

Antimicrobial resistance is a risk factor for mortality in adults with sickle cell disease

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Supplementary Table 1: ICD-9 and ICD-10 codes for relevant past medical history and procedures in sickle cell disease patients.

Clinical Diagnosis	ICD-9-CM	ICD-10-CM
Diabetes Mellitus	250 Diabetes mellitus	E10 Type 1 diabetes mellitus
		E11 Type 2 diabetes mellitus
Secondary diabetes mellitus	249 Secondary diabetes mellitus	E08 Diabetes mellitus due to underlying condition
		E09 Drug or chemical induced diabetes mellitus
		E13 Other specified diabetes mellitus
Procedure	ICD-9-PCS	ICD-10-PCS
Central Venous Catheter Placement (Peripherally or Centrally inserted)	38.93 Venous catheterization, not elsewhere classified	02HV33Z Insertion of infusion device into superior vena cava, percutaneous approach
		06HM33Z Insertion of Infusion Device into Right Femoral Vein, Percutaneous Approach
Tunneled Dialysis Catheter Placement	38.95 for venous catheterization for renal dialysis	02HV33Z (infusion device)
		0JH63XZ (vascular access device, tunneled)

Supplementary Table 2: Baseline characteristics of patients with sickle cell disease versus African Americans.

	Sickle Cell Disease Cohort (n = 320)	African American Cohort (n = 16,000)
Age (years)	37 (29 – 48)	38 (28 – 48)
Sex (male : female)	40% : 60%	40% : 60%
Follow up time (years)	3.1 (2.6 – 3.2)	3.0 (2.5 – 3.2)

Supplementary Table 3: Sources of infection in patients with sickle cell disease.

Source	Number (% of total infections)
Urine	110 (62.5%)
Blood	39 (22.2%)
Soft tissue	11 (6.3%)
Nasopharyngeal/Pulmonary	6 (3.4%)
Other body fluid	4 (2.3%)
Bone/joint	2 (1.1%)
Cerebrospinal fluid	2 (1.1%)
Vaginal	2 (1.1%)
Total	176 (100%)

Supplementary Table 4: Organism and antimicrobial resistance patterns in patients with sickle cell disease and African Americans without sickle cell disease.

Organism	Antimicrobial	Sickle Cell Disease				African American				Relative Risk	Fisher P value
		Susceptible	Nonsusceptible	Total	Proportion Nonsusceptible	Susceptible	Nonsusceptible	Total	Proportion Nonsusceptible		
<i>Klebsiella pneumoniae</i>	Gentamicin	16	9	25	0.36	440	19	459	0.04	8.70	2.09E-06
<i>Klebsiella pneumoniae</i>	Tobramycin	16	9	25	0.36	418	41	459	0.09	4.03	3.73E-04
<i>Klebsiella pneumoniae</i>	Cefepime	15	10	25	0.40	398	61	459	0.13	3.01	1.31E-03
<i>Klebsiella pneumoniae</i>	Ceftazidime	15	10	25	0.40	398	61	459	0.13	3.01	1.31E-03
<i>Klebsiella pneumoniae</i>	Ceftriaxone	15	10	25	0.40	398	61	459	0.13	3.01	1.31E-03
<i>Escherichia coli</i>	Tobramycin	88	0	88	0.00	1829	163	1992	0.08	0.00	1.60E-03
<i>Klebsiella pneumoniae</i>	Piperacillin-Tazobactam	15	10	25	0.40	389	70	459	0.15	2.62	3.47E-03
<i>Staphylococcus aureus</i>	Erythromycin	17	9	26	0.35	185	301	486	0.62	0.56	7.05E-03
<i>Escherichia coli</i>	Gentamicin	87	1	88	0.01	1826	164	1990	0.08	0.14	8.33E-03
<i>Staphylococcus species coagulase negative</i>	Gentamicin	2	3	5	0.60	34	2	36	0.06	10.80	8.65E-03
<i>Klebsiella pneumoniae</i>	Ampicillin-Sulbactam	12	13	25	0.52	340	118	458	0.26	2.02	9.04E-03
<i>Pseudomonas aeruginosa</i>	Meropenem	3	5	8	0.63	234	59	293	0.20	3.10	1.25E-02
<i>Klebsiella pneumoniae</i>	Levofloxacin	17	8	25	0.32	397	62	459	0.14	2.37	1.79E-02
<i>Klebsiella pneumoniae</i>	Sulfamethoxazole-Trimethoprim	15	10	25	0.40	371	88	459	0.19	2.09	1.92E-02

<i>Staphylococcus species coagulase negative</i>	Sulfamethoxazole-Trimethoprim	1	4	5	0.80	28	8	36	0.22	3.60	2.02E-02
<i>Pseudomonas aeruginosa</i>	Cefepime	4	4	8	0.50	249	44	293	0.15	3.33	2.46E-02
<i>Pseudomonas aeruginosa</i>	Aztreonam	3	5	8	0.63	219	74	293	0.25	2.47	3.16E-02
<i>Pseudomonas aeruginosa</i>	Imipenem	3	5	8	0.63	217	76	293	0.26	2.41	3.51E-02
<i>Escherichia coli</i>	Cefazolin	44	8	52	0.15	904	363	1267	0.29	0.54	4.02E-02
<i>Pseudomonas aeruginosa</i>	Ticarcillin-Clavulanate	0	5	5	1.00	17	16	33	0.48	2.06	5.29E-02
<i>Escherichia coli</i>	Cefepime	87	1	88	0.01	1868	122	1990	0.06	0.19	6.01E-02
<i>Escherichia coli</i>	Ampicillin	49	38	87	0.44	904	1061	1965	0.54	0.81	6.24E-02
<i>Escherichia coli</i>	Ampicillin-Sulbactam	54	34	88	0.39	1016	968	1984	0.49	0.79	6.46E-02
<i>Pantoea species</i>	Ampicillin	2	0	2	0.00	0	4	4	1.00	0.00	6.67E-02
<i>Klebsiella pneumoniae</i>	Cefazolin	9	10	19	0.53	174	75	249	0.30	1.75	6.99E-02
<i>Staphylococcus epidermidis</i>	Oxacillin	1	8	9	0.89	28	35	63	0.56	1.60	7.49E-02
<i>Escherichia coli</i>	Nitrofurantoin	80	2	82	0.02	1659	141	1800	0.08	0.31	8.52E-02
<i>Staphylococcus aureus</i>	Tetracycline	26	0	26	0.00	435	51	486	0.10	0.00	9.58E-02
<i>Pseudomonas aeruginosa</i>	Ceftazidime	5	3	8	0.38	250	43	293	0.15	2.56	1.07E-01
<i>Klebsiella oxytoca</i>	Imipenem	3	1	4	0.25	33	0	33	0.00	Inf	1.08E-01
<i>Escherichia coli</i>	Ceftriaxone	86	2	88	0.02	1856	133	1989	0.07	0.34	1.21E-01
<i>Escherichia coli</i>	Ceftazidime	86	2	88	0.02	1856	134	1990	0.07	0.34	1.21E-01
<i>Pseudomonas aeruginosa</i>	Ciprofloxacin	3	5	8	0.63	197	96	293	0.33	1.91	1.24E-01
<i>Pseudomonas aeruginosa</i>	Levofloxacin	3	5	8	0.63	194	99	293	0.34	1.85	1.30E-01

<i>Escherichia coli</i>	Piperacillin-Tazobactam	84	4	88	0.05	1794	190	1984	0.10	0.47	1.34E-01
<i>Klebsiella oxytoca</i>	Ampicillin-Sulbactam	1	3	4	0.75	22	11	33	0.33	2.25	1.42E-01
<i>Enterococcus faecium</i>	Streptomycin	1	1	2	0.50	51	5	56	0.09	5.60	1.98E-01
<i>Enterococcus faecalis</i>	Gentamicin	1	2	3	0.67	33	12	45	0.27	2.50	2.00E-01
<i>Escherichia coli</i>	Levofloxacin	65	23	88	0.26	1583	408	1991	0.20	1.28	2.26E-01
<i>Morganella morganii</i>	Tobramycin	0	1	1	1.00	17	5	22	0.23	4.40	2.61E-01
<i>Staphylococcus aureus</i>	Clindamycin	20	2	22	0.09	352	94	446	0.21	0.43	2.77E-01
<i>Streptococcus pneumoniae</i>	Sulfamethoxazole-Trimethoprim	0	1	1	1.00	10	3	13	0.23	4.33	2.86E-01
<i>Staphylococcus species coagulase negative</i>	Erythromycin	0	5	5	1.00	12	24	36	0.67	1.50	2.98E-01
<i>Morganella morganii</i>	Gentamicin	0	1	1	1.00	16	6	22	0.27	3.67	3.04E-01
<i>Enterococcus faecium</i>	Tetracycline	1	1	2	0.50	8	44	52	0.85	0.59	3.08E-01
<i>Escherichia coli</i>	Sulfamethoxazole-Trimethoprim	68	20	88	0.23	1429	561	1990	0.28	0.81	3.31E-01
<i>Raoultella planticola</i>	Gentamicin	0	2	2	1.00	2	0	2	0.00	Inf	3.33E-01
<i>Pseudomonas aeruginosa</i>	Piperacillin-Tazobactam	6	2	8	0.25	249	43	292	0.15	1.70	3.43E-01
<i>Pseudomonas aeruginosa</i>	Gentamicin	8	0	8	0.00	241	52	293	0.18	0.00	3.59E-01
<i>Staphylococcus epidermidis</i>	Gentamicin	6	3	9	0.33	43	9	52	0.17	1.93	3.61E-01
<i>Staphylococcus aureus</i>	Levofloxacin	0	1	1	1.00	5	2	7	0.29	3.50	3.75E-01
<i>Staphylococcus aureus</i>	Sulfamethoxazole-Trimethoprim	26	0	26	0.00	453	33	486	0.07	0.00	4.00E-01

<i>Enterobacter cloacae</i>	Nitrofurantoin	1	0	1	0.00	19	30	49	0.61	0.00	4.00E-01
<i>Streptococcus pneumoniae</i>	Erythromycin	1	0	1	0.00	5	8	13	0.62	0.00	4.29E-01
<i>Acinetobacter baumannii (anitratu)</i>	Imipenem	1	0	1	0.00	24	33	57	0.58	0.00	4.31E-01
<i>Acinetobacter baumannii (anitratu)</i>	Levofloxacin	1	0	1	0.00	24	33	57	0.58	0.00	4.31E-01
<i>Morganella morganii</i>	Sulfamethoxazole-Trimethoprim	0	1	1	1.00	13	9	22	0.41	2.44	4.35E-01
<i>Beta hemolytic streptococcus groupb</i>	Erythromycin	1	0	1	0.00	11	14	25	0.56	0.00	4.62E-01
<i>Enterococcus faecalis</i>	Vancomycin	2	1	3	0.33	39	10	49	0.20	1.63	5.18E-01
<i>Staphylococcus aureus</i>	Oxacillin	12	14	26	0.54	262	224	486	0.46	1.17	5.46E-01
<i>Staphylococcus species coagulase negative</i>	Tetracycline	4	1	5	0.20	31	5	36	0.14	1.44	5.67E-01
<i>Klebsiella oxytoca</i>	Sulfamethoxazole-Trimethoprim	4	0	4	0.00	26	7	33	0.21	0.00	5.70E-01
<i>Klebsiella pneumoniae</i>	Imipenem	25	0	25	0.00	439	18	457	0.04	0.00	6.15E-01
<i>Staphylococcus epidermidis</i>	Clindamycin	1	4	5	0.80	22	29	51	0.57	1.41	6.39E-01
<i>Staphylococcus epidermidis</i>	Erythromycin	1	8	9	0.89	12	40	52	0.77	1.16	6.69E-01
<i>Staphylococcus epidermidis</i>	Sulfamethoxazole-Trimethoprim	5	4	9	0.44	23	29	52	0.56	0.80	7.20E-01
<i>Klebsiella pneumoniae</i>	Nitrofurantoin	7	16	23	0.70	104	267	371	0.72	0.97	8.13E-01

<i>Klebsiella pneumoniae</i>	Amikacin	25	0	25	0.00	448	11	459	0.02	0.00	1.00E+00
<i>Staphylococcus epidermidis</i>	Tetracycline	8	1	9	0.11	44	8	52	0.15	0.72	1.00E+00
<i>Klebsiella oxytoca</i>	Cefepime	4	0	4	0.00	31	2	33	0.06	0.00	1.00E+00
<i>Klebsiella oxytoca</i>	Ceftazidime	4	0	4	0.00	31	2	33	0.06	0.00	1.00E+00
<i>Proteus mirabilis</i>	Ampicillin	3	0	3	0.00	192	46	238	0.19	0.00	1.00E+00
<i>Proteus mirabilis</i>	Ceftazidime	3	0	3	0.00	215	23	238	0.10	0.00	1.00E+00
<i>Enterococcus faecium</i>	Vancomycin	0	2	2	1.00	5	51	56	0.91	1.10	1.00E+00
<i>Serratia marcescens</i>	Cefepime	2	0	2	0.00	53	2	55	0.04	0.00	1.00E+00
<i>Serratia marcescens</i>	Ceftazidime	2	0	2	0.00	53	2	55	0.04	0.00	1.00E+00
<i>Serratia marcescens</i>	Ceftriaxone	2	0	2	0.00	53	2	55	0.04	0.00	1.00E+00
<i>Citrobacter freundii</i>	Cefepime	1	0	1	0.00	15	2	17	0.12	0.00	1.00E+00
<i>Citrobacter freundii</i>	Tobramycin	1	0	1	0.00	15	2	17	0.12	0.00	1.00E+00
<i>Enterobacter cloacae</i>	Sulfamethoxazole-Trimethoprim	1	0	1	0.00	75	17	92	0.18	0.00	1.00E+00
<i>Enterococcus faecalis</i>	Tetracycline	0	1	1	1.00	4	12	16	0.75	1.33	1.00E+00
<i>Morganella morganii</i>	Ampicillin-Sulbactam	0	1	1	1.00	3	19	22	0.86	1.16	1.00E+00
<i>Escherichia coli</i>	Amikacin	88	0	88	0.00	1982	10	1992	0.01	0.00	1.00E+00
<i>Escherichia coli</i>	Imipenem	84	0	84	0.00	1967	2	1969	0.00	0.00	1.00E+00
<i>Staphylococcus aureus</i>	Gentamicin	26	0	26	0.00	481	5	486	0.01	0.00	1.00E+00
<i>Staphylococcus aureus</i>	Rifampin	26	0	26	0.00	483	3	486	0.01	0.00	1.00E+00

<i>Staphylococcus aureus</i>	Vancomycin	26	0	26	0.00	485	0	485	0.00	NaN	1.00E+00
<i>Staphylococcus epidermidis</i>	Vancomycin	9	0	9	0.00	52	0	52	0.00	NaN	1.00E+00
<i>Pseudomonas aeruginosa</i>	Amikacin	8	0	8	0.00	279	14	293	0.05	0.00	1.00E+00
<i>Pseudomonas aeruginosa</i>	Tobramycin	8	0	8	0.00	271	22	293	0.08	0.00	1.00E+00
<i>Staphylococcus species coagulase negative</i>	Clindamycin	2	3	5	0.60	17	16	33	0.48	1.24	1.00E+00
<i>Staphylococcus species coagulase negative</i>	Oxacillin	2	3	5	0.60	32	41	73	0.56	1.07	1.00E+00
<i>Staphylococcus species coagulase negative</i>	Vancomycin	5	0	5	0.00	36	0	36	0.00	NaN	1.00E+00
<i>Klebsiella oxytoca</i>	Amikacin	4	0	4	0.00	33	0	33	0.00	NaN	1.00E+00
<i>Klebsiella oxytoca</i>	Cefazolin	0	4	4	1.00	0	14	14	1.00	1.00	1.00E+00
<i>Klebsiella oxytoca</i>	Ceftriaxone	4	0	4	0.00	30	3	33	0.09	0.00	1.00E+00
<i>Klebsiella oxytoca</i>	Gentamicin	4	0	4	0.00	32	1	33	0.03	0.00	1.00E+00
<i>Klebsiella oxytoca</i>	Levofloxacin	4	0	4	0.00	32	1	33	0.03	0.00	1.00E+00
<i>Klebsiella oxytoca</i>	Nitrofurantoin	4	0	4	0.00	18	4	22	0.18	0.00	1.00E+00
<i>Klebsiella oxytoca</i>	Piperacillin-Tazobactam	4	0	4	0.00	29	4	33	0.12	0.00	1.00E+00
<i>Klebsiella oxytoca</i>	Tobramycin	4	0	4	0.00	30	3	33	0.09	0.00	1.00E+00
<i>Candida albicans</i>	Anidulafungin	3	0	3	0.00	28	0	28	0.00	NaN	1.00E+00
<i>Candida albicans</i>	Caspofungin	3	0	3	0.00	28	0	28	0.00	NaN	1.00E+00
<i>Candida albicans</i>	Fluconazole	3	0	3	0.00	22	6	28	0.21	0.00	1.00E+00
<i>Candida albicans</i>	Micafungin	3	0	3	0.00	28	0	28	0.00	NaN	1.00E+00
<i>Candida albicans</i>	Voriconazole	3	0	3	0.00	24	4	28	0.14	0.00	1.00E+00
<i>Enterococcus</i>	Ampicillin	3	0	3	0.00	44	2	46	0.04	0.00	1.00E+00

<i>faecalis</i>											
<i>Enterococcus faecalis</i>	Daptomycin	3	0	3	0.00	13	0	13	0.00	NaN	1.00E+00
<i>Enterococcus faecalis</i>	Streptomycin	3	0	3	0.00	37	8	45	0.18	0.00	1.00E+00
<i>Proteus mirabilis</i>	Amikacin	3	0	3	0.00	238	0	238	0.00	NaN	1.00E+00
<i>Proteus mirabilis</i>	Ampicillin-Sulbactam	3	0	3	0.00	198	40	238	0.17	0.00	1.00E+00
<i>Proteus mirabilis</i>	Cefepime	3	0	3	0.00	217	21	238	0.09	0.00	1.00E+00
<i>Proteus mirabilis</i>	Ceftriaxone	3	0	3	0.00	217	21	238	0.09	0.00	1.00E+00
<i>Proteus mirabilis</i>	Gentamicin	3	0	3	0.00	223	15	238	0.06	0.00	1.00E+00
<i>Proteus mirabilis</i>	Levofloxacin	3	0	3	0.00	197	41	238	0.17	0.00	1.00E+00
<i>Proteus mirabilis</i>	Piperacillin-Tazobactam	3	0	3	0.00	211	21	232	0.09	0.00	1.00E+00
<i>Proteus mirabilis</i>	Sulfamethoxazole-Trimethoprim	3	0	3	0.00	207	31	238	0.13	0.00	1.00E+00
<i>Proteus mirabilis</i>	Tobramycin	3	0	3	0.00	223	15	238	0.06	0.00	1.00E+00
<i>Staphylococcus aureus</i>	Daptomycin	3	0	3	0.00	4	0	4	0.00	NaN	1.00E+00
<i>Enterococcus faecium</i>	Ampicillin	0	2	2	1.00	1	53	54	0.98	1.02	1.00E+00
<i>Enterococcus faecium</i>	Daptomycin	2	0	2	0.00	47	4	51	0.08	0.00	1.00E+00
<i>Enterococcus faecium</i>	Erythromycin	0	2	2	1.00	0	51	51	1.00	1.00	1.00E+00
<i>Enterococcus faecium</i>	Gentamicin	2	0	2	0.00	50	6	56	0.11	0.00	1.00E+00
<i>Enterococcus faecium</i>	Linezolid	2	0	2	0.00	48	5	53	0.09	0.00	1.00E+00
<i>Enterococcus faecium</i>	Quinupristin-Dalfopristin	2	0	2	0.00	47	4	51	0.08	0.00	1.00E+00
<i>Enterococcus faecium</i>	Rifampin	0	2	2	1.00	0	51	51	1.00	1.00	1.00E+00
<i>Pantoea species</i>	Amikacin	2	0	2	0.00	4	0	4	0.00	NaN	1.00E+00

<i>Pantoea species</i>	Ampicillin-Sulbactam	2	0	2	0.00	3	1	4	0.25	0.00	1.00E+00
<i>Pantoea species</i>	Cefazolin	1	1	2	0.50	2	2	4	0.50	1.00	1.00E+00
<i>Pantoea species</i>	Cefepime	2	0	2	0.00	3	1	4	0.25	0.00	1.00E+00
<i>Pantoea species</i>	Ceftazidime	2	0	2	0.00	3	1	4	0.25	0.00	1.00E+00
<i>Pantoea species</i>	Ceftriaxone	2	0	2	0.00	3	1	4	0.25	0.00	1.00E+00
<i>Pantoea species</i>	Gentamicin	2	0	2	0.00	3	1	4	0.25	0.00	1.00E+00
<i>Pantoea species</i>	Imipenem	2	0	2	0.00	3	0	3	0.00	NaN	1.00E+00
<i>Pantoea species</i>	Levofloxacin	2	0	2	0.00	3	1	4	0.25	0.00	1.00E+00
<i>Pantoea species</i>	Piperacillin-Tazobactam	2	0	2	0.00	3	1	4	0.25	0.00	1.00E+00
<i>Pantoea species</i>	Sulfamethoxazole-Trimethoprim	2	0	2	0.00	4	0	4	0.00	NaN	1.00E+00
<i>Pantoea species</i>	Tobramycin	2	0	2	0.00	3	1	4	0.25	0.00	1.00E+00
<i>Proteus mirabilis</i>	Nitrofurantoin	0	2	2	1.00	0	167	167	1.00	1.00	1.00E+00
<i>Pseudomonas aeruginosa</i>	Colistin	2	0	2	0.00	30	1	31	0.03	0.00	1.00E+00
<i>Raoultella planticola</i>	Amikacin	2	0	2	0.00	2	0	2	0.00	NaN	1.00E+00
<i>Raoultella planticola</i>	Ampicillin	0	2	2	1.00	0	2	2	1.00	1.00	1.00E+00
<i>Raoultella planticola</i>	Ampicillin-Sulbactam	0	2	2	1.00	1	1	2	0.50	2.00	1.00E+00
<i>Raoultella planticola</i>	Cefazolin	0	2	2	1.00	1	1	2	0.50	2.00	1.00E+00
<i>Raoultella planticola</i>	Cefepime	0	2	2	1.00	1	1	2	0.50	2.00	1.00E+00
<i>Raoultella planticola</i>	Ceftazidime	0	2	2	1.00	1	1	2	0.50	2.00	1.00E+00
<i>Raoultella planticola</i>	Ceftriaxone	0	2	2	1.00	1	1	2	0.50	2.00	1.00E+00
<i>Raoultella planticola</i>	Levofloxacin	2	0	2	0.00	2	0	2	0.00	NaN	1.00E+00
<i>Raoultella</i>	Nitrofurantoin	2	0	2	0.00	1	0	1	0.00	NaN	1.00E+00

<i>planticola</i>											
<i>Raoultella planticola</i>	Piperacillin-Tazobactam	0	2	2	1.00	1	1	2	0.50	2.00	1.00E+00
<i>Raoultella planticola</i>	Sulfamethoxazole-Trimethoprim	0	2	2	1.00	1	1	2	0.50	2.00	1.00E+00
<i>Raoultella planticola</i>	Tobramycin	0	2	2	1.00	1	1	2	0.50	2.00	1.00E+00
<i>Serratia marcescens</i>	Amikacin	2	0	2	0.00	55	0	55	0.00	NaN	1.00E+00
<i>Serratia marcescens</i>	Cefazolin	0	2	2	1.00	0	52	52	1.00	1.00	1.00E+00
<i>Serratia marcescens</i>	Gentamicin	2	0	2	0.00	54	1	55	0.02	0.00	1.00E+00
<i>Serratia marcescens</i>	Levofloxacin	2	0	2	0.00	55	0	55	0.00	NaN	1.00E+00
<i>Serratia marcescens</i>	Sulfamethoxazole-Trimethoprim	2	0	2	0.00	55	0	55	0.00	NaN	1.00E+00
<i>Serratia marcescens</i>	Tobramycin	2	0	2	0.00	45	10	55	0.18	0.00	1.00E+00
<i>Acinetobacter baumannii (anitratu)</i>	Ceftazidime	0	1	1	1.00	24	33	57	0.58	1.73	1.00E+00
<i>Acinetobacter baumannii (anitratu)</i>	Gentamicin	1	0	1	0.00	37	20	57	0.35	0.00	1.00E+00
<i>Acinetobacter baumannii (anitratu)</i>	Piperacillin-Tazobactam	0	1	1	1.00	18	39	57	0.68	1.46	1.00E+00
<i>Acinetobacter baumannii (anitratu)</i>	Tobramycin	1	0	1	0.00	36	21	57	0.37	0.00	1.00E+00
<i>Bacillus cereus</i>	Clindamycin	1	0	1	0.00	0	0	0	NaN	NaN	1.00E+00
<i>Bacillus cereus</i>	Erythromycin	1	0	1	0.00	0	0	0	NaN	NaN	1.00E+00

<i>Bacillus cereus</i>	Penicillin	0	1	1	1.00	0	0	0	NaN	NaN	1.00E+00
<i>Bacillus cereus</i>	Vancomycin	1	0	1	0.00	0	0	0	NaN	NaN	1.00E+00
<i>Bacillus species not anthracis</i>	Clindamycin	1	0	1	0.00	0	0	0	NaN	NaN	1.00E+00
<i>Bacillus species not anthracis</i>	Levofloxacin	1	0	1	0.00	0	0	0	NaN	NaN	1.00E+00
<i>Beta hemolytic streptococcus groupb</i>	Ceftriaxone	1	0	1	0.00	23	0	23	0.00	NaN	1.00E+00
<i>Beta hemolytic streptococcus groupb</i>	Clindamycin	0	1	1	1.00	13	12	25	0.48	2.08	1.00E+00
<i>Beta hemolytic streptococcus groupb</i>	Levofloxacin	1	0	1	0.00	25	0	25	0.00	NaN	1.00E+00
<i>Beta hemolytic streptococcus groupb</i>	Penicillin	1	0	1	0.00	24	0	24	0.00	NaN	1.00E+00
<i>Beta hemolytic streptococcus groupb</i>	Vancomycin	1	0	1	0.00	25	0	25	0.00	NaN	1.00E+00
<i>Burkholderia cepacia</i>	Ceftazidime	1	0	1	0.00	0	0	0	NaN	NaN	1.00E+00
<i>Burkholderia cepacia</i>	Levofloxacin	0	1	1	1.00	0	0	0	NaN	NaN	1.00E+00
<i>Burkholderia cepacia</i>	Meropenem	1	0	1	0.00	0	0	0	NaN	NaN	1.00E+00
<i>Burkholderia cepacia</i>	Sulfamethoxazole-Trimethoprim	1	0	1	0.00	0	0	0	NaN	NaN	1.00E+00
<i>Candida (torulopsis) glabrata</i>	Anidulafungin	1	0	1	0.00	16	1	17	0.06	0.00	1.00E+00
<i>Candida</i>	Caspofungin	1	0	1	0.00	14	3	17	0.18	0.00	1.00E+00

<i>(torulopsis) glabrata</i>											
<i>Candida (torulopsis) glabrata</i>	Fluconazole	1	0	1	0.00	10	7	17	0.41	0.00	1.00E+00
<i>Candida (torulopsis) glabrata</i>	Micafungin	1	0	1	0.00	16	1	17	0.06	0.00	1.00E+00
<i>Candida lusitaniae</i>	Fluconazole	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00
<i>Candida parapsilosis</i>	Anidulafungin	1	0	1	0.00	6	0	6	0.00	NaN	1.00E+00
<i>Candida parapsilosis</i>	Caspofungin	1	0	1	0.00	6	0	6	0.00	NaN	1.00E+00
<i>Candida parapsilosis</i>	Fluconazole	1	0	1	0.00	6	0	6	0.00	NaN	1.00E+00
<i>Candida parapsilosis</i>	Micafungin	1	0	1	0.00	6	0	6	0.00	NaN	1.00E+00
<i>Candida parapsilosis</i>	Voriconazole	1	0	1	0.00	6	0	6	0.00	NaN	1.00E+00
<i>Citrobacter freundii</i>	Amikacin	1	0	1	0.00	17	0	17	0.00	NaN	1.00E+00
<i>Citrobacter freundii</i>	Cefazolin	0	1	1	1.00	0	15	15	1.00	1.00	1.00E+00
<i>Citrobacter freundii</i>	Ceftazidime	1	0	1	0.00	14	3	17	0.18	0.00	1.00E+00
<i>Citrobacter freundii</i>	Ceftriaxone	1	0	1	0.00	14	3	17	0.18	0.00	1.00E+00
<i>Citrobacter freundii</i>	Gentamicin	1	0	1	0.00	16	1	17	0.06	0.00	1.00E+00
<i>Citrobacter freundii</i>	Imipenem	1	0	1	0.00	17	0	17	0.00	NaN	1.00E+00
<i>Citrobacter freundii</i>	Levofloxacin	1	0	1	0.00	14	3	17	0.18	0.00	1.00E+00

<i>Citrobacter freundii</i>	Nitrofurantoin	1	0	1	0.00	9	1	10	0.10	0.00	1.00E+00
<i>Citrobacter youngae</i>	Amikacin	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00
<i>Citrobacter youngae</i>	Cefepime	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00
<i>Citrobacter youngae</i>	Ceftazidime	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00
<i>Citrobacter youngae</i>	Ceftriaxone	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00
<i>Citrobacter youngae</i>	Gentamicin	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00
<i>Citrobacter youngae</i>	Imipenem	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00
<i>Citrobacter youngae</i>	Levofloxacin	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00
<i>Citrobacter youngae</i>	Nitrofurantoin	1	0	1	0.00	0	1	1	1.00	0.00	1.00E+00
<i>Citrobacter youngae</i>	Piperacillin-Tazobactam	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00
<i>Citrobacter youngae</i>	Sulfamethoxazole-Trimethoprim	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00
<i>Citrobacter youngae</i>	Tobramycin	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00
<i>Enterobacter cloacae</i>	Amikacin	1	0	1	0.00	92	0	92	0.00	NaN	1.00E+00
<i>Enterobacter cloacae</i>	Cefepime	1	0	1	0.00	80	12	92	0.13	0.00	1.00E+00
<i>Enterobacter cloacae</i>	Ceftazidime	1	0	1	0.00	67	25	92	0.27	0.00	1.00E+00
<i>Enterobacter cloacae</i>	Ceftriaxone	1	0	1	0.00	67	25	92	0.27	0.00	1.00E+00
<i>Enterobacter cloacae</i>	Gentamicin	1	0	1	0.00	92	0	92	0.00	NaN	1.00E+00

<i>Enterobacter cloacae</i>	Imipenem	1	0	1	0.00	85	6	91	0.07	0.00	1.00E+00
<i>Enterobacter cloacae</i>	Piperacillin-Tazobactam	1	0	1	0.00	60	22	82	0.27	0.00	1.00E+00
<i>Enterobacter cloacae</i>	Tobramycin	1	0	1	0.00	91	0	91	0.00	NaN	1.00E+00
<i>Enterococcus faecalis</i>	Erythromycin	0	1	1	1.00	1	9	10	0.90	1.11	1.00E+00
<i>Enterococcus faecalis</i>	Linezolid	1	0	1	0.00	11	0	11	0.00	NaN	1.00E+00
<i>Enterococcus faecalis</i>	Rifampin	1	0	1	0.00	8	2	10	0.20	0.00	1.00E+00
<i>Gram negative rods</i>	Amikacin	1	0	1	0.00	2	0	2	0.00	NaN	1.00E+00
<i>Gram negative rods</i>	Ampicillin	1	0	1	0.00	0	0	0	NaN	NaN	1.00E+00
<i>Gram negative rods</i>	Ampicillin-Sulbactam	1	0	1	0.00	0	1	1	1.00	0.00	1.00E+00
<i>Gram negative rods</i>	Cefazolin	1	0	1	0.00	0	0	0	NaN	NaN	1.00E+00
<i>Gram negative rods</i>	Cefepime	1	0	1	0.00	2	0	2	0.00	NaN	1.00E+00
<i>Gram negative rods</i>	Ceftazidime	1	0	1	0.00	2	0	2	0.00	NaN	1.00E+00
<i>Gram negative rods</i>	Ceftriaxone	1	0	1	0.00	2	0	2	0.00	NaN	1.00E+00
<i>Gram negative rods</i>	Gentamicin	1	0	1	0.00	2	0	2	0.00	NaN	1.00E+00
<i>Gram negative rods</i>	Imipenem	1	0	1	0.00	2	0	2	0.00	NaN	1.00E+00
<i>Gram negative rods</i>	Levofloxacin	0	1	1	1.00	1	1	2	0.50	2.00	1.00E+00
<i>Gram negative rods</i>	Nitrofurantoin	1	0	1	0.00	1	0	1	0.00	NaN	1.00E+00

<i>Gram negative rods</i>	Piperacillin-Tazobactam	1	0	1	0.00	2	0	2	0.00	NaN	1.00E+00
<i>Gram negative rods</i>	Sulfamethoxazole-Trimethoprim	1	0	1	0.00	1	1	2	0.50	0.00	1.00E+00
<i>Gram negative rods</i>	Tobramycin	1	0	1	0.00	2	0	2	0.00	NaN	1.00E+00
<i>Morganella morganii</i>	Amikacin	1	0	1	0.00	22	0	22	0.00	NaN	1.00E+00
<i>Morganella morganii</i>	Ampicillin	0	1	1	1.00	0	22	22	1.00	1.00	1.00E+00
<i>Morganella morganii</i>	Cefazolin	0	1	1	1.00	0	20	20	1.00	1.00	1.00E+00
<i>Morganella morganii</i>	Cefepime	1	0	1	0.00	20	2	22	0.09	0.00	1.00E+00
<i>Morganella morganii</i>	Ceftazidime	1	0	1	0.00	18	4	22	0.18	0.00	1.00E+00
<i>Morganella morganii</i>	Ceftriaxone	1	0	1	0.00	20	2	22	0.09	0.00	1.00E+00
<i>Morganella morganii</i>	Levofloxacin	1	0	1	0.00	11	11	22	0.50	0.00	1.00E+00
<i>Morganella morganii</i>	Nitrofurantoin	0	1	1	1.00	0	9	9	1.00	1.00	1.00E+00
<i>Morganella morganii</i>	Piperacillin-Tazobactam	1	0	1	0.00	20	1	21	0.05	0.00	1.00E+00
<i>Serratia marcescens</i>	Nitrofurantoin	0	1	1	1.00	0	12	12	1.00	1.00	1.00E+00
<i>Staphylococcus aureus</i>	Linezolid	1	0	1	0.00	6	0	6	0.00	NaN	1.00E+00
<i>Staphylococcus species coagulase negative</i>	Daptomycin	1	0	1	0.00	3	0	3	0.00	NaN	1.00E+00
<i>Staphylococcus species coagulase negative</i>	Linezolid	1	0	1	0.00	0	0	0	NaN	NaN	1.00E+00

<i>Streptococcus pneumoniae</i>	Ceftriaxone	1	0	1	0.00	13	2	15	0.13	0.00	1.00E+00
<i>Streptococcus pneumoniae</i>	Levofloxacin	1	0	1	0.00	13	0	13	0.00	NaN	1.00E+00
<i>Streptococcus pneumoniae</i>	Penicillin	0	1	1	1.00	7	8	15	0.53	1.88	1.00E+00
<i>Streptococcus pneumoniae</i>	Vancomycin	1	0	1	0.00	15	0	15	0.00	NaN	1.00E+00
<i>Citrobacter freundii</i>	Piperacillin-Tazobactam	1	0	1	0.00	13	4	17	0.24	0.00	1.00E+00
<i>Citrobacter freundii</i>	Sulfamethoxazole-Trimethoprim	1	0	1	0.00	13	4	17	0.24	0.00	1.00E+00
<i>Enterobacter cloacae</i>	Levofloxacin	1	0	1	0.00	82	10	92	0.11	0.00	1.00E+00