – >128	86.8
	Ceftazidime	128	>128	0.5 – >128	7.9
	Cefepime	>16	>16	2 – >16	2.6
	Aztreonam	>128	>128	1 – >128	5.3
	Piperacillin–tazobactam	>128	>128	1 – >128	7.9
	Doripenem	>4	>4	0.03 – >4	10.5
	Imipenem	>8	>8	0.12 – >8	5.3
	Meropenem	>8	>8	2 – >8	0
	Amikacin	4	>32	≤0.25 – >32	71.1
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	4	0.06 – 4	86.8
	Levofloxacin	>4	>4	0.25 – >4	23.7
Multidrug–resistant (239)	Ceftazidime–avibactam	0.25	4	≤0.015 – >128	94.1
	Ceftazidime	64	>128	0.5 – >128	9.2
	Cefepime	>16	>16	≤0.12 – >16	4.6
	Aztreonam	64	>128	4 – >128	0.4
	Piperacillin–tazobactam	16	>128	0.5 – >128	55.2
	Doripenem	0.06	>4	0.015 – >4	82.9
	Imipenem	0.25	>8	0.06 – >8	75.7
	Meropenem	0.06	>8	0.015 – >8	82.0
	Amikacin	4	>32	≤0.25 – >32	76.6
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	2	0.06 – 8	94.1
	Levofloxacin	>4	>4	0.12 – >4	7.1
Multidrug–resistant, MBL–negative (231)	Ceftazidime–avibactam	0.25	4	≤0.015 – >128	97.4
	Ceftazidime	64	>128	0.5 – >128	9.5
	Cefepime	>16	>16	≤0.12 – >16	4.8
	Aztreonam	64	>128	4 – >128	0.4
	Piperacillin–tazobactam	16	>128	0.5 – >128	56.7
	Doripenem	0.06	4	0.015 – >4	85.7
	Imipenem	0.25	8	0.06 – >8	77.9
	Meropenem	0.06	8	0.015 – >8	84.9
	Amikacin	4	>32	≤0.25 – >32	77.1
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	2	0.06 – 8	93.9
	Levofloxacin	>4	>4	0.12 – >4	6.5
Escherichia coli					
All (471)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	99.8
	Ceftazidime	1	64	0.03 – >128	62.6
	Cefepime	4	>16	≤0.12 – >16	46.3
	Aztreonam	4	64	≤0.015 – >128	50.7
	Piperacillin–tazobactam	2	16	≤0.25 – >128	90.5
	Doripenem	0.03	0.06	≤0.008 – >4	98.7
	Imipenem	0.25	0.5	0.06 – >8	97.5
	Meropenem	0.03	0.06	0.008 – >8	98.1
	Amikacin	4	16	0.5 – >32	94.5
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.25	0.5	0.06 – 2	100
	Levofloxacin	>4	>4	≤0.03 – >4	37.8
All, MBL–negative (470)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 8	100

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	1	64	0.03 – >128	62.8
	Cefepime	4	>16	≤0.12 – >16	46.4
	Aztreonam	4	64	≤0.015 – >128	50.9
	Piperacillin–tazobactam	2	16	≤0.25 – >128	90.6
	Doripenem	0.03	0.06	≤0.008 – >4	98.9
	Imipenem	0.25	0.5	0.06 – >8	97.7
	Meropenem	0.03	0.06	0.008 – 8	98.3
	Amikacin	4	16	0.5 – >32	94.5
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.25	0.5	0.06 – 2	100
	Levofloxacin	>4	>4	≤0.03 – >4	37.9
Ceftazidime-nonsusceptible (176)	Ceftazidime–avibactam	0.25	1	≤0.015 – >128	99.4
	Ceftazidime	32	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	8.5
	Aztreonam	64	>128	1 – >128	2.3
	Piperacillin–tazobactam	8	128	0.5 – >128	77.8
	Doripenem	0.03	0.12	0.015 – >4	97.2
	Imipenem	0.25	0.5	0.06 – >8	93.8
	Meropenem	0.03	0.12	0.015 – >8	96.0
	Amikacin	4	32	0.5 – >32	89.2
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.25	1	0.06 – 2	100
	Levofloxacin	>4	>4	≤0.03 – >4	17.1
Ceftazidime-nonsusceptible, MBL–negative (175)	Ceftazidime–avibactam	0.25	1	≤0.015 – 8	100
	Ceftazidime	32	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	8.6
	Aztreonam	64	>128	1 – >128	2.3
	Piperacillin–tazobactam	8	128	0.5 – >128	78.3
	Doripenem	0.03	0.12	0.015 – >4	97.7
	Imipenem	0.25	0.5	0.06 – >8	94.3
	Meropenem	0.03	0.12	0.015 – 8	96.6
	Amikacin	4	32	0.5 – >32	89.1
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.25	1	0.06 – 2	100
	Levofloxacin	>4	>4	≤0.03 – >4	17.1
Meropenem-nonsusceptible (9)	Ceftazidime–avibactam	—[b]	—	0.06 – >128	88.9
	Ceftazidime	—	—	0.5 – >128	22.2
	Cefepime	—	—	2 – >16	11.1
	Aztreonam	—	—	1 – >128	22.2
	Piperacillin–tazobactam	—	—	1 – >128	33.3
	Doripenem	—	—	0.03 – >4	33.3
	Imipenem	—	—	0.12 – >8	11.1
	Meropenem	—	—	2 – >8	0
	Amikacin	—	—	2 – >32	88.9
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.12 – 0.5	100
	Levofloxacin	—	—	1 – >4	11.1
Meropenem-nonsusceptible, MBL–negative (8)	Ceftazidime–avibactam	—[b]	—	0.06 – 4	100
	Ceftazidime	—	—	0.5 – 128	25.0
	Cefepime	—	—	2 – >16	12.5
	Aztreonam	—	—	1 – >128	25.0
	Piperacillin–tazobactam	—	—	1 – >128	37.5
	Doripenem	—	—	0.03 – >4	37.5
	Imipenem	—	—	0.12 – >8	12.5
	Meropenem	—	—	2 – 8	0
	Amikacin	—	—	2 – >32	87.5
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.12 – 0.5	100
	Levofloxacin	—	—	1 – >4	12.5

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
Multidrug–resistant (145)	Ceftazidime–avibactam	0.25	1	≤0.015 – >128	99.3
	Ceftazidime	32	>128	1 – >128	11.7
	Cefepime	>16	>16	0.25 – >16	3.5
	Aztreonam	64	>128	16 – >128	0
	Piperacillin–tazobactam	8	>128	0.5 – >128	75.2
	Doripenem	0.03	0.12	0.015 – >4	96.6
	Imipenem	0.25	0.5	0.06 – >8	94.5
	Meropenem	0.03	0.12	0.015 – >8	95.9
	Amikacin	4	>32	1 – >32	85.5
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.25	1	0.06 – 2	100
	Levofloxacin	>4	>4	>4 – >4	0
Multidrug–resistant, MBL–negative (144)	Ceftazidime–avibactam	0.25	1	≤0.015 – 8	100
	Ceftazidime	32	>128	1 – >128	11.8
	Cefepime	>16	>16	0.25 – >16	3.5
	Aztreonam	64	>128	16 – >128	0
	Piperacillin–tazobactam	8	>128	0.5 – >128	75.7
	Doripenem	0.03	0.12	0.015 – >4	97.2
	Imipenem	0.25	0.5	0.06 – >8	95.1
	Meropenem	0.03	0.12	0.015 – 8	96.5
	Amikacin	4	>32	1 – >32	85.4
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.25	1	0.06 – 2	100
	Levofloxacin	>4	>4	>4 – >4	0
Klebsiella pneumoniae					
All (279)	Ceftazidime–avibactam	0.12	1	≤0.015 – >128	98.6
	Ceftazidime	0.5	128	≤0.015 – >128	68.8
	Cefepime	≤0.12	>16	≤0.12 – >16	65.6
	Aztreonam	0.25	128	≤0.015 – >128	65.6
	Piperacillin–tazobactam	4	>128	0.5 – >128	79.9
	Doripenem	0.06	0.25	0.015 – >4	92.8
	Imipenem	0.25	1	≤0.03 – >8	90.3
	Meropenem	0.03	0.12	0.015 – >8	92.8
	Amikacin	1	4	≤0.25 – >32	91.8
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	≤0.015 – 8	93.9
	Levofloxacin	0.5	>4	≤0.03 – >4	74.2
All, MBL–negative (277)	Ceftazidime–avibactam	0.12	1	≤0.015 – >128	99.3
	Ceftazidime	0.5	128	≤0.015 – >128	69.3
	Cefepime	≤0.12	>16	≤0.12 – >16	66.1
	Aztreonam	0.25	128	≤0.015 – >128	66.1
	Piperacillin–tazobactam	4	>128	0.5 – >128	80.5
	Doripenem	0.06	0.25	0.015 – >4	93.5
	Imipenem	0.25	1	≤0.03 – >8	90.6
	Meropenem	0.03	0.12	0.015 – >8	93.5
	Amikacin	1	4	≤0.25 – >32	91.7
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	≤0.015 – 8	93.9
	Levofloxacin	0.5	>4	≤0.03 – >4	74.4
Ceftazidime-nonsusceptible (87)	Ceftazidime–avibactam	0.5	2	≤0.015 – >128	95.4
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	14.9
	Aztreonam	64	>128	1 – >128	6.9
	Piperacillin–tazobactam	64	>128	1 – >128	41.4
	Doripenem	0.12	>4	0.015 – >4	77.0
	Imipenem	0.5	>8	≤0.03 – >8	70.1
	Meropenem	0.06	>8	0.03 – >8	77.0
	Amikacin	2	>32	≤0.25 – >32	73.6
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	0.06 – 4	92.0

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
	Levofloxacin	>4	>4	≤0.03 – >4	37.9
Ceftazidime-nonsusceptible, MBL–negative (85)	Ceftazidime–avibactam	0.5	2	≤0.015 – >128	97.7
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	15.3
	Aztreonam	64	>128	1 – >128	7.1
	Piperacillin–tazobactam	32	>128	1 – >128	42.4
	Doripenem	0.12	>4	0.015 – >4	78.8
	Imipenem	0.5	>8	≤0.03 – >8	70.6
	Meropenem	0.06	>8	0.03 – >8	78.8
	Amikacin	2	>32	≤0.25 – >32	72.9
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	0.06 – 4	91.8
	Levofloxacin	>4	>4	≤0.03 – >4	37.7
Meropenem-nonsusceptible (20)	Ceftazidime–avibactam	2	>128	0.5 – >128	85.0
	Ceftazidime	>128	>128	16 – >128	0
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	>128	>128	32 – >128	0
	Piperacillin–tazobactam	>128	>128	>128 – >128	0
	Doripenem	>4	>4	2 – >4	0
	Imipenem	>8	>8	1 – >8	5.0
	Meropenem	>8	>8	4 – >8	0
	Amikacin	2	>32	≤0.25 – >32	65.0
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	0.06 – 4	95.0
	Levofloxacin	>4	>4	0.5 – >4	15.0
Meropenem-nonsusceptible, MBL–negative (18)	Ceftazidime–avibactam	2	4	0.5 – >128	94.4
	Ceftazidime	128	>128	16 – >128	0
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	>128	>128	32 – >128	0
	Piperacillin–tazobactam	>128	>128	>128 – >128	0
	Doripenem	>4	>4	4 – >4	0
	Imipenem	>8	>8	4 – >8	0
	Meropenem	>8	>8	8 – >8	0
	Amikacin	2	>32	≤0.25 – >32	61.1
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	0.06 – 4	94.4
	Levofloxacin	>4	>4	0.5 – >4	11.1
Multidrug–resistant (52)	Ceftazidime–avibactam	1	4	0.06 – >128	92.3
	Ceftazidime	128	>128	4 – >128	3.9
	Cefepime	>16	>16	0.25 – >16	3.9
	Aztreonam	128	>128	16 – >128	0
	Piperacillin–tazobactam	>128	>128	4 – >128	26.9
	Doripenem	0.25	>4	0.015 – >4	61.5
	Imipenem	1	>8	0.12 – >8	53.9
	Meropenem	0.12	>8	0.015 – >8	61.5
	Amikacin	4	>32	≤0.25 – >32	57.7
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	0.06 – 4	90.4
	Levofloxacin	>4	>4	0.5 – >4	5.8
Multidrug–resistant, MBL–negative (50)	Ceftazidime–avibactam	0.5	4	0.06 – >128	96.0
	Ceftazidime	128	>128	4 – >128	4.0
	Cefepime	>16	>16	0.25 – >16	4.0
	Aztreonam	128	>128	16 – >128	0
	Piperacillin–tazobactam	>128	>128	4 – >128	28.0
	Doripenem	0.12	>4	0.015 – >4	64.0
	Imipenem	1	>8	0.12 – >8	54.0
	Meropenem	0.06	>8	0.015 – >8	64.0
	Amikacin	4	>32	≤0.25 – >32	56.0
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
	Tigecycline	1	2	0.06 – 4	90.0
	Levofloxacin	>4	>4	0.5 – >4	4.0
Klebsiella oxytoca					
All (70)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 128	94.3
	Ceftazidime	0.12	32	≤0.015 – >128	81.4
	Cefepime	≤0.12	8	≤0.12 – >16	85.7
	Aztreonam	0.25	32	≤0.015 – >128	74.3
	Piperacillin–tazobactam	2	>128	≤0.25 – >128	84.3
	Doripenem	0.06	0.12	0.015 – >4	94.3
	Imipenem	0.25	1	0.06 – >8	91.4
	Meropenem	0.03	0.06	0.015 – >8	94.3
	Amikacin	1	4	0.5 – >32	92.9
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	1	0.06 – 4	98.6
	Levofloxacin	0.12	2	≤0.03 – >4	90.0
All, MBL–negative (67)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 16	98.5
	Ceftazidime	0.12	32	≤0.015 – >128	85.1
	Cefepime	≤0.12	4	≤0.12 – >16	89.6
	Aztreonam	0.25	32	≤0.015 – 128	76.1
	Piperacillin–tazobactam	2	128	≤0.25 – >128	88.1
	Doripenem	0.06	0.06	0.015 – 2	98.5
	Imipenem	0.25	0.5	0.06 – 8	95.5
	Meropenem	0.03	0.06	0.015 – 8	98.5
	Amikacin	1	4	0.5 – >32	95.5
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.25	1	0.06 – 4	98.5
	Levofloxacin	0.12	2	≤0.03 – >4	92.5
Ceftazidime-nonsusceptible (13)	Ceftazidime–avibactam	0.25	128	≤0.015 – 128	69.2
	Ceftazidime	32	>128	16 – >128	0
	Cefepime	4	>16	0.5 – >16	46.2
	Aztreonam	32	>128	1 – >128	7.7
	Piperacillin–tazobactam	16	>128	1 – >128	53.9
	Doripenem	0.12	>4	0.06 – >4	69.2
	Imipenem	1	>8	0.25 – >8	61.5
	Meropenem	0.06	>8	0.03 – >8	69.2
	Amikacin	2	>32	1 – >32	69.2
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	1	0.25 – 1	100
	Levofloxacin	1	>4	0.5 – >4	69.2
Ceftazidime-nonsusceptible, MBL–negative (10)	Ceftazidime–avibactam	0.25	4	≤0.015 – 16	90.0
	Ceftazidime	32	128	16 – >128	0
	Cefepime	2	16	0.5 – >16	60.0
	Aztreonam	32	64	16 – 128	0
	Piperacillin–tazobactam	2	>128	1 – >128	70.0
	Doripenem	0.06	0.25	0.06 – 2	90.0
	Imipenem	0.5	4	0.25 – 8	80.0
	Meropenem	0.06	0.12	0.03 – 8	90.0
	Amikacin	2	32	1 – >32	80.0
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.25	1	0.25 – 1	100
	Levofloxacin	0.5	>4	0.5 – >4	80.0
Meropenem-nonsusceptible (4)	Ceftazidime–avibactam	—[b]	—	16 – 128	0
	Ceftazidime	—	—	128 – >128	0
	Cefepime	—	—	4 – >16	0
	Aztreonam	—	—	1 – >128	25.0
	Piperacillin–tazobactam	—	—	128 – >128	0
	Doripenem	—	—	2 – >4	0
	Imipenem	—	—	4 – >4	0
	Meropenem	—	—	4 – >8	0

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
	Amikacin	—	—	2 – >32	50.0
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	1 – 4	50.0
Meropenem-nonsusceptible, MBL–negative (1)	Ceftazidime–avibactam	—[b]	—	16	0
	Ceftazidime	—	—	128	0
	Cefepime	—	—	4	0
	Aztreonam	—	—	64	0
	Piperacillin–tazobactam	—	—	128	0
	Doripenem	—	—	2	0
	Imipenem	—	—	8	0
	Meropenem	—	—	8	0
	Amikacin	—	—	8	100
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	2	100
Multidrug–resistant (6)	Ceftazidime–avibactam	—[b]	—	0.25 – 128	50.0
	Ceftazidime	—	—	16 – >128	0
	Cefepime	—	—	0.5 – >16	16.7
	Aztreonam	—	—	32 – >128	0
	Piperacillin–tazobactam	—	—	16 – >128	16.7
	Doripenem	—	—	0.06 – >4	50.0
	Imipenem	—	—	0.25 – >8	50.0
	Meropenem	—	—	0.03 – >8	50.0
	Amikacin	—	—	2 – >32	50.0
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	1 – >4	50.0
Multidrug–resistant, MBL–negative (4)	Ceftazidime–avibactam	—[b]	—	0.25 – 16	75.0
	Ceftazidime	—	—	16 – >128	0
	Cefepime	—	—	0.5 – >16	25.0
	Aztreonam	—	—	32 – 128	0
	Piperacillin–tazobactam	—	—	16 – >128	25.0
	Doripenem	—	—	0.06 – 2	75.0
	Imipenem	—	—	0.25 – 8	75.0
	Meropenem	—	—	0.03 – 8	75.0
	Amikacin	—	—	2 – >32	75.0
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	1 – >4	75.0
Enterobacter spp.					
All (151)[g]	Ceftazidime–avibactam	0.25	2	0.03 – >128	98.0
	Ceftazidime	1	>128	0.03 – >128	57.6
	Cefepime	0.25	>16	≤0.12 – >16	76.8
	Aztreonam	1	64	0.03 – >128	57.6
	Piperacillin–tazobactam	4	>128	1 – >128	65.6
	Doripenem	0.12	0.5	0.03 – >4	94.7
	Imipenem	1	2	0.12 – >8	76.2
	Meropenem	0.06	0.25	0.03 – >8	94.0
	Amikacin	1	4	0.5 – >32	96.0
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	2	0.06 – 8	95.4
	Levofloxacin	0.06	>4	≤0.03 – >4	84.8
All, MBL–negative (148)	Ceftazidime–avibactam	0.25	1	0.03 – 16	99.3
	Ceftazidime	1	128	0.03 – >128	58.8
	Cefepime	0.25	16	≤0.12 – >16	78.4
	Aztreonam	1	64	0.03 – >128	58.8
	Piperacillin–tazobactam	4	>128	1 – >128	66.2
	Doripenem	0.06	0.25	0.03 – >4	96.0

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
	Imipenem	1	2	0.12 – >8	77.7
	Meropenem	0.06	0.25	0.03 – >8	95.3
	Amikacin	1	4	0.5 – >32	96.0
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	2	0.06 – 8	95.3
	Levofloxacin	0.06	>4	≤0.03 – >4	85.1
Ceftazidime-nonsusceptible (64)	Ceftazidime–avibactam	1	4	0.06 – >128	95.3
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	1	>16	≤0.12 – >16	57.8
	Aztreonam	32	128	2 – >128	7.8
	Piperacillin–tazobactam	64	>128	2 – >128	20.3
	Doripenem	0.12	4	0.06 – >4	89.1
	Imipenem	1	4	0.12 – >8	68.8
	Meropenem	0.12	2	0.03 – >8	87.5
	Amikacin	1	16	0.5 – >32	92.2
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	0.06 – 8	90.6
	Levofloxacin	0.25	>4	≤0.03 – >4	71.9
Ceftazidime-nonsusceptible, MBL–negative (61)	Ceftazidime–avibactam	1	4	0.06 – 16	98.4
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	0.5	>16	≤0.12 – >16	60.7
	Aztreonam	64	128	2 – >128	8.2
	Piperacillin–tazobactam	64	>128	2 – >128	19.7
	Doripenem	0.12	1	0.06 – >4	91.8
	Imipenem	1	2	0.12 – >8	72.1
	Meropenem	0.12	1	0.03 – >8	90.2
	Amikacin	1	16	0.5 – >32	91.8
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	0.06 – 8	90.2
	Levofloxacin	0.25	>4	≤0.03 – >4	72.1
Meropenem-nonsusceptible (9)	Ceftazidime–avibactam	—[b]	—	1 – >128	66.7
	Ceftazidime	—	—	2 – >128	11.1
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	32 – >128	0
	Piperacillin–tazobactam	—	—	16 – >128	11.1
	Doripenem	—	—	1 – >4	11.1
	Imipenem	—	—	0.5 – >8	11.1
	Meropenem	—	—	2 – >8	0
	Amikacin	—	—	0.5 – >32	77.8
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.5 – 4	55.6
	Levofloxacin	—	—	0.25 – >4	44.4
Meropenem-nonsusceptible, MBL–negative (7)	Ceftazidime–avibactam	—[b]	—	1 – 16	85.7
	Ceftazidime	—	—	2 – >128	14.3
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	64 – >128	0
	Piperacillin–tazobactam	—	—	128 – >128	0
	Doripenem	—	—	1 – >4	14.3
	Imipenem	—	—	0.5 – >8	14.3
	Meropenem	—	—	2 – >8	0
	Amikacin	—	—	0.5 – >32	71.4
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.5 – 4	42.9
	Levofloxacin	—	—	0.25 – >4	42.9
Multidrug–resistant (17)	Ceftazidime–avibactam	4	>128	0.5 – >128	82.4
	Ceftazidime	>128	>128	2 – >128	5.9
	Cefepime	>16	>16	0.5 – >16	5.9
	Aztreonam	128	>128	32 – >128	0
	Piperacillin–tazobactam	>128	>128	8 – >128	11.8

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
	Doripenem	1	>4	0.12 – >4	52.9
	Imipenem	2	>8	0.5 – >8	35.3
	Meropenem	2	>8	0.12 – >8	47.1
	Amikacin	4	>32	0.5 – >32	76.5
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	2	4	0.25 – 8	70.6
	Levofloxacin	>4	>4	0.25 – >4	35.3
Multidrug–resistant, MBL–negative (15)	Ceftazidime–avibactam	2	8	0.5 – 16	93.3
	Ceftazidime	>128	>128	2 – >128	6.7
	Cefepime	>16	>16	0.5 – >16	6.7
	Aztreonam	128	>128	32 – >128	0
	Piperacillin–tazobactam	>128	>128	8 – >128	6.7
	Doripenem	1	>4	0.12 – >4	60.0
	Imipenem	2	>8	0.5 – >8	40.0
	Meropenem	0.5	>8	0.12 – >8	53.3
	Amikacin	4	>32	0.5 – >32	73.3
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	2	4	0.25 – 8	66.7
	Levofloxacin	>4	>4	0.25 – >4	33.3
Citrobacter spp.					
All (85)[h]	Ceftazidime–avibactam	0.25	0.5	≤0.015 – >128	97.7
	Ceftazidime	4	128	0.12 – >128	54.1
	Cefepime	0.5	>16	≤0.12 – >16	72.9
	Aztreonam	8	64	0.03 – >128	49.4
	Piperacillin–tazobactam	8	>128	1 – >128	65.9
	Doripenem	0.06	0.12	≤0.008 – >4	96.5
	Imipenem	0.5	2	0.12 – >8	87.1
	Meropenem	0.03	0.12	0.008 – >8	96.5
	Amikacin	2	8	0.5 – >32	95.3
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	2	0.06 – 4	98.8
	Levofloxacin	0.5	>4	≤0.03 – >4	70.6
All, MBL–negative (84)	Ceftazidime–avibactam	0.25	0.5	≤0.015 – 128	98.8
	Ceftazidime	4	128	0.12 – >128	54.8
	Cefepime	0.25	16	≤0.12 – >16	73.8
	Aztreonam	4	64	0.03 – >128	50.0
	Piperacillin–tazobactam	8	128	1 – >128	66.7
	Doripenem	0.06	0.12	≤0.008 – >4	97.6
	Imipenem	0.5	2	0.12 – >8	88.1
	Meropenem	0.03	0.12	0.008 – >8	97.6
	Amikacin	2	8	0.5 – >32	96.4
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	0.5	2	0.06 – 4	98.8
	Levofloxacin	0.5	>4	≤0.03 – >4	71.4
Ceftazidime-nonsusceptible (39)	Ceftazidime–avibactam	0.5	1	0.03 – >128	94.9
	Ceftazidime	128	>128	8 – >128	0
	Cefepime	2	>16	≤0.12 – >16	61.5
	Aztreonam	32	128	1 – >128	7.7
	Piperacillin–tazobactam	32	>128	2 – >128	28.2
	Doripenem	0.06	0.12	0.03 – >4	92.3
	Imipenem	1	2	0.25 – >8	76.9
	Meropenem	0.06	0.25	0.03 – >8	92.3
	Amikacin	2	16	0.5 – >32	92.3
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	0.12 – 2	100
	Levofloxacin	1	>4	0.12 – >4	59.0
Ceftazidime-nonsusceptible, MBL–negative (38)	Ceftazidime–avibactam	0.5	1	0.03 – 128	97.4
	Ceftazidime	64	128	8 – >128	0
	Cefepime	2	>16	≤0.12 – >16	63.2

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
	Aztreonam	32	128	1 – >128	7.9
	Piperacillin–tazobactam	32	>128	2 – >128	29.0
	Doripenem	0.06	0.12	0.03 – >4	94.7
	Imipenem	1	2	0.25 – >8	79.0
	Meropenem	0.06	0.12	0.03 – >8	94.7
	Amikacin	2	16	0.5 – >32	94.7
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	0.12 – 2	100
	Levofloxacin	1	>4	0.12 – >4	60.5
Meropenem-nonsusceptible (3)	Ceftazidime–avibactam	—[b]	—	0.25 – >128	33.3
	Ceftazidime	—	—	16 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	64 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	4 – >4	0
	Imipenem	—	—	2 – >8	0
	Meropenem	—	—	8 – >8	0
	Amikacin	—	—	4 – >32	66.7
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	1 – >4	33.3
Meropenem-nonsusceptible, MBL–negative (2)	Ceftazidime–avibactam	—[b]	—	0.25 – 128	50.0
	Ceftazidime	—	—	16 – 128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	64 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	4 – >4	0
	Imipenem	—	—	2 – >8	0
	Meropenem	—	—	8 – >8	0
	Amikacin	—	—	4 – 8	100
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	1 – >4	50.0
Multidrug–resistant (11)	Ceftazidime–avibactam	0.5	128	0.12 – >128	81.8
	Ceftazidime	64	128	4 – >128	9.1
	Cefepime	>16	>16	≤0.12 – >16	18.2
	Aztreonam	32	>128	4 – >128	9.1
	Piperacillin–tazobactam	>128	>128	4 – >128	9.1
	Doripenem	0.06	>4	0.03 – >4	72.7
	Imipenem	1	>8	0.25 – >8	54.6
	Meropenem	0.06	>8	0.03 – >8	72.7
	Amikacin	8	>32	1 – >32	63.6
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	1	0.5 – 2	100
	Levofloxacin	>4	>4	0.12 – >4	18.2
Multidrug–resistant, MBL–negative (10)	Ceftazidime–avibactam	0.25	1	0.12 – 128	90.0
	Ceftazidime	32	128	4 – 128	10.0
	Cefepime	16	>16	≤0.12 – >16	20.0
	Aztreonam	32	128	4 – >128	10.0
	Piperacillin–tazobactam	128	>128	4 – >128	10.0
	Doripenem	0.06	4	0.03 – >4	80.0
	Imipenem	1	4	0.25 – >8	60.0
	Meropenem	0.06	8	0.03 – >8	80.0
	Amikacin	4	>32	1 – >32	70.0
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	1	0.5 – 2	100
	Levofloxacin	>4	>4	0.12 – >4	20.0
Proteeae[i]					
All (158)[j]	Ceftazidime–avibactam	0.06	0.12	≤0.015 – 32	99.4

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	0.06	0.5	≤0.015 – >128	93.0
	Cefepime	≤0.12	8	≤0.12 – >16	88.0
	Aztreonam	0.06	2	≤0.015 – 128	92.4
	Piperacillin–tazobactam	0.5	2	≤0.25 – 64	98.7
	Doripenem	0.25	0.5	0.06 – >4	99.4
	Imipenem	2	4	0.12 – 8	22.8
	Meropenem	0.06	0.12	0.03 – 4	99.4
	Amikacin	4	8	≤0.25 – >32	95.6
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	2	4	1 – 8	55.7
	Levofloxacin	0.5	>4	≤0.03 – >4	74.7
Ceftazidime-nonsusceptible (11)	Ceftazidime–avibactam	0.5	1	0.12 – 32	90.9
	Ceftazidime	64	128	8 – >128	0
	Cefepime	2	>16	≤0.12 – >16	54.6
	Aztreonam	16	32	1 – 128	27.3
	Piperacillin–tazobactam	2	8	≤0.25 – 32	90.9
	Doripenem	0.25	0.5	0.06 – >4	90.9
	Imipenem	2	4	0.5 – 8	27.3
	Meropenem	0.12	0.25	0.03 – 4	90.9
	Amikacin	8	>32	1 – >32	81.8
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	4	4	2 – 8	27.3
	Levofloxacin	>4	>4	0.12 – >4	9.1
Meropenem-nonsusceptible (1)	Ceftazidime–avibactam	—[b]	—	32	0
	Ceftazidime	—	—	32	0
	Cefepime	—	—	8	0
	Aztreonam	—	—	32	0
	Piperacillin–tazobactam	—	—	32	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	8	0
	Meropenem	—	—	4	0
	Amikacin	—	—	>32	0
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	2	100
	Levofloxacin	—	—	4	0
Multidrug–resistant (6)	Ceftazidime–avibactam	—[b]	—	0.06 – 32	83.3
	Ceftazidime	—	—	0.5 – >128	16.7
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	16 – 128	0
	Piperacillin–tazobactam	—	—	0.5 – 32	83.3
	Doripenem	—	—	0.06 – >4	83.3
	Imipenem	—	—	0.5 – 8	16.7
	Meropenem	—	—	0.06 – 4	83.3
	Amikacin	—	—	4 – >32	66.7
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	2 – 4	33.3
	Levofloxacin	—	—	0.12 – >4	16.7
Other *Enterobacteriaceae*[i]					
All (28)[k]	Ceftazidime–avibactam	0.25	0.5	0.06 – 1	100
	Ceftazidime	0.25	8	0.06 – 16	89.3
	Cefepime	≤0.12	>16	≤0.12 – >16	85.7
	Aztreonam	0.25	32	≤0.015 – >128	85.7
	Piperacillin–tazobactam	2	64	1 – >128	85.7
	Doripenem	0.12	0.5	0.06 – >4	96.4
	Imipenem	1	2	0.25 – >8	78.6
	Meropenem	0.06	0.25	0.03 – >8	96.4
	Amikacin	2	4	0.5 – 4	100
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Tigecycline	1	2	0.5 – 2	100
	Levofloxacin	0.12	4	≤0.03 – >4	89.3

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
Ceftazidime-nonsusceptible (3)	Ceftazidime–avibactam	—[b]	—	0.25 – 1	100
	Ceftazidime	—	—	8 – 16	0
	Cefepime	—	—	2 – >16	33.3
	Aztreonam	—	—	2 – >128	33.3
	Piperacillin–tazobactam	—	—	2 – >128	33.3
	Doripenem	—	—	0.12 – >4	66.7
	Imipenem	—	—	2 – >8	0
	Meropenem	—	—	0.06 – >8	66.7
	Amikacin	—	—	0.5 – 2	100
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	0.25 – 2	100
Meropenem-nonsusceptible (1)	Ceftazidime–avibactam	—[b]	—	1	100
	Ceftazidime	—	—	16	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	0.5	100
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	2	100
Multidrug–resistant (2)	Ceftazidime–avibactam	—[b]	—	0.5 – 1	100
	Ceftazidime	—	—	8 – 16	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	64 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	0.5 – >4	50.0
	Imipenem	—	—	2 – >8	0
	Meropenem	—	—	0.12 – >8	50.0
	Amikacin	—	—	0.5 – 2	100
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	1 – 1	100
	Levofloxacin	—	—	1 – 2	100
Pseudomonas aeruginosa					
All (195)	Ceftazidime–avibactam	2	8	0.5 – 128	96.9
	Ceftazidime	4	64	0.5 – >128	81.0
	Cefepime	4	>16	0.5 – >16	80.0
	Aztreonam	8	64	0.5 – >128	58.5
	Piperacillin–tazobactam	8	>128	0.5 – >128	70.8
	Doripenem	0.5	>4	0.03 – >4	73.9
	Imipenem	2	>8	0.25 – >8	67.2
	Meropenem	1	>8	≤0.06 – >8	73.3
	Amikacin	4	8	0.5 – >32	96.9
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Levofloxacin	0.5	>4	0.12 – >4	79.5
All, MBL–negative (194)	Ceftazidime–avibactam	2	8	0.5 – 128	97.4
	Ceftazidime	4	64	0.5 – >128	81.4
	Cefepime	4	>16	0.5 – >16	79.9
	Aztreonam	8	64	0.5 – >128	58.3
	Piperacillin–tazobactam	8	>128	0.5 – >128	71.1
	Doripenem	0.5	>4	0.03 – >4	74.2
	Imipenem	2	>8	0.25 – >8	67.5
	Meropenem	0.5	>8	≤0.06 – >8	73.7
	Amikacin	4	8	0.5 – >32	96.9
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Levofloxacin	0.5	>4	0.12 – >4	79.4

Phenotype/Organism (no. of isolates)[b]	Antimicrobial agent	MIC (µg/ml)[c]			% Susceptible[d]
		MIC_{50}	MIC_{90}	Range	
Ceftazidime-nonsusceptible (37)	Ceftazidime–avibactam	8	64	1 – 128	83.8
	Ceftazidime	64	128	16 – >128	0
	Cefepime	16	>16	1 – >16	21.6
	Aztreonam	32	128	4 – >128	10.8
	Piperacillin–tazobactam	>128	>128	4 – >128	5.4
	Doripenem	>4	>4	0.06 – >4	32.4
	Imipenem	>8	>8	1 – >8	32.4
	Meropenem	8	>8	0.12 – >8	35.1
	Amikacin	4	>32	0.5 – >32	89.2
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Levofloxacin	2	>4	0.12 – >4	59.5
Ceftazidime-nonsusceptible, MBL–negative (36)	Ceftazidime–avibactam	8	64	1 – 128	86.1
	Ceftazidime	64	128	16 – >128	0
	Cefepime	16	>16	1 – >16	19.4
	Aztreonam	32	128	4 – >128	8.3
	Piperacillin–tazobactam	>128	>128	4 – >128	5.6
	Doripenem	>4	>4	0.06 – >4	33.3
	Imipenem	>8	>8	1 – >8	33.3
	Meropenem	8	>8	0.12 – >8	36.1
	Amikacin	4	>32	0.5 – >32	88.9
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Levofloxacin	2	>4	0.12 – >4	58.3
Meropenem-nonsusceptible (52)	Ceftazidime–avibactam	4	8	1 – 128	92.3
	Ceftazidime	8	128	1 – >128	53.9
	Cefepime	16	>16	1 – >16	46.2
	Aztreonam	16	128	1 – >128	30.8
	Piperacillin–tazobactam	128	>128	4 – >128	36.5
	Doripenem	>4	>4	2 – >4	3.9
	Imipenem	>8	>8	0.5 – >8	1.9
	Meropenem	8	>8	4 – >8	0
	Amikacin	4	>32	1 – >32	88.5
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Levofloxacin	2	>4	0.12 – >4	53.9
Meropenem-nonsusceptible, MBL–negative (51)	Ceftazidime–avibactam	4	8	1 – 128	94.1
	Ceftazidime	8	128	1 – >128	54.9
	Cefepime	16	>16	1 – >16	45.1
	Aztreonam	16	128	1 – >128	29.4
	Piperacillin–tazobactam	128	>128	4 – >128	37.3
	Doripenem	>4	>4	2 – >4	3.9
	Imipenem	>8	>8	0.5 – >8	2.0
	Meropenem	8	>8	4 – >8	0
	Amikacin	4	>32	1 – >32	88.2
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Levofloxacin	2	>4	0.12 – >4	52.9
Multidrug–resistant (30)[j]	Ceftazidime–avibactam	8	64	1 – 128	83.3
	Ceftazidime	64	128	1 – >128	16.7
	Cefepime	>16	>16	8 – >16	3.3
	Aztreonam	64	128	4 – >128	6.7
	Piperacillin–tazobactam	>128	>128	4 – >128	3.3
	Doripenem	>4	>4	0.06 – >4	16.7
	Imipenem	>8	>8	0.5 – >8	20.0
	Meropenem	>8	>8	0.12 – >8	16.7
	Amikacin	4	>32	2 – >32	80.0
	Colistin (n=0)[e]	—[b]	—	ND[f]	ND
	Levofloxacin	>4	>4	0.12 – >4	33.3

[a] No isolates were obtained from patients in mainland China in 2014–2015 due to export restrictions.

[b] —, MBL–negative, no gene encoding a metallo–β–lactamase was detected by PCR.

[c] MIC_{50} and MIC_{90} were not calculated for n < 10 isolates.

[d] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[e] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[f] ND, not determined; MIC range and % susceptible were not calculated for n=0 isolates.

[g] *Enterobacter* spp. includes *Enterobacter aerogenes* (n=63), *Enterobacter asburiae* (n=15), *Enterobacter cloacae* (n=69), and *Enterobacter kobei* (n=4).

[h] *Citrobacter* spp. includes *Citrobacter braakii* (n=5), *Citrobacter freundii* (n=62), and *Citrobacter koseri* (n=18).

[i] All isolates were MBL–negative.

[j] Proteeae includes *Morganella morganii* (n=33), *Proteus mirabilis* (n=78), *Proteus penneri* (n=3), *Proteus vulgaris* (n=34), *Providencia rettgeri* (n=9), and *Providencia stuartii* (n=1).

[k] Other *Enterobacteriaceae* includes *Raoultella ornithinolytica* (n=3), *Serratia liquefaciens* (n=1), and *Serratia marcescens* (n=24).

Supplemental Table S3B. China – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 582 isolates of β–lactamase–positive *Enterobacteriaceae* (n=509) and *P. aeruginosa* (n=73) collected as part of the INFORM global surveillance program in 2012–2013.

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae (509)	Ceftazidime–avibactam	—[b]	—	0.03 – >128	87.5
OSBL–positive (8)	Ceftazidime	—	—	0.5 – >128	62.5
	Cefepime	—	—	0.25 – >16	50.0
	Aztreonam	—	—	1 – 64	37.5
	Piperacillin–tazobactam	—	—	2 – >128	75.0
	Doripenem	—	—	0.015 – >4	87.5
	Imipenem	—	—	0.12 – 4	87.5
	Meropenem	—	—	0.015 – 8	87.5
	Amikacin	—	—	≤0.25 – 4	100
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Tigecycline	—	—	0.06 – 2	100
	Levofloxacin	—	—	0.06 – >4	50.0
ESBL–positive (335)[f]	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 16	99.7
	Ceftazidime	8	64	0.12 – >128	41.5
	Cefepime	>16	>16	0.25 – >16	8.4
	Aztreonam	32	128	1 – >128	20.0
	Piperacillin–tazobactam	4	32	≤0.25 – >128	87.2
	Doripenem	0.03	0.12	0.015 – >4	98.5
	Imipenem	0.25	0.5	0.06 – >8	95.2
	Meropenem	0.03	0.06	0.008 – >8	98.2
	Amikacin	4	16	0.5 – >32	91.3
	Colistin (n=0)[d]	—[b]	—	ND[e]	ND
	Tigecycline	0.5	2	0.06 – 4	96.7
	Levofloxacin	>4	>4	≤0.03 – >4	31.9
AmpC–positive (83)[g]	Ceftazidime–avibactam	0.5	2	≤0.015 – 16	98.8
	Ceftazidime	64	>128	0.03 – >128	31.3
	Cefepime	0.25	>16	≤0.12 – >16	77.1
	Aztreonam	32	128	≤0.015 – >128	38.6
	Piperacillin–tazobactam	32	>128	≤0.25 – >128	47.0
	Doripenem	0.12	0.5	0.015 – >4	96.4
	Imipenem	2	4	0.12 – >8	49.4
	Meropenem	0.06	0.25	0.015 – >8	96.4
	Amikacin	2	>32	0.5 – >32	89.2
	Colistin (n=0)[d]	—[b]	—	ND[e]	ND
	Tigecycline	1	2	0.06 – 4	94.0
	Levofloxacin	0.5	>4	≤0.03 – >4	67.5
ESBL–positive + AmpC–positive (48)[h]	Ceftazidime–avibactam	0.5	4	≤0.015 – 128	97.9
	Ceftazidime	64	>128	0.12 – >128	10.4
	Cefepime	16	>16	≤0.12 – >16	27.1
	Aztreonam	64	>128	0.03 – >128	10.4
	Piperacillin–tazobactam	16	>128	0.5 – >128	52.1
	Doripenem	0.12	0.5	0.03 – >4	95.8
	Imipenem	1	2	0.06 – 4	62.5
	Meropenem	0.06	0.5	0.015 – 8	93.8
	Amikacin	4	>32	≤0.25 – >32	68.8
	Colistin (n=0)[d]	—[b]	—	ND[e]	ND
	Tigecycline	0.5	2	0.06 – 8	91.7
	Levofloxacin	>4	>4	0.06 – >4	35.4
KPC–positive (25)[i]	Ceftazidime–avibactam	1	4	0.25 – 16	96.0
	Ceftazidime	128	>128	2 – >128	4.0

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	>16	>16	4 – >16	0
	Aztreonam	>128	>128	64 – >128	0
	Piperacillin–tazobactam	>128	>128	64 – >128	0
	Doripenem	>4	>4	0.5 – >4	8.0
	Imipenem	>8	>8	2 – >8	0
	Meropenem	>8	>8	2 – >8	0
	Amikacin	4	>32	≤0.25 – >32	72.0
	Colistin (n=0)[d]	—[b]	—	ND[e]	ND
	Tigecycline	1	2	0.06 – 4	92.0
	Levofloxacin	>4	>4	0.5 – >4	24.0
MBL–positive (10)[j]	Ceftazidime–avibactam	>128	>128	2 – >128	10.0
	Ceftazidime	>128	>128	128 – >128	0
	Cefepime	>16	>16	8 – >16	0
	Aztreonam	64	>128	1 – >128	10.0
	Piperacillin–tazobactam	>128	>128	16 – >128	10.0
	Doripenem	>4	>4	1 – >4	10.0
	Imipenem	>8	>8	1 – >8	10.0
	Meropenem	8	>8	1 – >8	10.0
	Amikacin	8	>32	1 – >32	70.0
	Colistin (n=0)[d]	—[b]	—	ND[e]	ND
	Tigecycline	1	1	0.5 – 2	100
	Levofloxacin	4	>4	1 – >4	40.0
P. aeruginosa (73)	Ceftazidime–avibactam	—[b]	—	8 – 8	100
OSBL–positive (2)[k]	Ceftazidime	—	—	16 – 32	0
	Cefepime	—	—	16 – >16	0
	Aztreonam	—	—	16 – 32	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	>4 – >4	0
	Imipenem	—	—	>8 – >8	0
	Meropenem	—	—	>8 – >8	0
	Amikacin	—	—	>32 – >32	0
	Colistin (n=1)[d]	—	—	ND[e]	ND
	Levofloxacin	—	—	4 – >4	0
ESBL–positive (2)[k,l]	Ceftazidime–avibactam	—[b]	—	8 – 8	100
	Ceftazidime	—	—	128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	128 – >128	0
	Piperacillin–tazobactam	—	—	128 – >128	0
	Doripenem	—	—	4 – 4	0
	Imipenem	—	—	>8 – >8	0
	Meropenem	—	—	4 – 8	0
	Amikacin	—	—	>32 – >32	0
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Levofloxacin	—	—	>4 – >4	0
KPC–positive (1)[k,m]	Ceftazidime–avibactam	—[b]	—	4	100
	Ceftazidime	—	—	64	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	4	100
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Levofloxacin	—	—	0.12	100
MBL–positive (1)[k,n]	Ceftazidime–avibactam	—[b]	—	16	0
	Ceftazidime	—	—	32	0
	Cefepime	—	—	8	100

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Aztreonam	—	—	4	100
	Piperacillin–tazobactam	—	—	32	0
	Doripenem	—	—	4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	8	0
	Amikacin	—	—	8	100
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Levofloxacin	—	—	0.5	100
No acquired β–lactamase detected (67)[k]	Ceftazidime–avibactam	4	8	0.5 – 128	95.5
	Ceftazidime	4	64	0.5 – 128	67.2
	Cefepime	8	>16	0.5 – >16	61.2
	Aztreonam	16	128	1 – >128	40.3
	Piperacillin–tazobactam	32	>128	2 – >128	49.3
	Doripenem	4	>4	0.03 – >4	26.9
	Imipenem	>8	>8	0.5 – >8	6.0
	Meropenem	8	>8	≤0.06 – >8	25.4
	Amikacin	4	16	0.5 – >32	97.0
	Colistin (n=0)[d]	—[b]	—	ND[e]	ND
	Levofloxacin	2	>4	0.12 – >4	65.7

[a] OSBL, original–spectrum β–lactamase (e.g. TEM–1, SHV–1, SHV–11); ESBL, extended–spectrum β–lactamase; MBL, metallo–β–lactamase.

[b] —, MIC_{50} and MIC_{90} were not calculated for n <10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] ND, not determined. MIC range and % susceptible were not calculated for n=0 isolates.

[f] Includes isolates carrying CTX–M–3; CTX–M–9; CTX–M–13; CTX–M–14; CTX–M–15; CTX–M–22; CTX–M–24; CTX–M–27; CTX–M–55; CTX–M–64; CTX–M–65; CTX–M–79; CTX–M–90; CTX–M–125; CTX–M–130; CTX–M–type; SHV–2; SHV–2A; SHV–12; PER–1; CTX–M–3 and CTX–M–14; CTX–M–15 and CTX–M–14; CTX–M–15 and CTX–M–104; CTX–M–55 and CTX–M–14; CTX–M–55 and CTX–M–27; CTX–M–55 and CTX–M–79; CTX–M–55 and CTX–M–65; CTX–M–55 and CTX–M–130; CTX–M–65 and CTX–M–79; SHV–12 and CTX–M–14; SHV–5 and CTX–M–14; and the chromosomal ESBL common to *K. oxytoca* with or without SHV–type or TEM–type OSBLs or enzymes of undefined spectrum.

[g] Includes isolates carrying CMY–2; CMY–34; CMY–42; CMY–62; DHA–1; and the chromosomal AmpC common to *Citrobacter* spp., *Enterobacter* spp., *M. morganii*, *Providencia* spp., and *Serratia* spp. with or without SHV–OSBLs and/or TEM–OSBLs.

[h] Includes isolates carrying CMY–2 and a CTX–M–type ESBL (CTX–M–14, CTX–M–15, or CTX–M–14 and CTX–M–55); CMY–32 and CTX–M–14; CMY–34 and CTX–M–13; CMY–42 and CTX–M–14; CMY–88 and CTX–M–55; DHA–1 and one ESBL (CTX–M–3, CTX–M–14, CTX–M–22, CTX–M–27, SHV–2, SHV–2A, SHV–12, SHV–31, or the chromosomal ESBL of *K. oxytoca*); DHA–1 and multiple ESBLs (SHV–5 and CTX–M–3; SHV–5 and CTX–M–15; SHV–12 and CTX–M–3; SHV–12 and CTX–M–14; SHV–12 and CTX–M–15; SHV–12 and CTX–M–22); the chromosomal AmpC common to *Citrobacter* spp. and CTX–M–3 or CTX–M–15; and the

chromosomal AmpC common to *Enterobacter* spp. and ESBLs (CTX–M–2, CTX–M–3, CTX–M–9, CTX–M–14, SHV–12, SHV–12 and CTX–M–3, SHV–12 and CTX–M–15).

[i] Includes isolates carrying KPC–2; KPC–2 and CTX–M–3; KPC–2 and CTX–M–14 and SHV–12; KPC–2 and CTX–M–27 and DHA–1; KPC–2 and CTX–M–65; KPC–2 and CTX–M–65 and SHV–12; KPC–2 and CTX–M–90; KPC–2 and SHV–12; KPC–2 and CMY–2; KPC–12 and SHV–2A; with and without SHV–OSBLs and/or TEM–OSBLs and the chromosomal β–lactamases common to *Citrobacter* spp., *Enterobacter* spp., *S. marcescens* and *K. oxytoca*.

[j] Includes isolates carrying IMP–1; IMP–4; IMP–4 and CTX–M–15; IMP–4 and KPC–2 and SHV–12; IMP–8 and CTX–M–22; NDM–1 and CTX–M–3; NDM–1 and CTX–M–3 and SHV–12 and CMY–34; and the chromosomal β–lactamases common to *C. freundii*, *E. cloacae*, and *K. oxytoca* with or without SHV–OSBLs and/or TEM–OSBLs.

[k] Assumed to carry the chromosomal AmpC common to *P. aeruginosa*.

[l] Includes isolates carrying GES–1; and PER–1 and a TEM–OSBL.

[m] Isolate carrying KPC–2.

[n] Isolate carrying VIM–2.

Supplemental Table S4A. Hong Kong – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 146 isolates of *Enterobacteriaceae* and 36 isolates of *P. aeruginosa* collected as part of the INFORM global surveillance program in 2013–2014.

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae[d]					
All (146)	Ceftazidime–avibactam	0.12	0.25	0.03 – 0.5	100
	Ceftazidime	0.25	64	0.03 – 128	80.1
	Cefepime	≤0.12	>16	≤0.12 – >16	83.6
	Aztreonam	0.12	32	≤0.015 – 128	80.1
	Piperacillin–tazobactam	2	8	≤0.25 – >128	95.9
	Doripenem	0.06	0.25	0.03 – 2	98.6
	Imipenem	0.25	2	0.12 – 4	82.2
	Meropenem	0.03	0.12	0.015 – 2	99.3
	Amikacin	2	4	0.5 – >32	95.2
	Colistin (n=81)[e]	1	>4	0.5 – >4	81.5
	Tigecycline	0.25	2	0.06 – 4	94.5
	Levofloxacin	0.25	>4	≤0.03 – >4	80.1
Ceftazidime-nonsusceptible (29)	Ceftazidime–avibactam	0.25	0.5	0.03 – 0.5	100
	Ceftazidime	64	128	8 – 128	0
	Cefepime	>16	>16	≤0.12 – >16	44.8
	Aztreonam	32	128	1 – 128	13.8
	Piperacillin–tazobactam	4	>128	≤0.25 – >128	82.8
	Doripenem	0.12	0.25	0.03 – 2	96.6
	Imipenem	0.25	2	0.12 – 4	79.3
	Meropenem	0.06	0.25	0.03 – 2	96.6
	Amikacin	2	>32	1 – >32	86.2
	Colistin (n=12)[e]	1	1	0.5 – 2	100
	Tigecycline	0.12	1	0.06 – 2	100
	Levofloxacin	1	>4	≤0.03 – >4	58.6
Meropenem-nonsusceptible (1)	Ceftazidime–avibactam	—[b]	—	0.5	100
	Ceftazidime	—	—	16	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	2	0
	Imipenem	—	—	1	100
	Meropenem	—	—	2	0
	Amikacin	—	—	>32	0
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.06	100
	Levofloxacin	—	—	>4	0
Colistin–resistant (3)[g]	Ceftazidime–avibactam	—[b]	—	0.06 – 0.12	100
	Ceftazidime	—	—	0.12 – 0.5	100
	Cefepime	—	—	≤0.12 – ≤0.12	100
	Aztreonam	—	—	0.06 – 0.5	100
	Piperacillin–tazobactam	—	—	0.5 – 2	100
	Doripenem	—	—	0.03 – 0.06	100
	Imipenem	—	—	0.25 – 1	100
	Meropenem	—	—	0.03 – 0.06	100
	Amikacin	—	—	2 – 8	100
	Colistin (n=3)[e]	—	—	4 – >4	0
	Tigecycline	—	—	0.25 – 0.5	100
	Levofloxacin	—	—	0.06 – 0.12	100
Multidrug–resistant (11)	Ceftazidime–avibactam	0.12	0.5	0.06 – 0.5	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	16	64	2 – 64	9.1
	Cefepime	>16	>16	>16 – >16	0
	Aztreonam	64	64	8 – 128	0
	Piperacillin–tazobactam	4	>128	1 – >128	72.7
	Doripenem	0.06	0.12	0.06 – 2	90.9
	Imipenem	0.25	1	0.25 – 1	100
	Meropenem	0.03	0.25	0.03 – 2	90.9
	Amikacin	2	>32	1 – >32	63.6
	Colistin (n=2)[e]	—[b]	—	0.5 – 1	100
	Tigecycline	0.06	0.25	0.06 – 0.25	100
	Levofloxacin	>4	>4	>4 – >4	0
Escherichia coli[d]					
All (48)	Ceftazidime–avibactam	0.06	0.25	0.03 – 0.5	100
	Ceftazidime	0.25	32	0.06 – 64	75.0
	Cefepime	≤0.12	>16	≤0.12 – >16	64.6
	Aztreonam	0.12	64	0.06 – 128	70.8
	Piperacillin–tazobactam	2	16	0.5 – >128	91.7
	Doripenem	0.06	0.06	0.03 – 2	97.9
	Imipenem	0.25	0.25	0.12 – 1	100
	Meropenem	0.03	0.06	0.015 – 2	97.9
	Amikacin	2	32	2 – >32	85.4
	Colistin (n=25)[e]	0.5	1	0.5 – 4	96.0
	Tigecycline	0.12	0.25	0.06 – 1	100
	Levofloxacin	0.5	>4	≤0.03 – >4	56.3
Ceftazidime-nonsusceptible (12)	Ceftazidime–avibactam	0.12	0.5	0.06 – 0.5	100
	Ceftazidime	16	64	16 – 64	0
	Cefepime	>16	>16	≤0.12 – >16	16.7
	Aztreonam	64	64	4 – 128	16.7
	Piperacillin–tazobactam	2	>128	1 – >128	75.0
	Doripenem	0.06	0.12	0.03 – 2	91.7
	Imipenem	0.25	1	0.12 – 1	100
	Meropenem	0.03	0.25	0.03 – 2	91.7
	Amikacin	2	>32	2 – >32	66.7
	Colistin (n=3)[e]	—[b]	—	0.5 – 1	100
	Tigecycline	0.06	0.25	0.06 – 0.25	100
	Levofloxacin	>4	>4	0.5 – >4	16.7
Meropenem-nonsusceptible (1)	Ceftazidime–avibactam	—[b]	—	0.5	100
	Ceftazidime	—	—	16	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	2	0
	Imipenem	—	—	1	100
	Meropenem	—	—	2	0
	Amikacin	—	—	>32	0
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.06	100
	Levofloxacin	—	—	>4	0
Colistin–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.06	100
	Ceftazidime	—	—	0.12	100
	Cefepime	—	—	≤0.12	100
	Aztreonam	—	—	0.06	100
	Piperacillin–tazobactam	—	—	0.5	100
	Doripenem	—	—	0.03	100
	Imipenem	—	—	0.25	100
	Meropenem	—	—	0.03	100
	Amikacin	—	—	8	100
	Colistin (n=1)[e]	—	—	4	0
	Tigecycline	—	—	0.25	100
	Levofloxacin	—	—	0.12	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Multidrug–resistant (10)	Ceftazidime–avibactam	0.12	0.5	0.06 – 0.5	100
	Ceftazidime	16	64	2 – 64	10.0
	Cefepime	>16	>16	>16 – >16	0
	Aztreonam	64	64	8 – 128	0
	Piperacillin–tazobactam	2	>128	1 – >128	70.0
	Doripenem	0.06	0.12	0.06 – 2	90.0
	Imipenem	0.25	1	0.25 – 1	100
	Meropenem	0.03	0.25	0.03 – 2	90.0
	Amikacin	2	>32	2 – >32	60.0
	Colistin (n=2)[e]	—[b]	—	0.5 – 1	100
	Tigecycline	0.06	0.25	0.06 – 0.25	100
	Levofloxacin	>4	>4	>4 – >4	0
Klebsiella pneumoniae[d]					
All (40)	Ceftazidime–avibactam	0.12	0.25	0.03 – 0.5	100
	Ceftazidime	0.25	64	0.06 – 128	77.5
	Cefepime	≤0.12	>16	≤0.12 – >16	85.0
	Aztreonam	0.12	32	0.03 – 128	80.0
	Piperacillin–tazobactam	2	4	≤0.25 – 16	100
	Doripenem	0.06	0.12	0.03 – 0.25	100
	Imipenem	0.25	1	0.12 – 4	90.0
	Meropenem	0.06	0.06	0.03 – 0.12	100
	Amikacin	1	2	0.5 – 4	100
	Colistin (n=25)[e]	1	1	1 – 2	100
	Tigecycline	0.5	1	0.06 – 2	100
	Levofloxacin	0.12	1	≤0.03 – >4	95.0
Ceftazidime-nonsusceptible (9)	Ceftazidime–avibactam	—[b]	—	0.06 – 0.5	100
	Ceftazidime	—	—	8 – 128	0
	Cefepime	—	—	≤0.12 – >16	44.4
	Aztreonam	—	—	4 – 128	11.1
	Piperacillin–tazobactam	—	—	2 – 16	100
	Doripenem	—	—	0.06 – 0.25	100
	Imipenem	—	—	0.25 – 4	66.7
	Meropenem	—	—	0.06 – 0.12	100
	Amikacin	—	—	1 – 4	100
	Colistin (n=6)[e]	—	—	1 – 1	100
	Tigecycline	—	—	0.12 – 2	100
	Levofloxacin	—	—	0.5 – >4	88.9
Multidrug–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.5	100
	Ceftazidime	—	—	64	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	64	0
	Piperacillin–tazobactam	—	—	16	100
	Doripenem	—	—	0.12	100
	Imipenem	—	—	0.25	100
	Meropenem	—	—	0.06	100
	Amikacin	—	—	1	100
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.12	100
	Levofloxacin	—	—	>4	0
Klebsiella oxytoca[d]					
All (8)	Ceftazidime–avibactam	—[b]	—	0.06 – 0.12	100
	Ceftazidime	—	—	0.06 – 0.25	100
	Cefepime	—	—	≤0.12 – 0.5	100
	Aztreonam	—	—	0.06 – 0.5	100
	Piperacillin–tazobactam	—	—	0.5 – 4	100
	Doripenem	—	—	0.06 – 0.12	100
	Imipenem	—	—	0.25 – 1	100
	Meropenem	—	—	0.03 – 0.25	100
	Amikacin	—	—	1 – 4	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Colistin (n=5)[e]	—	—	0.5 – 4	80.0
	Tigecycline	—	—	0.06 – 0.5	100
	Levofloxacin	—	—	≤0.03 – >4	87.5
Colistin–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.12	100
	Ceftazidime	—	—	0.12	100
	Cefepime	—	—	≤0.12	100
	Aztreonam	—	—	0.5	100
	Piperacillin–tazobactam	—	—	2	100
	Doripenem	—	—	0.06	100
	Imipenem	—	—	0.25	100
	Meropenem	—	—	0.06	100
	Amikacin	—	—	2	100
	Colistin (n=1)[e]	—	—	4	0
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	0.06	100
Enterobacter spp.[d]					
All (20)[h]	Ceftazidime–avibactam	0.12	0.5	0.03 – 0.5	100
	Ceftazidime	0.25	32	0.06 – 128	75.0
	Cefepime	≤0.12	≤0.12	≤0.12 – >16	95.0
	Aztreonam	0.12	32	≤0.015 – 64	75.0
	Piperacillin–tazobactam	2	16	0.5 – 128	90.0
	Doripenem	0.06	0.25	0.03 – 0.25	100
	Imipenem	1	2	0.25 – 2	75.0
	Meropenem	0.03	0.06	0.03 – 0.12	100
	Amikacin	1	4	0.5 – 4	100
	Colistin (n=9)[e]	—[b]	—	0.5 – >4	88.9
	Tigecycline	0.06	1	0.06 – 2	100
	Levofloxacin	0.06	0.5	≤0.03 – 4	95.0
Ceftazidime-nonsusceptible (5)	Ceftazidime–avibactam	—[b]	—	0.03 – 0.5	100
	Ceftazidime	—	—	8 – 128	0
	Cefepime	—	—	≤0.12 – >16	80.0
	Aztreonam	—	—	16 – 64	0
	Piperacillin–tazobactam	—	—	8 – 128	60.0
	Doripenem	—	—	0.06 – 0.25	100
	Imipenem	—	—	0.25 – 2	80.0
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	1 – 4	100
	Colistin (n=1)[e]	—	—	0.5 – 0.5	100
	Tigecycline	—	—	0.06 – 2	100
	Levofloxacin	—	—	≤0.03 – 4	80.0
Colistin–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.06	100
	Ceftazidime	—	—	0.5	100
	Cefepime	—	—	≤0.12	100
	Aztreonam	—	—	0.12	100
	Piperacillin–tazobactam	—	—	0.5	100
	Doripenem	—	—	0.06	100
	Imipenem	—	—	1	100
	Meropenem	—	—	0.06	100
	Amikacin	—	—	2	100
	Colistin (n=1)[e]	—	—	>4	0
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	0.06	100
Citrobacter spp.[d]					
All (10)[i]	Ceftazidime–avibactam	0.12	0.25	0.03 – 0.25	100
	Ceftazidime	0.12	64	0.12 – 128	80.0
	Cefepime	≤0.12	0.5	≤0.12 – 1	100
	Aztreonam	0.06	16	0.06 – 32	80.0
	Piperacillin–tazobactam	2	4	0.5 – 16	100
	Doripenem	0.06	0.12	0.03 – 0.12	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Imipenem	0.25	2	0.12 – 2	80.0
	Meropenem	0.03	0.06	0.03 – 0.06	100
	Amikacin	1	2	0.5 – 8	100
	Colistin (n=5)[e]	—[b]	—	0.5 – 2	100
	Tigecycline	0.06	0.5	0.06 – 1	100
	Levofloxacin	≤0.03	0.25	≤0.03 – 0.25	100
Ceftazidime-nonsusceptible (2)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.25	100
	Ceftazidime	—	—	64 – 128	0
	Cefepime	—	—	0.5 – 1	100
	Aztreonam	—	—	16 – 32	0
	Piperacillin–tazobactam	—	—	4 – 16	100
	Doripenem	—	—	0.06 – 0.12	100
	Imipenem	—	—	1 – 2	50.0
	Meropenem	—	—	0.06 – 0.06	100
	Amikacin	—	—	2 – 8	100
	Colistin (n=2)[e]	—	—	1 – 2	100
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	0.25 – 0.25	100
Proteeae[d]					
All (17)[j]	Ceftazidime–avibactam	0.03	0.12	0.03 – 0.12	100
	Ceftazidime	0.06	1	0.03 – 64	94.1
	Cefepime	≤0.12	≤0.12	≤0.12 – 0.25	100
	Aztreonam	≤0.015	0.06	≤0.015 – 1	100
	Piperacillin–tazobactam	≤0.25	1	≤0.25 – 2	100
	Doripenem	0.25	1	0.12 – 2	94.1
	Imipenem	2	4	1 – 4	11.8
	Meropenem	0.12	0.12	0.06 – 0.25	100
	Amikacin	2	8	1 – 16	100
	Colistin (n=10)[e]	>4	>4	>4 – >4	0
	Tigecycline	2	4	0.12 – 4	52.9
	Levofloxacin	0.06	4	≤0.03 – >4	76.5
Ceftazidime-nonsusceptible (1)	Ceftazidime–avibactam	—[b]	—	0.06	100
	Ceftazidime	—	—	64	0
	Cefepime	—	—	≤0.12	100
	Aztreonam	—	—	1	100
	Piperacillin–tazobactam	—	—	≤0.25	100
	Doripenem	—	—	1	100
	Imipenem	—	—	4	0
	Meropenem	—	—	0.25	100
	Amikacin	—	—	2	100
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Tigecycline	—	—	0.12	100
	Levofloxacin	—	—	≤0.03	100
Other *Enterobacteriaceae*[d]					
All (3)[k]	Ceftazidime–avibactam	—[b]	—	0.12 – 0.12	100
	Ceftazidime	—	—	0.12 – 0.25	100
	Cefepime	—	—	≤0.12 – ≤0.12	100
	Aztreonam	—	—	0.06 – 0.12	100
	Piperacillin–tazobactam	—	—	0.5 – 1	100
	Doripenem	—	—	0.12 – 0.25	100
	Imipenem	—	—	1 – 1	100
	Meropenem	—	—	0.06 – 0.12	100
	Amikacin	—	—	2 – 2	100
	Colistin (n=2)[e]	—	—	>4 – >4	0
	Tigecycline	—	—	1 – 2	100
	Levofloxacin	—	—	0.12 – 0.12	100
Pseudomonas aeruginosa[d]					
All (36)	Ceftazidime–avibactam	2	8	1 – 8	100
	Ceftazidime	2	64	2 – 128	75.0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	2	8	1 – 16	94.4
	Aztreonam	8	64	4 – 64	61.1
	Piperacillin–tazobactam	8	64	4 – >128	75.0
	Doripenem	0.5	>4	0.12 – >4	72.2
	Imipenem	2	>8	0.5 – >8	50.0
	Meropenem	1	>8	≤0.06 – >8	72.2
	Amikacin	4	4	2 – 8	100
	Colistin (n=24)[e]	2	4	≤0.12 – 4	87.5
	Levofloxacin	0.5	2	0.25 – >4	91.7
Ceftazidime-nonsusceptible (9)	Ceftazidime–avibactam	—[b]	—	2 – 8	100
	Ceftazidime	—	—	16 – 128	0
	Cefepime	—	—	2 – 16	77.8
	Aztreonam	—	—	8 – 64	22.2
	Piperacillin–tazobactam	—	—	4 – >128	44.4
	Doripenem	—	—	0.5 – >4	44.4
	Imipenem	—	—	0.5 – >8	44.4
	Meropenem	—	—	1 – >8	55.6
	Amikacin	—	—	2 – 8	100
	Colistin (n=7)[e]	—	—	1 – 2	100
	Levofloxacin	—	—	0.5 – >4	77.8
Meropenem-nonsusceptible (10)	Ceftazidime–avibactam	4	8	1 – 8	100
	Ceftazidime	8	64	2 – 64	60.0
	Cefepime	8	8	2 – 16	90.0
	Aztreonam	32	64	8 – 64	20.0
	Piperacillin–tazobactam	32	64	4 – >128	30.0
	Doripenem	4	>4	2 – >4	10.0
	Imipenem	>8	>8	8 – >8	0
	Meropenem	8	>8	4 – >8	0
	Amikacin	2	4	2 – 4	100
	Colistin (n=6)[e]	—[b]	—	2 – 2	100
	Levofloxacin	1	2	0.25 – >4	90.0
Multidrug–resistant (3)	Ceftazidime–avibactam	—[b]	—	4 – 8	100
	Ceftazidime	—	—	8 – 64	33.3
	Cefepime	—	—	8 – 16	33.3
	Aztreonam	—	—	32 – 64	0
	Piperacillin–tazobactam	—	—	32 – >128	0
	Doripenem	—	—	4 – >4	0
	Imipenem	—	—	2 – >8	33.3
	Meropenem	—	—	2 – >8	33.3
	Amikacin	—	—	2 – 4	100
	Colistin (n=0)[e]	—	—	ND[f]	ND
	Levofloxacin	—	—	0.5 – >4	33.3

[a] MBL–negative, no gene encoding a metallo–β–lactamase was detected by PCR.

[b] —, MIC_{50} and MIC_{90} were not calculated for n < 10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] All isolates were MBL–negative.

[e] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[f] ND, not determined; MIC range and % susceptible were not calculated for n=0 isolates.

[g] Excludes isolates of Proteeae and *Serratia* spp. that are intrinsically resistant to colistin.

[h] *Enterobacter* spp. includes *Enterobacter aerogenes* (n=10), *Enterobacter asburiae* (n=1), and *Enterobacter cloacae* (n=9).

[i] *Citrobacter* spp. includes *Citrobacter freundii* (n=3) and *Citrobacter koseri* (n=7).

[j] Proteeae includes *Morganella morganii* (n=4), *Proteus mirabilis* (n=8), *Proteus penneri* (n=1), *Proteus vulgaris* (n=2), *Providencia rettgeri* (n=1), and *Providencia stuartii* (n=1).

[k] Other *Enterobacteriaceae* includes *Serratia marcescens* (n=3).

Supplemental Table S4B. Hong Kong – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 30 isolates of β–lactamase–positive *Enterobacteriaceae* (n=17) and *P. aeruginosa* (n=13) collected as part of the INFORM global surveillance program in 2013–2014.

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae (17)	Ceftazidime–avibactam	—[b]	—	0.03 – 0.06	100
OSBL–positive (2)	Ceftazidime	—	—	0.06 – 0.12	100
	Cefepime	—	—	≤0.12 – ≤0.12	100
	Aztreonam	—	—	≤0.015 – 0.03	100
	Piperacillin–tazobactam	—	—	≤0.25 – 2	100
	Doripenem	—	—	0.25 – 2	50.0
	Imipenem	—	—	2 – 4	0
	Meropenem	—	—	0.06 – 0.12	100
	Amikacin	—	—	2 – 4	100
	Colistin (n=2) [d]	—	—	1 – >4	50.0
	Tigecycline	—	—	1 – 4	50.0
	Levofloxacin	—	—	4 – >4	0
ESBL–positive (6)[e]	Ceftazidime–avibactam	—[b]	—	0.06 – 0.5	100
	Ceftazidime	—	—	1 – 64	33.3
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	4 – 64	16.7
	Piperacillin–tazobactam	—	—	1 – 16	100
	Doripenem	—	—	0.03 – 0.12	100
	Imipenem	—	—	0.25 – 1	100
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	1 – 2	100
	Colistin (6)[d]	—	—	0.5 – 1	100
	Tigecycline	—	—	0.25 – 2	100
	Levofloxacin	—	—	0.5 – >4	50.0
AmpC–positive (7)[f]	Ceftazidime–avibactam	—[b]	—	0.03 – 0.25	100
	Ceftazidime	—	—	0.06 – 128	42.9
	Cefepime	—	—	≤0.12 – 1	100
	Aztreonam	—	—	≤0.015 – 32	57.1
	Piperacillin–tazobactam	—	—	0.5 – 16	100
	Doripenem	—	—	0.03 – 0.25	100
	Imipenem	—	—	0.25 – 4	14.3
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	0.5 – >32	85.7
	Colistin (n=7)[d]	—	—	0.5 – 2	100
	Tigecycline	—	—	0.12 – 0.5	100
	Levofloxacin	—	—	0.06 – 2	100
ESBL–positive + AmpC–positive (2)[g]	Ceftazidime–avibactam	—[b]	—	0.25 – 0.25	100
	Ceftazidime	—	—	64 – 128	0
	Cefepime	—	—	0.5 – 1	100
	Aztreonam	—	—	128 – 128	0
	Piperacillin–tazobactam	—	—	2 – 2	100
	Doripenem	—	—	0.12 – 0.25	100
	Imipenem	—	—	1 – 2	50.0
	Meropenem	—	—	0.06 – 0.06	100
	Amikacin	—	—	1 – 1	100
	Colistin (n=2)[d]	—	—	1 – 1	100
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	1 – 1	100
P. aeruginosa (13)	Ceftazidime–avibactam	2	8	1 – 8	100
No acquired β–lactamase detected (13)[h]	Ceftazidime	2	64	2 – 64	69.2

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	4	8	1 – 8	100
	Aztreonam	8	64	4 – 64	61.5
	Piperacillin–tazobactam	8	64	4 – 64	61.5
	Doripenem	2	>4	0.12 – >4	53.8
	Imipenem	4	>8	4 – >8	0
	Meropenem	1	>8	0.12 – >8	53.8
	Amikacin	2	8	2 – 8	100
	Colistin (n=13)[d]	2	2	0.12 – 4	92.3
	Levofloxacin	0.5	2	0.25 – >4	92.3

[a] OSBL, original–spectrum β–lactamase (e.g. TEM–1, SHV–1, SHV–11); ESBL, extended–spectrum β–lactamase; MBL, metallo–β–lactamase.

[b] —, MIC_{50} and MIC_{90} were not calculated for n <10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] Includes isolates carrying CTX–M–14; CTX–M–15; CTX–M–55; with or without SHV–type or TEM–type OSBLs or enzymes of undefined spectrum.

[f] Includes isolates carrying CMY–2; DHA–1; and the chromosomal AmpC common to *Citrobacter* spp. and *Enterobacter* spp. with or without SHV–OSBLs and/or TEM–OSBLs.

[g] Isolates carrying DHA–1 and SHV–12.

[h] Assumed to carry the chromosomal AmpC common to *P. aeruginosa*.

Supplemental Table S5A. Japan – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 783 isolates of *Enterobacteriaceae* and 174 isolates of *P. aeruginosa* collected as part of the INFORM global surveillance program in 2012–2015.

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (μg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae					
All (783)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 64	99.7
	Ceftazidime	0.25	4	0.03 – >128	90.3
	Cefepime	≤0.12	4	≤0.12 – >16	89.3
	Aztreonam	0.12	16	≤0.015 – >128	86.3
	Piperacillin–tazobactam	2	16	≤0.25 – >128	92.7
	Doripenem	0.06	0.25	≤0.008 – >4	99.5
	Imipenem	0.25	2	0.06 – 8	85.8
	Meropenem	0.03	0.12	≤0.004 – 4	99.7
	Amikacin	2	4	≤0.25 – 32	99.9
	Colistin (n=328)[d]	0.5	>4	≤0.12 – >4	84.5
	Tigecycline	0.5	2	≤0.015 – 8	94.8
	Levofloxacin	0.06	>4	≤0.03 – >4	80.7
All, MBL–negative (781)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 8	100
	Ceftazidime	0.25	4	0.03 – >128	90.5
	Cefepime	≤0.12	4	≤0.12 – >16	89.5
	Aztreonam	0.12	16	≤0.015 – >128	86.4
	Piperacillin–tazobactam	2	16	≤0.25 – >128	92.7
	Doripenem	0.06	0.25	≤0.008 – 2	99.7
	Imipenem	0.25	2	0.06 – 8	86.0
	Meropenem	0.03	0.12	≤0.004 – 1	100
	Amikacin	2	4	≤0.25 – 32	99.9
	Colistin (n=327)[d]	0.5	>4	≤0.12 – >4	84.4
	Tigecycline	0.5	2	≤0.015 – 8	94.8
	Levofloxacin	0.06	>4	≤0.03 – >4	80.9
Ceftazidime-nonsusceptible (76)	Ceftazidime–avibactam	0.25	1	≤0.015 – 64	97.4
	Ceftazidime	32	128	8 – >128	0
	Cefepime	4	>16	≤0.12 – >16	38.2
	Aztreonam	32	64	0.06 – >128	7.9
	Piperacillin–tazobactam	16	128	0.5 – >128	59.2
	Doripenem	0.06	0.25	0.015 – >4	97.4
	Imipenem	0.25	2	0.06 – 4	89.5
	Meropenem	0.06	0.25	0.015 – 4	97.4
	Amikacin	2	4	0.5 – 16	100
	Colistin (n=22)[d]	0.5	1	0.25 – 1	100
	Tigecycline	0.5	2	0.12 – 4	97.4
	Levofloxacin	4	>4	≤0.03 – >4	47.4
Ceftazidime-nonsusceptible, MBL–negative (74)	Ceftazidime–avibactam	0.25	0.5	≤0.015 – 8	100
	Ceftazidime	32	128	8 – >128	0
	Cefepime	4	>16	≤0.12 – >16	39.2
	Aztreonam	32	64	0.5 – >128	6.8
	Piperacillin–tazobactam	16	128	0.5 – >128	58.1
	Doripenem	0.06	0.25	0.015 – 0.5	100
	Imipenem	0.25	1	0.06 – 4	91.9
	Meropenem	0.06	0.12	0.015 – 0.25	100
	Amikacin	2	4	0.5 – 16	100
	Colistin (n=21)[d]	0.5	1	0.25 – 1	100
	Tigecycline	0.5	2	0.12 – 4	97.3
	Levofloxacin	4	>4	≤0.03 – >4	48.7
Meropenem-nonsusceptible (2)[e]	Ceftazidime–avibactam	—[b]	—	32 – 64	0
	Ceftazidime	—	—	128 – 128	0
	Cefepime	—	—	8 – 8	0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Aztreonam	—	—	0.06 – 8	50.0
	Piperacillin–tazobactam	—	—	8 – 8	100
	Doripenem	—	—	2 – >4	0
	Imipenem	—	—	2 – 4	0
	Meropenem	—	—	2 – 4	0
	Amikacin	—	—	2 – 4	100
	Colistin (n=1)[d]	—	—	1 – 1	100
	Tigecycline	—	—	0.5 – 0.5	100
	Levofloxacin	—	—	4 – 4	0
Colistin–resistant (4)[e,f]	Ceftazidime–avibactam	—[b]	—	0.12 – 0.5	100
	Ceftazidime	—	—	0.12 – 4	100
	Cefepime	—	—	≤0.12 – 16	75.0
	Aztreonam	—	—	0.06 – 16	75.0
	Piperacillin–tazobactam	—	—	0.5 – 16	100
	Doripenem	—	—	0.06 – 0.25	100
	Imipenem	—	—	0.5 – 4	50.0
	Meropenem	—	—	0.06 – 0.25	100
	Amikacin	—	—	1 – 2	100
	Colistin (n=4)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	0.5 – 2	100
	Levofloxacin	—	—	≤0.03 – 4	50.0
Multidrug–resistant (39)[e]	Ceftazidime–avibactam	0.25	0.5	≤0.015 – 8	100
	Ceftazidime	16	128	0.06 – >128	38.5
	Cefepime	>16	>16	≤0.12 – >16	12.8
	Aztreonam	32	128	≤0.015 – >128	2.6
	Piperacillin–tazobactam	8	>128	0.5 – >128	71.8
	Doripenem	0.06	0.25	0.015 – 0.5	100
	Imipenem	0.25	1	0.06 – 2	92.3
	Meropenem	0.06	0.12	0.015 – 0.25	100
	Amikacin	4	8	1 – 32	97.4
	Colistin (n=15)[d]	0.5	>4	0.25 – >4	86.7
	Tigecycline	0.25	2	0.12 – 8	97.4
	Levofloxacin	>4	>4	4 – >4	0
Escherichia coli[e]					
All (272)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 8	100
	Ceftazidime	0.25	8	0.03 – >128	86.4
	Cefepime	≤0.12	16	≤0.12 – >16	80.5
	Aztreonam	0.12	16	≤0.015 – >128	81.3
	Piperacillin–tazobactam	2	4	≤0.25 – >128	96.0
	Doripenem	0.03	0.06	≤0.008 – 0.5	100
	Imipenem	0.25	0.25	0.06 – 8	99.3
	Meropenem	0.03	0.06	≤0.004 – 0.25	100
	Amikacin	2	4	0.5 – 16	100
	Colistin (n=101)[d]	0.5	1	≤0.12 – 1	100
	Tigecycline	0.25	0.5	0.06 – 2	100
	Levofloxacin	0.5	>4	≤0.03 – >4	61.4
Ceftazidime-nonsusceptible (37)	Ceftazidime–avibactam	0.25	0.5	≤0.015 – 8	100
	Ceftazidime	16	64	8 – >128	0
	Cefepime	16	>16	≤0.12 – >16	13.5
	Aztreonam	32	64	4 – >128	8.1
	Piperacillin–tazobactam	4	16	0.5 – >128	91.9
	Doripenem	0.03	0.06	0.015 – 0.5	100
	Imipenem	0.25	0.5	0.06 – 2	97.3
	Meropenem	0.03	0.12	0.015 – 0.25	100
	Amikacin	4	8	1 – 16	100
	Colistin (n=11)[d]	0.5	0.5	0.25 – 0.5	100
	Tigecycline	0.25	1	0.12 – 1	100
	Levofloxacin	>4	>4	≤0.03 – >4	18.9
Multidrug–resistant (25)	Ceftazidime–avibactam	0.25	0.5	≤0.015 – 8	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	16	64	2 – >128	24.0
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	32	128	16 – >128	0
	Piperacillin–tazobactam	4	16	1 – >128	92.0
	Doripenem	0.03	0.06	0.015 – 0.5	100
	Imipenem	0.25	0.5	0.06 – 2	96.0
	Meropenem	0.03	0.12	0.015 – 0.25	100
	Amikacin	4	8	1 – 8	100
	Colistin (n=10)[d]	0.5	0.5	0.25 – 0.5	100
	Tigecycline	0.25	0.5	0.12 – 1	100
	Levofloxacin	>4	>4	>4 – >4	0
Klebsiella pneumoniae					
All (190)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 64	99.0
	Ceftazidime	0.12	1	0.03 – >128	95.3
	Cefepime	≤0.12	2	≤0.12 – >16	91.1
	Aztreonam	0.06	2	≤0.015 – 64	92.1
	Piperacillin–tazobactam	2	8	0.5 – >128	95.8
	Doripenem	0.06	0.12	0.03 – >4	99.0
	Imipenem	0.25	0.5	0.06 – 4	96.3
	Meropenem	0.03	0.06	≤0.004 – 4	99.0
	Amikacin	1	2	0.5 – 8	100
	Colistin (n=99)[d]	0.5	1	0.25 – 2	100
	Tigecycline	0.5	1	≤0.015 – 4	97.4
	Levofloxacin	0.06	1	≤0.03 – >4	93.2
All, MBL–negative (188)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 2	100
	Ceftazidime	0.12	1	0.03 – >128	96.3
	Cefepime	≤0.12	1	≤0.12 – >16	92.0
	Aztreonam	0.06	2	≤0.015 – 64	92.6
	Piperacillin–tazobactam	2	8	0.5 – >128	95.7
	Doripenem	0.06	0.12	0.03 – 0.25	100
	Imipenem	0.25	0.5	0.06 – 4	97.3
	Meropenem	0.03	0.06	≤0.004 – 1	100
	Amikacin	1	2	0.5 – 8	100
	Colistin (n=98)[d]	0.5	1	0.25 – 2	100
	Tigecycline	0.5	1	≤0.015 – 4	97.3
	Levofloxacin	0.06	1	≤0.03 – >8	94.2
Ceftazidime-nonsusceptible (9)	Ceftazidime–avibactam	—[b]	—	0.25 – 64	77.8
	Ceftazidime	—	—	8 – >128	0
	Cefepime	—	—	0.5 – >16	11.1
	Aztreonam	—	—	0.06 – 64	11.1
	Piperacillin–tazobactam	—	—	4 – >128	66.7
	Doripenem	—	—	0.03 – >4	77.8
	Imipenem	—	—	0.12 – 4	77.8
	Meropenem	—	—	0.03 – 4	77.8
	Amikacin	—	—	1 – 4	100
	Colistin (n=4)[d]	—	—	0.5 – 1	100
	Tigecycline	—	—	0.5 – 2	100
	Levofloxacin	—	—	0.06 – >4	33.3
Ceftazidime-nonsusceptible, MBL–negative (7)	Ceftazidime–avibactam	—[b]	—	0.25 – 1	100
	Ceftazidime	—	—	8 – >128	0
	Cefepime	—	—	0.5 – >16	14.3
	Aztreonam	—	—	8 – 64	0
	Piperacillin–tazobactam	—	—	4 – >128	57.1
	Doripenem	—	—	0.03 – 0.25	100
	Imipenem	—	—	0.12 – 1	100
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	1 – 4	100
	Colistin (n=3)[d]	—	—	0.5 – 1	100
	Tigecycline	—	—	0.5 – 2	100
	Levofloxacin	—	—	0.06 – >4	42.9

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Meropenem-nonsusceptible (2)[e]	Ceftazidime–avibactam	—[b]	—	32 – 64	0
	Ceftazidime	—	—	128 – 128	0
	Cefepime	—	—	8 – 8	0
	Aztreonam	—	—	0.06 – 8	50.0
	Piperacillin–tazobactam	—	—	8 – 8	100
	Doripenem	—	—	2 – >4	0
	Imipenem	—	—	2 – 4	0
	Meropenem	—	—	2 – 4	0
	Amikacin	—	—	2 – 4	100
	Colistin (n=1)[d]	—	—	1	100
	Tigecycline	—	—	0.5 – 0.5	100
	Levofloxacin	—	—	4 – 4	0
Multidrug–resistant (3)[e]	Ceftazidime–avibactam	—[b]	—	0.25 – 0.5	100
	Ceftazidime	—	—	16 – >128	0
	Cefepime	—	—	0.5 – >16	33.3
	Aztreonam	—	—	32 – 64	0
	Piperacillin–tazobactam	—	—	16 – >128	66.7
	Doripenem	—	—	0.03 – 0.25	100
	Imipenem	—	—	0.12 – 1	100
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	2 – 4	100
	Colistin (n=2)[d]	—	—	0.5 – 1	100
	Tigecycline	—	—	1 – 2	100
	Levofloxacin	—	—	>4 – >4	0
Klebsiella oxytoca[e]					
All (47)	Ceftazidime–avibactam	0.12	0.5	0.06 – 4	100
	Ceftazidime	0.12	1	0.06 – 4	100
	Cefepime	≤0.12	2	≤0.12 – 8	91.5
	Aztreonam	0.25	128	0.03 – >128	80.9
	Piperacillin–tazobactam	2	>128	0.5 – >128	74.5
	Doripenem	0.06	0.12	0.03 – 0.12	100
	Imipenem	0.25	0.5	0.12 – 1	100
	Meropenem	0.06	0.06	0.03 – 0.12	100
	Amikacin	1	2	0.5 – 4	100
	Colistin (n=21)[d]	0.5	1	0.25 – 1	100
	Tigecycline	0.25	1	0.12 – 1	100
	Levofloxacin	0.06	>4	≤0.03 – >4	87.2
Multidrug–resistant (6)	Ceftazidime–avibactam	—[b]	—	0.5 – 4	100
	Ceftazidime	—	—	1 – 4	100
	Cefepime	—	—	2 – 8	50.0
	Aztreonam	—	—	64 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	0.06 – 0.12	100
	Imipenem	—	—	0.12 – 0.5	100
	Meropenem	—	—	0.06 – 0.12	100
	Amikacin	—	—	1 – 2	100
	Colistin (n=1)[d]	—	—	0.25	100
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	>4 – >4	0
Enterobacter spp.[e]					
All (95)[g]	Ceftazidime–avibactam	0.25	0.5	≤0.015 – 1	100
	Ceftazidime	0.25	64	0.06 – >128	73.7
	Cefepime	≤0.12	1	≤0.12 – >16	91.6
	Aztreonam	0.12	32	≤0.015 – 64	73.7
	Piperacillin–tazobactam	4	64	0.5 – >128	77.9
	Doripenem	0.06	0.12	0.015 – 0.5	100
	Imipenem	0.5	2	0.06 – 4	85.3
	Meropenem	0.06	0.12	0.008 – 0.25	100
	Amikacin	1	2	≤0.25 – 8	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Colistin (n=38)[d]	1	>4	0.25 – >4	89.5
	Tigecycline	0.5	1	0.25 – 4	97.9
	Levofloxacin	0.06	1	≤0.03 – >4	92.6
Ceftazidime-nonsusceptible (25)	Ceftazidime–avibactam	0.5	1	0.12 – 1	100
	Ceftazidime	64	128	8 – >128	0
	Cefepime	0.25	8	≤0.12 – >16	72.0
	Aztreonam	32	64	2 – 64	4.0
	Piperacillin–tazobactam	64	>128	8 – >128	16.0
	Doripenem	0.12	0.25	0.03 – 0.5	100
	Imipenem	0.5	2	0.06 – 2	84.0
	Meropenem	0.12	0.25	0.03 – 0.25	100
	Amikacin	1	2	0.5 – 8	100
	Colistin (n=5)[d]	—[b]	—	0.5 – 1	100
	Tigecycline	0.5	2	0.25 – 4	96.0
	Levofloxacin	0.12	4	≤0.03 – >4	88.0
Colistin–resistant (4)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.5	100
	Ceftazidime	—	—	0.12 – 4	100
	Cefepime	—	—	≤0.12 – 16	75.0
	Aztreonam	—	—	0.06 – 16	75.0
	Piperacillin–tazobactam	—	—	0.5 – 16	100
	Doripenem	—	—	0.06 – 0.25	100
	Imipenem	—	—	0.5 – 4	50.0
	Meropenem	—	—	0.06 – 0.25	100
	Amikacin	—	—	1 – 2	100
	Colistin (n=4)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	0.5 – 2	100
	Levofloxacin	—	—	≤0.03 – 4	50.0
Multidrug–resistant (3)	Ceftazidime–avibactam	—[b]	—	0.25 – 0.5	100
	Ceftazidime	—	—	4 – 128	33.3
	Cefepime	—	—	4 – 16	0
	Aztreonam	—	—	16 – 64	0
	Piperacillin–tazobactam	—	—	16 – 128	33.3
	Doripenem	—	—	0.03 – 0.06	100
	Imipenem	—	—	0.25 – 0.5	100
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	1 – 2	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	0.5 – 2	100
	Levofloxacin	—	—	4 – >4	0
Citrobacter spp.[e]					
All (51)[h]	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 1	100
	Ceftazidime	0.25	1	0.06 – >128	92.2
	Cefepime	≤0.12	0.25	≤0.12 – 16	98.0
	Aztreonam	0.12	4	0.03 – 128	90.2
	Piperacillin–tazobactam	2	16	0.5 – 64	92.2
	Doripenem	0.03	0.06	0.015 – 0.12	100
	Imipenem	0.25	1	0.06 – 2	96.1
	Meropenem	0.03	0.06	0.015 – 0.12	100
	Amikacin	1	2	≤0.25 – 4	100
	Colistin (n=20)[d]	0.5	1	≤0.12 – 1	100
	Tigecycline	0.25	1	0.12 – 2	100
	Levofloxacin	0.06	1	≤0.03 – >4	98.0
Ceftazidime-nonsusceptible (4)	Ceftazidime–avibactam	—[b]	—	0.25 – 1	100
	Ceftazidime	—	—	32 – >128	0
	Cefepime	—	—	0.25 – 2	100
	Aztreonam	—	—	16 – 128	0
	Piperacillin–tazobactam	—	—	32 – 64	0
	Doripenem	—	—	0.06 – 0.12	100
	Imipenem	—	—	0.5 – 1	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Meropenem	—	—	0.06 – 0.12	100
	Amikacin	—	—	2 – 4	100
	Colistin (n=2)[d]	—	—	0.5 – 1	100
	Tigecycline	—	—	0.25 – 2	100
	Levofloxacin	—	—	0.25 – 2	100
Proteeae [e]					
All (114)[i]	Ceftazidime–avibactam	0.03	0.06	≤0.015 – 0.25	100
	Ceftazidime	0.06	0.25	0.03 – 8	99.1
	Cefepime	≤0.12	0.25	≤0.12 – >16	99.1
	Aztreonam	≤0.015	0.06	≤0.015 – 16	98.3
	Piperacillin–tazobactam	0.5	0.5	≤0.25 – 2	100
	Doripenem	0.25	0.5	0.06 – 2	98.3
	Imipenem	2	4	0.25 – 4	27.2
	Meropenem	0.12	0.12	0.03 – 0.25	100
	Amikacin	2	8	0.5 – 32	99.1
	Colistin (n=44)[d]	>4	>4	0.25 – >4	2.3
	Tigecycline	2	4	0.5 – 8	70.2
	Levofloxacin	0.06	4	≤0.03 – >4	83.3
Ceftazidime-nonsusceptible (1)	Ceftazidime–avibactam	—[b]	—	0.12	100
	Ceftazidime	—	—	8	0
	Cefepime	—	—	≤0.12	100
	Aztreonam	—	—	0.5	100
	Piperacillin–tazobactam	—	—	0.5	100
	Doripenem	—	—	0.25	100
	Imipenem	—	—	4	0
	Meropenem	—	—	0.06	100
	Amikacin	—	—	2	100
	Tigecycline	—	—	4	0
	Levofloxacin	—	—	4	0
Multidrug–resistant (2)	Ceftazidime–avibactam	—[b]	—	0.03 – 0.06	100
	Ceftazidime	—	—	0.06 – 0.5	100
	Cefepime	—	—	≤0.12 – >16	50.0
	Aztreonam	—	—	≤0.015 – 16	50.0
	Piperacillin–tazobactam	—	—	0.5 – 0.5	100
	Doripenem	—	—	0.12 – 0.25	100
	Imipenem	—	—	2 – 2	0
	Meropenem	—	—	0.06 – 0.06	100
	Amikacin	—	—	4 – 32	50.0
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	2 – 8	50.0
	Levofloxacin	—	—	>4 – >4	0
Other *Enterobacteriaceae*[e]					
All (14)[j]	Ceftazidime–avibactam	0.25	0.5	0.03 – 0.5	100
	Ceftazidime	0.25	0.5	0.06 – 1	100
	Cefepime	≤0.12	0.5	≤0.12 – 0.5	100
	Aztreonam	0.12	1	0.03 – 4	100
	Piperacillin–tazobactam	2	16	1 – 32	92.9
	Doripenem	0.06	0.25	0.06 – 0.25	100
	Imipenem	0.5	2	0.25 – 2	78.6
	Meropenem	0.06	0.12	0.03 – 0.12	100
	Amikacin	2	4	1 – 8	100
	Colistin (n=5)[d]	—[b]	—	0.5 – >4	20.0
	Tigecycline	0.5	2	0.25 – 2	100
	Levofloxacin	0.12	2	0.06 – 2	100
Pseudomonas aeruginosa					
All (174)	Ceftazidime–avibactam	2	8	0.25 – >128	97.1
	Ceftazidime	2	32	0.5 – >128	84.5
	Cefepime	2	16	0.25 – >16	84.5
	Aztreonam	8	32	0.12 – 128	63.2

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Piperacillin–tazobactam	8	128	≤0.25 – >128	69.0
	Doripenem	0.5	>4	0.06 – >4	73.6
	Imipenem	2	>8	0.5 – >8	62.1
	Meropenem	0.5	>8	0.03 – >8	73.0
	Amikacin	4	8	0.5 – >32	98.3
	Colistin (n=99)[d]	1	2	0.5 – 4	97.0
	Levofloxacin	0.5	>4	≤0.03 – >4	81.6
All, MBL–negative (172)	Ceftazidime–avibactam	2	8	0.25 – 32	98.3
	Ceftazidime	2	32	0.5 – >128	85.5
	Cefepime	2	16	0.25 – >16	85.5
	Aztreonam	8	32	0.12 – 128	64.0
	Piperacillin–tazobactam	8	128	≤0.25 – >128	69.8
	Doripenem	0.5	>4	0.06 – >4	74.4
	Imipenem	2	>8	0.5 – >8	62.8
	Meropenem	0.5	>8	0.03 – >8	73.8
	Amikacin	4	8	0.5 – >32	98.3
	Colistin (n=98)[d]	1	2	0.5 – 4	96.9
	Levofloxacin	0.5	>4	≤0.03 – >4	82.6
Ceftazidime-nonsusceptible (27)	Ceftazidime–avibactam	8	32	1 – >128	81.5
	Ceftazidime	32	>128	16 – >128	0
	Cefepime	16	>16	2 – >16	25.9
	Aztreonam	32	64	8 – 128	14.8
	Piperacillin–tazobactam	>128	>128	8 – >128	14.8
	Doripenem	>4	>4	0.25 – >4	33.3
	Imipenem	>8	>8	1 – >8	25.9
	Meropenem	>8	>8	0.12 – >8	37.0
	Amikacin	4	8	0.5 – >32	96.3
	Colistin (n=12)[d]	1	2	0.5 – 2	100
	Levofloxacin	2	>4	0.25 – >4	55.6
Ceftazidime-nonsusceptible, MBL–negative (25)	Ceftazidime–avibactam	8	16	1 – 32	88.0
	Ceftazidime	32	64	16 – >128	0
	Cefepime	16	>16	2 – >16	28.0
	Aztreonam	32	64	8 – 128	16.0
	Piperacillin–tazobactam	>128	>128	8 – >128	16.0
	Doripenem	>4	>4	0.25 – >4	36.0
	Imipenem	>8	>8	1 – >8	28.0
	Meropenem	>8	>8	0.12 – >8	40.0
	Amikacin	4	8	0.5 – >32	96.0
	Colistin (n=11)[d]	1	2	0.5 – 2	100
	Levofloxacin	1	>4	0.25 – >4	60.0
Meropenem-nonsusceptible (47)	Ceftazidime–avibactam	4	16	1 – >128	89.4
	Ceftazidime	8	64	1 – >128	63.8
	Cefepime	8	>16	1 – >16	51.1
	Aztreonam	32	64	1 – 128	29.8
	Piperacillin–tazobactam	32	>128	2 – >128	38.3
	Doripenem	>4	>4	2 – >4	6.4
	Imipenem	>8	>8	4 – >8	0
	Meropenem	>8	>8	4 – >8	0
	Amikacin	4	16	1 – >32	93.6
	Colistin (n=21)[d]	1	2	0.5 – 4	95.2
	Levofloxacin	2	>4	0.25 – >4	59.6
Meropenem-nonsusceptible, MBL–negative (45)	Ceftazidime–avibactam	4	8	1 – 32	93.3
	Ceftazidime	8	64	1 – >128	66.7
	Cefepime	8	>16	1 – >16	53.3
	Aztreonam	32	64	1 – 128	31.1
	Piperacillin–tazobactam	32	>128	2 – >128	40.0
	Doripenem	>4	>4	2 – >4	6.7
	Imipenem	>8	>8	4 – >8	0
	Meropenem	>8	>8	4 – >8	0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Amikacin	4	16	1 – >32	93.3
	Colistin (n=20)[d]	1	2	0.5 – 4	95.0
	Levofloxacin	2	>4	0.25 – >4	62.2
Multidrug–resistant (23)	Ceftazidime–avibactam	8	32	2 – >128	78.3
	Ceftazidime	32	>128	2 – >128	17.4
	Cefepime	16	>16	8 – >16	17.4
	Aztreonam	32	64	8 – 128	8.7
	Piperacillin–tazobactam	>128	>128	16 – >128	8.7
	Doripenem	>4	>4	0.25 – >4	13.0
	Imipenem	>8	>8	1 – >8	4.4
	Meropenem	>8	>8	0.12 – >8	13.0
	Amikacin	8	16	0.5 – >32	91.3
	Colistin (n=12)[d]	1	2	0.5 – 2	100
	Levofloxacin	>4	>4	0.25 – >4	30.4
Multidrug–resistant, MBL–negative (21)	Ceftazidime–avibactam	8	16	2 – 32	85.7
	Ceftazidime	32	64	2 – >128	19.1
	Cefepime	16	>16	8 – >16	19.1
	Aztreonam	32	64	8 – 128	9.5
	Piperacillin–tazobactam	>128	>128	16 – >128	9.5
	Doripenem	>4	>4	0.25 – >4	14.3
	Imipenem	>8	>8	1 – >8	4.8
	Meropenem	>8	>8	0.12 – >8	14.3
	Amikacin	4	16	0.5 – >32	90.5
	Colistin (n=11)[d]	1	2	0.5 – 2	100
	Levofloxacin	>4	>4	0.25 – >4	33.3

[a] MBL–negative, no gene encoding a metallo–β–lactamase was detected by PCR.

[b] —, MIC_{50} and MIC_{90} were not calculated for n < 10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] All isolates were MBL–negative.

[f] Excludes isolates of Proteeae and *Serratia* spp. that are intrinsically resistant to colistin.

[g] *Enterobacter* spp. includes *Enterobacter aerogenes* (n=39), *Enterobacter asburiae* (n=5), *Enterobacter cloacae* (n=49), *Enterobacter kobei* (n=1), and *Enterobacter ludwigii* (n=1).

[h] *Citrobacter* spp. includes *Citrobacter braakii* (n=1), *Citrobacter farmeri* (n=1), *Citrobacter freundii* (n=28), and *Citrobacter koseri* (n=21).

[i] Proteeae includes *Morganella morganii* (n=22), *Proteus mirabilis* (n=48), *Proteus vulgaris* (n=36), *Providencia alcalifaciens* (n=1), *Providencia rettgeri* (n=6), and *Providencia stuartii* (n=1).

[j] Other *Enterobacteriaceae* includes *Raoultella ornithinolytica* (n=1), *Raoultella planticola* (n=2), and *Serratia marcescens* (n=11).

Supplemental Table S5B. Japan – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 177 isolates of β–lactamase–positive *Enterobacteriaceae* (n=116) and *P. aeruginosa* (n=61) collected as part of the INFORM global surveillance program in 2012–2015.

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae (116)	Ceftazidime–avibactam	—[b]	—	0.03 – 0.25	100
OSBL–positive (5)	Ceftazidime	—	—	0.06 – 0.25	100
	Cefepime	—	—	≤0.12 – ≤0.12	100
	Aztreonam	—	—	0.06 – 0.12	100
	Piperacillin–tazobactam	—	—	0.5 – 16	100
	Doripenem	—	—	0.12 – 0.25	100
	Imipenem	—	—	2 – 4	0
	Meropenem	—	—	0.03 – 0.25	100
	Amikacin	—	—	1 – 2	100
	Colistin (n=3) [d]	—	—	0.5 – 1	100
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	0.06 – 0.25	100
ESBL–positive (78)[e]	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 8	100
	Ceftazidime	4	64	0.25 – >128	53.8
	Cefepime	16	>16	≤0.12 – >16	14.1
	Aztreonam	16	128	1 – >128	15.4
	Piperacillin–tazobactam	4	>128	0.5 – >128	85.9
	Doripenem	0.03	0.12	0.015 – 0.5	100
	Imipenem	0.25	0.5	0.06 – 8	96.2
	Meropenem	0.03	0.06	0.015 – 0.25	100
	Amikacin	2	8	0.5 – 32	98.7
	Colistin (n=31)[d]	0.5	0.5	0.25 – 1	100
	Tigecycline	0.25	1	0.12 – 4	97.4
	Levofloxacin	>4	>4	≤0.03 – >4	28.2
AmpC–positive (29)[f]	Ceftazidime–avibactam	0.25	0.5	≤0.015 – 1	100
	Ceftazidime	32	128	0.12 – >128	34.5
	Cefepime	0.25	4	≤0.12 – 8	79.3
	Aztreonam	8	64	0.06 – 64	44.8
	Piperacillin–tazobactam	16	128	0.5 – >128	51.7
	Doripenem	0.06	0.25	0.03 – 0.5	100
	Imipenem	1	2	0.12 – 4	51.7
	Meropenem	0.12	0.25	0.03 – 0.25	100
	Amikacin	2	4	≤0.25 – 8	100
	Colistin (n=12)[d]	0.5	>4	0.5 – >4	75.0
	Tigecycline	0.5	2	0.12 – 4	96.6
	Levofloxacin	0.12	>4	≤0.03 – >4	82.8
ESBL–positive + AmpC–positive (1)[g]	Ceftazidime–avibactam	—[b]	—	0.25	100
	Ceftazidime	—	—	128	0
	Cefepime	—	—	8	0
	Aztreonam	—	—	16	0
	Piperacillin–tazobactam	—	—	64	0
	Doripenem	—	—	0.12	100
	Imipenem	—	—	1	100
	Meropenem	—	—	0.12	100
	Amikacin	—	—	1	100
	Colistin (n=0)[d]	—	—	ND[h]	ND
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	0.5	100
KPC–positive (1)[i]	Ceftazidime–avibactam	—[b]	—	0.06	100
	Ceftazidime	—	—	0.12	100

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	—	—	≤0.12	100
	Aztreonam	—	—	0.06	100
	Piperacillin–tazobactam	—	—	0.5	100
	Doripenem	—	—	0.06	100
	Imipenem	—	—	2	0
	Meropenem	—	—	0.06	100
	Amikacin	—	—	1	100
	Colistin (n=0)[d]	—	—	ND[h]	ND
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	0.12	100
MBL–positive (2)[j]	Ceftazidime–avibactam	—[b]	—	32 – 64	0
	Ceftazidime	—	—	128 – 128	0
	Cefepime	—	—	8 – 8	0
	Aztreonam	—	—	0.06 – 8	50.0
	Piperacillin–tazobactam	—	—	8 – 8	100
	Doripenem	—	—	2 – >4	0
	Imipenem	—	—	2 – 4	0
	Meropenem	—	—	2 – 4	0
	Amikacin	—	—	2 – 4	100
	Colistin (n=1)[d]	—	—	1	100
	Tigecycline	—	—	0.5 – 0.5	100
	Levofloxacin	—	—	4 – 4	0
P. aeruginosa (61)	Ceftazidime–avibactam	—[b]	—	32	0
OSBL–positive (1)[k]	Ceftazidime	—	—	>128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	>32	0
	Colistin (n=1)[d]	—	—	1	100
	Levofloxacin	—	—	>4	0
MBL–positive (2)[k,l]	Ceftazidime–avibactam	—[b]	—	>128 – >128	0
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	16 – 64	0
	Piperacillin–tazobactam	—	—	64 – 128	0
	Doripenem	—	—	>4 – >4	0
	Imipenem	—	—	8 – >8	0
	Meropenem	—	—	>8 – >8	0
	Amikacin	—	—	8 – 8	100
	Colistin (n=1)[d]	—	—	2	100
	Levofloxacin	—	—	>4 – >4	0
No acquired β–lactamase detected (58)[k]	Ceftazidime–avibactam	4	8	0.5 – 32	96.6
	Ceftazidime	4	64	1 – 64	72.4
	Cefepime	8	>16	1 – >16	63.8
	Aztreonam	16	32	1 – 64	43.1
	Piperacillin–tazobactam	16	>128	2 – >128	50.0
	Doripenem	4	>4	0.25 – >4	25.9
	Imipenem	>8	>8	4 – >8	0
	Meropenem	8	>8	0.25 – >8	24.1
	Amikacin	4	8	1 – >32	96.6
	Colistin (n=27)[d]	1	2	0.5 – 4	92.6
	Levofloxacin	1	>4	≤0.03 – >4	65.5

[a] OSBL, original–spectrum β–lactamase (e.g. TEM–1, SHV–1, SHV–11); ESBL, extended–spectrum β–lactamase; MBL, metallo–β–lactamase.

[b] —, MIC_{50} and MIC_{90} were not calculated for n <10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] Includes isolates carrying CTX–M–2; CTX–M–3; CTX–M–8; CTX–M–9; CTX–M–14; CTX–M–15; CTX–M–24; CTX–M–27; CTX–M–28; CTX–M–55; CTX–M–65; CTX–M–74; SHV–2; SHV–12; CTX–M–15 and CTX–M–79; CTX–M–55 and CTX–M–79; SHV–14 and CTX–M–14; and the chromosomal ESBL common to *K. oxytoca* with or without SHV–type or TEM–type OSBLs.

[f] Includes isolates carrying CMY–2; DHA–1; DHA–type; and the chromosomal AmpC common to *Citrobacter* spp., *Enterobacter* spp., and *Serratia* spp. with or without SHV–OSBLs and/or TEM–OSBLs.

[g] Isolate carrying DHA–1 and SHV–2A.

[h] ND, not determined; MIC range and % susceptible were not calculated for n=0 isolates.

[i] Isolate carrying KPC–2 and the chromosomal AmpC common to *E. asburiae*.

[j] Isolates carrying IMP–1; and IMP–1 and CTX–M–3.

[k] Assumed to carry the chromosomal AmpC common to *P. aeruginosa*.

[l] Isolates carrying IMP–1 and IMP–7.

Supplemental Table S6A. Malaysia – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 651 isolates of *Enterobacteriaceae* and 169 isolates of *P. aeruginosa* collected as part of the INFORM global surveillance program in 2013–2015

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae					
All (651)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – >128	99.7
	Ceftazidime	0.25	64	0.03 – >128	76.3
	Cefepime	≤0.12	>16	≤0.12 – >16	75.6
	Aztreonam	0.12	64	≤0.015 – >128	74.7
	Piperacillin–tazobactam	2	32	≤0.25 – >128	89.6
	Doripenem	0.06	0.25	≤0.008 – >4	99.7
	Imipenem	0.25	2	0.06 – >8	87.7
	Meropenem	0.03	0.12	≤0.004 – >8	99.5
	Amikacin	2	4	0.5 – 32	99.5
	Colistin (n=389)[d]	0.5	>4	≤0.12 – >4	81.8
	Tigecycline	0.5	2	0.06 – >8	95.7
	Levofloxacin	0.06	>4	≤0.03 – >4	86.5
All, MBL–negative (649)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 4	100
	Ceftazidime	0.25	64	0.03 – >128	76.6
	Cefepime	≤0.12	>16	≤0.12 – >16	75.8
	Aztreonam	0.12	64	≤0.015 – >128	74.7
	Piperacillin–tazobactam	2	32	≤0.25 – >128	89.8
	Doripenem	0.06	0.25	≤0.008 – 1	100
	Imipenem	0.25	2	0.06 – 8	88.0
	Meropenem	0.03	0.12	≤0.004 – 2	99.9
	Amikacin	2	4	0.5 – 32	99.5
	Colistin (n=387)[d]	0.5	>4	≤0.12 – >4	81.9
	Tigecycline	0.5	2	0.06 – >8	95.7
	Levofloxacin	0.06	>4	≤0.03 – >4	86.4
Ceftazidime-nonsusceptible (154)	Ceftazidime–avibactam	0.25	1	≤0.015 – >128	98.7
	Ceftazidime	32	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	12.3
	Aztreonam	64	>128	≤0.015 – >128	3.9
	Piperacillin–tazobactam	16	>128	0.5 – >128	63.0
	Doripenem	0.06	0.12	0.03 – >4	98.7
	Imipenem	0.25	1	0.12 – >8	96.1
	Meropenem	0.06	0.12	0.015 – >8	98.1
	Amikacin	2	16	0.5 – 32	98.7
	Colistin (n=98)[d]	0.5	2	0.25 – >4	90.8
	Tigecycline	1	2	0.12 – 8	97.4
	Levofloxacin	1	>4	≤0.03 – >4	70.8
Ceftazidime-nonsusceptible, MBL–negative (152)	Ceftazidime–avibactam	0.25	1	≤0.015 – 4	100
	Ceftazidime	32	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	12.5
	Aztreonam	64	>128	1 – >128	3.3
	Piperacillin–tazobactam	16	>128	0.5 – >128	63.8
	Doripenem	0.06	0.12	0.03 – 1	100
	Imipenem	0.25	0.5	0.12 – 4	97.4
	Meropenem	0.06	0.12	0.015 – 2	99.3
	Amikacin	2	8	0.5 – 32	98.7
	Colistin (n=96)[d]	0.5	2	0.25 – >4	91.7
	Tigecycline	1	2	0.12 – 8	97.4
	Levofloxacin	1	>4	≤0.03 – >4	70.4
Meropenem-nonsusceptible (3)	Ceftazidime–avibactam	—[b]	—	2 – >128	33.3

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	—	—	32 – >128	0
	Cefepime	—	—	4 – >16	0
	Aztreonam	—	—	≤0.015 – >128	33.3
	Piperacillin–tazobactam	—	—	64 – >128	0
	Doripenem	—	—	1 – >4	33.3
	Imipenem	—	—	0.25 – >8	33.3
	Meropenem	—	—	2 – >8	0
	Amikacin	—	—	2 – 16	100
	Colistin (n=3)[d]	—	—	1 – >4	33.3
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	0.12 – >4	66.7
Meropenem-nonsusceptible, MBL–negative (1)	Ceftazidime–avibactam	—[b]	—	2	100
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	1	100
	Imipenem	—	—	0.25	100
	Meropenem	—	—	2	0
	Amikacin	—	—	16	100
	Colistin (n=1)[d]	—	—	4	0
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	>4	0
Colistin–resistant (11)[e,f]	Ceftazidime–avibactam	0.12	2	0.03 – 2	100
	Ceftazidime	16	>128	0.12 – >128	45.5
	Cefepime	0.5	>16	≤0.12 – >16	54.6
	Aztreonam	32	>128	0.06 – >128	45.5
	Piperacillin–tazobactam	4	>128	1 – >128	72.7
	Doripenem	0.06	0.25	0.03 – 1	100
	Imipenem	0.25	1	0.25 – 1	100
	Meropenem	0.03	0.5	0.03 – 2	90.9
	Amikacin	4	4	1 – 16	100
	Colistin (n=11)[d]	4	>4	4 – >4	0
	Tigecycline	0.5	1	0.12 – 2	100
	Levofloxacin	1	>4	0.06 – >4	63.6
Multidrug–resistant (59)	Ceftazidime–avibactam	0.25	1	0.03 – >128	98.3
	Ceftazidime	128	>128	0.5 – >128	3.4
	Cefepime	>16	>16	4 – >16	0
	Aztreonam	128	>128	16 – >128	0
	Piperacillin–tazobactam	>128	>128	2 – >128	28.8
	Doripenem	0.06	0.12	0.03 – >4	98.3
	Imipenem	0.25	0.5	0.12 – >8	94.9
	Meropenem	0.06	0.25	0.015 – >8	96.6
	Amikacin	4	16	1 – 32	96.6
	Colistin (n=37)[d]	0.5	4	0.25 – >4	83.8
	Tigecycline	1	2	0.12 – 8	98.3
	Levofloxacin	>4	>4	0.06 – >4	35.6
Multidrug–resistant, MBL–negative (58)	Ceftazidime–avibactam	0.25	1	0.03 – 4	100
	Ceftazidime	128	>128	0.5 – >128	3.5
	Cefepime	>16	>16	4 – >16	0
	Aztreonam	128	>128	16 – >128	0
	Piperacillin–tazobactam	>128	>128	2 – >128	29.3
	Doripenem	0.06	0.12	0.03 – 1	100
	Imipenem	0.25	0.5	0.12 – 4	96.6
	Meropenem	0.06	0.25	0.015 – 2	98.3
	Amikacin	4	16	1 – 32	96.6
	Colistin (n=36)[d]	0.5	4	0.25 – >4	83.3
	Tigecycline	1	2	0.12 – 8	98.3
	Levofloxacin	>4	>4	0.06 – >4	34.5

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Escherichia coli[f]					
All (215)	Ceftazidime–avibactam	0.06	0.12	≤0.015 – 4	100
	Ceftazidime	0.25	16	0.03 – >128	81.4
	Cefepime	≤0.12	>16	≤0.12 – >16	79.5
	Aztreonam	0.12	32	≤0.015 – >128	78.1
	Piperacillin–tazobactam	2	8	≤0.25 – >128	95.8
	Doripenem	0.03	0.06	≤0.008 – 0.12	100
	Imipenem	0.25	0.25	0.06 – 2	99.5
	Meropenem	0.03	0.06	0.015 – 0.06	100
	Amikacin	2	4	1 – 32	99.1
	Colistin (n=123)[d]	0.5	1	≤0.12 – 4	95.1
	Tigecycline	0.25	0.5	0.06 – 2	100
	Levofloxacin	0.06	>4	≤0.03 – >4	77.7
Ceftazidime-nonsusceptible (40)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 4	100
	Ceftazidime	32	64	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	20.0
	Aztreonam	64	128	1 – >128	7.5
	Piperacillin–tazobactam	4	16	0.5 – >128	90.0
	Doripenem	0.06	0.06	0.03 – 0.12	100
	Imipenem	0.25	0.5	0.12 – 2	97.5
	Meropenem	0.03	0.06	0.015 – 0.06	100
	Amikacin	4	8	1 – 32	97.5
	Colistin (n=29)[d]	0.5	4	0.25 – 4	89.7
	Tigecycline	0.25	1	0.12 – 2	100
	Levofloxacin	>4	>4	≤0.03 – >4	45.0
Colistin–resistant (6)	Ceftazidime–avibactam	—[b]	—	0.03 – 0.12	100
	Ceftazidime	—	—	0.12 – 64	50.0
	Cefepime	—	—	≤0.12 – >16	50.0
	Aztreonam	—	—	0.06 – 64	50.0
	Piperacillin–tazobactam	—	—	1 – 4	100
	Doripenem	—	—	0.03 – 0.06	100
	Imipenem	—	—	0.25 – 0.25	100
	Meropenem	—	—	0.03 – 0.03	100
	Amikacin	—	—	2 – 4	100
	Colistin (n=6)[d]	—	—	4 – 4	0
	Tigecycline	—	—	0.12 – 1	100
	Levofloxacin	—	—	1 – >4	50.0
Multidrug–resistant (17)	Ceftazidime–avibactam	0.12	0.25	0.03 – 4	100
	Ceftazidime	32	128	16 – >128	0
	Cefepime	>16	>16	4 – >16	0
	Aztreonam	64	128	16 – >128	0
	Piperacillin–tazobactam	4	128	2 – >128	82.4
	Doripenem	0.06	0.06	0.03 – 0.12	100
	Imipenem	0.25	1	0.25 – 2	94.1
	Meropenem	0.03	0.06	0.03 – 0.06	100
	Amikacin	4	8	2 – 32	94.1
	Colistin (n=14)[d]	0.5	4	0.25 – 4	85.7
	Tigecycline	0.25	2	0.12 – 2	100
	Levofloxacin	>4	>4	>4 – >4	0
Klebsiella pneumoniae					
All (241)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	99.6
	Ceftazidime	0.25	128	0.03 – >128	59.8
	Cefepime	≤0.12	>16	≤0.12 – >16	60.2
	Aztreonam	0.12	128	≤0.015 – >128	58.9
	Piperacillin–tazobactam	4	>128	0.5 – >128	78.8
	Doripenem	0.06	0.12	0.03 – >4	99.6
	Imipenem	0.25	0.5	0.06 – >8	99.6
	Meropenem	0.06	0.06	0.015 – >8	99.2
	Amikacin	1	4	0.5 – 32	99.6
	Colistin (n=151)[d]	0.5	1	0.25 – 4	98.7

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Tigecycline	0.5	2	0.25 – >8	97.5
	Levofloxacin	0.06	4	≤0.03 – >4	88.0
All, MBL–negative (240)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 2	100
	Ceftazidime	0.25	128	0.03 – >128	60.0
	Cefepime	≤0.12	>16	≤0.12 – >16	60.4
	Aztreonam	0.12	128	≤0.015 – >128	59.2
	Piperacillin–tazobactam	4	>128	0.5 – >128	79.2
	Doripenem	0.06	0.12	0.03 – 1	100
	Imipenem	0.25	0.5	0.06 – 1	100
	Meropenem	0.06	0.06	0.015 – 2	99.6
	Amikacin	1	4	0.5 – 32	99.6
	Colistin (n=150)[d]	0.5	1	0.25 – 4	98.7
	Tigecycline	0.5	2	0.25 – >8	97.5
	Levofloxacin	0.06	4	≤0.03 – >4	87.9
Ceftazidime-nonsusceptible (97)	Ceftazidime–avibactam	0.25	1	0.03 – >128	99.0
	Ceftazidime	32	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	5.2
	Aztreonam	64	>128	1 – >128	2.1
	Piperacillin–tazobactam	16	>128	0.5 – >128	51.6
	Doripenem	0.06	0.12	0.03 – >4	99.0
	Imipenem	0.25	0.5	0.12 – >8	99.0
	Meropenem	0.06	0.25	0.015 – >8	97.9
	Amikacin	2	16	0.5 – 32	99.0
	Colistin (n=55)[d]	0.5	1	0.25 – 4	96.4
	Tigecycline	1	2	0.25 – 8	96.9
	Levofloxacin	1	>4	≤0.03 – >4	77.3
Ceftazidime-nonsusceptible, MBL–negative (96)	Ceftazidime–avibactam	0.25	1	0.03 – 2	100
	Ceftazidime	32	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	5.2
	Aztreonam	64	>128	1 – >128	2.1
	Piperacillin–tazobactam	16	>128	0.5 – >128	52.1
	Doripenem	0.06	0.12	0.03 – 1	100
	Imipenem	0.25	0.5	0.12 – 1	100
	Meropenem	0.06	0.12	0.015 – 2	99.0
	Amikacin	2	16	0.5 – 32	99.0
	Colistin (n=54)[d]	0.5	1	0.25 – 4	96.3
	Tigecycline	1	2	0.25 – 8	96.9
	Levofloxacin	1	>4	≤0.03 – >4	77.1
Meropenem-nonsusceptible (2)	Ceftazidime–avibactam	—[b]	—	2 – >128	50.0
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	64 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	1 – >4	50.0
	Imipenem	—	—	0.25 – >8	50.0
	Meropenem	—	—	2 – >8	0
	Amikacin	—	—	16 – 16	100
	Colistin (n=2)[d]	—	—	1 – 4	50.0
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	2 – >4	50.0
Meropenem-nonsusceptible, MBL–negative (1)	Ceftazidime–avibactam	—[b]	—	2	100
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	1	100
	Imipenem	—	—	0.25	100
	Meropenem	—	—	2	0
	Amikacin	—	—	16	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Colistin (n=1)[d]	—	—	4	0
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	>4	0
Colistin–resistant (2)[f]	Ceftazidime–avibactam	—[b]	—	1 – 2	100
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	>128 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	0.12 – 1	100
	Imipenem	—	—	0.25 – 0.25	100
	Meropenem	—	—	0.25 – 2	50.0
	Amikacin	—	—	4 – 16	100
	Colistin (n=2)[d]	—	—	4 – 4	0
	Tigecycline	—	—	1 – 2	100
	Levofloxacin	—	—	2 – >4	50.0
Multidrug–resistant (39)	Ceftazidime–avibactam	0.5	2	0.03 – >128	97.4
	Ceftazidime	128	>128	2 – >128	2.6
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	128	>128	32 – >128	0
	Piperacillin–tazobactam	>128	>128	8 – >128	7.7
	Doripenem	0.12	0.25	0.03 – >4	97.4
	Imipenem	0.25	0.5	0.12 – >8	97.4
	Meropenem	0.06	0.5	0.015 – >8	94.9
	Amikacin	4	16	1 – 32	97.4
	Colistin (n=20)[d]	0.5	1	0.25 – 4	90.0
	Tigecycline	2	2	0.5 – 8	97.4
	Levofloxacin	4	>4	0.06 – >4	48.7
Multidrug–resistant, MBL–negative (38)	Ceftazidime–avibactam	0.5	1	0.03 – 2	100
	Ceftazidime	128	>128	2 – >128	2.6
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	128	>128	32 – >128	0
	Piperacillin–tazobactam	>128	>128	8 – >128	7.9
	Doripenem	0.12	0.12	0.03 – 1	100
	Imipenem	0.25	0.5	0.12 – 0.5	100
	Meropenem	0.06	0.5	0.015 – 2	97.4
	Amikacin	2	16	1 – 32	97.4
	Colistin (n=19)[d]	0.5	4	0.25 – 4	89.5
	Tigecycline	2	2	0.5 – 8	97.4
	Levofloxacin	4	>4	0.06 – >4	47.4
Klebsiella oxytoca[f]					
All (4)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.12	100
	Ceftazidime	—	—	0.12 – 0.12	100
	Cefepime	—	—	≤0.12 – ≤0.12	100
	Aztreonam	—	—	0.12 – 0.25	100
	Piperacillin–tazobactam	—	—	2 – 4	100
	Doripenem	—	—	0.03 – 0.12	100
	Imipenem	—	—	0.12 – 0.25	100
	Meropenem	—	—	0.03 – 0.06	100
	Amikacin	—	—	1 – 4	100
	Colistin (n=2)[d]	—	—	0.5 – 2	100
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	≤0.03 – 0.06	100
Enterobacter spp.[f]					
All (69)[g]	Ceftazidime–avibactam	0.12	0.5	0.03 – 2	100
	Ceftazidime	0.25	32	0.12 – 128	88.4
	Cefepime	≤0.12	4	≤0.12 – >16	88.4
	Aztreonam	0.12	32	0.03 – 128	87.0
	Piperacillin–tazobactam	4	16	0.5 – 64	97.1
	Doripenem	0.06	0.12	0.03 – 0.25	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Imipenem	1	2	0.06 – 4	85.5
	Meropenem	0.06	0.06	0.015 – 0.5	100
	Amikacin	1	2	0.5 – 4	100
	Colistin (n=40)[d]	0.5	1	≤0.12 – >4	92.5
	Tigecycline	0.5	1	0.12 – 2	100
	Levofloxacin	0.06	0.12	≤0.03 – 1	100
Ceftazidime-nonsusceptible (8)	Ceftazidime–avibactam	—[b]	—	0.12 – 2	100
	Ceftazidime	—	—	32 – 128	0
	Cefepime	—	—	0.25 – >16	50.0
	Aztreonam	—	—	32 – 128	0
	Piperacillin–tazobactam	—	—	8 – 64	75.0
	Doripenem	—	—	0.03 – 0.25	100
	Imipenem	—	—	0.5 – 2	87.5
	Meropenem	—	—	0.03 – 0.5	100
	Amikacin	—	—	1 – 4	100
	Colistin (n=7)[d]	—	—	0.25 – >4	85.7
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	0.06 – 1	100
Colistin–resistant (3)	Ceftazidime–avibactam	—[b]	—	0.12 – 2	100
	Ceftazidime	—	—	0.25 – 128	66.7
	Cefepime	—	—	≤0.12 – 0.5	100
	Aztreonam	—	—	0.12 – 64	66.7
	Piperacillin–tazobactam	—	—	4 – 32	66.7
	Doripenem	—	—	0.03 – 0.25	100
	Imipenem	—	—	1 – 1	100
	Meropenem	—	—	0.03 – 0.5	100
	Amikacin	—	—	1 – 2	100
	Colistin (n=3)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	0.5 – 0.5	100
	Levofloxacin	—	—	0.06 – 0.25	100
Citrobacter spp.[f]					
All (25)[h]	Ceftazidime–avibactam	0.12	0.25	0.06 – 0.5	100
	Ceftazidime	0.25	64	0.12 – 128	76.0
	Cefepime	≤0.12	>16	≤0.12 – >16	84.0
	Aztreonam	0.12	64	0.03 – 128	76.0
	Piperacillin–tazobactam	4	128	1 – >128	88.0
	Doripenem	0.03	0.06	0.03 – 0.06	100
	Imipenem	0.25	0.5	0.12 – 2	96.0
	Meropenem	0.03	0.06	0.015 – 0.06	100
	Amikacin	2	4	1 – 8	100
	Colistin (n=13)[d]	0.5	1	0.25 – 1	100
	Tigecycline	0.25	0.5	0.12 – 1	100
	Levofloxacin	0.03	1	≤0.03 – 2	100
Ceftazidime-nonsusceptible (6)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.5	100
	Ceftazidime	—	—	32 – 128	0
	Cefepime	—	—	0.25 – >16	33.3
	Aztreonam	—	—	8 – 128	0
	Piperacillin–tazobactam	—	—	4 – >128	66.7
	Doripenem	—	—	0.03 – 0.06	100
	Imipenem	—	—	0.12 – 2	83.3
	Meropenem	—	—	0.03 – 0.06	100
	Amikacin	—	—	1 – 8	100
	Colistin (n=4)[d]	—	—	0.25 – 1	100
	Tigecycline	—	—	0.12 – 0.5	100
	Levofloxacin	—	—	≤0.03 – 2	100
Multidrug–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.25	100
	Ceftazidime	—	—	128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	128	0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	0.03	100
	Imipenem	—	—	0.12	100
	Meropenem	—	—	0.03	100
	Amikacin	—	—	8	100
	Colistin (n=1)[d]	—	—	0.25	100
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	1	100
Proteeae					
All (79)[i]	Ceftazidime–avibactam	0.03	0.12	0.03 – 32	98.7
	Ceftazidime	0.06	0.25	0.03 – 32	97.5
	Cefepime	≤0.12	0.25	≤0.12 – >16	92.4
	Aztreonam	≤0.015	0.06	≤0.015 – 64	96.2
	Piperacillin–tazobactam	0.5	2	≤0.25 – 128	97.5
	Doripenem	0.25	0.5	0.06 – >4	98.7
	Imipenem	2	4	0.25 – >8	16.5
	Meropenem	0.12	0.12	≤0.004 – >8	98.7
	Amikacin	4	8	0.5 – 16	100
	Colistin (n=48)[d]	>4	>4	4 – >4	0
	Tigecycline	2	4	0.5 – >8	73.4
	Levofloxacin	0.12	4	≤0.03 – >4	86.1
All, MBL–negative (78)	Ceftazidime–avibactam	0.03	0.06	0.03 – 0.25	100
	Ceftazidime	0.06	0.25	0.03 – 8	98.7
	Cefepime	≤0.12	0.25	≤0.12 – >16	93.6
	Aztreonam	≤0.015	0.06	≤0.015 – 64	96.2
	Piperacillin–tazobactam	≤0.25	2	≤0.25 – 128	98.7
	Doripenem	0.25	0.5	0.06 – 1	100
	Imipenem	2	4	0.25 – 8	16.7
	Meropenem	0.12	0.12	≤0.004 – 0.5	100
	Amikacin	4	8	0.5 – 16	100
	Colistin (n=47)[d]	>4	>4	4 – >4	0
	Tigecycline	2	4	0.5 – >8	73.1
	Levofloxacin	0.12	4	≤0.03 – >4	85.9
Ceftazidime-nonsusceptible (2)	Ceftazidime–avibactam	—[b]	—	0.06 – 32	50.0
	Ceftazidime	—	—	8 – 32	0
	Cefepime	—	—	4 – 4	0
	Aztreonam	—	—	≤0.015 – 16	50.0
	Piperacillin–tazobactam	—	—	4 – 64	50.0
	Doripenem	—	—	0.25 – >4	50.0
	Imipenem	—	—	4 – >8	0
	Meropenem	—	—	0.06 – >8	50.0
	Amikacin	—	—	2 – 4	100
	Colistin (n=2)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	1 – 4	50.0
	Levofloxacin	—	—	0.12 – 4	50.0
Ceftazidime-nonsusceptible, MBL–negative (1)	Ceftazidime–avibactam	—[b]	—	0.06	100
	Ceftazidime	—	—	8	0
	Cefepime	—	—	4	0
	Aztreonam	—	—	16	0
	Piperacillin–tazobactam	—	—	4	100
	Doripenem	—	—	0.25	100
	Imipenem	—	—	4	0
	Meropenem	—	—	0.06	100
	Amikacin	—	—	4	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	4	0
	Levofloxacin	—	—	4	0
Meropenem-nonsusceptible (1)[j]	Ceftazidime–avibactam	—[b]	—	32	0
	Ceftazidime	—	—	32	0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	—	—	4	0
	Aztreonam	—	—	≤0.015	100
	Piperacillin–tazobactam	—	—	64	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	2	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	0.12	100
Multidrug–resistant (1)[f]	Ceftazidime–avibactam	—[b]	—	0.12	100
	Ceftazidime	—	—	0.5	100
	Cefepime	—	—	>16	0
	Aztreonam	—	—	64	0
	Piperacillin–tazobactam	—	—	128	0
	Doripenem	—	—	0.12	100
	Imipenem	—	—	4	0
	Meropenem	—	—	0.25	100
	Amikacin	—	—	16	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	2	100
	Levofloxacin	—	—	>4	0
Other *Enterobacteriaceae*[f]					
All (18)[k]	Ceftazidime–avibactam	0.25	0.5	0.06 – 0.5	100
	Ceftazidime	0.12	1	0.06 – >128	94.4
	Cefepime	≤0.12	0.5	≤0.12 – 4	94.4
	Aztreonam	0.12	1	0.06 – >128	94.4
	Piperacillin–tazobactam	2	16	≤0.25 – 128	94.4
	Doripenem	0.12	0.12	0.06 – 0.5	100
	Imipenem	0.5	1	0.25 – 2	94.4
	Meropenem	0.06	0.06	0.03 – 0.25	100
	Amikacin	2	4	1 – 4	100
	Colistin (n=12)[d]	>4	>4	4 – >4	0
	Tigecycline	1	2	0.5 – 4	94.4
	Levofloxacin	0.12	0.5	0.06 – 2	100
Ceftazidime-nonsusceptible (1)	Ceftazidime–avibactam	—[b]	—	0.5	100
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	4	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	128	0
	Doripenem	—	—	0.12	100
	Imipenem	—	—	0.5	100
	Meropenem	—	—	0.06	100
	Amikacin	—	—	4	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	0.12	100
Multidrug–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.5	100
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	4	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	128	0
	Doripenem	—	—	0.12	100
	Imipenem	—	—	0.5	100
	Meropenem	—	—	0.06	100
	Amikacin	—	—	4	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	0.12	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Pseudomonas aeruginosa					
All (169)	Ceftazidime–avibactam	2	8	0.5 – >128	94.7
	Ceftazidime	2	32	0.5 – >128	84.0
	Cefepime	2	16	0.5 – >16	89.4
	Aztreonam	8	32	0.5 – >128	75.7
	Piperacillin–tazobactam	8	32	≤0.25 – >128	81.1
	Doripenem	0.5	4	0.06 – >4	85.8
	Imipenem	2	>8	0.25 – >8	81.1
	Meropenem	0.5	4	≤0.06 – >8	85.8
	Amikacin	4	8	0.5 – >32	94.7
	Colistin (n=140)[d]	2	2	0.25 – >8	91.4
	Levofloxacin	0.5	2	0.06 – >4	90.5
All, MBL–negative (164)	Ceftazidime–avibactam	2	4	0.5 – >128	97.6
	Ceftazidime	2	16	0.5 – >128	86.6
	Cefepime	2	8	0.5 – >16	92.1
	Aztreonam	8	32	0.5 – >128	78.1
	Piperacillin–tazobactam	8	32	≤0.25 – >128	83.5
	Doripenem	0.5	4	0.06 – >4	88.4
	Imipenem	2	8	0.25 – >8	83.5
	Meropenem	0.5	4	≤0.06 – >8	88.4
	Amikacin	4	8	0.5 – >32	96.3
	Colistin (n=136)[d]	2	2	0.25 – 8	91.2
	Levofloxacin	0.5	2	0.06 – >4	92.1
Ceftazidime-nonsusceptible (27)	Ceftazidime–avibactam	8	>128	2 – >128	66.7
	Ceftazidime	64	>128	16 – >128	0
	Cefepime	16	>16	2 – >16	33.3
	Aztreonam	32	128	8 – >128	18.5
	Piperacillin–tazobactam	64	>128	16 – >128	11.1
	Doripenem	4	>4	0.12 – >4	48.2
	Imipenem	2	>8	0.5 – >8	51.9
	Meropenem	2	>8	0.12 – >8	51.9
	Amikacin	4	>32	2 – >32	70.4
	Colistin (n=23)[d]	2	4	0.5 – 4	87.0
	Levofloxacin	2	>4	0.25 – >4	59.3
Ceftazidime-nonsusceptible, MBL–negative (22)	Ceftazidime–avibactam	4	16	2 – >128	81.8
	Ceftazidime	32	>128	16 – >128	0
	Cefepime	16	>16	2 – >16	40.9
	Aztreonam	16	128	8 – >128	22.7
	Piperacillin–tazobactam	32	>128	16 – >128	13.6
	Doripenem	2	>4	0.12 – >4	59.1
	Imipenem	2	>8	0.5 – >8	63.6
	Meropenem	1	>8	0.12 – >8	63.6
	Amikacin	4	32	2 – >32	77.3
	Colistin (n=19)[d]	2	4	1 – 4	84.2
	Levofloxacin	2	>4	0.5 – >4	63.6
Meropenem-nonsusceptible (24)	Ceftazidime–avibactam	4	>128	2 – >128	66.7
	Ceftazidime	16	>128	2 – >128	45.8
	Cefepime	8	>16	2 – >16	50.0
	Aztreonam	16	128	4 – >128	20.8
	Piperacillin–tazobactam	32	>128	4 – >128	33.3
	Doripenem	4	>4	1 – >4	4.2
	Imipenem	>8	>8	2 – >8	8.3
	Meropenem	8	>8	4 – >8	0
	Amikacin	4	>32	2 – >32	79.2
	Colistin (n=19)[d]	1	2	0.5 – 4	94.7
	Levofloxacin	2	>4	0.25 – >4	70.8
Meropenem-nonsusceptible, MBL–negative (19)	Ceftazidime–avibactam	4	32	2 – >128	84.2
	Ceftazidime	8	>128	2 – >128	57.9
	Cefepime	8	>16	2 – >16	63.2

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Aztreonam	16	128	4 – >128	26.3
	Piperacillin–tazobactam	32	>128	4 – >128	42.1
	Doripenem	4	>4	1 – >4	5.3
	Imipenem	>8	>8	2 – >8	10.5
	Meropenem	8	>8	4 – >8	0
	Amikacin	4	32	2 – >32	89.5
	Colistin (n=15)[d]	1	2	0.5 – 4	93.3
	Levofloxacin	2	>4	0.5 – >4	79.0
Colistin–resistant (2)[f]	Ceftazidime–avibactam	—[b]	—	2 – 4	100
	Ceftazidime	—	—	1 – 8	100
	Cefepime	—	—	2 – 4	100
	Aztreonam	—	—	8 – 16	50.0
	Piperacillin–tazobactam	—	—	8 – 8	100
	Doripenem	—	—	0.25 – 0.5	100
	Imipenem	—	—	2 – 2	100
	Meropenem	—	—	0.5 – 1	100
	Amikacin	—	—	4 – 8	100
	Colistin (n=2)[d]	—	—	>4 – >4	0
	Levofloxacin	—	—	0.5 – 2	100
Multidrug–resistant (12)	Ceftazidime–avibactam	16	>128	4 – >128	41.7
	Ceftazidime	>128	>128	16 – >128	0
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	32	>128	16 – >128	0
	Piperacillin–tazobactam	128	>128	32 – >128	0
	Doripenem	>4	>4	1 – >4	8.3
	Imipenem	>8	>8	2 – >8	16.7
	Meropenem	>8	>8	1 – >8	8.3
	Amikacin	32	>32	2 – >32	50.0
	Colistin (n=10)[d]	1	2	0.5 – 2	100
	Levofloxacin	>4	>4	1 – >4	33.3
Multidrug–resistant, MBL–negative (8)	Ceftazidime–avibactam	—[b]	—	4 – >128	62.5
	Ceftazidime	—	—	16 – >128	0
	Cefepime	—	—	16 – >16	0
	Aztreonam	—	—	16 – >128	0
	Piperacillin–tazobactam	—	—	32 – >128	0
	Doripenem	—	—	1 – >4	12.5
	Imipenem	—	—	2 – >8	25.0
	Meropenem	—	—	1 – >8	12.5
	Amikacin	—	—	2 – >32	62.5
	Colistin (n=7)[d]	—	—	1 – 2	100
	Levofloxacin	—	—	1 – >4	37.5

[a] MBL–negative, no gene encoding a metallo–β–lactamase was detected by PCR.

[b] —, MIC_{50} and MIC_{90} were not calculated for n < 10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] Excludes isolates of Proteeae and *Serratia* spp. that are intrinsically resistant to colistin.

[f] All isolates were MBL–negative.

[g] *Enterobacter* spp. includes *Enterobacter aerogenes* (n=20), *Enterobacter asburiae* (n=4), *Enterobacter cloacae* (n=44), and *Enterobacter kobei* (n=1).

[h] *Citrobacter* spp. includes *Citrobacter amalonaticus* (n=1), *Citrobacter freundii* (n=4), and *Citrobacter koseri* (n=20).

[i] Proteeae includes *Morganella morganii* (n=15), *Proteus mirabilis* (n=44), *Proteus vulgaris* (n=14), *Providencia rettgeri* (n=2), and *Providencia stuartii* (n=4).

[j] All isolates were MBL–positive.

[k] Other *Enterobacteriaceae* includes *Serratia marcescens* (n=17) and *Serratia rubidaea* (n=1).

Supplemental Table S6B. Malaysia – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 185 isolates of β–lactamase–positive *Enterobacteriaceae* (n=157) and *P. aeruginosa* (n=28) collected as part of the INFORM global surveillance program in 2013–2015.

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae (157)	Ceftazidime–avibactam	—[b]	—	0.12	100
OSBL–positive (1)	Ceftazidime	—	—	16	0
	Cefepime	—	—	8	0
	Aztreonam	—	—	32	0
	Piperacillin–tazobactam	—	—	4	100
	Doripenem	—	—	0.06	100
	Imipenem	—	—	0.25	100
	Meropenem	—	—	0.03	100
	Amikacin	—	—	4	100
	Colistin (n=0) [d]	—	—	ND[e]	ND
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	0.5	100
ESBL–positive (132)[f]	Ceftazidime–avibactam	0.25	1	≤0.015 – 4	100
	Ceftazidime	32	>128	0.5 – >128	13.6
	Cefepime	>16	>16	1 – >16	3.0
	Aztreonam	64	>128	2 – >128	3.0
	Piperacillin–tazobactam	8	>128	0.5 – >128	62.9
	Doripenem	0.06	0.12	0.03 – 1	100
	Imipenem	0.25	0.5	0.12 – 4	99.2
	Meropenem	0.06	0.12	0.015 – 2	99.2
	Amikacin	2	16	0.5 – 32	98.5
	Colistin (n=86)[d]	0.5	1	0.25 – >4	93.0
	Tigecycline	1	2	0.12 – 8	97.7
	Levofloxacin	1	>4	≤0.03 – >4	66.7
AmpC–positive (15)[g]	Ceftazidime–avibactam	0.25	0.25	0.03 – 0.5	100
	Ceftazidime	16	128	0.12 – 128	33.3
	Cefepime	≤0.12	1	≤0.12 – 2	100
	Aztreonam	4	32	0.06 – 32	60.0
	Piperacillin–tazobactam	4	16	0.5 – 32	93.3
	Doripenem	0.06	0.5	0.03 – 1	100
	Imipenem	1	2	0.25 – 8	66.7
	Meropenem	0.06	0.25	0.03 – 0.25	100
	Amikacin	2	4	1 – 4	100
	Colistin (n=9)[d]	—[b]	—	0.25 – 4	88.9
	Tigecycline	0.5	2	0.12 – 4	93.3
	Levofloxacin	1	>4	0.06 – >4	73.3
ESBL–positive + AmpC–positive (7)[h]	Ceftazidime–avibactam	—[b]	—	0.03 – 0.5	100
	Ceftazidime	—	—	32 – 128	0
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	16 – 128	0
	Piperacillin–tazobactam	—	—	4 – >128	85.7
	Doripenem	—	—	0.03 – 0.25	100
	Imipenem	—	—	0.12 – 2	71.4
	Meropenem	—	—	0.03 – 0.06	100
	Amikacin	—	—	1 – 4	100
	Colistin (n=4)[d]	—	—	0.5 – 1	100
	Tigecycline	—	—	0.12 – 2	100
	Levofloxacin	—	—	0.12 – >4	57.1
MBL–positive (2)[i]	Ceftazidime–avibactam	—[b]	—	32 – >128	0
	Ceftazidime	—	—	32 – >128	0

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	—	—	4 – >16	0
	Aztreonam	—	—	2 – 16	50.0
	Piperacillin–tazobactam	—	—	64 – >128	0
	Doripenem	—	—	>4 – >4	0
	Imipenem	—	—	>8– >8	0
	Meropenem	—	—	>8 – >8	0
	Amikacin	—	—	2 – 16	100
	Colistin (n=2)[d]	—	—	1 – >4	50.0
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	0.12 – 2	100
P. aeruginosa (28)	Ceftazidime–avibactam	—[b]	—	4	100
ESBL–positive (1)[j,k]	Ceftazidime	—	—	128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	16	0
	Piperacillin–tazobactam	—	—	32	0
	Doripenem	—	—	4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	8	0
	Amikacin	—	—	32	0
	Colistin (n=1)[d]	—	—	1	100
	Levofloxacin	—	—	>4	0
GES carbapenemase–positive (1)[j,l]	Ceftazidime–avibactam	—[b]	—	8	100
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	2	100
	Meropenem	—	—	4	0
	Amikacin	—	—	8	100
	Colistin (n=0)[d]	—	—	ND[e]	ND
	Levofloxacin	—	—	>4	0
MBL–positive (5)[j,m]	Ceftazidime–avibactam	—[b]	—	>128 – >128	0
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	16 – >128	0
	Piperacillin–tazobactam	—	—	64 – >128	0
	Doripenem	—	—	4 – >4	0
	Imipenem	—	—	>8 – >8	0
	Meropenem	—	—	4 – >8	0
	Amikacin	—	—	4 – >32	40.0
	Colistin (n=4)[d]	—	—	0.5 – 2	100
	Levofloxacin	—	—	0.25 – >4	40.0
No acquired β–lactamase detected (21)[j]	Ceftazidime–avibactam	4	16	1 – >128	85.7
	Ceftazidime	4	>128	1 – >128	71.4
	Cefepime	4	>16	2 – >16	76.2
	Aztreonam	16	32	4 – >128	42.9
	Piperacillin–tazobactam	16	128	4 – >128	57.1
	Doripenem	4	>4	0.5 – >4	23.8
	Imipenem	>8	>8	2 – >8	4.8
	Meropenem	8	>8	0.5 – >8	19.0
	Amikacin	4	8	2 – >32	95.2
	Colistin (n=17)[d]	1	4	0.5 – 4	88.2
	Levofloxacin	2	2	0.25 – >4	90.5

[a] OSBL, original–spectrum β–lactamase (e.g. TEM–1, SHV–1, SHV–11); ESBL, extended–spectrum β–lactamase; MBL, metallo–β–lactamase.

[b] —, MIC_{50} and MIC_{90} were not calculated for n <10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] ND, not determined; MIC range and % susceptible were not calculated for n=0 isolates.

[f] Includes isolates carrying CTX–M–3; CTX–M–9; CTX–M–14; CTX–M–15; CTX–M–24; CTX–M–27; CTX–M–55; CTX–M–65; SHV–12; CTX–M–15 and CTX–M–14; CTX–M–15 and CTX–M–27; CTX–M–15 and SHV–12; CTX–M–15 and SHV–115; with or without SHV–type or TEM–type OSBLs.

[g] Includes isolates carrying CMY–2; CMY–42; DHA–1; CMY–2 and DHA–1; and the chromosomal AmpC common to *Enterobacter* spp., *M. morganii*, and *Serratia* spp. with or without SHV–OSBLs and/or TEM–OSBLs.

[h] Includes isolates carrying CMY–2 and a CTX–M–type ESBL (CTX–M–3, CTX–M–14, CTX–M–15); CMY–42 and CTX–M–15; DHA–1 and CTX–M–15; and the chromosomal AmpC common to *Enterobacter* spp. and CTX–M–3).

[i] Isolates carrying NDM–1 and CTX–M–15; and NDM–1 and the chromosomal AmpC common to *Providencia* spp.

[j] Assumed to carry the chromosomal AmpC common to *P. aeruginosa*.

[k] Isolate carrying GES–1.

[l] Isolate carrying GES–13.

[m] Includes isolates carrying NDM–1; IMP–1; VIM–6; and VIM–6 and VEB–1A.

Supplemental Table S7A. Philippines – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 1,299 isolates of *Enterobacteriaceae* and 304 isolates of *P. aeruginosa* collected as part of the INFORM global surveillance program in 2012–2015

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae					
All (1,299)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	97.0
	Ceftazidime	0.25	128	≤0.015 – >128	64.5
	Cefepime	≤0.12	>16	≤0.12 – >16	72.0
	Aztreonam	0.12	128	≤0.015 – >128	66.0
	Piperacillin–tazobactam	4	128	≤0.25 – >128	82.6
	Doripenem	0.06	0.25	≤0.008 – >4	95.6
	Imipenem	0.25	2	≤0.03 – >8	83.3
	Meropenem	0.03	0.12	0.015 – >8	95.8
	Amikacin	2	8	≤0.25 – >32	97.1
	Colistin (n=683)[d]	1	>4	≤0.12 – >4	80.4
	Tigecycline	0.5	2	0.06 – >8	92.1
	Levofloxacin	0.5	>4	≤0.03 – >4	68.1
All, MBL–negative (1,264)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	99.7
	Ceftazidime	0.25	128	≤0.015 – >128	66.3
	Cefepime	≤0.12	>16	≤0.12 – >16	73.9
	Aztreonam	0.12	64	≤0.015 – >128	67.0
	Piperacillin–tazobactam	4	64	≤0.25 – >128	84.7
	Doripenem	0.06	0.25	≤0.008 – >4	98.3
	Imipenem	0.25	2	≤0.03 – >8	85.4
	Meropenem	0.03	0.12	0.015 – >8	98.4
	Amikacin	2	8	≤0.25 – >32	98.4
	Colistin (n=661)[d]	1	>4	≤0.12 – >4	80.0
	Tigecycline	0.5	2	0.06 – >8	92.4
	Levofloxacin	0.5	>4	≤0.03 – >4	69.0
Ceftazidime-nonsusceptible (461)	Ceftazidime–avibactam	0.25	2	≤0.015 – >128	91.5
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	16	>16	≤0.12 – >16	27.6
	Aztreonam	64	128	≤0.015 – >128	9.8
	Piperacillin–tazobactam	16	>128	≤0.25 – >128	55.8
	Doripenem	0.06	4	0.015 – >4	88.1
	Imipenem	0.25	4	≤0.03 – >8	84.2
	Meropenem	0.06	8	0.015 – >8	88.3
	Amikacin	4	16	≤0.25 – >32	92.6
	Colistin (n=256)[d]	0.5	2	0.25 – >4	91.0
	Tigecycline	0.5	2	0.06 – 8	92.0
	Levofloxacin	>4	>4	≤0.03 – >4	43.6
Ceftazidime-nonsusceptible, MBL–negative (426)	Ceftazidime–avibactam	0.25	1	≤0.015 – >128	99.1
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	16	>16	≤0.12 – >16	29.6
	Aztreonam	64	>128	0.25 – >128	8.2
	Piperacillin–tazobactam	16	>128	≤0.25 – >128	59.9
	Doripenem	0.06	0.25	0.015 – >4	95.3
	Imipenem	0.25	1	≤0.03 – >8	90.6
	Meropenem	0.06	0.12	0.015 – >8	95.3
	Amikacin	4	8	≤0.25 – >32	96.2
	Colistin (n=234)[d]	0.5	2	0.25 – >4	91.0
	Tigecycline	0.5	2	0.06 – 8	93.0
	Levofloxacin	>4	>4	≤0.03 – >4	44.4
Meropenem-nonsusceptible (54)	Ceftazidime–avibactam	>128	>128	0.06 – >128	29.6

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	>128	>128	8 – >128	0
	Cefepime	>16	>16	1 – >16	1.9
	Aztreonam	128	>128	0.25 – >128	18.5
	Piperacillin–tazobactam	>128	>128	0.5 – >128	7.4
	Doripenem	>4	>4	1 – >4	1.9
	Imipenem	>8	>8	0.5 – >8	9.3
	Meropenem	>8	>8	2 – >8	0
	Amikacin	8	>32	1 – >32	57.4
	Colistin (n=38)[d]	0.5	4	0.25 – >4	89.5
	Tigecycline	1	8	0.12 – 8	77.8
	Levofloxacin	>4	>4	0.06 – >4	25.9
Meropenem-nonsusceptible, MBL–negative (20)	Ceftazidime–avibactam	1	>128	0.06 – >128	80.0
	Ceftazidime	128	>128	8 – >128	0
	Cefepime	>16	>16	8 – >16	0
	Aztreonam	128	>128	0.5 – >128	5.0
	Piperacillin–tazobactam	>128	>128	1 – >128	10.0
	Doripenem	>4	>4	1 – >4	5.0
	Imipenem	>8	>8	0.5 – >8	15.0
	Meropenem	>8	>8	2 – >8	0
	Amikacin	4	>32	1 – >32	75.0
	Colistin (n=16)[d]	0.25	4	0.25 – >4	87.5
	Tigecycline	1	8	0.5 – 8	75.0
	Levofloxacin	>4	>4	1 – >4	10.0
Colistin–resistant (30)[e]	Ceftazidime–avibactam	0.25	1	0.06 – >128	93.3
	Ceftazidime	16	>128	0.12 – >128	46.7
	Cefepime	≤0.12	>16	≤0.12 – >16	76.7
	Aztreonam	1	128	≤0.015 – >128	56.7
	Piperacillin–tazobactam	8	128	0.5 – >128	66.7
	Doripenem	0.06	4	0.03 – >4	90.0
	Imipenem	1	2	0.25 – >8	80.0
	Meropenem	0.06	0.25	0.015 – >8	90.0
	Amikacin	2	8	1 – 32	96.7
	Colistin (n=30)[d]	>4	>4	4 – >4	0
	Tigecycline	0.5	2	0.12 – 8	93.3
	Levofloxacin	0.12	>4	≤0.03 – >4	70.0
Colistin–resistant, MBL–negative (28)[e]	Ceftazidime–avibactam	0.25	1	0.06 – 2	100
	Ceftazidime	8	128	0.12 – >128	50.0
	Cefepime	≤0.12	>16	≤0.12 – >16	78.6
	Aztreonam	0.25	128	≤0.015 – >128	57.1
	Piperacillin–tazobactam	4	128	0.5 – >128	71.4
	Doripenem	0.06	0.25	0.03 – 4	96.4
	Imipenem	1	2	0.25 – 4	85.7
	Meropenem	0.06	0.25	0.015 – 8	96.4
	Amikacin	2	8	1 – 16	100
	Colistin (n=28)[d]	>4	>4	4 – >4	0
	Tigecycline	0.5	2	0.12 – 8	92.9
	Levofloxacin	0.06	>4	≤0.03 – >4	75.0
Multidrug–resistant (229)	Ceftazidime–avibactam	0.5	>128	0.03 – >128	83.8
	Ceftazidime	128	>128	0.5 – >128	1.3
	Cefepime	>16	>16	≤0.12 – >16	5.7
	Aztreonam	64	>128	0.25 – >128	3.9
	Piperacillin–tazobactam	32	>128	0.5 – >128	42.4
	Doripenem	0.06	>4	0.03 – >4	77.3
	Imipenem	0.25	>8	0.06 – >8	77.3
	Meropenem	0.06	>8	0.015 – >8	76.9
	Amikacin	4	>32	0.5 – >32	86.5
	Colistin (n=125)[d]	0.5	4	0.25 – >4	88.8
	Tigecycline	0.5	4	0.06 – 8	89.1
	Levofloxacin	>4	>4	0.06 – >4	14.0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Multidrug–resistant, MBL–negative (196)	Ceftazidime–avibactam	0.25	1	0.03 – >128	98.0
	Ceftazidime	64	>128	0.5 – >128	1.5
	Cefepime	>16	>16	≤0.12 – >16	6.1
	Aztreonam	64	>128	0.5 – >128	0.5
	Piperacillin–tazobactam	32	>128	0.5 – >128	48.5
	Doripenem	0.06	1	0.03 – >4	90.3
	Imipenem	0.25	2	0.06 – >8	89.8
	Meropenem	0.06	2	0.015 – >8	89.8
	Amikacin	4	16	0.5 – >32	93.4
	Colistin (n=104)[d]	0.5	4	0.25 – >4	88.5
	Tigecycline	0.5	2	0.06 – 8	90.8
	Levofloxacin	>4	>4	0.12 – >4	10.7
Escherichia coli[f]					
All (422)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – >128	99.8
	Ceftazidime	0.5	64	0.03 – >128	63.0
	Cefepime	≤0.12	>16	≤0.12 – >16	66.6
	Aztreonam	0.25	64	≤0.015 – >128	62.1
	Piperacillin–tazobactam	4	16	≤0.25 – >128	91.0
	Doripenem	0.03	0.06	0.015 – >4	99.8
	Imipenem	0.25	0.5	≤0.03 – >8	99.3
	Meropenem	0.03	0.06	0.015 – >8	99.8
	Amikacin	4	8	0.5 – >32	98.6
	Colistin (n=213)[d]	0.5	1	0.25 – 2	100
	Tigecycline	0.25	0.5	0.06 – 4	99.5
	Levofloxacin	>4	>4	≤0.03 – >4	45.7
Ceftazidime-nonsusceptible (156)	Ceftazidime–avibactam	0.12	0.5	0.03 – >128	99.4
	Ceftazidime	32	128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	21.8
	Aztreonam	32	128	0.5 – >128	8.3
	Piperacillin–tazobactam	8	128	0.5 – >128	82.7
	Doripenem	0.03	0.06	0.015 – >4	99.4
	Imipenem	0.25	1	≤0.03 – >8	98.1
	Meropenem	0.03	0.06	0.015 – >8	99.4
	Amikacin	4	16	1 – >32	97.4
	Colistin (n=79)[d]	0.5	1	0.25 – 1	100
	Tigecycline	0.25	0.5	0.06 – 4	99.4
	Levofloxacin	>4	>4	≤0.03 – >4	21.2
Meropenem-nonsusceptible (1)	Ceftazidime–avibactam	—[b]	—	>128	0
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	4	100
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	2	100
	Levofloxacin	—	—	>4	0
Multidrug–resistant (96)	Ceftazidime–avibactam	0.25	0.5	0.03 – >128	99.0
	Ceftazidime	32	>128	0.5 – >128	2.1
	Cefepime	>16	>16	0.25 – >16	5.2
	Aztreonam	64	128	16 – >128	0
	Piperacillin–tazobactam	8	128	0.5 – >128	75.0
	Doripenem	0.03	0.12	0.03 – >4	99.0
	Imipenem	0.25	0.5	0.06 – >8	99.0
	Meropenem	0.03	0.06	0.015 – >8	99.0
	Amikacin	4	16	1 – >32	95.8
	Colistin (n=44)[d]	0.5	1	0.25 – 1	100
	Tigecycline	0.25	0.5	0.06 – 4	99.0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Levofloxacin	>4	>4	0.5 – >4	1.0
Klebsiella pneumoniae					
All (405)	Ceftazidime–avibactam	0.12	1	≤0.015 – >128	94.6
	Ceftazidime	1	>128	0.03 – >128	52.4
	Cefepime	≤0.12	>16	≤0.12 – >16	62.0
	Aztreonam	0.25	128	≤0.015 – >128	55.1
	Piperacillin–tazobactam	8	>128	0.5 – >128	71.1
	Doripenem	0.06	0.25	0.015 – >4	91.1
	Imipenem	0.25	2	0.06 – >8	89.1
	Meropenem	0.03	0.25	0.015 – >8	91.1
	Amikacin	1	8	≤0.25 – >32	94.3
	Colistin (n=219)[d]	1	1	≤0.12 – >4	96.4
	Tigecycline	0.5	2	0.06 – 8	93.1
	Levofloxacin	0.5	>4	≤0.03 – >4	70.4
All, MBL–negative (386)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	99.2
	Ceftazidime	0.5	128	0.03 – >128	54.9
	Cefepime	≤0.12	>16	≤0.12 – >16	65.0
	Aztreonam	0.25	128	≤0.015 – >128	57.3
	Piperacillin–tazobactam	4	>128	0.5 – >128	74.4
	Doripenem	0.06	0.12	0.015 – >4	95.6
	Imipenem	0.25	1	0.06 – >8	93.0
	Meropenem	0.03	0.12	0.015 – >8	95.6
	Amikacin	1	4	≤0.25 – >32	97.4
	Colistin (n=208)[d]	1	1	0.12 – >4	96.6
	Tigecycline	0.5	2	0.06 – 8	93.0
	Levofloxacin	0.5	>4	≤0.03 – >4	71.2
Ceftazidime-nonsusceptible (193)	Ceftazidime–avibactam	0.25	128	0.06 – >128	88.6
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	23.3
	Aztreonam	64	>128	0.25 – >128	7.3
	Piperacillin–tazobactam	32	>128	0.5 – >128	43.5
	Doripenem	0.06	>4	0.03 – >4	81.9
	Imipenem	0.25	8	0.06 – >8	78.8
	Meropenem	0.06	>8	0.015 – >8	81.4
	Amikacin	2	32	≤0.25 – >32	89.1
	Colistin (n=110)[d]	1	2	0.25 – >4	92.7
	Tigecycline	1	4	0.06 – 8	88.6
	Levofloxacin	4	>4	≤0.03 – >4	47.7
Ceftazidime-nonsusceptible, MBL–negative (174)	Ceftazidime–avibactam	0.25	1	0.06 – >128	98.3
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	16	>16	≤0.12 – >16	25.9
	Aztreonam	64	>128	0.5 – >128	6.9
	Piperacillin–tazobactam	32	>128	0.5 – >128	47.7
	Doripenem	0.06	1	0.03 – >4	90.8
	Imipenem	0.25	2	0.06 – >8	86.2
	Meropenem	0.06	0.5	0.015 – >8	90.2
	Amikacin	2	8	≤0.25 – >32	95.4
	Colistin (n=99)[d]	1	2	0.25 – >4	92.9
	Tigecycline	1	4	0.06 – 8	87.9
	Levofloxacin	4	>4	≤0.03 – >4	47.1
Meropenem-nonsusceptible (36)	Ceftazidime–avibactam	>128	>128	0.12 – >128	38.9
	Ceftazidime	>128	>128	16 – >128	0
	Cefepime	>16	>16	4 – >16	0
	Aztreonam	128	>128	0.25 – >128	5.6
	Piperacillin–tazobactam	>128	>128	4 – >128	5.6
	Doripenem	>4	>4	1 – >4	2.8
	Imipenem	8	>8	0.5 – >8	11.1
	Meropenem	>8	>8	2 – >8	0
	Amikacin	8	>32	1 – >32	52.8

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Colistin (n=26)[d]	1	2	0.25 – >4	92.3
	Tigecycline	1	8	0.12 – 8	83.3
	Levofloxacin	>4	>4	0.06 – >4	33.3
Meropenem-nonsusceptible, MBL–negative (17)	Ceftazidime–avibactam	1	>128	0.12 – >128	82.4
	Ceftazidime	>128	>128	16 – >128	0
	Cefepime	>16	>16	8 – >16	0
	Aztreonam	>128	>128	64 – >128	0
	Piperacillin–tazobactam	>128	>128	16 – >128	5.9
	Doripenem	>4	>4	1 – >4	5.9
	Imipenem	>8	>8	0.5 – >8	11.8
	Meropenem	>8	>8	2 – >8	0
	Amikacin	8	>32	1 – >32	76.5
	Colistin (n=15)[d]	0.25	1	0.25 – 4	93.3
	Tigecycline	1	8	0.5 – 8	70.6
	Levofloxacin	>4	>4	1 – >4	11.8
Colistin–resistant (8)	Ceftazidime–avibactam	—[b]	—	0.12 – >128	87.5
	Ceftazidime	—	—	8 – >128	0
	Cefepime	—	—	≤0.12 – >16	37.5
	Aztreonam	—	—	2 – >128	25.0
	Piperacillin–tazobactam	—	—	0.5 – >128	50.0
	Doripenem	—	—	0.03 – >4	75.0
	Imipenem	—	—	0.25 – >8	62.5
	Meropenem	—	—	0.03 – >8	75.0
	Amikacin	—	—	1 – 32	87.5
	Colistin (n=8)[d]	—	—	4 – >4	0
	Tigecycline	—	—	0.5 – 8	75.0
	Levofloxacin	—	—	2 – >4	12.5
Colistin–resistant, MBL–negative (7)	Ceftazidime–avibactam	—[b]	—	0.12 – 2	100
	Ceftazidime	—	—	8 – >128	0
	Cefepime	—	—	≤0.12 – >16	42.9
	Aztreonam	—	—	2 – >128	28.6
	Piperacillin–tazobactam	—	—	0.5 – >128	57.1
	Doripenem	—	—	0.03 – 4	85.7
	Imipenem	—	—	0.25 – 2	71.4
	Meropenem	—	—	0.03 – 8	85.7
	Amikacin	—	—	1 – 8	100
	Colistin (n=7)[d]	—	—	4 – >4	0
	Tigecycline	—	—	0.5 – 8	71.4
	Levofloxacin	—	—	2 – >4	14.3
Multidrug–resistant (100)	Ceftazidime–avibactam	0.5	>128	0.06 – >128	79.0
	Ceftazidime	128	>128	1 – >128	1.0
	Cefepime	>16	>16	≤0.12 – >16	3.0
	Aztreonam	128	>128	0.25 – >128	1.0
	Piperacillin–tazobactam	>128	>128	0.5 – >128	21.0
	Doripenem	0.12	>4	0.03 – >4	66.0
	Imipenem	0.5	>8	0.06 – >8	66.0
	Meropenem	0.06	>8	0.03 – >8	65.0
	Amikacin	4	>32	0.5 – >32	79.0
	Colistin (n=60)[d]	1	2	0.25 – >4	90.0
	Tigecycline	1	4	0.12 – 8	84.0
	Levofloxacin	>4	>4	0.06 – >4	23.0
Multidrug–resistant, MBL–negative (82)	Ceftazidime–avibactam	0.5	1	0.06 – >128	96.3
	Ceftazidime	128	>128	1 – >128	1.2
	Cefepime	>16	>16	≤0.12 – >16	3.7
	Aztreonam	128	>128	16 – >128	0
	Piperacillin–tazobactam	128	>128	0.5 – >128	24.4
	Doripenem	0.06	>4	0.03 – >4	80.5
	Imipenem	0.25	>8	0.06 – >8	79.3
	Meropenem	0.06	>8	0.03 – >8	79.3

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Amikacin	4	16	0.5 – >32	90.2
	Colistin (n=50)[d]	1	2	0.25 – >4	90.0
	Tigecycline	1	4	0.25 – 8	81.7
	Levofloxacin	>4	>4	0.5 – >4	17.1
Klebsiella oxytoca[f]					
All (36)	Ceftazidime–avibactam	0.12	0.25	0.03 – 1	100
	Ceftazidime	0.12	64	0.03 – 128	75.0
	Cefepime	≤0.12	4	≤0.12 – >16	86.1
	Aztreonam	0.25	32	≤0.015 – >128	69.4
	Piperacillin–tazobactam	2	64	1 – >128	88.9
	Doripenem	0.06	0.12	0.03 – 0.12	100
	Imipenem	0.25	0.5	0.12 – 1	100
	Meropenem	0.03	0.06	0.03 – 0.12	100
	Amikacin	2	8	0.5 – 8	100
	Colistin (n=21)[d]	0.5	1	0.25 – 2	100
	Tigecycline	0.25	1	0.06 – 2	100
	Levofloxacin	0.06	2	≤0.03 – >4	91.7
Ceftazidime-nonsusceptible (9)	Ceftazidime–avibactam	—[b]	—	0.06 – 1	100
	Ceftazidime	—	—	8 – 128	0
	Cefepime	—	—	≤0.12 – >16	44.4
	Aztreonam	—	—	8 – >128	0
	Piperacillin–tazobactam	—	—	2 – >128	77.8
	Doripenem	—	—	0.03 – 0.12	100
	Imipenem	—	—	0.12 – 1	100
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	1 – 8	100
	Colistin (n=7)[d]	—	—	0.25 – 1	100
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	0.25 – >4	77.8
Multidrug–resistant (1)	Ceftazidime–avibactam	—[b]	—	1	100
	Ceftazidime	—	—	128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	0.12	100
	Imipenem	—	—	0.5	100
	Meropenem	—	—	0.12	100
	Amikacin	—	—	8	100
	Colistin (n=1)[d]	—	—	0.25	100
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	>4	0
Enterobacter spp.					
All (160)[h]	Ceftazidime–avibactam	0.25	1	≤0.015 – >128	92.5
	Ceftazidime	1	128	≤0.015 – >128	56.3
	Cefepime	≤0.12	>16	≤0.12 – >16	75.6
	Aztreonam	0.25	64	≤0.015 – >128	58.8
	Piperacillin–tazobactam	4	128	≤0.25 – >128	69.4
	Doripenem	0.06	0.25	0.015 – >4	92.5
	Imipenem	1	2	0.12 – >8	81.9
	Meropenem	0.06	0.12	0.015 – >8	92.5
	Amikacin	2	4	≤0.25 – >32	96.9
	Colistin (n=89)[d]	0.5	>4	≤0.12 – >4	75.3
	Tigecycline	0.5	1	0.06 – 8	95.6
	Levofloxacin	0.06	>4	≤0.03 – >4	83.8
All, MBL–negative (148)	Ceftazidime–avibactam	0.25	0.5	≤0.015 – 1	100
	Ceftazidime	0.5	128	≤0.015 – >128	60.8
	Cefepime	≤0.12	16	≤0.12 – >16	81.1
	Aztreonam	0.12	64	≤0.015 – >128	60.8
	Piperacillin–tazobactam	4	128	≤0.25 – >128	75.0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Doripenem	0.06	0.25	0.015 – 0.5	100
	Imipenem	0.5	2	0.12 – 4	88.5
	Meropenem	0.06	0.12	0.015 – 0.25	100
	Amikacin	2	4	≤0.25 – >32	99.3
	Colistin (n=80)[d]	1	>4	≤0.12 – >4	73.8
	Tigecycline	0.5	1	0.06 – 4	99.3
	Levofloxacin	0.06	2	≤0.03 – >4	90.5
Ceftazidime-nonsusceptible (70)	Ceftazidime–avibactam	0.5	>128	0.06 – >128	82.9
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	4	>16	≤0.12 – >16	45.7
	Aztreonam	32	128	0.25 – >128	10.0
	Piperacillin–tazobactam	32	>128	2 – >128	30.0
	Doripenem	0.12	>4	0.03 – >4	82.9
	Imipenem	1	>8	0.25 – >8	80.0
	Meropenem	0.06	>8	0.015 – >8	82.9
	Amikacin	2	8	0.5 – >32	92.9
	Colistin (n=43)[d]	0.5	>4	0.25 – >4	81.4
	Tigecycline	0.5	2	0.12 – 8	90.0
	Levofloxacin	1	>4	≤0.03 – >4	65.7
Ceftazidime-nonsusceptible, MBL–negative (58)	Ceftazidime–avibactam	0.5	1	0.06 – 1	100
	Ceftazidime	64	128	8 – >128	0
	Cefepime	2	>16	≤0.12 – >16	53.5
	Aztreonam	32	128	0.5 – >128	5.2
	Piperacillin–tazobactam	32	128	2 – >128	36.2
	Doripenem	0.12	0.25	0.03 – 0.5	100
	Imipenem	0.5	1	0.25 – 2	96.6
	Meropenem	0.06	0.12	0.015 – 0.25	100
	Amikacin	2	4	0.5 – >32	98.3
	Colistin (n=34)[d]	0.5	>4	0.25 – >4	79.4
	Tigecycline	0.5	2	0.12 – 4	98.3
	Levofloxacin	1	>4	≤0.03 – >4	79.3
Meropenem-nonsusceptible (12)[f]	Ceftazidime–avibactam	>128	>128	32 – >128	0
	Ceftazidime	>128	>128	>128 – >128	0
	Cefepime	>16	>16	1 – >16	8.3
	Aztreonam	128	128	0.25 – >128	33.3
	Piperacillin–tazobactam	>128	>128	64 – >128	0
	Doripenem	>4	>4	4 – >4	0
	Imipenem	>8	>8	2 – >8	0
	Meropenem	>8	>8	2 – >8	0
	Amikacin	4	>32	2 – >32	66.7
	Colistin (n=9)[d]	—[b]	—	0.5 – >4	88.9
	Tigecycline	4	8	0.5 – 8	50.0
	Levofloxacin	>4	>4	>4 – >4	0
Colistin–resistant (22)	Ceftazidime–avibactam	0.25	1	0.06 – >128	95.5
	Ceftazidime	0.5	128	0.12 – >128	63.6
	Cefepime	≤0.12	2	≤0.12 – >16	90.9
	Aztreonam	0.12	32	≤0.015 – 64	68.2
	Piperacillin–tazobactam	4	128	0.5 – >128	72.7
	Doripenem	0.06	0.25	0.03 – >4	95.5
	Imipenem	1	2	0.25 – >8	86.4
	Meropenem	0.06	0.25	0.015 – >8	95.5
	Amikacin	2	4	1 – 16	100
	Colistin (n=22)[d]	>4	>4	>4 – >4	0
	Tigecycline	0.5	2	0.12 – 2	100
	Levofloxacin	0.06	1	≤0.03 – >4	90.9
Colistin–resistant, MBL–negative (21)	Ceftazidime–avibactam	0.25	0.5	0.06 – 1	100
	Ceftazidime	0.5	128	0.12 – 128	66.7
	Cefepime	≤0.12	2	≤0.12 – >16	90.5
	Aztreonam	0.12	32	≤0.015 – 64	66.7

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Piperacillin–tazobactam	4	64	0.5 – 128	76.2
	Doripenem	0.06	0.25	0.03 – 0.5	100
	Imipenem	1	1	0.25 – 4	90.5
	Meropenem	0.06	0.25	0.015 – 0.25	100
	Amikacin	2	4	1 – 16	100
	Colistin (n=21)[d]	>4	>4	>4 – >4	0
	Tigecycline	0.5	2	0.12 – 2	100
	Levofloxacin	0.06	0.5	≤0.03 – >4	95.2
Multidrug–resistant (23)	Ceftazidime–avibactam	32	>128	0.12 – >128	47.8
	Ceftazidime	>128	>128	16 – >128	0
	Cefepime	>16	>16	0.5 – >16	21.7
	Aztreonam	64	128	0.25 – >128	17.4
	Piperacillin–tazobactam	128	>128	8 – >128	8.7
	Doripenem	4	>4	0.06 – >4	47.8
	Imipenem	2	>8	0.25 – >8	47.8
	Meropenem	2	>8	0.06 – >8	47.8
	Amikacin	4	>32	0.5 – >32	82.6
	Colistin (n=15)[d]	0.5	>4	0.25 – >4	66.7
	Tigecycline	1	4	0.5 – 8	69.6
	Levofloxacin	>4	>4	0.12 – >4	13.0
Multidrug–resistant, MBL–negative (11)	Ceftazidime–avibactam	0.5	1	0.12 – 1	100
	Ceftazidime	128	128	16 – >128	0
	Cefepime	>16	>16	0.5 – >16	36.4
	Aztreonam	32	128	32 – >128	0
	Piperacillin–tazobactam	32	128	8 – 128	18.2
	Doripenem	0.12	0.25	0.06 – 0.25	100
	Imipenem	1	1	0.25 – 1	100
	Meropenem	0.06	0.25	0.06 – 0.25	100
	Amikacin	4	8	0.5 – 16	100
	Colistin (n=6)[d]	—[b]	—	0.25 – >4	33.3
	Tigecycline	1	2	0.5 – 4	90.9
	Levofloxacin	>4	>4	0.12 – >4	27.3
Citrobacter spp.					
All (71)[i]	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	97.2
	Ceftazidime	0.25	64	0.06 – >128	74.7
	Cefepime	≤0.12	>16	≤0.12 – >16	83.1
	Aztreonam	0.06	64	≤0.015 – >128	77.5
	Piperacillin–tazobactam	4	64	0.5 – >128	84.5
	Doripenem	0.06	0.06	≤0.008 – >4	95.8
	Imipenem	0.25	1	0.12 – >8	93.0
	Meropenem	0.03	0.06	0.015 – >8	95.8
	Amikacin	1	4	0.5 – >32	97.2
	Colistin (n=35)[d]	0.5	1	0.25 – 2	100
	Tigecycline	0.25	0.5	0.06 – 1	100
	Levofloxacin	0.06	1	≤0.03 – >4	93.0
All, MBL–negative (69)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 0.5	100
	Ceftazidime	0.25	64	0.06 – >128	76.8
	Cefepime	≤0.12	>16	≤0.12 – >16	85.5
	Aztreonam	0.06	64	≤0.015 – >128	76.8
	Piperacillin–tazobactam	4	64	0.5 – >128	87.0
	Doripenem	0.06	0.06	≤0.008 – 4	98.6
	Imipenem	0.25	1	0.12 – 2	95.7
	Meropenem	0.03	0.06	0.015 – 4	98.6
	Amikacin	1	8	0.5 – >32	97.1
	Colistin (n=33)[d]	0.5	1	0.25 – 2	100
	Tigecycline	0.25	0.5	0.06 – 1	100
	Levofloxacin	0.06	1	≤0.03 – >4	92.8
Ceftazidime-nonsusceptible (18)	Ceftazidime–avibactam	0.25	>128	0.12 – >128	88.9
	Ceftazidime	64	>128	32 – >128	0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	16	>16	0.5 – >16	33.3
	Aztreonam	64	128	0.5 – >128	11.1
	Piperacillin–tazobactam	32	>128	2 – >128	44.4
	Doripenem	0.06	>4	0.03 – >4	83.3
	Imipenem	0.5	8	0.25 – >8	83.3
	Meropenem	0.06	>8	0.03 – >8	83.3
	Amikacin	2	>32	0.5 – >32	88.9
	Colistin (n=9)[d]	—[b]	—	0.25 – 2	100
	Tigecycline	0.5	1	0.25 – 1	100
	Levofloxacin	0.5	>4	≤0.03 – >4	88.9
Ceftazidime-nonsusceptible, MBL–negative (16)	Ceftazidime–avibactam	0.25	0.5	0.12 – 0.5	100
	Ceftazidime	64	>128	32 – >128	0
	Cefepime	8	>16	0.5 – >16	37.5
	Aztreonam	64	128	16 – >128	0
	Piperacillin–tazobactam	16	64	2 – >128	50.0
	Doripenem	0.06	0.25	0.03 – 4	93.8
	Imipenem	0.5	1	0.25 – 2	93.8
	Meropenem	0.06	0.12	0.03 – 4	93.8
	Amikacin	4	>32	0.5 – >32	87.5
	Colistin (n=7)[d]	—[b]	—	0.25 – 2	100
	Tigecycline	0.5	0.5	0.25 – 1	100
	Levofloxacin	0.5	>4	≤0.03 – >4	87.5
Meropenem-nonsusceptible (3)	Ceftazidime–avibactam	—[b]	—	0.25 – >128	33.3
	Ceftazidime	—	—	64 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	0.5 – 64	66.7
	Piperacillin–tazobactam	—	—	64 – >128	0
	Doripenem	—	—	4 – >4	0
	Imipenem	—	—	1 – >8	33.3
	Meropenem	—	—	4 – >8	0
	Amikacin	—	—	2 – >32	66.7
	Colistin (n=2)[d]	—	—	1 – 1	100
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	0.06 – >4	66.7
Meropenem-nonsusceptible, MBL–negative (1)	Ceftazidime–avibactam	—[b]	—	0.25	100
	Ceftazidime	—	—	64	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	64	0
	Piperacillin–tazobactam	—	—	64	0
	Doripenem	—	—	4	0
	Imipenem	—	—	1	100
	Meropenem	—	—	4	0
	Amikacin	—	—	>32	0
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	>4	0
Multidrug–resistant (4)	Ceftazidime–avibactam	—[b]	—	0.25 – >128	50.0
	Ceftazidime	—	—	64 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	0.5 – >128	50.0
	Piperacillin–tazobactam	—	—	32 – >128	0
	Doripenem	—	—	0.06 – >4	25.0
	Imipenem	—	—	0.25 – >8	50.0
	Meropenem	—	—	0.03 – >8	25.0
	Amikacin	—	—	2 – >32	75.0
	Colistin (n=2)[d]	—	—	1 – 1	100
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	0.06 – >4	50.0
Multidrug–resistant, MBL–negative (2)	Ceftazidime–avibactam	—[b]	—	0.25 – 0.5	100
	Ceftazidime	—	—	64 – >128	0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	64 – >128	0
	Piperacillin–tazobactam	—	—	32 – 64	0
	Doripenem	—	—	0.06 – 4	50.0
	Imipenem	—	—	0.25 – 1	100
	Meropenem	—	—	0.03 – 4	50.0
	Amikacin	—	—	16 – >32	50.0
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	0.5 – 0.5	100
	Levofloxacin	—	—	>4 – >4	0
Proteeae					
All (176)[j]	Ceftazidime–avibactam	0.03	0.12	≤0.015 – 64	98.9
	Ceftazidime	0.06	4	0.03 – >128	93.8
	Cefepime	≤0.12	0.5	≤0.12 – >16	94.9
	Aztreonam	≤0.015	0.25	≤0.015 – 64	98.3
	Piperacillin–tazobactam	0.5	2	≤0.25 – >128	97.7
	Doripenem	0.25	0.5	0.06 – >4	97.2
	Imipenem	2	4	0.06 – >8	24.4
	Meropenem	0.06	0.12	0.03 – >8	98.9
	Amikacin	4	8	0.5 – >32	99.4
	Colistin (n=90)[d]	>4	>4	>4 – >4	0
	Tigecycline	2	4	0.12 – >8	62.5
	Levofloxacin	0.25	>4	≤0.03 – >4	81.8
All, MBL–negative (174)	Ceftazidime–avibactam	0.03	0.06	≤0.015 – 1	100
	Ceftazidime	0.06	1	0.03 – >128	94.8
	Cefepime	≤0.12	0.25	≤0.12 – >16	96.0
	Aztreonam	≤0.015	0.25	≤0.015 – 64	98.3
	Piperacillin–tazobactam	0.5	1	≤0.25 – >128	98.3
	Doripenem	0.25	0.5	0.06 – >4	98.3
	Imipenem	2	4	0.06 – >8	24.7
	Meropenem	0.06	0.12	0.03 – >8	99.4
	Amikacin	4	8	0.5 – 16	100
	Colistin (n=90)[d]	>4	>4	>4 – >4	0
	Tigecycline	2	4	0.12 – >8	62.1
	Levofloxacin	0.25	>4	≤0.03 – >4	82.8
Ceftazidime-nonsusceptible (11)	Ceftazidime–avibactam	0.12	64	≤0.015 – 64	81.8
	Ceftazidime	32	128	8 – >128	0
	Cefepime	2	>16	≤0.12 – >16	54.6
	Aztreonam	0.5	32	≤0.015 – 64	81.8
	Piperacillin–tazobactam	2	128	≤0.25 – >128	63.6
	Doripenem	0.5	>4	0.12 – >4	63.6
	Imipenem	4	>8	2 – >8	0
	Meropenem	0.25	8	0.06 – >8	81.8
	Amikacin	4	16	1 – >32	90.9
	Colistin (n=5)[d]	—[b]	—	>4 – >4	0
	Tigecycline	4	4	0.5 – 4	36.4
	Levofloxacin	>4	>4	1 – >4	27.3
Ceftazidime-nonsusceptible, MBL–negative (9)	Ceftazidime–avibactam	—[b]	—	≤0.015 – 1	100
	Ceftazidime	—	—	8 – >128	0
	Cefepime	—	—	≤0.12 – >16	66.7
	Aztreonam	—	—	0.25 – 64	77.8
	Piperacillin–tazobactam	—	—	≤0.25 – >128	66.7
	Doripenem	—	—	0.12 – >4	77.8
	Imipenem	—	—	2 – >8	0
	Meropenem	—	—	0.06 – >8	88.9
	Amikacin	—	—	1 – 8	100
	Colistin (n=5)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	0.5 – 4	22.2
	Levofloxacin	—	—	1 – >4	33.3

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Meropenem-nonsusceptible (2)	Ceftazidime–avibactam	—[b]	—	0.06 – 64	50.0
	Ceftazidime	—	—	8 – 64	0
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	0.25 – 0.5	100
	Piperacillin–tazobactam	—	—	0.5 – 1	100
	Doripenem	—	—	>4 – >4	0
	Imipenem	—	—	>8 – >8	0
	Meropenem	—	—	8 – >8	0
	Amikacin	—	—	1 – >32	50.0
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	0.5 – 2	100
	Levofloxacin	—	—	>4 – >4	0
Meropenem-nonsusceptible, MBL–negative (1)	Ceftazidime–avibactam	—[b]	—	0.06	100
	Ceftazidime	—	—	8	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	0.5	100
	Piperacillin–tazobactam	—	—	1	100
	Doripenem	—	—	>4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	1	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	>4	0
Multidrug–resistant (3)	Ceftazidime–avibactam	—[b]	—	0.06 – 64	66.7
	Ceftazidime	—	—	8 – 64	0
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	0.25 – 64	66.7
	Piperacillin–tazobactam	—	—	0.5 – 128	66.7
	Doripenem	—	—	0.5 – >4	33.3
	Imipenem	—	—	4 – >8	0
	Meropenem	—	—	0.25 – >8	33.3
	Amikacin	—	—	1 – >32	66.7
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	0.5 – 4	66.7
	Levofloxacin	—	—	2 – >4	33.3
Multidrug–resistant, MBL–negative (2)	Ceftazidime–avibactam	—[b]	—	0.06 – 0.5	100
	Ceftazidime	—	—	8 – 32	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	0.5 – 64	50.0
	Piperacillin–tazobactam	—	—	1 – 128	50.0
	Doripenem	—	—	0.5 – >4	50.0
	Imipenem	—	—	4 – >8	0
	Meropenem	—	—	0.25 – >8	50.0
	Amikacin	—	—	1 – 8	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	0.5 – 4	50.0
	Levofloxacin	—	—	2 – >4	50.0
Other *Enterobacteriaceae*[f]					
All (29)[k]	Ceftazidime–avibactam	0.12	0.25	0.06 – 0.5	100
	Ceftazidime	0.12	16	0.06 – 32	86.2
	Cefepime	≤0.12	>16	≤0.12 – >16	86.2
	Aztreonam	0.12	64	0.06 – 64	86.2
	Piperacillin–tazobactam	2	32	0.5 – >128	89.7
	Doripenem	0.12	0.25	0.06 – 0.25	100
	Imipenem	0.5	2	0.25 – 2	89.7
	Meropenem	0.06	0.12	0.03 – 0.25	100
	Amikacin	2	16	1 – 32	96.6
	Colistin (n=16)[d]	>4	>4	0.25 – >4	12.5
	Tigecycline	1	2	0.25 – 2	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Levofloxacin	0.12	1	≤0.03 – 1	100
Ceftazidime-nonsusceptible (4)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.12	100
	Ceftazidime	—	—	8 – >16	0
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	16 – 64	0
	Piperacillin–tazobactam	—	—	4 – >128	25.0
	Doripenem	—	—	0.12 – 0.25	100
	Imipenem	—	—	0.5 – 2	75.0
	Meropenem	—	—	0.06 – 0.25	100
	Amikacin	—	—	4 – 32	75.0
	Colistin (n=3)[d]	—	—	0.25 – >4	33.3
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	0.5 – 1	100
Multidrug–resistant (2)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.12	100
	Ceftazidime	—	—	16 – 32	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	64 – 64	0
	Piperacillin–tazobactam	—	—	64 – >128	0
	Doripenem	—	—	0.12 – 0.12	100
	Imipenem	—	—	0.5 – 1	100
	Meropenem	—	—	0.06 – 0.06	100
	Amikacin	—	—	16 – 16	100
	Colistin (n=2)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	0.5 – 1	100
Pseudomonas aeruginosa					
All (304)	Ceftazidime–avibactam	2	64	0.5 – >128	83.9
	Ceftazidime	4	64	0.5 – >128	67.8
	Cefepime	4	>16	0.5 – >16	72.0
	Aztreonam	8	64	0.12 – >128	61.2
	Piperacillin–tazobactam	8	>128	0.5 – >128	62.2
	Doripenem	1	>4	0.06 – >4	70.7
	Imipenem	2	>8	0.5 – >8	60.2
	Meropenem	0.5	>8	≤0.06 – >8	69.7
	Amikacin	4	16	0.5 – >32	90.5
	Colistin (n=215)[d]	2	2	0.25 – >8	93.0
	Levofloxacin	0.5	>4	≤0.03 – >4	68.4
All, MBL–negative (264)	Ceftazidime–avibactam	2	8	0.5 – 32	96.6
	Ceftazidime	4	64	0.5 – >128	78.0
	Cefepime	2	16	0.5 – >16	83.0
	Aztreonam	8	64	0.12 – >128	63.3
	Piperacillin–tazobactam	8	>128	0.5 – >128	70.1
	Doripenem	0.5	4	0.06 – >4	81.4
	Imipenem	2	>8	0.5 – >8	69.3
	Meropenem	0.5	8	≤0.06 – >8	79.9
	Amikacin	4	8	0.5 – >32	98.9
	Colistin (n=184)[d]	2	2	0.25 – >8	91.9
	Levofloxacin	0.5	>4	≤0.03 – >4	78.8
Ceftazidime-nonsusceptible (98)	Ceftazidime–avibactam	8	>128	1 – >128	50.0
	Ceftazidime	64	>128	16 – >128	0
	Cefepime	>16	>16	1 – >16	17.4
	Aztreonam	32	64	4 – >128	23.5
	Piperacillin–tazobactam	128	>128	8 – >128	8.2
	Doripenem	>4	>4	0.25 – >4	36.7
	Imipenem	>8	>8	1 – >8	32.7
	Meropenem	8	>8	0.25 – >8	37.8
	Amikacin	8	32	0.5 – >32	71.4
	Colistin (n=76)[d]	2	2	0.5 – >8	90.8
	Levofloxacin	>4	>4	≤0.03 – >4	28.6

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Ceftazidime-nonsusceptible, MBL–negative (58)	Ceftazidime–avibactam	8	16	1 – 32	84.5
	Ceftazidime	64	128	16 – >128	0
	Cefepime	16	>16	1 – >16	29.3
	Aztreonam	32	64	4 – >128	6.9
	Piperacillin–tazobactam	128	>128	8 – >128	6.9
	Doripenem	2	>4	0.25 – >4	62.1
	Imipenem	2	>8	1 – >8	55.2
	Meropenem	2	>8	0.25 – >8	62.1
	Amikacin	4	8	0.5 – >32	96.6
	Colistin (n=45)[d]	2	4	0.5 – >8	84.4
	Levofloxacin	4	>4	≤0.03 – >4	48.3
Meropenem-nonsusceptible (92)	Ceftazidime–avibactam	8	>128	2 – >128	54.4
	Ceftazidime	32	>128	2 – >128	33.7
	Cefepime	16	>16	1 – >16	35.9
	Aztreonam	16	64	4 – >128	39.1
	Piperacillin–tazobactam	64	>128	4 – >128	23.9
	Doripenem	>4	>4	0.5 – >4	8.7
	Imipenem	>8	>8	2 – >8	4.4
	Meropenem	>8	>8	4 – >8	0
	Amikacin	8	32	0.5 – >32	71.7
	Colistin (n=66)[d]	2	2	0.25 – 8	95.5
	Levofloxacin	>4	>4	0.25 – >4	29.4
Meropenem-nonsusceptible, MBL–negative (53)	Ceftazidime–avibactam	4	8	2 – 32	94.3
	Ceftazidime	8	64	2 – >128	58.5
	Cefepime	8	16	1 – >16	62.3
	Aztreonam	16	64	4 – >128	34.0
	Piperacillin–tazobactam	32	>128	4 – >128	34.0
	Doripenem	4	>4	0.5 – >4	15.1
	Imipenem	>8	>8	2 – >8	7.6
	Meropenem	8	>8	4 – >8	0
	Amikacin	4	8	0.5 – >32	98.1
	Colistin (n=35)[d]	2	2	0.25 – 8	91.4
	Levofloxacin	2	>4	0.25 – >4	50.9
Colistin–resistant (2)[f]	Ceftazidime–avibactam	—[b]	—	4 – 16	50.0
	Ceftazidime	—	—	64 – 128	0
	Cefepime	—	—	16 – >16	0
	Aztreonam	—	—	16 – 64	0
	Piperacillin–tazobactam	—	—	128 – >128	0
	Doripenem	—	—	2 – >4	50.0
	Imipenem	—	—	1 – >8	50.0
	Meropenem	—	—	2 – 8	50.0
	Amikacin	—	—	2 – 4	100
	Colistin (n=2)[d]	—	—	8 – >8	0
	Levofloxacin	—	—	0.5 – 4	50.0
Multidrug–resistant (73)	Ceftazidime–avibactam	32	>128	2 – >128	37.0
	Ceftazidime	64	>128	8 – >128	4.1
	Cefepime	>16	>16	8 – >16	6.9
	Aztreonam	32	64	4 – >128	26.0
	Piperacillin–tazobactam	128	>128	8 – >128	5.5
	Doripenem	>4	>4	0.5 – >4	21.9
	Imipenem	>8	>8	1 – >8	21.9
	Meropenem	>8	>8	0.5 – >8	23.3
	Amikacin	8	32	0.5 – >32	67.1
	Colistin (n=58)[d]	2	2	0.25 – >8	91.4
	Levofloxacin	>4	>4	0.5 – >4	12.3
Multidrug–resistant, MBL–negative (36)	Ceftazidime–avibactam	8	32	2 – 32	75.0
	Ceftazidime	64	128	8 – >128	8.3
	Cefepime	>16	>16	8 – >16	13.9

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Aztreonam	64	128	8 – >128	2.8
	Piperacillin–tazobactam	>128	>128	32 – >128	0
	Doripenem	4	>4	0.5 – >4	44.4
	Imipenem	4	>8	1 – >8	44.4
	Meropenem	4	>8	0.5 – >8	47.2
	Amikacin	4	8	0.5 – >32	97.2
	Colistin (n=29)[d]	2	4	0.25 – >8	82.8
	Levofloxacin	>4	>4	0.5 – >4	25.0

[a] MBL–negative, no gene encoding a metallo–β–lactamase was detected by PCR.

[b] —, MIC_{50} and MIC_{90} were not calculated for n < 10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] Excludes isolates of Proteeae and *Serratia* spp. that are intrinsically resistant to colistin.

[f] All isolates were MBL–negative.

[g] ND, not determined; MIC range and % susceptible were not calculated for n=0 isolates.

[h] *Enterobacter* spp. includes *Enterobacter aerogenes* (n=53), *Enterobacter asburiae* (n=18), *Enterobacter cloacae* (n=87), and *Enterobacter kobei* (n=2).

[i] *Citrobacter* spp. includes *Citrobacter amalonaticus* (n=2), *Citrobacter braakii* (n=4), *Citrobacter freundii* (n=25), *Citrobacter koseri* (n=39), and *Citrobacter sedlakii* (n=1).

[j] Proteeae includes *Morganella morganii* (n=35), *Proteus mirabilis* (n=91), *Proteus penneri* (n=5), *Proteus vulgaris* (n=31), *Providencia alcalifaciens* (n=1), *Providencia rettgeri* (n=10), and *Providencia stuartii* (n=3).

[k] Other *Enterobacteriaceae* includes *Raoultella ornithinolytica* (n=1) and *Serratia marcescens* (n=28).

Supplemental Table S7B. Philippines – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 543 isolates of β–lactamase–positive *Enterobacteriaceae* (n=423) and *P. aeruginosa* (n=120) collected as part of the INFORM global surveillance program in 2012–2015.

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae (423)	Ceftazidime–avibactam	—[b]	—	0.06 – 0.5	100
OSBL–positive (9)	Ceftazidime	—	—	0.12 – 32	66.7
	Cefepime	—	—	≤0.12 – >16	66.7
	Aztreonam	—	—	≤0.015 – 64	77.8
	Piperacillin–tazobactam	—	—	2 – >128	55.6
	Doripenem	—	—	0.06 – 2	88.9
	Imipenem	—	—	0.12 – 2	88.9
	Meropenem	—	—	0.03 – 1	100
	Amikacin	—	—	1 – 8	100
	Colistin (n=5)[d]	—	—	0.5 – 1	100
	Tigecycline	—	—	0.12 – 1	100
	Levofloxacin	—	—	0.06 – >4	44.4
SHV, spectrum undefined (1)[e]	Ceftazidime–avibactam	—[b]	—	0.25	100
	Ceftazidime	—	—	128	0
	Cefepime	—	—	≤0.12	100
	Aztreonam	—	—	64	0
	Piperacillin–tazobactam	—	—	64	0
	Doripenem	—	—	0.12	100
	Imipenem	—	—	2	0
	Meropenem	—	—	0.12	100
	Amikacin	—	—	1	100
	Colistin (n=0)[d]	—	—	ND[f]	ND
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	1	100
ESBL–positive (270)[g]	Ceftazidime–avibactam	0.25	0.5	0.03 – >128	98.5
	Ceftazidime	32	>128	0.03 – >128	10.0
	Cefepime	>16	>16	≤0.12 – >16	11.1
	Aztreonam	64	>128	≤0.015 – >128	3.7
	Piperacillin–tazobactam	8	>128	0.5 – >128	72.6
	Doripenem	0.06	0.12	0.015 – >4	97.0
	Imipenem	0.25	0.5	≤0.03 – >8	95.9
	Meropenem	0.03	0.06	0.015 – >8	96.7
	Amikacin	4	8	≤0.25 – >32	95.9
	Colistin (n=159)[d]	0.5	1	≤0.12 – >4	97.5
	Tigecycline	0.5	2	0.06 – 8	92.6
	Levofloxacin	>4	>4	≤0.03 – >4	34.8
AmpC–positive (71)[h]	Ceftazidime–avibactam	0.25	0.5	0.03 – 1	100
	Ceftazidime	32	>128	0.12 – >128	19.7
	Cefepime	≤0.12	2	≤0.12 – >16	93.0
	Aztreonam	8	64	0.06 – 128	39.4
	Piperacillin–tazobactam	16	>128	≤0.25 – >128	59.2
	Doripenem	0.12	0.25	0.015 – >4	97.2
	Imipenem	1	2	0.12 – >8	70.4
	Meropenem	0.06	0.12	0.015 – >8	98.6
	Amikacin	2	8	0.5 – 16	100
	Colistin (n=26)[d]	0.5	>4	0.25 – >4	80.8
	Tigecycline	0.5	2	0.06 – 8	91.5
	Levofloxacin	1	>4	≤0.03 – >4	54.9
ESBL–positive + AmpC–positive (28)[i]	Ceftazidime–avibactam	0.25	1	0.06 – 4	100
	Ceftazidime	64	>128	2 – >128	3.6

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	>16	>16	≤0.12 – >16	17.9
	Aztreonam	64	>128	4 – >128	7.1
	Piperacillin–tazobactam	16	>128	2 – >128	57.1
	Doripenem	0.06	0.25	0.03 – 0.25	100
	Imipenem	0.5	1	0.12 – 2	92.9
	Meropenem	0.06	0.12	0.015 – 0.25	100
	Amikacin	4	16	0.5 – 16	100
	Colistin (n=12)[d]	0.5	1	0.25 – 1	100
	Tigecycline	0.5	1	0.06 – 2	100
	Levofloxacin	>4	>4	≤0.03 – >4	32.1
KPC–positive (9)[j]	Ceftazidime–avibactam	—[b]	—	0.25 – 1	100
	Ceftazidime	—	—	16 – >128	0
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	64 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	>4 – >4	0
	Imipenem	—	—	8 – >8	0
	Meropenem	—	—	>8 – >8	0
	Amikacin	—	—	1 – 32	88.9
	Colistin (n=8)[d]	—	—	0.25 – 1	100
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	1 – >4	11.1
MBL–positive (35)[k]	Ceftazidime–avibactam	>128	>128	32 – >128	0
	Ceftazidime	>128	>128	64 – >128	0
	Cefepime	>16	>16	1 – >16	2.9
	Aztreonam	64	128	≤0.015 – >128	28.6
	Piperacillin–tazobactam	>128	>128	0.5 – >128	5.7
	Doripenem	>4	>4	2 – >4	0
	Imipenem	>8	>8	0.5 – >8	5.7
	Meropenem	>8	>8	1 – >8	2.9
	Amikacin	32	>32	1 – >32	48.6
	Colistin (n=22)[d]	1	2	0.25 – >4	90.9
	Tigecycline	1	4	0.12 – 8	80.0
	Levofloxacin	>4	>4	0.06 – >4	34.3
P. aeruginosa (120)	Ceftazidime–avibactam	—[b]	—	4	100
ESBL–positive (1)[l,m]	Ceftazidime	—	—	>128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	8	100
	Colistin (n=0)[d]	—	—	ND[f]	ND
	Levofloxacin	—	—	>4	0
MBL–positive (40)[l,n]	Ceftazidime–avibactam	64	>128	32 – >128	0
	Ceftazidime	64	>128	32 – >128	0
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	16	32	4 – >128	47.5
	Piperacillin–tazobactam	128	>128	8 – >128	10.0
	Doripenem	>4	>4	4 – >4	0
	Imipenem	>8	>8	>8 – >8	0
	Meropenem	>8	>8	2 – >8	2.5
	Amikacin	32	>32	4 – >32	35.0
	Colistin (n=31)[d]	2	2	0.5 – 2	100
	Levofloxacin	>4	>4	4 – >4	0
No acquired β–lactamase detected (79)[l]	Ceftazidime–avibactam	4	8	1 – 32	96.2
	Ceftazidime	4	64	1 – 128	67.1

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	8	16	1 – >16	70.9
	Aztreonam	16	64	0.25 – 64	46.8
	Piperacillin–tazobactam	16	>128	0.5 – >128	50.6
	Doripenem	4	>4	0.12 – >4	43.0
	Imipenem	>8	>8	1 – >8	6.3
	Meropenem	4	>8	≤0.06 – >8	34.2
	Amikacin	4	8	0.5 – >32	97.5
	Colistin (n=47)[d]	2	2	0.25 – 8	91.5
	Levofloxacin	2	>4	0.25 – >4	54.4

[a] OSBL, original–spectrum β–lactamase (e.g. TEM–1, SHV–1, SHV–11); ESBL, extended–spectrum β–lactamase; MBL, metallo–β–lactamase.

[b] —, MIC_{50} and MIC_{90} were not calculated for n <10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] SHV-110, SHV–type β–lactamase with undefined spectrum of activity.

[f] ND, not determined; MIC range and % susceptible were not calculated for n=0 isolates.

[g] Includes isolates carrying CTX–M–1; CTX–M–3; CTX–M–14; CTX–M–15; CTX–M–24; CTX–M–27; CTX–M–55; CTX–M–65; SHV–5; SHV–12; SHV–28; SHV–90; PER–3; CTX–M–15 and CTX–M–27; CTX–M–55 and CTX–M–65; CTX–M–55 and CTX–M–79; CTX–M–15 and SHV–5; CTX–M–15 and SHV–12; CTX–M–15 and SHV–28; and the chromosomal ESBL common to *K. oxytoca* with or without SHV–type or TEM–type OSBLs or enzymes of undefined spectrum.

[h] Includes isolates carrying CMY–2; CMY–42; DHA–1; CMY–2 and DHA–1; and the chromosomal AmpC common to *Citrobacter* spp., *Enterobacter* spp., *M. morganii*, and *Serratia* spp. with or without SHV–OSBLs and/or TEM–OSBLs.

[i] Includes isolates carrying CMY–2 and CTX–M–15; CMY–2 and SHV–12; CMY–42 and CTX–M–15; CMY–59 and CTX–M–15; DHA–1 and one ESBL (CTX–M–3, CTX–M–14, CTX–M–15, SHV–12, SHV–28); DHA–1 and SHV–28 and CTX–M–15; CMY–2 and DHA–1 and CTX–M–15; the chromosomal AmpC common to *Enterobacter* spp. and CTX–M–15; and the chromosomal ESBL common to *K. oxytoca* and DHA–1.

[j] Includes isolates carrying KPC–2 and CTX–M–15; KPC–2 and CTX–M–55; KPC–2 and DHA–1; KPC–2 and CTX–M–55 and DHA–1.

[k] Includes isolates carrying NDM–1; NDM–1 and CTX–M–15; NDM–1 and CTX–M–15 and SHV–12; NDM–7 and CTX–M–15 and SHV–12; IMP–4 and CTX–M–15; IMP–26 and DHA–1; IMP–26 and CTX–M–15; IMP–26 and CTX–M–15 and DHA–1; IMP–26 and CTX–M–15 and SHV–28; the chromosomal AmpC common to *Citrobacter* spp. and NDM–7 or NDM–7 and DHA–1; the chromosomal AmpC common to *Enterobacter* spp. and IMP–4 or NDM–7; the chromosomal AmpC common to *Enterobacter* spp. and NDM–1 and DHA–1; or NDM–1 and SHV–12; or NDM–1 and CTX–M–15 and SHV–31; with or without SHV–OSBLs and/or TEM–OSBLs.

[l] Assumed to carry the chromosomal AmpC common to *P. aeruginosa*.

[m] Isolate carrying SHV–12.

[n] Includes isolates carrying IMP–1; IMP–26; VIM–2; VIM–2 and SHV–12; VIM–2 and IMP–26.

Supplemental Table S8A. South Korea – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 1,184 isolates of *Enterobacteriaceae* and 270 isolates of *P. aeruginosa* collected as part of the INFORM global surveillance program in 2012–2015

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae[d]					
All (1,184)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 8	100
	Ceftazidime	0.25	128	≤0.015 – >128	73.7
	Cefepime	≤0.12	>16	≤0.12 – >16	76.1
	Aztreonam	0.12	128	≤0.015 – >128	72.1
	Piperacillin–tazobactam	2	64	≤0.25 – >128	85.0
	Doripenem	0.06	0.25	≤0.008 – 4	99.8
	Imipenem	0.25	2	≤0.03 – 8	87.8
	Meropenem	0.03	0.12	0.008 – >8	99.7
	Amikacin	2	8	≤0.25 – >32	96.0
	Colistin (n=692)[e]	0.5	>4	≤0.12 – >4	87.0
	Tigecycline	0.5	2	0.06 – 8	94.9
	Levofloxacin	0.25	>4	≤0.03 – >4	65.8
Ceftazidime-nonsusceptible (311)	Ceftazidime–avibactam	0.5	1	≤0.015 – 8	100
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	16	>16	≤0.12 – >16	31.8
	Aztreonam	64	>128	≤0.015 – >128	6.4
	Piperacillin–tazobactam	32	>128	0.5 – >128	49.2
	Doripenem	0.06	0.25	0.03 – 4	99.0
	Imipenem	0.5	2	≤0.03 – 4	89.4
	Meropenem	0.06	0.12	0.03 – >8	98.7
	Amikacin	4	32	0.5 – >32	88.8
	Colistin (n=184)[e]	0.5	1	0.25 – >4	94.6
	Tigecycline	0.5	2	0.06 – 8	94.2
	Levofloxacin	>4	>4	≤0.03 – >4	33.8
Meropenem-nonsusceptible (4)	Ceftazidime–avibactam	—[b]	—	0.25 – 2	100
	Ceftazidime	—	—	128 – >128	0
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	4 – >128	25.0
	Piperacillin–tazobactam	—	—	0.5 – >128	25.0
	Doripenem	—	—	0.25 – 4	50.0
	Imipenem	—	—	0.5 – 4	50.0
	Meropenem	—	—	2 – >8	0
	Amikacin	—	—	1 – 16	100
	Colistin (n=2)[e]	—	—	0.25 – 0.5	100
	Tigecycline	—	—	0.12 – 8	75.0
	Levofloxacin	—	—	2 – >4	50.0
Colistin–resistant (10)[f]	Ceftazidime–avibactam	0.25	0.5	0.06 – 1	100
	Ceftazidime	2	>128	0.12 – >128	60.0
	Cefepime	≤0.12	>16	≤0.12 – >16	80.0
	Aztreonam	1	128	0.06 – >128	70.0
	Piperacillin–tazobactam	4	16	1 – >128	90.0
	Doripenem	0.06	0.12	0.03 – 0.25	100
	Imipenem	0.5	1	0.25 – 2	90.0
	Meropenem	0.06	0.06	0.015 – 0.12	100
	Amikacin	2	2	1 – 16	100
	Colistin (n=10)[e]	>4	>4	4 – >4	0
	Tigecycline	0.5	1	0.25 – 1	100
	Levofloxacin	0.12	>4	≤0.03 – >4	80.0
Multidrug–resistant (190)	Ceftazidime–avibactam	0.5	1	≤0.015 – 4	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	64	>128	0.06 – >128	10.0
	Cefepime	>16	>16	≤0.12 – >16	6.8
	Aztreonam	128	>128	≤0.015 – >128	5.8
	Piperacillin–tazobactam	32	>128	≤0.25 – >128	49.5
	Doripenem	0.12	0.25	0.03 – 4	98.4
	Imipenem	0.25	2	0.06 – 8	86.3
	Meropenem	0.06	0.12	0.03 – >8	98.4
	Amikacin	4	>32	0.5 – >32	79.0
	Colistin (n=114)[e]	0.5	>4	0.25 – >4	86.8
	Tigecycline	1	2	0.06 – 8	90.5
	Levofloxacin	>4	>4	0.06 – >4	8.4
Escherichia coli[d]					
All (445)	Ceftazidime–avibactam	0.06	0.25	≤0.015 – 4	100
	Ceftazidime	0.25	32	≤0.015 – >128	78.2
	Cefepime	≤0.12	>16	≤0.12 – >16	72.4
	Aztreonam	0.12	64	≤0.015 – >128	73.5
	Piperacillin–tazobactam	2	16	≤0.25 – >128	92.6
	Doripenem	0.03	0.06	≤0.008 – 2	99.8
	Imipenem	0.25	0.25	0.06 – 2	99.6
	Meropenem	0.03	0.06	0.008 – >8	99.6
	Amikacin	2	8	≤0.25 – >32	99.3
	Colistin (n=252)[e]	0.5	1	≤0.12 – 2	100
	Tigecycline	0.25	0.5	0.06 – 2	100
	Levofloxacin	4	>4	≤0.03 – >4	49.2
Ceftazidime-nonsusceptible (97)	Ceftazidime–avibactam	0.25	0.5	≤0.015 – 4	100
	Ceftazidime	32	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	19.6
	Aztreonam	32	>128	1 – >128	6.2
	Piperacillin–tazobactam	4	>128	0.5 – >128	77.3
	Doripenem	0.06	0.06	0.03 – 2	99.0
	Imipenem	0.25	0.5	0.06 – 2	97.9
	Meropenem	0.03	0.06	0.03 – >8	97.9
	Amikacin	4	8	0.5 – >32	96.9
	Colistin (n=56)[e]	0.5	1	0.25 – 1	100
	Tigecycline	0.25	0.5	0.06 – 2	100
	Levofloxacin	>4	>4	≤0.03 – >4	15.5
Meropenem-nonsusceptible (2)	Ceftazidime–avibactam	—[b]	—	0.5 – 2	100
	Ceftazidime	—	—	128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	>128 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	0.25 – 2	50.0
	Imipenem	—	—	0.5 – 2	50.0
	Meropenem	—	—	4 – >8	0
	Amikacin	—	—	1 – 4	100
	Colistin (n=1)[e]	—	—	0.25 – 0.25	100
	Tigecycline	—	—	0.12 – 0.25	100
	Levofloxacin	—	—	>4 – >4	0
Multidrug–resistant (67)	Ceftazidime–avibactam	0.25	1	≤0.015 – 4	100
	Ceftazidime	32	>128	2 – >128	7.5
	Cefepime	>16	>16	2 – >16	1.5
	Aztreonam	64	>128	16 – >128	0
	Piperacillin–tazobactam	8	>128	0.5 – >128	76.1
	Doripenem	0.06	0.12	0.03 – 2	98.5
	Imipenem	0.25	0.5	0.06 – 2	98.5
	Meropenem	0.03	0.12	0.03 – >8	97.0
	Amikacin	4	16	1 – >32	95.5
	Colistin (n=36)[e]	0.5	1	0.25 – 1	100
	Tigecycline	0.25	0.5	0.06 – 2	100
	Levofloxacin	>4	>4	1 – >4	1.5

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Klebsiella pneumoniae[d]					
All (326)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 4	100
	Ceftazidime	0.25	>128	0.03 – >128	64.4
	Cefepime	≤0.12	>16	≤0.12 – >16	65.3
	Aztreonam	0.12	>128	≤0.015 – >128	64.1
	Piperacillin–tazobactam	4	>128	≤0.25 – >128	74.9
	Doripenem	0.06	0.12	0.03 – 4	99.4
	Imipenem	0.25	1	0.06 – 4	95.4
	Meropenem	0.06	0.12	0.015 – >8	99.7
	Amikacin	1	16	≤0.25 – >32	93.3
	Colistin (n=199)[e]	0.5	1	0.25 – >4	99.0
	Tigecycline	0.5	2	0.12 – 4	96.9
	Levofloxacin	0.12	>4	≤0.03 – >4	68.1
Ceftazidime-nonsusceptible (116)	Ceftazidime–avibactam	0.5	1	≤0.015 – 4	100
	Ceftazidime	128	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	9.5
	Aztreonam	128	>128	1 – >128	0.9
	Piperacillin–tazobactam	64	>128	2 – >128	31.0
	Doripenem	0.12	0.25	0.03 – 4	98.3
	Imipenem	0.25	1	0.06 – 4	91.4
	Meropenem	0.06	0.12	0.03 – >8	99.1
	Amikacin	4	>32	0.5 – >32	81.0
	Colistin (n=76)[e]	0.5	1	0.25 – >4	97.4
	Tigecycline	1	2	0.25 – 4	94.0
	Levofloxacin	>4	>4	0.03 – >4	24.1
Meropenem-nonsusceptible (1)	Ceftazidime–avibactam	—[b]	—	1	100
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	4	0
	Imipenem	—	—	4	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	2	100
	Colistin (n=1)[e]	—	—	0.5	100
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	2	100
Multidrug–resistant (92)	Ceftazidime–avibactam	0.5	1	0.03 – 4	100
	Ceftazidime	128	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	4.4
	Aztreonam	128	>128	16 – >128	0
	Piperacillin–tazobactam	128	>128	4 – >128	26.1
	Doripenem	0.12	0.25	0.03 – 4	97.8
	Imipenem	0.25	2	0.06 – 4	89.1
	Meropenem	0.06	0.25	0.03 – >8	98.9
	Amikacin	8	>32	0.5 – >32	77.2
	Colistin (n=59)[e]	0.5	1	0.25 – >4	96.6
	Tigecycline	1	2	0.5 – 4	92.4
	Levofloxacin	>4	>4	0.25 – >4	13.0
Klebsiella oxytoca[d]					
All (66)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 4	100
	Ceftazidime	0.12	4	0.03 – >128	90.9
	Cefepime	≤0.12	2	≤0.12 – 16	90.9
	Aztreonam	0.25	32	≤0.015 – >128	84.9
	Piperacillin–tazobactam	2	>128	0.5 – >128	87.9
	Doripenem	0.06	0.12	0.03 – 0.25	100
	Imipenem	0.25	0.5	0.06 – 2	98.5
	Meropenem	0.03	0.06	0.03 – 0.12	100
	Amikacin	1	4	0.5 – >32	98.5

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Colistin (n=43)[e]	0.5	1	0.25 – 1	100
	Tigecycline	0.25	0.5	0.12 – 4	98.5
	Levofloxacin	0.06	1	≤0.03 – >4	93.9
Ceftazidime-nonsusceptible (6)	Ceftazidime–avibactam	—[b]	—	0.12 – 4	100
	Ceftazidime	—	—	16 – >128	0
	Cefepime	—	—	2 – 16	50.0
	Aztreonam	—	—	8 – >128	0
	Piperacillin–tazobactam	—	—	4 – >128	50.0
	Doripenem	—	—	0.03 – 0.25	100
	Imipenem	—	—	0.25 – 2	83.3
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	1 – >32	83.3
	Colistin (n=5)[e]	—	—	0.5 – 1	100
	Tigecycline	—	—	0.25 – 2	100
	Levofloxacin	—	—	0.06 – >4	66.7
Multidrug–resistant (3)	Ceftazidime–avibactam	—[b]	—	0.25 – 4	100
	Ceftazidime	—	—	4 – >128	33.3
	Cefepime	—	—	16 – 16	0
	Aztreonam	—	—	32 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	0.06 – 0.12	100
	Imipenem	—	—	0.25 – 0.5	100
	Meropenem	—	—	0.12 – 0.12	100
	Amikacin	—	—	1 – >32	66.7
	Colistin (n=2)[e]	—	—	0.25 – 1	100
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	0.06 – 2	100
Enterobacter spp.[d]					
All (135)[g]	Ceftazidime–avibactam	0.25	0.5	0.03 – 2	100
	Ceftazidime	0.5	128	0.06 – >128	64.4
	Cefepime	≤0.12	4	≤0.12 – >16	88.9
	Aztreonam	0.25	64	≤0.015 – >128	64.4
	Piperacillin–tazobactam	4	128	0.5 – >128	77.0
	Doripenem	0.06	0.25	0.015 – 1	100
	Imipenem	1	2	≤0.03 – 4	84.4
	Meropenem	0.06	0.12	0.015 – 0.5	100
	Amikacin	2	4	0.5 – >32	97.8
	Colistin (n=76)[e]	0.5	4	≤0.12 – >4	89.5
	Tigecycline	0.5	1	0.12 – 4	96.3
	Levofloxacin	0.06	4	≤0.03 – >4	86.7
Ceftazidime-nonsusceptible (48)	Ceftazidime–avibactam	0.5	1	0.03 – 2	100
	Ceftazidime	64	128	8 – >128	0
	Cefepime	1	16	≤0.12 – >16	75.0
	Aztreonam	32	64	4 – >128	2.1
	Piperacillin–tazobactam	64	>128	0.5 – >128	37.5
	Doripenem	0.12	0.25	0.03 – 0.5	100
	Imipenem	1	2	≤0.03 – 4	87.5
	Meropenem	0.12	0.25	0.03 – 0.5	100
	Amikacin	2	8	0.5 – >32	93.8
	Colistin (n=25)[e]	0.5	1	0.25 – >4	92.0
	Tigecycline	0.5	2	0.12 – 4	95.8
	Levofloxacin	0.25	>4	≤0.03 – >4	75.0
Colistin–resistant (8)	Ceftazidime–avibactam	—[b]	—	0.06 – 0.5	100
	Ceftazidime	—	—	0.12 – 32	75.0
	Cefepime	—	—	≤0.12 – 2	100
	Aztreonam	—	—	0.06 – 16	87.5
	Piperacillin–tazobactam	—	—	1 – 16	100
	Doripenem	—	—	0.03 – 0.25	100
	Imipenem	—	—	0.25 – 2	87.5

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Meropenem	—	—	0.015 – 0.06	100
	Amikacin	—	—	1 – 2	100
	Colistin (n=8)[e]	—	—	4 – >4	0
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	0.03 – 2	100
Multidrug–resistant (6)	Ceftazidime–avibactam	—[b]	—	0.25 – 1	100
	Ceftazidime	—	—	4 – 64	16.7
	Cefepime	—	—	1 – >16	16.7
	Aztreonam	—	—	16 – 128	0
	Piperacillin–tazobactam	—	—	4 – 128	50.0
	Doripenem	—	—	0.03 – 0.25	100
	Imipenem	—	—	0.5 – 1	100
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	1 – >32	66.7
	Colistin (n=1)[e]	—	—	0.25	100
	Tigecycline	—	—	0.5 – 2	100
	Levofloxacin	—	—	>4 – >4	0
Citrobacter spp.[d]					
All (72)[h]	Ceftazidime–avibactam	0.25	1	0.03 – 2	100
	Ceftazidime	1	>128	0.06 – >128	59.7
	Cefepime	≤0.12	4	≤0.12 – >16	88.9
	Aztreonam	0.5	64	0.03 – >128	62.5
	Piperacillin–tazobactam	4	>128	0.5 – >128	70.8
	Doripenem	0.06	0.12	0.03 – 0.5	100
	Imipenem	0.5	2	0.06 – 2	87.5
	Meropenem	0.03	0.12	0.015 – 1	100
	Amikacin	2	4	0.5 – >32	97.2
	Colistin (n=40)[e]	0.5	1	0.25 – 1	100
	Tigecycline	0.25	1	0.12 – 4	98.6
	Levofloxacin	0.25	>4	≤0.03 – >4	80.6
Ceftazidime-nonsusceptible (29)	Ceftazidime–avibactam	0.5	1	0.06 – 2	100
	Ceftazidime	128	>128	8 – >128	0
	Cefepime	1	>16	≤0.12 – >16	72.4
	Aztreonam	32	128	4 – >128	6.9
	Piperacillin–tazobactam	64	>128	0.5 – >128	27.6
	Doripenem	0.06	0.12	0.06 – 0.5	100
	Imipenem	1	1	0.12 – 2	96.6
	Meropenem	0.06	0.25	0.03 – 1	100
	Amikacin	1	8	0.5 – >32	93.1
	Colistin (n=16)[e]	0.5	1	0.25 – 1	100
	Tigecycline	0.25	2	0.12 – 4	96.6
	Levofloxacin	0.5	>4	≤0.03 – >4	62.1
Multidrug–resistant (6)	Ceftazidime–avibactam	—[b]	—	0.5 – 2	100
	Ceftazidime	—	—	32 – >128	0
	Cefepime	—	—	1 – >16	16.7
	Aztreonam	—	—	32 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	0.06 – 0.5	100
	Imipenem	—	—	0.5 – 1	100
	Meropenem	—	—	0.06 – 1	100
	Amikacin	—	—	1 – >32	83.3
	Colistin (n=3)[e]	—	—	0.25 – 0.5	100
	Tigecycline	—	—	0.12 – 2	100
	Levofloxacin	—	—	>4 – >4	0
Proteeae[d]					
All (117)[i]	Ceftazidime–avibactam	0.06	0.12	≤0.015 – 8	100
	Ceftazidime	0.06	8	≤0.015 – >128	87.2
	Cefepime	≤0.12	>16	≤0.12 – >16	84.6
	Aztreonam	0.03	4	≤0.015 – 32	91.5

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Piperacillin–tazobactam	0.5	4	≤0.25 – 64	98.3
	Doripenem	0.25	0.5	0.06 – 1	100
	Imipenem	2	4	0.25 – 8	21.4
	Meropenem	0.12	0.12	0.03 – 2	99.2
	Amikacin	4	>32	0.5 – >32	85.5
	Colistin (n=69)[e]	>4	>4	>4 – >4	0
	Tigecycline	2	8	0.5 – 8	63.3
	Levofloxacin	1	>4	≤0.03 – >4	67.5
Ceftazidime-nonsusceptible (15)	Ceftazidime–avibactam	0.12	0.5	0.06 – 8	100
	Ceftazidime	16	>128	8 – >128	0
	Cefepime	1	>16	≤0.12 – >16	60.0
	Aztreonam	1	16	≤0.015 – 32	66.7
	Piperacillin–tazobactam	1	32	0.5 – 64	86.7
	Doripenem	0.25	0.5	0.06 – 0.5	100
	Imipenem	2	4	0.5 – 4	13.3
	Meropenem	0.12	0.25	0.03 – 2	93.3
	Amikacin	4	>32	1 – >32	73.3
	Colistin (n=6)[e]	—[b]	—	>4 – >4	0
	Tigecycline	4	8	1 – 8	46.7
	Levofloxacin	>4	>4	0.06 – >4	26.7
Meropenem-nonsusceptible (1)	Ceftazidime–avibactam	—[b]	—	0.25	100
	Ceftazidime	—	—	128	0
	Cefepime	—	—	8	0
	Aztreonam	—	—	4	100
	Piperacillin–tazobactam	—	—	0.5	100
	Doripenem	—	—	0.25	100
	Imipenem	—	—	1	100
	Meropenem	—	—	2	0
	Amikacin	—	—	16	100
	Colistin (n=0)[e]	—	—	ND[j]	ND
	Tigecycline	—	—	8	0
	Levofloxacin	—	—	2	100
Multidrug–resistant (16)	Ceftazidime–avibactam	0.06	0.25	≤0.015 – 0.5	100
	Ceftazidime	0.5	64	0.06 – >128	75.0
	Cefepime	>16	>16	≤0.12 – >16	37.5
	Aztreonam	0.25	32	≤0.015 – 32	68.8
	Piperacillin–tazobactam	1	16	≤0.25 – 16	100
	Doripenem	0.25	0.5	0.12 – 1	100
	Imipenem	2	4	0.5 – 8	6.3
	Meropenem	0.06	0.25	0.03 – 0.5	100
	Amikacin	>32	>32	2 – >32	25.0
	Colistin (n=13)[e]	>4	>4	>4 – >4	0
	Tigecycline	4	8	1 – 8	31.3
	Levofloxacin	>4	>4	4 – >4	0
Other *Enterobacteriaceae*[d]					
All (23)[k]	Ceftazidime–avibactam	0.12	0.25	0.06 – 0.5	100
	Ceftazidime	0.12	0.25	0.06 – 2	100
	Cefepime	≤0.12	0.25	≤0.12 – 1	100
	Aztreonam	0.12	0.25	0.06 – 4	100
	Piperacillin–tazobactam	2	8	0.5 – 32	95.7
	Doripenem	0.12	0.5	0.06 – 0.5	100
	Imipenem	1	2	0.06 – 2	82.6
	Meropenem	0.06	0.12	0.06 – 0.12	100
	Amikacin	2	8	0.5 – 8	100
	Colistin (n=13)[e]	>4	>4	1 – >4	15.4
	Tigecycline	1	2	0.25 – 2	100
	Levofloxacin	0.25	2	≤0.03 – >4	95.7
Pseudomonas aeruginosa					
All (270)	Ceftazidime–avibactam	2	8	0.06 – >128	94.8

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	2	64	0.12 – >128	72.6
	Cefepime	4	16	≤0.12 – >16	74.4
	Aztreonam	8	32	0.06 – >128	61.9
	Piperacillin–tazobactam	8	>128	≤0.25 – >128	65.2
	Doripenem	0.5	>4	0.03 – >4	78.2
	Imipenem	2	>8	0.12 – >8	67.4
	Meropenem	0.5	>8	0.03 – >8	76.7
	Amikacin	4	16	≤0.25 – >32	92.2
	Colistin (n=199)[e]	1	2	≤0.12 – 4	98.5
	Levofloxacin	1	>4	≤0.03 – >4	64.8
All, MBL–negative (265)	Ceftazidime–avibactam	2	8	0.06 – 128	96.6
	Ceftazidime	2	32	0.12 – >128	74.0
	Cefepime	4	16	≤0.12 – >16	75.9
	Aztreonam	8	32	0.06 – >128	63.0
	Piperacillin–tazobactam	8	>128	≤0.25 – >128	66.4
	Doripenem	0.5	>4	0.03 – >4	79.6
	Imipenem	2	>8	0.12 – >8	68.7
	Meropenem	0.5	8	0.03 – >8	78.1
	Amikacin	4	16	≤0.25 – >32	94.0
	Colistin (n=194)[e]	1	2	≤0.12 – 4	98.5
	Levofloxacin	1	>4	≤0.03 – >4	66.0
Ceftazidime-nonsusceptible (74)	Ceftazidime–avibactam	8	128	1 – >128	81.1
	Ceftazidime	32	>128	16 – >128	0
	Cefepime	16	>16	8 – >16	14.9
	Aztreonam	32	64	1 – >128	10.8
	Piperacillin–tazobactam	128	>128	32 – >128	0
	Doripenem	2	>4	0.12 – >4	52.7
	Imipenem	2	>8	0.5 – >8	51.4
	Meropenem	2	>8	0.12 – >8	52.7
	Amikacin	8	>32	1 – >32	77.0
	Colistin (n=55)[e]	1	2	0.5 – 2	100
	Levofloxacin	>4	>4	0.25 – >4	33.8
Ceftazidime-nonsusceptible, MBL–negative (69)	Ceftazidime–avibactam	4	32	1 – 128	87.0
	Ceftazidime	32	128	16 – >128	0
	Cefepime	16	>16	8 – >16	15.9
	Aztreonam	32	64	1 – >128	11.6
	Piperacillin–tazobactam	128	>128	32 – >128	0
	Doripenem	2	>4	0.12 – >4	56.5
	Imipenem	2	>8	0.5 – >8	55.1
	Meropenem	2	>8	0.12 – >8	56.5
	Amikacin	4	>32	1 – >32	82.6
	Colistin (n=50)[e]	1	2	0.5 – 2	100
	Levofloxacin	>4	>4	0.25 – >4	36.2
Meropenem-nonsusceptible (63)	Ceftazidime–avibactam	4	128	0.25 – >128	79.4
	Ceftazidime	32	>128	0.25 – >128	44.4
	Cefepime	16	>16	2 – >16	44.4
	Aztreonam	32	64	0.5 – >128	28.6
	Piperacillin–tazobactam	128	>128	1 – >128	31.8
	Doripenem	>4	>4	1 – >4	12.7
	Imipenem	>8	>8	2 – >8	9.5
	Meropenem	8	>8	4 – >8	0
	Amikacin	8	>32	≤0.25 – >32	69.8
	Colistin (n=56)[e]	1	2	0.5 – 2	100
	Levofloxacin	>4	>4	0.25 – >4	25.4
Meropenem-nonsusceptible, MBL–negative (58)	Ceftazidime–avibactam	4	32	0.25 – 128	86.2
	Ceftazidime	16	128	0.25 – >128	48.3
	Cefepime	16	>16	2 – >16	48.3
	Aztreonam	32	64	0.5 – >128	31.0
	Piperacillin–tazobactam	64	>128	1 – >128	34.5

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Doripenem	>4	>4	1 – >4	13.8
	Imipenem	>8	>8	2 – >8	10.3
	Meropenem	8	>8	4 – >8	0
	Amikacin	8	>32	≤0.25 – >32	75.9
	Colistin (n=51)[e]	1	2	0.5 – 2	100
	Levofloxacin	>4	>4	0.25 – >4	27.6
Multidrug–resistant (44)	Ceftazidime–avibactam	8	128	2 – >128	68.2
	Ceftazidime	32	>128	2 – >128	6.8
	Cefepime	16	>16	8 – >16	4.6
	Aztreonam	32	128	8 – >128	4.6
	Piperacillin–tazobactam	>128	>128	32 – >128	0
	Doripenem	>4	>4	0.5 – >4	18.2
	Imipenem	>8	>8	1 – >8	29.6
	Meropenem	>8	>8	0.25 – >8	20.5
	Amikacin	8	>32	2 – >32	61.4
	Colistin (n=36)[e]	1	2	0.5 – 2	100
	Levofloxacin	>4	>4	0.5 – >4	11.4
Multidrug–resistant, MBL–negative (39)	Ceftazidime–avibactam	8	128	2 – 128	76.9
	Ceftazidime	32	>128	2 – >128	7.7
	Cefepime	16	>16	8 – >16	5.1
	Aztreonam	32	128	8 – >128	5.1
	Piperacillin–tazobactam	>128	>128	32 – >128	0
	Doripenem	>4	>4	0.5 – >4	20.5
	Imipenem	>8	>8	1 – >8	33.3
	Meropenem	8	>8	0.25 – >8	23.1
	Amikacin	8	>32	2 – >32	69.2
	Colistin (n=31)[e]	1	2	0.5 – 2	100
	Levofloxacin	>4	>4	0.5 – >4	12.8

[a] MBL–negative, no gene encoding a metallo–β–lactamase was detected by PCR.

[b] —, MIC_{50} and MIC_{90} were not calculated for n < 10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] All isolates were MBL–negative.

[e] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[f] Excludes isolates of Proteeae and *Serratia* spp. that are intrinsically resistant to colistin.

[g] *Enterobacter* spp. includes *Enterobacter aerogenes* (n=57), *Enterobacter asburiae* (n=13), *Enterobacter cloacae* (n=60), *Enterobacter kobei* (n=3), and *Enterobacter ludwigii* (n=2).

[h] *Citrobacter* spp. includes *Citrobacter amalonaticus* (n=2), *Citrobacter braakii* (n=8), *Citrobacter farmeri* (n=1), *Citrobacter freundii* (n=55), and *Citrobacter koseri* (n=6).

[i] Proteeae includes *Morganella morganii* (n=27), *Proteus mirabilis* (n=61), *Proteus vulgaris* (n=22), *Providencia rettgeri* (n=1), and *Providencia stuartii* (n=6).

[j] ND, not determined; MIC range and % susceptible were not calculated for n=0 isolates.

[k] Other *Enterobacteriaceae* includes *Serratia liquefaciens* (n=3) and *Serratia marcescens* (n=20).

Supplemental Table S8B. South Korea – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 411 isolates of β–lactamase–positive *Enterobacteriaceae* (n=321) and *P. aeruginosa* (n=90) collected as part of the INFORM global surveillance program in 2012–2015

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (μg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae (321)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.5	100
OSBL–positive (4)	Ceftazidime	—	—	0.12 – 2	100
	Cefepime	—	—	≤0.12 – 1	100
	Aztreonam	—	—	0.03 – 0.5	100
	Piperacillin–tazobactam	—	—	2 – >128	50.0
	Doripenem	—	—	0.06 – 0.5	100
	Imipenem	—	—	0.12 – 2	50.0
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	0.5 – 4	100
	Colistin (n=3)[d]	—	—	0.5 – 1	100
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	0.12 – >4	50.0
ESBL–positive (230)[e]	Ceftazidime–avibactam	0.25	1	≤0.015 – 4	100
	Ceftazidime	32	>128	0.25 – >128	27.8
	Cefepime	>16	>16	≤0.12 – >16	6.5
	Aztreonam	64	>128	2 – >128	15.7
	Piperacillin–tazobactam	8	>128	0.5 – >128	67.8
	Doripenem	0.06	0.12	0.015 – 2	99.6
	Imipenem	0.25	0.5	0.06 – 4	96.5
	Meropenem	0.06	0.12	0.015 – 4	99.1
	Amikacin	4	16	0.5 – >32	93.0
	Colistin (n=156)[d]	0.5	1	0.25 – >4	96.2
	Tigecycline	0.5	2	0.06 – 8	95.2
	Levofloxacin	>4	>4	≤0.03 – >4	21.3
AmpC–positive (53)[f]	Ceftazidime–avibactam	0.25	1	0.03 – 2	100
	Ceftazidime	32	128	0.06 – >128	35.8
	Cefepime	0.25	4	≤0.12 – 8	88.7
	Aztreonam	8	64	0.03 – 128	49.1
	Piperacillin–tazobactam	4	>128	0.5 – >128	64.2
	Doripenem	0.12	0.25	0.03 – 4	98.1
	Imipenem	1	2	0.25 – 8	54.7
	Meropenem	0.06	0.12	0.03 – 0.5	100
	Amikacin	2	8	0.5 – >32	94.3
	Colistin (n=26)[d]	1	>4	0.25 – >4	88.5
	Tigecycline	0.5	2	0.12 – 8	90.6
	Levofloxacin	0.5	>4	≤0.03 – >4	67.9
ESBL–positive + AmpC–positive (33)[g]	Ceftazidime–avibactam	0.5	1	0.03 – 4	100
	Ceftazidime	128	>128	4 – >128	3.0
	Cefepime	16	>16	≤0.12 – >16	15.2
	Aztreonam	128	>128	8 – >128	0.0
	Piperacillin–tazobactam	64	>128	0.5 – >128	39.4
	Doripenem	0.12	0.25	0.03 – 1	100
	Imipenem	1	2	0.12 – 4	69.7
	Meropenem	0.12	0.25	0.03 – >8	97.0
	Amikacin	16	>32	0.5 – >32	60.6
	Colistin (n=16)[d]	0.5	1	0.25 – 1	100
	Tigecycline	1	2	0.25 – 2	100
	Levofloxacin	>4	>4	0.5 – >4	27.3
GES carbapenemase–positive (1)[h]	Ceftazidime–avibactam	—[b]	—	1	100
	Ceftazidime	—	—	>128	0

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	—	—	16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	4	0
	Imipenem	—	—	4	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	2	100
	Colistin (n=1)[d]	—	—	0.5	100
	Tigecycline	—	—	0.05	100
	Levofloxacin	—	—	2	100
P. aeruginosa (90)	Ceftazidime–avibactam	—[b]	—	8	100
GES, Spectrum undefined (1)[i,j]	Ceftazidime	—	—	64	0
	Cefepime	—	—	16	0
	Aztreonam	—	—	16	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	4	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	>32	0
	Colistin (n=1)[d]	—	—	1	100
	Levofloxacin	—	—	>4	0
MBL–positive (5)[i,k]	Ceftazidime–avibactam	—[b]	—	128 – >128	0
	Ceftazidime	—	—	128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	16 – 128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	>4 – >4	0
	Imipenem	—	—	>8 – >8	0
	Meropenem	—	—	>8 – >8	0
	Amikacin	—	—	>32 – >32	0
	Colistin (n=5)[d]	—	—	0.5 – 2	100
	Levofloxacin	—	—	>4 – >4	0
No acquired β–lactamase detected (84)[i]	Ceftazidime–avibactam	4	8	0.25 – 128	90.5
	Ceftazidime	8	64	0.25 – >128	57.1
	Cefepime	8	>16	0.5 – >16	58.3
	Aztreonam	16	64	0.5 – >128	44.0
	Piperacillin–tazobactam	32	>128	≤0.25 – >128	45.2
	Doripenem	4	>4	0.12 – >4	36.9
	Imipenem	>8	>8	2 – >8	11.9
	Meropenem	4	>8	0.25 – >8	32.1
	Amikacin	4	>32	≤0.25 – >32	84.5
	Colistin (n=65)[d]	2	2	0.5 – 4	98.5
	Levofloxacin	4	>4	0.12 – >4	36.9

[a] OSBL, original–spectrum β–lactamase (e.g. TEM–1, SHV–1, SHV–11); ESBL, extended–spectrum β–lactamase; MBL, metallo–β–lactamase.

[b] —, MIC_{50} and MIC_{90} were not calculated for n <10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] Includes isolates carrying CTX–M–2; CTX–M–3; CTX–M–14; CTX–M–15; CTX–M–24; CTX–M–27; CTX–M–55; CTX–M–90; CTX–M–101; CTX–M–104; CTX–M–179; SHV–2A; SHV–12; TEM–25; PER–1; VEB–1A;

CTX–M–15 and CTX–M–14; CTX–M–15 and SHV–5; CTX–M–15 and SHV–12; CTX–M–15 and SHV–28; CTX–M–55 and SHV–12; CTX–M–15 and CTX–M–14 and SHV–12; and the chromosomal ESBL common to *K. oxytoca* with or without SHV–type or TEM–type OSBLs or enzymes of undefined spectrum.

[f] Includes isolates carrying CMY–2; CMY–10; CMY–11; DHA–1; and the chromosomal AmpC common to *Citrobacter* spp., *Enterobacter* spp., and *Serratia* spp. with or without SHV–OSBLs and/or TEM–OSBLs.

[g] Includes isolates carrying CMY–2 and a CTX–M–type ESBL (CTX–M–14, CTX–M–15, or CTX–M–55); DHA–1 and one ESBL (CTX–M–14, CTX–M–15, SHV–5, SHV–12, or the chromosomal ESBL of *K. oxytoca*); DHA–1 and multiple ESBLs (SHV–12 and CTX–M–15; CTX–M–14 and CTX–M–15); DHA–1 and CTX–M–14 and SHV–12; a MOX–type AmpC and CTX–M–3;
and the chromosomal AmpC common to *Enterobacter* spp. and β–lactamases (CTX–M–3, CTX–M–9, SHV–12, SHV–12 and DHA–1) with or without SHV–OSBLs and/or TEM–OSBLs.

[h] Isolate carrying GES–5 and SHV–12.

[i] Assumed to carry the chromosomal AmpC common to *P. aeruginosa*.

[j] Isolate carrying GES–24.

[k] Isolates carrying IMP–6.

Supplemental Table S9A. Taiwan – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 1,247 isolates of *Enterobacteriaceae* and 288 isolates of *P. aeruginosa* collected as part of the INFORM global surveillance program in 2012–2015

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae					
All (1,247)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	99.1
	Ceftazidime	0.25	128	≤0.015 – >128	74.0
	Cefepime	≤0.12	16	≤0.12 – >16	83.9
	Aztreonam	0.12	64	≤0.015 – >128	75.8
	Piperacillin–tazobactam	2	128	≤0.25 – >128	84.5
	Doripenem	0.06	0.25	0.015 – >4	99.0
	Imipenem	0.25	2	≤0.03 – >8	85.7
	Meropenem	0.03	0.12	≤0.004 – >8	99.0
	Amikacin	2	4	≤0.25 – >32	97.7
	Colistin (n=670)[d]	0.5	>4	≤0.12 – >4	83.9
	Tigecycline	0.5	2	≤0.015 – >8	94.0
	Levofloxacin	0.12	>4	≤0.03 – >4	77.4
All, MBL–negative (1,240)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	99.7
	Ceftazidime	0.25	128	≤0.015 – >128	74.4
	Cefepime	≤0.12	16	≤0.12 – >16	84.4
	Aztreonam	0.12	64	≤0.015 – >128	76.1
	Piperacillin–tazobactam	2	128	≤0.25 – >128	84.6
	Doripenem	0.06	0.25	0.015 – >4	99.4
	Imipenem	0.25	2	≤0.03 – >8	86.1
	Meropenem	0.03	0.12	≤0.004 – >8	99.3
	Amikacin	2	4	≤0.25 – >32	97.7
	Colistin (n=670)[d]	0.5	>4	≤0.12 – >4	83.9
	Tigecycline	0.5	2	≤0.015 – >8	94.0
	Levofloxacin	0.12	>4	≤0.03 – >4	77.6
Ceftazidime-nonsusceptible (324)	Ceftazidime–avibactam	0.25	2	≤0.015 – >128	96.6
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	4	>16	≤0.12 – >16	46.3
	Aztreonam	64	>128	0.06 – >128	12.4
	Piperacillin–tazobactam	32	>128	1 – >128	49.1
	Doripenem	0.06	0.5	0.015 – >4	96.6
	Imipenem	0.5	2	0.06 – >8	87.4
	Meropenem	0.06	0.25	≤0.004 – >8	96.3
	Amikacin	2	16	0.5 – >32	91.7
	Colistin (n=175)[d]	0.5	2	0.25 – >4	91.4
	Tigecycline	0.5	2	0.06 – 8	96.6
	Levofloxacin	4	>4	≤0.03 – >4	47.8
Ceftazidime-nonsusceptible, MBL–negative (317)	Ceftazidime–avibactam	0.25	1	≤0.015 – >128	98.7
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	4	>16	≤0.12 – >16	47.3
	Aztreonam	64	>128	0.12 – >128	12.0
	Piperacillin–tazobactam	32	>128	1 – >128	48.6
	Doripenem	0.06	0.25	0.015 – >4	98.1
	Imipenem	0.5	2	0.06 – >8	88.6
	Meropenem	0.06	0.25	≤0.004 – >8	97.2
	Amikacin	2	16	0.5 – >32	91.5
	Colistin (n=175)[d]	0.5	2	0.25 – >4	91.4
	Tigecycline	0.5	2	0.06 – 8	96.5
	Levofloxacin	4	>4	≤0.03 – >4	48.0
Meropenem-nonsusceptible (12)	Ceftazidime–avibactam	2	>128	0.5 – >128	66.7

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	>128	>128	32 – >128	0
	Cefepime	>16	>16	8 – >16	0
	Aztreonam	>128	>128	0.25 – >128	8.3
	Piperacillin–tazobactam	>128	>128	4 – >128	25.0
	Doripenem	4	>4	1 – >4	25.0
	Imipenem	8	>8	0.25 – >8	25.0
	Meropenem	2	8	2 – >8	0
	Amikacin	2	32	1 – >32	83.3
	Colistin (n=6)[d]	—[b]	—	0.25 – 2	100
	Tigecycline	0.5	4	0.12 – 4	83.3
	Levofloxacin	>4	>4	0.5 – >4	16.7
Meropenem-nonsusceptible, MBL–negative (9)	Ceftazidime–avibactam	—[b]	—	0.5 – 16	88.9
	Ceftazidime	—	—	32 – >128	0
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	32 – >128	0
	Piperacillin–tazobactam	—	—	32 – >128	0
	Doripenem	—	—	1 – >4	33.3
	Imipenem	—	—	0.25 – >8	33.3
	Meropenem	—	—	2 – >8	0
	Amikacin	—	—	1 – >32	77.8
	Colistin (n=6)[d]	—	—	0.25 – 2	100
	Tigecycline	—	—	0.12 – 4	77.8
	Levofloxacin	—	—	2 – >4	11.1
Colistin–resistant (11)[e]	Ceftazidime–avibactam	0.25	0.5	≤0.015 – 1	100
	Ceftazidime	32	128	0.06 – 128	45.5
	Cefepime	0.25	0.5	≤0.12 – 8	90.9
	Aztreonam	8	64	≤0.015 – 64	45.5
	Piperacillin–tazobactam	8	128	0.5 – >128	63.6
	Doripenem	0.12	0.25	0.03 – 0.5	100
	Imipenem	1	1	0.5 – 4	90.9
	Meropenem	0.12	0.12	0.03 – 0.12	100
	Amikacin	2	2	1 – >32	90.9
	Colistin (n=11)[d]	>4	>4	4 – >4	0
	Tigecycline	0.5	1	0.25 – 1	100
	Levofloxacin	0.06	1	≤0.03 – >4	90.9
Multidrug–resistant (145)	Ceftazidime–avibactam	0.5	2	0.03 – >128	96.6
	Ceftazidime	128	>128	0.5 – >128	3.5
	Cefepime	>16	>16	≤0.12 – >16	11.0
	Aztreonam	64	>128	0.06 – >128	2.8
	Piperacillin–tazobactam	>128	>128	0.5 – >128	28.3
	Doripenem	0.12	1	0.03 – >4	94.5
	Imipenem	0.5	2	0.06 – >8	86.9
	Meropenem	0.06	0.5	0.03 – >8	93.1
	Amikacin	4	>32	0.5 – >32	82.1
	Colistin (n=65)[d]	0.5	4	0.25 – >4	89.2
	Tigecycline	0.5	2	0.06 – 8	93.8
	Levofloxacin	>4	>4	≤0.03 – >4	13.8
Multidrug–resistant, MBL–negative (142)	Ceftazidime–avibactam	0.5	2	0.03 – 16	98.6
	Ceftazidime	128	>128	0.5 – >128	3.5
	Cefepime	>16	>16	≤0.12 – >16	11.3
	Aztreonam	64	>128	0.06 – >128	2.1
	Piperacillin–tazobactam	>128	>128	0.5 – >128	28.2
	Doripenem	0.12	0.5	0.03 – >4	95.8
	Imipenem	0.5	2	0.06 – >8	88.0
	Meropenem	0.06	0.5	0.03 – >8	93.7
	Amikacin	4	>32	0.5 – >32	81.7
	Colistin (n=65)[d]	0.5	4	0.25 – >4	89.2
	Tigecycline	0.5	2	0.06 – 8	93.7
	Levofloxacin	>4	>4	≤0.03 – >4	14.1

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Escherichia coli[f]					
All (405)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 8	100
	Ceftazidime	0.25	64	0.06 – >128	70.9
	Cefepime	≤0.12	>16	≤0.12 – >16	79.5
	Aztreonam	0.12	64	≤0.015 – >128	71.1
	Piperacillin–tazobactam	2	16	0.5 – >128	90.1
	Doripenem	0.03	0.06	0.015 – 1	100
	Imipenem	0.25	0.5	≤0.03 – 2	99.5
	Meropenem	0.03	0.06	≤0.004 – 2	99.5
	Amikacin	2	4	0.5 – >32	99.8
	Colistin (n=209)[d]	0.5	1	0.25 – 4	99.5
	Tigecycline	0.25	0.5	≤0.015 – 2	100
	Levofloxacin	0.5	>4	≤0.03 – >4	63.2
Ceftazidime-nonsusceptible (118)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 8	100
	Ceftazidime	32	>128	8 – >128	0
	Cefepime	8	>16	≤0.12 – >16	44.1
	Aztreonam	32	128	0.5 – >128	11.0
	Piperacillin–tazobactam	4	>128	1 – >128	78.8
	Doripenem	0.06	0.12	0.015 – 1	100
	Imipenem	0.25	1	0.12 – 2	98.3
	Meropenem	0.03	0.12	≤0.004 – 2	98.3
	Amikacin	4	4	1 – >32	99.2
	Colistin (n=69)[d]	0.5	1	0.25 – 4	98.6
	Tigecycline	0.25	1	0.06 – 2	100
	Levofloxacin	>4	>4	≤0.03 – >4	35.6
Meropenem-nonsusceptible (2)	Ceftazidime–avibactam	—[b]	—	1 – 2	100
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	32 – >128	0
	Piperacillin–tazobactam	—	—	32 – >128	0
	Doripenem	—	—	1 – 1	100
	Imipenem	—	—	0.25 – 0.25	100
	Meropenem	—	—	2 – 2	0
	Amikacin	—	—	2 – 16	100
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	0.12 – 1	100
	Levofloxacin	—	—	>4 – >4	0
Colistin–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.25	100
	Ceftazidime	—	—	32	0
	Cefepime	—	—	8	0
	Aztreonam	—	—	16	0
	Piperacillin–tazobactam	—	—	2	100
	Doripenem	—	—	0.06	100
	Imipenem	—	—	0.5	100
	Meropenem	—	—	0.06	100
	Amikacin	—	—	2	100
	Colistin (n=1)[d]	—	—	4	0
	Tigecycline	—	—	0.25	100
	Levofloxacin	—	—	1	100
Multidrug–resistant (52)	Ceftazidime–avibactam	0.25	1	0.03 – 8	100
	Ceftazidime	64	>128	4 – >128	3.9
	Cefepime	>16	>16	1 – >16	7.7
	Aztreonam	64	>128	16 – >128	0
	Piperacillin–tazobactam	16	>128	2 – >128	61.5
	Doripenem	0.06	0.12	0.03 – 1	100
	Imipenem	0.25	0.5	0.12 – 1	100
	Meropenem	0.06	0.12	0.03 – 2	96.2
	Amikacin	4	8	1 – >32	98.1
	Colistin (n=23)[d]	0.5	1	0.25 – 1	100
	Tigecycline	0.25	1	0.12 – 1	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Levofloxacin	>4	>4	0.06 – >4	3.9
Klebsiella pneumoniae					
All (351)	Ceftazidime–avibactam	0.12	1	≤0.015 – 128	99.2
	Ceftazidime	0.25	>128	≤0.015 – >128	71.5
	Cefepime	≤0.12	>16	≤0.12 – >16	78.4
	Aztreonam	0.06	>128	≤0.015 – >128	74.4
	Piperacillin–tazobactam	4	>128	≤0.25 – >128	75.8
	Doripenem	0.06	0.25	0.015 – >4	98.6
	Imipenem	0.25	1	0.06 – >8	94.6
	Meropenem	0.03	0.12	0.015 – >8	98.3
	Amikacin	1	4	≤0.25 – >32	95.7
	Colistin (n=207)[d]	0.5	1	≤0.12 – >4	99.5
	Tigecycline	0.5	2	0.06 – 8	96.3
	Levofloxacin	0.12	>4	≤0.03 – >4	77.8
All, MBL–negative (350)	Ceftazidime–avibactam	0.12	1	≤0.015 – 16	99.4
	Ceftazidime	0.25	>128	≤0.015 – >128	71.7
	Cefepime	≤0.12	>16	≤0.12 – >16	78.6
	Aztreonam	0.06	>128	≤0.015 – >128	74.3
	Piperacillin–tazobactam	4	>128	≤0.25 – >128	75.7
	Doripenem	0.06	0.25	0.015 – >4	98.6
	Imipenem	0.25	1	0.06 – >8	94.6
	Meropenem	0.03	0.06	0.015 – >8	98.3
	Amikacin	1	4	≤0.25 – >32	95.7
	Colistin (n=207)[d]	0.5	1	0.12 – >4	99.5
	Tigecycline	0.5	2	0.06 – 8	96.3
	Levofloxacin	0.12	>4	≤0.03 – >4	77.7
Ceftazidime-nonsusceptible (100)	Ceftazidime–avibactam	0.5	2	0.03 – 128	97.0
	Ceftazidime	128	>128	8 – >128	0
	Cefepime	16	>16	≤0.12 – >16	27.0
	Aztreonam	64	>128	0.06 – >128	11.0
	Piperacillin–tazobactam	>128	>128	2 – >128	23.0
	Doripenem	0.12	1	0.03 – >4	95.0
	Imipenem	0.5	2	0.06 – >8	83.0
	Meropenem	0.06	0.5	0.03 – >8	94.0
	Amikacin	2	>32	0.5 – >32	85.0
	Colistin (n=54)[d]	1	2	0.25 – >4	98.2
	Tigecycline	1	2	0.06 – 8	95.0
	Levofloxacin	>4	>4	≤0.03 – >4	35.0
Ceftazidime-nonsusceptible, MBL–negative (99)	Ceftazidime–avibactam	0.5	2	0.03 – 16	98.0
	Ceftazidime	128	>128	8 – >128	0
	Cefepime	16	>16	≤0.12 – >16	27.3
	Aztreonam	64	>128	0.5 – >128	10.1
	Piperacillin–tazobactam	>128	>128	2 – >128	22.2
	Doripenem	0.12	1	0.03 – >4	95.0
	Imipenem	0.5	2	0.06 – >8	82.8
	Meropenem	0.06	0.5	0.03 – >8	93.9
	Amikacin	2	>32	0.5 – >32	84.9
	Colistin (n=54)[d]	1	2	0.25 – >4	98.2
	Tigecycline	1	2	0.06 – 8	95.0
	Levofloxacin	>4	>4	≤0.03 – >4	34.3
Meropenem-nonsusceptible (6)[f]	Ceftazidime–avibactam	—[b]	—	0.5 – 16	83.3
	Ceftazidime	—	—	32 – >128	0
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	64 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	1 – >4	16.7
	Imipenem	—	—	1 – >8	16.7
	Meropenem	—	—	2 – >8	0
	Amikacin	—	—	1 – 32	83.3

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Colistin (n=6)[d]	—	—	0.25 – 2	100
	Tigecycline	—	—	0.5 – 4	66.7
	Levofloxacin	—	—	2 – >4	16.7
Colistin–resistant (1)[f]	Ceftazidime–avibactam	—[b]	—	0.5	100
	Ceftazidime	—	—	128	0
	Cefepime	—	—	0.25	100
	Aztreonam	—	—	8	0
	Piperacillin–tazobactam	—	—	64	0
	Doripenem	—	—	0.12	100
	Imipenem	—	—	0.5	100
	Meropenem	—	—	0.12	100
	Amikacin	—	—	>32	0
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	>4	0
Multidrug–resistant (63)[f]	Ceftazidime–avibactam	1	2	0.06 – 16	96.8
	Ceftazidime	>128	>128	16 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	7.9
	Aztreonam	128	>128	8 – >128	0
	Piperacillin–tazobactam	>128	>128	16 – >128	6.4
	Doripenem	0.12	1	0.03 – >4	92.1
	Imipenem	0.5	2	0.06 – >8	81.0
	Meropenem	0.06	1	0.03 – >8	90.5
	Amikacin	2	>32	0.5 – >32	77.8
	Colistin (n=29)[d]	1	2	0.25 – >4	96.6
	Tigecycline	1	2	0.06 – 8	93.7
	Levofloxacin	>4	>4	≤0.03 – >4	14.3
Klebsiella oxytoca[f]					
All (68)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 1	100
	Ceftazidime	0.12	32	0.06 – >128	83.8
	Cefepime	≤0.12	1	≤0.12 – 16	94.1
	Aztreonam	0.25	64	≤0.015 – >128	79.4
	Piperacillin–tazobactam	2	16	≤0.25 – >128	91.2
	Doripenem	0.06	0.06	0.03 – 0.12	100
	Imipenem	0.25	0.5	0.12 – 1	100
	Meropenem	0.03	0.06	0.03 – 0.12	100
	Amikacin	1	2	0.5 – 16	100
	Colistin (n=35)[d]	0.5	1	0.25 – 1	100
	Tigecycline	0.25	1	0.06 – 2	100
	Levofloxacin	0.06	0.5	≤0.03 – 4	97.1
Ceftazidime-nonsusceptible (11)	Ceftazidime–avibactam	0.25	1	0.03 – 1	100
	Ceftazidime	64	>128	16 – >128	0
	Cefepime	1	16	≤0.12 – 16	63.6
	Aztreonam	64	>128	32 – >128	0
	Piperacillin–tazobactam	2	128	1 – >128	72.7
	Doripenem	0.06	0.06	0.03 – 0.06	100
	Imipenem	0.25	1	0.12 – 1	100
	Meropenem	0.03	0.06	0.03 – 0.06	100
	Amikacin	1	2	0.5 – 4	100
	Colistin (n=7)[d]	—[b]	—	0.25 – 1	100
	Tigecycline	0.25	1	0.06 – 2	100
	Levofloxacin	0.5	4	≤0.03 – 4	81.8
Multidrug–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.5	100
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	0.03	100
	Imipenem	—	—	0.12	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Meropenem	—	—	0.03	100
	Amikacin	—	—	1	100
	Colistin (n=1)[d]	—	—	0.5	100
	Tigecycline	—	—	0.25	100
	Levofloxacin	—	—	0.5	100
Enterobacter spp.					
All (146)[h]	Ceftazidime–avibactam	0.25	1	≤0.015 – >128	98.6
	Ceftazidime	0.5	128	0.06 – >128	62.3
	Cefepime	≤0.12	8	≤0.12 – >16	88.4
	Aztreonam	0.25	128	≤0.015 – >128	65.8
	Piperacillin–tazobactam	4	>128	0.5 – >128	73.3
	Doripenem	0.06	0.25	0.03 – 4	98.0
	Imipenem	1	2	0.25 – 8	77.4
	Meropenem	0.06	0.12	0.015 – 2	99.3
	Amikacin	1	2	0.5 – >32	98.0
	Colistin (n=79)[d]	0.5	4	0.25 – >4	89.9
	Tigecycline	0.5	2	0.12 – 8	96.6
	Levofloxacin	0.06	2	≤0.03 – >4	91.8
All, MBL–negative (144)	Ceftazidime–avibactam	0.25	1	≤0.015 – 4	100
	Ceftazidime	0.5	128	0.06 – >128	63.2
	Cefepime	≤0.12	4	≤0.12 – >16	89.6
	Aztreonam	0.12	64	≤0.015 – >128	66.7
	Piperacillin–tazobactam	4	>128	0.5 – >128	72.9
	Doripenem	0.06	0.25	0.03 – 2	99.3
	Imipenem	1	2	0.25 – 4	78.5
	Meropenem	0.06	0.12	0.015 – 1	100
	Amikacin	1	2	0.5 – >32	97.9
	Colistin (n=79)[d]	0.5	4	0.25 – >4	89.9
	Tigecycline	0.5	2	0.12 – 8	96.5
	Levofloxacin	0.06	2	≤0.03 – >4	92.4
Ceftazidime-nonsusceptible (55)	Ceftazidime–avibactam	0.5	1	≤0.015 – >128	96.4
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	1	>16	≤0.12 – >16	70.9
	Aztreonam	64	>128	0.5 – >128	9.1
	Piperacillin–tazobactam	64	>128	2 – >128	29.1
	Doripenem	0.12	0.5	0.06 – 4	96.4
	Imipenem	1	2	0.25 – 8	85.5
	Meropenem	0.12	0.25	0.06 – 2	98.2
	Amikacin	2	4	0.5 – >32	94.6
	Colistin (n=31)[d]	0.5	4	0.25 – >4	87.1
	Tigecycline	1	2	0.25 – 8	92.7
	Levofloxacin	0.5	>4	≤0.03 – >4	83.6
Ceftazidime-nonsusceptible, MBL–negative (53)	Ceftazidime–avibactam	0.5	1	≤0.015 – 4	100
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	1	>16	≤0.12 – >16	73.6
	Aztreonam	64	>128	0.5 – >128	9.4
	Piperacillin–tazobactam	64	>128	2 – >128	26.4
	Doripenem	0.12	0.25	0.06 – 1	100
	Imipenem	1	2	0.25 – 2	88.7
	Meropenem	0.12	0.25	0.06 – 0.25	100
	Amikacin	2	4	0.5 – >32	94.3
	Colistin (n=31)[d]	0.5	4	0.25 – >4	87.1
	Tigecycline	1	2	0.25 – 8	92.5
	Levofloxacin	0.12	>4	≤0.03 – >4	84.9
Meropenem-nonsusceptible (1)[i]	Ceftazidime–avibactam	—[b]	—	>128	0
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	16	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Doripenem	—	—	4	0
	Imipenem	—	—	8	0
	Meropenem	—	—	2	0
	Amikacin	—	—	1	100
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	2	100
	Levofloxacin	—	—	4	0
Colistin–resistant (8)[f]	Ceftazidime–avibactam	—[b]	—	0.03 – 1	100
	Ceftazidime	—	—	0.12 – 128	50.0
	Cefepime	—	—	≤0.12 – 0.5	100
	Aztreonam	—	—	0.06 – 64	50.0
	Piperacillin–tazobactam	—	—	1 – >128	62.5
	Doripenem	—	—	0.03 – 0.5	100
	Imipenem	—	—	0.5 – 1	100
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	1 – 2	100
	Colistin (n=8)[d]	—	—	4 – >4	0
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	≤0.03 – 0.12	100
Multidrug–resistant (14)[f]	Ceftazidime–avibactam	1	2	0.25 – 4	100
	Ceftazidime	>128	>128	64 – >128	0
	Cefepime	16	>16	0.5 – >16	28.6
	Aztreonam	128	>128	64 – >128	0
	Piperacillin–tazobactam	>128	>128	16 – >128	7.1
	Doripenem	0.12	0.5	0.06 – 1	100
	Imipenem	1	2	0.5 – 2	85.7
	Meropenem	0.12	0.25	0.06 – 0.25	100
	Amikacin	2	32	1 – 32	85.7
	Colistin (n=8)[d]	—[b]	—	0.25 – >4	75.0
	Tigecycline	1	4	0.5 – 8	78.6
	Levofloxacin	1	>4	≤0.03 – >4	50.0
Citrobacter spp.					
All (82)[j]	Ceftazidime–avibactam	0.12	2	≤0.015 – >128	93.9
	Ceftazidime	0.25	>128	0.06 – >128	65.9
	Cefepime	≤0.12	16	≤0.12 – >16	85.4
	Aztreonam	0.06	64	≤0.015 – >128	67.1
	Piperacillin–tazobactam	4	128	≤0.25 – >128	75.6
	Doripenem	0.06	0.25	0.015 – 4	96.3
	Imipenem	0.25	1	0.12 – >8	93.9
	Meropenem	0.03	0.12	0.015 – 8	97.6
	Amikacin	1	8	≤0.25 – >32	91.5
	Colistin (n=41)[d]	0.5	1	≤0.12 – >4	97.6
	Tigecycline	0.5	1	0.06 – 2	100
	Levofloxacin	0.06	4	≤0.03 – >4	85.4
All, MBL–negative (79)	Ceftazidime–avibactam	0.12	2	≤0.015 – >128	97.5
	Ceftazidime	0.25	>128	0.06 – >128	68.4
	Cefepime	≤0.12	8	≤0.12 – >16	88.6
	Aztreonam	0.06	64	≤0.015 – >128	69.6
	Piperacillin–tazobactam	4	>128	≤0.25 – >128	77.2
	Doripenem	0.06	0.12	0.015 – 2	98.7
	Imipenem	0.25	1	0.12 – >8	96.2
	Meropenem	0.03	0.12	0.015 – 8	98.7
	Amikacin	1	16	≤0.25 – >32	91.1
	Colistin (n=41)[d]	0.5	1	0.12 – >4	97.6
	Tigecycline	0.5	1	0.06 – 2	100.0
	Levofloxacin	0.06	4	≤0.03 – >4	87.3
Ceftazidime-nonsusceptible (28)	Ceftazidime–avibactam	0.5	64	0.06 – >128	82.1
	Ceftazidime	128	>128	8 – >128	0
	Cefepime	2	>16	≤0.12 – >16	57.1

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Aztreonam	32	>128	4 – >128	3.6
	Piperacillin–tazobactam	64	>128	4 – >128	32.1
	Doripenem	0.12	2	0.015 – 4	89.3
	Imipenem	0.5	2	0.25 – >8	85.7
	Meropenem	0.06	0.5	0.015 – 8	92.9
	Amikacin	2	>32	0.5 – >32	75.0
	Colistin (n=5)[d]	—[b]	—	0.25 – 1	100
	Tigecycline	0.5	1	0.12 – 2	100
	Levofloxacin	2	>4	≤0.03 – >4	64.3
Ceftazidime-nonsusceptible, MBL–negative (25)	Ceftazidime–avibactam	0.5	4	0.06 – >128	92.0
	Ceftazidime	128	>128	8 – >128	0
	Cefepime	1	>16	≤0.12 – >16	64.0
	Aztreonam	32	>128	4 – >128	4.0
	Piperacillin–tazobactam	64	>128	4 – >128	32.0
	Doripenem	0.06	0.5	0.015 – 2	96.0
	Imipenem	0.5	1	0.25 – >8	92.0
	Meropenem	0.06	0.5	0.015 – 8	96.0
	Amikacin	2	>32	0.5 – >32	72.0
	Colistin (n=5)[d]	—[b]	—	0.25 – 1	100
	Tigecycline	0.5	1	0.12 – 2	100
	Levofloxacin	1	>4	≤0.03 – >4	68.0
Meropenem-nonsusceptible (2)	Ceftazidime–avibactam	—[b]	—	4 – >128	50.0
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	128 – >128	0
	Piperacillin–tazobactam	—	—	16 – >128	50.0
	Doripenem	—	—	2 – 4	0
	Imipenem	—	—	4 – >8	0
	Meropenem	—	—	2 – 8	0
	Amikacin	—	—	4 – >32	50.0
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	0.5 – 0.5	100
	Levofloxacin	—	—	0.5 – >4	50.0
Meropenem-nonsusceptible, MBL–negative (1)	Ceftazidime–avibactam	—[b]	—	4	100
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	2	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	8	0
	Amikacin	—	—	>32	0
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	>4	0
Colistin–resistant (1)[f]	Ceftazidime–avibactam	—[b]	—	≤0.015	100
	Ceftazidime	—	—	0.06	100
	Cefepime	—	—	≤0.12	100
	Aztreonam	—	—	≤0.015	100
	Piperacillin–tazobactam	—	—	0.5	100
	Doripenem	—	—	0.25	100
	Imipenem	—	—	4	0
	Meropenem	—	—	0.12	100
	Amikacin	—	—	2	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	0.12	100
Multidrug–resistant (9)	Ceftazidime–avibactam	—[b]	—	0.5 – 64	77.8
	Ceftazidime	—	—	64 – >128	0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	—	—	0.5 – >16	11.1
	Aztreonam	—	—	16 – >128	0
	Piperacillin–tazobactam	—	—	128 – >128	0
	Doripenem	—	—	0.03 – 2	77.8
	Imipenem	—	—	0.5 – >8	77.8
	Meropenem	—	—	0.03 – 8	88.9
	Amikacin	—	—	2 – >32	33.3
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	0.5 – 2	100
	Levofloxacin	—	—	2 – >4	11.1
Multidrug–resistant, MBL–negative (7)	Ceftazidime–avibactam	—[b]	—	0.5 – 4	100
	Ceftazidime	—	—	64 – >128	0
	Cefepime	—	—	0.5 – >16	14.3
	Aztreonam	—	—	16 – >128	0
	Piperacillin–tazobactam	—	—	128 – >128	0
	Doripenem	—	—	0.03 – 2	85.7
	Imipenem	—	—	0.5 – >8	85.7
	Meropenem	—	—	0.03 – 8	85.7
	Amikacin	—	—	16 – >32	14.3
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	0.5 – 2	100
	Levofloxacin	—	—	2 – >4	14.3
Proteeae [f]					
All (166)[k]	Ceftazidime–avibactam	0.03	0.12	≤0.015 – 1	100
	Ceftazidime	0.06	0.5	≤0.015 – >128	94.6
	Cefepime	≤0.12	0.25	≤0.12 – >16	97.6
	Aztreonam	≤0.015	0.06	≤0.015 – 4	100
	Piperacillin–tazobactam	0.5	1	≤0.25 – 32	99.4
	Doripenem	0.25	0.5	0.06 – 2	99.4
	Imipenem	2	4	0.25 – 8	28.9
	Meropenem	0.06	0.12	0.03 – 1	100
	Amikacin	4	8	≤0.25 – >32	98.2
	Colistin (n=87)[d]	>4	>4	>4 – >4	0
	Tigecycline	2	4	0.03 – 8	68.1
	Levofloxacin	0.12	4	≤0.03 – >4	86.1
Ceftazidime-nonsusceptible (9)	Ceftazidime–avibactam	—[b]	—	0.06 – 1	100
	Ceftazidime	—	—	8 – >128	0
	Cefepime	—	—	≤0.12 – 2	100
	Aztreonam	—	—	0.12 – 4	100
	Piperacillin–tazobactam	—	—	1 – 32	88.9
	Doripenem	—	—	0.12 – 1	100
	Imipenem	—	—	2 – 8	0
	Meropenem	—	—	0.12 – 0.25	100
	Amikacin	—	—	1 – >32	88.9
	Colistin (n=7)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	0.5 – 4	88.9
	Levofloxacin	—	—	0.12 – >4	44.4
Multidrug–resistant (3)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.5	100
	Ceftazidime	—	—	0.5 – 64	66.7
	Cefepime	—	—	0.25 – >16	66.7
	Aztreonam	—	—	0.06 – 4	100
	Piperacillin–tazobactam	—	—	0.5 – 32	66.7
	Doripenem	—	—	0.12 – 0.25	100
	Imipenem	—	—	1 – 2	33.3
	Meropenem	—	—	0.06 – 0.12	100
	Amikacin	—	—	>32 – >32	0
	Colistin (n=2)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	2 – 2	100
	Levofloxacin	—	—	>4 – >4	0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Other *Enterobacteriaceae*					
All (29)[l]	Ceftazidime–avibactam	0.12	1	≤0.015 – >128	96.6
	Ceftazidime	0.25	8	≤0.015 – >128	89.7
	Cefepime	≤0.12	16	≤0.12 – >16	82.8
	Aztreonam	0.12	16	0.03 – >128	86.2
	Piperacillin–tazobactam	2	16	≤0.25 – 64	93.1
	Doripenem	0.12	0.25	0.03 – >4	96.6
	Imipenem	0.5	1	0.25 – >8	96.6
	Meropenem	0.06	0.06	0.03 – 8	96.6
	Amikacin	2	4	≤0.25 – 16	100
	Colistin (n=12)[d]	>4	>4	0.5 – >4	16.7
	Tigecycline	1	8	0.5 – >8	86.2
	Levofloxacin	0.25	>4	≤0.03 – >4	79.3
All, MBL–negative (28)	Ceftazidime–avibactam	0.12	1	≤0.015 – 1	100
	Ceftazidime	0.25	4	≤0.015 – 128	92.9
	Cefepime	≤0.12	8	≤0.12 – >16	85.7
	Aztreonam	0.12	16	0.03 – >128	85.7
	Piperacillin–tazobactam	2	16	≤0.25 – 64	92.9
	Doripenem	0.12	0.25	0.03 – 0.25	100
	Imipenem	0.5	1	0.25 – 1	100
	Meropenem	0.06	0.06	0.03 – 0.06	100
	Amikacin	2	4	≤0.25 – 16	100
	Colistin (n=12)[d]	>4	>4	0.5 – >4	16.7
	Tigecycline	1	8	0.5 – >8	85.7
	Levofloxacin	0.25	>4	≤0.03 – >4	82.1
Ceftazidime-nonsusceptible (3)	Ceftazidime–avibactam	—[b]	—	0.12 – >128	66.7
	Ceftazidime	—	—	8 – >128	0
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	0.25 – >128	33.3
	Piperacillin–tazobactam	—	—	4 – 64	66.7
	Doripenem	—	—	0.06 – >4	66.7
	Imipenem	—	—	0.25 – >8	66.7
	Meropenem	—	—	0.06 – 8	66.7
	Amikacin	—	—	1 – 16	100
	Colistin (n=2)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	0.5 – 8	66.7
	Levofloxacin	—	—	1 – >4	33.3
Ceftazidime-nonsusceptible, MBL–negative (2)	Ceftazidime–avibactam	—[b]	—	0.12 – 1	100
	Ceftazidime	—	—	8 – 128	0
	Cefepime	—	—	8 – 16	0
	Aztreonam	—	—	>128 – >128	0
	Piperacillin–tazobactam	—	—	8 – 64	50.0
	Doripenem	—	—	0.06 – 0.25	100
	Imipenem	—	—	0.25 – 0.5	100
	Meropenem	—	—	0.06 – 0.06	100
	Amikacin	—	—	2 – 16	100
	Colistin (n=2)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	1 – 8	50.0
	Levofloxacin	—	—	1 – >4	50.0
Meropenem-nonsusceptible (1)[i]	Ceftazidime–avibactam	—[b]	—	>128	0
	Ceftazidime	—	—	>128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	0.25	100
	Piperacillin–tazobactam	—	—	4	100
	Doripenem	—	—	>4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	8	0
	Amikacin	—	—	1	100
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	0.5	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Levofloxacin	—	—	>4	0
Multidrug–resistant (3)	Ceftazidime–avibactam	—[b]	—	1 – >128	66.7
	Ceftazidime	—	—	4 – >128	33.3
	Cefepime	—	—	16 – >16	0
	Aztreonam	—	—	0.25 – >128	33.3
	Piperacillin–tazobactam	—	—	4 – 64	66.7
	Doripenem	—	—	0.06 – >4	66.7
	Imipenem	—	—	0.25 – >8	66.7
	Meropenem	—	—	0.06 – 8	66.7
	Amikacin	—	—	1 – 16	100
	Colistin (n=2)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	0.5 – 8	33.3
	Levofloxacin	—	—	>4 – >4	0
Multidrug–resistant, MBL–negative (2)	Ceftazidime–avibactam	—[b]	—	1 – 1	100
	Ceftazidime	—	—	4 – 8	50.0
	Cefepime	—	—	16 – >16	0
	Aztreonam	—	—	16 – >128	0
	Piperacillin–tazobactam	—	—	4 – 64	50.0
	Doripenem	—	—	0.06 – 0.06	100
	Imipenem	—	—	0.25 – 0.5	100
	Meropenem	—	—	0.06 – 0.06	100
	Amikacin	—	—	2 – 16	100
	Colistin (n=2)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	8 – 8	0
	Levofloxacin	—	—	>4 – >4	0
Pseudomonas aeruginosa					
All (288)	Ceftazidime–avibactam	2	8	0.5 – >128	95.5
	Ceftazidime	2	64	0.5 – >128	80.2
	Cefepime	2	16	≤0.12 – >16	83.7
	Aztreonam	8	64	0.25 – >128	67.0
	Piperacillin–tazobactam	8	>128	≤0.25 – >128	72.6
	Doripenem	0.5	4	0.06 – >4	86.1
	Imipenem	2	>8	0.25 – >8	78.8
	Meropenem	0.5	8	0.03 – >8	83.3
	Amikacin	4	8	0.5 – >32	98.6
	Colistin (n=204)[d]	2	2	0.25 – 4	92.7
	Levofloxacin	0.5	>4	0.12 – >4	77.4
All, MBL–negative (287)	Ceftazidime–avibactam	2	8	0.5 – >128	95.5
	Ceftazidime	2	64	0.5 – >128	80.1
	Cefepime	2	16	≤0.12 – >16	83.6
	Aztreonam	8	64	0.25 – >128	66.9
	Piperacillin–tazobactam	8	>128	≤0.25 – >128	72.5
	Doripenem	0.5	4	0.06 – >4	86.4
	Imipenem	2	>8	0.25 – >8	79.1
	Meropenem	0.5	8	0.03 – >8	83.6
	Amikacin	4	8	0.5 – >32	99.0
	Colistin (n=204)[d]	2	2	0.25 – 4	92.7
	Levofloxacin	0.5	>4	0.12 – >4	77.7
Ceftazidime-nonsusceptible (57)[f]	Ceftazidime–avibactam	8	32	1 – >128	77.2
	Ceftazidime	64	128	16 – >128	0
	Cefepime	16	>16	2 – >16	21.1
	Aztreonam	32	128	8 – >128	5.3
	Piperacillin–tazobactam	>128	>128	8 – >128	7.0
	Doripenem	2	>4	0.12 – >4	56.1
	Imipenem	4	>8	1 – >8	49.1
	Meropenem	2	>8	0.12 – >8	52.6
	Amikacin	4	16	1 – 32	98.3
	Colistin (n=37)[d]	2	4	0.25 – 4	86.5
	Levofloxacin	2	>4	0.25 – >4	52.6

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Meropenem-nonsusceptible (48)	Ceftazidime–avibactam	8	32	1 – >128	77.1
	Ceftazidime	16	128	0.5 – >128	43.8
	Cefepime	16	>16	1 – >16	47.9
	Aztreonam	32	128	2 – >128	25.0
	Piperacillin–tazobactam	64	>128	4 – >128	29.2
	Doripenem	4	>4	1 – >4	18.8
	Imipenem	>8	>8	1 – >8	14.6
	Meropenem	8	>8	4 – >8	0
	Amikacin	4	16	0.5 – 32	93.8
	Colistin (n=30)[d]	2	2	0.25 – 4	96.7
	Levofloxacin	>4	>4	0.25 – >4	35.4
Meropenem-nonsusceptible, MBL–negative (47)	Ceftazidime–avibactam	8	32	1 – >128	76.6
	Ceftazidime	16	128	0.5 – >128	42.6
	Cefepime	16	>16	1 – >16	46.8
	Aztreonam	32	128	2 – >128	23.4
	Piperacillin–tazobactam	128	>128	4 – >128	27.7
	Doripenem	>4	>4	1 – >4	19.2
	Imipenem	>8	>8	1 – >8	14.9
	Meropenem	8	>8	4 – >8	0
	Amikacin	4	16	0.5 – 32	95.7
	Colistin (n=30)[d]	2	2	0.25 – 4	96.7
	Levofloxacin	>4	>4	0.25 – >4	36.2
Multidrug–resistant (35)[f]	Ceftazidime–avibactam	8	32	2 – >128	65.7
	Ceftazidime	64	128	4 – >128	11.4
	Cefepime	>16	>16	4 – >16	14.3
	Aztreonam	64	128	8 – >128	2.9
	Piperacillin–tazobactam	>128	>128	16 – >128	5.7
	Doripenem	>4	>4	0.25 – >4	25.7
	Imipenem	>8	>8	1 – >8	17.1
	Meropenem	8	>8	0.12 – >8	20.0
	Amikacin	8	16	2 – >32	91.4
	Colistin (n=18)[d]	2	2	0.25 – 4	94.4
	Levofloxacin	>4	>4	0.25 – >4	28.6

[a] MBL–negative, no gene encoding a metallo–β–lactamase was detected by PCR.

[b] —, MIC_{50} and MIC_{90} were not calculated for n < 10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] Excludes isolates of *Proteeae* and *Serratia* spp. that are intrinsically resistant to colistin.

[f] All isolates were MBL–negative.

[g] ND, not determined; MIC range and % susceptible were not calculated for n=0 isolates.

[h] *Enterobacter* spp. includes *Enterobacter aerogenes* (n=72), *Enterobacter asburiae* (n=15), *Enterobacter cloacae* (n=52), and *Enterobacter kobei* (n=7).

[i] All isolates were MBL–positive.

[j] *Citrobacter* spp. includes *Citrobacter amalonaticus* (n=1), *Citrobacter braakii* (n=2), *Citrobacter freundii* (n=27), and *Citrobacter koseri* (n=52).

[k] Proteeae includes *Morganella morganii* (n=39), *Proteus mirabilis* (n=71), *Proteus vulgaris* (n=45), *Providencia rettgeri* (n=6), and *Providencia stuartii* (n=5).

[l] Other *Enterobacteriaceae* includes *Raoultella ornithinolytica* (n=5) and *Serratia marcescens* (n=24).

Supplemental Table S9B. Taiwan – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 351 isolates of β–lactamase–positive *Enterobacteriaceae* (n=286) and *P. aeruginosa* (n=65) collected as part of the INFORM global surveillance program in 2012–2015

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae (286)	Ceftazidime–avibactam	—[b]	—	0.06 – 0.5	100
OSBL–positive (7)	Ceftazidime	—	—	2 – 64	42.9
	Cefepime	—	—	≤0.12 – 1	100
	Aztreonam	—	—	0.5 – 16	85.7
	Piperacillin–tazobactam	—	—	2 – >128	42.9
	Doripenem	—	—	0.03 – 0.12	100
	Imipenem	—	—	0.12 – 1	100
	Meropenem	—	—	0.03 – 0.06	100
	Amikacin	—	—	0.5 – 2	100
	Colistin (n=3)[d]	—	—	0.25 – 1	100
	Tigecycline	—	—	0.25 – 2	100
	Levofloxacin	—	—	0.06 – >4	57.1
ESBL–positive (128)[e]	Ceftazidime–avibactam	0.25	1	≤0.015 – 16	99.2
	Ceftazidime	32	>128	0.5 – >128	18.8
	Cefepime	>16	>16	≤0.12 – >16	11.7
	Aztreonam	64	>128	0.25 – >128	9.4
	Piperacillin–tazobactam	8	>128	1 – >128	62.5
	Doripenem	0.06	0.12	0.015 – 1	100
	Imipenem	0.25	0.5	0.06 – >8	99.2
	Meropenem	0.03	0.06	0.015 – 2	97.7
	Amikacin	2	8	0.5 – >32	96.9
	Colistin (n=64)[d]	0.5	1	0.25 – 1	100
	Tigecycline	0.5	2	0.06 – 8	98.4
	Levofloxacin	>4	>4	≤0.03 – >4	38.3
AmpC–positive (90)[f]	Ceftazidime–avibactam	0.25	1	≤0.015 – 16	98.9
	Ceftazidime	32	>128	0.12 – >128	18.9
	Cefepime	0.25	2	≤0.12 – >16	90.0
	Aztreonam	8	64	0.03 – >128	33.3
	Piperacillin–tazobactam	8	>128	0.5 – >128	66.7
	Doripenem	0.06	0.5	0.03 – >4	97.8
	Imipenem	0.5	2	0.12 – >8	70.0
	Meropenem	0.06	0.25	≤0.004 – 8	97.8
	Amikacin	2	4	0.5 – >32	98.9
	Colistin (n=50)[d]	0.5	2	0.25 – >4	96.0
	Tigecycline	0.5	1	0.06 – 4	97.8
	Levofloxacin	0.5	>4	≤0.03 – >4	61.1
ESBL–positive + AmpC–positive (53)[g]	Ceftazidime–avibactam	0.5	4	0.03 – 8	100
	Ceftazidime	128	>128	16 – >128	0
	Cefepime	>16	>16	0.5 – >16	9.4
	Aztreonam	64	>128	8 – >128	0.0
	Piperacillin–tazobactam	>128	>128	2 – >128	28.3
	Doripenem	0.12	0.5	0.03 – >4	94.3
	Imipenem	1	2	0.25 – >8	79.2
	Meropenem	0.06	0.5	0.03 – 8	94.3
	Amikacin	4	>32	0.5 – >32	73.6
	Colistin (n=25)[d]	1	1	0.25 – 4	96.0
	Tigecycline	1	2	0.12 – 4	98.1
	Levofloxacin	>4	>4	0.5 – >4	13.2
KPC–positive (1)[h]	Ceftazidime–avibactam	—[b]	—	2	100
	Ceftazidime	—	—	64	0

Organism/Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	—	—	>16	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	>128	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	2	100
	Colistin (n=1)[d]	—	—	1	100
	Tigecycline	—	—	4	0
	Levofloxacin	—	—	>4	0
MBL–positive (7)[i]	Ceftazidime–avibactam	—[b]	—	64 – >128	0
	Ceftazidime	—	—	128 – >128	0
	Cefepime	—	—	8 – >16	0
	Aztreonam	—	—	0.06 – >128	28.6
	Piperacillin–tazobactam	—	—	4 – 128	71.4
	Doripenem	—	—	1 – >4	28.6
	Imipenem	—	—	1 – >8	28.6
	Meropenem	—	—	0.5 – 8	57.1
	Amikacin	—	—	1 – 4	100
	Colistin (n=0)[d]	—	—	ND[j]	ND
	Tigecycline	—	—	0.5 – 2	100
	Levofloxacin	—	—	0.5 – >4	42.9
P. aeruginosa (65)	Ceftazidime–avibactam	—[b]	—	8	100
MBL–positive (1)[k,l]	Ceftazidime	—	—	8	100
	Cefepime	—	—	8	100
	Aztreonam	—	—	4	100
	Piperacillin–tazobactam	—	—	16	100
	Doripenem	—	—	4	0
	Imipenem	—	—	4	0
	Meropenem	—	—	4	0
	Amikacin	—	—	32	0
	Colistin (n=0)[d]	—	—	ND[j]	ND
	Levofloxacin	—	—	>4	0
No acquired β–lactamase detected (64)[k]	Ceftazidime–avibactam	4	16	1 – >128	81.3
	Ceftazidime	8	128	0.5 – >128	51.6
	Cefepime	8	>16	1 – >16	54.7
	Aztreonam	16	128	2 – >128	34.4
	Piperacillin–tazobactam	32	>128	2 – >128	40.6
	Doripenem	4	>4	0.25 – >4	39.1
	Imipenem	8	>8	1 – >8	12.5
	Meropenem	4	>8	0.25 – >8	26.6
	Amikacin	4	16	0.5 – 32	96.9
	Colistin (n=41)[d]	2	2	0.25 – 4	95.1
	Levofloxacin	4	>4	0.25 – >4	46.9

[a] OSBL, original–spectrum β–lactamase (e.g. TEM–1, SHV–1, SHV–11); ESBL, extended–spectrum β–lactamase; MBL, metallo–β–lactamase.

[b] —, MIC_{50} and MIC_{90} were not calculated for n <10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] Includes isolates carrying CTX–M–3; CTX–M–14; CTX–M–15; CTX–M–24; CTX–M–27; CTX–M–55; CTX–M–65; CTX–M–79; CTX–M–116; CTX–M–134; SHV–2; SHV–2A; SHV–5; SHV–12; SHV–31; SHV–45; TEM–29; the chromosomal ESBL common to *K. oxytoca*; CTX–M–14 and CTX–M–27; CTX–M–55 and CTX–M–79; SHV–5 and CTX–M–3 or CTX–M–15 or CTX–M–27; CTX–M–14 and SHV–12; CTX–M–27 and SHV–28; with or without SHV–type or TEM–type enzymes with original spectrum activity (OSBLs), undefined spectrum of activity, or those enzymes not inhibited by clavulanic acid.

[f] Includes isolates carrying CMY–2; CMY–4; CMY–81; DHA–1; DHA–1 and CMY–2; DHA–1 and CMY–6; DHA–1 and a CMY–type enzyme; and the chromosomal AmpC common to *Enterobacter* spp. and *M. morganii* with or without SHV–type or TEM–type enzymes with original spectrum activity (OSBLs) or undefined spectrum of activity.

[g] Includes isolates carrying CMY–2 and a CTX–M–type ESBL (CTX–M–15; CTX–M–24; CTX–M–27; CTX–M–55; CTX–M–65; CTX–M–149; CTX–M–161); CMY–2 and TEM–12; CMY–2 and TEM–20; CMY–42 and CTX–M–15; DHA–1 and a CTX–M–type ESBL (CTX–M–14; CTX–M–15; CTX–M–19); DHA–1 and an SHV–type ESBL (SHV–5; SHV–12; SHV–31; SHV–55); and DHA–1 and multiple ESBLs (CTX–M–14 and SHV–12; CTX–M–15 and SHV–2; CTX–M–15 and SHV–12; CTX–M–15 and SHV–28).

[h] Isolate carrying KPC–2 and CTX–M–24.

[i] Includes isolates carrying IMP–8; IMP–8 and SHV–12; IMP–47; and the chromosomal AmpC common to *C. freundii*, *Enterobacter* spp. and *Serratia* spp. with or without SHV–OSBLs and/or TEM–OSBLs.

[j] ND, not determined; MIC range and % susceptible were not calculated for n=0 isolates.

[k] Assumed to carry the chromosomal AmpC common to *P. aeruginosa*.

[l] Isolate carrying VIM–2.

Supplemental Table S10A. Thailand – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 1,266 isolates of *Enterobacteriaceae* and 302 isolates of *P. aeruginosa* collected as part of the INFORM global surveillance program in 2012–2015

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae					
All (1,266)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	98.7
	Ceftazidime	0.25	128	≤0.015 – >128	67.7
	Cefepime	≤0.12	>16	≤0.12 – >16	68.7
	Aztreonam	0.12	128	≤0.015 – >128	66.7
	Piperacillin–tazobactam	2	64	≤0.25 – >128	84.2
	Doripenem	0.06	0.25	≤0.008 – >4	98.6
	Imipenem	0.25	2	0.06 – >8	85.8
	Meropenem	0.03	0.12	0.008 – >8	98.3
	Amikacin	2	8	≤0.25 – >32	98.5
	Colistin (n=675)[d]	0.5	>4	≤0.12 – >4	80.7
	Tigecycline	0.5	2	0.03 – 8	94.6
	Levofloxacin	0.5	>4	≤0.03 – >4	66.7
All, MBL–negative (1,251)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 64	99.8
	Ceftazidime	0.25	64	≤0.015 – >128	68.5
	Cefepime	≤0.12	>16	≤0.12 – >16	69.5
	Aztreonam	0.12	128	≤0.015 – >128	67.2
	Piperacillin–tazobactam	2	64	≤0.25 – >128	85.1
	Doripenem	0.06	0.25	≤0.008 – >4	99.8
	Imipenem	0.25	2	0.06 – >8	86.8
	Meropenem	0.03	0.12	0.008 – >8	99.4
	Amikacin	2	8	≤0.25 – >32	98.7
	Colistin (n=664)[d]	0.5	>4	≤0.12 – >4	80.7
	Tigecycline	0.5	2	0.03 – 8	94.6
	Levofloxacin	0.5	>4	≤0.03 – >4	67.2
Ceftazidime-nonsusceptible (409)	Ceftazidime–avibactam	0.25	1	≤0.015 – >128	95.8
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	17.4
	Aztreonam	64	>128	0.06 – >128	5.9
	Piperacillin–tazobactam	16	>128	≤0.25 – >128	58.0
	Doripenem	0.06	0.25	0.015 – >4	95.6
	Imipenem	0.25	1	0.06 – >8	91.2
	Meropenem	0.06	0.12	0.015 – >8	94.9
	Amikacin	4	8	0.5 – >32	96.1
	Colistin (n=237)[d]	0.5	1	0.25 – >4	92.4
	Tigecycline	0.5	2	0.06 – 8	97.3
	Levofloxacin	>4	>4	≤0.03 – >4	39.4
Ceftazidime-nonsusceptible, MBL–negative (394)	Ceftazidime–avibactam	0.25	1	≤0.015 – 64	99.5
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	18.0
	Aztreonam	64	>128	0.5 – >128	5.3
	Piperacillin–tazobactam	16	>128	≤0.25 – >128	59.9
	Doripenem	0.06	0.12	0.015 – >4	99.2
	Imipenem	0.25	1	0.06 – >8	94.7
	Meropenem	0.06	0.12	0.015 – >8	98.5
	Amikacin	4	8	0.5 – >32	96.7
	Colistin (n=226)[d]	0.5	1	0.25 – >4	92.9
	Tigecycline	0.5	2	0.06 – 8	97.2
	Levofloxacin	>4	>4	≤0.03 – >4	39.9
Meropenem-nonsusceptible (22)	Ceftazidime–avibactam	>128	>128	0.12 – >128	31.8

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	>128	>128	0.5 – >128	4.6
	Cefepime	>16	>16	≤0.12 – >16	9.1
	Aztreonam	128	>128	0.06 – >128	18.2
	Piperacillin–tazobactam	>128	>128	4 – >128	4.6
	Doripenem	>4	>4	0.12 – >4	18.2
	Imipenem	>8	>8	0.25 – >8	9.1
	Meropenem	>8	>8	2 – >8	0
	Amikacin	2	>32	0.5 – >32	86.4
	Colistin (n=16)[d]	0.5	>4	0.25 – >4	75.0
	Tigecycline	0.5	2	0.06 – 2	100
	Levofloxacin	>4	>4	0.06 – >4	27.3
Meropenem-nonsusceptible, MBL–negative (7)	Ceftazidime–avibactam	—[b]	—	0.12 – 4	100
	Ceftazidime	—	—	0.5 – >128	14.3
	Cefepime	—	—	≤0.12 – >16	28.6
	Aztreonam	—	—	0.12 – >128	14.3
	Piperacillin–tazobactam	—	—	128 – >128	0
	Doripenem	—	—	0.12 – >4	57.1
	Imipenem	—	—	0.25 – >8	28.6
	Meropenem	—	—	2 – >8	0
	Amikacin	—	—	0.5 – 8	100
	Colistin (n=5)[d]	—	—	0.25 – >4	60.0
	Tigecycline	—	—	0.06 – 1	100
	Levofloxacin	—	—	1 – >4	28.6
Colistin–resistant (24)[e]	Ceftazidime–avibactam	0.25	4	0.12 – >128	91.7
	Ceftazidime	8	>128	0.12 – >128	45.8
	Cefepime	4	>16	≤0.12 – >16	45.8
	Aztreonam	8	>128	0.06 – >128	45.8
	Piperacillin–tazobactam	4	>128	0.5 – >128	62.5
	Doripenem	0.06	4	0.03 – >4	87.5
	Imipenem	0.5	4	0.12 – >8	75.0
	Meropenem	0.06	8	0.03 – >8	83.3
	Amikacin	2	8	1 – >32	95.8
	Colistin (n=24)[d]	>4	>4	4 – >4	0
	Tigecycline	0.5	1	0.12 – 2	100
	Levofloxacin	0.5	>4	0.06 – >4	66.7
Colistin–resistant, MBL–negative (22)	Ceftazidime–avibactam	0.25	1	0.12 – 4	100
	Ceftazidime	2	>128	0.12 – >128	50.0
	Cefepime	0.25	>16	≤0.12 – >16	50.0
	Aztreonam	8	>128	0.06 – >128	45.5
	Piperacillin–tazobactam	4	>128	0.5 – >128	68.2
	Doripenem	0.06	0.25	0.03 – 4	95.5
	Imipenem	0.5	2	0.12 – 4	81.8
	Meropenem	0.06	0.5	0.03 – 8	90.9
	Amikacin	2	2	1 – 8	100
	Colistin (n=22)[d]	>4	>4	4 – >4	0
	Tigecycline	0.5	1	0.12 – 2	100
	Levofloxacin	0.5	>4	0.06 – >4	68.2
Multidrug–resistant (245)	Ceftazidime–avibactam	0.25	2	≤0.015 – >128	93.5
	Ceftazidime	64	>128	0.5 – >128	3.7
	Cefepime	>16	>16	≤0.12 – >16	1.2
	Aztreonam	64	>128	0.06 – >128	1.6
	Piperacillin–tazobactam	32	>128	0.5 – >128	47.8
	Doripenem	0.06	0.5	0.015 – >4	93.1
	Imipenem	0.25	2	0.12 – >8	89.4
	Meropenem	0.06	0.5	0.015 – >8	91.8
	Amikacin	4	16	0.5 – >32	93.9
	Colistin (n=132)[d]	0.5	4	0.25 – >4	88.6
	Tigecycline	0.5	2	0.06 – 8	97.1
	Levofloxacin	>4	>4	≤0.03 – >4	13.1

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Multidrug–resistant, MBL–negative (231)	Ceftazidime–avibactam	0.25	1	≤0.015 – 64	99.1
	Ceftazidime	64	>128	0.5 – >128	3.9
	Cefepime	>16	>16	≤0.12 – >16	1.3
	Aztreonam	64	>128	0.12 – >128	0.9
	Piperacillin–tazobactam	16	>128	0.5 – >128	50.7
	Doripenem	0.06	0.25	0.015 – >4	98.7
	Imipenem	0.25	1	0.12 – >8	94.8
	Meropenem	0.06	0.12	0.015 – >8	97.4
	Amikacin	4	16	0.5 – >32	94.8
	Colistin (n=121)[d]	0.5	4	0.25 – >4	89.3
	Tigecycline	0.5	2	0.06 – 8	97.0
	Levofloxacin	>4	>4	≤0.03 – >4	12.6
Escherichia coli					
All (429)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – >128	99.5
	Ceftazidime	1	64	0.03 – >128	58.0
	Cefepime	1	>16	≤0.12 – >16	53.4
	Aztreonam	4	64	≤0.015 – >128	52.9
	Piperacillin–tazobactam	2	32	0.5 – >128	87.7
	Doripenem	0.06	0.06	≤0.008 – >4	99.1
	Imipenem	0.25	0.25	0.06 – >8	98.6
	Meropenem	0.03	0.06	0.008 – >8	99.1
	Amikacin	2	8	0.5 – >32	98.1
	Colistin (n=216)[d]	0.5	1	≤0.12 – 4	98.6
	Tigecycline	0.25	0.5	0.03 – 8	99.8
	Levofloxacin	>4	>4	≤0.03 – >4	37.3
All, MBL–negative (427)	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 4	100
	Ceftazidime	1	64	0.03 – >128	58.3
	Cefepime	1	>16	≤0.12 – >16	53.6
	Aztreonam	4	64	≤0.015 – >128	53.2
	Piperacillin–tazobactam	2	32	0.5 – >128	88.1
	Doripenem	0.03	0.06	≤0.008 – >4	99.5
	Imipenem	0.12	0.25	0.06 – >8	99.1
	Meropenem	0.03	0.06	0.008 – >8	99.5
	Amikacin	2	8	0.5 – >32	98.4
	Colistin (n=215)[d]	0.5	1	≤0.12 – 4	98.6
	Tigecycline	0.25	0.5	0.03 – 8	99.8
	Levofloxacin	>4	>4	≤0.03 – >4	37.5
Ceftazidime-nonsusceptible (180)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	98.9
	Ceftazidime	32	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	9.4
	Aztreonam	64	128	2 – >128	2.8
	Piperacillin–tazobactam	4	128	0.5 – >128	80.6
	Doripenem	0.06	0.06	0.015 – >4	97.8
	Imipenem	0.25	0.25	0.12 – >8	96.7
	Meropenem	0.03	0.06	0.015 – >8	97.8
	Amikacin	4	16	1 – >32	96.1
	Colistin (n=93)[d]	0.5	1	0.25 – 4	96.8
	Tigecycline	0.25	0.5	0.06 – 8	99.4
	Levofloxacin	>4	>4	≤0.03 – >4	18.9
Ceftazidime-nonsusceptible, MBL–negative (178)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 4	100
	Ceftazidime	32	128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	9.6
	Aztreonam	64	128	2 – >128	2.8
	Piperacillin–tazobactam	4	128	0.5 – >128	81.5
	Doripenem	0.06	0.06	0.015 – >4	98.9
	Imipenem	0.25	0.25	0.12 – >8	97.8
	Meropenem	0.03	0.06	0.015 – >8	98.9
	Amikacin	4	16	1 – >32	96.6
	Colistin (n=92)[d]	0.5	1	0.25 – 4	96.7
	Tigecycline	0.25	0.5	0.06 – 8	99.4

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Levofloxacin	>4	>4	≤0.03 – >4	19.1
Meropenem-nonsusceptible (4)	Ceftazidime–avibactam	—[b]	—	2 – >128	50.0
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	16 – >16	0.0
	Aztreonam	—	—	64 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	>4 – >4	0
	Imipenem	—	—	>8 – >8	0
	Meropenem	—	—	>8 – >8	0
	Amikacin	—	—	2 – >32	75.0
	Colistin (n=2)[d]	—	—	0.25 – 1	100
	Tigecycline	—	—	0.06 – 0.5	100
	Levofloxacin	—	—	1 – >4	25.0
Meropenem-nonsusceptible, MBL–negative (2)	Ceftazidime–avibactam	—[b]	—	2 – 2	100
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	16 – >16	0
	Aztreonam	—	—	128 – >128	0
	Piperacillin–tazobactam	—	—	>128 – >128	0
	Doripenem	—	—	>4 – >4	0
	Imipenem	—	—	>8 – >8	0
	Meropenem	—	—	>8 – >8	0
	Amikacin	—	—	2 – 8	100
	Colistin (n=1)[d]	—	—	0.25	100
	Tigecycline	—	—	0.06 – 0.12	100
	Levofloxacin	—	—	1 – >4	50.0
Colistin–resistant (3)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.5	100
	Ceftazidime	—	—	8 – >128	0
	Cefepime	—	—	4 – >16	0
	Aztreonam	—	—	32 – 64	0
	Piperacillin–tazobactam	—	—	1 – >128	66.7
	Doripenem	—	—	0.03 – 0.12	100
	Imipenem	—	—	0.12 – 2	66.7
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	2 – 2	100
	Colistin (n=3)[d]	—	—	4 – 4	0
	Tigecycline	—	—	0.25 – 2	100
	Levofloxacin	—	—	2 – >4	33.3
Multidrug–resistant (134)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – >128	98.5
	Ceftazidime	32	>128	1 – >128	5.2
	Cefepime	>16	>16	4 – >16	0
	Aztreonam	64	128	16 – >128	0
	Piperacillin–tazobactam	8	>128	0.5 – >128	76.9
	Doripenem	0.06	0.12	0.015 – >4	97.0
	Imipenem	0.25	0.25	0.12 – >8	95.5
	Meropenem	0.03	0.12	0.015 – >8	97.0
	Amikacin	4	16	0.5 – >32	94.8
	Colistin (n=64)[d]	0.5	1	0.25 – 4	95.3
	Tigecycline	0.25	0.5	0.06 – 2	100
	Levofloxacin	>4	>4	0.12 – >4	3.0
Multidrug–resistant, MBL–negative (132)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 4	100
	Ceftazidime	32	>128	1 – >128	5.3
	Cefepime	>16	>16	4 – >16	0
	Aztreonam	64	128	16 – >128	0
	Piperacillin–tazobactam	8	>128	0.5 – >128	78.0
	Doripenem	0.06	0.06	0.015 – >4	98.5
	Imipenem	0.25	0.25	0.12 – >8	97.0
	Meropenem	0.03	0.06	0.015 – >8	98.5
	Amikacin	4	16	0.5 – >32	95.5
	Colistin (n=63)[d]	0.5	1	0.25 – 4	95.2

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Tigecycline	0.25	0.5	0.06 – 2	100
	Levofloxacin	>4	>4	0.12 – >4	3.0
Klebsiella pneumoniae					
All (359)	Ceftazidime–avibactam	0.12	1	≤0.015 – >128	96.9
	Ceftazidime	0.5	>128	0.03 – >128	57.9
	Cefepime	≤0.12	>16	≤0.12 – >16	59.6
	Aztreonam	0.25	>128	≤0.015 – >128	58.5
	Piperacillin–tazobactam	4	>128	≤0.25 – >128	70.5
	Doripenem	0.06	0.12	0.03 – >4	96.7
	Imipenem	0.25	1	0.12 – >8	93.6
	Meropenem	0.06	0.12	0.015 – >8	95.5
	Amikacin	1	4	0.5 – >32	98.1
	Colistin (n=215)[d]	1	1	0.25 – >4	95.4
	Tigecycline	0.5	2	0.06 – 8	96.9
	Levofloxacin	1	>4	≤0.03 – >4	69.1
All, MBL–negative (348)	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 4	100
	Ceftazidime	0.5	>128	0.03 – >128	59.8
	Cefepime	≤0.12	>16	≤0.12 – >16	61.5
	Aztreonam	0.12	>128	≤0.015 – >128	60.1
	Piperacillin–tazobactam	4	>128	≤0.25 – >128	72.7
	Doripenem	0.06	0.12	0.03 – 4	99.7
	Imipenem	0.25	1	0.12 – >8	96.6
	Meropenem	0.06	0.06	0.015 – 8	98.6
	Amikacin	1	4	0.5 – >32	98.6
	Colistin (n=206)[d]	1	1	0.25 – >4	95.6
	Tigecycline	0.5	2	0.06 – 8	96.8
	Levofloxacin	0.5	>4	≤0.03 – >4	70.7
Ceftazidime-nonsusceptible (151)	Ceftazidime–avibactam	0.5	1	0.03 – >128	92.7
	Ceftazidime	128	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	9.9
	Aztreonam	128	>128	0.25 – >128	4.0
	Piperacillin–tazobactam	64	>128	2 – >128	36.4
	Doripenem	0.06	0.25	0.03 – >4	92.1
	Imipenem	0.25	2	0.12 – >8	87.4
	Meropenem	0.06	0.25	0.03 – >8	90.1
	Amikacin	2	8	0.5 – >32	95.4
	Colistin (n=96)[d]	1	2	0.25 – >4	92.7
	Tigecycline	1	2	0.06 – 8	96.7
	Levofloxacin	>4	>4	≤0.03 – >4	44.4
Ceftazidime-nonsusceptible, MBL–negative (140)	Ceftazidime–avibactam	0.25	1	0.03 – 4	100
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	>16	>16	≤0.12 – >16	10.7
	Aztreonam	128	>128	1 – >128	3.6
	Piperacillin–tazobactam	32	>128	2 – >128	39.3
	Doripenem	0.06	0.25	0.03 – 4	99.3
	Imipenem	0.25	1	0.12 – >8	94.3
	Meropenem	0.06	0.12	0.03 – 8	97.1
	Amikacin	2	8	0.5 – >32	96.4
	Colistin (n=87)[d]	1	2	0.25 – >4	93.1
	Tigecycline	1	2	0.06 – 8	96.4
	Levofloxacin	4	>4	≤0.03 – >4	46.4
Meropenem-nonsusceptible (16)	Ceftazidime–avibactam	>128	>128	0.12 – >128	31.3
	Ceftazidime	>128	>128	0.5 – >128	6.3
	Cefepime	>16	>16	≤0.12 – >16	12.5
	Aztreonam	128	>128	0.12 – >128	12.5
	Piperacillin–tazobactam	>128	>128	128 – >128	0
	Doripenem	>4	>8	0.12 – >4	25.0
	Imipenem	>8	>8	0.25 – >8	12.5
	Meropenem	>8	>8	2 – >8	0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Amikacin	4	>32	0.5 – >32	87.5
	Colistin (n=13)[d]	0.5	>4	0.25 – >4	76.9
	Tigecycline	1	2	0.5 – 2	100
	Levofloxacin	>4	>4	1 – >4	18.8
Meropenem-nonsusceptible, MBL–negative (5)	Ceftazidime–avibactam	—[b]	—	0.12 – 4	100
	Ceftazidime	—	—	0.5 – >128	20.0
	Cefepime	—	—	≤0.12 – >16	40.0
	Aztreonam	—	—	0.12 – >128	20.0
	Piperacillin–tazobactam	—	—	128 – >128	0
	Doripenem	—	—	0.12 – 4	80.0
	Imipenem	—	—	0.25 – 4	40.0
	Meropenem	—	—	2 – 8	0
	Amikacin	—	—	0.5 – 4	100
	Colistin (n=4)[d]	—	—	0.25 – >4	50.0
	Tigecycline	—	—	0.5 – 1	100
	Levofloxacin	—	—	1 – >4	20.0
Colistin–resistant (10)	Ceftazidime–avibactam	0.5	4	0.12 – >128	90.0
	Ceftazidime	128	>128	0.12 – >128	30.0
	Cefepime	>16	>16	≤0.12 – >16	20.0
	Aztreonam	128	>128	0.06 – >128	20.0
	Piperacillin–tazobactam	>128	>128	1 – >128	30.0
	Doripenem	0.12	4	0.06 – >4	80.0
	Imipenem	0.25	4	0.12 – >8	70.0
	Meropenem	0.06	8	0.06 – >8	70.0
	Amikacin	1	8	1 – >32	90.0
	Colistin (n=10)[d]	>4	>4	4 – >4	0
	Tigecycline	0.5	1	0.12 – 2	100
	Levofloxacin	4	>4	0.06 – >4	40.0
Colistin–resistant, MBL–negative (9)	Ceftazidime–avibactam	—[b]	—	0.12 – 4	100
	Ceftazidime	—	—	0.12 – >128	33.3
	Cefepime	—	—	≤0.12 – >16	22.2
	Aztreonam	—	—	0.06 – >128	22.2
	Piperacillin–tazobactam	—	—	1 – >128	33.3
	Doripenem	—	—	0.06 – 4	88.9
	Imipenem	—	—	0.12 – 4	77.8
	Meropenem	—	—	0.06 – 8	77.8
	Amikacin	—	—	1 – 8	100
	Colistin (n=9)[d]	—	—	4 – >4	0
	Tigecycline	—	—	0.12 – 1	100
	Levofloxacin	—	—	0.06 – >4	44.4
Multidrug–resistant (94)	Ceftazidime–avibactam	0.5	>128	0.03 – >128	88.3
	Ceftazidime	>128	>128	0.5 – >128	1.1
	Cefepime	>16	>16	≤0.12 – >16	2.1
	Aztreonam	128	>128	0.12 – >128	2.1
	Piperacillin–tazobactam	>128	>128	4 – >128	11.7
	Doripenem	0.06	>4	0.03 – >4	87.2
	Imipenem	0.25	>8	0.12 – >8	81.9
	Meropenem	0.06	>8	0.03 – >8	84.0
	Amikacin	2	8	0.5 – >32	94.7
	Colistin (n=57)[d]	1	4	0.25 – >4	86.0
	Tigecycline	1	2	0.06 – 8	94.7
	Levofloxacin	>4	>4	≤0.03 – >4	25.5
Multidrug–resistant, MBL–negative (83)	Ceftazidime–avibactam	0.5	1	0.03 – 4	100
	Ceftazidime	128	>128	0.5 – >128	1.2
	Cefepime	>16	>16	≤0.12 – >16	2.4
	Aztreonam	128	>128	0.12 – >128	1.2
	Piperacillin–tazobactam	>128	>128	4 – >128	13.3
	Doripenem	0.06	0.25	0.03 – 4	98.8
	Imipenem	0.25	1	0.12 – >8	92.8

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Meropenem	0.06	0.12	0.03 – 8	95.2
	Amikacin	2	8	0.5 – >32	96.4
	Colistin (n=48)[d]	1	4	0.25 – >4	85.4
	Tigecycline	1	2	0.06 – 8	94.0
	Levofloxacin	>4	>4	≤0.03 – >4	26.5
Klebsiella oxytoca[f]					
All (51)	Ceftazidime–avibactam	0.06	0.12	≤0.015 – 0.5	100
	Ceftazidime	0.12	4	0.03 – 128	92.2
	Cefepime	≤0.12	2	≤0.12 – >16	92.2
	Aztreonam	0.25	8	≤0.015 – 128	88.2
	Piperacillin–tazobactam	2	4	0.5 – 32	98.0
	Doripenem	0.06	0.06	0.03 – 0.12	100
	Imipenem	0.25	0.5	0.12 – 1	100
	Meropenem	0.03	0.06	0.015 – 0.06	100
	Amikacin	2	4	0.5 – 8	100
	Colistin (n=25)[d]	0.5	1	0.25 – 4	96.0
	Tigecycline	0.25	0.5	0.06 – 1	100
	Levofloxacin	0.06	0.5	≤0.03 – >4	94.1
Ceftazidime-nonsusceptible (4)	Ceftazidime–avibactam	—[b]	—	0.06 – 0.5	100
	Ceftazidime	—	—	8 – 128	0
	Cefepime	—	—	2 – >16	25.0
	Aztreonam	—	—	8 – 128	0
	Piperacillin–tazobactam	—	—	1 – 32	75.0
	Doripenem	—	—	0.06 – 0.12	100
	Imipenem	—	—	0.25 – 0.25	100
	Meropenem	—	—	0.03 – 0.06	100
	Amikacin	—	—	0.5 – 4	100
	Colistin (n=2)[d]	—	—	0.25 – 0.25	100
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	0.5 – >4	25.0
Colistin–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.12	100
	Ceftazidime	—	—	0.12	100
	Cefepime	—	—	≤0.12	100
	Aztreonam	—	—	0.5	100
	Piperacillin–tazobactam	—	—	4	100
	Doripenem	—	—	0.06	100
	Imipenem	—	—	0.5	100
	Meropenem	—	—	0.06	100
	Amikacin	—	—	2	100
	Colistin (n=1)[d]	—	—	4	0
	Tigecycline	—	—	0.5	100
	Levofloxacin	—	—	0.12	100
Multidrug–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.5	100
	Ceftazidime	—	—	128	0
	Cefepime	—	—	>16	0
	Aztreonam	—	—	128	0
	Piperacillin–tazobactam	—	—	32	0
	Doripenem	—	—	0.06	100
	Imipenem	—	—	0.25	100
	Meropenem	—	—	0.03	100
	Amikacin	—	—	4	100
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	>4	0
Enterobacter spp.					
All (149)[h]	Ceftazidime–avibactam	0.25	1	≤0.015 – >128	97.3
	Ceftazidime	0.5	>128	0.06 – >128	62.4
	Cefepime	≤0.12	>16	≤0.12 – >16	79.9
	Aztreonam	0.12	64	0.03 – >128	65.8

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Piperacillin–tazobactam	4	128	0.5 – >128	75.8
	Doripenem	0.06	0.25	0.03 – >4	98.7
	Imipenem	1	2	0.06 – >8	82.6
	Meropenem	0.06	0.12	0.03 – >8	98.7
	Amikacin	1	4	0.5 – >32	98.0
	Colistin (n=80)[d]	0.5	>4	0.25 – >4	87.5
	Tigecycline	0.5	2	0.06 – 4	98.7
	Levofloxacin	0.06	2	≤0.03 – >4	91.3
All, MBL–negative (147)	Ceftazidime–avibactam	0.25	1	≤0.015 – 64	98.6
	Ceftazidime	0.5	128	0.06 – >128	63.3
	Cefepime	≤0.12	>16	≤0.12 – >16	81.0
	Aztreonam	0.12	64	0.03 – >128	65.3
	Piperacillin–tazobactam	4	128	0.5 – >128	76.2
	Doripenem	0.06	0.25	0.03 – 0.5	100
	Imipenem	1	2	0.06 – 4	83.7
	Meropenem	0.06	0.12	0.03 – 1	100
	Amikacin	1	4	0.5 – >32	98.0
	Colistin (n=79)[d]	0.5	>4	0.25 – >4	88.6
	Tigecycline	0.5	2	0.06 – 4	98.6
	Levofloxacin	0.06	2	≤0.03 – >4	91.2
Ceftazidime-nonsusceptible (56)	Ceftazidime–avibactam	0.5	2	0.12 – >128	92.9
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	4	>16	≤0.12 – >16	48.2
	Aztreonam	32	>128	0.06 – >128	8.9
	Piperacillin–tazobactam	32	>128	2 – >128	35.7
	Doripenem	0.12	0.5	0.03 – >4	96.4
	Imipenem	0.5	2	0.06 – >8	89.3
	Meropenem	0.06	0.25	0.03 – >8	96.4
	Amikacin	2	8	0.5 – >32	96.4
	Colistin (n=34)[d]	0.5	1	0.25 – >4	91.2
	Tigecycline	0.5	2	0.06 – 4	96.4
	Levofloxacin	0.5	>4	≤0.03 – >4	83.9
Ceftazidime-nonsusceptible, MBL–negative (54)	Ceftazidime–avibactam	0.5	2	0.12 – 64	96.3
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	2	>16	≤0.12 – >16	50.0
	Aztreonam	32	>128	1 – >128	5.6
	Piperacillin–tazobactam	32	>128	2 – >128	35.2
	Doripenem	0.12	0.25	0.03 – 0.5	100
	Imipenem	0.5	1	0.06 – 2	92.6
	Meropenem	0.06	0.25	0.03 – 1	100
	Amikacin	2	8	0.5 – >32	96.3
	Colistin (n=33)[d]	0.5	1	0.25 – >4	93.9
	Tigecycline	0.5	2	0.06 – 4	96.3
	Levofloxacin	0.5	>4	≤0.03 – >4	83.3
Meropenem-nonsusceptible (2)[i]	Ceftazidime–avibactam	—[b]	—	>128 – >128	0
	Ceftazidime	—	—	>128 – >128	0
	Cefepime	—	—	>16 – >16	0
	Aztreonam	—	—	0.06 – 0.5	100
	Piperacillin–tazobactam	—	—	4 – >128	50.0
	Doripenem	—	—	>4 – >4	0
	Imipenem	—	—	>8 – >8	0
	Meropenem	—	—	>8 – >8	0
	Amikacin	—	—	1 – 2	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	0.5 – 0.5	100
	Levofloxacin	—	—	0.06 – 1	100
Colistin–resistant (10)	Ceftazidime–avibactam	0.25	1	0.12 – >128	90.0
	Ceftazidime	0.5	32	0.25 – >128	70.0
	Cefepime	≤0.12	>16	≤0.12 – >16	80.0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Aztreonam	0.12	16	0.06 – 32	80.0
	Piperacillin–tazobactam	4	8	0.5 – >128	90.0
	Doripenem	0.06	0.12	0.03 – >4	90.0
	Imipenem	0.5	2	0.25 – >8	80.0
	Meropenem	0.06	0.12	0.03 – >8	90.0
	Amikacin	2	2	1 – 8	100
	Colistin (n=10)[d]	>4	>4	>4 – >4	0
	Tigecycline	0.5	1	0.25 – 1	100
	Levofloxacin	0.06	0.12	0.06 – 1	100
Colistin–resistant, MBL–negative (9)	Ceftazidime–avibactam	—[b]	—	0.12 – 1	100
	Ceftazidime	—	—	0.25 – 32	77.8
	Cefepime	—	—	≤0.12 – >16	88.9
	Aztreonam	—	—	0.06 – 32	77.8
	Piperacillin–tazobactam	—	—	0.5 – 8	100
	Doripenem	—	—	0.03 – 0.12	100
	Imipenem	—	—	0.25 – 2	88.9
	Meropenem	—	—	0.03 – 0.12	100
	Amikacin	—	—	1 – 8	100
	Colistin (n=9)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	0.06 – 1	100
Multidrug–resistant (12)	Ceftazidime–avibactam	2	64	0.25 – >128	75.0
	Ceftazidime	>128	>128	32 – >128	0
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	>128	>128	0.06 – >128	8.3
	Piperacillin–tazobactam	>128	>128	8 – >128	8.3
	Doripenem	0.25	0.5	0.03 – >4	91.7
	Imipenem	0.5	2	0.25 – >8	83.3
	Meropenem	0.12	1	0.03 – >8	91.7
	Amikacin	8	32	1 – >32	83.3
	Colistin (n=9)[d]	—[b]	—	0.5 – >4	77.8
	Tigecycline	2	2	0.25 – 4	91.7
	Levofloxacin	>4	>4	0.06 – >4	33.3
Multidrug–resistant, MBL–negative (11)	Ceftazidime–avibactam	2	64	0.25 – 64	81.8
	Ceftazidime	>128	>128	32 – >128	0
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	>128	>128	32 – >128	0
	Piperacillin–tazobactam	>128	>128	8 – >128	9.1
	Doripenem	0.25	0.5	0.03 – 0.5	100
	Imipenem	0.5	1	0.25 – 2	90.9
	Meropenem	0.12	1	0.03 – 1	100
	Amikacin	8	32	1 – >32	81.8
	Colistin (n=8)[d]	—[b]	—	0.5 – >4	87.5
	Tigecycline	2	2	0.25 – 4	90.9
	Levofloxacin	>4	>4	1 – >4	27.3
Citrobacter spp.[f]					
All (69)[j]	Ceftazidime–avibactam	0.12	0.25	≤0.015 – 2	100
	Ceftazidime	0.25	32	0.06 – >128	85.5
	Cefepime	≤0.12	1	≤0.12 – >16	92.8
	Aztreonam	0.06	16	0.03 – 64	87.0
	Piperacillin–tazobactam	2	8	1 – 128	94.2
	Doripenem	0.06	0.06	0.015 – 0.25	100
	Imipenem	0.25	1	0.12 – 8	97.1
	Meropenem	0.03	0.06	0.015 – 0.12	100
	Amikacin	1	4	≤0.25 – 8	100
	Colistin (n=32)[d]	0.5	1	≤0.12 – 1	100
	Tigecycline	0.25	1	0.06 – 2	100
	Levofloxacin	0.06	1	≤0.03 – >4	94.2
Ceftazidime-nonsusceptible (10)	Ceftazidime–avibactam	0.25	0.5	0.12 – 2	100

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Ceftazidime	64	>128	8 – >128	0
	Cefepime	1	8	≤0.12 – >16	70.0
	Aztreonam	16	32	0.5 – 64	40.0
	Piperacillin–tazobactam	16	64	4 – 128	60.0
	Doripenem	0.06	0.06	0.03 – 0.25	100
	Imipenem	0.5	1	0.12 – 1	100
	Meropenem	0.03	0.06	0.015 – 0.06	100
	Amikacin	2	4	2 – 8	100
	Colistin (n=6)[d]	—[b]	—	0.25 – 1	100
	Tigecycline	0.5	1	0.25 – 2	100
	Levofloxacin	1	>4	0.06 – >4	60.0
Multidrug–resistant (2)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.12	100
	Ceftazidime	—	—	32 – 64	0
	Cefepime	—	—	2 – >16	50.0
	Aztreonam	—	—	32 – 64	0
	Piperacillin–tazobactam	—	—	64 – 128	0
	Doripenem	—	—	0.06 – 0.06	100
	Imipenem	—	—	1 – 1	100
	Meropenem	—	—	0.03 – 0.06	100
	Amikacin	—	—	4 – 4	100
	Colistin (n=0)[d]	—	—	ND[g]	ND
	Tigecycline	—	—	1 – 1	100
	Levofloxacin	—	—	>4 – >4	0
Proteeae[f]					
All (180)[k]	Ceftazidime–avibactam	0.03	0.12	≤0.015 – 0.5	100
	Ceftazidime	0.06	0.5	≤0.015 – 128	96.7
	Cefepime	≤0.12	0.25	≤0.12 – >16	93.9
	Aztreonam	≤0.015	0.12	≤0.015 – 8	98.3
	Piperacillin–tazobactam	≤0.25	1	≤0.25 – 16	100
	Doripenem	0.25	0.5	0.06 – 1	100
	Imipenem	2	4	0.25 – 8	31.7
	Meropenem	0.06	0.12	0.03 – 0.5	100
	Amikacin	2	8	0.5 – >32	99.4
	Colistin (n=93)[d]	>4	>4	>4 – >4	0
	Tigecycline	2	4	0.12 – 8	71.1
	Levofloxacin	0.12	2	≤0.03 – >4	90.0
Ceftazidime-nonsusceptible (6)	Ceftazidime–avibactam	—[b]	—	0.03 – 0.12	100
	Ceftazidime	—	—	8 – 128	0
	Cefepime	—	—	≤0.12 – >16	50.0
	Aztreonam	—	—	0.5 – 8	66.7
	Piperacillin–tazobactam	—	—	≤0.25 – 1	100
	Doripenem	—	—	0.12 – 0.5	100
	Imipenem	—	—	1 – 4	16.7
	Meropenem	—	—	0.06 – 0.25	100
	Amikacin	—	—	0.5 – 4	100
	Colistin (n=4)[d]	—	—	>4 – >4	0
	Tigecycline	—	—	0.5 – 8	66.7
	Levofloxacin	—	—	≤0.03 – 2	100
Multidrug–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.12	100
	Ceftazidime	—	—	1	100
	Cefepime	—	—	4	0
	Aztreonam	—	—	0.25	100
	Piperacillin–tazobactam	—	—	16	100
	Doripenem	—	—	0.12	100
	Imipenem	—	—	4	0
	Meropenem	—	—	0.12	100
	Amikacin	—	—	>32	0
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	>4	0

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b] MIC$_{50}$	MIC$_{90}$	Range	% Susceptible[c]
Other *Enterobacteriaceae*[f]					
All (29)[l]	Ceftazidime–avibactam	0.12	0.5	0.06 – 0.5	100
	Ceftazidime	0.12	0.5	0.12 – 64	93.1
	Cefepime	≤0.12	1	≤0.12 – 4	96.6
	Aztreonam	0.12	1	0.03 – >128	93.1
	Piperacillin–tazobactam	2	4	0.5 – 16	100
	Doripenem	0.12	0.12	0.015 – 0.25	100
	Imipenem	0.5	1	0.25 – 1	100
	Meropenem	0.06	0.12	0.03 – 0.12	100
	Amikacin	2	4	0.5 – 8	100
	Colistin (n=14)[d]	>4	>4	2 – >4	7.1
	Tigecycline	1	2	0.5 – 4	93.1
	Levofloxacin	0.25	>4	0.06 – >4	86.2
Ceftazidime-nonsusceptible (2)	Ceftazidime–avibactam	—[b]	—	0.5 – 0.5	100
	Ceftazidime	—	—	64 – 64	0
	Cefepime	—	—	2 – 4	50.0
	Aztreonam	—	—	128 – >128	0
	Piperacillin–tazobactam	—	—	16 – 16	100
	Doripenem	—	—	0.06 – 0.12	100
	Imipenem	—	—	0.5 – 0.5	100
	Meropenem	—	—	0.06 – 0.06	100
	Amikacin	—	—	8 – 8	100
	Colistin (n=2)[d]	—	—	2 – >4	50.0
	Tigecycline	—	—	1 – 4	50.0
	Levofloxacin	—	—	4 – >4	0
Multidrug–resistant (1)	Ceftazidime–avibactam	—[b]	—	0.5	100
	Ceftazidime	—	—	64	0
	Cefepime	—	—	4	0
	Aztreonam	—	—	>128	0
	Piperacillin–tazobactam	—	—	16	100
	Doripenem	—	—	0.12	100
	Imipenem	—	—	0.5	100
	Meropenem	—	—	0.06	100
	Amikacin	—	—	8	100
	Colistin (n=1)[d]	—	—	>4	0
	Tigecycline	—	—	4	0
	Levofloxacin	—	—	>4	0
Pseudomonas aeruginosa					
All (302)	Ceftazidime–avibactam	2	128	0.03 – >128	83.1
	Ceftazidime	4	>128	0.25 – >128	71.5
	Cefepime	4	>16	0.25 – >16	74.2
	Aztreonam	8	128	0.12 – >128	57.3
	Piperacillin–tazobactam	8	>128	≤0.25 – >128	65.9
	Doripenem	1	>4	0.03 – >4	69.2
	Imipenem	2	>8	0.25 – >8	59.6
	Meropenem	0.5	>8	0.03 – >8	68.5
	Amikacin	4	32	≤0.25 – >32	88.4
	Colistin (n=222)[d]	2	2	0.25 – >8	91.0
	Levofloxacin	0.5	>4	≤0.03 – >4	73.2
All, MBL–negative (282)	Ceftazidime–avibactam	2	16	0.03 – >128	89.0
	Ceftazidime	2	64	0.25 – >128	76.6
	Cefepime	4	>16	0.25 – >16	79.4
	Aztreonam	8	64	0.12 – >128	61.4
	Piperacillin–tazobactam	8	128	≤0.25 – >128	70.6
	Doripenem	0.5	>4	0.03 – >4	74.1
	Imipenem	2	>8	0.25 – >8	63.8
	Meropenem	0.5	>8	0.03 – >8	73.4
	Amikacin	4	16	≤0.25 – >32	94.0
	Colistin (n=210)[d]	2	2	0.25 – 8	91.9

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Levofloxacin	0.5	>4	≤0.03 – >4	78.4
Ceftazidime-nonsusceptible (86)	Ceftazidime–avibactam	16	>128	0.03 – >128	40.7
	Ceftazidime	128	>128	16 – >128	0
	Cefepime	>16	>16	2 – >16	16.3
	Aztreonam	64	>128	1 – >128	3.5
	Piperacillin–tazobactam	128	>128	2 – >128	5.8
	Doripenem	>4	>4	0.12 – >4	30.2
	Imipenem	>8	>8	0.25 – >8	25.6
	Meropenem	>8	>8	0.03 – >8	31.4
	Amikacin	8	>32	1 – >32	61.6
	Colistin (n=68)[d]	2	4	0.25 – 4	89.7
	Levofloxacin	>4	>4	≤0.03 – >4	34.9
Ceftazidime-nonsusceptible, MBL–negative (66)	Ceftazidime–avibactam	8	>128	0.03 – >128	53.0
	Ceftazidime	64	>128	16 – >128	0
	Cefepime	>16	>16	2 – >16	21.2
	Aztreonam	64	>128	1 – >128	4.6
	Piperacillin–tazobactam	128	>128	2 – >128	7.6
	Doripenem	>4	>4	0.12 – >4	39.4
	Imipenem	>8	>8	0.25 – >8	33.3
	Meropenem	8	>8	0.03 – >8	40.9
	Amikacin	4	>32	1 – >32	77.3
	Colistin (n=56)[d]	2	2	0.25 – 4	92.9
	Levofloxacin	4	>4	≤0.03 – >4	45.5
Meropenem-nonsusceptible (95)	Ceftazidime–avibactam	16	>128	1 – >128	48.4
	Ceftazidime	64	>128	2 – >128	37.9
	Cefepime	>16	>16	1 – >16	35.8
	Aztreonam	32	>128	4 – >128	19.0
	Piperacillin–tazobactam	64	>128	4 – >128	24.2
	Doripenem	>4	>4	1 – >4	5.3
	Imipenem	>8	>8	1 – >8	3.2
	Meropenem	>8	>8	4 – >8	0
	Amikacin	8	>32	1 – >32	63.2
	Colistin (n=70)[d]	2	2	1 – 4	92.9
	Levofloxacin	>4	>4	0.25 – >4	27.4
Meropenem-nonsusceptible, MBL–negative (75)	Ceftazidime–avibactam	4	>128	1 – >128	61.3
	Ceftazidime	16	>128	2 – >128	48.0
	Cefepime	16	>16	1 – >16	45.3
	Aztreonam	32	>128	4 – >128	24.0
	Piperacillin–tazobactam	64	>128	4 – >128	30.7
	Doripenem	>4	>4	1 – >4	6.7
	Imipenem	>8	>8	1 – >8	4.0
	Meropenem	>8	>8	4 – >8	0
	Amikacin	4	>32	1 – >32	77.3
	Colistin (n=58)[d]	2	2	1 – 4	96.6
	Levofloxacin	4	>4	0.25 – >4	34.7
Colistin–resistant (1)[f]	Ceftazidime–avibactam	—[b]	—	4	100
	Ceftazidime	—	—	4	100
	Cefepime	—	—	8	100
	Aztreonam	—	—	8	100
	Piperacillin–tazobactam	—	—	4	100
	Doripenem	—	—	1	100
	Imipenem	—	—	4	0
	Meropenem	—	—	2	100
	Amikacin	—	—	16	100
	Colistin (n=1)[d]	—	—	>4	0
	Levofloxacin	—	—	2	100
Multidrug–resistant (64)	Ceftazidime–avibactam	64	>128	2 – >128	21.9
	Ceftazidime	>128	>128	4 – >128	6.3

Phenotype/Organism (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	128	>128	8 – >128	3.1
	Piperacillin–tazobactam	>128	>128	16 – >128	1.6
	Doripenem	>4	>4	0.25 – >4	9.4
	Imipenem	>8	>8	2 – >8	7.8
	Meropenem	>8	>8	0.25 – >8	9.4
	Amikacin	32	>32	1 – >32	45.3
	Colistin (n=48)[d]	2	2	0.25 – 4	91.7
	Levofloxacin	>4	>4	0.25 – >4	10.9
Multidrug–resistant, MBL–negative (44)	Ceftazidime–avibactam	16	>128	2 – >128	31.8
	Ceftazidime	>128	>128	4 – >128	9.1
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	64	>128	8 – >128	4.6
	Piperacillin–tazobactam	>128	>128	16 – >128	2.3
	Doripenem	>4	>4	0.25 – >4	13.6
	Imipenem	>8	>8	2 – >8	11.4
	Meropenem	>8	>8	0.25 – >8	13.6
	Amikacin	16	>32	1 – >32	61.4
	Colistin (n=36)[d]	2	2	0.25 – 4	97.2
	Levofloxacin	>4	>4	0.25 – >4	15.9

[a] MBL–negative, no gene encoding a metallo–β–lactamase was detected by PCR.

[b] —, MIC_{50} and MIC_{90} were not calculated for n < 10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] Excludes isolates of Proteeae and *Serratia* spp. that are intrinsically resistant to colistin.

[f] All isolates were MBL–negative.

[g] ND, not determined; MIC range and % susceptible were not calculated for n=0 isolates.

[h] *Enterobacter* spp. includes *Enterobacter aerogenes* (n=58), *Enterobacter asburiae* (n=9), *Enterobacter cloacae* (n=76), *Enterobacter kobei* (n=6).

[i] All isolates were MBL–positive.

[j] *Citrobacter* spp. includes *Citrobacter amalonaticus* (n=1), *Citrobacter braakii* (n=2), *Citrobacter farmeri* (n=1), *Citrobacter freundii* (n=29), and *Citrobacter koseri* (n=36).

[k] Proteeae includes *Morganella morganii* (n=41), *Proteus mirabilis* (n=79), *Proteus penneri* (n=1), *Proteus vulgaris* (n=49), *Providencia rettgeri* (n=4), and *Providencia stuartii* (n=6).

[l] Other *Enterobacteriaceae* includes *Klebsiella ozaenae* (n=1), *Kluyvera ascorbata* (n=1) and *Serratia marcescens* (n=27).

Supplemental Table S10B. Thailand – *In vitro* activities of ceftazidime–avibactam and comparator antimicrobial agents tested against 537 isolates of β–lactamase–positive *Enterobacteriaceae* (n=425) and *P. aeruginosa* (n=112) collected as part of the INFORM global surveillance program in 2012–2015.

Organism/ Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
Enterobacteriaceae (425)	Ceftazidime–avibactam	—[b]	—	0.12 – 0.5	100
OSBL–positive (4)	Ceftazidime	—	—	0.5 – 16	50.0
	Cefepime	—	—	≤0.12 – 2	100
	Aztreonam	—	—	0.25 – >128	75.0
	Piperacillin–tazobactam	—	—	16 – 128	50.0
	Doripenem	—	—	0.06 – 0.12	100
	Imipenem	—	—	0.25 – 0.5	100
	Meropenem	—	—	0.03 – 0.25	100
	Amikacin	—	—	1 – 32	75.0
	Colistin (n=2)[d]	—	—	0.25 – 2	100
	Tigecycline	—	—	0.25 – 1	100
	Levofloxacin	—	—	0.25 – >4	25.0
ESBL–positive (348)[e]	Ceftazidime–avibactam	0.12	0.5	≤0.015 – 4	100
	Ceftazidime	32	>128	0.25 – >128	17.8
	Cefepime	>16	>16	≤0.12 – >16	7.8
	Aztreonam	64	>128	1 – >128	9.5
	Piperacillin–tazobactam	8	>128	≤0.25 – >128	68.4
	Doripenem	0.06	0.12	0.015 – 4	99.7
	Imipenem	0.25	0.5	0.06 – 8	98.0
	Meropenem	0.03	0.06	0.008 – 8	99.4
	Amikacin	4	8	0.5 – >32	96.8
	Colistin (n=194)[d]	0.5	1	0.25 – >4	93.8
	Tigecycline	0.5	1	0.06 – 8	97.7
	Levofloxacin	>4	>4	≤0.03 – >4	32.8
AmpC–positive (41)[f]	Ceftazidime–avibactam	0.12	0.5	0.06 – 64	97.6
	Ceftazidime	8	>128	0.06 – >128	46.3
	Cefepime	≤0.12	4	≤0.12 – >16	85.4
	Aztreonam	8	32	0.06 – >128	48.8
	Piperacillin–tazobactam	4	>128	≤0.25 – >128	80.5
	Doripenem	0.06	0.5	0.03 – >4	97.6
	Imipenem	2	2	0.12 – >8	41.5
	Meropenem	0.06	0.12	0.03 – >8	97.6
	Amikacin	2	4	0.5 – 16	100
	Colistin (n=20)[d]	0.5	4	0.5 – >4	85.0
	Tigecycline	0.5	2	0.06 – 8	90.2
	Levofloxacin	0.12	>4	≤0.03 – >4	70.7
ESBL–positive + AmpC–positive (10)[g]	Ceftazidime–avibactam	0.5	2	0.06 – 64	90.0
	Ceftazidime	128	>128	8 – >128	0
	Cefepime	>16	>16	16 – >16	0
	Aztreonam	128	>128	32 – >128	0
	Piperacillin–tazobactam	16	>128	2 – >128	50.0
	Doripenem	0.12	0.25	0.06 – 0.5	100
	Imipenem	0.5	2	0.25 – >8	80.0
	Meropenem	0.06	0.12	0.03 – 0.25	100
	Amikacin	2	8	2 – 8	100
	Colistin (n=5)[d]	—[b]	—	0.25 – 1	100
	Tigecycline	0.5	1	0.06 – 2	100
	Levofloxacin	>4	>4	1 – >4	20.0
GES carbapenemase–positive (1)[h]	Ceftazidime–avibactam	—[b]	—	0.06	100
	Ceftazidime	—	—	4	100

Organism/ Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	—	—	2	100
	Aztreonam	—	—	4	100
	Piperacillin–tazobactam	—	—	1	100
	Doripenem	—	—	0.06	100
	Imipenem	—	—	0.5	100
	Meropenem	—	—	0.06	100
	Amikacin	—	—	2	100
	Colistin (n=1)[d]	—	—	0.5	100
	Tigecycline	—	—	1	100
	Levofloxacin	—	—	0.5	100
OXA–48–like–positive (6)[i]	Ceftazidime–avibactam	—[b]	—	0.25 – 2	100
	Ceftazidime	—	—	0.5 – >128	16.7
	Cefepime	—	—	≤0.12 – >16	16.7
	Aztreonam	—	—	0.12 – >128	16.7
	Piperacillin–tazobactam	—	—	128 – >128	0
	Doripenem	—	—	0.25 – >4	83.3
	Imipenem	—	—	1 – >8	33.3
	Meropenem	—	—	1 – >8	33.3
	Amikacin	—	—	1 – 8	100
	Colistin (n=6)[d]	—	—	0.25 – >4	83.3
	Tigecycline	—	—	0.12 – 0.5	100
	Levofloxacin	—	—	>4 – >4	0
MBL–positive (15)[j]	Ceftazidime–avibactam	>128	>128	64 – >128	0
	Ceftazidime	>128	>128	>128 – >128	0
	Cefepime	>16	>16	>16 – >16	0
	Aztreonam	128	>128	0.06 – >128	20.0
	Piperacillin–tazobactam	>128	>128	4 – >128	6.7
	Doripenem	>4	>4	>4 – >4	0
	Imipenem	>8	>8	>8 – >8	0
	Meropenem	>8	>8	>8 – >8	0
	Amikacin	4	>32	1 – >32	80.0
	Colistin (n=11)[d]	0.5	>4	0.25 – >4	81.8
	Tigecycline	1	2	0.06 – 2	100
	Levofloxacin	>4	>4	0.06 – >4	26.7
P. aeruginosa (112)	Ceftazidime–avibactam	128	>128	16 – >128	0
ESBL–positive (15)[k,l]	Ceftazidime	>128	>128	>128 – >128	0
	Cefepime	>16	>16	>16 – >16	0
	Aztreonam	>128	>128	128 – >128	0
	Piperacillin–tazobactam	128	>128	16 – >128	6.7
	Doripenem	>4	>4	4 – >4	0
	Imipenem	>8	>8	4 – >8	0
	Meropenem	>8	>8	8 – >8	0
	Amikacin	32	>32	8 – >32	40.0
	Colistin (n=12)[d]	2	2	2 – 2	100
	Levofloxacin	>4	>4	>4 – >4	0
GES carbapenemase–positive (2)[k,m]	Ceftazidime–avibactam	—[b]	—	4 – 4	100
	Ceftazidime	—	—	8 – 16	50.0
	Cefepime	—	—	16 – 16	0
	Aztreonam	—	—	8 – 16	50.0
	Piperacillin–tazobactam	—	—	64 – 64	0
	Doripenem	—	—	>4 – >4	0
	Imipenem	—	—	>8 – >8	0
	Meropenem	—	—	>8 – >8	0
	Amikacin	—	—	>32 – >32	0
	Colistin (n=2)[d]	—	—	2 – 2	100
	Levofloxacin	—	—	>4 – >4	0
GES, Spectrum undefined (1)[k,n]	Ceftazidime–avibactam	—[b]	—	32	0
	Ceftazidime	—	—	>128	0

Organism/ Genotype (no. of isolates)[a]	Antimicrobial agent	MIC (µg/ml)[b]			% Susceptible[c]
		MIC_{50}	MIC_{90}	Range	
	Cefepime	—	—	>16	0
	Aztreonam	—	—	32	0
	Piperacillin–tazobactam	—	—	32	0
	Doripenem	—	—	>4	0
	Imipenem	—	—	>8	0
	Meropenem	—	—	>8	0
	Amikacin	—	—	32	0
	Colistin (n=1)[d]	—	—	1	100
	Levofloxacin	—	—	>4	0
MBL–positive (20)[k,o]	Ceftazidime–avibactam	128	>128	64 – >128	0
	Ceftazidime	>128	>128	64 – >128	0
	Cefepime	>16	>16	>16 – >16	0
	Aztreonam	128	>128	16 – >128	0
	Piperacillin–tazobactam	>128	>128	32 – >128	0
	Doripenem	>4	>4	>4 – >4	0
	Imipenem	>8	>8	>8 – >8	0
	Meropenem	>8	>8	>8 – >8	0
	Amikacin	>32	>32	4 – >32	10.0
	Colistin (n=12)[d]	2	4	1 – 4	75.0
	Levofloxacin	>4	>4	>4 – >4	0
No acquired β–lactamase detected (74)[k]	Ceftazidime–avibactam	4	16	1 – >128	82.4
	Ceftazidime	4	64	1 – >128	66.2
	Cefepime	8	>16	1 – >16	66.2
	Aztreonam	16	64	2 – >128	40.5
	Piperacillin–tazobactam	32	>128	4 – >128	48.6
	Doripenem	4	>4	0.12 – >4	28.4
	Imipenem	>8	>8	1 – >8	4.1
	Meropenem	8	>8	0.12 – >8	23.0
	Amikacin	4	16	1 – >32	93.2
	Colistin (n=55)[d]	2	2	1 – 8	92.7
	Levofloxacin	2	>4	0.25 – >4	55.4

[a] OSBL, original–spectrum β–lactamase (e.g. TEM–1, SHV–1, SHV–11); ESBL, extended–spectrum β–lactamase; MBL, metallo–β–lactamase.

[b] —, MIC_{50} and MIC_{90} were not calculated for n <10 isolates.

[c] % Susceptibility was determined according to CLSI 2016 breakpoints with the exception of ceftazidime–avibactam and tigecycline, where US FDA breakpoints were applied. Because CLSI colistin breakpoints are not available for the *Enterobacteriaceae*, susceptibility for this organism group was determined using the EUCAST 2016 breakpoints for colistin.

[d] Values are for colistin tested without 0.002% polysorbate–80; isolates collected in 2014–2015 only.

[e] Includes isolates carrying CTX–M–3; CTX–M–12; CTX–M–14; CTX–M–15; CTX–M–24; CTX–M–27; CTX–M–28; CTX–M–40; CTX–M–55; SHV–2; SHV–2A; SHV–12; VEB–1; VEB–17; CTX–M–15 and other CTX–M–type ESBLs (CTX–M–14; CTX–M–27; CTX–M–40; CTX–M–79); CTX–M–15 and SHV–type ESBLs (SHV–2A; SHV–5; SHV–28; SHV–31); CTX–M–55 and CTX–M–14; CTX–M–55 and CTX–M–75; SHV–12 and CTX–M–type ESBLs (CTX–M–14; CTX–M–15; CTX–M–55); and the chromosomal ESBL common to *K. oxytoca* with or without SHV–type or TEM–type OSBLs or enzymes of undefined spectrum.

[f] Includes isolates carrying CMY–2; CMY–42; and the chromosomal AmpC common to *Citrobacter* spp., *Enterobacter* spp. and *M. morganii* with or without SHV–type or TEM–type OSBLs or enzymes of undefined spectrum.

[g] Includes isolates carrying CMY–2 and CTX–M–15; CMY–2 and CTX–M–55; CMY–42 and CTX–M–24; DHA–1 and CTX–M–15; DHA–1 and CTX–M–15 and SHV–38; and the chromosomal AmpC common to *Enterobacter* spp. and VEB–1, VEB–14, or CTX–M–15.

[h] Isolate carrying GES–13 and CTX–M–3.

[i] Includes isolates carrying OXA–48; OXA–48 and CTX–M–55; OXA–181 and CTX–M–15; OXA–181 and CTX–M–15 and CMY–2; OXA–232 and CTX–M–15 and CMY–27; with and without SHV–OSBLs and/or TEM–OSBLs.

[j] Includes isolates carrying NDM–1; NDM–1 and CTX–M–15; NDM–1 and CTX–M–27; NDM–1 and CTX–M–15 and CTX–M–27; NDM–1 and CTX–M–14 and SHV–12; NDM–1 and CTX–M–15 and OXA–232; NDM–5 and CMY–42; and the chromosomal AmpC common to *Enterobacter* spp. with IMP–14 or NDM–1; with or without SHV–OSBLs and/or TEM–OSBLs.

[k] Assumed to carry the chromosomal AmpC common to *P. aeruginosa*.

[l] Includes isolates carrying VEB–1; VEB–1A; VEB–1B; VEB–11; and VEB–12.

[m] Isolates carrying GES–5.

[n] Isolate carrying GES–29.

[o] Includes isolates carrying IMP–1; IMP–7; IMP–14; IMP–48; VIM–2; VIM–2 and VEB–1; VIM–2 and VEB–1B; VIM–5 and VEB–14; VIM–45 and VEB–1B; and VIM–49 and VEB–14.