

RCH antibiotic susceptibility data

The following represent RCH antibiotic susceptibility data from 2008. This data is used to inform antibiotic guidelines used at RCH. The data includes all microbiological isolates (both invasive isolates and screening isolates) collected at RCH (in both inpatient and outpatient) over the one year period 1/1/08-31/12/08. Multiple isolates from the same patient were excluded from analysis.

This document also includes trends in resistance patterns in *S. aureus*, enterococcus spp, and gram negative organisms of the past 10 years. It is also useful to monitor trends in multi-resistant organism isolates, in order to improve infection control procedures and antibiotic prescribing practices.

Users should be aware that these data are not necessarily useful in specific patient populations at RCH (for example, cystic fibrosis or oncology patients), where trends and susceptibility data may differ significantly from the rest of the hospital.

RCH sensitivity data 2008 (% sensitive)

Gram Positive Organisms 2008											
Organism	Penicillins		Cephalo- sporin	Macrolide	Glycopeptides		Fluoro- quinolone	Miscellaneous			
	Penicillin	Flucloxacillin	Cefotaxime	Erythromycin	Vancomycin	Teicoplanin	Ciprofloxacin	Clindamycin	Nitrofurantoin	Bactrim	Rifampicin
Streptococcus Grp A, B, C, G	100%			94%	100%			97%			
<i>Streptococcus pneumoniae</i>	68%		83%	85%	100%			88%		73%	
Viridans streptococcus	40%		61%	45%	100%			97%			
<i>Streptococcus milleri</i>	92%			100%	100%			100%			
<i>Enterococcus faecalis</i>	99%	-	-	-	99%	100%	-	-	100%	-	-
<i>Enterococcus faecium</i>	30%	-	-	-	50%	100%	-	-	29%	-	-
<i>S. aureus</i> (all)	8%	93%		83%	100%	100%		87%			
MRSA	-	0%		54%	100%	100%	77%	65%			97%
Coagulase negative staphylococcus	11%	37%		45%	100%	99%		64%			

The following data show trends in susceptibility over the past decade. Of particular note, there has been a gradual increase in the percentage of methicillin resistant *S. aureus* (MRSA) isolates at this hospital over the past decade from 0.5% of *S. aureus* isolates in 1998 to 7.4% of isolates in 2008. There has also been a recent increase in vancomycin resistant enterococcus (VRE) isolates in the last year. Of the 12 isolates at RCH, 7 were isolated from oncology patients. Nine were invasive isolates; the remaining three were screening isolates.

Amongst the gram negative organisms, *E. coli* has become gradually more resistant to cephalixin over the past decade and *Enterobacter* spp. has become more resistant to gentamicin. *Pseudomonas aeruginosa* has actually become less resistant to a number of antibiotics (ceftazidime, ciprofloxacin and the aminoglycosides over the same period; this may represent changes in patient population or in antibiotic prescribing practices.

Gram negative organisms: % sensitivity trends by year 1998-2008

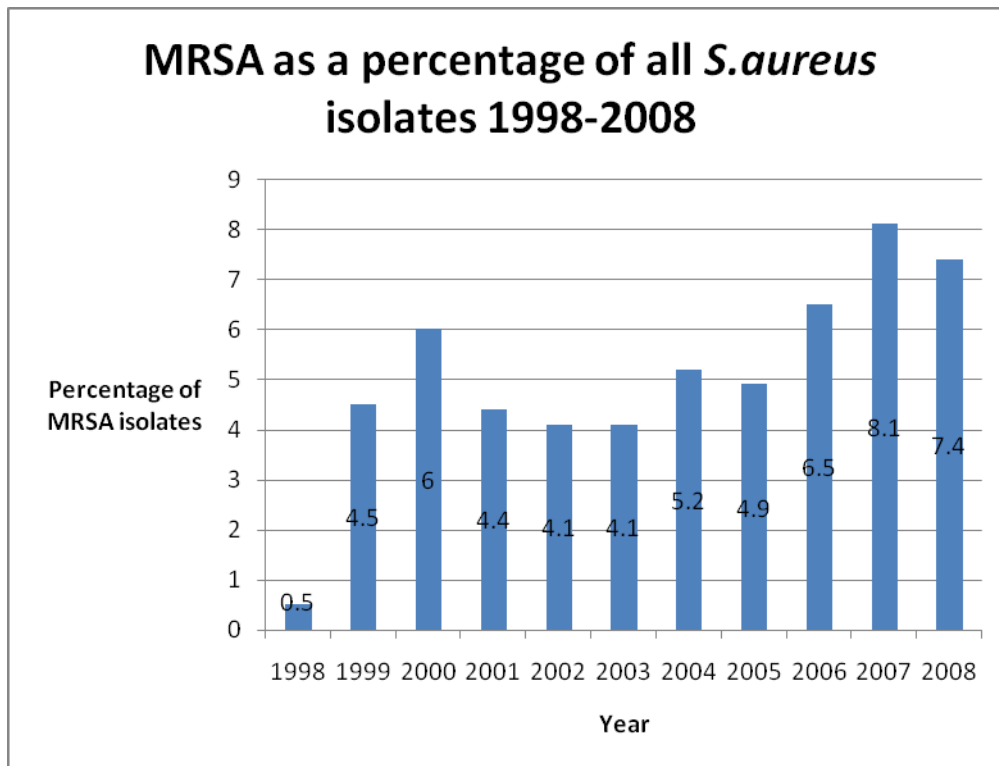
Organism	Year	No.	Amp	Aug	Tim	Ceph	Cix	Ceftazi dime	Cipro	Bactr	Trimeth oprim	Gent	Tob	Amik	Mero
<i>E. coli</i>	1998	888	42	81		56	99		99	N/A	79	99	99	99	N/A
	2003	722	32	83		60	99		99	81		98	98	99	N/A
	2008	757	36	79		46	97		98	75		96	96	96	100
<i>Klebsiella spp.</i>	1998	142		90	87	77	96	97	98	N/A	89	98	96	99	N/A
	2003	126		91	92	82	97	98	100	93		94	94	100	N/A
	2008	137		91	77	81	93	93	99	89		96	96	98	77
<i>Pseudomonas aeruginosa</i>	1998	243			89			77	83			55	69	64	N/A
	2003	242			81			75	73			60	79	68	N/A
	2008	232			88			94	93			85	94	88	97
<i>Enterobacter spp.</i>	1998	50							100	N/A	88	90	88	98	N/A
	2003	59							100	90		92	92	94	N/A
	2008	99							97	72		79	86	98	98
<i>Proteus mirabilis</i>	1998	137	78				99	100	99	N/A		96	97	100	N/A
	2003	74	77				99	97	97	69	81	96	96	98	N/A
	2008	63	79				99	99	99	87	80	97	97	86	100
<i>Acinetobacter spp.</i>	1998	16						88	94	N/A	40	81	88	88	N/A
	2003	24						96	96	100 (4/4)	83	96	96	96	N/A
	2008	24						100	96	100	N/A	96	100	100	100
<i>Serratia marcescens</i>	1998	10							100			80	80	100	N/A
	2003	30							96			89	85	96	N/A
	2008	29							100			90	93	100	100

■ >10% increase in percentage of organisms susceptible ■ > 10% decrease in percentage of organisms susceptible

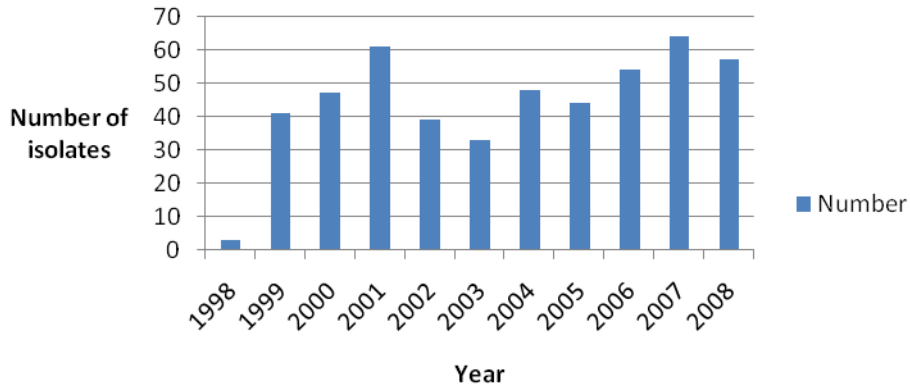
S. aureus isolates: susceptibility pattern 1998-2008

	Number of MRSA isolates	Total number of <i>S. aureus</i> isolates	MRSA as a % of total <i>S. aureus</i> isolates	Non- multi-resistant MRSA* as a percentage of MRSA isolates
1998	3	634	0.5%	33%
1999	41	911	4.5%	30%
2000	47	781	6.0%	33%
2001	61	1377	4.4%	31%
2002	39	954	4.1%	31%
2003	33	806	4.1%	33%
2004	48	919	5.2%	63%
2005	44	907	4.9%	57%
2006	54	830	6.5%	63%
2007	64	788	8.1%	56%
2008	57	766	7.4%	54%

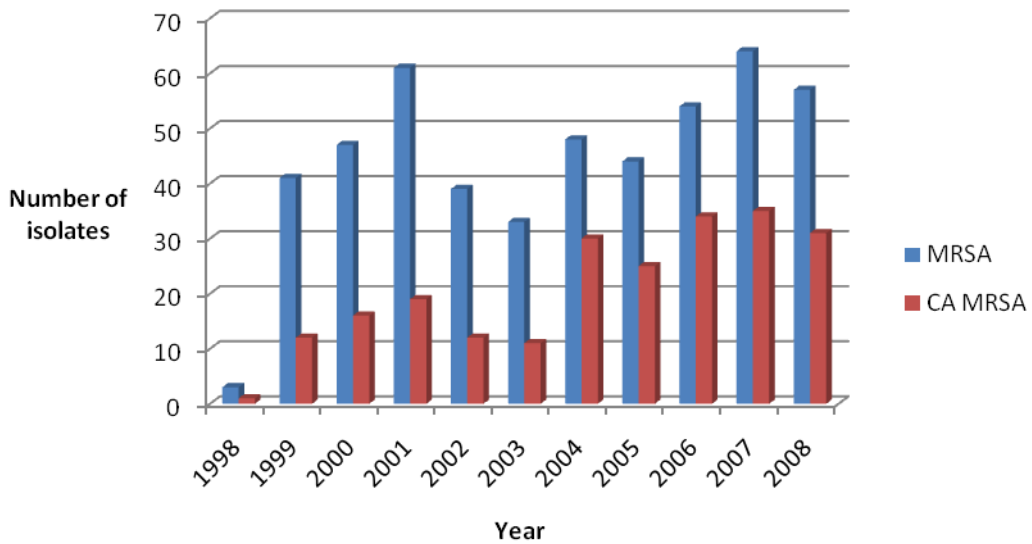
* defined as erythromycin sensitive



Number of MRSA isolates by year 1998-2008



Number of MRSA isolates by year 1998-2008



Vancomycin resistant enterococcus (VRE): number of isolates per year 1998-2008

	VRE	Total	% of total
1998	0	225	0
1999	1 (vanc I)	200	0.5
2000	1	187	0.5
2001	0	177	0
2002	1	136	0.7
2003	0	156	0
2004	0	126	0
2005	1 (vanc I)	181	0.6
2006	0	189	0
2007	2	184	1.1
2008	12	208	5.8

