

## Supplementary documents

### Supplementary Tables

**Table S1** In vitro antimicrobial susceptibilities of *Enterobacteriaceae* strains causing IAIs between 2007 and 2016

Antibiotics	R%	I%	S%	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC range
MEM	2.0	0.1	97.9	0.032	0.5	0.008-32
IPM	1.5	0.2	98.3	0.125	1	0.008-32
TGC	0.1	0.1	99.8	0.25	0.5	0.064-4
AMK	5.4	1.2	93.4	2	8	0.016-256
CSL	11.2	12.2	76.6	8	64	0.016-256
FEP	29.5	22.6	47.9	4	64	0.008-512
CAZ	28.4	7.9	63.7	2	64	0.032-256
FOX	24.9	15.3	59.8	8	64	0.064-256
CTX	66.2	0.9	32.9	32	256	0.016-256
CRO	65.6	0.5	33.9	32	256	0.016-256
MNO	27.2	13.8	59.0	4	32	0.016-256
LVX	65.1	4.4	30.5	16	32	0.016-128
CIP	68.9	1.4	29.7	32	64	0.004-256

**Abbreviations:** IAI, intra-abdominal infection; R%, the percentage of antibiotic resistance; I%, the percentage of antibiotic intermediary; S%, the percentage of antibiotic susceptibility; MIC, minimal inhibitory concentrations; AMK, amikacin; CAZ, ceftazidime; CIP, ciprofloxacin; CRO, ceftriaxone; CSL, cefoperazone/sulbactam; CTX, cefotaxime; FEP, cefepime; FOX, ceftiofur; IPM, imipenem; LVX, levofloxacin; MEM, meropenem; MNO, minocycline; TGC, tigecycline.

**Table S2** In vitro antimicrobial susceptibilities of *Escherichia coli* strains causing IAIs between 2007 and 2016

Antibiotics	<i>Escherichia coli</i> , ESBL(+) (n=491)						<i>Escherichia coli</i> , ESBL(-) (n=482)					
	R%	I%	S%	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC range	R%	I%	S%	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC range
FOX	28.2	21.4	50.4	8	64	0.064-256	21.6	9.3	69.1	8	128	0.125-256
CRO	99.2	0	0.8	128	256	0.064-256	32.0	1.0	67.0	0.064	64	0.016-256
CSL	19.5	20.2	60.3	16	64	0.032-256	2.9	4.4	92.7	1	16	0.032-256
CTX	99.2	0	0.8	128	256	0.032-256	33.2	1.9	64.9	0.125	64	0.016-256
CAZ	46.7	12.8	40.5	8	64	0.25-256	10.2	2.9	86.9	0.25	16	0.032-256
FEP	53.4	34.7	11.9	16	64	0.032-1328	4.7	10.2	85.1	0.064	4	0.008-256
IPM	1.6	0.1	98.3	0.125	1	0.032-32	0.6	0.2	99.2	0.032	0.5	0.008-32
MEM	2.0	0.2	97.8	0.064	1	0.016-32	1.0	0.3	98.7	0.016	0.032	0.008-32
CIP	86.1	1.2	12.7	32	64	0.008-256	52.1	1.4	46.5	4	32	0.008-64
LVX	81.3	4.8	13.9	16	32	0.016-128	49.2	3.9	46.9	4	32	0.016-64
AMK	7.7	1.6	90.7	2	16	0.125-256	3.1	0.8	96.1	2	4	0.125-256
MNO	34.9	12.8	52.3	4	32	0.125-256	19.7	14.7	65.6	2	16	0.016-128
TGC	0	0	100	0.25	0.5	0.064-2	0.2	0.2	99.6	0.25	0.5	0.064-8

**Abbreviations:** IAI, intra-abdominal infection; ESBL, extended-spectrum beta-lactamase; R%, the percentage of antibiotic resistance; I%, the percentage of antibiotic intermediary; S%, the percentage of antibiotic susceptibility; MIC, minimal inhibitory concentrations; AMK, amikacin; CAZ, ceftazidime; CIP, ciprofloxacin; CRO, ceftriaxone; CSL, cefoperazone/sulbactam; CTX, cefotaxime; FEP, cefepime; FOX, ceftioxitin; IPM, imipenem; LVX, levofloxacin; MEM, meropenem; MNO, minocycline; TGC, tigecycline.

**Table S3** In vitro antimicrobial susceptibilities of *Klebsiella pneumoniae* strains causing IAIs between 2007 and 2016

Antibiotics	<i>Klebsiella pneumoniae</i> , ESBL(+) (n=77)						<i>Klebsiella pneumoniae</i> , ESBL(-) (n=237)					
	R%	I%	S%	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC range	R%	I%	S%	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC range
FOX	14.3	11.7	74.0	4	32	2-256	28.0	6.7	65.3	4	256	0.12-256
CRO	89.6	6.5	3.9	64	256	0.032-256	23.7	0.9	75.4	0.064	128	0.016-256
CSL	28.6	14.3	57.1	16	64	0.5-256	10.6	4.6	84.8	0.5	64	0.016-256
CTX	90.9	2.6	6.5	64	256	0.032-256	25.4	0.9	73.7	0.064	64	0.016-256
CAZ	50.7	6.4	42.9	8	128	1-256	16.5	2.6	80.9	0.25	64	0.016-256
FEP	40.9	26.7	32.4	8	32	0.032-256	9.5	7.6	82.9	0.064	8	0.016-256
IPM	6.5	1.3	92.2	0.25	1	0.064-32	0.8	0.8	98.4	0.125	1	0.008-32
MEM	7.8	0.2	92.0	0.125	0.5	0.016-32	1.3	0.5	98.2	0.032	0.25	0.008-32
CIP	50.7	9.0	40.3	2	64	0.016-64	22.6	5.5	71.9	0.125	32	0.016-64
LVX	45.5	5.1	49.4	2	32	0.032-128	17.0	5.5	77.5	0.25	32	0.008-128
AMK	16.9	1.3	81.8	2	256	0.125-256	8.0	0	92.0	1	4	0.032-256
MNO	46.8	16.8	36.4	8	64	0.125-256	30.5	16.5	53.0	4	64	0.125-256
TGC	1.3	3.9	94.8	0.5	2	0.125-8	1.7	4.7	93.6	0.5	2	0.125-16

**Abbreviations:** IAI, intra-abdominal infection; ESBL, extended-spectrum beta-lactamase; R%, the percentage of antibiotic resistance; I%, the percentage of antibiotic intermediary; S%, the percentage of antibiotic susceptibility; MIC, minimal inhibitory concentrations; AMK, amikacin; CAZ, ceftazidime; CIP, ciprofloxacin; CRO, ceftriaxone; CSL, cefoperazone/sulbactam; CTX, cefotaxime; FEP, cefepime; FOX, ceftioxitin; IPM, imipenem; LVX, levofloxacin; MEM, meropenem; MNO, minocycline; TGC, tigecycline.

**Table S4** In vitro antimicrobial susceptibilities of *Pseudomonas aeruginosa* and *Acinetobacter baumannii* strains causing IAIs between 2007 and 2016

Antibiotics	<i>Pseudomonas aeruginosa</i> (n=230)						<i>Acinetobacter baumannii</i> (n=186)					
	R%	I%	S%	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC range	R%	I%	S%	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC range
TZP	24.8	15.2	60.0	8	128	1-256	74.2	2.1	23.7	256	256	0.016-256
CAZ	25.8	4.4	69.8	4	64	0.125-256	75.3	1.0	23.7	64	256	0.125-256
FEP	19.6	14.0	66.4	4	64	0.032-256	73.1	2.9	24.0	64	256	0.032-256
IPM	33.5	8.7	57.8	2	32	0.125-256	69.4	1.0	29.6	32	64	0.125-256
MEM	28.3	8.3	63.4	1	16	0.016-256	67.7	2.2	30.1	32	64	0.008-128
CIP	26.5	2.6	70.9	0.25	32	0.008-64	75.8	0.5	23.7	32	32	0.032-32
LVX	27.8	5.7	66.5	1	32	0.064-32	59.7	17.7	22.6	8	16	0.064-32
AMK	14.8	1.8	83.4	4	256	0.125-256	68.7	1.0	30.3	256	256	0.125-256
MNO	-	-	-	32	128	2-256	23.7	9.1	67.2	4	16	0.032-32
TGC	-	-	-	8	32	1-32	2.7	12.9	84.4	2	4	0.125-16

**Abbreviations:** IAI, intra-abdominal infection; R%, the percentage of antibiotic resistance; I%, the percentage of antibiotic intermediary; S%, the percentage of antibiotic susceptibility; MIC, minimal inhibitory concentrations; AMK, amikacin; CAZ, ceftazidime; CIP, ciprofloxacin; FEP, cefepime; IPM, imipenem; LVX, levofloxacin; MEM, meropenem; MNO, minocycline; TZP, piperacillin/tazobactam; TGC, tigecycline.

**Table S5** In vitro antimicrobial susceptibilities of MRSA and MSSA strains causing IAIs between 2007 and 2016

Antibiotics	MRSA (n=51)						MSSA (n=89)					
	R%	I%	S%	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC range	R%	I%	S%	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC range
CIP	89.7	1.1	9.2	64	64	0.25-64	9.8	3.9	86.3	0.5	2	0.125-32
LVX	89.7	0	10.3	32	64	0.125-128	9.8	0	90.2	0.25	1	0.125-8
MFX	87.4	2.3	10.3	8	8	0.016-64	9.8	0	90.2	0.032	0.125	0.008-8
CHL	6.9	6.9	86.2	8	16	4-64	7.9	3.9	88.2	8	16	1-64
ERY	83.9	2.3	13.8	256	256	0.125-256	60.8	2.0	37.2	256	256	0.125-256
TEC	0	0	100	2	2	0.25-4	0	0	100	1	1	0.25-4
VAN	0	0	100	1	1	0.25-2	0	0	100	0.5	1	0.25-1
SXT	14.9	0	85.1	0.25	16	0.032-64	5.9	0	94.1	0.125	2	0.016-64
RIF	58.6	1.2	40.2	256	256	0.002-256	2.0	0	98.0	0.008	0.016	0.002-128
MNO	3.5	32.1	64.4	4	8	0.064-32	0	0	100	0.125	0.125	0.032-2

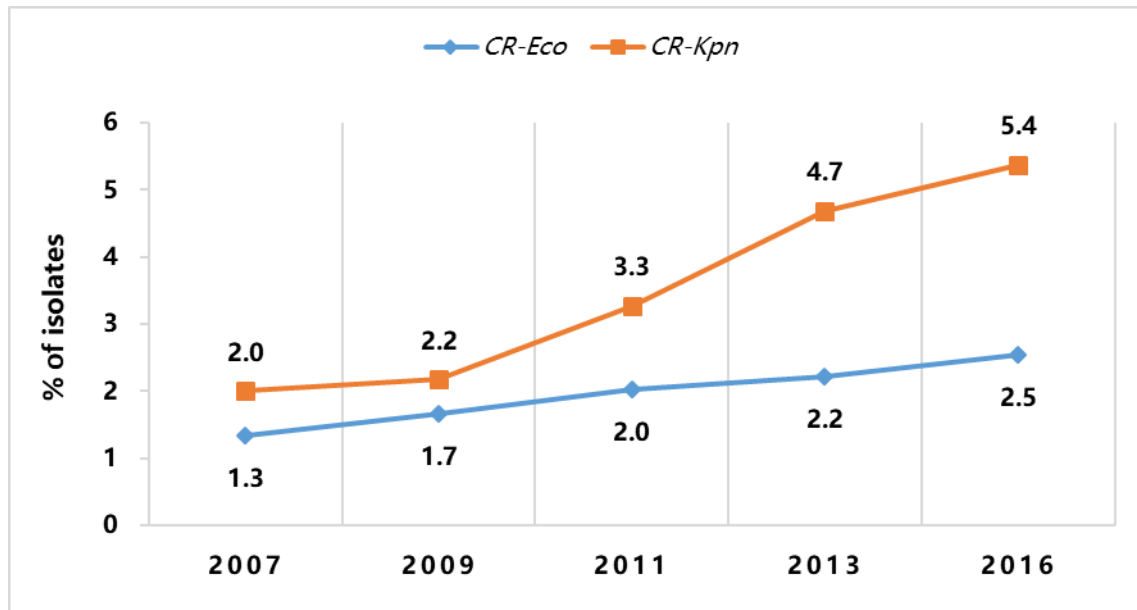
**Abbreviations:** IAI, intra-abdominal infection; MRSA, methicillin-resistant *Staphylococcus aureus*; MSSA, methicillin-susceptible *Staphylococcus aureus*; R%, the percentage of antibiotic resistance; I%, the percentage of antibiotic intermediary; S%, the percentage of antibiotic susceptibility; MIC, minimal inhibitory concentrations; CHL, chloramphenicol; CIP, ciprofloxacin; ERY, erythromycin; LVX, levofloxacin; MFX, moxifloxacin; MNO, minocycline; RIF, rifampicin; SXT, sulfamethoxazole; TEC, teicoplanin; VAN, vancomycin.

**Table S6** In vitro antimicrobial susceptibilities of *Enterococcus faecalis* and *Enterococcus faecium* strains causing IAIs between 2007 and 2016

Antibiotics	<i>Enterococcus faecalis</i> (n=175)						<i>Enterococcus faecium</i> (n=312)					
	R%	I%	S%	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC range	R%	I%	S%	MIC <sub>50</sub>	MIC <sub>90</sub>	MIC range
AMP	6.5	0	93.5	1	8	0.032-256	84.0	0	16.0	128	256	0.125-256
IPM	-	-	-	2	8	0.016-256	-	-	-	256	256	0.125-256
CIP	36.6	9.7	53.7	1	64	0.25-64	84.9	3.6	11.5	32	64	0.125-64
LVX	35.1	1.1	63.8	2	64	0.25-128	81.9	2.6	15.5	64	64	0.25-128
ERY	71.7	10.4	17.9	256	256	0.064-256	82.2	9.9	7.9	256	256	0.032-256
TEC	0	0.6	99.4	0.25	0.5	0.032-32	1.0	0.3	98.7	0.5	0.5	0.064-32
VAN	0	0	100	1	2	0.125-4	1.9	0.7	97.4	0.5	2	0.25-128
MNO	52.0	13.3	34.7	16	16	0.032-32	27.6	10.9	61.5	0.125	16	0.032-32

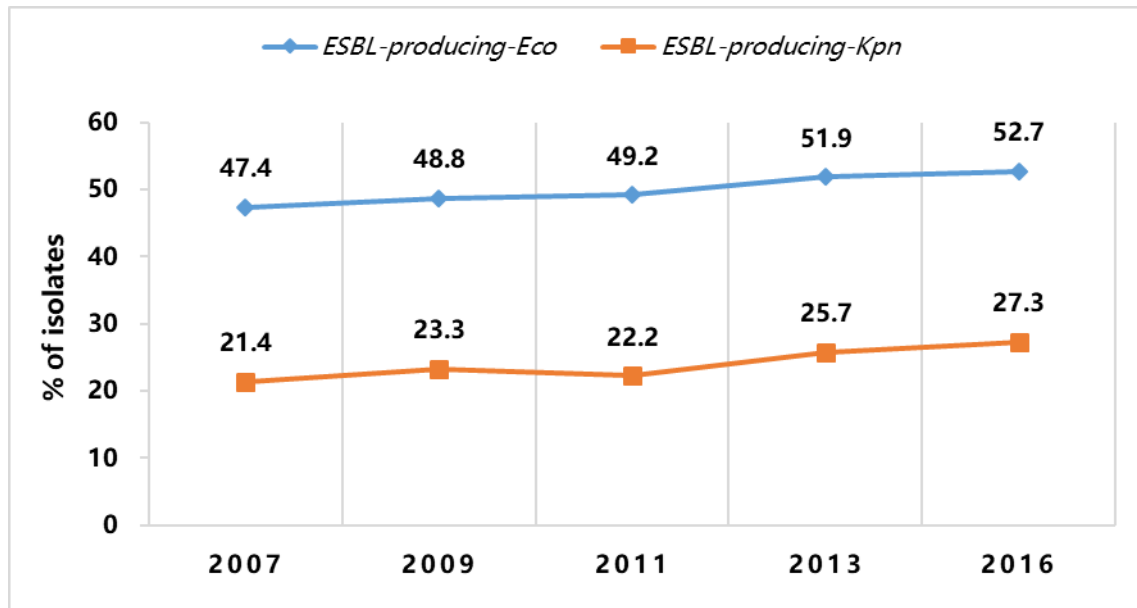
**Abbreviations:** IAI, intra-abdominal infection; R%, the percentage of antibiotic resistance; I%, the percentage of antibiotic intermediary; S%, the percentage of antibiotic susceptibility; MIC, minimal inhibitory concentrations; AMP, ampicillin; CIP, ciprofloxacin; ERY, erythromycin; IPM, imipenem; LVX, levofloxacin; MNO, minocycline; TEC, teicoplanin; VAN, vancomycin.

Supplementary Figures



**Figure S1** Rates of CR-Eco and CR-Kpn isolates causing IAIs between 2007 and 2016.

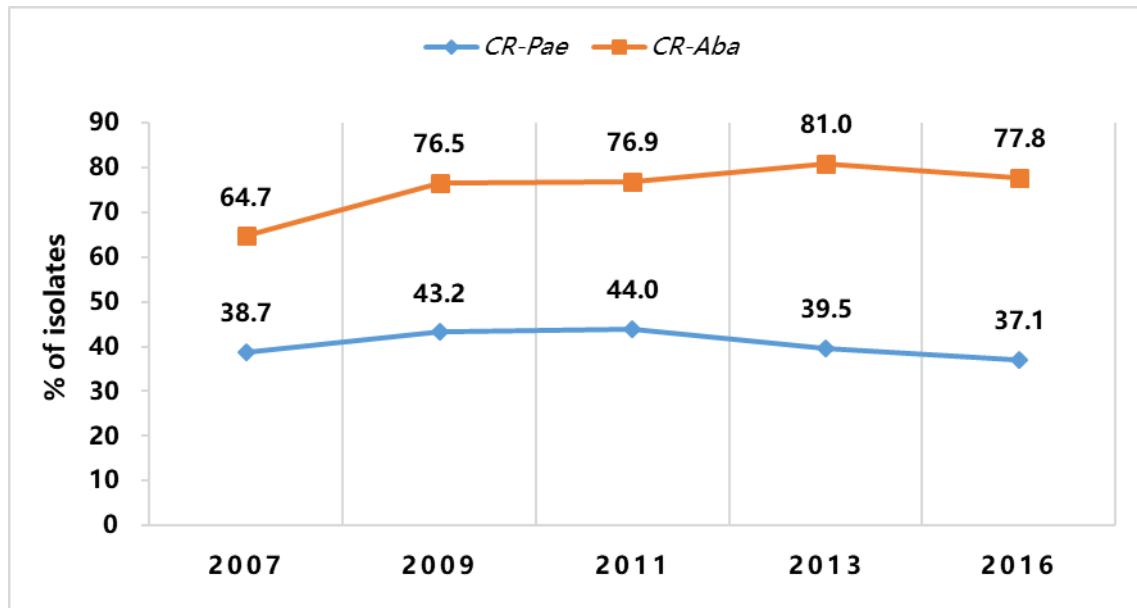
**Abbreviations:** CR-Eco, carbapenem-resistant *Escherichia coli*; CR-Kpn, carbapenem-resistant *Klebsiella pneumoniae*.



**Figure S2** Rates of ESBL-producing-*Eco* and ESBL-producing-*Kpn* isolates causing IAIs between 2007 and 2016.

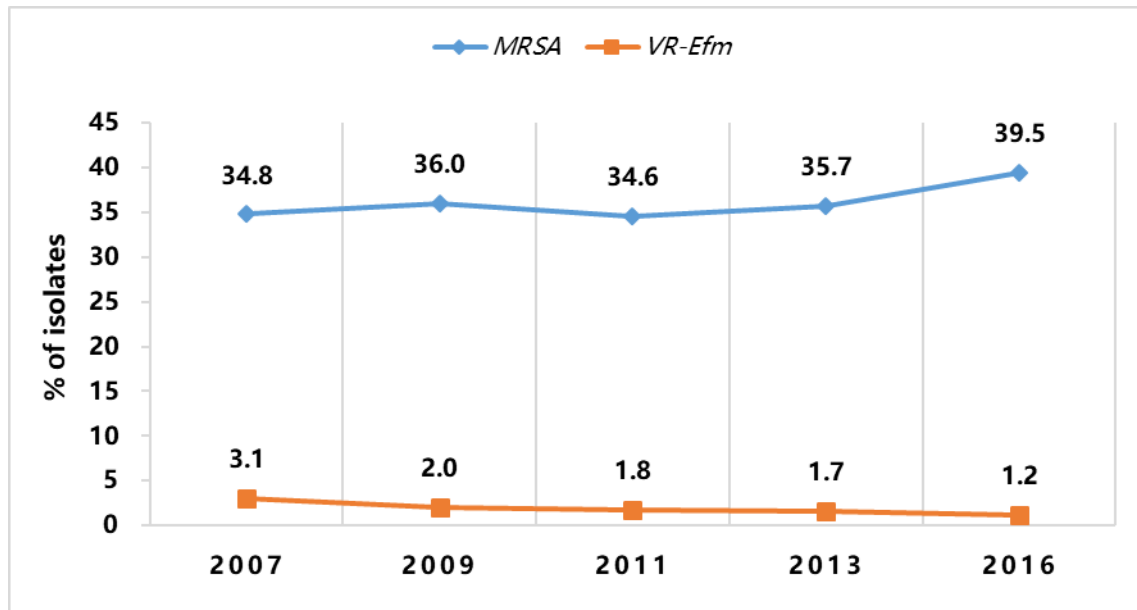
**Abbreviations:** ESBL, extended-spectrum  $\beta$ -lactamase; *Eco*, *Escherichia coli*; *Kpn*, *Klebsiella pneumoniae*.





**Figure S3** Rates of CR-*Pae* and CR-*Aba* isolates causing IAIs between 2007 and 2016.

**Abbreviations:** CR-*Pae*, carbapenem-resistant *Pseudomonas aeruginosa*; CR-*Aba*, carbapenem-resistant *Acinetobacter baumannii*.



**Figure S4** Rates of MRSA and VR-*Efm* isolates causing IAIs between 2007 and 2016.  
**Abbreviations:** MRSA, methicillin-resistant *Staphylococcus aureus*; VR-*Efm*, vancomycin-resistant *Enterococcus faecium*.