

Supplementary Table S1: Gram negative strains for different samples

Bacterial Family	Bacterial species	Number of strains			
		R	C	O	Total
Aeromonadaceae	<i>Aeromonas hydrophila</i>			3	3
	<i>Aeromonas</i> spp			1	1
Alcaligenaceae	<i>Achromobacter denitrificans</i>		1		1
	<i>Achromobacter insolitus</i>		1	1	2
	<i>Alcaligenes faecalis</i>		1		1
	<i>Alcaligenes xylosoxidans</i>			1	1
Enterobacteriaceae Group	<i>Citrobacter amalonaticus</i>	3		2	5
	<i>Citrobacter farmeri</i>	1		1	2
	<i>Citrobacter freundii</i>	16		5	21
	<i>Citrobacter sedlakii</i>	2			2
	<i>Citrobacter</i> spp	31	3	12	46
	<i>Citrobacter youngae</i>	1			1
	<i>Cronobacter muytjensis</i>		1		1
	<i>Cronobacter zurichensis</i>			1	1
	<i>Enterobacter aerogenes</i>	2	1	9	12
	<i>Enterobacter agglomerans</i>	2			2
	<i>Enterobacter asburiae</i>			1	1
	<i>Enterobacter cancerogenus</i>	11	2	6	19
	<i>Enterobacter cloacae</i>	38	5	28	71
	<i>Enterobacter gergoviae</i>			1	1
	<i>Enterobacter kobei</i>	4	1	5	10
	<i>Enterobacter ludwigii</i>	7	1	4	12
	<i>Enterobacter</i> spp	6	1	4	11
	<i>Escherichia coli</i>	6	1	6	13
	<i>Hafnia alvei</i>	19	4	24	47
	<i>Klebsiella oxytoca</i>	3		10	13
	<i>Klebsiella pneumoniae</i>	2	1	2	5
	<i>Kluyvera intermedia</i>			2	2
	<i>Leclercia adecarboxilata</i>			1	1
	<i>Moellerella wisconsensis</i>			2	2
	<i>Morganella morganii</i>	2	1	13	16
	<i>Pantoea agglomerans</i>		1		1
	<i>Proteus mirabilis</i>	1		4	5
	<i>Proteus vulgaris</i>	1	1		2
	<i>Providencia alcalifaciens</i>			2	2
	<i>Providencia rettgeri</i>	8	2	7	17
	<i>Providencia rustigianii</i>	1	1	1	3
	<i>Providencia</i> spp			1	1
	<i>Rahnella aquatilis</i>			1	1
	<i>Salmonella</i> Manhattan ^a	1			1
	<i>Serratia liquefaciens</i>	1		3	4
	<i>Serratia marcescens</i>	2		19	21
	<i>Serratia plymuthica</i>	1			1
	<i>Shigella flexneri</i>		1		1
Moraxellaceae	<i>Acinetobacter</i> spp.		1		1
Pasteurellaceae	<i>Pasteurella aerogenes</i>	1			1

Pseudomonadaceae	<i>Pseudomonas aeruginosa</i>	2	11	13
	<i>Pseudomonas aureofaciens</i>		1	1
	<i>Pseudomonas</i> spp	1		1
	<i>Pseudomonas stutzeri</i>	2	2	4
	<i>Not id</i>	1	1	4
Total		178	36	199
				413

^aSalmonella isolate named by the respective serotype of *Salmonella enterica* ssp. *enterica*.

Supplementary Table S2: Gram negative strains for species of bat

		Number of isolates				
Bacterial Family	Bacterial species	<i>Miniopterus schreibersii</i>	<i>Myotis capaccinii</i>	<i>Myotis myotis</i>	<i>Rhinolophus hipposideros</i>	Total
Aeromonadaceae	<i>Aeromonas hydrophila</i>	1			2	3
	<i>Aeromonas</i> spp		1			1
Alcaligenaceae	<i>Achromobacter denitrificans</i>				1	1
	<i>Achromobacter insolitus</i>	1			1	2
	<i>Alcaligenes faecalis</i>	1				1
	<i>Alcaligenes xylosoxidans</i>				1	1
Enterobacteriaceae Group	<i>Citrobacter amalonaticus</i>	1		4		5
	<i>Citrobacter farmeri</i>	2				2
	<i>Citrobacter freundii</i>	8	2	3	8	21
	<i>Citrobacter sedlakii</i>			2		2
	<i>Citrobacter</i> spp	19		17	10	46
	<i>Citrobacter youngae</i>	1				1
	<i>Cronobacter muytjensis</i>			1		1
	<i>Cronobacter zurichensis</i>			1		1
	<i>Enterobacter aerogenes</i>	2		9	1	12
	<i>Enterobacter agglomerans</i>	2				2
	<i>Enterobacter asburiae</i>				1	1
	<i>Enterobacter cancerogenus</i>	9		5	5	19
	<i>Enterobacter cloacae</i>	42		20	9	71
	<i>Enterobacter gergoviae</i>				1	1
	<i>Enterobacter kobei</i>	6		2	2	10
	<i>Enterobacter ludwigii</i>	6		4	2	12
	<i>Enterobacter</i> spp	8		2	1	11
	<i>Escherichia coli</i>	4		2	7	13
	<i>Hafnia alvei</i>	21	2	6	18	47
	<i>Klebsiella oxytoca</i>	2	2	2	7	13
	<i>Klebsiella pneumoniae</i>	1		4		5
	<i>Kluyvera intermedia</i>	1		1		2
	<i>Leclercia adecarboxilata</i>			1		1
	<i>Moellerella wisconsensis</i>				2	2
	<i>Morganella morganii</i>	8	1	1	6	16
	<i>Pantoea agglomerans</i>	1				1
	<i>Proteus mirabilis</i>	2		1	2	5
	<i>Proteus vulgaris</i>	1			1	2

	<i>Providencia alcalifaciens</i>	1		1	2
	<i>Providencia rettgeri</i>		1	8	17
	<i>Providencia rustigianii</i>	3			3
	<i>Providencia spp</i>			1	1
	<i>Rahnella aquatilis</i>	1			1
	<i>Salmonella enterica</i>			1	1
	<i>Serratia liquefaciens</i>	1	1	1	4
	<i>Serratia marcescens</i>	7	4	3	21
	<i>Serratia plymuthica</i>			1	1
	<i>Shigella flexneri</i>			1	1
Moraxellaceae	<i>Acinetobacter spp.</i>	1			1
Pasteurellaceae	<i>Pasteurella aerogenes</i>			1	1
Pseudomonadaceae	<i>Pseudomonas aeruginosa</i>	3		10	13
	<i>Pseudomonas aureofaciens</i>	1			1
	<i>Pseudomonas spp</i>	1			1
	<i>Pseudomonas stutzeri</i>	2		2	4
	Not id.	4	1	1	6
	Total	175/91	15/8	112/47	111/43
					413

Supplementary Table S3: Gram positive strains for different samples.

Bacterial Family	Bacterial species	Number of isolates		
		C	O	Total
Aerococcaceae	<i>Aerococcus viridans</i>	1	2	3
Bacillaceae	<i>Bacillus amiloliquefaciens</i>	3	1	4
	<i>Bacillus atrophaeus</i>	1		1
	<i>Bacillus brevis</i>	1	1	2
	<i>Bacillus cereus</i>	2	3	5
	<i>Bacillus circulans</i>		2	2
	<i>Bacillus clausii</i>	2		2
	<i>Bacillus coagulans</i>	1		1
	<i>Bacillus fastidiosus</i>	1		1
	<i>Bacillus firmus</i>	1		1
	<i>Bacillus laterosporus</i>	1		1
	<i>Bacillus licheniformis</i>	4	11	15
	<i>Bacillus macerans</i>	1		1
	<i>Bacillus megaterium</i>	11	3	14
	<i>Bacillus pantothenicus</i>	1		1
	<i>Bacillus pasteurii</i>	1		1
	<i>Bacillus pumilis</i>	3	2	5
	<i>Bacillus simplex</i>	2		2
	<i>Bacillus sphaericus</i>	2		2
	<i>Bacillus spp</i>	2		2
	<i>Bacillus subtilis</i>	6	2	8
Enterococcaceae	<i>Enterococcus casseliflavus</i>	2	1	3
	<i>Enterococcus faecalis</i>	9	19	28
Lactobacillaceae	<i>Alloicoccus otitis</i>		1	1
Paenibacillaceae	<i>Paenibacillus durus</i>		1	1
Staphylococcaceae	<i>Staphylococcus aureus</i>		1	1

	<i>Staphylococcus capitis</i>	2	1	3
	<i>Staphylococcus cohnii</i> subsp. 1	2	2	4
	<i>Staphylococcus cohnii</i> subsp. 2	5		5
	<i>Staphylococcus epidermidis</i>	9		9
	<i>Staphylococcus gallinarum</i>	1	1	2
	<i>Staphylococcus haemolyticus</i>	2	2	4
	<i>Staphylococcus hominis</i>	1		1
	<i>Staphylococcus koosi</i>		3	3
	<i>Staphylococcus lentus</i>	2	5	7
	<i>Staphylococcus saprophyticus</i>	2	1	3
	<i>Staphylococcus sciuri</i>	1	11	12
	<i>Staphylococcus simulans</i>	2		2
	<i>Staphylococcus warneri</i>	8	2	10
	<i>Staphylococcus xylosus</i>	5	2	7
	Not id.	1	1	2
Total		101	81	183

Supplementary Table S4: Gram positive strains for species of bat

Bacterial Family	Bacterial species	Number of isolates				Total
		<i>Miniopterus schreibersii</i>	<i>Myotis capaccinii</i>	<i>Myotis myotis</i>	<i>Rhinolophus hipposideros</i>	
Aerococcaceae	<i>Aerococcus viridans</i>	2	1			3
	<i>Bacillus amyloliquefaciens</i>	2		2		4
	<i>Bacillus atrophaeus</i>			1		1
	<i>Bacillus brevis</i>	1			1	2
	<i>Bacillus cereus</i>	1	1	1	2	5
	<i>Bacillus circulans</i>	2				2
	<i>Bacillus clausii</i>	1			1	2
	<i>Bacillus coagulans</i>			1		1
	<i>Bacillus fastidiosus</i>	1				1
	<i>Bacillus firmus</i>	1				1
Bacillaceae	<i>Bacillus laterosporus</i>	1				1
	<i>Bacillus licheniformis</i>	7		3	5	15
	<i>Bacillus macerans</i>			1		1
	<i>Bacillus megaterium</i>	12		1	1	14
	<i>Bacillus pantothenicus</i>	1				1
	<i>Bacillus pasteurii</i>	1			1	2
	<i>Bacillus pumilis</i>	2		2	1	5
	<i>Bacillus simplex</i>				2	2
	<i>Bacillus sphaericus</i>	2				2
	<i>Bacillus spp</i>	2				2
Enterococcaceae	<i>Bacillus subtilis</i>	4		3	1	8
	<i>Enterococcus casseliflavus</i>		1	2		3
Lactobacillaceae	<i>Enterococcus faecalis</i>	14	2	7	5	28
	<i>Alloicoccus otitis</i>				1	1
Paenibacillaceae	<i>Paenibacillus durus</i>	1				1
Staphylococcaceae	<i>Staphylococcus aureus</i>			1		1
	<i>Staphylococcus capitis</i>	1			2	3
	<i>Staphylococcus cohnii</i> subsp. 1	1		2	1	4

<i>Staphylococcus cohnii</i> subsp. 2	1		4		5
<i>Staphylococcus epidermidis</i>	4	1	1	3	9
<i>Staphylococcus gallinarum</i>	1		1		2
<i>Staphylococcus haemolyticus</i>	3			1	4
<i>Staphylococcus hominis</i>		1			1
<i>Staphylococcus koosi</i>	3				3
<i>Staphylococcus lentus</i>	2		3	2	7
<i>Staphylococcus saprophyticus</i>	2		1		3
<i>Staphylococcus sciuri</i>	3		7	2	12
<i>Staphylococcus simulans</i>	2				2
<i>Staphylococcus warneri</i>	8	1		1	10
<i>Staphylococcus xylosus</i>	5	1		1	7
Not id.	1	1			2
Total	95/91	10/8	44/47	34/43	183/189

Supplementary Table S5: List of antibiotics used in Gram negative antimicrobial susceptibility tests and relative inhibition halos diameters for resistant (R), intermediate (I) and sensitive (S) strains.

Class	Antibiotics	Code µg	Diameter (mm)		
			R <	I	S >
Aminoglycosides	gentamicin	CN 10	13	14-15	16
	streptomycin	S 10	11	12-14	15
	tobramycin	TOB 10	13	14-15	16
Carbapenems	imipenem	IMI 10	19	20-22	23
	meropenem	MRP 10	19	20-22	23
Cephalosporins	cefotaxime	CTX 30	22	23-25	26
	cefotaxime+clavulanic acid	CTL 40	22	23-25	26
	ceftazidime	CAZ 30	17	18-20	21
Chloramphenicol	chloramphenicol	C 30	12	13-17	18
Fluoroquinolones	ciprofloxacin	CIP 5	19	20-21	22
	enrofloxacin	ENR 5	15	16-20	21
Monobactams	aztreonam	ATM 30	17	18-20	21
Penicillins	amoxicillin	AML 30	13	14-17	18
	amoxicillin+clavulanic acid	AUG 30	13	14-17	18
	ampicillin	AMP 10	13	14-16	17
Polymyxins	colistin sulfate	CS 10	11	12-16	17
Quinolones	nalidixic acid	NA 30	13	14-18	19
Sulfonamides	co-trimoxazole	SXT 25	13	14-15	16
Tetracyclines	minocycline	MN 30	12	13-15	16
	tetracycline	TE 30	11	12-14	15

Supplementary Table S6: List of antibiotics used in Gram positive antimicrobial susceptibility tests and relative inhibition halos diameters for resistant (R), intermediate (I) and sensitive (S) strains.

Class	Antibiotics	Code µg	Diameter (mm)		
			R <	I	S >
Aminoglycosides	gentamicin	CN 10	12	13-14	15
	tobramycin	TOB 10	12	13-14	15
Carbapenems	imipenem	IMI 10	16	17-21	22

	meropenem	MRP 10	16	17-21	22
Cephalosporins	ceftazidime	CAZ 30	14	15-17	18
	cefovecin	CVN 10	14	15-20	21
	cefepime	FEP 30	14	15-17	18
	ceftaroline	CPT 30	23		23
Fluoroquinolones	enrofloxacin	ENR 5	17	18-20	21
Glycopeptides	vancomycin	VA 30	14	15-16	17
Lincosamides	lincomycin	MY 15	14	15-20	21
Macrolides	erythromycin	E 15	13	14-22	23
Penicillins	amoxicillin	AML 30	13	14-16	17
	amoxicillin+clavulanic acid	AUG 30	19		20
	ampicillin	AMP 10	13	14-16	17
	<i>Staphylococcus</i> spp.		28		29
	ampicillin+sulbactam	AMS 20	11	12-14	15
	oxacillin	OX 1	10	11-12	13
	<i>Staphylococcus</i> spp. coagulase - ticarcillin+clavulanic acid	TIM 85	18 22		19 23
Tetracyclines	minocycline	MN 30	14	15-18	19
	tetracycline	TE 30	11	12-14	15

Supplementary Table S7: MDR pattern in Gram-negative strains.

N. Classes	Antimicrobial Classes	Bacterial Genera and n. strains ()	Total strains
8	AMI; CEP; QUI; PEN; SUL; TET; PHE; POL	<i>Pseudomonas</i> (2)	2
	AMI; CAR; QUI; PEN; SUL; TET; PHE; POL	<i>Pseudomonas</i> (1)	1
	AMI; CEP; CAR; QUI; MON; PEN; SUL; POL	<i>Klebsiella</i> (1)	1
	AMI; CEP; CAR; QUI; MON; PEN; TET; POL	<i>Citrobacter</i> (1)	1
7	AMI; CEP; CAR; QUI; PEN; TET; POL	<i>Citrobacter</i> (3), <i>Enterobacter</i> (2)	5
	AMI; QUI; PEN; SUL; TET; PHE; POL	<i>Pseudomonas</i> (3)	3
	AMI; CEP; QUI; PEN; SUL; TET; POL	<i>Achromobacter</i> (1)	1
	AMI; CEP; CAR; QUI; MON; TET; POL	<i>Enterobacter</i> (1)	1
	AMI; CEP; MON; PEN; SUL; PHE; POL	<i>Enterobacter</i> (1)	1
	AMI; CEP; CAR; PEN; SUL; TET; POL	<i>Enterobacter</i> (1)	1
	AMI; CEP; QUI; PEN; SUL; TET; POL	<i>Pseudomonas</i> (1)	1
	AMI; CEP; CAR; MON; PEN; TET; POL	<i>Citrobacter</i> (1)	1
6	AMI; CEP; CAR; PEN; TET; POL	<i>Citrobacter</i> (3), <i>Enterobacter</i> (6), <i>Proteus</i> (1), <i>Serratia</i> (2)	12
	AMI; CEP; CAR; QUI; MON; POL	<i>Enterobacter</i> (2), <i>Hafnia</i> (2), <i>Providencia</i> (2), <i>Serratia</i> (2)	8
	AMI; CEP; MON; PEN; PHE; POL	<i>Achromobacter</i> (1)	1
	AMI; QUI; PEN; TET; PHE; POL	<i>Pseudomonas</i> (1)	1
	CEP; CAR; MON; PEN; PHE; POL	<i>Pseudomonas</i> (1)	1
5	AMI; CAR; PEN; TET; POL	<i>Citrobacter</i> (1), <i>Enterobacter</i> (7), <i>Morganella</i> (1)	9
	AMI; CEP; PEN; TET; POL	<i>Enterobacter</i> (3), <i>Proteus</i> (1)	4
	AMI; CEP; QUI; MON; POL	<i>Enterobacter</i> (1), <i>Providencia</i> (1), <i>Serratia</i> (2)	4
	AMI; QUI; PEN; TET; POL	<i>Citrobacter</i> (1), <i>Pseudomonas</i> (3)	4
	AMI; QUI; MON; PEN; POL	<i>Kluyvera</i> (1)	1
	AMI; CAR; QUI; PEN; POL	<i>Moellerella</i> (1)	1

	AMI; CEP; CAR; PEN; POL	<i>Enterobacter</i> (1)	1
4	AMI; PEN; TET; POL	<i>Citrobacter</i> (1), <i>Enterobacter</i> (10), <i>Hafnia</i> (1), <i>Providencia</i> (1), <i>Pseudomonas</i> (1), <i>Serratia</i> (3)	17
	AMI; CEP; PEN; POL	<i>Alcaligenes</i> (2), <i>Citrobacter</i> (1), <i>Enterobacter</i> (1)	4
	AMI; CAR; PEN; POL	<i>Citrobacter</i> (2)	2
	AMI; MON; PEN; POL	<i>Citrobacter</i> (1)	1
	QUI; MON; PEN; POL	<i>Enterobacter</i> (1)	1
	CEP; MON; PEN; POL	<i>Enterobacter</i> (1)	1
	CEP; QUI; MON; POL	<i>Klebsiella</i> (1)	1
	CAR; PEN; TET; POL	<i>Morganella</i> (1)	1
3	AMI; PEN; POL	<i>Citrobacter</i> (5), <i>Enterobacter</i> (31), <i>Escherichia</i> (1), <i>Hafnia</i> (2), <i>Klebsiella</i> (2), <i>Morganella</i> (2), <i>NI</i> (1), <i>Proteus</i> (1), <i>Pseudomonas</i> (2), <i>Serratia</i> (3)	50
	PEN; TET; POL	<i>Enterobacter</i> (3), <i>Klebsiella</i> (2), <i>Moellerella</i> (1), <i>Morganella</i> (4), <i>Proteus</i> (1), <i>Providencia</i> (10), <i>Serratia</i> (3)	24
	QUI; MON; POL	<i>Enterobacter</i> (1)	1
	AMI; TET; POL	<i>Serratia</i> (1)	1

Legenda: AMI= Aminoglycosides; CEP= cephalosporin; CAR= carbapenemes; QUI= quinolones; MON= monobactams; PEN= penicillins; SUL= sulfonamides; TET= tetracyclines; PHE= phenicols; POL= polymyxins

Supplementary Table S8: MDR pattern in Gram-positive strains.

N. Classes	Antimicrobial Classes	Bacterial Genera and n. strains ()	Total strains
9	AMI, CEP, CAR, FLU, GLY, LIN, MAC, PEN, TET	<i>Enterococcus</i> (1)	1
8	AMI, CEP, CAR, GLY, LIN, MAC, PEN, TET	<i>Enterococcus</i> (1); <i>Staphylococcus</i> (1)	2
	AMI, CEP, CAR, FLU, GLY, LIN, MAC, PEN	<i>Enterococcus</i> (4)	4
	AMI, CEP, CAR, FLU, LIN, MAC, PEN, TET	<i>Staphylococcus</i> (1)	1
7	AMI, CEP, CAR, GLY, LIN, MAC, PEN	<i>Bacillus</i> (1)	1
	CEP, CAR, GLY, LIN, MAC, PEN, TET	<i>Bacillus</i> (1)	1
	AMI, CEP, GLY, LIN, MAC, PEN, TET	<i>Bacillus</i> (1)	1
	AMI, CEP, FLU, LIN, MAC, PEN, TET	<i>Enterococcus</i> (1)	1
	AMI, CEP, CAR, FLU, LIN, MAC, PEN	<i>Enterococcus</i> (1)	1
	AMI, CEP, CAR, FLU, GLY, LIN, PEN	<i>Staphylococcus</i> (1)	1
	AMI, CEP, CAR, GLY, MAC, PEN	<i>Bacillus</i> (1)	1
6	AMI, CEP, CAR, LIN, MAC, PEN	<i>Bacillus</i> (1); <i>Enterococcus</i> (7)	8
	AMI, CEP, GLY, LIN, MAC, PEN	<i>Staphylococcus</i> (1)	1
	CEP, CAR, GLY, LIN, MAC, PEN	<i>Staphylococcus</i> (1)	1
	CEP, GLY, LIN, MAC, PEN	<i>Bacillus</i> (1); <i>Staphylococcus</i> (1)	2
5	AMI, CEP, GLY, MAC, PEN	<i>Bacillus</i> (1); <i>Staphylococcus</i> (2)	3
	AMI, CEP, LIN, MAC, PEN	<i>Bacillus</i> (1); <i>Staphylococcus</i> (1)	2
	AMI, CEP, CAR, MAC, PEN	<i>Enterococcus</i> (2)	2
	AMI, CEP, CAR, LIN, PEN	<i>Enterococcus</i> (3); <i>Staphylococcus</i> (4)	7
	CEP, CAR, GLY, LIN, PEN	<i>Staphylococcus</i> (1)	1
	AMI, CEP, CAR, GLY, PEN	<i>Staphylococcus</i> (1)	1

	CEP, GLY, LIN, PEN, TET	<i>Staphylococcus</i> (1)	1
	AMI, CEP, GLY, LIN, PEN	<i>Staphylococcus</i> (1)	1
	AMI, CEP, FLU, GLY, MAC	<i>Staphylococcus</i> (1)	1
4	CEP, LIN, MAC, PEN	<i>Bacillus</i> (2)	2
	CEP, GLY, MAC, PEN	<i>Bacillus</i> (1)	1
	GLY, LIN, MAC, PEN	<i>Bacillus</i> (1); <i>Enterococcus</i> (1); <i>Staphylococcus</i> (1)	3
	AMI, CEP, LIN, PEN	<i>Bacillus</i> (4); <i>Staphylococcus</i> (4)	8
	AMI, CEP, MAC, PEN	<i>Bacillus</i> (1)	1
	AMI, CEP, CAR, PEN	<i>Enterococcus</i> (2); <i>Staphylococcus</i> (2)	4
	CEP, LIN, MAC, TET	<i>Staphylococcus</i> (1)	1
	CEP, FLU, PEN, TET	<i>Staphylococcus</i> (2)	2
	CEP, GLY, LIN, PEN	<i>Staphylococcus</i> (1)	1
	AMI, CEP, CAR, PEN	<i>Staphylococcus</i> (1)	1
	AMI, CEP, GLY, PEN	<i>Staphylococcus</i> (2)	2
3	AMI, CEP, PEN	<i>Aerococcus</i> (2); <i>Bacillus</i> (5); <i>Enterococcus</i> (2); <i>Staphylococcus</i> (5)	14
	CEP, GLY, PEN	<i>Bacillus</i> (1); <i>Staphylococcus</i> (3)	4
	CEP, LIN, PEN	<i>Bacillus</i> (2); <i>Staphylococcus</i> (2)	4
	CEP, MAC, PEN	<i>Bacillus</i> (1); NI (1);	2
	LIN, MAC, PEN	<i>Staphylococcus</i> (1)	1
	CEP, GLY, MAC	<i>Staphylococcus</i> (1)	1