

# CANWARD 2012 Study

**George G. Zhanel<sup>1</sup>, Melanie Baxter<sup>1</sup>, Heather Adam<sup>1,2</sup>, Nancy Laing<sup>1</sup>, Barb Weshnoweski<sup>2</sup>, Ravi Vashisht<sup>1</sup>, Kim Nichol<sup>2</sup>, Andrew Denisuik<sup>1</sup>, Philippe Lagacé-Wiens<sup>1,2</sup>, Melissa McCracken<sup>3</sup>, Michael Mulvey<sup>3</sup>, Jack Johnson<sup>4</sup>, the Canadian Antimicrobial Resistance Alliance (CARA), and Daryl J. Hoban<sup>1,2</sup>**

University of Manitoba<sup>1</sup>, Diagnostic Services of Manitoba<sup>2</sup>, National Microbiology Lab<sup>3</sup>, Winnipeg, Canada and International Health Management Associates (IHMA)<sup>4</sup>, Chicago, USA

# CANWARD 2012

## Participating Centres/Investigators

1	Dr. D. Roscoe	Vancouver Hospital, Vancouver
2	Dr. J. Fuller	University of Alberta Hospital, Edmonton
3	Dr. J. Blondeau	Royal University Hospital, Saskatoon
4	Drs. D. Hoban/G. Zhanel	Health Sciences Centre, Winnipeg
5	Dr. M. John	London Health Sciences Centre, London
6	Dr. S. Poutanen	Mount Sinai Hospital, Toronto
7	Dr. L. Matukas	St. Michael's Hospital, Toronto
8	Dr. F. Chan	Children's Hospital of Eastern Ontario, Ottawa
9	Dr. M. Laverdière	Hopital Maisonneuve-Rosemont, Montreal
10	Dr. M. Goyette	CHRTTR Pavilion Ste. Marie, Trois-Rivières
11	Dr. M. Kuhn	South East Regional Health Authority, Moncton
12	Dr. R. Davidson	Queen Elizabeth II HSC, Halifax

# CANWARD 2012

## CANWARD 2012 – Methods

- 12 sentinel Canadian hospitals (8/10 provinces) participating
  - Regions: West (BC, AB, SK, MB), Ontario, Quebec, Maritimes
- Isolates from patients attending:
  - hospital clinics, ER, wards (medical, surgical) and ICUs
- Isolates per infection site:
  - blood (100), respiratory (100), urine (25), wound (25)

# CANWARD 2012 Study

## CANWARD 2012 – Isolate Selection

- Isolates from respiratory tract, blood, urinary tract, wounds/IV sites
- Isolates deemed “clinically significant” by local site criteria
- Consecutive pathogens
- One pathogen per patient per infection site
- Exclusions: eye/ear/nose swabs, genital tract specimens, surveillance swabs, anaerobes, fungi

# CANWARD 2012

## Ward Specimen Source

**N (%)**

	Clinic	ER	ICU	Med	Surg	Total
<b>National</b>	484 (17.2)	716 (25.5)	621 (22.1)	819 (29.2)	168 (6.0)	2808
<b>West</b>	182 (18.4)	270 (27.2)	225 (22.7)	246 (24.8)	68 (6.9)	991 (35.3%)
<b>Ontario</b>	90 (9.4)	200 (20.9)	268 (28.0)	340 (35.6)	58 (6.1)	956 (34.1%)
<b>Quebec</b>	113 (31.1)	144 (39.7)	25 (6.9)	67 (18.5)	14 (3.9)	363 (12.9%)
<b>Maritimes</b>	99 (19.9)	102 (20.5)	103 (20.7)	166 (33.3)	28 (5.6)	498 (17.7%)

# CANWARD 2012 Specimen Source

	Clinic		ER		ICU		Med		Surg		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Blood	79	16.3	471	65.8	185	29.8	382	46.6	51	30.4	1168	41.6
Resp	226	46.7	67	9.4	406	65.4	301	36.8	67	39.9	1067	38.0
Urine	91	18.8	112	15.6	10	1.6	65	7.9	20	11.9	298	10.6
Wound	88	18.2	66	9.2	20	3.2	71	8.7	30	17.9	275	9.8
<b>Total</b>	<b>484</b>		<b>716</b>		<b>621</b>		<b>819</b>		<b>168</b>		<b>2808</b>	

# CANWARD 2012

## Specimen (isolates) / Infection Site

**N (%)**

	Blood	Respiratory	Urine	Wound	Total
National	1168 (41.6)	1067 (38.0)	298 (10.6)	275 (9.8)	2808
West	398 (40.2)	393 (39.7)	100 (10.1)	100 (10.1)	991
Ontario	373 (39.0)	385 (40.3)	98 (10.3)	100 (10.5)	956
Quebec	198 (54.5)	90 (24.8)	50 (13.8)	25 (6.9)	363
Maritimes	199 (40.0)	199 (40.0)	50 (10.0)	50 (10.0)	498

# CANWARD 2012

## Patient Age Demographics

**N (%)**

	≤17	18-64	≥65	Total
National	451 (16.1)	1204 (42.9)	1153 (41.1)	2808
West	162 (16.3)	464 (46.8)	365 (36.8)	991
Ontario	265 (27.7)	379 (39.6)	312 (32.6)	956
Quebec	7 (1.9)	133 (36.6)	223 (61.4)	363
Maritimes	17 (3.4)	228 (45.8)	253 (50.8)	498



# CANWARD 2012

## Gender of Patient Isolates

**N (%)**

	Female	Male	Total
National	1251 (44.6)	1557 (55.4)	2808
West	430 (43.4)	561 (56.6)	991
Ontario	417 (43.6)	539 (56.4)	956
Quebec	173 (47.7)	190 (52.3)	363
Maritimes	231 (46.4)	267 (53.6)	498

# CANWARD 2012

## Bacteriology of Top 20 Organisms n=3557

### National - Overall

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	564	20.1
2	<i>Escherichia coli</i>	500	17.8
3	<i>Pseudomonas aeruginosa</i>	264	9.4
4	<i>Klebsiella pneumoniae</i>	169	6.0
5	<i>Haemophilus influenzae</i>	150	5.3
6	<i>Streptococcus pneumoniae</i>	143	5.1
7	<i>Staphylococcus aureus, MRSA</i>	125	4.5
8	<i>Enterococcus faecalis</i>	93	3.3
9	CNS / <i>Staphylococcus epidermidis</i>	85	3.0
10	<i>Enterobacter cloacae</i>	69	2.5
11	<i>Klebsiella oxytoca</i>	50	1.8
12	<i>Streptococcus agalactiae</i>	44	1.6
13	<i>Stenotrophomonas maltophilia</i>	43	1.5
14	<i>Serratia marcescens</i>	41	1.5
15	<i>Proteus mirabilis</i>	39	1.4
16	<i>Moraxella catarrhalis</i>	36	1.3
17	<i>Streptococcus pyogenes</i>	36	1.3
18	<i>Enterococcus faecium</i>	35	1.2
19	<i>Haemophilus parainfluenzae</i>	30	1.1
20	<i>Staphylococcus hominis</i>	26	0.9
	Other	266	9.5
		<b>2808</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms n=3557

West

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	190	19.2
2	<i>Escherichia coli</i>	163	16.4
3	<i>Pseudomonas aeruginosa</i>	69	7.0
4	<i>Haemophilus influenzae</i>	65	6.6
5	<i>Staphylococcus aureus, MRSA</i>	64	6.5
6	<i>Streptococcus pneumoniae</i>	58	5.9
7	<i>Klebsiella pneumoniae</i>	47	4.7
8	<i>Enterococcus faecalis</i>	35	3.5
9	<i>Enterobacter cloacae</i>	33	3.3
10	CNS / <i>Staphylococcus epidermidis</i>	30	3.0
11	<i>Klebsiella oxytoca</i>	25	2.5
12	<i>Stenotrophomonas maltophilia</i>	21	2.1
13	<i>Streptococcus agalactiae</i>	17	1.7
14	<i>Haemophilus parainfluenzae</i>	17	1.7
15	<i>Streptococcus pyogenes</i>	16	1.6
16	<i>Enterobacter aerogenes</i>	11	1.1
17	<i>Proteus mirabilis</i>	11	1.1
18	<i>Enterococcus faecium</i>	11	1.1
19	<i>Serratia marcescens</i>	11	1.1
20	<i>Candida albicans</i>	9	0.9
	Other	88	8.9
		<b>991</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms n=3557

### Ontario

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	212	22.2
2	<i>Escherichia coli</i>	172	18.0
3	<i>Pseudomonas aeruginosa</i>	116	12.1
4	<i>Klebsiella pneumoniae</i>	60	6.3
5	<i>Streptococcus pneumoniae</i>	47	4.9
6	<i>Staphylococcus aureus, MRSA</i>	39	4.1
7	<i>Haemophilus influenzae</i>	37	3.9
8	<i>Enterococcus faecalis</i>	30	3.1
9	CNS / <i>Staphylococcus epidermidis</i>	26	2.7
10	<i>Enterobacter cloacae</i>	23	2.4
11	<i>Enterococcus faecium</i>	17	1.8
12	<i>Moraxella catarrhalis</i>	17	1.8
13	<i>Serratia marcescens</i>	15	1.6
14	<i>Proteus mirabilis</i>	14	1.5
15	<i>Enterobacter aerogenes</i>	12	1.3
16	<i>Streptococcus pyogenes</i>	12	1.3
17	<i>Klebsiella oxytoca</i>	12	1.3
18	<i>Staphylococcus hominis</i>	9	0.9
19	<i>Stenotrophomonas maltophilia</i>	9	0.9
20	<i>Candida albicans</i>	6	0.6
	Other	71	7.4
		<b>956</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms n=3557

### Quebec

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	75	20.7
2	<i>Staphylococcus aureus, MSSA</i>	54	14.9
3	<i>Klebsiella pneumoniae</i>	32	8.8
4	<i>Pseudomonas aeruginosa</i>	29	8.0
5	CNS / <i>Staphylococcus epidermidis</i>	19	5.2
6	<i>Streptococcus pneumoniae</i>	16	4.4
7	<i>Haemophilus influenzae</i>	14	3.9
8	<i>Enterococcus faecalis</i>	13	3.6
9	<i>Haemophilus parainfluenzae</i>	11	3.0
10	<i>Streptococcus agalactiae</i>	11	3.0
11	<i>Staphylococcus hominis</i>	10	2.8
12	<i>Staphylococcus aureus, MRSA</i>	7	1.9
13	<i>Staphylococcus capitis</i>	5	1.4
14	<i>Proteus mirabilis</i>	5	1.4
15	<i>Enterobacter cloacae</i>	5	1.4
16	<i>Klebsiella oxytoca</i>	5	1.4
17	<i>Moraxella catarrhalis</i>	5	1.4
18	<i>Streptococcus pyogenes</i>	4	1.1
19	<i>Streptococcus viridans</i>	4	1.1
20	<i>Stenotrophomonas maltophilia</i>	4	1.1
	Other	35	9.6
		<b>363</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms n=3557

### Maritimes

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	108	21.7
2	<i>Escherichia coli</i>	90	18.1
3	<i>Pseudomonas aeruginosa</i>	50	10.0
4	<i>Haemophilus influenzae</i>	34	6.8
5	<i>Klebsiella pneumoniae</i>	30	6.0
6	<i>Streptococcus pneumoniae</i>	22	4.4
7	<i>Staphylococcus aureus, MRSA</i>	15	3.0
8	<i>Enterococcus faecalis</i>	15	3.0
9	<i>Serratia marcescens</i>	14	2.8
10	<i>Streptococcus agalactiae</i>	11	2.2
11	CNS / <i>Staphylococcus epidermidis</i>	10	2.0
12	<i>Stenotrophomonas maltophilia</i>	9	1.8
13	<i>Proteus mirabilis</i>	9	1.8
14	<i>Moraxella catarrhalis</i>	8	1.6
15	<i>Enterobacter cloacae</i>	8	1.6
16	<i>Klebsiella oxytoca</i>	8	1.6
17	<i>Enterococcus faecium</i>	5	1.0
18	<i>Streptococcus, Beta-H, Grp G</i>	5	1.0
19	<i>Streptococcus pyogenes</i>	4	0.8
20	<i>Streptococcus, Beta-H, Grp C</i>	4	0.8
	Other	39	7.8
		<b>498</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Blood/Sterile Sites

National			
Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	275	23.5
2	<i>Staphylococcus aureus, MSSA</i>	189	16.2
3	<i>Klebsiella pneumoniae</i>	90	7.7
4	CNS / <i>Staphylococcus epidermidis</i>	71	6.1
5	<i>Pseudomonas aeruginosa</i>	50	4.3
6	<i>Streptococcus pneumoniae</i>	49	4.2
7	<i>Enterococcus faecalis</i>	42	3.6
8	<i>Staphylococcus aureus, MRSA</i>	37	3.2
9	<i>Streptococcus agalactiae</i>	30	2.6
10	<i>Enterobacter cloacae</i>	29	2.5
11	<i>Enterococcus faecium</i>	28	2.4
12	<i>Staphylococcus hominis</i>	26	2.2
13	<i>Streptococcus pyogenes</i>	21	1.8
14	<i>Klebsiella oxytoca</i>	17	1.5
15	<i>Proteus mirabilis</i>	15	1.3
16	<i>Serratia marcescens</i>	14	1.2
17	<i>Candida albicans</i>	14	1.2
18	<i>Staphylococcus capitis</i>	10	0.9
19	<i>Streptococcus viridans</i>	10	0.9
20	<i>Streptococcus, Beta-H, Grp G</i>	8	0.7
	Other	143	12.2
		<b>1168</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Blood/Sterile Sites

West

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	89	22.4
2	<i>Staphylococcus aureus, MSSA</i>	72	18.1
3	<i>Klebsiella pneumoniae</i>	23	5.8
4	<i>CNS / Staphylococcus epidermidis</i>	20	5.0
5	<i>Streptococcus pneumoniae</i>	20	5.0
6	<i>Enterococcus faecalis</i>	16	4.0
7	<i>Staphylococcus aureus, MRSA</i>	16	4.0
8	<i>Streptococcus agalactiae</i>	14	3.5
9	<i>Pseudomonas aeruginosa</i>	13	3.3
10	<i>Enterobacter cloacae</i>	12	3.0
11	<i>Streptococcus pyogenes</i>	11	2.8
12	<i>Candida albicans</i>	9	2.3
13	<i>Enterococcus faecium</i>	8	2.0
14	<i>Klebsiella oxytoca</i>	7	1.8
15	<i>Serratia marcescens</i>	6	1.5
16	<i>Staphylococcus hominis</i>	5	1.3
17	<i>Acinetobacter baumannii</i>	4	1.0
18	<i>Proteus mirabilis</i>	4	1.0
19	<i>Candida glabrata</i>	3	0.8
20	<i>Streptococcus viridans</i>	3	0.8
	Other	43	10.8
		<b>398</b>	



# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Blood/Sterile Sites

### Ontario

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	90	24.1
2	<i>Staphylococcus aureus, MSSA</i>	53	14.2
3	<i>Klebsiella pneumoniae</i>	32	8.6
4	<i>Pseudomonas aeruginosa</i>	23	6.2
5	CNS / <i>Staphylococcus epidermidis</i>	23	6.2
6	<i>Enterococcus faecalis</i>	17	4.6
7	<i>Streptococcus pneumoniae</i>	15	4.0
8	<i>Enterococcus faecium</i>	13	3.5
9	<i>Enterobacter cloacae</i>	12	3.2
10	<i>Staphylococcus aureus, MRSA</i>	10	2.7
11	<i>Staphylococcus hominis</i>	9	2.4
12	<i>Streptococcus agalactiae</i>	5	1.3
13	<i>Candida albicans</i>	4	1.1
14	<i>Streptococcus pyogenes</i>	4	1.1
15	<i>Bacillus, non-speciated</i>	4	1.1
16	<i>Staphylococcus capitis</i>	4	1.1
17	<i>Klebsiella oxytoca</i>	4	1.1
18	<i>Serratia marcescens</i>	4	1.1
19	<i>Citrobacter freundii</i>	3	0.8
20	<i>Proteus mirabilis</i>	3	0.8
	Other	41	11.0
		<b>373</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Blood/Sterile Sites

### Quebec

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	50	25.3
2	<i>Staphylococcus aureus, MSSA</i>	25	12.6
3	CNS / <i>Staphylococcus epidermidis</i>	19	9.6
4	<i>Klebsiella pneumoniae</i>	16	8.1
5	<i>Streptococcus pneumoniae</i>	12	6.1
6	<i>Staphylococcus hominis</i>	10	5.1
7	<i>Pseudomonas aeruginosa</i>	6	3.0
8	<i>Staphylococcus capitis</i>	5	2.5
9	<i>Streptococcus agalactiae</i>	4	2.0
10	<i>Streptococcus viridans</i>	4	2.0
11	<i>Klebsiella oxytoca</i>	4	2.0
12	<i>Streptococcus pyogenes</i>	4	2.0
13	<i>Proteus mirabilis</i>	4	2.0
14	<i>Enterobacter cloacae</i>	3	1.5
15	<i>Haemophilus influenzae</i>	3	1.5
16	<i>Staphylococcus aureus, MRSA</i>	3	1.5
17	<i>Streptococcus mitis</i>	2	1.0
18	<i>Micrococcus, non-speciated</i>	2	1.0
19	<i>Streptococcus, Beta-H, Grp C</i>	2	1.0
20	<i>Streptococcus, Beta-H, Grp G</i>	2	1.0
	Other	18	9.1
		<b>198</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Blood/Sterile Sites

### Maritimes

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	46	23.1
2	<i>Staphylococcus aureus, MSSA</i>	39	19.6
3	<i>Klebsiella pneumoniae</i>	19	9.5
4	<i>Enterococcus faecalis</i>	9	4.5
5	CNS / <i>Staphylococcus epidermidis</i>	9	4.5
6	<i>Pseudomonas aeruginosa</i>	8	4.0
7	<i>Staphylococcus aureus, MRSA</i>	8	4.0
8	<i>Streptococcus agalactiae</i>	7	3.5
9	<i>Enterococcus faecium</i>	5	2.5
10	<i>Serratia marcescens</i>	4	2.0
11	<i>Proteus mirabilis</i>	4	2.0
12	<i>Streptococcus, Beta-H, Grp G</i>	4	2.0
13	<i>Stenotrophomonas maltophilia</i>	2	1.0
14	<i>Staphylococcus hominis</i>	2	1.0
15	<i>Streptococcus pyogenes</i>	2	1.0
16	<i>Enterobacter cloacae</i>	2	1.0
17	<i>Staphylococcus warneri</i>	2	1.0
18	<i>Streptococcus pneumoniae</i>	2	1.0
19	<i>Streptococcus, Beta-H, Grp C</i>	2	1.0
20	<i>Klebsiella oxytoca</i>	2	1.0
	Other	21	10.6
		<b>199</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Respiratory

National			
Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	242	22.7
2	<i>Pseudomonas aeruginosa</i>	185	17.3
3	<i>Haemophilus influenzae</i>	142	13.3
4	<i>Streptococcus pneumoniae</i>	94	8.8
5	<i>Staphylococcus aureus, MRSA</i>	58	5.4
6	<i>Escherichia coli</i>	56	5.2
7	<i>Klebsiella pneumoniae</i>	48	4.5
8	<i>Moraxella catarrhalis</i>	36	3.4
9	<i>Stenotrophomonas maltophilia</i>	35	3.3
10	<i>Enterobacter cloacae</i>	29	2.7
11	<i>Haemophilus parainfluenzae</i>	27	2.5
12	<i>Serratia marcescens</i>	24	2.2
13	<i>Klebsiella oxytoca</i>	18	1.7
14	<i>Enterobacter aerogenes</i>	10	0.9
15	<i>Streptococcus agalactiae</i>	9	0.8
16	<i>Acinetobacter baumannii</i>	7	0.7
17	<i>Proteus mirabilis</i>	6	0.6
18	<i>Streptococcus pyogenes</i>	4	0.4
19	<i>Corynebacterium pseudodiphtheriticum</i>	3	0.3
20	<i>Pseudomonas putida</i>	3	0.3
	Other	31	2.9
		<b>1067</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Respiratory

West

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	76	19.3
2	<i>Haemophilus influenzae</i>	61	15.5
3	<i>Pseudomonas aeruginosa</i>	51	13.0
4	<i>Streptococcus pneumoniae</i>	38	9.7
5	<i>Staphylococcus aureus, MRSA</i>	28	7.1
6	<i>Escherichia coli</i>	23	5.9
7	<i>Stenotrophomonas maltophilia</i>	19	4.8
8	<i>Klebsiella pneumoniae</i>	16	4.1
9	<i>Enterobacter cloacae</i>	15	3.8
10	<i>Haemophilus parainfluenzae</i>	15	3.8
11	<i>Klebsiella oxytoca</i>	11	2.8
12	<i>Moraxella catarrhalis</i>	6	1.5
13	<i>Enterobacter aerogenes</i>	6	1.5
14	<i>Serratia marcescens</i>	4	1.0
15	<i>Acinetobacter baumannii</i>	4	1.0
16	<i>Streptococcus agalactiae</i>	3	0.8
17	<i>Corynebacterium pseudodiphtheriticum</i>	2	0.5
18	<i>Enterococcus faecalis</i>	2	0.5
19	<i>Burkholderia cepacia</i>	2	0.5
20	<i>Acinetobacter, non-specified</i>	1	0.3
	Other	10	2.5
		<b>393</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Respiratory

Ontario

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	114	29.6
2	<i>Pseudomonas aeruginosa</i>	84	21.8
3	<i>Haemophilus influenzae</i>	37	9.6
4	<i>Streptococcus pneumoniae</i>	32	8.3
5	<i>Staphylococcus aureus, MRSA</i>	19	4.9
6	<i>Klebsiella pneumoniae</i>	19	4.9
7	<i>Moraxella catarrhalis</i>	17	4.4
8	<i>Escherichia coli</i>	16	4.2
9	<i>Serratia marcescens</i>	10	2.6
10	<i>Stenotrophomonas maltophilia</i>	7	1.8
11	<i>Enterobacter cloacae</i>	7	1.8
12	<i>Enterobacter aerogenes</i>	4	1.0
13	<i>Proteus mirabilis</i>	3	0.8
14	<i>Klebsiella oxytoca</i>	3	0.8
15	<i>Candida albicans</i>	2	0.5
16	<i>Alcaligenes xylosoxidans</i>	2	0.5
17	<i>Streptococcus pyogenes</i>	2	0.5
18	<i>Acinetobacter baumannii</i>	1	0.3
19	<i>Pasteurella multocida</i>	1	0.3
20	<i>Achromobacter, non-speciated</i>	1	0.3
	Other	4	1.0
		<b>385</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Respiratory

### Quebec

Rank	Organism	n	% of Total
1	<i>Pseudomonas aeruginosa</i>	17	18.9
2	<i>Staphylococcus aureus</i> , MSSA	14	15.6
3	<i>Haemophilus influenzae</i>	11	12.2
4	<i>Haemophilus parainfluenzae</i>	11	12.2
5	<i>Streptococcus agalactiae</i>	5	5.6
6	<i>Escherichia coli</i>	5	5.6
7	<i>Moraxella catarrhalis</i>	5	5.6
8	<i>Staphylococcus aureus</i> , MRSA	4	4.4
9	<i>Klebsiella pneumoniae</i>	4	4.4
10	<i>Streptococcus pneumoniae</i>	4	4.4
11	<i>Stenotrophomonas maltophilia</i>	3	3.3
12	<i>Enterobacter cloacae</i>	2	2.2
13	<i>Klebsiella oxytoca</i>	1	1.1
14	<i>Acinetobacter calcoaceticus</i>	1	1.1
15	<i>Chryseobacterium indologenes</i>	1	1.1
16	<i>Enterococcus faecalis</i>	1	1.1
17	<i>Alcaligenes xylosoxidans</i>	1	1.1
		<b>90</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Respiratory

### Maritimes

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	38	19.1
2	<i>Pseudomonas aeruginosa</i>	33	16.6
3	<i>Haemophilus influenzae</i>	33	16.6
4	<i>Streptococcus pneumoniae</i>	20	10.1
5	<i>Escherichia coli</i>	12	6.0
6	<i>Serratia marcescens</i>	10	5.0
7	<i>Klebsiella pneumoniae</i>	9	4.5
8	<i>Moraxella catarrhalis</i>	8	4.0
9	<i>Staphylococcus aureus, MRSA</i>	7	3.5
10	<i>Stenotrophomonas maltophilia</i>	6	3.0
11	<i>Enterobacter cloacae</i>	5	2.5
12	<i>Klebsiella oxytoca</i>	3	1.5
13	<i>Proteus mirabilis</i>	2	1.0
14	<i>Pseudomonas putida</i>	2	1.0
15	<i>Acinetobacter baumannii</i>	2	1.0
16	<i>Raoultella planticola</i>	1	0.5
17	<i>Citrobacter koseri</i>	1	0.5
18	<i>Haemophilus parainfluenzae</i>	1	0.5
19	<i>Moraxella, non-speciated</i>	1	0.5
20	<i>Citrobacter freundii</i>	1	0.5
	Other	4	2.0
		<b>199</b>	



# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Urine

National			
Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	154	51.7
2	<i>Enterococcus faecalis</i>	36	12.1
3	<i>Klebsiella pneumoniae</i>	28	9.4
4	<i>Proteus mirabilis</i>	14	4.7
5	<i>Klebsiella oxytoca</i>	11	3.7
6	CNS / <i>Staphylococcus epidermidis</i>	8	2.7
7	<i>Enterobacter aerogenes</i>	8	2.7
8	<i>Staphylococcus aureus</i> , MSSA	7	2.3
9	<i>Pseudomonas aeruginosa</i>	7	2.3
10	<i>Enterobacter cloacae</i>	6	2.0
11	<i>Citrobacter freundii</i>	3	1.0
12	<i>Citrobacter amalonaticus</i>	2	0.7
13	<i>Streptococcus agalactiae</i>	2	0.7
14	<i>Morganella morganii</i>	2	0.7
15	<i>Enterococcus faecium</i>	2	0.7
16	<i>Citrobacter braakii</i>	1	0.3
17	<i>Enterobacter amnigenus</i>	1	0.3
18	<i>Serratia marcescens</i>	1	0.3
19	<i>Citrobacter koseri</i>	1	0.3
20	<i>Staphylococcus saprophyticus</i>	1	0.3
	Other	3	1.0
		<b>298</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Urine

West

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	50	50.0
2	<i>Enterococcus faecalis</i>	11	11.0
3	<i>Klebsiella pneumoniae</i>	8	8.0
4	CNS / <i>Staphylococcus epidermidis</i>	6	6.0
5	<i>Klebsiella oxytoca</i>	6	6.0
6	<i>Proteus mirabilis</i>	4	4.0
7	<i>Enterobacter cloacae</i>	3	3.0
8	<i>Enterobacter aerogenes</i>	3	3.0
9	<i>Citrobacter freundii</i>	2	2.0
10	<i>Staphylococcus aureus</i> , MSSA	2	2.0
11	<i>Enterococcus faecium</i>	1	1.0
12	<i>Pseudomonas aeruginosa</i>	1	1.0
13	<i>Citrobacter amalonaticus</i>	1	1.0
14	<i>Enterobacter amnigenus</i>	1	1.0
15	<i>Staphylococcus saprophyticus</i>	1	1.0
		<b>100</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Urine

Ontario

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	55	56.1
2	<i>Enterococcus faecalis</i>	10	10.2
3	<i>Proteus mirabilis</i>	6	6.1
4	<i>Klebsiella pneumoniae</i>	6	6.1
5	<i>Enterobacter aerogenes</i>	5	5.1
6	<i>Klebsiella oxytoca</i>	3	3.1
7	<i>Enterobacter cloacae</i>	3	3.1
8	<i>Pseudomonas aeruginosa</i>	2	2.0
9	CNS / <i>Staphylococcus epidermidis</i>	2	2.0
10	<i>Citrobacter amalonaticus</i>	1	1.0
11	<i>Staphylococcus aureus</i> , MSSA	1	1.0
12	<i>Serratia fonticola</i>	1	1.0
13	<i>Enterococcus faecium</i>	1	1.0
14	<i>Hafnia alvei</i>	1	1.0
15	<i>Streptococcus pyogenes</i>	1	1.0
		<b>98</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Urine

Quebec

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	19	38.0
2	<i>Klebsiella pneumoniae</i>	12	24.0
3	Enterococcus faecalis	10	20.0
4	<i>Staphylococcus aureus, MSSA</i>	2	4.0
5	<i>Proteus mirabilis</i>	1	2.0
6	<i>Citrobacter koseri</i>	1	2.0
7	<i>Pseudomonas aeruginosa</i>	1	2.0
8	<i>Serratia marcescens</i>	1	2.0
9	<i>Citrobacter braakii</i>	1	2.0
10	<i>Morganella morganii</i>	1	2.0
11	<i>Streptococcus agalactiae</i>	1	2.0
		<b>50</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Urine

### Maritimes

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	30	60.0
2	<i>Enterococcus faecalis</i>	5	10.0
3	<i>Proteus mirabilis</i>	3	6.0
4	<i>Pseudomonas aeruginosa</i>	3	6.0
5	<i>Staphylococcus aureus, MSSA</i>	2	4.0
6	<i>Klebsiella oxytoca</i>	2	4.0
7	<i>Klebsiella pneumoniae</i>	2	4.0
8	<i>Citrobacter freundii</i>	1	2.0
9	<i>Morganella morganii</i>	1	2.0
10	<i>Streptococcus agalactiae</i>	1	2.0
		<b>50</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Wounds/IV

National			
Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	126	45.8
2	<i>Staphylococcus aureus, MRSA</i>	30	10.9
3	<i>Pseudomonas aeruginosa</i>	22	8.0
4	<i>Escherichia coli</i>	15	5.5
5	<i>Enterococcus faecalis</i>	12	4.4
6	<i>Streptococcus pyogenes</i>	10	3.6
7	CNS / <i>Staphylococcus epidermidis</i>	6	2.2
8	<i>Streptococcus, Beta-H, Grp G</i>	6	2.2
9	<i>Enterobacter cloacae</i>	5	1.8
10	<i>Klebsiella oxytoca</i>	4	1.5
11	<i>Proteus mirabilis</i>	4	1.5
12	<i>Enterococcus faecium</i>	4	1.5
13	<i>Streptococcus agalactiae</i>	3	1.1
14	<i>Klebsiella pneumoniae</i>	3	1.1
15	<i>Streptococcus, Beta-H, Grp C</i>	3	1.1
16	<i>Enterobacter aerogenes</i>	2	0.7
17	<i>Staphylococcus lugdunensis</i>	2	0.7
18	<i>Serratia marcescens</i>	2	0.7
19	<i>Haemophilus parainfluenzae</i>	1	0.4
20	<i>Pasteurella multocida</i>	1	0.4
	Other	14	5.1
		<b>275</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Wounds/IV

West

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	40	40.0
2	<i>Staphylococcus aureus, MRSA</i>	20	20.0
3	<i>Enterococcus faecalis</i>	6	6.0
4	<i>Streptococcus pyogenes</i>	4	4.0
5	CNS / <i>Staphylococcus epidermidis</i>	4	4.0
6	<i>Pseudomonas aeruginosa</i>	4	4.0
7	<i>Enterobacter cloacae</i>	3	3.0
8	<i>Streptococcus, Beta-H, Grp G</i>	3	3.0
9	<i>Proteus mirabilis</i>	2	2.0
10	<i>Klebsiella oxytoca</i>	1	1.0
11	<i>Serratia marcescens</i>	1	1.0
12	<i>Myroides non-speciated</i>	1	1.0
13	<i>Enterococcus avium</i>	1	1.0
14	<i>Haemophilus parainfluenzae</i>	1	1.0
15	<i>Enterococcus casseliflavus</i>	1	1.0
16	<i>Morganella morganii</i>	1	1.0
17	<i>Enterococcus faecium</i>	1	1.0
18	<i>Citrobacter freundii</i>	1	1.0
19	<i>Pasteurella multocida</i>	1	1.0
20	<i>Escherichia coli</i>	1	1.0
	Other	3	3.0
		<b>100</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Wounds/IV

### Ontario

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	44	44.0
2	<i>Escherichia coli</i>	11	11.0
3	<i>Staphylococcus aureus, MRSA</i>	10	10.0
4	<i>Pseudomonas aeruginosa</i>	7	7.0
5	<i>Streptococcus pyogenes</i>	5	5.0
6	<i>Enterococcus faecalis</i>	3	3.0
7	<i>Klebsiella pneumoniae</i>	3	3.0
8	<i>Enterococcus faecium</i>	3	3.0
9	<i>Enterobacter aerogenes</i>	2	2.0
10	<i>Proteus mirabilis</i>	2	2.0
11	<i>Klebsiella oxytoca</i>	2	2.0
12	<i>Serratia marcescens</i>	1	1.0
13	<i>Citrobacter koseri</i>	1	1.0
14	<i>Aeromonas sobria</i>	1	1.0
15	<i>Enterobacter cloacae</i>	1	1.0
16	<i>CNS / Staphylococcus epidermidis</i>	1	1.0
17	<i>Capnocytophaga, non-speciated</i>	1	1.0
18	<i>Streptococcus, Beta-H, Grp C</i>	1	1.0
19	<i>Streptococcus, Beta-H, Grp G</i>	1	1.0
		<b>100</b>	



# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Wounds/IV

### Quebec

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	13	52.0
2	<i>Pseudomonas aeruginosa</i>	5	20.0
3	<i>Enterococcus faecalis</i>	2	8.0
4	<i>Citrobacter youngae</i>	1	4.0
5	<i>Acinetobacter calcoaceticus</i>	1	4.0
6	<i>Streptococcus agalactiae</i>	1	4.0
7	<i>Escherichia coli</i>	1	4.0
8	<i>Streptococcus, Beta-H, Grp G</i>	1	4.0
		<b>25</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Specimen Source – Wounds/IV

### Maritimes

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	29	58.0
2	<i>Pseudomonas aeruginosa</i>	6	12.0
3	<i>Streptococcus agalactiae</i>	2	4.0
4	<i>Escherichia coli</i>	2	4.0
5	<i>Streptococcus, Beta-H, Grp C</i>	1	2.0
6	<i>Serratia liquefaciens</i>	1	2.0
7	<i>Enterococcus faecalis</i>	1	2.0
8	<i>Staphylococcus lugdunensis</i>	1	2.0
9	<i>CNS / Staphylococcus epidermidis</i>	1	2.0
10	<i>Enterobacter cloacae</i>	1	2.0
11	<i>Stenotrophomonas maltophilia</i>	1	2.0
12	<i>Klebsiella oxytoca</i>	1	2.0
13	<i>Streptococcus pyogenes</i>	1	2.0
14	<i>Kocuria kristinae</i>	1	2.0
15	<i>Streptococcus, Beta-H, Grp G</i>	1	2.0
		<b>50</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age ≤17 years

National

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	84	18.6
2	<i>Escherichia coli</i>	51	11.3
3	<i>Haemophilus influenzae</i>	47	10.4
4	<i>Pseudomonas aeruginosa</i>	39	8.6
5	<i>Streptococcus pneumoniae</i>	33	7.3
6	CNS / <i>Staphylococcus epidermidis</i>	22	4.9
7	<i>Enterobacter cloacae</i>	18	4.0
8	<i>Staphylococcus aureus, MRSA</i>	17	3.8
9	<i>Klebsiella pneumoniae</i>	17	3.8
10	<i>Streptococcus pyogenes</i>	15	3.3
11	<i>Moraxella catarrhalis</i>	15	3.3
12	<i>Stenotrophomonas maltophilia</i>	10	2.2
13	<i>Enterococcus faecalis</i>	10	2.2
14	<i>Klebsiella oxytoca</i>	8	1.8
15	<i>Proteus mirabilis</i>	8	1.8
16	<i>Serratia marcescens</i>	7	1.6
17	<i>Streptococcus agalactiae</i>	7	1.6
18	<i>Staphylococcus hominis</i>	6	1.3
19	<i>Staphylococcus warneri</i>	3	0.7
20	<i>Staphylococcus capitis</i>	3	0.7
	Other	31	6.9
		<b>451</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age ≤17 years

West

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	34	21.0
2	<i>Haemophilus influenzae</i>	20	12.3
3	<i>Pseudomonas aeruginosa</i>	16	9.9
4	<i>Escherichia coli</i>	11	6.8
5	<i>Staphylococcus aureus, MRSA</i>	9	5.6
6	<i>Streptococcus pneumoniae</i>	9	5.6
7	CNS / <i>Staphylococcus epidermidis</i>	8	4.9
8	<i>Enterobacter cloacae</i>	7	4.3
9	<i>Stenotrophomonas maltophilia</i>	6	3.7
10	<i>Streptococcus agalactiae</i>	5	3.1
11	<i>Enterococcus faecalis</i>	5	3.1
12	<i>Klebsiella oxytoca</i>	5	3.1
13	<i>Klebsiella pneumoniae</i>	5	3.1
14	<i>Streptococcus pyogenes</i>	5	3.1
15	<i>Serratia marcescens</i>	4	2.5
16	<i>Streptococcus mitis</i>	1	0.6
17	<i>Staphylococcus hominis</i>	1	0.6
18	<i>Enterobacter aerogenes</i>	1	0.6
19	<i>Salmonella, non-speciated</i>	1	0.6
20	<i>Staphylococcus warneri</i>	1	0.6
	Other	8	4.9
		<b>162</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age ≤17 years

Ontario

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	45	17.0
2	<i>Escherichia coli</i>	39	14.7
3	<i>Haemophilus influenzae</i>	25	9.4
4	<i>Streptococcus pneumoniae</i>	23	8.7
5	<i>Pseudomonas aeruginosa</i>	21	7.9
6	<i>Moraxella catarrhalis</i>	14	5.3
7	CNS / <i>Staphylococcus epidermidis</i>	13	4.9
8	<i>Streptococcus pyogenes</i>	9	3.4
9	<i>Enterobacter cloacae</i>	9	3.4
10	<i>Klebsiella pneumoniae</i>	9	3.4
11	<i>Staphylococcus aureus, MRSA</i>	8	3.0
12	<i>Proteus mirabilis</i>	7	2.6
13	<i>Staphylococcus hominis</i>	5	1.9
14	<i>Enterococcus faecalis</i>	4	1.5
15	<i>Stenotrophomonas maltophilia</i>	4	1.5
16	<i>Klebsiella oxytoca</i>	3	1.1
17	<i>Staphylococcus capitis</i>	3	1.1
18	<i>Serratia marcescens</i>	2	0.8
19	<i>Enterobacter agglomerans</i>	1	0.4
20	<i>Staphylococcus lugdunensis</i>	1	0.4
	Other	20	7.5
		<b>265</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age ≤17 years

### Quebec

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	2	28.6
2	<i>Escherichia coli</i>	1	14.3
3	<i>Klebsiella pneumoniae</i>	1	14.3
4	<i>Citrobacter koseri</i>	1	14.3
5	<i>Enterococcus faecalis</i>	1	14.3
6	<i>Streptococcus pneumoniae</i>	1	14.3
		<b>7</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age ≤17 years

### Maritimes

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	3	17.6
2	<i>Haemophilus influenzae</i>	2	11.8
3	<i>Pseudomonas aeruginosa</i>	2	11.8
4	<i>Enterobacter cloacae</i>	2	11.8
5	<i>Klebsiella pneumoniae</i>	2	11.8
6	<i>Serratia marcescens</i>	1	5.9
7	<i>Streptococcus agalactiae</i>	1	5.9
8	<i>Staphylococcus warneri</i>	1	
9	CNS / <i>Staphylococcus epidermidis</i>	1	
10	<i>Pseudomonas putida</i>	1	5.9
11	<i>Streptococcus pyogenes</i>	1	5.9
		<b>17</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age 18-64 years

National			
Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	298	24.8
2	<i>Escherichia coli</i>	192	15.9
3	<i>Pseudomonas aeruginosa</i>	112	9.3
4	<i>Streptococcus pneumoniae</i>	75	6.2
5	<i>Klebsiella pneumoniae</i>	63	5.2
6	<i>Staphylococcus aureus, MRSA</i>	62	5.1
7	<i>Haemophilus influenzae</i>	59	4.9
8	<i>Enterococcus faecalis</i>	36	3.0
9	CNS / <i>Staphylococcus epidermidis</i>	34	2.8
10	<i>Enterobacter cloacae</i>	27	2.2
11	<i>Streptococcus agalactiae</i>	20	1.7
12	<i>Enterococcus faecium</i>	19	1.6
13	<i>Haemophilus parainfluenzae</i>	16	1.3
14	<i>Serratia marcescens</i>	15	1.2
15	<i>Stenotrophomonas maltophilia</i>	15	1.2
16	<i>Klebsiella oxytoca</i>	13	1.1
17	<i>Streptococcus pyogenes</i>	12	1.0
18	<i>Proteus mirabilis</i>	12	1.0
19	<i>Acinetobacter baumannii</i>	10	0.8
20	<i>Enterobacter aerogenes</i>	10	0.8
	Other	104	8.6
		<b>1204</b>	



# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age 18-64 years

West

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	117	25.2
2	<i>Escherichia coli</i>	69	14.9
3	<i>Staphylococcus aureus, MRSA</i>	35	7.5
4	<i>Streptococcus pneumoniae</i>	33	7.1
5	<i>Pseudomonas aeruginosa</i>	30	6.5
6	<i>Haemophilus influenzae</i>	30	6.5
7	<i>Klebsiella pneumoniae</i>	16	3.4
8	<i>Enterobacter cloacae</i>	14	3.0
9	CNS / <i>Staphylococcus epidermidis</i>	14	3.0
10	<i>Enterococcus faecalis</i>	14	3.0
11	<i>Haemophilus parainfluenzae</i>	10	2.2
12	<i>Streptococcus agalactiae</i>	7	1.5
13	<i>Streptococcus pyogenes</i>	7	1.5
14	<i>Klebsiella oxytoca</i>	6	1.3
15	<i>Acinetobacter baumannii</i>	6	1.3
16	<i>Enterobacter aerogenes</i>	5	1.1
17	<i>Enterococcus faecium</i>	5	1.1
18	<i>Proteus mirabilis</i>	4	0.9
19	<i>Stenotrophomonas maltophilia</i>	3	0.6
20	<i>Candida albicans</i>	3	0.6
	Other	36	7.8
		<b>464</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age 18-64 years

Ontario

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	99	26.1
2	<i>Escherichia coli</i>	63	16.6
3	<i>Pseudomonas aeruginosa</i>	54	14.2
4	<i>Klebsiella pneumoniae</i>	25	6.6
5	<i>Streptococcus pneumoniae</i>	20	5.3
6	<i>Staphylococcus aureus, MRSA</i>	16	4.2
7	<i>Enterococcus faecalis</i>	11	2.9
8	<i>Enterococcus faecium</i>	11	2.9
9	<i>Serratia marcescens</i>	10	2.6
10	<i>Enterobacter cloacae</i>	8	2.1
11	CNS / <i>Staphylococcus epidermidis</i>	8	2.1
12	<i>Haemophilus influenzae</i>	6	1.6
13	<i>Enterobacter aerogenes</i>	5	1.3
14	<i>Klebsiella oxytoca</i>	4	1.1
15	<i>Proteus mirabilis</i>	4	1.1
16	<i>Citrobacter freundii</i>	4	1.1
17	<i>Stenotrophomonas maltophilia</i>	3	0.8
18	<i>Streptococcus pyogenes</i>	2	0.5
19	<i>Streptococcus agalactiae</i>	2	0.5
20	<i>Acinetobacter baumannii</i>	2	0.5
	Other	22	5.8
		<b>379</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age 18-64 years

Quebec

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	24	18.0
2	<i>Escherichia coli</i>	23	17.3
3	<i>Klebsiella pneumoniae</i>	11	8.3
4	<i>Streptococcus pneumoniae</i>	10	7.5
5	CNS / <i>Staphylococcus epidermidis</i>	9	6.8
6	<i>Haemophilus influenzae</i>	7	5.3
7	<i>Streptococcus agalactiae</i>	6	4.5
8	<i>Pseudomonas aeruginosa</i>	6	4.5
9	<i>Haemophilus parainfluenzae</i>	5	3.8
10	<i>Enterococcus faecalis</i>	5	3.8
11	<i>Staphylococcus hominis</i>	4	3.0
12	<i>Stenotrophomonas maltophilia</i>	2	1.5
13	<i>Staphylococcus aureus, MRSA</i>	2	1.5
14	<i>Enterobacter cloacae</i>	2	1.5
15	<i>Streptococcus viridans</i>	2	1.5
16	<i>Moraxella catarrhalis</i>	2	1.5
17	<i>Morganella morganii</i>	1	0.8
18	<i>Streptococcus pyogenes</i>	1	0.8
19	<i>Streptococcus mitis</i>	1	0.8
20	<i>Acinetobacter baumannii</i>	1	0.8
	Other	9	6.8
		<b>133</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age 18-64 years

### Maritimes

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	58	25.4
2	<i>Escherichia coli</i>	37	16.2
3	<i>Pseudomonas aeruginosa</i>	22	9.6
4	<i>Haemophilus influenzae</i>	16	7.0
5	<i>Streptococcus pneumoniae</i>	12	5.3
6	<i>Klebsiella pneumoniae</i>	11	4.8
7	<i>Staphylococcus aureus, MRSA</i>	9	3.9
8	<i>Stenotrophomonas maltophilia</i>	7	3.1
9	<i>Enterococcus faecalis</i>	6	2.6
10	<i>Streptococcus agalactiae</i>	5	2.2
11	<i>Serratia marcescens</i>	5	2.2
12	<i>Moraxella catarrhalis</i>	4	1.8
13	<i>Proteus mirabilis</i>	3	1.3
14	<i>Enterococcus faecium</i>	3	1.3
15	CNS / <i>Staphylococcus epidermidis</i>	3	1.3
16	<i>Enterobacter cloacae</i>	3	1.3
17	<i>Klebsiella oxytoca</i>	3	1.3
18	<i>Streptococcus pyogenes</i>	2	0.9
19	<i>Streptococcus, Beta-H, Grp G</i>	2	0.9
20	<i>Staphylococcus lugdunensis</i>	1	0.4
	Other	16	7.0
		<b>228</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age $\geq 65$ years

National			
Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	257	22.3
2	<i>Staphylococcus aureus, MSSA</i>	182	15.8
3	<i>Pseudomonas aeruginosa</i>	113	9.8
4	<i>Klebsiella pneumoniae</i>	89	7.7
5	<i>Enterococcus faecalis</i>	47	4.1
6	<i>Staphylococcus aureus, MRSA</i>	46	4.0
7	<i>Haemophilus influenzae</i>	44	3.8
8	<i>Streptococcus pneumoniae</i>	35	3.0
9	CNS / <i>Staphylococcus epidermidis</i>	29	2.5
10	<i>Klebsiella oxytoca</i>	29	2.5
11	<i>Enterobacter cloacae</i>	24	2.1
12	<i>Serratia marcescens</i>	19	1.6
13	<i>Proteus mirabilis</i>	19	1.6
14	<i>Stenotrophomonas maltophilia</i>	18	1.6
15	<i>Streptococcus agalactiae</i>	17	1.5
16	<i>Enterococcus faecium</i>	16	1.4
17	<i>Haemophilus parainfluenzae</i>	14	1.2
18	<i>Enterobacter aerogenes</i>	12	1.0
19	<i>Staphylococcus hominis</i>	12	1.0
20	<i>Moraxella catarrhalis</i>	12	1.0
	Other	119	10.3
		<b>1153</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age ≥65 years

West

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	83	22.7
2	<i>Staphylococcus aureus, MSSA</i>	39	10.7
3	<i>Klebsiella pneumoniae</i>	26	7.1
4	<i>Pseudomonas aeruginosa</i>	23	6.3
5	<i>Staphylococcus aureus, MRSA</i>	20	5.5
6	<i>Enterococcus faecalis</i>	16	4.4
7	<i>Streptococcus pneumoniae</i>	16	4.4
8	<i>Haemophilus influenzae</i>	15	4.1
9	<i>Klebsiella oxytoca</i>	14	3.8
10	<i>Enterobacter cloacae</i>	12	3.3
11	<i>Stenotrophomonas maltophilia</i>	12	3.3
12	CNS / <i>Staphylococcus epidermidis</i>	8	2.2
13	<i>Serratia marcescens</i>	7	1.9
14	<i>Haemophilus parainfluenzae</i>	7	1.9
15	<i>Enterococcus faecium</i>	6	1.6
16	<i>Proteus mirabilis</i>	6	1.6
17	<i>Candida albicans</i>	6	1.6
18	<i>Enterobacter aerogenes</i>	5	1.4
19	<i>Streptococcus agalactiae</i>	5	1.4
20	<i>Streptococcus pyogenes</i>	4	1.1
	Other	35	9.6
		<b>365</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age ≥65 years

Ontario

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	70	22.4
2	<i>Staphylococcus aureus, MSSA</i>	68	21.8
3	<i>Pseudomonas aeruginosa</i>	41	13.1
4	<i>Klebsiella pneumoniae</i>	26	8.3
5	<i>Staphylococcus aureus, MRSA</i>	15	4.8
6	<i>Enterococcus faecalis</i>	15	4.8
7	<i>Enterobacter aerogenes</i>	6	1.9
8	<i>Enterobacter cloacae</i>	6	1.9
9	<i>Enterococcus faecium</i>	6	1.9
10	<i>Haemophilus influenzae</i>	6	1.9
11	CNS / <i>Staphylococcus epidermidis</i>	5	1.6
12	<i>Klebsiella oxytoca</i>	5	1.6
13	<i>Streptococcus pneumoniae</i>	4	1.3
14	<i>Proteus mirabilis</i>	3	1.0
15	<i>Staphylococcus hominis</i>	3	1.0
16	<i>Candida albicans</i>	3	1.0
17	<i>Serratia marcescens</i>	3	1.0
18	<i>Moraxella catarrhalis</i>	3	1.0
19	<i>Stenotrophomonas maltophilia</i>	2	0.6
20	<i>Bacillus, non-specified</i>	2	0.6
	Other	20	6.4
		<b>312</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age $\geq 65$ years

Quebec

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	51	22.9
2	<i>Staphylococcus aureus, MSSA</i>	28	12.6
3	<i>Pseudomonas aeruginosa</i>	23	10.3
4	<i>Klebsiella pneumoniae</i>	20	9.0
5	CNS / <i>Staphylococcus epidermidis</i>	10	4.5
6	<i>Enterococcus faecalis</i>	7	3.1
7	<i>Haemophilus influenzae</i>	7	3.1
8	<i>Staphylococcus hominis</i>	6	2.7
9	<i>Haemophilus parainfluenzae</i>	6	2.7
10	<i>Staphylococcus aureus, MRSA</i>	5	2.2
11	<i>Streptococcus pneumoniae</i>	5	2.2
12	<i>Streptococcus agalactiae</i>	5	2.2
13	<i>Klebsiella oxytoca</i>	5	2.2
14	<i>Staphylococcus capitis</i>	4	1.8
15	<i>Proteus mirabilis</i>	4	1.8
16	<i>Moraxella catarrhalis</i>	3	1.3
17	<i>Streptococcus pyogenes</i>	3	1.3
18	<i>Enterobacter cloacae</i>	3	1.3
19	<i>Stenotrophomonas maltophilia</i>	2	0.9
20	<i>Streptococcus viridans</i>	2	0.9
	Other	24	10.8
		<b>223</b>	



# CANWARD 2012

## Bacteriology of Top 20 Organisms by Age ≥65 years

### Maritimes

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	53	20.9
2	<i>Staphylococcus aureus, MSSA</i>	47	18.6
3	<i>Pseudomonas aeruginosa</i>	26	10.3
4	<i>Klebsiella pneumoniae</i>	17	6.7
5	<i>Haemophilus influenzae</i>	16	6.3
6	<i>Streptococcus pneumoniae</i>	10	4.0
7	<i>Enterococcus faecalis</i>	9	3.6
8	<i>Serratia marcescens</i>	8	3.2
9	<i>Staphylococcus aureus, MRSA</i>	6	2.4
10	<i>Proteus mirabilis</i>	6	2.4
11	CNS / <i>Staphylococcus epidermidis</i>	6	2.4
12	<i>Streptococcus agalactiae</i>	5	2.0
13	<i>Klebsiella oxytoca</i>	5	2.0
14	<i>Moraxella catarrhalis</i>	4	1.6
15	<i>Enterobacter cloacae</i>	3	1.2
16	Streptococcus, Beta-H, Grp C	3	1.2
17	Streptococcus, Beta-H, Grp G	3	1.2
18	<i>Acinetobacter baumannii</i>	2	0.8
19	<i>Citrobacter koseri</i>	2	0.8
20	<i>Stenotrophomonas maltophilia</i>	2	0.8
	Other	20	7.9
		<b>253</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Clinic

### National

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	122	25.2
2	<i>Escherichia coli</i>	77	15.9
3	<i>Pseudomonas aeruginosa</i>	60	12.4
4	<i>Haemophilus influenzae</i>	32	6.6
5	<i>Staphylococcus aureus, MRSA</i>	22	4.5
6	<i>Haemophilus parainfluenzae</i>	21	4.3
7	<i>Streptococcus pneumoniae</i>	20	4.1
8	<i>Klebsiella pneumoniae</i>	19	3.9
9	<i>Streptococcus agalactiae</i>	13	2.7
10	<i>Enterococcus faecalis</i>	12	2.5
11	CNS / <i>Staphylococcus epidermidis</i>	10	2.1
12	<i>Stenotrophomonas maltophilia</i>	8	1.7
13	<i>Moraxella catarrhalis</i>	8	1.7
14	<i>Serratia marcescens</i>	8	1.7
15	<i>Proteus mirabilis</i>	6	1.2
16	<i>Enterobacter cloacae</i>	6	1.2
17	<i>Klebsiella oxytoca</i>	5	1.0
18	<i>Staphylococcus hominis</i>	5	1.0
19	<i>Citrobacter freundii</i>	3	0.6
20	<i>Streptococcus, Beta-H, Grp G</i>	3	0.6
	Other	24	5.0
		<b>484</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Clinic

### West

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	47	25.8
2	<i>Escherichia coli</i>	23	12.6
3	<i>Pseudomonas aeruginosa</i>	21	11.5
4	<i>Haemophilus influenzae</i>	16	8.8
5	<i>Staphylococcus aureus, MRSA</i>	15	8.2
6	<i>Streptococcus pneumoniae</i>	10	5.5
7	<i>Haemophilus parainfluenzae</i>	10	5.5
8	CNS / <i>Staphylococcus epidermidis</i>	6	3.3
9	<i>Enterococcus faecalis</i>	5	2.7
10	<i>Stenotrophomonas maltophilia</i>	4	2.2
11	<i>Klebsiella oxytoca</i>	2	1.1
12	<i>Staphylococcus hominis</i>	2	1.1
13	<i>Streptococcus agalactiae</i>	2	1.1
14	<i>Enterobacter cloacae</i>	2	1.1
15	<i>Citrobacter freundii</i>	2	1.1
16	<i>Klebsiella pneumoniae</i>	2	1.1
17	<i>Staphylococcus lugdunensis</i>	1	0.5
18	<i>Streptococcus mitis</i>	1	0.5
19	<i>Streptococcus, Beta-H, Grp C</i>	1	0.5
20	<i>Proteus mirabilis</i>	1	0.5
	Other	9	4.9
		<b>182</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Clinic

### Ontario

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	34	37.8
2	<i>Pseudomonas aeruginosa</i>	15	16.7
3	<i>Escherichia coli</i>	7	7.8
4	<i>Staphylococcus aureus, MRSA</i>	6	6.7
5	<i>Haemophilus influenzae</i>	4	4.4
6	<i>Moraxella catarrhalis</i>	3	3.3
7	<i>Klebsiella pneumoniae</i>	3	3.3
8	<i>Streptococcus pneumoniae</i>	3	3.3
9	<i>Staphylococcus hominis</i>	2	2.2
10	<i>Serratia marcescens</i>	2	2.2
11	<i>Candida albicans</i>	1	1.1
12	<i>Streptococcus agalactiae</i>	1	1.1
13	<i>Enterococcus faecium</i>	1	1.1
14	<i>Corynebacterium, non-specified</i>	1	1.1
15	<i>Aeromonas sobria</i>	1	1.1
16	<i>Proteus mirabilis</i>	1	1.1
17	<i>Bacillus, non-specified</i>	1	1.1
18	<i>Enterobacter aerogenes</i>	1	1.1
19	<i>Stenotrophomonas maltophilia</i>	1	1.1
20	<i>Enterobacter cloacae</i>	1	1.1
	Other	1	1.1
		<b>90</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Clinic

### Quebec

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	24	21.2
2	<i>Staphylococcus aureus, MSSA</i>	20	17.7
3	<i>Klebsiella pneumoniae</i>	10	8.8
4	<i>Haemophilus parainfluenzae</i>	10	8.8
5	<i>Pseudomonas aeruginosa</i>	9	8.0
6	<i>Streptococcus agalactiae</i>	7	6.2
7	<i>Haemophilus influenzae</i>	6	5.3
8	<i>Enterococcus faecalis</i>	3	2.7
9	<i>Streptococcus pneumoniae</i>	3	2.7
10	CNS / <i>Staphylococcus epidermidis</i>	3	2.7
11	<i>Moraxella catarrhalis</i>	2	1.8
12	<i>Acinetobacter calcoaceticus</i>	2	1.8
13	<i>Proteus mirabilis</i>	2	1.8
14	<i>Klebsiella oxytoca</i>	2	1.8
15	<i>Streptococcus, Beta-H, Grp G</i>	2	1.8
16	<i>Stenotrophomonas maltophilia</i>	1	0.9
17	<i>Staphylococcus aureus, MRSA</i>	1	0.9
18	<i>Serratia marcescens</i>	1	0.9
19	<i>Enterobacter cloacae</i>	1	0.9
20	<i>Staphylococcus hominis</i>	1	0.9
	Other	3	2.7
		<b>113</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Clinic

### Maritimes

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	23	23.2
2	<i>Staphylococcus aureus, MSSA</i>	21	21.2
3	<i>Pseudomonas aeruginosa</i>	15	15.2
4	<i>Haemophilus influenzae</i>	6	6.1
5	<i>Klebsiella pneumoniae</i>	4	4.0
6	<i>Serratia marcescens</i>	4	4.0
7	<i>Enterococcus faecalis</i>	4	4.0
8	<i>Streptococcus pneumoniae</i>	4	4.0
9	<i>Streptococcus agalactiae</i>	3	3.0
10	<i>Moraxella catarrhalis</i>	2	2.0
11	<i>Proteus mirabilis</i>	2	2.0
12	<i>Enterobacter cloacae</i>	2	2.0
13	<i>Stenotrophomonas maltophilia</i>	2	2.0
14	<i>Raoultella planticola</i>	1	1.0
15	<i>Staphylococcus lugdunensis</i>	1	1.0
16	CNS / <i>Staphylococcus epidermidis</i>	1	1.0
17	<i>Citrobacter freundii</i>	1	1.0
18	<i>Haemophilus parainfluenzae</i>	1	1.0
19	<i>Klebsiella oxytoca</i>	1	1.0
20	<i>Streptococcus pyogenes</i>	1	1.0
		<b>99</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Emergency Room

National

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	198	27.7
2	<i>Staphylococcus aureus, MSSA</i>	132	18.4
3	<i>Klebsiella pneumoniae</i>	52	7.3
4	<i>Streptococcus pneumoniae</i>	51	7.1
5	<i>Pseudomonas aeruginosa</i>	32	4.5
6	CNS / <i>Staphylococcus epidermidis</i>	26	3.6
7	<i>Staphylococcus aureus, MRSA</i>	25	3.5
8	<i>Enterococcus faecalis</i>	17	2.4
9	<i>Haemophilus influenzae</i>	16	2.2
10	<i>Streptococcus pyogenes</i>	16	2.2
11	<i>Proteus mirabilis</i>	14	2.0
12	<i>Streptococcus agalactiae</i>	12	1.7
13	<i>Klebsiella oxytoca</i>	11	1.5
14	<i>Staphylococcus hominis</i>	11	1.5
15	<i>Enterobacter cloacae</i>	9	1.3
16	<i>Streptococcus, Beta-H, Grp G</i>	8	1.1
17	<i>Staphylococcus capitis</i>	7	1.0
18	<i>Enterococcus faecium</i>	6	0.8
19	<i>Streptococcus, Beta-H, Grp C</i>	5	0.7
20	<i>Salmonella, non-specified</i>	4	0.6
	Other	64	8.9
		<b>716</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Emergency Room

West

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	74	27.4
2	<i>Staphylococcus aureus, MSSA</i>	55	20.4
3	<i>Streptococcus pneumoniae</i>	24	8.9
4	<i>Klebsiella pneumoniae</i>	16	5.9
5	<i>Staphylococcus aureus, MRSA</i>	13	4.8
6	<i>Haemophilus influenzae</i>	11	4.1
7	<i>Streptococcus pyogenes</i>	10	3.7
8	<i>Pseudomonas aeruginosa</i>	7	2.6
9	<i>Proteus mirabilis</i>	6	2.2
10	CNS / <i>Staphylococcus epidermidis</i>	6	2.2
11	<i>Klebsiella oxytoca</i>	6	2.2
12	<i>Streptococcus agalactiae</i>	5	1.9
13	<i>Enterococcus faecalis</i>	5	1.9
14	<i>Enterobacter cloacae</i>	4	1.5
15	<i>Enterococcus faecium</i>	3	1.1
16	<i>Streptococcus, Beta-H, Grp G</i>	3	1.1
17	<i>Salmonella, non-speciated</i>	2	0.7
18	<i>Stenotrophomonas maltophilia</i>	2	0.7
19	<i>Haemophilus parainfluenzae</i>	2	0.7
20	<i>Citrobacter farmeri</i>	1	0.4
	Other	15	5.6
		<b>270</b>	



# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Emergency Room

### Ontario

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	63	31.5
2	<i>Staphylococcus aureus, MSSA</i>	35	17.5
3	<i>Klebsiella pneumoniae</i>	14	7.0
4	<i>Streptococcus pneumoniae</i>	14	7.0
5	<i>Pseudomonas aeruginosa</i>	10	5.0
6	CNS / <i>Staphylococcus epidermidis</i>	8	4.0
7	<i>Staphylococcus aureus, MRSA</i>	7	3.5
8	<i>Staphylococcus hominis</i>	6	3.0
9	<i>Proteus mirabilis</i>	5	2.5
10	<i>Enterococcus faecalis</i>	4	2.0
11	<i>Streptococcus pyogenes</i>	4	2.0
12	<i>Enterobacter aerogenes</i>	2	1.0
13	<i>Enterobacter cloacae</i>	2	1.0
14	<i>Staphylococcus cohnii</i>	1	0.5
15	<i>Granulicatella adiacens</i>	1	0.5
16	<i>Stenotrophomonas maltophilia</i>	1	0.5
17	<i>Klebsiella oxytoca</i>	1	0.5
18	<i>Staphylococcus auricularis</i>	1	0.5
19	<i>Citrobacter freundii</i>	1	0.5
20	<i>Staphylococcus lugdunensis</i>	1	0.5
	Other	19	9.5
		<b>200</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Emergency Room

### Quebec

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	34	23.6
2	<i>Staphylococcus aureus, MSSA</i>	19	13.2
3	<i>Klebsiella pneumoniae</i>	15	10.4
4	<i>Streptococcus pneumoniae</i>	10	6.9
5	CNS / <i>Staphylococcus epidermidis</i>	9	6.3
6	<i>Pseudomonas aeruginosa</i>	8	5.6
7	<i>Enterococcus faecalis</i>	5	3.5
8	<i>Staphylococcus capitis</i>	5	3.5
9	<i>Staphylococcus hominis</i>	4	2.8
10	<i>Enterobacter cloacae</i>	3	2.1
11	<i>Haemophilus influenzae</i>	3	2.1
12	<i>Proteus mirabilis</i>	3	2.1
13	<i>Staphylococcus caprae</i>	2	1.4
14	<i>Streptococcus pyogenes</i>	2	1.4
15	<i>Streptococcus agalactiae</i>	2	1.4
16	<i>Micrococcus, non-specified</i>	2	1.4
17	<i>Klebsiella oxytoca</i>	2	1.4
18	<i>Streptococcus, Beta-H, Grp C</i>	2	1.4
19	<i>Streptococcus anginosus</i>	1	0.7
20	<i>Serratia liquefaciens</i>	1	0.7
	Other	12	8.3
		<b>144</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Emergency Room

### Maritimes

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	27	26.5
2	<i>Staphylococcus aureus, MSSA</i>	23	22.5
3	<i>Pseudomonas aeruginosa</i>	7	6.9
4	<i>Klebsiella pneumoniae</i>	7	6.9
5	<i>Streptococcus agalactiae</i>	4	3.9
6	<i>Staphylococcus aureus, MRSA</i>	4	3.9
7	<i>Streptococcus pneumoniae</i>	3	2.9
8	<i>Enterococcus faecalis</i>	3	2.9
9	CNS / <i>Staphylococcus epidermidis</i>	3	2.9
10	<i>Streptococcus, Beta-H, Grp G</i>	3	2.9
11	<i>Haemophilus influenzae</i>	2	2.0
12	<i>Klebsiella oxytoca</i>	2	2.0
13	<i>Streptococcus, Beta-H, Grp C</i>	2	2.0
14	<i>Streptococcus oralis</i>	1	1.0
15	<i>Aerococcus urinae</i>	1	1.0
16	<i>Salmonella paratyphi B</i>	1	1.0
17	<i>Acinetobacter baumannii</i>	1	1.0
18	<i>Staphylococcus warneri</i>	1	1.0
19	<i>Enterococcus faecium</i>	1	1.0
20	<i>Pseudomonas putida</i>	1	1.0
	Other	5	4.9
		<b>102</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - ICU

National			
Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	121	19.5
2	<i>Pseudomonas aeruginosa</i>	69	11.1
3	<i>Escherichia coli</i>	64	10.3
4	<i>Haemophilus influenzae</i>	47	7.6
5	<i>Klebsiella pneumoniae</i>	36	5.8
6	<i>Streptococcus pneumoniae</i>	33	5.3
7	<i>Enterobacter cloacae</i>	31	5.0
8	<i>Staphylococcus aureus, MRSA</i>	29	4.7
9	<i>Stenotrophomonas maltophilia</i>	18	2.9
10	CNS / <i>Staphylococcus epidermidis</i>	16	2.6
11	<i>Serratia marcescens</i>	16	2.6
12	<i>Klebsiella oxytoca</i>	14	2.3
13	<i>Enterococcus faecalis</i>	13	2.1
14	<i>Enterococcus faecium</i>	13	2.1
15	<i>Moraxella catarrhalis</i>	12	1.9
16	<i>Enterobacter aerogenes</i>	10	1.6
17	<i>Streptococcus agalactiae</i>	9	1.4
18	<i>Streptococcus pyogenes</i>	8	1.3
19	<i>Acinetobacter baumannii</i>	6	1.0
20	<i>Citrobacter koseri</i>	5	0.8
	Other	51	8.2
		<b>621</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - ICU

### West

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	46	20.4
2	<i>Escherichia coli</i>	21	9.3
3	<i>Haemophilus influenzae</i>	17	7.6
4	<i>Pseudomonas aeruginosa</i>	16	7.1
5	<i>Enterobacter cloacae</i>	16	7.1
6	<i>Klebsiella pneumoniae</i>	15	6.7
7	<i>Streptococcus pneumoniae</i>	14	6.2
8	<i>Staphylococcus aureus, MRSA</i>	10	4.4
9	<i>Klebsiella oxytoca</i>	8	3.6
10	<i>Stenotrophomonas maltophilia</i>	7	3.1
11	CNS / <i>Staphylococcus epidermidis</i>	7	3.1
12	<i>Enterobacter aerogenes</i>	7	3.1
13	<i>Streptococcus agalactiae</i>	6	2.7
14	<i>Haemophilus parainfluenzae</i>	4	1.8
15	<i>Serratia marcescens</i>	3	1.3
16	<i>Enterococcus faecalis</i>	3	1.3
17	<i>Burkholderia cepacia</i>	2	0.9
18	<i>Enterococcus faecium</i>	2	0.9
19	<i>Candida dubliniensis</i>	2	0.9
20	<i>Acinetobacter baumannii</i>	2	0.9
	Other	17	7.6
		<b>225</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - ICU

### Ontario

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	53	19.8
2	<i>Pseudomonas aeruginosa</i>	42	15.7
3	<i>Escherichia coli</i>	27	10.1
4	<i>Klebsiella pneumoniae</i>	15	5.6
5	<i>Staphylococcus aureus, MRSA</i>	14	5.2
6	<i>Haemophilus influenzae</i>	14	5.2
7	<i>Streptococcus pneumoniae</i>	11	4.1
8	<i>Enterobacter cloacae</i>	11	4.1
9	<i>Enterococcus faecium</i>	9	3.4
10	<i>Enterococcus faecalis</i>	8	3.0
11	CNS / <i>Staphylococcus epidermidis</i>	7	2.6
12	<i>Serratia marcescens</i>	7	2.6
13	<i>Moraxella catarrhalis</i>	7	2.6
14	<i>Stenotrophomonas maltophilia</i>	5	1.9
15	<i>Klebsiella oxytoca</i>	5	1.9
16	<i>Streptococcus pyogenes</i>	4	1.5
17	<i>Proteus mirabilis</i>	4	1.5
18	<i>Enterobacter aerogenes</i>	3	1.1
19	<i>Candida albicans</i>	3	1.1
20	<i>Acinetobacter baumannii</i>	2	0.7
	Other	17	6.3
		<b>268</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - ICU

### Quebec

Rank	Organism	n	% of Total
1	<i>Pseudomonas aeruginosa</i>	5	20.0
2	<i>Staphylococcus aureus, MSSA</i>	4	16.0
3	<i>Haemophilus influenzae</i>	3	12.0
4	<i>Escherichia coli</i>	2	8.0
5	<i>Moraxella catarrhalis</i>	2	8.0
6	<i>Streptococcus pneumoniae</i>	2	8.0
7	CNS / <i>Staphylococcus epidermidis</i>	1	4.0
8	<i>Staphylococcus hominis</i>	1	4.0
9	<i>Acinetobacter baumannii</i>	1	4.0
10	<i>Chryseobacterium indologenes</i>	1	4.0
11	<i>Streptococcus agalactiae</i>	1	4.0
12	<i>Citrobacter braakii</i>	1	4.0
13	<i>Streptococcus pyogenes</i>	1	4.0
		<b>25</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - ICU

### Maritimes

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	18	17.5
2	<i>Escherichia coli</i>	14	13.6
3	<i>Haemophilus influenzae</i>	13	12.6
4	<i>Stenotrophomonas maltophilia</i>	6	5.8
5	<i>Serratia marcescens</i>	6	5.8
6	<i>Pseudomonas aeruginosa</i>	6	5.8
7	<i>Klebsiella pneumoniae</i>	6	5.8
8	<i>Streptococcus pneumoniae</i>	6	5.8
9	<i>Staphylococcus aureus, MRSA</i>	5	4.9
10	<i>Enterobacter cloacae</i>	4	3.9
11	<i>Citrobacter koseri</i>	2	1.9
12	<i>Moraxella catarrhalis</i>	2	1.9
13	<i>Enterococcus faecium</i>	2	1.9
14	<i>Enterococcus faecalis</i>	2	1.9
15	<i>Staphylococcus hominis</i>	1	1.0
16	CNS / <i>Staphylococcus epidermidis</i>	1	1.0
17	<i>Streptococcus agalactiae</i>	1	1.0
18	<i>Streptococcus bovis</i>	1	1.0
19	<i>Enterobacter agglomerans</i>	1	1.0
20	<i>Candida parapsilosis</i>	1	1.0
	Other	5	4.9
		<b>103</b>	



# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Medical Ward

National			
Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	154	18.8
2	<i>Escherichia coli</i>	141	17.2
3	<i>Pseudomonas aeruginosa</i>	87	10.6
4	<i>Klebsiella pneumoniae</i>	52	6.3
5	<i>Haemophilus influenzae</i>	46	5.6
6	<i>Enterococcus faecalis</i>	40	4.9
7	<i>Staphylococcus aureus, MRSA</i>	39	4.8
8	<i>Streptococcus pneumoniae</i>	33	4.0
9	<i>CNS / Staphylococcus epidermidis</i>	30	3.7
10	<i>Enterobacter cloacae</i>	18	2.2
11	<i>Klebsiella oxytoca</i>	16	2.0
12	<i>Stenotrophomonas maltophilia</i>	12	1.5
13	<i>Enterococcus faecium</i>	12	1.5
14	<i>Proteus mirabilis</i>	11	1.3
15	<i>Moraxella catarrhalis</i>	11	1.3
16	<i>Serratia marcescens</i>	9	1.1
17	<i>Candida albicans</i>	9	1.1
18	<i>Streptococcus pyogenes</i>	8	1.0
19	<i>Streptococcus agalactiae</i>	8	1.0
20	<i>Enterobacter aerogenes</i>	8	1.0
	Other	75	9.2
		<b>819</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Medical Ward

### West

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	38	15.4
2	<i>Staphylococcus aureus, MSSA</i>	34	13.8
3	<i>Staphylococcus aureus, MRSA</i>	20	8.1
4	<i>Haemophilus influenzae</i>	19	7.7
5	<i>Pseudomonas aeruginosa</i>	18	7.3
6	<i>Enterococcus faecalis</i>	16	6.5
7	<i>Klebsiella pneumoniae</i>	10	4.1
8	CNS / <i>Staphylococcus epidermidis</i>	9	3.7
9	<i>Enterobacter cloacae</i>	8	3.3
10	<i>Stenotrophomonas maltophilia</i>	7	2.8
11	<i>Candida albicans</i>	7	2.8
12	<i>Streptococcus pneumoniae</i>	7	2.8
13	<i>Klebsiella oxytoca</i>	5	2.0
14	<i>Serratia marcescens</i>	4	1.6
15	<i>Enterococcus faecium</i>	4	1.6
16	<i>Moraxella catarrhalis</i>	4	1.6
17	<i>Streptococcus agalactiae</i>	3	1.2
18	<i>Acinetobacter baumannii</i>	3	1.2
19	<i>Candida glabrata</i>	3	1.2
20	<i>Enterobacter aerogenes</i>	3	1.2
	Other	24	9.8
		<b>246</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Medical Ward

### Ontario

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	74	21.8
2	<i>Escherichia coli</i>	66	19.4
3	<i>Pseudomonas aeruginosa</i>	43	12.6
4	<i>Klebsiella pneumoniae</i>	25	7.4
5	<i>Enterococcus faecalis</i>	16	4.7
6	<i>Streptococcus pneumoniae</i>	16	4.7
7	<i>Haemophilus influenzae</i>	15	4.4
8	CNS / <i>Staphylococcus epidermidis</i>	11	3.2
9	<i>Staphylococcus aureus, MRSA</i>	9	2.6
10	<i>Enterobacter cloacae</i>	9	2.6
11	<i>Klebsiella oxytoca</i>	6	1.8
12	<i>Enterococcus faecium</i>	5	1.5
13	<i>Serratia marcescens</i>	4	1.2
14	<i>Enterobacter aerogenes</i>	4	1.2
15	<i>Moraxella catarrhalis</i>	4	1.2
16	<i>Streptococcus pyogenes</i>	3	0.9
17	<i>Staphylococcus capitis</i>	2	0.6
18	<i>Citrobacter freundii</i>	2	0.6
19	<i>Candida albicans</i>	2	0.6
20	<i>Stenotrophomonas maltophilia</i>	2	0.6
	Other	22	6.5
		<b>340</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Medical Ward

Quebec

Rank	Organism	n	% of Total
1	<i>Escherichia coli</i>	12	17.9
2	<i>Staphylococcus aureus, MSSA</i>	7	10.4
3	<i>Pseudomonas aeruginosa</i>	6	9.0
4	<i>Klebsiella pneumoniae</i>	6	9.0
5	CNS / <i>Staphylococcus epidermidis</i>	5	7.5
6	<i>Staphylococcus aureus, MRSA</i>	5	7.5
7	<i>Staphylococcus hominis</i>	4	6.0
8	<i>Enterococcus faecalis</i>	3	4.5
9	<i>Stenotrophomonas maltophilia</i>	2	3.0
10	<i>Haemophilus influenzae</i>	2	3.0
11	<i>Streptococcus mitis</i>	2	3.0
12	<i>Streptococcus viridans</i>	2	3.0
13	<i>Streptococcus pneumoniae</i>	1	1.5
14	<i>Klebsiella oxytoca</i>	1	1.5
15	<i>Alcaligenes xylosoxidans</i>	1	1.5
16	<i>Enterobacter aerogenes</i>	1	1.5
17	<i>Streptococcus pyogenes</i>	1	1.5
18	<i>Enterobacter cloacae</i>	1	1.5
19	<i>Staphylococcus haemolyticus</i>	1	1.5
20	<i>Enterococcus faecium</i>	1	1.5
	Other	3	4.5
		<b>67</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Medical Ward

### Maritimes

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	39	23.5
2	<i>Escherichia coli</i>	25	15.1
3	<i>Pseudomonas aeruginosa</i>	20	12.0
4	<i>Klebsiella pneumoniae</i>	11	6.6
5	<i>Haemophilus influenzae</i>	10	6.0
6	<i>Streptococcus pneumoniae</i>	9	5.4
7	<i>Proteus mirabilis</i>	7	4.2
8	<i>Enterococcus faecalis</i>	5	3.0
9	<i>Staphylococcus aureus, MRSA</i>	5	3.0
10	CNS / <i>Staphylococcus epidermidis</i>	5	3.0
11	<i>Klebsiella oxytoca</i>	4	2.4
12	<i>Streptococcus agalactiae</i>	3	1.8
13	<i>Enterococcus faecium</i>	2	1.2
14	<i>Streptococcus, Beta-H, Grp C</i>	2	1.2
15	<i>Streptococcus pyogenes</i>	2	1.2
16	<i>Moraxella catarrhalis</i>	2	1.2
17	<i>Streptococcus, Beta-H, Grp G</i>	2	1.2
18	<i>Streptococcus viridans</i>	1	0.6
19	<i>Staphylococcus hominis</i>	1	0.6
20	<i>Salmonella enteritidis</i>	1	0.6
	Other	10	6.0
		<b>166</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Surgical Ward

National

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	35	20.8
2	<i>Escherichia coli</i>	20	11.9
3	<i>Pseudomonas aeruginosa</i>	16	9.5
4	<i>Enterococcus faecalis</i>	11	6.5
5	<i>Staphylococcus aureus, MRSA</i>	10	6.0
6	<i>Klebsiella pneumoniae</i>	10	6.0
7	<i>Haemophilus influenzae</i>	9	5.4
8	<i>Serratia marcescens</i>	6	3.6
9	<i>Streptococcus pneumoniae</i>	6	3.6
10	<i>Moraxella catarrhalis</i>	5	3.0
11	<i>Enterobacter cloacae</i>	5	3.0
12	<i>Klebsiella oxytoca</i>	4	2.4
13	<i>Acinetobacter baumannii</i>	4	2.4
14	<i>Enterococcus faecium</i>	3	1.8
15	<i>Proteus mirabilis</i>	3	1.8
16	CNS / <i>Staphylococcus epidermidis</i>	3	1.8
17	<i>Streptococcus pyogenes</i>	3	1.8
18	<i>Enterobacter aerogenes</i>	2	1.2
19	<i>Streptococcus agalactiae</i>	2	1.2
20	<i>Stenotrophomonas maltophilia</i>	2	1.2
	Other	9	5.4
		<b>168</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Surgical Ward

### West

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	8	11.8
2	<i>Pseudomonas aeruginosa</i>	7	10.3
3	<i>Escherichia coli</i>	7	10.3
4	<i>Staphylococcus aureus, MRSA</i>	6	8.8
5	<i>Enterococcus faecalis</i>	6	8.8
6	<i>Klebsiella pneumoniae</i>	4	5.9
7	<i>Klebsiella oxytoca</i>	4	5.9
8	<i>Acinetobacter baumannii</i>	3	4.4
9	<i>Enterobacter cloacae</i>	3	4.4
10	<i>Streptococcus pneumoniae</i>	3	4.4
11	<i>Haemophilus influenzae</i>	2	2.9
12	<i>Enterococcus faecium</i>	2	2.9
13	<i>Serratia marcescens</i>	2	2.9
14	CNS / <i>Staphylococcus epidermidis</i>	2	2.9
15	<i>Streptococcus pyogenes</i>	2	2.9
16	<i>Candida krusei</i>	1	1.5
17	<i>Proteus mirabilis</i>	1	1.5
18	<i>Morganella morganii</i>	1	1.5
19	<i>Citrobacter freundii</i>	1	1.5
20	<i>Staphylococcus hominis</i>	1	1.5
	Other	2	2.9
		<b>68</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Surgical Ward

### Ontario

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	16	27.6
2	<i>Escherichia coli</i>	9	15.5
3	<i>Pseudomonas aeruginosa</i>	6	10.3
4	<i>Haemophilus influenzae</i>	4	6.9
5	<i>Staphylococcus aureus, MRSA</i>	3	5.2
6	<i>Moraxella catarrhalis</i>	3	5.2
7	<i>Klebsiella pneumoniae</i>	3	5.2
8	<i>Streptococcus pneumoniae</i>	3	5.2
9	<i>Enterococcus faecalis</i>	2	3.4
10	<i>Proteus mirabilis</i>	2	3.4
11	<i>Enterobacter aerogenes</i>	2	3.4
12	<i>Candida glabrata</i>	1	1.7
13	<i>Enterococcus faecium</i>	1	1.7
14	<i>Serratia marcescens</i>	1	1.7
15	<i>Bacillus, non-speciated</i>	1	1.7
16	<i>Streptococcus pyogenes</i>	1	1.7
		<b>58</b>	



# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Surgical Ward

Quebec

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	4	28.6
2	<i>Escherichia coli</i>	3	21.4
3	<i>Enterococcus faecalis</i>	2	14.3
4	<i>CNS / Staphylococcus epidermidis</i>	1	7.1
5	<i>Stenotrophomonas maltophilia</i>	1	7.1
6	<i>Streptococcus agalactiae</i>	1	7.1
7	<i>Pseudomonas aeruginosa</i>	1	7.1
8	<i>Klebsiella pneumoniae</i>	1	7.1
		<b>14</b>	

# CANWARD 2012

## Bacteriology of Top 20 Organisms by Location - Surgical Ward

### Maritimes

Rank	Organism	n	% of Total
1	<i>Staphylococcus aureus, MSSA</i>	7	25.0
2	<i>Serratia marcescens</i>	3	10.7
3	<i>Haemophilus influenzae</i>	3	10.7
4	<i>Moraxella catarrhalis</i>	2	7.1
5	<i>Enterobacter cloacae</i>	2	7.1
6	<i>Pseudomonas aeruginosa</i>	2	7.1
7	<i>Klebsiella pneumoniae</i>	2	7.1
8	<i>Acinetobacter baumannii</i>	1	3.6
9	<i>Pseudomonas putida</i>	1	3.6
10	<i>Enterococcus faecalis</i>	1	3.6
11	<i>Candida albicans</i>	1	3.6
12	<i>Staphylococcus aureus, MRSA</i>	1	3.6
13	<i>Citrobacter farmeri</i>	1	3.6
14	<i>Escherichia coli</i>	1	3.6
		<b>28</b>	

# CANWARD 2012

## *S. aureus*, MSSA Susceptibility - National

### ***Staphylococcus aureus*, MSSA (563)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	99.5%	0.2%	0.4%	4	4	≤ 1	> 64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			0.5	1	≤ 0.06	1
Aztreonam	No Breakpoints Defined			> 64	> 64	0.5	> 64
Cefazolin	No Breakpoints Defined			≤ 0.5	≤ 0.5	≤ 0.5	2
Cefepime	No Breakpoints Defined			2	4	≤ 0.25	4
Cefoxitin	99.6%		0.4%	4	4	0.25	8
Ceftazidime	No Breakpoints Defined			16	16	4	32
Ceftriaxone	No Breakpoints Defined			4	4	0.5	8
Ciprofloxacin	87.6%	2.0%	10.5%	0.5	4	≤ 0.06	> 16
Clarithromycin	75.7%	0.2%	24.2%	0.25	> 32	≤ 0.03	> 32
Clindamycin	94.8%	0.2%	5.0%	≤ 0.12	≤ 0.12	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	≤ 0.06	> 16
Daptomycin	100.0%			0.25	0.5	≤ 0.03	0.5
Doripenem	No Breakpoints Defined			0.06	0.06	≤ 0.03	0.25
Doxycycline	98.9%	0.5%	0.5%	≤ 0.12	0.25	≤ 0.12	16
Ertapenem				0.5	0.5	0.06	1
Gentamicin	97.9%	0.4%	1.8%	≤ 0.5	≤ 0.5	≤ 0.5	> 32
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Linezolid	100.0%			2	2	≤ 0.12	4
Meropenem	No Breakpoints Defined			0.12	0.25	≤ 0.03	0.5
Moxifloxacin	90.8%	0.5%	8.7%	≤ 0.06	0.25	≤ 0.06	> 16
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	2
Tigecycline *	100.0%			0.12	0.25	0.06	0.5
Tobramycin	97.3%	0.5%	2.1%	≤ 0.5	≤ 0.5	≤ 0.5	> 64
Trimethoprim Sulfa	98.9%		1.1%	≤ 0.12	≤ 0.12	≤ 0.12	> 8
Vancomycin	100.0%			1	1	0.25	1

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. coli* Susceptibility - National

### *Escherichia coli* (500)

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	99.6%	0.4%		≤ 1	4	≤ 1	32
Amoxicillin Clavulanic Acid	77.0%	16.2%	6.8%	4	16	0.5	> 32
Aztreonam	93.4%	1.6%	5.0%	≤ 0.12	0.5	≤ 0.12	> 64
Cefazolin	70.6%	11.2%	18.2%	2	32	≤ 0.5	> 128
Cefepime	96.8%	2.2%	1.0%	≤ 0.25	≤ 0.25	≤ 0.25	> 64
Cefoxitin	92.6%	4.0%	3.4%	4	8	1	> 32
Ceftazidime	93.0%	1.0%	6.0%	≤ 0.25	1	≤ 0.25	> 32
Ceftriaxone	91.2%	0.4%	8.4%	≤ 0.25	≤ 0.25	≤ 0.25	> 64
Ciprofloxacin	74.0%	0.2%	25.8%	≤ 0.06	> 16	≤ 0.06	> 16
Colistin	No Breakpoints Defined			0.25	0.5	≤ 0.06	> 16
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.25
Doxycycline	70.8%	5.0%	24.2%	2	32	0.5	> 32
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.5
Gentamicin	90.8%	0.4%	8.8%	≤ 0.5	2	≤ 0.5	> 32
Imipenem	100.0%			0.12	0.25	0.06	1
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Moxifloxacin *	74.0%		26.0%	≤ 0.06	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	97.0%	0.6%	2.4%	≤ 1	4	≤ 1	> 512
Tigecycline *	100.0%			0.25	0.5	0.12	2
Tobramycin	92.0%	3.6%	4.4%	≤ 0.5	4	≤ 0.5	64
Trimethoprim Sulfa	73.0%		27.0%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

# CANWARD 2012

## *P. aeruginosa* Susceptibility - National

### *Pseudomonas aeruginosa* (264)

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	94.7%	3.0%	2.3%	4	8	≤ 1	> 64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			> 32	> 32	16	> 32
Aztreonam	78.4%	10.2%	11.4%	4	32	≤ 0.12	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	128	> 128
Cefepime	90.2%	6.8%	3.0%	4	8	≤ 0.25	64
Cefoxitin	No Breakpoints Defined			> 32	> 32	32	> 32
Ceftazidime	86.0%	4.9%	9.1%	4	16	≤ 0.25	> 32
Ceftriaxone	No Breakpoints Defined			16	> 64	1	> 64
Ciprofloxacin	83.3%	6.4%	10.2%	0.25	4	≤ 0.06	> 16
Colistin	98.5%	0.4%	1.1%	1	1	0.25	> 16
Doripenem	89.4%	5.7%	4.9%	0.5	4	≤ 0.03	32
Doxycycline	No Breakpoints Defined			32	> 32	1	> 32
Ertapenem	No Breakpoints Defined			8	> 32	0.12	> 32
Gentamicin	90.5%	4.2%	5.3%	1	4	≤ 0.5	> 32
Imipenem	72.3%	9.1%	18.6%	2	16	0.12	> 32
Meropenem	81.4%	9.5%	9.1%	0.5	4	≤ 0.03	> 32
Moxifloxacin	No Breakpoints Defined			2	16	≤ 0.06	> 16
Piperacillin Tazobactam	87.5%	7.6%	4.9%	4	32	≤ 1	512
Tigecycline	No Breakpoints Defined			16	> 16	1	> 16
Tobramycin	95.1%	0.4%	4.5%	≤ 0.5	2	≤ 0.5	> 64
Trimethoprim Sulfa	No Breakpoints Defined			8	> 8	0.5	> 8

# CANWARD 2012

## *K. pneumoniae* Susceptibility - National

### *Klebsiella pneumoniae* (169)

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	≤ 1	≤ 1	2
Amoxicillin Clavulanic Acid	97.0%	1.2%	1.8%	2	8	1	> 32
Aztreonam	96.4%	0.6%	3.0%	≤ 0.12	0.25	≤ 0.12	> 64
Cefazolin	91.7%	2.4%	5.9%	1	2	≤ 0.5	> 128
Cefepime	98.8%		1.2%	≤ 0.25	≤ 0.25	≤ 0.25	64
Cefoxitin	95.3%	1.2%	3.6%	2	8	1	> 32
Ceftazidime	97.0%		3.0%	≤ 0.25	0.5	≤ 0.25	> 32
Ceftriaxone	95.3%	1.2%	3.6%	≤ 0.25	≤ 0.25	≤ 0.25	> 64
Ciprofloxacin	97.6%		2.4%	≤ 0.06	0.25	≤ 0.06	> 16
Colistin	No Breakpoints Defined			0.25	0.5	≤ 0.06	> 16
Doripenem	99.4%		0.6%	≤ 0.03	0.06	≤ 0.03	4
Doxycycline	82.8%	3.0%	14.2%	2	16	1	> 32
Ertapenem	98.8%	0.6%	0.6%	≤ 0.03	0.06	≤ 0.03	16
Gentamicin	98.2%		1.8%	≤ 0.5	≤ 0.5	≤ 0.5	> 32
Imipenem	98.8%	0.6%	0.6%	0.25	0.5	0.12	4
Meropenem	99.4%		0.6%	≤ 0.03	0.06	≤ 0.03	8
Moxifloxacin *	98.2%	0.6%	1.2%	0.12	0.5	≤ 0.06	> 16
Piperacillin Tazobactam	97.6%	0.6%	1.8%	2	8	≤ 1	> 512
Tigecycline *	95.9%	3.0%	1.2%	0.5	1	0.25	8
Tobramycin	99.4%	0.6%		≤ 0.5	≤ 0.5	≤ 0.5	8
Trimethoprim Sulfa	91.7%		8.3%	≤ 0.12	1	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

# CANWARD 2012

## *S. pneumoniae* Susceptibility - National

### ***Streptococcus pneumoniae* (136)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	96.3%	1.5%	2.2%	≤ 0.06	≤ 0.06	≤ 0.06	8
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	1
Cefuroxime	93.4%		6.6%	≤ 0.25	≤ 0.25	≤ 0.25	8
Chloramphenicol	98.5%		1.5%	2	4	≤ 0.12	16
Ciprofloxacin	97.8%		2.2%	1	2	0.12	> 16
Clarithromycin	76.5%	1.5%	22.1%	≤ 0.03	4	≤ 0.03	> 32
Clindamycin	90.4%		9.6%	≤ 0.12	≤ 0.12	≤ 0.12	> 64
Daptomycin	No Breakpoints Defined			0.12	0.12	≤ 0.03	0.25
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	1
Doxycycline	86.0%	1.5%	12.5%	≤ 0.25	1	≤ 0.25	16
Ertapenem	95.6%	4.4%		≤ 0.06	0.12	≤ 0.06	2
Imipenem	93.4%	3.7%	2.9%	≤ 0.03	≤ 0.03	≤ 0.03	1
Levofloxacin	98.5%		1.5%	1	1	≤ 0.06	16
Linezolid	100.0%			1	1	≤ 0.12	2
Meropenem	94.1%	2.2%	3.7%	≤ 0.06	≤ 0.06	≤ 0.06	1
Moxifloxacin	98.5%	0.7%	0.7%	0.12	0.25	≤ 0.06	4
Penicillin	88.9%	7.1%	4.0%	≤ 0.03	0.12	≤ 0.03	4
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	4
Telithromycin	100.0%			0.008	0.12	≤ 0.002	0.5
Tigecycline *	100.0%			≤ 0.015	0.03	≤ 0.015	0.03
Trimethoprim Sulfa	89.0%	5.1%	5.9%	0.25	1	≤ 0.12	8
Vancomycin	100.0%			0.25	0.25	≤ 0.12	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *S. aureus*, MRSA Susceptibility - National

### ***Staphylococcus aureus*, MRSA (125)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	87.2%	12.0%	0.8%	8	32	≤ 1	64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			8	32	2	32
Aztreonam	No Breakpoints Defined			> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints Defined			32	128	1	> 128
Cefepime	No Breakpoints Defined			64	> 64	4	> 64
Cefoxitin			100.0%	32	> 32	16	> 32
Ceftazidime	No Breakpoints Defined			> 32	> 32	16	> 32
Ceftriaxone	No Breakpoints Defined			> 64	> 64	16	> 64
Ciprofloxacin	27.2%		72.8%	16	> 16	0.25	> 16
Clarithromycin	21.6%		78.4%	> 32	> 32	0.12	> 32
Clindamycin	68.8%		31.2%	≤ 0.12	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Daptomycin	99.2%		0.8%	0.25	0.5	0.12	2
Doripenem	No Breakpoints Defined			1	16	0.12	32
Doxycycline	100.0%			≤ 0.12	1	≤ 0.12	4
Ertapenem	No Breakpoints Defined			16	> 32	1	> 32
Gentamicin	98.4%	0.8%	0.8%	≤ 0.5	≤ 0.5	≤ 0.5	> 32
Imipenem	No Breakpoints Defined			1	32	0.06	> 32
Linezolid	100.0%			2	2	0.5	4
Meropenem	No Breakpoints Defined			4	16	0.25	> 32
Moxifloxacin	27.2%	3.2%	69.6%	2	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	No Breakpoints Defined			32	128	4	256
Tigecycline *	97.6%			0.12	0.5	0.06	1
Tobramycin	64.0%	0.8%	35.2%	1	> 64	≤ 0.5	> 64
Trimethoprim Sulfa	96.0%		4.0%	≤ 0.12	≤ 0.12	≤ 0.12	> 8
Vancomycin	100.0%			1	1	0.5	2

\*Interpretive breakpoints defined by FDA (tigecycline)



# CANWARD 2012

## *S. aureus*, CA-MRSA Susceptibility - National

### ***Staphylococcus aureus*, CA-MRSA (48)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	97.9%	2.1%		8	16	2	32
Amoxicillin Clavulanic Acid	No Breakpoints Defined			8	16	2	32
Aztreonam	No Breakpoints Defined			> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints Defined			16	64	1	128
Cefepime	No Breakpoints Defined			32	> 64	4	> 64
Cefoxitin			100.0%	32	> 32	16	> 32
Ceftazidime	No Breakpoints Defined			> 32	> 32	32	> 32
Ceftriaxone	No Breakpoints Defined			64	> 64	16	> 64
Ciprofloxacin	39.6%		60.4%	16	16	0.25	> 16
Clarithromycin	35.4%		64.6%	> 32	> 32	0.12	> 32
Clindamycin	85.4%		14.6%	≤ 0.12	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Daptomycin	97.9%		2.1%	0.25	0.5	0.25	2
Doripenem	No Breakpoints Defined			1	2	0.12	8
Doxycycline	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	0.25
Ertapenem	No Breakpoints Defined			2	8	1	8
Gentamicin	97.9%	2.1%		≤ 0.5	≤ 0.5	≤ 0.5	8
Imipenem	No Breakpoints Defined			0.5	2	0.06	32
Linezolid	100.0%			2	2	1	4
Meropenem	No Breakpoints Defined			2	4	0.25	32
Moxifloxacin	39.6%	6.3%	54.2%	2	2	≤ 0.06	8
Piperacillin Tazobactam	No Breakpoints Defined			16	64	4	128
Tigecycline *	100.0%			0.12	0.12	0.06	0.25
Tobramycin	97.9%	2.1%		≤ 0.5	1	≤ 0.5	8
Trimethoprim Sulfa	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	0.5
Vancomycin	100.0%			0.5	1	0.5	2

\*Interpretive breakpoints defined by FDA (tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. aureus*, HA-MRSA Susceptibility - National

### ***Staphylococcus aureus*, HA-MRSA (68)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	77.9%	20.6%	1.5%	16	32	≤ 1	64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			16	32	2	32
Aztreonam	No Breakpoints Defined			> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints Defined			64	> 128	2	> 128
Cefepime	No Breakpoints Defined			> 64	> 64	4	> 64
Cefoxitin			100.0%	> 32	> 32	16	> 32
Ceftazidime	No Breakpoints Defined			> 32	> 32	16	> 32
Ceftriaxone	No Breakpoints Defined			> 64	> 64	16	> 64
Ciprofloxacin	11.8%		88.2%	> 16	> 16	0.25	> 16
Clarithromycin	8.8%		91.2%	> 32	> 32	0.12	> 32
Clindamycin	54.4%		45.6%	≤ 0.12	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Daptomycin	100.0%			0.25	0.5	0.12	0.5
Doripenem	No Breakpoints Defined			4	32	0.25	32
Doxycycline	100.0%			≤ 0.12	2	≤ 0.12	4
Ertapenem	No Breakpoints Defined			16	> 32	2	> 32
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	4
Imipenem	No Breakpoints Defined			4	> 32	0.12	> 32
Linezolid	100.0%			2	4	0.5	4
Meropenem	No Breakpoints Defined			8	32	0.5	> 32
Moxifloxacin	11.8%	1.5%	86.8%	8	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	No Breakpoints Defined			64	128	4	256
Tigecycline *	95.6%			0.12	0.5	0.12	1
Tobramycin	36.8%		63.2%	> 64	> 64	≤ 0.5	> 64
Trimethoprim Sulfa	92.6%		7.4%	≤ 0.12	≤ 0.12	≤ 0.12	> 8
Vancomycin	100.0%			1	1	0.5	1

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. faecalis* Susceptibility - National

### ***Enterococcus faecalis* (92)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	No Breakpoints	Defined		> 64	> 64	8	> 64
Amoxicillin Clavulanic Acid	No Breakpoints	Defined		0.5	1	0.12	1
Aztreonam	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints	Defined		32	32	4	64
Cefepime	No Breakpoints	Defined		32	> 64	2	> 64
Cefoxitin	No Breakpoints	Defined		> 32	> 32	16	> 32
Ceftazidime	No Breakpoints	Defined		> 32	> 32	4	> 32
Ceftriaxone	No Breakpoints	Defined		> 64	> 64	1	> 64
Ciprofloxacin	68.5%	4.3%	27.2%	1	> 16	0.25	> 16
Clarithromycin	No Breakpoints	Defined		32	> 32	0.06	> 32
Clindamycin	No Breakpoints	Defined		> 8	> 8	1	> 8
Colistin	No Breakpoints	Defined		> 16	> 16	> 16	> 16
Daptomycin	100.0%			1	2	0.12	4
Doripenem	No Breakpoints	Defined		2	4	0.5	8
Doxycycline	42.4%	43.5%	14.1%	8	16	≤ 0.12	32
Ertapenem	No Breakpoints	Defined		16	16	2	32
Gentamicin	No Breakpoints	Defined		16	> 32	1	> 32
Imipenem	No Breakpoints	Defined		1	2	0.25	4
Linezolid	96.7%	3.3%		2	2	1	4
Meropenem	No Breakpoints	Defined		4	8	1	16
Moxifloxacin	No Breakpoints	Defined		0.25	16	0.12	> 16
Piperacillin Tazobactam	No Breakpoints	Defined		4	4	≤ 1	8
Tigecycline *	100.0%			0.12	0.12	≤ 0.03	0.25
Tobramycin	No Breakpoints	Defined		16	> 64	4	> 64
Trimethoprim Sulfa	No Breakpoints	Defined		≤ 0.12	0.5	≤ 0.12	> 8
Vancomycin	100.0%			1	2	0.5	4

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. cloacae* Susceptibility – National

### *Enterobacter cloacae* (69)

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	8
Amoxicillin Clavulanic Acid	2.9%	2.9%	94.2%	> 32	> 32	4	> 32
Aztreonam	75.4%		24.6%	≤ 0.12	64	≤ 0.12	> 64
Cefazolin	1.4%	1.4%	97.1%	> 128	> 128	2	> 128
Cefepime	97.1%	1.4%	1.4%	≤ 0.25	2	≤ 0.25	32
Cefoxitin	4.3%	2.9%	92.8%	> 32	> 32	8	> 32
Ceftazidime	75.4%	1.4%	23.2%	0.5	> 32	≤ 0.25	> 32
Ceftriaxone	72.5%	1.4%	26.1%	≤ 0.25	> 64	≤ 0.25	> 64
Ciprofloxacin	94.2%	1.4%	4.3%	≤ 0.06	0.12	≤ 0.06	> 16
Colistin	No Breakpoints Defined			0.25	> 16	0.12	> 16
Doripenem	98.6%	1.4%		0.06	0.12	≤ 0.03	2
Doxycycline	91.3%	4.3%	4.3%	2	4	2	32
Ertapenem	85.5%	8.7%	5.8%	0.06	1	≤ 0.03	32
Gentamicin	98.6%		1.4%	≤ 0.5	≤ 0.5	≤ 0.5	> 32
Imipenem	97.1%		2.9%	0.5	0.5	0.12	4
Meropenem	98.6%	1.4%		0.06	0.12	≤ 0.03	2
Moxifloxacin *	92.8%	4.4%	2.9%	≤ 0.06	0.25	≤ 0.06	> 16
Piperacillin Tazobactam	82.6%	5.8%	11.6%	2	128	≤ 1	256
Tigecycline *	98.6%		1.4%	0.5	1	0.25	8
Tobramycin	98.6%		1.4%	≤ 0.5	1	≤ 0.5	16
Trimethoprim Sulfa	89.9%		10.1%	≤ 0.12	4	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

# CANWARD 2012

## *S. epidermidis* Susceptibility - National

### ***Staphylococcus epidermidis* (72)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	100.0%			≤ 1	16	≤ 1	16
Amoxicillin Clavulanic Acid	80.6%		19.4%	1	16	≤ 0.06	16
Aztreonam	No Breakpoints Defined			> 64	> 64	64	> 64
Cefazolin	80.6%	2.8%	16.7%	2	128	≤ 0.5	128
Cefepime	68.1%	11.1%	20.8%	4	> 64	≤ 0.25	> 64
Cefoxitin	No Breakpoints Defined			16	> 32	1	> 32
Ceftazidime	25.0%	18.1%	56.9%	32	> 32	2	> 32
Ceftriaxone	43.1%	36.1%	20.8%	16	> 64	0.5	> 64
Ciprofloxacin	44.4%		55.6%	8	> 16	≤ 0.06	> 16
Clarithromycin	29.2%		70.8%	> 32	> 32	≤ 0.03	> 32
Clindamycin	55.6%	1.4%	43.1%	≤ 0.12	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	4	> 16
Daptomycin	100.0%			0.25	0.25	≤ 0.03	0.5
Doripenem	No Breakpoints Defined			1	16	≤ 0.03	32
Doxycycline	97.2%	2.8%		0.5	1	≤ 0.12	8
Ertapenem	45.1%	7.8%	47.1%	4	> 32	0.25	> 32
Gentamicin	55.6%	6.9%	37.5%	≤ 0.5	> 32	≤ 0.5	> 32
Imipenem	72.2%	4.2%	23.6%	0.25	32	≤ 0.03	> 32
Linezolid	100.0%			1	1	≤ 0.12	2
Piperacillin Tazobactam	83.3%		16.7%	≤ 1	16	≤ 1	64
Tigecycline	No Breakpoints Defined			0.12	0.25	0.06	1
Tobramycin	56.9%	12.5%	30.6%	2	64	≤ 0.5	> 64
Trimethoprim Sulfa	54.2%		45.8%	≤ 0.12	8	≤ 0.12	> 8
Vancomycin	100.0%			1	2	0.5	2

# CANWARD 2012

## *S. marcescens* Susceptibility - National

### *Serratia marcescens* (40)

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	100.0%			2	4	≤ 1	8
Amoxicillin Clavulanic Acid	2.5%	2.5%	95.0%	> 32	> 32	4	> 32
Aztreonam	100.0%			≤ 0.12	0.25	≤ 0.12	2
Cefazolin			100.0%	> 128	> 128	128	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin	27.5%	55.0%	17.5%	16	32	8	> 32
Ceftazidime	100.0%			≤ 0.25	0.5	≤ 0.25	1
Ceftriaxone	97.5%		2.5%	≤ 0.25	≤ 0.25	≤ 0.25	8
Ciprofloxacin	92.5%	2.5%	5.0%	≤ 0.06	0.5	≤ 0.06	16
Colistin	No Breakpoints Defined			> 16	> 16	0.5	> 16
Doripenem	100.0%			0.12	0.25	0.06	0.25
Doxycycline	45.0%	30.0%	25.0%	8	16	2	> 32
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.25
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	2
Imipenem	100.0%			0.5	1	0.25	1
Meropenem	100.0%			0.06	0.06	≤ 0.03	0.12
Moxifloxacin *	92.5%	2.5%	5.0%	0.25	2	≤ 0.06	16
Piperacillin Tazobactam	97.5%	2.5%		≤ 1	2	≤ 1	32
Tigecycline *	97.5%		2.5%	1	2	1	8
Tobramycin	95.0%	2.5%	2.5%	1	2	≤ 0.5	16
Trimethoprim Sulfa	100.0%			0.25	0.5	≤ 0.12	2

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

# CANWARD 2012

## *K. oxytoca* Susceptibility - National

### *Klebsiella oxytoca* (50)

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	4
Amoxicillin Clavulanic Acid	82.0%	10.0%	8.0%	2	16	1	> 32
Aztreonam	92.0%	2.0%	6.0%	≤ 0.12	1	≤ 0.12	64
Cefazolin	26.0%	32.0%	42.0%	4	> 128	1	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	0.5
Cefoxitin	98.0%		2.0%	2	4	0.5	32
Ceftazidime	100.0%			≤ 0.25	0.5	≤ 0.25	1
Ceftriaxone	94.0%	2.0%	4.0%	≤ 0.25	≤ 0.25	≤ 0.25	8
Ciprofloxacin	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	1
Colistin	No Breakpoints Defined			0.25	0.5	≤ 0.06	> 16
Doripenem	100.0%			0.06	0.06	≤ 0.03	0.12
Doxycycline	98.0%	2.0%		1	2	1	8
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.5	0.12	0.5
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Moxifloxacin *	98.0%	2.0%		≤ 0.06	0.12	≤ 0.06	4
Piperacillin Tazobactam	84.0%	2.0%	14.0%	2	128	≤ 1	> 512
Tigecycline *	100.0%			0.5	0.5	0.25	1
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	2
Trimethoprim Sulfa	98.0%		2.0%	≤ 0.12	≤ 0.12	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

# CANWARD 2012

## *S. maltophilia* Susceptibility - National

### ***Stenotrophomonas maltophilia* (43)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	No Breakpoints Defined			32	> 64	4	> 64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			> 32	> 32	32	> 32
Aztreonam	No Breakpoints Defined			> 64	> 64	16	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	2	> 128
Cefepime	No Breakpoints Defined			32	> 64	≤ 0.25	> 64
Cefoxitin	No Breakpoints Defined			> 32	> 32	4	> 32
Ceftazidime	16.3%	7.0%	76.7%	> 32	> 32	1	> 32
Ceftriaxone	No Breakpoints Defined			> 64	> 64	4	> 64
Ciprofloxacin	No Breakpoints Defined			2	8	0.5	> 16
Colistin	No Breakpoints Defined			4	> 16	0.25	> 16
Doripenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Doxycycline	No Breakpoints Defined			2	4	0.5	16
Ertapenem	No Breakpoints Defined			> 32	> 32	32	> 32
Gentamicin	No Breakpoints Defined			8	> 32	1	> 32
Imipenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Meropenem	No Breakpoints Defined			> 32	> 32	16	> 32
Moxifloxacin	No Breakpoints Defined			0.5	4	≤ 0.06	> 16
Piperacillin Tazobactam	No Breakpoints Defined			256	> 512	≤ 1	> 512
Tigecycline	No Breakpoints Defined			0.5	2	0.25	4
Tobramycin	No Breakpoints Defined			8	64	1	> 64
Trimethoprim Sulfa	69.0%		31.0%	0.5	> 8	≤ 0.12	> 8



# CANWARD 2012

## *E. faecium* Susceptibility - National

### ***Enterococcus faecium* (35)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	No Breakpoints	Defined		16	> 64	8	> 64
Amoxicillin Clavulanic Acid	No Breakpoints	Defined		> 32	> 32	0.12	> 32
Aztreonam	No Breakpoints	Defined		> 64	> 64	64	> 64
Cefazolin	No Breakpoints	Defined		> 128	> 128	16	> 128
Cefepime	No Breakpoints	Defined		> 64	> 64	4	> 64
Cefoxitin	No Breakpoints	Defined		> 32	> 32	16	> 32
Ceftazidime	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Ceftriaxone	No Breakpoints	Defined		> 64	> 64	1	> 64
Ciprofloxacin	17.1%		82.9%	> 16	> 16	0.5	> 16
Clarithromycin	No Breakpoints	Defined		> 32	> 32	0.12	> 32
Clindamycin	No Breakpoints	Defined		> 8	> 8	≤ 0.12	> 8
Colistin	No Breakpoints	Defined		> 16	> 16	> 16	> 16
Daptomycin	100.0%			1	2	1	2
Doripenem	No Breakpoints	Defined		> 32	> 32	1	> 32
Doxycycline	82.9%	8.6%	8.6%	2	8	≤ 0.12	16
Ertapenem	No Breakpoints	Defined		> 32	> 32	4	> 32
Gentamicin	No Breakpoints	Defined		8	8	2	> 32
Imipenem	No Breakpoints	Defined		> 32	> 32	0.5	> 32
Linezolid	91.4%	8.6%		2	2	1	4
Meropenem	No Breakpoints	Defined		> 32	> 32	2	> 32
Moxifloxacin	No Breakpoints	Defined		> 16	> 16	0.25	> 16
Piperacillin Tazobactam	No Breakpoints	Defined		> 512	> 512	4	> 512
Tigecycline	No Breakpoints	Defined		0.06	0.12	0.06	0.12
Tobramycin	No Breakpoints	Defined		64	> 64	32	> 64
Trimethoprim Sulfa	No Breakpoints	Defined		0.5	> 8	≤ 0.12	> 8
Vancomycin	71.4%		28.6%	1	> 32	0.25	> 32

# CANWARD 2012

## *S. agalactiae* Susceptibility - National

### ***Streptococcus agalactiae* (43)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	No Breakpoints Defined			≤ 0.06	0.12	≤ 0.06	0.12
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefuroxime	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Chloramphenicol	100.0%			4	4	2	4
Ciprofloxacin	No Breakpoints Defined			0.5	1	0.25	> 16
Clarithromycin	74.4%	4.7%	20.9%	≤ 0.03	16	≤ 0.03	> 32
Clindamycin	81.4%		18.6%	≤ 0.12	> 64	≤ 0.12	> 64
Daptomycin	100.0%			0.25	0.25	0.06	0.25
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	No Breakpoints Defined			8	16	≤ 0.25	16
Ertapenem	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Levofloxacin	95.3%		4.7%	1	1	0.5	32
Linezolid	100.0%			2	2	1	2
Meropenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Moxifloxacin	No Breakpoints Defined			0.12	0.25	≤ 0.06	4
Penicillin	100.0%			0.06	0.06	≤ 0.03	0.12
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	No Breakpoints Defined			0.015	0.12	0.008	1
Tigecycline *	100.0%			0.03	0.06	≤ 0.015	0.06
Trimethoprim Sulfa	No Breakpoints Defined			≤ 0.12	≤ 0.12	≤ 0.12	1
Vancomycin	100.0%			0.5	0.5	0.25	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *P. mirabilis* Susceptibility - National

### *Proteus mirabilis* (39)

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			2	4	≤ 1	8
Amoxicillin Clavulanic Acid	87.2%		12.8%	1	> 32	0.5	> 32
Aztreonam	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	0.25
Cefazolin	2.6%	66.7%	30.8%	4	> 128	2	> 128
Cefepime	100.0%			≤ 0.25	0.5	≤ 0.25	1
Cefoxitin	87.2%	7.7%	5.1%	4	16	2	32
Ceftazidime	100.0%			≤ 0.25	4	≤ 0.25	4
Ceftriaxone	92.3%	7.7%		≤ 0.25	1	≤ 0.25	2
Ciprofloxacin	92.3%	2.6%	5.1%	≤ 0.06	1	≤ 0.06	> 16
Colistin	No Breakpoints Defined			> 16	> 16	≤ 0.06	> 16
Doripenem	100.0%			0.12	0.25	0.06	0.5
Doxycycline		2.6%	97.4%	32	> 32	8	> 32
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Gentamicin	89.7%	2.6%	7.7%	≤ 0.5	8	≤ 0.5	16
Imipenem	30.8%	48.7%	20.5%	2	4	0.25	4
Meropenem	100.0%			0.06	0.12	≤ 0.03	0.25
Moxifloxacin *	84.6%	5.1%	10.3%	0.5	8	0.25	> 16
Piperacillin Tazobactam	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Tigecycline *	17.9%	46.2%	35.9%	4	8	1	8
Tobramycin	94.9%	2.6%	2.6%	≤ 0.5	2	≤ 0.5	16
Trimethoprim Sulfa	84.6%		15.4%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

# CANWARD 2012

## *S. pyogenes* Susceptibility - National

### ***Streptococcus pyogenes* (36)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	No Breakpoints Defined			≤ 0.06	≤ 0.06	≤ 0.06	0.12
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefuroxime	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	0.5
Chloramphenicol	100.0%			2	4	0.5	4
Ciprofloxacin	No Breakpoints Defined			0.5	2	0.12	2
Clarithromycin	94.4%		5.6%	≤ 0.03	≤ 0.03	≤ 0.03	> 32
Clindamycin	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	0.25
Daptomycin	100.0%			0.06	0.12	≤ 0.03	0.12
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	16
Ertapenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Levofloxacin	100.0%			0.5	2	0.25	2
Linezolid	100.0%			1	2	1	2
Meropenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	0.12
Moxifloxacin	No Breakpoints Defined			0.12	0.25	≤ 0.06	0.5
Penicillin	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	No Breakpoints Defined			0.008	0.015	0.004	0.25
Tigecycline *	100.0%			≤ 0.015	0.06	≤ 0.015	0.25
Trimethoprim Sulfa	No Breakpoints Defined			≤ 0.12	0.25	≤ 0.12	1
Vancomycin	100.0%			0.5	0.5	0.25	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *C. freundii* Susceptibility - National

### *Citrobacter freundii* (11)

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	2
Amoxicillin Clavulanic Acid		18.2%	81.8%	> 32	> 32	16	> 32
Aztreonam	90.9%		9.1%	≤ 0.12	≤ 0.12	≤ 0.12	32
Cefazolin		18.2%	81.8%	16	> 128	4	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin	9.1%		90.9%	> 32	> 32	8	> 32
Ceftazidime	90.9%		9.1%	0.5	1	≤ 0.25	32
Ceftriaxone	90.9%		9.1%	≤ 0.25	≤ 0.25	≤ 0.25	16
Ciprofloxacin	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	0.12
Colistin	No Breakpoints Defined			0.25	0.25	0.12	0.5
Doripenem	100.0%			0.06	0.06	≤ 0.03	0.12
Doxycycline	81.8%		18.2%	2	32	1	32
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.5
Gentamicin	81.8%		18.2%	≤ 0.5	32	≤ 0.5	> 32
Imipenem	100.0%			0.5	0.5	0.25	1
Meropenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.12
Moxifloxacin *	100.0%			0.12	0.5	≤ 0.06	0.5
Piperacillin Tazobactam	100.0%			≤ 1	2	≤ 1	4
Tigecycline *	100.0%			0.5	0.5	0.25	1
Tobramycin	100.0%			≤ 0.5	4	≤ 0.5	4
Trimethoprim Sulfa	72.7%		27.3%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *A. baumannii* Susceptibility - National

### ***Acinetobacter baumannii* (14)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	2
Amoxicillin Clavulanic Acid	No Breakpoints Defined			8	16	8	16
Aztreonam	No Breakpoints Defined			32	> 64	4	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	128	> 128
Cefepime	92.9%		7.1%	2	8	0.5	64
Cefoxitin	No Breakpoints Defined			> 32	> 32	8	> 32
Ceftazidime	92.9%		7.1%	4	8	2	> 32
Ceftriaxone	35.7%	57.1%	7.1%	16	32	4	> 64
Ciprofloxacin	100.0%			0.25	0.5	0.12	0.5
Colistin	100.0%			0.5	1	0.25	1
Doripenem	No Breakpoints Defined			0.25	0.5	0.12	1
Doxycycline	100.0%			0.25	0.5	≤ 0.12	1
Ertapenem	No Breakpoints Defined			8	16	1	32
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.5	0.12	0.5
Meropenem	100.0%			0.25	1	0.25	4
Moxifloxacin	No Breakpoints Defined			≤ 0.06	0.25	≤ 0.06	0.25
Piperacillin Tazobactam	92.9%		7.1%	4	16	≤ 1	256
Tigecycline	No Breakpoints Defined			0.25	0.5	0.12	1
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Trimethoprim Sulfa	100.0%			≤ 0.12	0.5	≤ 0.12	2

# CANWARD 2012

## *S. aureus*, MSSA Susceptibility - West

### ***Staphylococcus aureus* , MSSA (190)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	98.9%		1.1%	2	4	≤ 1	> 64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			0.5	1	≤ 0.06	1
Aztreonam	No Breakpoints Defined			> 64	> 64	64	> 64
Cefazolin	No Breakpoints Defined			≤ 0.5	≤ 0.5	≤ 0.5	1
Cefepime	No Breakpoints Defined			2	4	0.5	4
Cefoxitin	100.0%			4	4	2	4
Ceftazidime	No Breakpoints Defined			16	32	4	32
Ceftriaxone	No Breakpoints Defined			4	4	1	8
Ciprofloxacin	88.9%	2.1%	8.9%	0.5	2	≤ 0.06	> 16
Clarithromycin	77.9%		22.1%	0.25	> 32	0.06	> 32
Clindamycin	93.7%	0.5%	5.8%	≤ 0.12	≤ 0.12	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Daptomycin	100.0%			0.25	0.5	0.12	0.5
Doripenem	No Breakpoints Defined			0.06	0.06	≤ 0.03	0.12
Doxycycline	97.9%	0.5%	1.6%	≤ 0.12	0.25	≤ 0.12	16
Ertapenem	No Breakpoints Defined			0.25	0.5	0.12	0.5
Gentamicin	96.8%		3.2%	≤ 0.5	≤ 0.5	≤ 0.5	> 32
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Linezolid	100.0%			2	2	1	4
Meropenem	No Breakpoints Defined			0.12	0.25	0.06	0.25
Moxifloxacin	91.6%	1.1%	7.4%	≤ 0.06	0.25	≤ 0.06	> 16
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	2
Tigecycline *	100.0%			0.12	0.25	0.06	0.5
Tobramycin	96.3%		3.7%	≤ 0.5	≤ 0.5	≤ 0.5	> 64
Trimethoprim Sulfa	98.4%		1.6%	≤ 0.12	≤ 0.12	≤ 0.12	> 8
Vancomycin	100.0%			1	1	0.5	1

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. coli* Susceptibility - West

### *Escherichia coli* (163)

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	99.4%	0.6%		≤ 1	4	≤ 1	32
Amoxicillin Clavulanic Acid	76.7%	14.7%	8.6%	8	16	0.5	> 32
Aztreonam	95.1%	1.8%	3.1%	≤ 0.12	0.5	≤ 0.12	> 64
Cefazolin	71.2%	11.7%	17.2%	2	32	≤ 0.5	> 128
Cefepime	98.2%	1.2%	0.6%	≤ 0.25	≤ 0.25	≤ 0.25	> 64
Cefoxitin	91.4%	4.3%	4.3%	4	8	1	> 32
Ceftazidime	94.5%	0.6%	4.9%	≤ 0.25	1	≤ 0.25	> 32
Ceftriaxone	92.6%	0.6%	6.7%	≤ 0.25	≤ 0.25	≤ 0.25	> 64
Ciprofloxacin	74.8%		25.2%	≤ 0.06	> 16	≤ 0.06	> 16
Colistin	No Breakpoints Defined			0.25	0.25	≤ 0.06	> 16
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Doxycycline	68.7%	7.4%	23.9%	2	32	0.5	> 32
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.25
Gentamicin	91.4%		8.6%	≤ 0.5	2	≤ 0.5	> 32
Imipenem	100.0%			0.25	0.25	0.06	1
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Moxifloxacin *	74.9%		25.1%	≤ 0.06	16	≤ 0.06	> 16
Piperacillin Tazobactam	96.9%		3.1%	≤ 1	4	≤ 1	512
Tigecycline *	100.0%			0.25	0.5	0.12	2
Tobramycin	93.3%	3.7%	3.1%	≤ 0.5	4	≤ 0.5	32
Trimethoprim Sulfa	72.4%		27.6%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE





# CANWARD 2012

## *P. aeruginosa* Susceptibility - West

### ***Pseudomonas aeruginosa* (69)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	87.0%	8.7%	4.3%	4	32	≤ 1	> 64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			> 32	> 32	32	> 32
Aztreonam	71.0%	8.7%	20.3%	8	32	0.25	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	> 128	> 128
Cefepime	88.4%	4.3%	7.2%	4	16	1	64
Cefoxitin	No Breakpoints Defined			> 32	> 32	32	> 32
Ceftazidime	87.0%	5.8%	7.2%	4	16	1	> 32
Ceftriaxone	No Breakpoints Defined			16	> 64	2	> 64
Ciprofloxacin	78.3%	8.7%	13.0%	0.25	4	≤ 0.06	> 16
Colistin	98.6%		1.4%	1	1	0.25	> 16
Doripenem	89.9%	1.4%	8.7%	0.5	4	≤ 0.03	32
Doxycycline	No Breakpoints Defined			32	> 32	4	> 32
Ertapenem	No Breakpoints Defined			16	> 32	0.12	> 32
Gentamicin	85.5%	5.8%	8.7%	1	8	≤ 0.5	> 32
Imipenem	71.0%	8.7%	20.3%	2	16	0.25	32
Meropenem	79.7%	8.7%	11.6%	0.5	8	≤ 0.03	> 32
Moxifloxacin	No Breakpoints Defined			2	16	0.25	> 16
Piperacillin Tazobactam	85.5%	8.7%	5.8%	4	64	≤ 1	512
Tigecycline	No Breakpoints Defined			16	> 16	2	> 16
Tobramycin	94.2%	1.4%	4.3%	≤ 0.5	4	≤ 0.5	> 64
Trimethoprim Sulfa	No Breakpoints Defined			8	> 8	0.5	> 8

# CANWARD 2012

## *K. pneumoniae* Susceptibility - West

### ***Klebsiella pneumoniae* (47)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	≤ 1	≤ 1	2
Amoxicillin Clavulanic Acid	97.9%	2.1%		2	8	1	16
Aztreonam	97.9%		2.1%	≤ 0.12	0.25	≤ 0.12	> 64
Cefazolin	91.5%	2.1%	6.4%	1	2	1	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	4
Cefoxitin	93.6%	2.1%	4.3%	2	8	1	32
Ceftazidime	97.9%		2.1%	≤ 0.25	0.5	≤ 0.25	> 32
Ceftriaxone	93.6%	2.1%	4.3%	≤ 0.25	≤ 0.25	≤ 0.25	16
Ciprofloxacin	100.0%			≤ 0.06	0.12	≤ 0.06	0.5
Colistin	No Breakpoints Defined			0.25	0.5	0.25	1
Doripenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.12
Doxycycline	80.9%	4.3%	14.9%	2	16	1	> 32
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Gentamicin	95.7%		4.3%	≤ 0.5	≤ 0.5	≤ 0.5	> 32
Imipenem	100.0%			0.25	0.5	0.12	0.5
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Moxifloxacin *	100.0%			0.12	0.5	≤ 0.06	1
Piperacillin Tazobactam	97.9%		2.1%	2	8	≤ 1	128
Tigecycline *	95.7%	2.1%	2.1%	0.5	2	0.25	8
Tobramycin	97.9%	2.1%		≤ 0.5	≤ 0.5	≤ 0.5	8
Trimethoprim Sulfa	89.4%		10.6%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. pneumoniae* Susceptibility - West

### ***Streptococcus pneumoniae* (57)**

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	94.7%		5.3%	≤ 0.06	0.12	≤ 0.06	8
Ceftriaxone	100.0%			≤ 0.12	0.25	≤ 0.12	1
Cefuroxime	91.2%		8.8%	≤ 0.25	≤ 0.25	≤ 0.25	8
Chloramphenicol	100.0%			2	4	≤ 0.12	4
Ciprofloxacin	100.0%			1	2	0.5	2
Clarithromycin	75.4%	1.8%	22.8%	≤ 0.03	> 32	≤ 0.03	> 32
Clindamycin	89.5%		10.5%	≤ 0.12	> 64	≤ 0.12	> 64
Daptomycin	No Breakpoints Defined			0.12	0.12	≤ 0.03	0.25
Doripenem	100.0%			≤ 0.03	0.06	≤ 0.03	1
Doxycycline	84.2%	1.8%	14.0%	≤ 0.25	2	≤ 0.25	16
Ertapenem	94.7%	5.3%		≤ 0.06	0.25	≤ 0.06	2
Imipenem	91.2%	3.5%	5.3%	≤ 0.03	0.06	≤ 0.03	1
Levofloxacin	100.0%			1	1	0.12	1
Linezolid	100.0%			1	2	≤ 0.12	2
Meropenem	93.0%	1.8%	5.3%	≤ 0.06	0.12	≤ 0.06	1
Moxifloxacin	100.0%			0.12	0.25	≤ 0.06	0.25
Penicillin	87.8%	6.1%	6.1%	≤ 0.03	0.5	≤ 0.03	4
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	4
Telithromycin	100.0%			0.008	0.25	≤ 0.002	0.5
Tigecycline *	100.0%			≤ 0.015	0.03	≤ 0.015	0.03
Trimethoprim Sulfa	86.0%	5.3%	8.8%	0.25	2	≤ 0.12	8
Vancomycin	100.0%			0.25	0.25	≤ 0.12	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *S. aureus*-MRSA Susceptibility - West

### ***Staphylococcus aureus*, MRSA (64)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	82.8%	15.6%	1.6%	8	32	≤ 1	64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			8	16	2	32
Aztreonam	No Breakpoints Defined			> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints Defined			32	128	2	> 128
Cefepime	No Breakpoints Defined			64	> 64	4	> 64
Cefoxitin		100.0%		32	> 32	16	> 32
Ceftazidime	No Breakpoints Defined			> 32	> 32	32	> 32
Ceftriaxone	No Breakpoints Defined			> 64	> 64	16	> 64
Ciprofloxacin	29.7%		70.3%	16	> 16	0.25	> 16
Clarithromycin	21.9%		78.1%	> 32	> 32	0.12	> 32
Clindamycin	62.5%		37.5%	≤ 0.12	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Daptomycin	98.4%		1.6%	0.25	0.5	0.12	2
Doripenem	No Breakpoints Defined			1	8	0.12	32
Doxycycline	100.0%			≤ 0.12	1	≤ 0.12	4
Ertapenem	No Breakpoints Defined			8	32	2	32
Gentamicin	98.4%		1.6%	≤ 0.5	≤ 0.5	≤ 0.5	> 32
Imipenem	No Breakpoints Defined			1	8	0.06	> 32
Linezolid	100.0%			2	2	0.5	4
Meropenem	No Breakpoints Defined			4	16	0.5	> 32
Moxifloxacin	29.7%	1.6%	68.8%	2	8	≤ 0.06	> 16
Piperacillin Tazobactam	No Breakpoints Defined			32	64	4	256
Tigecycline *	96.9%		3.1%	0.12	0.5	0.06	1
Tobramycin	68.8%		31.3%	≤ 0.5	> 64	≤ 0.5	> 64
Trimethoprim Sulfa	96.9%		3.1%	≤ 0.12	≤ 0.12	≤ 0.12	> 8
Vancomycin	100.0%			1	1	0.5	2

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. faecalis* Susceptibility - West

### ***Enterococcus faecalis* (34)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	No Breakpoints	Defined		> 64	> 64	32	> 64
Amoxicillin Clavulanic Acid	No Breakpoints	Defined		0.5	1	0.25	1
Aztreonam	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints	Defined		32	32	8	64
Cefepime	No Breakpoints	Defined		32	> 64	2	> 64
Cefoxitin	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Ceftazidime	No Breakpoints	Defined		> 32	> 32	4	> 32
Ceftriaxone	No Breakpoints	Defined		> 64	> 64	1	> 64
Ciprofloxacin	64.7%	2.9%	32.4%	1	> 16	0.5	> 16
Clarithromycin	No Breakpoints	Defined		32	> 32	0.06	> 32
Clindamycin	No Breakpoints	Defined		> 8	> 8	2	> 8
Colistin	No Breakpoints	Defined		> 16	> 16	> 16	> 16
Daptomycin	100.0%			1	2	0.5	4
Doripenem	No Breakpoints	Defined		4	4	1	8
Doxycycline	44.1%	41.2%	14.7%	8	16	≤ 0.12	16
Ertapenem	No Breakpoints	Defined		16	32	8	32
Gentamicin	No Breakpoints	Defined		8	16	4	> 32
Imipenem	No Breakpoints	Defined		1	2	0.5	2
Linezolid	97.1%	2.9%		2	2	1	4
Meropenem	No Breakpoints	Defined		4	8	1	16
Moxifloxacin	No Breakpoints	Defined		0.25	16	0.12	16
Piperacillin Tazobactam	No Breakpoints	Defined		4	8	≤ 1	8
Tigecycline *	100.0%			0.12	0.12	0.06	0.25
Tobramycin	No Breakpoints	Defined		16	16	8	> 64
Trimethoprim Sulfa	No Breakpoints	Defined		≤ 0.12	0.25	≤ 0.12	1
Vancomycin	100.0%			1	2	0.5	4

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. cloacae* Susceptibility - West

### ***Enterobacter cloacae* (33)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	8
Amoxicillin Clavulanic Acid	3.0%		97.0%	> 32	> 32	4	> 32
Aztreonam	66.7%		33.3%	0.25	64	≤ 0.12	> 64
Cefazolin		3.0%	97.0%	> 128	> 128	4	> 128
Cefepime	97.0%	3.0%		≤ 0.25	2	≤ 0.25	16
Cefoxitin	6.1%	3.0%	90.9%	> 32	> 32	8	> 32
Ceftazidime	66.7%	3.0%	30.3%	0.5	> 32	≤ 0.25	> 32
Ceftriaxone	63.6%	3.0%	33.3%	≤ 0.25	> 64	≤ 0.25	> 64
Ciprofloxacin	90.9%	3.0%	6.1%	≤ 0.06	1	≤ 0.06	4
Colistin	No Breakpoints Defined			0.25	> 16	0.12	> 16
Doripenem	97.0%	3.0%		0.06	0.12	≤ 0.03	2
Doxycycline	87.9%	9.1%	3.0%	4	8	2	32
Ertapenem	75.8%	12.1%	12.1%	0.12	2	≤ 0.03	32
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	1
Imipenem	93.9%		6.1%	0.5	0.5	0.25	4
Meropenem	97.0%	3.0%		0.06	0.12	≤ 0.03	2
Moxifloxacin *	87.9%	9.1%	3.0%	≤ 0.06	4	≤ 0.06	8
Piperacillin Tazobactam	75.8%	9.1%	15.2%	2	128	≤ 1	256
Tigecycline *	97.0%		3.0%	0.5	1	0.25	8
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	2
Trimethoprim Sulfa	87.9%		12.1%	≤ 0.12	4	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. epidermidis* Susceptibility - West

### *Staphylococcus epidermidis* (22)

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	100.0%			2	16	≤ 1	16
Amoxicillin Clavulanic Acid	72.7%		27.3%	2	16	≤ 0.06	16
Aztreonam	No Breakpoints Defined			> 64	> 64	64	> 64
Cefazolin	68.2%	9.1%	22.7%	4	128	≤ 0.5	128
Cefepime	59.1%	13.6%	27.3%	8	> 64	≤ 0.25	> 64
Cefoxitin	No Breakpoints Defined			16	> 32	2	> 32
Ceftazidime	9.1%	13.6%	77.3%	32	> 32	4	> 32
Ceftriaxone	27.3%	45.5%	27.3%	16	> 64	1	> 64
Ciprofloxacin	40.9%		59.1%	16	> 16	0.12	> 16
Clarithromycin	18.2%		81.8%	> 32	> 32	0.06	> 32
Clindamycin	54.5%		45.5%	≤ 0.12	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	4	> 16
Daptomycin	100.0%			0.25	0.25	0.12	0.5
Doripenem	No Breakpoints Defined			4	16	≤ 0.03	32
Doxycycline	90.9%	9.1%		0.5	4	≤ 0.12	8
Ertapenem	22.2%		77.8%	32	> 32	0.25	> 32
Gentamicin	45.5%	4.5%	50.0%	8	> 32	≤ 0.5	> 32
Imipenem	63.6%	4.5%	31.8%	1	> 32	≤ 0.03	> 32
Linezolid	100.0%			1	2	0.5	2
Meropenem	No Breakpoints Defined			4	32	0.06	32
Moxifloxacin	40.9%	4.5%	54.5%	2	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	72.7%		27.3%	2	32	≤ 1	32
Tigecycline	No Breakpoints Defined			0.25	0.25	0.12	0.5
Tobramycin	36.4%	13.6%	50.0%	8	> 64	≤ 0.5	> 64
Trimethoprim Sulfa	40.9%		59.1%	4	8	≤ 0.12	> 8
Vancomycin	100.0%			1	2	1	2

# CANWARD 2012

## *S. marcescens* Susceptibility - West

### ***Serratia marcescens* (10)**

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	4
Amoxicillin Clavulanic Acid			100.0%	> 32	> 32	32	> 32
Aztreonam	100.0%			≤ 0.12	0.25	≤ 0.12	1
Cefazolin			100.0%	> 128	> 128	> 128	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin	30.0%	50.0%	20.0%	16	> 32	8	> 32
Ceftazidime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	0.5
Ceftriaxone	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	1
Ciprofloxacin	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Colistin	No Breakpoints Defined			> 16	> 16	0.5	> 16
Doripenem	100.0%			0.06	0.12	0.06	0.12
Doxycycline	40.0%	40.0%	20.0%	8	16	2	16
Ertapenem	100.0%			≤ 0.03	0.12	≤ 0.03	0.12
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.5	0.5	0.25	0.5
Meropenem	100.0%			0.06	0.06	≤ 0.03	0.06
Moxifloxacin *	100.0%			0.25	0.5	0.12	0.5
Piperacillin Tazobactam	100.0%			≤ 1	≤ 1	≤ 1	8
Tigecycline *	100.0%			1	2	1	2
Tobramycin	100.0%			1	2	≤ 0.5	2
Trimethoprim Sulfa	100.0%			0.25	0.5	≤ 0.12	0.5

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE





# CANWARD 2012

## *K. oxytoca* Susceptibility - West

### *Klebsiella oxytoca* (25)

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	4
Amoxicillin Clavulanic Acid	80.0%	12.0%	8.0%	2	16	1	> 32
Aztreonam	96.0%	4.0%		≤ 0.12	1	≤ 0.12	8
Cefazolin	24.0%	28.0%	48.0%	4	> 128	1	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin	96.0%		4.0%	2	4	1	32
Ceftazidime	100.0%			≤ 0.25	0.5	≤ 0.25	1
Ceftriaxone	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	1
Ciprofloxacin	100.0%			≤ 0.06	0.25	≤ 0.06	1
Colistin	No Breakpoints Defined			0.25	2	0.25	> 16
Doripenem	100.0%			0.06	0.06	≤ 0.03	0.12
Doxycycline	96.0%	4.0%		1	2	1	8
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.5	0.12	0.5
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Moxifloxacin *	96.0%	4.0%		0.12	0.5	≤ 0.06	4
Piperacillin Tazobactam	84.0%		16.0%	2	128	≤ 1	> 512
Tigecycline *	100.0%			0.5	1	0.25	1
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Trimethoprim Sulfa	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	0.25

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. maltophilia* Susceptibility - West

### ***Stenotrophomonas maltophilia* (20)**

Drug	Susceptibility			MIC		Range	
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	No Breakpoints Defined			32	> 64	4	> 64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			> 32	> 32	32	> 32
Aztreonam				> 64	> 64	32	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	2	> 128
Cefepime	No Breakpoints Defined			32	> 64	≤ 0.25	> 64
Cefoxitin	No Breakpoints Defined			> 32	> 32	4	> 32
Ceftazidime	19.0%		81.0%	> 32	> 32	1	> 32
Ceftriaxone	No Breakpoints Defined			> 64	> 64	4	> 64
Ciprofloxacin	No Breakpoints Defined			1	4	0.5	> 16
Colistin	No Breakpoints Defined			4	16	0.25	> 16
Doripenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Doxycycline	No Breakpoints Defined			2	4	1	4
Ertapenem	No Breakpoints Defined			> 32	> 32	32	> 32
Gentamicin	No Breakpoints Defined			8	> 32	1	> 32
Imipenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Meropenem	No Breakpoints Defined			> 32	> 32	16	> 32
Moxifloxacin	No Breakpoints Defined			0.25	1	≤ 0.06	8
Piperacillin Tazobactam	No Breakpoints Defined			128	> 512	≤ 1	> 512
Tigecycline	No Breakpoints Defined			0.5	1	0.25	4
Tobramycin	No Breakpoints Defined			8	64	2	> 64
Trimethoprim Sulfa	75.0%		25.0%	0.25	> 8	≤ 0.12	> 8

# CANWARD 2012

## *E. faecium* Susceptibility - West

### ***Enterococcus faecium* (11)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	No Breakpoints Defined			16	32	8	32
Amoxicillin Clavulanic Acid	No Breakpoints Defined			> 32	> 32	0.25	> 32
Aztreonam	No Breakpoints Defined			> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	64	> 128
Cefepime	No Breakpoints Defined			> 64	> 64	4	> 64
Cefoxitin	No Breakpoints Defined			> 32	> 32	32	> 32
Ceftazidime	No Breakpoints Defined			> 32	> 32	> 32	> 32
Ceftriaxone	No Breakpoints Defined			> 64	> 64	2	> 64
Ciprofloxacin	18.2%		81.8%	> 16	> 16	0.5	> 16
Clarithromycin	No Breakpoints Defined			> 32	> 32	1	> 32
Clindamycin	No Breakpoints Defined			> 8	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Daptomycin	100.0%			1	2	1	2
Doripenem	No Breakpoints Defined			> 32	> 32	8	> 32
Doxycycline	90.9%	9.1%		≤ 0.12	4	≤ 0.12	8
Ertapenem	No Breakpoints Defined			> 32	> 32	16	> 32
Gentamicin	No Breakpoints Defined			4	> 32	2	> 32
Imipenem	No Breakpoints Defined			> 32	> 32	2	> 32
Linezolid	90.9%	9.1%		2	2	1	4
Meropenem	No Breakpoints Defined			> 32	> 32	8	> 32
Moxifloxacin	No Breakpoints Defined			16	> 16	0.25	> 16
Piperacillin Tazobactam	No Breakpoints Defined			> 512	> 512	8	> 512
Tigecycline	No Breakpoints Defined			0.06	0.12	0.06	0.12
Tobramycin	No Breakpoints Defined			64	> 64	32	> 64
Trimethoprim Sulfa	No Breakpoints Defined			0.25	> 8	≤ 0.12	> 8
Vancomycin	72.7%		27.3%	0.5	> 32	0.25	> 32

# CANWARD 2012

## *S. agalactiae* Susceptibility - West

### ***Streptococcus agalactiae* (17)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	No Breakpoints Defined			≤ 0.06	0.12	≤ 0.06	0.12
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefuroxime	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Chloramphenicol	100.0%			4	4	2	4
Ciprofloxacin	No Breakpoints Defined			0.5	1	0.25	2
Clarithromycin	70.6%	5.9%	23.5%	≤ 0.03	16	≤ 0.03	> 32
Clindamycin	76.5%		23.5%	≤ 0.12	> 64	≤ 0.12	> 64
Daptomycin	100.0%			0.25	0.25	0.06	0.25
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	No Breakpoints Defined			8	16	≤ 0.25	16
Ertapenem	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Levofloxacin	100.0%			1	1	0.5	2
Linezolid	100.0%			2	2	1	2
Meropenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Moxifloxacin	No Breakpoints Defined			0.12	0.25	≤ 0.06	0.5
Penicillin	100.0%			0.06	0.06	≤ 0.03	0.12
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	No Breakpoints Defined			0.015	0.12	0.008	0.12
Tigecycline *	100.0%			0.03	0.06	≤ 0.015	0.06
Trimethoprim Sulfa	No Breakpoints Defined			≤ 0.12	0.25	≤ 0.12	0.25
Vancomycin	100.0%			0.5	0.5	0.25	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *P. mirabilis* Susceptibility - West

### *Proteus mirabilis* (11)

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			2	4	≤ 1	4
Amoxicillin Clavulanic Acid	72.7%		27.3%	1	> 32	0.5	> 32
Aztreonam	100.0%			≤ 0.12	0.25	≤ 0.12	0.25
Cefazolin		63.6%	36.4%	4	> 128	4	> 128
Cefepime	100.0%			≤ 0.25	0.5	≤ 0.25	1
Cefoxitin	81.8%	9.1%	9.1%	4	16	2	32
Ceftazidime	100.0%			≤ 0.25	4	≤ 0.25	4
Ceftriaxone	90.9%	9.1%		≤ 0.25	1	≤ 0.25	2
Ciprofloxacin	90.9%		9.1%	≤ 0.06	1	≤ 0.06	8
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Doripenem	100.0%			0.25	0.25	0.06	0.5
Doxycycline			100.0%	32	> 32	32	> 32
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Gentamicin	90.9%		9.1%	≤ 0.5	1	≤ 0.5	16
Imipenem	27.3%	45.5%	27.3%	2	4	0.5	4
Meropenem	100.0%			0.06	0.12	≤ 0.03	0.25
Moxifloxacin *	72.7%	9.1%	18.2%	0.5	8	0.25	> 16
Piperacillin Tazobactam	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Tigecycline *	18.2%	54.5%	27.3%	4	8	2	8
Tobramycin	100.0%			≤ 0.5	1	≤ 0.5	2
Trimethoprim Sulfa	72.7%		27.3%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. pyogenes* Susceptibility - West

### ***Streptococcus pyogenes* (16)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	No Breakpoints Defined			≤ 0.06	≤ 0.06	≤ 0.06	0.12
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefuroxime				≤ 0.25	≤ 0.25	≤ 0.25	0.5
Chloramphenicol	100.0%			2	4	0.5	4
Ciprofloxacin	No Breakpoints Defined			0.5	0.5	0.12	2
Clarithromycin	93.8%		6.3%	≤ 0.03	≤ 0.03	≤ 0.03	8
Clindamycin	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	0.25
Daptomycin	100.0%			0.06	0.12	0.06	0.12
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	8
Ertapenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Levofloxacin	100.0%			0.5	1	0.25	2
Linezolid	100.0%			1	2	1	2
Meropenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Moxifloxacin	No Breakpoints Defined			0.12	0.25	≤ 0.06	0.25
Penicillin	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	No Breakpoints Defined			0.008	0.015	0.004	0.25
Tigecycline *	100.0%			0.03	0.03	≤ 0.015	0.25
Trimethoprim Sulfa	No Breakpoints Defined			≤ 0.12	0.25	≤ 0.12	0.25
Vancomycin	100.0%			0.5	0.5	0.25	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *C. freundii* Susceptibility - West

### ***Citrobacter freundii* (4)**

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Amoxicillin Clavulanic Acid			100.0%	> 32	> 32	> 32	> 32
Aztreonam	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefazolin			100.0%	16	128	8	128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin			100.0%	> 32	> 32	> 32	> 32
Ceftazidime	100.0%			0.5	0.5	≤ 0.25	0.5
Ceftriaxone	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ciprofloxacin	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Colistin				0.25	0.25	0.25	0.25
Doripenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Doxycycline	100.0%			2	2	2	2
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.5	0.5	0.25	0.5
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Moxifloxacin *	100.0%			≤ 0.06	0.5	≤ 0.06	0.5
Piperacillin Tazobactam	100.0%			≤ 1	2	≤ 1	2
Tigecycline *	100.0%			0.25	0.5	0.25	0.5
Tobramycin	100.0%			≤ 0.5	1	≤ 0.5	1
Trimethoprim Sulfa	75.0%		25.0%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *A. baumannii* Susceptibility - West

### ***Acinetobacter baumannii* (8)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	2
Amoxicillin Clavulanic Acid	No Breakpoints Defined			8	16	8	16
Aztreonam	No Breakpoints Defined			32	> 64	16	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	128	> 128
Cefepime	87.5%		12.5%	2	64	1	64
Cefoxitin	No Breakpoints Defined			> 32	> 32	32	> 32
Ceftazidime	87.5%		12.5%	8	> 32	2	> 32
Ceftriaxone	25.0%	62.5%	12.5%	16	> 64	8	> 64
Ciprofloxacin	100.0%			0.25	0.5	0.12	0.5
Colistin	100.0%			0.5	1	0.25	1
Doripenem	No Breakpoints Defined			0.25	1	0.12	1
Doxycycline	100.0%			0.25	1	≤ 0.12	1
Ertapenem	No Breakpoints Defined			8	32	2	32
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.5	0.12	0.5
Meropenem	100.0%			0.25	4	0.25	4
Moxifloxacin	No Breakpoints Defined			≤ 0.06	0.25	≤ 0.06	0.25
Piperacillin Tazobactam	87.5%		12.5%	4	256	≤ 1	256
Tigecycline	No Breakpoints Defined			0.25	0.5	0.25	0.5
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Trimethoprim Sulfa	100.0%			≤ 0.12	2	≤ 0.12	2



# CANWARD 2012

## *S. aureus* Susceptibility - Ontario

### ***Staphylococcus aureus*, MSSA (211)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	99.5%	0.5%		4	4	≤ 1	32
Amoxicillin Clavulanic Acid	No Breakpoints Defined			0.5	1	≤ 0.06	1
Aztreonam	No Breakpoints Defined			> 64	> 64	64	> 64
Cefazolin	No Breakpoints Defined			≤ 0.5	≤ 0.5	≤ 0.5	2
Cefepime	No Breakpoints Defined			2	4	1	4
Cefoxitin	99.1%		0.9%	4	4	0.25	8
Ceftazidime	No Breakpoints Defined			16	16	4	32
Ceftriaxone	No Breakpoints Defined			4	4	1	8
Ciprofloxacin	87.2%	2.4%	10.4%	0.5	4	≤ 0.06	> 16
Clarithromycin	72.5%	0.5%	27.0%	0.25	> 32	≤ 0.03	> 32
Clindamycin	96.2%		3.8%	≤ 0.12	≤ 0.12	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Daptomycin	100.0%			0.25	0.5	≤ 0.03	0.5
Doripenem	No Breakpoints Defined			0.06	0.06	≤ 0.03	0.25
Doxycycline	99.5%	0.5%		≤ 0.12	0.25	≤ 0.12	8
Ertapenem	No Breakpoints Defined			0.25	0.5	0.12	1
Gentamicin	97.2%	0.9%	1.9%	≤ 0.5	≤ 0.5	≤ 0.5	> 32
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Linezolid	100.0%			2	2	≤ 0.12	4
Meropenem	No Breakpoints Defined			0.12	0.25	0.06	0.5
Moxifloxacin	91.5%	0.5%	8.1%	≤ 0.06	0.25	≤ 0.06	> 16
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	2
Tigecycline *	100.0%			0.12	0.25	0.06	0.25
Tobramycin	96.2%	1.4%	2.4%	≤ 0.5	≤ 0.5	≤ 0.5	> 64
Trimethoprim Sulfa	99.5%		0.5%	≤ 0.12	≤ 0.12	≤ 0.12	8
Vancomycin	100.0%			1	1	0.25	1

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. coli* Susceptibility - Ontario

### *Escherichia coli* (172)

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	4	≤ 1	8
Amoxicillin Clavulanic Acid	73.3%	19.8%	7.0%	4	16	1	> 32
Aztreonam	90.7%	2.9%	6.4%	≤ 0.12	4	≤ 0.12	> 64
Cefazolin	69.2%	8.7%	22.1%	2	> 128	≤ 0.5	> 128
Cefepime	95.9%	2.3%	1.7%	≤ 0.25	1	≤ 0.25	> 64
Cefoxitin	94.8%	2.9%	2.3%	4	8	1	> 32
Ceftazidime	90.1%	2.3%	7.6%	≤ 0.25	4	≤ 0.25	> 32
Ceftriaxone	87.2%	0.6%	12.2%	≤ 0.25	32	≤ 0.25	> 64
Ciprofloxacin	72.1%		27.9%	≤ 0.06	> 16	≤ 0.06	> 16
Colistin	No Breakpoints Defined			0.25	0.5	≤ 0.06	8
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Doxycycline	68.6%	5.2%	26.2%	2	32	0.5	> 32
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.5
Gentamicin	87.8%	0.6%	11.6%	≤ 0.5	32	≤ 0.5	> 32
Imipenem	100.0%			0.12	0.25	0.06	0.5
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Moxifloxacin *	72.1%		27.9%	≤ 0.06	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	96.5%	0.6%	2.9%	2	4	≤ 1	256
Tigecycline *	100.0%			0.25	0.5	0.12	1
Tobramycin	89.0%	3.5%	7.6%	≤ 0.5	8	≤ 0.5	64
Trimethoprim Sulfa	68.6%		31.4%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *P. aeruginosa* Susceptibility - Ontario

### *Pseudomonas aeruginosa* (116)

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	96.6%	1.7%	1.7%	2	8	≤ 1	> 64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			> 32	> 32	32	> 32
Aztreonam	77.6%	14.7%	7.8%	4	16	≤ 0.12	64
Cefazolin	No Breakpoints Defined			> 128	> 128	> 128	> 128
Cefepime	89.7%	9.5%	0.9%	4	16	≤ 0.25	32
Cefoxitin	No Breakpoints Defined			> 32	> 32	32	> 32
Ceftazidime	87.9%	4.3%	7.8%	4	16	≤ 0.25	> 32
Ceftriaxone	No Breakpoints Defined			16	> 64	1	> 64
Ciprofloxacin	82.8%	6.0%	11.2%	0.25	4	≤ 0.06	> 16
Colistin	99.1%		0.9%	1	2	0.25	8
Doripenem	86.2%	10.3%	3.4%	0.5	4	0.06	16
Doxycycline	No Breakpoints Defined			32	> 32	4	> 32
Ertapenem	No Breakpoints Defined			16	> 32	0.5	> 32
Gentamicin	93.1%	0.9%	6.0%	1	4	≤ 0.5	> 32
Imipenem	70.7%	7.8%	21.6%	2	16	0.12	> 32
Meropenem	77.6%	11.2%	11.2%	0.5	8	0.06	32
Moxifloxacin	No Breakpoints Defined			2	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	87.9%	8.6%	3.4%	4	32	≤ 1	256
Tigecycline	No Breakpoints Defined			16	> 16	2	> 16
Tobramycin	93.1%		6.9%	≤ 0.5	1	≤ 0.5	> 64
Trimethoprim Sulfa	No Breakpoints Defined			8	> 8	0.5	> 8

# CANWARD 2012

## *K. pneumoniae* Susceptibility - Ontario

### ***Klebsiella pneumoniae* (60)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	2
Amoxicillin Clavulanic Acid	93.3%	1.7%	5.0%	2	8	1	> 32
Aztreonam	93.3%	1.7%	5.0%	≤ 0.12	≤ 0.12	≤ 0.12	> 64
Cefazolin	90.0%	1.7%	8.3%	1	2	≤ 0.5	> 128
Cefepime	96.7%		3.3%	≤ 0.25	≤ 0.25	≤ 0.25	64
Cefoxitin	96.7%		3.3%	4	8	1	> 32
Ceftazidime	95.0%		5.0%	≤ 0.25	0.5	≤ 0.25	> 32
Ceftriaxone	93.3%	1.7%	5.0%	≤ 0.25	≤ 0.25	≤ 0.25	> 64
Ciprofloxacin	95.0%		5.0%	≤ 0.06	0.25	≤ 0.06	> 16
Colistin	No Breakpoints Defined			0.25	0.5	0.25	> 16
Doripenem	98.3%		1.7%	0.06	0.06	≤ 0.03	4
Doxycycline	86.7%	1.7%	11.7%	2	16	1	> 32
Ertapenem	96.7%	1.7%	1.7%	≤ 0.03	0.06	≤ 0.03	16
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	1
Imipenem	98.3%		1.7%	0.25	0.5	0.12	4
Meropenem	98.3%		1.7%	≤ 0.03	0.06	≤ 0.03	8
Moxifloxacin *	95.0%	1.7%	3.3%	0.12	0.5	≤ 0.06	> 16
Piperacillin Tazobactam	95.0%	1.7%	3.3%	2	4	≤ 1	> 512
Tigecycline *	96.7%	3.3%		0.5	1	0.25	4
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	4
Trimethoprim Sulfa	90.0%		10.0%	≤ 0.12	1	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. pneumoniae* Susceptibility - Ontario

### ***Streptococcus pneumoniae* (44)**

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	95.5%	4.5%		≤ 0.06	0.25	≤ 0.06	4
Ceftriaxone	100.0%			≤ 0.12	0.25	≤ 0.12	1
Cefuroxime	90.9%		9.1%	≤ 0.25	≤ 0.25	≤ 0.25	8
Chloramphenicol	95.5%		4.5%	2	4	≤ 0.12	16
Ciprofloxacin	97.7%		2.3%	1	1	0.25	> 16
Clarithromycin	70.5%		29.5%	≤ 0.03	16	≤ 0.03	> 32
Clindamycin	86.4%		13.6%	≤ 0.12	32	≤ 0.12	> 64
Daptomycin	No Breakpoints Defined			0.12	0.12	≤ 0.03	0.25
Doripenem	100.0%			≤ 0.03	0.12	≤ 0.03	1
Doxycycline	79.5%	2.3%	18.2%	≤ 0.25	4	≤ 0.25	8
Ertapenem	93.2%	6.8%		≤ 0.06	0.25	≤ 0.06	2
Imipenem	90.9%	6.8%	2.3%	≤ 0.03	0.06	≤ 0.03	1
Levofloxacin	97.7%		2.3%	1	1	0.25	16
Linezolid	100.0%			1	1	≤ 0.12	2
Meropenem	90.9%	4.5%	4.5%	≤ 0.06	0.12	≤ 0.06	1
Moxifloxacin	97.7%		2.3%	0.12	0.25	≤ 0.06	4
Penicillin	85.0%	10.0%	5.0%	≤ 0.03	0.12	≤ 0.03	2
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	4
Telithromycin	100.0%			0.008	0.06	≤ 0.002	0.25
Tigecycline *	100.0%			≤ 0.015	0.03	≤ 0.015	0.03
Trimethoprim Sulfa	90.9%	2.3%	6.8%	0.25	0.5	≤ 0.12	8
Vancomycin	100.0%			0.25	0.5	≤ 0.12	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *S. aureus*-MRSA Susceptibility - Ontario

### ***Staphylococcus aureus*, MRSA (39)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	92.3%	7.7%		4	16	2	32
Amoxicillin Clavulanic Acid	No Breakpoints Defined			8	32	2	32
Aztreonam	No Breakpoints Defined			> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints Defined			16	> 128	1	> 128
Cefepime	No Breakpoints Defined			64	> 64	4	> 64
Cefoxitin			100.0%	32	> 32	16	> 32
Ceftazidime	No Breakpoints Defined			> 32	> 32	32	> 32
Ceftriaxone	No Breakpoints Defined			> 64	> 64	16	> 64
Ciprofloxacin	35.9%		64.1%	16	> 16	0.25	> 16
Clarithromycin	25.6%		74.4%	> 32	> 32	0.12	> 32
Clindamycin	76.9%		23.1%	≤ 0.12	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Daptomycin	100.0%			0.25	0.5	0.25	0.5
Doripenem	No Breakpoints Defined			1	32	0.12	32
Doxycycline	100.0%			≤ 0.12	1	≤ 0.12	4
Ertapenem	No Breakpoints Defined			2	> 32	1	> 32
Gentamicin	97.4%	2.6%		≤ 0.5	≤ 0.5	≤ 0.5	8
Imipenem	No Breakpoints Defined			1	> 32	0.06	> 32
Linezolid	100.0%			2	4	1	4
Meropenem	No Breakpoints Defined			2	32	0.25	> 32
Moxifloxacin	35.9%	2.6%	61.5%	2	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	No Breakpoints Defined			16	128	4	128
Tigecycline *	97.4%		2.6%	0.12	0.25	0.12	1
Tobramycin	66.7%	2.6%	30.8%	1	> 64	≤ 0.5	> 64
Trimethoprim Sulfa	97.4%		2.6%	≤ 0.12	≤ 0.12	≤ 0.12	4
Vancomycin	100.0%			1	1	0.5	1

\*Interpretive breakpoints defined by FDA (tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *E. faecalis* Susceptibility - Ontario

### ***Enterococcus faecalis* (30)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	No Breakpoints	Defined		> 64	> 64	32	> 64
Amoxicillin Clavulanic Acid	No Breakpoints	Defined		0.5	1	0.12	1
Aztreonam	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints	Defined		32	32	8	64
Cefepime	No Breakpoints	Defined		32	> 64	2	> 64
Cefoxitin	No Breakpoints	Defined		> 32	> 32	16	> 32
Ceftazidime	No Breakpoints	Defined		> 32	> 32	32	> 32
Ceftriaxone	No Breakpoints	Defined		> 64	> 64	2	> 64
Ciprofloxacin	76.7%	3.3%	20.0%	1	> 16	0.5	> 16
Clarithromycin	No Breakpoints	Defined		2	> 32	0.06	> 32
Clindamycin	No Breakpoints	Defined		> 8	> 8	1	> 8
Colistin	No Breakpoints	Defined		> 16	> 16	> 16	> 16
Daptomycin	100.0%			1	2	0.12	4
Doripenem	No Breakpoints	Defined		2	4	0.5	8
Doxycycline	46.7%	40.0%	13.3%	8	16	≤ 0.12	16
Ertapenem	No Breakpoints	Defined		16	16	2	32
Gentamicin	No Breakpoints	Defined		16	> 32	8	> 32
Imipenem	No Breakpoints	Defined		1	2	0.25	2
Linezolid	93.3%	6.7%		2	2	1	4
Meropenem	No Breakpoints	Defined		4	8	1	16
Moxifloxacin	No Breakpoints	Defined		0.25	16	0.12	16
Piperacillin Tazobactam	No Breakpoints	Defined		2	4	≤ 1	4
Tigecycline *	100.0%			0.12	0.12	0.06	0.25
Tobramycin	No Breakpoints	Defined		16	> 64	8	> 64
Trimethoprim Sulfa	No Breakpoints	Defined		≤ 0.12	8	≤ 0.12	> 8
Vancomycin	100.0%			1	2	0.5	2

\*Interpretive breakpoints defined by FDA (tigecycline)



# CANWARD 2012

## *E. cloacae* Susceptibility - Ontario

### ***Enterobacter cloacae* (23)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	4
Amoxicillin Clavulanic Acid	4.3%	4.3%	91.3%	> 32	> 32	4	> 32
Aztreonam	91.3%		8.7%	≤ 0.12	2	≤ 0.12	64
Cefazolin	4.3%		95.7%	> 128	> 128	2	> 128
Cefepime	95.7%		4.3%	≤ 0.25	≤ 0.25	≤ 0.25	32
Cefoxitin	4.3%	4.3%	91.3%	> 32	> 32	8	> 32
Ceftazidime	91.3%		8.7%	0.5	4	≤ 0.25	> 32
Ceftriaxone	87.0%		13.0%	≤ 0.25	16	≤ 0.25	> 64
Ciprofloxacin	95.7%		4.3%	≤ 0.06	≤ 0.06	≤ 0.06	> 16
Colistin	No Breakpoints Defined			0.25	> 16	0.25	> 16
Doripenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.12
Doxycycline	91.3%		8.7%	4	4	2	32
Ertapenem	95.7%	4.3%		0.06	0.25	≤ 0.03	1
Gentamicin	95.7%		4.3%	≤ 0.5	1	≤ 0.5	> 32
Imipenem	100.0%			0.5	0.5	0.12	1
Meropenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.25
Moxifloxacin *	95.7%		4.3%	≤ 0.06	0.25	≤ 0.06	> 16
Piperacillin Tazobactam	95.7%		4.3%	2	8	≤ 1	128
Tigecycline *	100.0%			0.5	1	0.25	1
Tobramycin	95.7%		4.3%	≤ 0.5	1	≤ 0.5	16
Trimethoprim Sulfa	91.3%		8.7%	≤ 0.12	0.5	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE





# CANWARD 2012

## *S. epidermidis* Susceptibility - Ontario

### ***Staphylococcus epidermidis* (22)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	100.0%			≤ 1	4	≤ 1	16
Amoxicillin Clavulanic Acid	86.4%		13.6%	1	8	0.12	16
Aztreonam	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Cefazolin	81.8%		18.2%	1	64	≤ 0.5	128
Cefepime	72.7%	13.6%	13.6%	4	64	≤ 0.25	> 64
Cefoxitin	No Breakpoints	Defined		8	32	1	> 32
Ceftazidime	22.7%	22.7%	54.5%	32	> 32	4	> 32
Ceftriaxone	50.0%	36.4%	13.6%	8	> 64	0.5	> 64
Ciprofloxacin	54.5%		45.5%	0.25	> 16	≤ 0.06	> 16
Clarithromycin	22.7%		77.3%	> 32	> 32	≤ 0.03	> 32
Clindamycin	40.9%	4.5%	54.5%	> 8	> 8	≤ 0.12	> 8
Colistin	No Breakpoints	Defined		> 16	> 16	> 16	> 16
Daptomycin	100.0%			0.25	0.25	0.12	0.25
Doripenem	No Breakpoints	Defined		1	16	≤ 0.03	16
Doxycycline	100.0%			0.25	1	≤ 0.12	1
Ertapenem	52.9%	17.6%	29.4%	2	> 32	0.25	> 32
Gentamicin	50.0%	4.5%	45.5%	4	32	≤ 0.5	> 32
Imipenem	77.3%	4.5%	18.2%	0.12	16	≤ 0.03	32
Linezolid	100.0%			0.5	1	0.25	1
Meropenem	No Breakpoints	Defined		2	16	0.06	32
Moxifloxacin	54.5%		45.5%	≤ 0.06	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	90.9%		9.1%	≤ 1	4	≤ 1	64
Tigecycline	No Breakpoints	Defined		0.12	0.25	0.06	1
Tobramycin	50.0%	18.2%	31.8%	2	16	≤ 0.5	> 64
Trimethoprim Sulfa	63.6%		36.4%	≤ 0.12	4	≤ 0.12	8
Vancomycin	100.0%			1	2	1	2

# CANWARD 2012

## *S. marcescens* Susceptibility - Ontario

### *Serratia marcescens* (15)

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			2	4	≤ 1	8
Amoxicillin Clavulanic Acid		6.7%	93.3%	> 32	> 32	16	> 32
Aztreonam	100.0%			≤ 0.12	0.25	≤ 0.12	2
Cefazolin			100.0%	> 128	> 128	128	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin	26.7%	46.7%	26.7%	16	32	8	> 32
Ceftazidime	100.0%			≤ 0.25	1	≤ 0.25	1
Ceftriaxone	93.3%		6.7%	≤ 0.25	0.5	≤ 0.25	8
Ciprofloxacin	80.0%	6.7%	13.3%	≤ 0.06	4	≤ 0.06	16
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Doripenem	100.0%			0.12	0.25	0.06	0.25
Doxycycline	33.3%	33.3%	33.3%	8	16	4	> 32
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.25
Gentamicin	100.0%			≤ 0.5	1	≤ 0.5	1
Imipenem	100.0%			0.5	1	0.25	1
Meropenem	100.0%			0.06	0.06	≤ 0.03	0.12
Moxifloxacin *	80.0%	6.7%	13.3%	0.25	16	≤ 0.06	16
Piperacillin Tazobactam	93.3%	6.7%		≤ 1	2	≤ 1	32
Tigecycline *	93.3%		6.7%	1	2	1	8
Tobramycin	86.7%	6.7%	6.7%	2	8	≤ 0.5	16
Trimethoprim Sulfa	100.0%			0.25	1	≤ 0.12	1

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *K. oxytoca* Susceptibility - Ontario

### ***Klebsiella oxytoca* (12)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	4
Amoxicillin Clavulanic Acid	83.3%	8.3%	8.3%	2	16	2	32
Aztreonam	91.7%		8.3%	≤ 0.12	1	≤ 0.12	32
Cefazolin		58.3%	41.7%	4	64	4	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	0.5
Cefoxitin	100.0%			2	4	0.5	8
Ceftazidime	100.0%			≤ 0.25	0.5	≤ 0.25	0.5
Ceftriaxone	91.7%		8.3%	≤ 0.25	≤ 0.25	≤ 0.25	8
Ciprofloxacin	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Colistin	No Breakpoints Defined			0.25	0.5	≤ 0.06	1
Doripenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Doxycycline	100.0%			1	2	1	2
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.5	0.25	0.5
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Moxifloxacin *	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Piperacillin Tazobactam	83.3%	8.3%	8.3%	2	64	≤ 1	512
Tigecycline *	100.0%			0.5	0.5	0.25	1
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Trimethoprim Sulfa	91.7%		8.3%	≤ 0.12	1	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. maltophilia* Susceptibility - Ontario

### ***Stenotrophomonas maltophilia* (9)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	No Breakpoints Defined			32	> 64	4	> 64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			> 32	> 32	32	> 32
Aztreonam	No Breakpoints Defined			> 64	> 64	16	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	> 128	> 128
Cefepime	No Breakpoints Defined			32	64	4	64
Cefoxitin	No Breakpoints Defined			> 32	> 32	> 32	> 32
Ceftazidime	22.2%		77.8%	> 32	> 32	2	> 32
Ceftriaxone	No Breakpoints Defined			> 64	> 64	64	> 64
Ciprofloxacin	No Breakpoints Defined			2	8	0.5	8
Colistin	No Breakpoints Defined			1	> 16	0.5	> 16
Doripenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Doxycycline	No Breakpoints Defined			2	4	0.5	4
Ertapenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Gentamicin	No Breakpoints Defined			8	16	1	16
Imipenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Meropenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Moxifloxacin	No Breakpoints Defined			0.5	4	0.12	4
Piperacillin Tazobactam	No Breakpoints Defined			256	> 512	16	> 512
Tigecycline	No Breakpoints Defined			0.5	2	0.25	2
Tobramycin	No Breakpoints Defined			4	64	1	64
Trimethoprim Sulfa	66.7%		33.3%	0.5	> 8	≤ 0.12	> 8

# CANWARD 2012

## *E. faecium* Susceptibility - Ontario

### ***Enterococcus faecium* (17)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	No Breakpoints	Defined		64	> 64	16	> 64
Amoxicillin Clavulanic Acid	No Breakpoints	Defined		> 32	> 32	4	> 32
Aztreonam	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints	Defined		> 128	> 128	> 128	> 128
Cefepime	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Cefoxitin	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Ceftazidime	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Ceftriaxone	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Ciprofloxacin			100.0%	> 16	> 16	16	> 16
Clarithromycin	No Breakpoints	Defined		> 32	> 32	0.5	> 32
Clindamycin	No Breakpoints	Defined		> 8	> 8	≤ 0.12	> 8
Colistin	No Breakpoints	Defined		> 16	> 16	> 16	> 16
Daptomycin	100.0%			1	2	1	2
Doripenem	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Doxycycline	76.5%	5.9%	17.6%	4	16	≤ 0.12	16
Ertapenem	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Gentamicin	No Breakpoints	Defined		8	8	4	8
Imipenem	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Linezolid	94.1%	5.9%		2	2	1	4
Meropenem	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Moxifloxacin	No Breakpoints	Defined		> 16	> 16	16	> 16
Piperacillin Tazobactam	No Breakpoints	Defined		> 512	> 512	64	> 512
Tigecycline	No Breakpoints	Defined		0.12	0.12	0.06	0.12
Tobramycin	No Breakpoints	Defined		64	> 64	64	> 64
Trimethoprim Sulfa	No Breakpoints	Defined		1	> 8	≤ 0.12	> 8
Vancomycin	58.8%		41.2%	1	> 32	0.5	> 32

# CANWARD 2012

## *S. agalactiae* Susceptibility - Ontario

### ***Streptococcus agalactiae* (5)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	No Breakpoints Defined			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefuroxime	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Chloramphenicol	100.0%			2	4	2	4
Ciprofloxacin	No Breakpoints Defined			1	1	0.25	1
Clarithromycin	60.0%		40.0%	0.06	2	≤ 0.03	2
Clindamycin	60.0%		40.0%	≤ 0.12	> 64	≤ 0.12	> 64
Daptomycin	100.0%			0.12	0.25	0.06	0.25
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	No Breakpoints Defined			8	8	8	8
Ertapenem	100.0%			0.12	0.12	≤ 0.06	0.12
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Levofloxacin	100.0%			1	1	0.5	1
Linezolid	100.0%			1	1	1	1
Meropenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Moxifloxacin	No Breakpoints Defined			0.12	0.25	≤ 0.06	0.25
Penicillin	100.0%			0.06	0.06	≤ 0.03	0.06
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	No Breakpoints Defined			0.015	0.015	0.008	0.015
Tigecycline *	100.0%			0.03	0.03	0.03	0.03
Trimethoprim Sulfa	No Breakpoints Defined			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Vancomycin	100.0%			0.5	0.5	0.25	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *P. mirabilis* Susceptibility - Ontario

### ***Proteus mirabilis* (14)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			2	4	≤ 1	4
Amoxicillin Clavulanic Acid	92.9%		7.1%	1	2	0.5	> 32
Aztreonam	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefazolin	7.1%	57.1%	35.7%	4	8	2	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin	92.9%		7.1%	4	8	2	32
Ceftazidime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	4
Ceftriaxone	92.9%	7.1%		≤ 0.25	≤ 0.25	≤ 0.25	2
Ciprofloxacin	85.7%	7.1%	7.1%	≤ 0.06	2	≤ 0.06	> 16
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Doripenem	100.0%			0.12	0.25	0.06	0.25
Doxycycline			92.9%	32	> 32	8	> 32
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Gentamicin	92.9%		7.1%	≤ 0.5	1	≤ 0.5	16
Imipenem	28.6%	50.0%	21.4%	2	4	0.25	4
Meropenem	100.0%			0.06	0.12	≤ 0.03	0.12
Moxifloxacin *	78.6%	7.1%	14.3%	0.5	> 16	0.25	> 16
Piperacillin Tazobactam	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Tigecycline *	7.1%	42.9%	50.0%	4	8	1	8
Tobramycin	92.9%	7.1%		≤ 0.5	≤ 0.5	≤ 0.5	8
Trimethoprim Sulfa	92.9%		7.1%	≤ 0.12	2	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. pyogenes* Susceptibility - Ontario

### *Streptococcus pyogenes* (12)

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amoxicillin Clavulanic Acid	No Breakpoints Defined			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefuroxime	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Chloramphenicol	100.0%			2	4	2	4
Ciprofloxacin	No Breakpoints Defined			0.5	2	0.25	2
Clarithromycin	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Clindamycin	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Daptomycin	100.0%			0.06	0.12	≤ 0.03	0.12
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ertapenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Levofloxacin	100.0%			1	2	0.25	2
Linezolid	100.0%			1	2	1	2
Meropenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Moxifloxacin	No Breakpoints Defined			0.25	0.5	≤ 0.06	0.5
Penicillin	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	No Breakpoints Defined			0.008	0.008	0.004	0.015
Tigecycline *	100.0%			≤ 0.015	0.03	≤ 0.015	0.06
Trimethoprim Sulfa	No Breakpoints Defined			≤ 0.12	0.5	≤ 0.12	1
Vancomycin	100.0%			0.5	0.5	0.25	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE





# CANWARD 2012

## *C. freundii* Susceptibility - Ontario

### *Citrobacter freundii* (4)

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	2
Amoxicillin Clavulanic Acid		25.0%	75.0%	32	> 32	16	> 32
Aztreonam			25.0%	≤ 0.12	32	≤ 0.12	32
Cefazolin		25.0%	75.0%	16	> 128	4	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin	25.0%		75.0%	> 32	> 32	8	> 32
Ceftazidime	75.0%		25.0%	0.5	32	0.5	32
Ceftriaxone	75.0%		25.0%	≤ 0.25	16	≤ 0.25	16
Ciprofloxacin	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Colistin	No Breakpoints Defined			0.25	0.5	0.12	0.5
Doripenem	100.0%			≤ 0.03	0.12	≤ 0.03	0.12
Doxycycline	50.0%		50.0%	4	32	1	32
Ertapenem	100.0%			≤ 0.03	0.5	≤ 0.03	0.5
Gentamicin	50.0%		50.0%	≤ 0.5	> 32	≤ 0.5	> 32
Imipenem	100.0%			0.25	1	0.25	1
Meropenem	100.0%			≤ 0.03	0.12	≤ 0.03	0.12
Moxifloxacin *	100.0%			0.12	0.5	0.12	0.5
Piperacillin Tazobactam	100.0%			2	4	≤ 1	4
Tigecycline *	100.0%			0.5	1	0.25	1
Tobramycin	100.0%			≤ 0.5	4	≤ 0.5	4
Trimethoprim Sulfa	50.0%		50.0%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *A. baumannii* Susceptibility - Ontario

### ***Acinetobacter baumannii* (7)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	85.7%		14.3%	2	> 64	≤ 1	> 64
Amoxicillin Clavulanic Acid	No breakpoints defined			8	> 32	8	> 32
Cefazolin	No breakpoints defined			> 128	> 128	128	> 128
Cefepime	85.7%		14.3%	8	32	2	32
Cefoxitin	No breakpoints defined			> 32	> 32	> 32	> 32
Ceftazidime	71.4%	14.3%	14.3%	4	> 32	2	> 32
Ceftriaxone	42.9%	42.9%	14.3%	16	> 64	8	> 64
Ciprofloxacin	85.7%		14.3%	0.25	> 16	0.12	> 16
Colistin	100.0%			0.5	1	0.25	1
Doripenem	No breakpoints defined			0.25	32	0.12	32
Doxycycline	100.0%			≤ 0.12	1	≤ 0.12	1
Ertapenem	No breakpoints defined			8	> 32	2	> 32
Gentamicin	71.4%	14.3%	14.3%	1	> 32	≤ 0.5	> 32
Imipenem	85.7%		14.3%	0.12	> 32	0.12	> 32
Meropenem	85.7%		14.3%	0.25	> 32	0.12	> 32
Moxifloxacin	No breakpoints defined			0.12	16	≤ 0.06	16
Piperacillin Tazobactam	71.4%	14.3%	14.3%	16	512	≤ 1	512
Tigecycline	No breakpoints defined			0.25	2	0.12	2
Tobramycin	85.7%		14.3%	1	> 64	≤ 0.5	> 64
Trimethoprim Sulfa	85.7%		14.3%	0.25	> 8	≤ 0.12	> 8

# CANWARD 2012

## *A. baumannii* Susceptibility - Ontario

### ***Acinetobacter baumannii* (2)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Amoxicillin Clavulanic Acid	No Breakpoints Defined			8	16	8	16
Aztreonam				8	16	8	16
Cefazolin	No Breakpoints Defined			> 128	> 128	> 128	> 128
Cefepime	100.0%			2	4	2	4
Cefoxitin	No Breakpoints Defined			32	> 32	32	> 32
Ceftazidime	100.0%			4	4	4	4
Ceftriaxone	100.0%			8	8	8	8
Ciprofloxacin	100.0%			0.12	0.25	0.12	0.25
Colistin	100.0%			0.5	1	0.5	1
Doripenem	No Breakpoints Defined			0.25	0.25	0.25	0.25
Doxycycline	100.0%			≤ 0.12	0.25	≤ 0.12	0.25
Ertapenem	No Breakpoints Defined			4	8	4	8
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.5	0.25	0.5
Meropenem	100.0%			0.5	0.5	0.5	0.5
Moxifloxacin	No Breakpoints Defined			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Piperacillin Tazobactam	100.0%			≤ 1	8	≤ 1	8
Tigecycline	No Breakpoints Defined			0.12	0.25	0.12	0.25
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Trimethoprim Sulfa	100.0%			≤ 0.12	0.25	≤ 0.12	0.25

# CANWARD 2012

## *S. aureus*, MSSA Susceptibility - Quebec

### ***Staphylococcus aureus* , MSSA (54)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	100.0%			2	4	≤ 1	8
Amoxicillin Clavulanic Acid	No Breakpoints Defined			0.5	1	0.12	1
Aztreonam	No Breakpoints Defined			> 64	> 64	0.5	> 64
Cefazolin	No Breakpoints Defined			≤ 0.5	1	≤ 0.5	1
Cefepime	No Breakpoints Defined			4	4	≤ 0.25	4
Cefoxitin	100.0%			4	4	0.5	4
Ceftazidime	No Breakpoints Defined			16	32	8	32
Ceftriaxone	No Breakpoints Defined			4	4	0.5	8
Ciprofloxacin	75.9%	1.9%	22.2%	0.5	> 16	≤ 0.06	> 16
Clarithromycin	72.2%		27.8%	0.25	> 32	0.12	> 32
Clindamycin	92.6%		7.4%	≤ 0.12	≤ 0.12	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	≤ 0.06	> 16
Daptomycin	100.0%			0.25	0.5	0.12	0.5
Doripenem	No Breakpoints Defined			0.06	0.06	≤ 0.03	0.12
Doxycycline	100.0%			≤ 0.12	0.25	≤ 0.12	4
Ertapenem	No Breakpoints Defined			0.5	0.5	0.06	0.5
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	1
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Linezolid	100.0%			2	4	1	4
Meropenem	No Breakpoints Defined			0.12	0.25	≤ 0.03	0.25
Moxifloxacin	77.8%		22.2%	≤ 0.06	8	≤ 0.06	> 16
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	2
Tigecycline *	100.0%			0.12	0.25	0.06	0.25
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	1
Trimethoprim Sulfa	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	0.5
Vancomycin	100.0%			0.5	1	0.25	1

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. coli* Susceptibility - Quebec

### ***Escherichia coli* (75)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	4	≤ 1	8
Amoxicillin Clavulanic Acid	82.7%	14.7%	2.7%	4	16	1	> 32
Aztreonam	93.3%		6.7%	≤ 0.12	0.25	≤ 0.12	> 64
Cefazolin	77.3%	8.0%	14.7%	1	16	≤ 0.5	> 128
Cefepime	96.0%	2.7%	1.3%	≤ 0.25	≤ 0.25	≤ 0.25	32
Cefoxitin	93.3%	4.0%	2.7%	4	8	2	> 32
Ceftazidime	93.3%		6.7%	≤ 0.25	1	≤ 0.25	> 32
Ceftriaxone	93.3%		6.7%	≤ 0.25	≤ 0.25	≤ 0.25	> 64
Ciprofloxacin	72.0%		28.0%	≤ 0.06	> 16	≤ 0.06	> 16
Colistin	No Breakpoints Defined			0.25	0.5	0.12	2
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.25
Doxycycline	72.0%	1.3%	26.7%	2	32	0.5	> 32
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.25
Gentamicin	96.0%		4.0%	≤ 0.5	≤ 0.5	≤ 0.5	> 32
Imipenem	100.0%			0.12	0.25	0.06	1
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Moxifloxacin *	7.0%		28.0%	≤ 0.06	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	98.7%		1.3%	2	4	≤ 1	128
Tigecycline *	100.0%			0.25	0.5	0.12	1
Tobramycin	94.7%	2.7%	2.7%	≤ 0.5	1	≤ 0.5	32
Trimethoprim Sulfa	85.3%		14.7%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *P. aeruginosa* Susceptibility - Quebec

### ***Pseudomonas aeruginosa* (29)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	100.0%			2	8	≤ 1	16
Amoxicillin Clavulanic Acid	No Breakpoints Defined			> 32	> 32	16	> 32
Aztreonam	82.8%	6.9%	10.3%	4	32	0.25	64
Cefazolin	No Breakpoints Defined			> 128	> 128	> 128	> 128
Cefepime	89.7%	10.3%		2	16	0.5	16
Cefoxitin	No Breakpoints Defined			> 32	> 32	> 32	> 32
Ceftazidime	79.3%	6.9%	13.8%	2	32	1	> 32
Ceftriaxone	No Breakpoints Defined			16	> 64	4	> 64
Ciprofloxacin	89.7%	6.9%	3.4%	0.12	2	≤ 0.06	8
Colistin	96.6%		3.4%	1	2	0.25	> 16
Doripenem	96.6%		3.4%	0.25	1	0.06	16
Doxycycline	No Breakpoints Defined			16	> 32	1	> 32
Ertapenem	No Breakpoints Defined			8	32	1	> 32
Gentamicin	93.1%	6.9%		1	4	≤ 0.5	8
Imipenem	75.9%	6.9%	17.2%	1	8	0.5	32
Meropenem	93.1%	3.4%	3.4%	0.5	2	0.06	16
Moxifloxacin	No Breakpoints Defined			2	8	0.5	> 16
Piperacillin Tazobactam	89.7%	3.4%	6.9%	4	32	≤ 1	256
Tigecycline	No Breakpoints Defined			8	> 16	1	> 16
Tobramycin	100.0%			≤ 0.5	1	≤ 0.5	2
Trimethoprim Sulfa	No Breakpoints Defined			8	> 8	0.5	> 8

# CANWARD 2012

## *K. pneumoniae* Susceptibility - Quebec

### ***Klebsiella pneumoniae* (32)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	≤ 1	≤ 1	2
Amoxicillin Clavulanic Acid	100.0%			2	4	1	8
Aztreonam	96.9%		3.1%	≤ 0.12	≤ 0.12	≤ 0.12	32
Cefazolin	96.9%		3.1%	1	2	≤ 0.5	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	8
Cefoxitin	100.0%			2	4	2	8
Ceftazidime	96.9%		3.1%	≤ 0.25	0.5	≤ 0.25	32
Ceftriaxone	96.9%		3.1%	≤ 0.25	≤ 0.25	≤ 0.25	32
Ciprofloxacin	96.9%		3.1%	≤ 0.06	0.25	≤ 0.06	4
Colistin	No Breakpoints Defined			0.25	0.5	≤ 0.06	0.5
Doripenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Doxycycline	84.4%	3.1%	12.5%	2	16	1	> 32
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.5	0.12	0.5
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Moxifloxacin *	100.0%			0.12	1	≤ 0.06	2
Piperacillin Tazobactam	100.0%			2	4	≤ 1	8
Tigecycline *	100.0%			0.5	1	0.25	2
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Trimethoprim Sulfa	93.8%		6.3%	≤ 0.12	1	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. pneumoniae* Susceptibility - Quebec

### ***Streptococcus pneumoniae* (15)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefuroxime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Chloramphenicol	100.0%			2	2	0.25	4
Ciprofloxacin	93.3%		6.7%	1	2	0.12	8
Clarithromycin	93.3%		6.7%	≤ 0.03	≤ 0.03	≤ 0.03	8
Clindamycin	93.3%		6.7%	≤ 0.12	≤ 0.12	≤ 0.12	16
Daptomycin	No Breakpoints Defined			0.12	0.12	0.06	0.12
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ertapenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Imipenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Levofloxacin	93.3%		6.7%	1	1	0.12	8
Linezolid	100.0%			0.5	1	≤ 0.12	1
Meropenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Moxifloxacin	93.3%	6.7%		0.12	0.25	≤ 0.06	2
Penicillin	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	100.0%			0.008	0.008	≤ 0.002	0.008
Tigecycline *	100.0%			≤ 0.015	≤ 0.015	≤ 0.015	≤ 0.015
Trimethoprim Sulfa	93.3%	6.7%		0.25	0.25	≤ 0.12	1
Vancomycin	100.0%			0.25	0.25	≤ 0.12	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE





# CANWARD 2012

## *S. aureus*-MRSA Susceptibility - Quebec

### ***Staphylococcus aureus*, MRSA (7)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	85.7%	14.3%		16	32	2	32
Amoxicillin Clavulanic Acid	No Breakpoints Defined			16	16	2	16
Aztreonam	No Breakpoints Defined			> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints Defined			16	128	2	128
Cefepime	No Breakpoints Defined			16	> 64	4	> 64
Cefoxitin			100.0%	> 32	> 32	16	> 32
Ceftazidime	No Breakpoints Defined			> 32	> 32	16	> 32
Ceftriaxone	No Breakpoints Defined			64	> 64	16	> 64
Ciprofloxacin			100.0%	> 16	> 16	> 16	> 16
Clarithromycin			100.0%	> 32	> 32	> 32	> 32
Clindamycin	57.1%		42.9%	≤ 0.12	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Daptomycin	100.0%			0.25	0.25	0.25	0.25
Doripenem	No Breakpoints Defined			2	8	0.25	8
Doxycycline	100.0%			≤ 0.12	0.5	≤ 0.12	0.5
Ertapenem	No Breakpoints Defined			16	> 32	2	> 32
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	No Breakpoints Defined			1	8	0.12	8
Linezolid	100.0%			2	2	1	2
Meropenem	No Breakpoints Defined			4	16	0.5	16
Moxifloxacin			100.0%	8	> 16	8	> 16
Piperacillin Tazobactam	No Breakpoints Defined			32	64	4	64
Tigecycline *	100.0%			0.12	0.25	0.12	0.25
Tobramycin	42.9%		57.1%	> 64	> 64	≤ 0.5	> 64
Trimethoprim Sulfa	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Vancomycin	100.0%			1	1	0.5	1

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. faecalis* Susceptibility - Quebec

### ***Enterococcus faecalis* (13)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	No Breakpoints	Defined		> 64	> 64	8	> 64
Amoxicillin Clavulanic Acid	No Breakpoints	Defined		0.5	1	0.25	1
Aztreonam	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints	Defined		32	32	16	64
Cefepime	No Breakpoints	Defined		32	> 64	16	> 64
Cefoxitin	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Ceftazidime	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Ceftriaxone	No Breakpoints	Defined		> 64	> 64	32	> 64
Ciprofloxacin	76.9%	7.7%	15.4%	1	> 16	0.25	> 16
Clarithromycin	No Breakpoints	Defined		> 32	> 32	0.06	> 32
Clindamycin	No Breakpoints	Defined		> 8	> 8	8	> 8
Colistin	No Breakpoints	Defined		> 16	> 16	> 16	> 16
Daptomycin	100.0%			1	2	0.25	2
Doripenem	No Breakpoints	Defined		2	4	2	8
Doxycycline	23.1%	46.2%	30.8%	8	16	≤ 0.12	32
Ertapenem	No Breakpoints	Defined		8	16	4	32
Gentamicin	No Breakpoints	Defined		16	> 32	1	> 32
Imipenem	No Breakpoints	Defined		1	2	1	4
Linezolid	100.0%			2	2	1	2
Meropenem	No Breakpoints	Defined		4	8	4	16
Moxifloxacin	No Breakpoints	Defined		0.25	8	0.12	16
Piperacillin Tazobactam	No Breakpoints	Defined		4	4	2	4
Tigecycline *	100.0%			0.12	0.12	≤ 0.03	0.12
Tobramycin	No Breakpoints	Defined		16	> 64	4	> 64
Trimethoprim Sulfa	No Breakpoints	Defined		≤ 0.12	≤ 0.12	≤ 0.12	0.5
Vancomycin	100.0%			1	2	1	2

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. cloacae* Susceptibility - Quebec

### ***Enterobacter cloacae* (5)**

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Amoxicillin Clavulanic Acid		20.0%	80.0%	32	> 32	16	> 32
Aztreonam	80.0%		20.0%	≤ 0.12	64	≤ 0.12	64
Cefazolin			100.0%	128	> 128	8	> 128
Cefepime	100.0%			≤ 0.25	2	≤ 0.25	2
Cefoxitin			100.0%	> 32	> 32	> 32	> 32
Ceftazidime	80.0%		20.0%	≤ 0.25	> 32	≤ 0.25	> 32
Ceftriaxone	80.0%		20.0%	≤ 0.25	> 64	≤ 0.25	> 64
Ciprofloxacin	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Colistin	No Breakpoints Defined			0.5	> 16	0.25	> 16
Doripenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Doxycycline	100.0%			2	4	2	4
Ertapenem	80.0%	20.0%		≤ 0.03	1	≤ 0.03	1
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.5	0.25	0.5
Meropenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Moxifloxacin *	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Piperacillin Tazobactam	80.0%		20.0%	2	128	≤ 1	128
Tigecycline *	100.0%			0.5	1	0.5	1
Tobramycin	100.0%			≤ 0.5	1	≤ 0.5	1
Trimethoprim Sulfa	100.0%			≤ 0.12	1	≤ 0.12	1

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline) CANADIAN ANTIMICROBIAL RESISTANCE ALLIANCE



# CANWARD 2012

## *S. epidermidis* Susceptibility - Quebec

### ***Staphylococcus epidermidis* (18)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	8	≤ 1	16
Amoxicillin Clavulanic Acid	72.2%		27.8%	0.5	16	≤ 0.06	16
Aztreonam	No Breakpoints Defined			> 64	> 64	> 64	> 64
Cefazolin	83.3%		16.7%	≤ 0.5	128	≤ 0.5	128
Cefepime	66.7%		33.3%	2	> 64	≤ 0.25	> 64
Cefoxitin	No Breakpoints Defined			8	> 32	1	> 32
Ceftazidime	44.4%	16.7%	38.9%	16	> 32	2	> 32
Ceftriaxone	55.6%	16.7%	27.8%	4	> 64	0.5	> 64
Ciprofloxacin	38.9%		61.1%	16	> 16	≤ 0.06	> 16
Clarithromycin	44.4%		55.6%	> 32	> 32	0.06	> 32
Clindamycin	61.1%		38.9%	≤ 0.12	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	8	> 16
Daptomycin	100.0%			0.12	0.25	≤ 0.03	0.5
Doripenem	No Breakpoints Defined			0.25	32	≤ 0.03	32
Doxycycline	100.0%			0.25	1	≤ 0.12	2
Ertapenem	53.3%	6.7%	40.0%	1	> 32	0.25	> 32
Gentamicin	61.1%	11.1%	27.8%	≤ 0.5	> 32	≤ 0.5	> 32
Imipenem	66.7%	5.6%	27.8%	≤ 0.03	32	≤ 0.03	> 32
Linezolid	100.0%			1	1	≤ 0.12	1
Meropenem	No Breakpoints Defined			0.5	32	0.06	32
Moxifloxacin	38.9%		61.1%	2	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	77.8%		22.2%	≤ 1	16	≤ 1	32
Tigecycline	No Breakpoints Defined			0.12	0.25	0.12	1
Tobramycin	72.2%	5.6%	22.2%	≤ 0.5	64	≤ 0.5	64
Trimethoprim Sulfa	50.0%		50.0%	≤ 0.12	> 8	≤ 0.12	> 8
Vancomycin	100.0%			1	2	0.5	2

# CANWARD 2012

## *S. marcescens* Susceptibility - Quebec

### *Serratia marcescens* (1)

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			2	2	2	2
Amoxicillin Clavulanic Acid			100.0%	> 32	> 32	> 32	> 32
Aztreonam	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefazolin			100.0%	> 128	> 128	> 128	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin		100.0%		16	16	16	16
Ceftazidime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ceftriaxone	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ciprofloxacin	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Doripenem	100.0%			0.12	0.12	0.12	0.12
Doxycycline		100.0%		8	8	8	8
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			1	1	1	1
Meropenem	100.0%			0.06	0.06	0.06	0.06
Moxifloxacin *	100.0%			0.25	0.25	0.25	0.25
Piperacillin Tazobactam	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Tigecycline *	100.0%			1	1	1	1
Tobramycin	100.0%			2	2	2	2
Trimethoprim Sulfa	100.0%			0.25	0.25	0.25	0.25

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *K. oxytoca* Susceptibility - Quebec

### *Klebsiella oxytoca* (5)

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	2
Amoxicillin Clavulanic Acid	100.0%			2	4	1	4
Aztreonam	100.0%			≤ 0.12	0.25	≤ 0.12	0.25
Cefazolin	80.0%		20.0%	1	8	1	8
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin	100.0%			2	4	1	4
Ceftazidime	100.0%			≤ 0.25	0.5	≤ 0.25	0.5
Ceftriaxone	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ciprofloxacin	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Colistin	No Breakpoints Defined			0.25	0.5	0.25	0.5
Doripenem	100.0%			0.06	0.06	≤ 0.03	0.06
Doxycycline	100.0%			1	1	1	1
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.25	0.25	0.25
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Moxifloxacin *	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Piperacillin Tazobactam	100.0%			≤ 1	2	≤ 1	2
Tigecycline *	100.0%			0.25	0.5	0.25	0.5
Tobramycin	100.0%			≤ 0.5	2	≤ 0.5	2
Trimethoprim Sulfa	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. maltophilia* Susceptibility - Quebec

### ***Stenotrophomonas maltophilia* (4)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin				32	> 64	32	> 64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			> 32	> 32	32	> 32
Aztreonam	No Breakpoints Defined			> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	> 128	> 128
Cefepime	No Breakpoints Defined			32	64	32	64
Cefoxitin	No Breakpoints Defined			> 32	> 32	32	> 32
Ceftazidime	25.0%		75.0%	32	> 32	8	> 32
Ceftriaxone	No Breakpoints Defined			> 64	> 64	> 64	> 64
Ciprofloxacin	No Breakpoints Defined			1	8	1	8
Colistin	No Breakpoints Defined			1	8	0.5	8
Doripenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Doxycycline	No Breakpoints Defined			1	4	0.5	4
Ertapenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Gentamicin	No Breakpoints Defined			16	32	16	32
Imipenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Meropenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Moxifloxacin	No Breakpoints Defined			0.25	2	0.12	2
Piperacillin Tazobactam	No Breakpoints Defined			128	512	64	512
Tigecycline	No Breakpoints Defined			0.5	2	0.25	2
Tobramycin	No Breakpoints Defined			16	> 64	8	> 64
Trimethoprim Sulfa	75.0%		25.0%	0.5	> 8	≤ 0.12	> 8

# CANWARD 2012

## *E. faecium* Susceptibility - Quebec

### ***Enterococcus faecium* (2)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	No Breakpoints	Defined		32	32	32	32
Amoxicillin Clavulanic Acid	No Breakpoints	Defined		0.25	1	0.25	1
Aztreonam	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints	Defined		32	128	32	128
Cefepime	No Breakpoints	Defined		16	> 64	16	> 64
Cefoxitin	No Breakpoints	Defined		16	32	16	32
Ceftazidime	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Ceftriaxone	No Breakpoints	Defined		1	> 64	1	> 64
Ciprofloxacin	100.0%			0.5	1	0.5	1
Clarithromycin	No Breakpoints	Defined		0.12	2	0.12	2
Clindamycin	No Breakpoints	Defined		1	> 8	1	> 8
Colistin	No Breakpoints	Defined		> 16	> 16	> 16	> 16
Daptomycin	100.0%			2	2	2	2
Doripenem	No Breakpoints	Defined		2	8	2	8
Doxycycline	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Ertapenem	No Breakpoints	Defined		4	> 32	4	> 32
Gentamicin	No Breakpoints	Defined		8	8	8	8
Imipenem	No Breakpoints	Defined		1	4	1	4
Linezolid	100.0%			2	2	2	2
Meropenem	No Breakpoints	Defined		2	16	2	16
Moxifloxacin	No Breakpoints	Defined		0.5	0.5	0.5	0.5
Piperacillin Tazobactam	No Breakpoints	Defined		4	16	4	16
Tigecycline	No Breakpoints	Defined		0.06	0.12	0.06	0.12
Tobramycin	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Trimethoprim Sulfa	No Breakpoints	Defined		≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Vancomycin	100.0%			0.5	1	0.5	1



# CANWARD 2012

## *S. agalactiae* Susceptibility - Quebec

### ***Streptococcus agalactiae* (11)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	No Breakpoints Defined			≤ 0.06	≤ 0.06	≤ 0.06	0.12
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefuroxime	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Chloramphenicol	100.0%			4	4	2	4
Ciprofloxacin	No Breakpoints Defined			1	1	0.5	1
Clarithromycin	81.8%	9.1%	9.1%	≤ 0.03	0.5	≤ 0.03	32
Clindamycin	90.9%		9.1%	≤ 0.12	≤ 0.12	≤ 0.12	> 64
Daptomycin	100.0%			0.25	0.25	0.12	0.25
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	No Breakpoints Defined			8	16	≤ 0.25	16
Ertapenem	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Levofloxacin	100.0%			1	1	0.5	1
Linezolid	100.0%			2	2	1	2
Meropenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Moxifloxacin	No Breakpoints Defined			0.12	0.25	0.12	0.25
Penicillin	100.0%			0.06	0.06	0.06	0.06
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	No Breakpoints Defined			0.015	0.12	0.015	0.12
Tigecycline *	100.0%			0.03	0.06	0.03	0.06
Trimethoprim Sulfa	No Breakpoints Defined			≤ 0.12	≤ 0.12	≤ 0.12	0.25
Vancomycin	100.0%			0.5	0.5	0.25	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *P. mirabilis* Susceptibility - Maritimes

### ***Proteus mirabilis* (5)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			2	4	≤ 1	4
Amoxicillin Clavulanic Acid	100.0%			1	8	1	8
Aztreonam	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefazolin		80.0%	20.0%	4	16	4	16
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin	100.0%			4	4	4	4
Ceftazidime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ceftriaxone	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ciprofloxacin	100.0%			≤ 0.06	0.25	≤ 0.06	0.25
Colistin	No Breakpoints Defined			> 16	> 16	≤ 0.06	> 16
Doripenem	100.0%			0.25	0.25	0.12	0.25
Doxycycline			100.0%	32	> 32	16	> 32
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Gentamicin	100.0%			≤ 0.5	1	≤ 0.5	1
Imipenem	40.0%	60.0%		2	2	0.25	2
Meropenem	100.0%			0.06	0.06	0.06	0.06
Moxifloxacin *	100.0%			0.5	2	0.25	2
Piperacillin Tazobactam	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Tigecycline *	40.0%	60.0%		4	4	1	4
Tobramycin	100.0%			≤ 0.5	1	≤ 0.5	1
Trimethoprim Sulfa	100.0%			≤ 0.12	1	≤ 0.12	1

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. pyogenes* Susceptibility - Quebec

### ***Streptococcus pyogenes* (4)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	No Breakpoints Defined			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefuroxime	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Chloramphenicol	100.0%			2	4	1	4
Ciprofloxacin	No Breakpoints Defined			0.5	0.5	0.12	0.5
Clarithromycin	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Clindamycin	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Daptomycin	100.0%			0.06	0.12	0.06	0.12
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ertapenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Levofloxacin	100.0%			0.5	0.5	0.25	0.5
Linezolid	100.0%			1	2	1	2
Meropenem	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Moxifloxacin	No Breakpoints Defined			0.12	0.12	≤ 0.06	0.12
Penicillin	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	No Breakpoints Defined			0.008	0.008	0.004	0.008
Tigecycline *	100.0%			≤ 0.015	≤ 0.015	≤ 0.015	≤ 0.015
Trimethoprim Sulfa	No Breakpoints Defined			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Vancomycin	100.0%			0.25	0.5	0.25	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *C. freundii* Susceptibility - Quebec

### ***Citrobacter freundii* (1)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Amoxicillin Clavulanic Acid		100.0%		16	16	16	16
Aztreonam	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefazolin		100.0%		4	4	4	4
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin			100.0%	32	32	32	32
Ceftazidime	100.0%			0.5	0.5	0.5	0.5
Ceftriaxone	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ciprofloxacin	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Colistin	No Breakpoints Defined			0.25	0.25	0.25	0.25
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	100.0%			2	2	2	2
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.5	0.5	0.5	0.5
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Moxifloxacin *	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Piperacillin Tazobactam	100.0%			2	2	2	2
Tigecycline *	100.0%			0.5	0.5	0.5	0.5
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Trimethoprim Sulfa	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

# CANWARD 2012

## *A. baumannii* Susceptibility - Quebec

### ***Acinetobacter baumannii* (1)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Amoxicillin Clavulanic Acid	No Breakpoints Defined			16	16	16	16
Aztreonam	No Breakpoints Defined			32	32	32	32
Cefazolin				> 128	> 128	> 128	> 128
Cefepime	100.0%			2	2	2	2
Cefoxitin	No Breakpoints Defined			> 32	> 32	> 32	> 32
Ceftazidime	100.0%			8	8	8	8
Ceftriaxone		100.0%		16	16	16	16
Ciprofloxacin	100.0%			0.12	0.12	0.12	0.12
Colistin	100.0%			1	1	1	1
Doripenem	No Breakpoints Defined			0.12	0.12	0.12	0.12
Doxycycline	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Ertapenem	No Breakpoints Defined			4	4	4	4
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.12	0.12	0.12	0.12
Meropenem	100.0%			0.25	0.25	0.25	0.25
Moxifloxacin	No Breakpoints Defined			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Piperacillin Tazobactam	100.0%			4	4	4	4
Tigecycline	No Breakpoints Defined			0.12	0.12	0.12	0.12
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Trimethoprim Sulfa	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12

# CANWARD 2012

## *S. aureus*, MSSA Susceptibility - Maritimes

### ***Staphylococcus aureus* , MSSA (108)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	100.0%			4	4	≤ 1	8
Amoxicillin Clavulanic Acid	No Breakpoints	Defined		0.5	1	0.12	1
Aztreonam	No Breakpoints	Defined		> 64	> 64	64	> 64
Cefazolin	No Breakpoints	Defined		≤ 0.5	1	≤ 0.5	1
Cefepime	No Breakpoints	Defined		2	4	1	4
Cefoxitin	100.0%			4	4	1	4
Ceftazidime	No Breakpoints	Defined		16	32	8	32
Ceftriaxone	No Breakpoints	Defined		4	4	2	8
Ciprofloxacin	91.7%	0.9%	7.4%	0.5	1	0.12	> 16
Clarithromycin	79.6%		20.4%	0.25	> 32	0.12	> 32
Clindamycin	95.4%		4.6%	≤ 0.12	≤ 0.12	≤ 0.12	> 8
Colistin	No Breakpoints	Defined		> 16	> 16	> 16	> 16
Daptomycin	100.0%			0.25	0.5	0.12	0.5
Doripenem	No Breakpoints	Defined		0.06	0.06	≤ 0.03	0.25
Doxycycline	99.1%	0.9%		≤ 0.12	0.25	≤ 0.12	8
Ertapenem	No Breakpoints	Defined		0.5	0.5	0.25	0.5
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	1
Imipenem	No Breakpoints	Defined		≤ 0.03	≤ 0.03	≤ 0.03	0.06
Linezolid	100.0%			2	4	1	4
Meropenem	No Breakpoints	Defined		0.12	0.25	≤ 0.03	0.5
Moxifloxacin	94.4%		5.6%	≤ 0.06	0.12	≤ 0.06	> 16
Piperacillin Tazobactam	No Breakpoints	Defined		≤ 1	≤ 1	≤ 1	2
Tigecycline *	100.0%			0.12	0.25	0.12	0.5
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	1
Trimethoprim Sulfa	98.1%		1.9%	≤ 0.12	≤ 0.12	≤ 0.12	> 8
Vancomycin	100.0%			1	1	0.5	1

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. coli* Susceptibility - Maritimes

### *Escherichia coli* (90)

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	98.9%	1.1%		2	4	≤ 1	32
Amoxicillin Clavulanic Acid	80.0%	13.3%	6.7%	4	16	1	> 32
Aztreonam	95.6%		4.4%	≤ 0.12	0.25	≤ 0.12	64
Cefazolin	66.7%	17.8%	15.6%	2	8	1	> 128
Cefepime	96.7%	3.3%		≤ 0.25	≤ 0.25	≤ 0.25	16
Cefoxitin	90.0%	5.6%	4.4%	4	8	1	> 32
Ceftazidime	95.6%		4.4%	≤ 0.25	1	≤ 0.25	> 32
Ceftriaxone	94.4%		5.6%	≤ 0.25	≤ 0.25	≤ 0.25	> 64
Ciprofloxacin	77.8%	1.1%	21.1%	≤ 0.06	> 16	≤ 0.06	> 16
Colistin	No Breakpoints Defined			0.25	0.25	≤ 0.06	> 16
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Doxycycline	77.8%	3.3%	18.9%	2	32	0.5	> 32
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.5
Gentamicin	91.1%	1.1%	7.8%	≤ 0.5	2	≤ 0.5	> 32
Imipenem	100.0%			0.12	0.25	0.06	1
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Moxifloxacin *	77.8%		22.2%	≤ 0.06	16	≤ 0.06	> 16
Piperacillin Tazobactam	96.7%	2.2%	1.1%	≤ 1	4	≤ 1	> 512
Tigecycline *	100.0%			0.25	0.25	0.12	1
Tobramycin	93.3%	4.4%	2.2%	≤ 0.5	1	≤ 0.5	32
Trimethoprim Sulfa	72.2%		27.8%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *P. aeruginosa* Susceptibility - Maritimes

### ***Pseudomonas aeruginosa* (50)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	98.0%		2.0%	4	16	≤ 1	> 64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			> 32	> 32	16	> 32
Aztreonam	88.0%	4.0%	8.0%	4	16	≤ 0.12	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	128	> 128
Cefepime	94.0%	2.0%	4.0%	2	8	≤ 0.25	32
Cefoxitin	No Breakpoints Defined			> 32	> 32	32	> 32
Ceftazidime	84.0%	4.0%	12.0%	4	32	≤ 0.25	> 32
Ceftriaxone	No Breakpoints Defined			16	> 64	1	> 64
Ciprofloxacin	88.0%	4.0%	8.0%	0.12	2	≤ 0.06	16
Colistin	98.0%	2.0%		1	1	0.25	4
Doripenem	92.0%	4.0%	4.0%	0.25	2	≤ 0.03	8
Doxycycline	No Breakpoints Defined			16	32	1	> 32
Ertapenem	No Breakpoints Defined			8	> 32	0.12	> 32
Gentamicin	90.0%	8.0%	2.0%	2	4	≤ 0.5	> 32
Imipenem	76.0%	14.0%	10.0%	2	4	0.5	32
Meropenem	86.0%	10.0%	4.0%	0.5	4	≤ 0.03	8
Moxifloxacin	No Breakpoints Defined			2	8	0.12	> 16
Piperacillin Tazobactam	88.0%	6.0%	6.0%	4	32	≤ 1	512
Tigecycline	No Breakpoints Defined			16	16	1	> 16
Tobramycin	98.0%		2.0%	≤ 0.5	2	≤ 0.5	32
Trimethoprim Sulfa	No Breakpoints Defined			8	> 8	0.5	> 8



# CANWARD 2012

## *K. pneumoniae* Susceptibility - Maritimes

### ***Klebsiella pneumoniae* (30)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	≤ 1	≤ 1	2
Amoxicillin Clavulanic Acid	100.0%			2	8	2	8
Aztreonam	100.0%			≤ 0.12	0.25	≤ 0.12	0.5
Cefazolin	90.0%	6.7%	3.3%	1	2	1	8
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	0.5
Cefoxitin	90.0%	3.3%	6.7%	4	8	2	> 32
Ceftazidime	100.0%			≤ 0.25	1	≤ 0.25	4
Ceftriaxone	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	0.5
Ciprofloxacin	100.0%			≤ 0.06	0.25	≤ 0.06	0.5
Colistin	No Breakpoints Defined			0.25	0.5	0.12	> 16
Doripenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.12
Doxycycline	76.7%	3.3%	20.0%	2	32	1	32
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.12
Gentamicin	96.7%		3.3%	≤ 0.5	≤ 0.5	≤ 0.5	16
Imipenem	96.7%	3.3%		0.25	0.25	0.12	2
Meropenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Moxifloxacin *	100.0%			0.12	1	≤ 0.06	1
Piperacillin Tazobactam	100.0%			2	8	≤ 1	16
Tigecycline *	90.0%	6.7%	3.3%	0.5	2	0.25	8
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	4
Trimethoprim Sulfa	96.7%		3.3%	≤ 0.12	0.5	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. pneumoniae* Susceptibility - Maritimes

### ***Streptococcus pneumoniae* (20)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	0.25
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	0.25
Cefuroxime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Chloramphenicol	100.0%			2	4	0.5	4
Ciprofloxacin	95.0%		5.0%	1	2	0.12	4
Clarithromycin	80.0%	5.0%	15.0%	≤ 0.03	2	≤ 0.03	4
Clindamycin	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Daptomycin	No Breakpoints Defined			0.12	0.12	≤ 0.03	0.25
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.12
Doxycycline	95.0%		5.0%	≤ 0.25	≤ 0.25	≤ 0.25	2
Ertapenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	0.12
Imipenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	0.06
Levofloxacin	100.0%			1	1	≤ 0.06	2
Linezolid	100.0%			1	1	≤ 0.12	2
Meropenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	0.12
Moxifloxacin	100.0%			0.12	0.25	≤ 0.06	0.25
Penicillin	89.5%	10.5%		≤ 0.03	0.25	≤ 0.03	0.25
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	100.0%			0.008	0.06	≤ 0.002	0.25
Tigecycline	100.0%			≤ 0.015	0.03	≤ 0.015	0.03
Trimethoprim Sulfa	90.0%	10.0%		≤ 0.12	0.5	≤ 0.12	2
Vancomycin	100.0%			0.25	0.25	≤ 0.12	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. aureus*, MRSA Susceptibility - Maritimes

### ***Staphylococcus aureus*, MRSA (15)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	93.3%	6.7%		16	16	2	32
Amoxicillin Clavulanic Acid	No Breakpoints Defined			16	32	8	32
Aztreonam	No Breakpoints Defined			> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints Defined			64	> 128	2	> 128
Cefepime	No Breakpoints Defined			> 64	> 64	16	> 64
Cefoxitin			100.0%	> 32	> 32	32	> 32
Ceftazidime	No Breakpoints Defined			> 32	> 32	> 32	> 32
Ceftriaxone	No Breakpoints Defined			> 64	> 64	32	> 64
Ciprofloxacin	6.7%		93.3%	> 16	> 16	0.25	> 16
Clarithromycin	20.0%		80.0%	> 32	> 32	0.12	> 32
Clindamycin	80.0%		20.0%	≤ 0.12	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	> 16	> 16
Daptomycin	100.0%			0.25	0.5	0.25	0.5
Doripenem	No Breakpoints Defined			2	16	0.12	32
Doxycycline	100.0%			≤ 0.12	0.25	≤ 0.12	0.25
Ertapenem	No Breakpoints Defined			16	> 32	1	> 32
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	No Breakpoints Defined			1	32	0.12	> 32
Linezolid	100.0%			2	2	1	2
Meropenem	No Breakpoints Defined			4	16	0.5	> 32
Moxifloxacin	6.7%	13.3%	80.0%	8	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	No Breakpoints Defined			32	128	4	128
Tigecycline *	100.0%			0.12	0.12	0.12	0.25
Tobramycin	46.7%		53.3%	> 64	> 64	≤ 0.5	> 64
Trimethoprim Sulfa	86.7%		13.3%	≤ 0.12	> 8	≤ 0.12	> 8
Vancomycin	100.0%			1	1	0.5	1

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. faecalis* Susceptibility - Maritimes

### ***Enterococcus faecalis* (15)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	No Breakpoints	Defined		> 64	> 64	64	> 64
Amoxicillin Clavulanic Acid	No Breakpoints	Defined		0.5	1	0.25	1
Aztreonam	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints	Defined		32	32	4	64
Cefepime	No Breakpoints	Defined		64	> 64	8	> 64
Cefoxitin	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Ceftazidime	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Ceftriaxone	No Breakpoints	Defined		> 64	> 64	4	> 64
Ciprofloxacin	53.3%	6.7%	40.0%	1	> 16	0.5	> 16
Clarithromycin	No Breakpoints	Defined		> 32	> 32	0.12	> 32
Clindamycin	No Breakpoints	Defined		> 8	> 8	1	> 8
Colistin	No Breakpoints	Defined		> 16	> 16	> 16	> 16
Daptomycin	100.0%			1	1	0.25	2
Doripenem	No Breakpoints	Defined		4	4	2	4
Doxycycline	46.7%	53.3%		8	8	≤ 0.12	8
Ertapenem	No Breakpoints	Defined		16	16	4	32
Gentamicin	No Breakpoints	Defined		16	> 32	4	> 32
Imipenem	No Breakpoints	Defined		1	2	1	2
Linezolid	100.0%			2	2	1	2
Meropenem	No Breakpoints	Defined		4	8	2	8
Moxifloxacin	No Breakpoints	Defined		0.25	16	0.12	> 16
Piperacillin Tazobactam	No Breakpoints	Defined		4	4	≤ 1	8
Tigecycline *	100.0%			0.12	0.12	0.06	0.12
Tobramycin	No Breakpoints	Defined		16	> 64	8	> 64
Trimethoprim Sulfa	No Breakpoints	Defined		≤ 0.12	0.5	≤ 0.12	2
Vancomycin	100.0%			1	2	1	2

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *E. cloacae* Susceptibility - Maritimes

### ***Enterobacter cloacae* (8)**

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	2
Amoxicillin Clavulanic Acid			100.0%	> 32	> 32	32	> 32
Aztreonam	62.5%		37.5%	≤ 0.12	32	≤ 0.12	32
Cefazolin			100.0%	> 128	> 128	64	> 128
Cefepime	100.0%			≤ 0.25	2	≤ 0.25	2
Cefoxitin			100.0%	> 32	> 32	32	> 32
Ceftazidime	62.5%		37.5%	0.5	> 32	≤ 0.25	> 32
Ceftriaxone	62.5%		37.5%	≤ 0.25	> 64	≤ 0.25	> 64
Ciprofloxacin	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Colistin	No Breakpoints Defined			0.25	> 16	0.12	> 16
Doripenem	100.0%			0.06	0.12	0.06	0.12
Doxycycline	100.0%			2	4	2	4
Ertapenem	100.0%			0.12	0.5	≤ 0.03	0.5
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.5	1	0.25	1
Meropenem	100.0%			0.06	0.25	≤ 0.03	0.25
Moxifloxacin *	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Piperacillin Tazobactam	75.0%	12.5%	12.5%	2	128	≤ 1	128
Tigecycline *	100.0%			0.5	0.5	0.25	0.5
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Trimethoprim Sulfa	87.5%		12.5%	≤ 0.12	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *S. epidermidis* Susceptibility - Maritimes

### ***Staphylococcus epidermidis* (10)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Amoxicillin Clavulanic Acid	100.0%			1	2	≤ 0.06	4
Aztreonam	No Breakpoints Defined			> 64	> 64	64	> 64
Cefazolin	100.0%			2	2	≤ 0.5	4
Cefepime	80.0%	20.0%		4	16	0.5	16
Cefoxitin	No Breakpoints Defined			8	16	1	16
Ceftazidime	30.0%	20.0%	50.0%	16	> 32	4	> 32
Ceftriaxone	40.0%	50.0%	10.0%	16	32	1	64
Ciprofloxacin	40.0%		60.0%	4	> 16	0.12	> 16
Clarithromycin	40.0%		60.0%	> 32	> 32	≤ 0.03	> 32
Clindamycin	80.0%		20.0%	≤ 0.12	> 8	≤ 0.12	> 8
Colistin	No Breakpoints Defined			> 16	> 16	16	> 16
Daptomycin	100.0%			0.25	0.25	≤ 0.03	0.5
Doripenem	No Breakpoints Defined			1	4	≤ 0.03	8
Doxycycline	100.0%			0.25	1	≤ 0.12	1
Ertapenem	40.0%		60.0%	8	16	0.5	> 32
Gentamicin	80.0%	10.0%	10.0%	≤ 0.5	8	≤ 0.5	32
Imipenem	90.0%		10.0%	0.25	1	≤ 0.03	16
Linezolid	100.0%			1	1	0.25	1
Meropenem	No Breakpoints Defined			2	4	0.06	8
Moxifloxacin	50.0%	10.0%	40.0%	0.5	> 16	≤ 0.06	> 16
Piperacillin Tazobactam	100.0%			≤ 1	2	≤ 1	2
Tigecycline	No Breakpoints Defined			0.12	0.25	0.06	0.25
Tobramycin	90.0%	10.0%		≤ 0.5	2	≤ 0.5	8
Trimethoprim Sulfa	70.0%		30.0%	≤ 0.12	8	≤ 0.12	8
Vancomycin	100.0%			1	2	1	2

# CANWARD 2012

## *S. marcescens* Susceptibility - Maritimes

### *Serratia marcescens* (14)

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			2	4	≤ 1	8
Amoxicillin Clavulanic Acid			92.9%	> 32	> 32	4	> 32
Aztreonam				≤ 0.12	0.25	≤ 0.12	0.25
Cefazolin			100.0%	> 128	> 128	> 128	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin		64.3%	7.1%	16	16	8	32
Ceftazidime	100.0%			≤ 0.25	0.5	≤ 0.25	1
Ceftriaxone	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ciprofloxacin	100.0%			≤ 0.06	0.25	≤ 0.06	0.5
Colistin	No Breakpoints Defined			> 16	> 16	0.5	> 16
Doripenem	100.0%			0.12	0.25	0.06	0.25
Doxycycline	64.3%	14.3%	21.4%	4	16	2	16
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.12
Gentamicin	100.0%			≤ 0.5	1	≤ 0.5	2
Imipenem	100.0%			0.5	1	0.5	1
Meropenem	100.0%			0.06	0.06	≤ 0.03	0.06
Moxifloxacin *	100.0%			0.25	1	≤ 0.06	2
Piperacillin Tazobactam	100.0%			≤ 1	4	≤ 1	4
Tigecycline *	100.0%			1	2	1	2
Tobramycin	100.0%			1	4	≤ 0.5	4
Trimethoprim Sulfa	100.0%			0.25	0.5	0.25	2

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

# CANWARD 2012

## *K. oxytoca* Susceptibility - Maritimes

### ***Klebsiella oxytoca* (8)**

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	2
Amoxicillin Clavulanic Acid	75.0%	12.5%	12.5%	4	32	2	32
Aztreonam	75.0%		25.0%	≤ 0.12	64	≤ 0.12	64
Cefazolin	37.5%	25.0%	37.5%	4	> 128	2	> 128
Cefepime	100.0%			≤ 0.25	0.5	≤ 0.25	0.5
Cefoxitin	100.0%			2	8	1	8
Ceftazidime	100.0%			≤ 0.25	1	≤ 0.25	1
Ceftriaxone	75.0%	12.5%	12.5%	≤ 0.25	4	≤ 0.25	4
Ciprofloxacin	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Colistin	No Breakpoints Defined			0.25	0.25	0.25	0.25
Doripenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Doxycycline	100.0%			2	4	1	4
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.5	0.25	0.5
Meropenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Moxifloxacin *	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Piperacillin Tazobactam	75.0%		25.0%	2	512	≤ 1	512
Tigecycline *	100.0%			0.25	1	0.25	1
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Trimethoprim Sulfa	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)



# CANWARD 2012

## *S. maltophilia* Susceptibility - Maritimes

### ***Stenotrophomonas maltophilia* (9)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin				32	> 64	8	> 64
Amoxicillin Clavulanic Acid	No Breakpoints Defined			> 32	> 32	32	> 32
Aztreonam	No Breakpoints Defined			> 64	> 64	> 64	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	> 128	> 128
Cefepime	No Breakpoints Defined			32	> 64	16	> 64
Cefoxitin	No Breakpoints Defined			> 32	> 32	> 32	> 32
Ceftazidime		33.3%	66.7%	> 32	> 32	16	> 32
Ceftriaxone	No Breakpoints Defined			> 64	> 64	> 64	> 64
Ciprofloxacin	No Breakpoints Defined			8	> 16	1	> 16
Colistin	No Breakpoints Defined			8	> 16	1	> 16
Doripenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Doxycycline	No Breakpoints Defined			2	16	2	16
Ertapenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Gentamicin	No Breakpoints Defined			8	> 32	2	> 32
Imipenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Meropenem	No Breakpoints Defined			> 32	> 32	> 32	> 32
Moxifloxacin	No Breakpoints Defined			1	> 16	0.12	> 16
Piperacillin Tazobactam	No Breakpoints Defined			256	> 512	64	> 512
Tigecycline	No Breakpoints Defined			0.5	4	0.25	4
Tobramycin	No Breakpoints Defined			8	> 64	2	> 64
Trimethoprim Sulfa	55.6%		44.4%	1	> 8	≤ 0.12	> 8

# CANWARD 2012

## *E. faecium* Susceptibility - Maritimes

### ***Enterococcus faecium* (5)**

Drug	Susceptibility			MIC <sub>50</sub>	MIC <sub>90</sub>	Range	
	% Sus	% Int	% Res			Min	Max
Amikacin	No Breakpoints	Defined		16	16	16	16
Amoxicillin Clavulanic Acid	No Breakpoints	Defined		> 32	> 32	0.12	> 32
Aztreonam	No Breakpoints	Defined		> 64	> 64	64	> 64
Cefazolin	No Breakpoints	Defined		> 128	> 128	16	> 128
Cefepime	No Breakpoints	Defined		> 64	> 64	4	> 64
Cefoxitin	No Breakpoints	Defined		> 32	> 32	16	> 32
Ceftazidime	No Breakpoints	Defined		> 32	> 32	> 32	> 32
Ceftriaxone	No Breakpoints	Defined		> 64	> 64	4	> 64
Ciprofloxacin	40.0%		60.0%	> 16	> 16	0.5	> 16
Clarithromycin	No Breakpoints	Defined		> 32	> 32	2	> 32
Clindamycin	No Breakpoints	Defined		> 8	> 8	8	> 8
Colistin	No Breakpoints	Defined		> 16	> 16	> 16	> 16
Daptomycin	100.0%			2	2	1	2
Doripenem	No Breakpoints	Defined		> 32	> 32	1	> 32
Doxycycline	80.0%	20.0%		≤ 0.12	8	≤ 0.12	8
Ertapenem	No Breakpoints	Defined		> 32	> 32	4	> 32
Gentamicin	No Breakpoints	Defined		8	8	8	8
Imipenem	No Breakpoints	Defined		> 32	> 32	0.5	> 32
Linezolid	80.0%	20.0%		2	4	1	4
Meropenem	No Breakpoints	Defined		> 32	> 32	2	> 32
Moxifloxacin	No Breakpoints	Defined		16	> 16	0.25	> 16
Piperacillin Tazobactam	No Breakpoints	Defined		> 512	> 512	4	> 512
Tigecycline	No Breakpoints	Defined		0.06	0.06	0.06	0.06
Tobramycin	No Breakpoints	Defined		> 64	> 64	> 64	> 64
Trimethoprim Sulfa	No Breakpoints	Defined		0.5	> 8	≤ 0.12	> 8
Vancomycin	100.0%			0.5	1	0.5	1

# CANWARD 2012

## *S. agalactiae* Susceptibility - Maritimes

### ***Streptococcus agalactiae* (10)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	No Breakpoints Defined			≤ 0.06	0.12	≤ 0.06	0.12
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefuroxime	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Chloramphenicol	100.0%			4	4	2	4
Ciprofloxacin	No Breakpoints Defined			0.5	> 16	0.5	> 16
Clarithromycin	80.0%		20.0%	≤ 0.03	> 32	≤ 0.03	> 32
Clindamycin	90.0%		10.0%	≤ 0.12	≤ 0.12	≤ 0.12	> 64
Daptomycin	100.0%			0.12	0.25	0.12	0.25
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	No Breakpoints Defined			8	16	≤ 0.25	16
Ertapenem	100.0%			≤ 0.06	0.12	≤ 0.06	0.12
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Levofloxacin	80.0%		20.0%	1	32	0.5	32
Linezolid	100.0%			2	2	1	2
Meropenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Moxifloxacin	No Breakpoints Defined			0.12	4	0.12	4
Penicillin	100.0%			0.06	0.06	≤ 0.03	0.06
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	No Breakpoints Defined			0.015	0.015	0.015	1
Tigecycline *	100.0%			0.06	0.06	0.03	0.06
Trimethoprim Sulfa	No Breakpoints Defined			≤ 0.12	≤ 0.12	≤ 0.12	1
Vancomycin	100.0%			0.5	0.5	0.5	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

CANADIAN ANTIMICROBIAL  
RESISTANCE ALLIANCE



# CANWARD 2012

## *P. mirabilis* Susceptibility - Maritimes

### *Proteus mirabilis* (9)

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			2	8	≤ 1	8
Amoxicillin Clavulanic Acid	88.9%			1	> 32	0.5	> 32
Aztreonam	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefazolin		77.8%	22.2%	4	> 128	4	> 128
Cefepime	100.0%			≤ 0.25	0.5	≤ 0.25	0.5
Cefoxitin	77.8%	22.2%		4	16	4	16
Ceftazidime	100.0%			≤ 0.25	4	≤ 0.25	4
Ceftriaxone	88.9%	11.1%		≤ 0.25	2	≤ 0.25	2
Ciprofloxacin	100.0%			≤ 0.06	0.25	≤ 0.06	0.25
Colistin	No Breakpoints Defined			> 16	> 16	16	> 16
Doripenem	100.0%			0.12	0.25	0.06	0.25
Doxycycline			100.0%	> 32	> 32	16	> 32
Ertapenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Gentamicin	77.8%	11.1%	11.1%	1	16	≤ 0.5	16
Imipenem	33.3%	44.4%	22.2%	2	4	0.25	4
Meropenem	100.0%			0.06	0.12	≤ 0.03	0.12
Moxifloxacin *	100.0%			0.5	1	0.25	1
Piperacillin Tazobactam	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Tigecycline *	22.2%	33.3%	44.4%	4	8	2	8
Tobramycin	88.9%		11.1%	1	16	≤ 0.5	16
Trimethoprim Sulfa	77.8%		22.2%	0.25	> 8	≤ 0.12	> 8

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

# CANWARD 2012

## *S. pyogenes* Susceptibility - Maritimes

### ***Streptococcus pyogenes* (4)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amoxicillin Clavulanic Acid	No Breakpoints Defined			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Ceftriaxone	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefuroxime	No Breakpoints Defined			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Chloramphenicol	100.0%			2	4	2	4
Ciprofloxacin	No Breakpoints Defined			0.5	1	0.5	1
Clarithromycin	75.0%	25.0%		≤ 0.03	> 32	≤ 0.03	> 32
Clindamycin	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Daptomycin	100.0%			0.06	0.12	0.06	0.12
Doripenem	100.0%			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Doxycycline	No Breakpoints Defined			≤ 0.25	16	≤ 0.25	16
Ertapenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Imipenem	No Breakpoints Defined			≤ 0.03	≤ 0.03	≤ 0.03	≤ 0.03
Levofloxacin	100.0%			0.5	1	0.5	1
Linezolid	100.0%			1	2	1	2
Meropenem	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Moxifloxacin	No Breakpoints Defined			0.12	0.25	0.12	0.25
Penicillin	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Piperacillin Tazobactam	No Breakpoints Defined			≤ 1	≤ 1	≤ 1	≤ 1
Telithromycin	No Breakpoints Defined			0.008	0.015	0.004	0.015
Tigecycline *	100.0%			0.03	0.06	≤ 0.015	0.06
Trimethoprim Sulfa	No Breakpoints Defined			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Vancomycin	100.0%			0.5	0.5	0.25	0.5

\*Interpretive breakpoints defined by FDA (tigecycline)

# CANWARD 2012

## *C. freundii* Susceptibility - Maritimes

### *Citrobacter freundii* (2)

Drug	Susceptibility				Range		
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Amoxicillin Clavulanic Acid			100.0%	32	> 32	32	> 32
Aztreonam	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12
Cefazolin			100.0%	32	> 128	32	> 128
Cefepime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Cefoxitin			100.0%	> 32	> 32	> 32	> 32
Ceftazidime	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ceftriaxone	100.0%			≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Ciprofloxacin	100.0%			≤ 0.06	≤ 0.06	≤ 0.06	≤ 0.06
Colistin	No Breakpoints Defined			0.25	0.25	0.25	0.25
Doripenem	100.0%			0.06	0.06	0.06	0.06
Doxycycline	100.0%			2	2	2	2
Ertapenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.5	0.25	0.5
Meropenem	100.0%			≤ 0.03	0.06	≤ 0.03	0.06
Moxifloxacin *	100.0%			≤ 0.06	0.25	≤ 0.06	0.25
Piperacillin Tazobactam	100.0%			≤ 1	≤ 1	≤ 1	≤ 1
Tigecycline *	100.0%			0.25	0.5	0.25	0.5
Tobramycin	100.0%			≤ 0.5	1	≤ 0.5	1
Trimethoprim Sulfa	100.0%			≤ 0.12	≤ 0.12	≤ 0.12	≤ 0.12

\*Interpretive breakpoints defined by FDA (moxifloxacin, tigecycline)

# CANWARD 2012

## *A. baumannii* Susceptibility - Maritimes

### ***Acinetobacter baumannii* (3)**

Drug	Susceptibility			Range			
	% Sus	% Int	% Res	MIC <sub>50</sub>	MIC <sub>90</sub>	Min	Max
Amikacin	100.0%			≤ 1	2	≤ 1	2
Amoxicillin Clavulanic Acid	No Breakpoints Defined			8	16	8	16
Aztreonam	No Breakpoints Defined			16	> 64	4	> 64
Cefazolin	No Breakpoints Defined			> 128	> 128	128	> 128
Cefepime	100.0%			2	8	0.5	8
Cefoxitin	No Breakpoints Defined			16	> 32	8	> 32
Ceftazidime	100.0%			2	8	2	8
Ceftriaxone	33.3%	66.7%		16	16	4	16
Ciprofloxacin	100.0%			0.25	0.5	0.25	0.5
Colistin	100.0%			0.5	1	0.5	1
Doripenem	No Breakpoints Defined			0.25	0.5	0.12	0.5
Doxycycline	100.0%			0.25	0.5	0.25	0.5
Ertapenem	No Breakpoints Defined			2	16	1	16
Gentamicin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Imipenem	100.0%			0.25	0.25	0.12	0.25
Meropenem	100.0%			0.25	1	0.25	1
Moxifloxacin	No Breakpoints Defined			0.12	0.25	0.12	0.25
Piperacillin Tazobactam	100.0%			≤ 1	16	≤ 1	16
Tigecycline	No Breakpoints Defined			0.25	1	0.12	1
Tobramycin	100.0%			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Trimethoprim Sulfa	100.0%			0.25	0.5	≤ 0.12	0.5

# CANWARD 2012 Prevalence of MRSA by Region

	West	Ontario	Quebec	Maritimes	National
# MRSA	64	39	7	15	125
Total # <i>S. aureus</i>	254	251	61	123	689
% Prevalence	<b>25.2</b>	<b>15.5</b>	<b>11.5</b>	<b>12.2</b>	<b>18.1</b>



# CANWARD 2012

## Prevalence of CA/HA-MRSA by Region

MRSA	West	Ontario	Quebec	Maritimes	National
CA-MRSA (n)	30	16	0	2	48
HA-MRSA (n)	29	21	7	11	68
Unique (n)	5	2	0	2	9
% CA-MRSA/ region	<b>46.9</b>	<b>41.0</b>	<b>0.0</b>	<b>13.3</b>	<b>38.4</b>
% HA-MRSA/ region	<b>45.3</b>	<b>53.8</b>	<b>100.0</b>	<b>73.3</b>	<b>54.4</b>

# CANWARD 2012 Prevalence of VRE by Region

	West	Ontario	Quebec	Maritimes	National
# VRE/region	3	7	0	0	10
Total # <i>Enterococcus sp.</i> / region	46	47	15	20	128
% Prevalence	<b>6.5</b>	<b>14.9</b>	<b>0.0</b>	<b>0.0</b>	<b>708</b>

9 *vanA*, 1 *vanB*

# CANWARD 2012

## Prevalence of ESBL producing *E. coli* by Region

	West	Ontario	Quebec	Maritimes	National
# ESBL <i>E. coli</i>	8	20	5	5	38
Total # <i>E. coli</i>	163	172	75	90	500
% Prevalence	<b>4.9</b>	<b>11.6</b>	<b>6.7</b>	<b>5.6</b>	<b>7.6</b>

# CANWARD 2012

## Prevalence of ESBL producing *K. pneumoniae* by Region

	West	Ontario	Quebec	Maritimes	National
# ESBL <i>K. Pneumoniae</i>	3	2	1	0	6
Total # <i>K. pneumoniae</i>	47	60	32	30	169
% Prevalence	<b>6.4</b>	<b>3.3</b>	<b>3.1</b>	<b>0.0</b>	<b>3.6</b>