

## CDPH ASP Toolkit 2015

### Example 5.2 University of California San Francisco Medical Center Adult and Pediatric Antibioqram 2013 (1 of 8)

#### UCSF ADULT INPATIENT SUSCEPTIBILITY DATA 2013

N/A-testing NOT APPLICABLE to organism. CZOL-cefazolin, CTRX-ceftriaxone, CTAZ-ceftazidime, CFPM-cefepime, GEN-gentamicin, TOB-tobramycin, T/S-trimethoprim/sulfamethoxazole, CIP-ciprofloxacin, MER-meropenem, P/T-piperacillin-tazobactam, PCN-penicillin, NAF-nafcillin, ERY-erythromycin, CLIN-clindamycin, DOX-doxycycline, VANC-vancomycin, AMP-ampicillin  
Total isolates include Floor Isolates and ICU Isolates from UCSF and Mt. Zion Hospitals (Does not include Outpatient)

#### Gram-negative Isolates (% Strains Susceptible, tested from all sites) 2013 data represents top row

Organism	Total Isolates	CZOL	CTRX	CTAZ	CFPM	GEN	TOB	T/S	CIP	P/T	MER
Acinetobacter baumannii 2013	15	N/A	47	80	87	80	87	73	73	67	87
2012	16	N/A	38	63	75	63	69	63	63	63	81
2011	12	N/A	42	50	50	50	83	50	50	42	58
Citrobacter freundii 2013	37	N/A	57	65	97	97	86	70	86	76	100
2012	24	5	75	79	96	88	79	75	75	83	100
2011	37	6	81	81	100	89	86	65	81	89	100
Enterobacter aerogenes 2013	43	N/A	63	63	100	100	100	95	95	63	98
2012	40	N/A	70	73	98	95	98	90	95	73	100
2011	27	N/A	74	74	100	96	96	89	96	81	100
Enterobacter cloacae 2013	71	N/A	66	69	99	97	92	75	86	77	100
2012	65	N/A	71	74	100	89	91	77	89	86	100
2011	70	N/A	66	70	96	93	93	79	87	79	100
Escherichia coli* 2013	969	60	85	91	95	86	86	65	69	97	100
2012	810	60	85	90	95	84	83	65	67	96	100
2011	592	73	88	92	96	87	85	65	68	96	100
Klebsiella oxytoca 2013	44	25	93	100	100	98	100	93	98	91	100
2012	44	36	91	95	100	98	95	86	98	95	100
2011	31	48	94	97	100	97	97	90	100	90	100
Klebsiella pneumoniae 2013	263	84	89	92	96	92	91	84	87	95	100
2012	227	78	89	91	96	95	92	77	90	93	100
2011	169	86	94	95	99	95	93	78	90	92	100
Proteus mirabilis 2013	122	17	99	100	100	91	93	81	68	100	100
2012	106	19	97	97	100	90	92	70	80	100	99
2011	60	45	95	98	100	90	94	76	77	100	100
Pseudomonas aeruginosa** 2013 ICU	88	N/A	N/A	79	83	N/A	96	N/A	81	75	71
2012 ICU	49	N/A	N/A	76	73	N/A	94	N/A	67	71	84
2011 ICU	60	N/A	N/A	87	85	N/A	90	N/A	68	93	78
2013 Non-ICU	187	N/A	N/A	85	89	N/A	91	N/A	68	82	85
2012 Non-ICU	137	N/A	N/A	86	88	N/A	96	N/A	77	85	90
2011 Non-ICU	128	N/A	N/A	90	90	N/A	95	N/A	75	91	90
Serratia marcescens 2013	44	N/A	95	100	100	98	100	98	95	100	100
2012	24	N/A	96	100	100	96	92	100	96	100	100
2011	37	N/A	97	100	100	100	95	97	97	100	100

\*\* Pseudomonas aeruginosa isolates do not include isolates from cystic fibrosis patients; \*Zosyn S ≤64; <sup>b</sup>Zosyn S ≤16; <sup>c</sup>Meropenem S ≤4; <sup>d</sup>Meropenem S ≤2

◆ **Escherichia coli**

Outpatient TMP/SMX susceptibility is 72% (66, 69, 68%). Outpatient ciprofloxacin susceptibility is 81% (74, 79, 78%), Nitrofurantoin susceptibility is 98% (100, 97, 97%) and should only be used for uncomplicated UTIs in patients with CrCl >60 ml/min. Outpatient ceftazolin susceptibility is 73% (70, 80, 92%).

◆ **Haemophilus influenzae**

National incidence of β-lactamase production is 37% (2010)

◆ **Stenotrophomonas maltophilia**

Routine antimicrobial susceptibility testing is performed on sterile sites. TMP/SMX is the most active agent versus this organism. Contact ID or ID pharmacy for alternatives.

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## CDPH ASP Toolkit 2015

### Example 5.2 University of California San Francisco Medical Center Adult and Pediatric Antibigrams 2013 (2 of 8 continued)

#### All Gram-negatives Antibigram Adults

	CTX	ERTA	CTAZ	CPIM	CIP	PIPTAZ	MER
All Patients	60% (83%)*	70% (97%)*	85%	93%	80%	88%	94%
ICU	52% (80%)*	63% (97%)*	82%	92%	86%	84%	89%
Floor	63% (84%)*	73% (98%)*	85%	94%	79%	90%	96%
	CTX + CIP	MER+ TOB	PIPTAZ+ TOB	CPIM+ TOB	MER+ CIP	PIPTAZ+ CIP	CPIM+CI P
All Patients	60→87%	94→99%	88→97%	93→97%	94→97%	88→94%	93→95%
ICU	21→89%	89→99%	84→95%	92→97%	89→95%	84→93%	92→95%
Floor	32→85%	63→99%	90→98%	94→98%	96→97%	90→95%	96→98%

\*excluding *Pseudomonas* & *Acinetobacter*

#### *Pseudomonas* Combination Antibigram Adults

	MER+TOB	PIP+TOB	CPIM+TOB	MER+CIP	PIP+CIP	CPIM+CIP
All Patients	80→97%	80→96%	87 → 95%	80→90%	80 → 89%	87 → 93%
ICU	71→98%	75→97%	83 → 97%	71→89%	75 → 88%	83 → 93%
Floor	85→95%	82→94%	89→94%	85→92%	82→88%	89 → 92%

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## CDPH ASP Toolkit 2015

### Example 5.2 University of California San Francisco Medical Center Adult and Pediatric Antibigrams 2013 (3 of 8 continued)

#### UCSF ADULT INPATIENT SUSCEPTIBILITY DATA 2013

N/A-testing NOT APPLICABLE to organism. PIP-piperacillin, CZOL-cefazolin, CTRX-ceftriaxone, CTAZ-ceftazidime, CFPM-cefepime, GEN-gentamicin, TOB-tobramycin, T/S-trimethoprim/sulfamethoxazole, CIP-ciprofloxacin, MER-meropenem, P/T-piperacillin-tazobactam, PCN-penicillin, NAF-nafcillin, ERY-erythromycin, CLIN-clindamycin, DOX-doxycycline, VANC-vancomycin, AMP-ampicillin  
 Total isolates include Floor Isolates and ICU Isolates from UCSF and Mt. Zion Hospitals (Does not include Outpatient)

#### Gram-positive Isolates (% Strains Susceptible, tested from all sites) 2013 data represents top row

Organism	Total Isolates	PCN	NAF	ERY	CLIN	CIP	DOX	T/S	VANC	
Staphylococcus aureus*	2013	596	0	58	33	<b>65</b>	55	92	93	99
	2012	651	0	57	42	<b>63</b>	53	93	95	99
	2011	483	5	61	44	70	60	95	94	100
MRSA	2013	249	N/A	N/A	7	<b>50</b>	<b>21</b>	<b>93</b>	93	99
	2012	280	N/A	N/A	10	<b>45</b>	<b>17</b>	<b>88</b>	94	98
	2011	191	N/A	N/A	10	53	48	95	94	100
MSSA	2013	347	0	100	51	<b>76</b>	<b>80</b>	91	93	100
	2012	371	0	100	66	<b>77</b>	<b>80</b>	96	95	100
	2011	293		100	66	80	48	95	95	100
Staphylococcus epidermidis	2013	155	0	<b>43</b>	<b>13</b>	71	46	88	<b>57</b>	100
	2012	212	0	<b>35</b>	<b>33</b>	69	47	82	<b>48</b>	100
	2011	251	6	43	41	69	48	84	56	100
Streptococcus pneumoniae†	2013	72	See below	N/A	<b>64</b>	<b>68</b>	N/A	59	<b>55</b>	100
	2012	56	See below	N/A	55	<b>74</b>	N/A	73	<b>38</b>	100
	Parnassus 2011	23	See below	N/A	61	83	N/A	74	70	100
Mount Zion 2011	3	See below	N/A	33	33	N/A	33	67	100	

† Rates prior to 2012 do not include Mt. Zion strains

◆ **\*Staphylococcus aureus**

Outpatient Nafcillin susceptibility is 76% (Previously 76, 72, 70, 69%). Nafcillin resistance predicts cephalosporin resistance.

#### Adult Inpatient Vancomycin MIC Distribution for *S. aureus*

Vancomycin MIC (All <i>S. aureus</i> )	2012		2013
	0.5	1.86% (12/645)	2.7% (16/588)
1	92% (594/645)	91.2% (536/588)	
2	5.74% (37/645)	5.6% (33/588)	
4	0.31% (2/645)	0.34% (2/588)	
Vancomycin MIC (MRSA only)			
0.5	0.72% (2/276)	1.2% (3/248)	
1	92% (255/276)	88.7% (220/248)	
2	6.2% (17/276)	9.3% (23/248)	
4	0.72% (2/276)	0.8% (2/249)	

#### Adult Outpatient Susceptibilities for *S. aureus*

Outpatient 2013	Total Isolates	ERY	CLIN	CIP	DOX	T/S	VANC
<i>Staphylococcus aureus</i>	669	52	72	71	92	96	99
MRSA	(24%) 163	7	51	23	89	94	98.1
MSSA	506	61	79	86	92	96	99.6
Outpatient 2012	Total Isolates	ERY	CLIN	CIP	DOX	T/S	VANC
<i>Staphylococcus aureus</i>	630	47	68	64	91	94	
MRSA	178	10	57	19	90	93	
MSSA	452	62	73	82	91	95	

◆ **Enterococcus species**

*Enterococcus faecalis* species are 100% AMP susceptible. *Enterococcus faecium* can be multi-drug resistant. Check vancomycin susceptibilities for all isolates from sterile sites. The addition of gentamicin (1 mg/kg Q8h) is required for bactericidal activity in serious systemic enterococcal infections. Of 100 (99, 88, 89, 88) enterococcal bacteremias in 2013 (2012, 2011, 2010), 57 (62, 66, 51) were due to

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### Example 5.2 University of California San Francisco Medical Center Adult and Pediatric Antibigrams 2013 (4 of 8 continued)

*Enterococcus faecium*. 81% (82, 90, 89, 85%) of the *Enterococcus faecium* were vancomycin resistant. Of the 48 (44, 57, 59, 43) VRE blood isolates in 2013, 5 were linezolid resistant.

◆ ***Streptococcus pneumoniae***

Across all isolates, 65% (47/72 isolates) were PCN susceptible, 71/72 (99%) levofloxacin susceptible, and 46/72 (64%) erythromycin susceptible. Among PCN-nonsusceptible isolates, 13/17 (76%) were ceftriaxone susceptible. Among blood and CSF isolates, 71% were susceptible to PCN, 93% ceftriaxone susceptible, and 100% vancomycin susceptible.

**NOTE:** For the treatment of meningitis, pending susceptibilities, VANC empirically should be added to the regimen since failures (due to highly resistant isolates) have been reported with ALL third generation cephalosporins.

Inpatient Adult Enterococcal Blood Isolates

		Total Isolates	Amp	Dapto*	Linez	Q/D	Tetr	Vanc
Enterococcus faecalis	2013	38	100%	100%	100%	0%	10%	100%
	2012	42	100%	100%	100	4%	20%	100%
	2011	26	100%	100%	100	8%	23%	96%
Enterococcus faecium	2013	57	13%	90%*	91%	100%	30%	19%
	2012	51	2%	94%	92	94%	31%	18
	2011	62	0%	89%	100	94%	11%	10
Other Enterococcal species	2013	5	80%	100%	100%		40%	60%

\* Dapto MIC distribution: All isolates: <=0.5: 14% 1: 26% 2: 37% 4: 19% >4: 6% VRE: <=0.5: 4% 1: 14% 2: 48% 4: 24% >4: 10%

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## CDPH ASP Toolkit 2015

### Example 5.2 University of California San Francisco Medical Center Adult and Pediatric Antibigrams 2013 (5 of 8 continued)

#### UCSF PEDIATRIC SUSCEPTIBILITY DATA 2013

N/A-testing NOT APPLICABLE to organism. PIP-piperacillin, CZOL-cefazolin, CTRX-ceftriaxone, CTAZ-ceftazidime, CFPM-cefepime, GEN-gentamicin, TOB-tobramycin, T/S-trimethoprim/sulfamethoxazole, CIP-ciprofloxacin, MER-meropenem, P/T-piperacillin-tazobactam, PCN-penicillin, NAF-nafcillin, ERY-erythromycin, CLIN-clindamycin, DOX-doxycycline, VANC-vancomycin, AMP-ampicillin  
Total isolates include Floor Isolates and ICU Isolates from UCSF and Mt. Zion Hospitals (Does not include Outpatient)

**Gram-negative isolates (% strains susceptible, tested from all sites) 2013 data represents top row**

Organism	Total isolates	CZOL	CTRX	CTAZ	CFPM	GEN	TOB	T/S	CIP	P/T	MER
Acinetobacter baumannii	2013	0	0	0	0	0	0	0	0	0	0
	2012	3	N/A	0	100	100	100	100	100	100	100
	2011	4	N/A	50	100	75	100	100	100	75	100
Citrobacter freundii	2013	3	0	↓33	↓33	100	100	□100	□100	100	↓33
	2012	5	N/A	80	80	100	80	60	60	100	100
	2011	5	0	40	40	100	80	80	80	80	60
Enterobacter aerogenes	2013	8	0	63	63	100	100	100	88	100	63
	2012	4	N/A	50	50	100	100	100	100	50	100
	2011	5	0	60	40	80	100	100	80	80	60
Enterobacter cloacae	2013	17	0	53	53	100	94	94	88	100	□82
	2012	22	N/A	32	41	100	86	82	73	95	64
	2011	31	0	56	55	100	91	91	78	91	72
Escherichia coli*	2013	103	70	93	96	97	94	94	65	90	97
	2012	83	70	95	98	98	94	93	71	93	95
	2011	68	69	90	96	97	93	91	71	85	99
Klebsiella oxytoca	2013	10	30	100	100	100	100	100	100	100	80
	2012	17	□24	88	100	100	100	100	82	94	88
	2011	15	67	100	100	100	100	93	100	100	100
Klebsiella pneumoniae	2013	35	60	91	91	97	97	91	□91	94	94
	2012	30	73	90	90	100	87	83	□67	90	100
	2011	19	84	95	100	100	89	95	97	95	95
Proteus mirabilis	2013	9	44	100	100	100	100	100	↓89	100	100
	2012	4	↓0	100	100	100	100	100	□100	100	100
	2011	6	50	100	100	100	100	100	50	100	100
Pseudomonas aeruginosa**	2013	40	N/A	N/A	88	96	100	100	N/A	92	88
	2012	20	N/A	N/A	95	95	100	100	N/A	100	100
	Peds ICU 2013	19	N/A	N/A	79	92	100	100	N/A	92	82
	Peds ICU 2012	9	N/A	N/A	100	100	100	100	N/A	100	89
	Non-ICU 2013	24	N/A	N/A	96	100	0	100	N/A	93	93
	Non-ICU 2012	14	N/A	N/A	93	93	100	100	N/A	93	100
Serratia marcescens	2013	11	N/A	↓73	100	100	100	100	100	100	91
	2012	13	N/A	100	100	100	100	100	92	100	100
	2011	8	N/A	88	100	100	100	100	100	100	88

\*\* Pseudomonas aeruginosa isolates do not include isolates from cystic fibrosis patients; <sup>a</sup>Zosyn S ≤64; <sup>b</sup>Zosyn S ≤16; <sup>c</sup>Meropenem S ≤4; <sup>d</sup>Meropenem S ≤2

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## CDPH ASP Toolkit 2015

### Example 5.2 University of California San Francisco Medical Center Adult and Pediatric Antibigrams 2013 (6 of 8 continued)

#### *Pseudomonas* Combination Antibigram Peds

	Mero+ Tobra	Piptazo+Tobra	Cefepime+Tobra	Mero+Cipro	Piptazo+Cipro	Cefepime+Cipro
All Patients	88→100%	88→100%	96 → 100%	88→94%	88 →94%	96 → 98%

#### All Gram-negatives Antibigram PEDS

	CTX	ERTA	CTAZ	CPIM	CIP	PIPTAZ	MER
All Patients	51% (75%)*	67% (98%)*	81%	97%	93%	85%	96%
	CTX + CIP	Mero+ Tobra	Piptazo+ Tobra	Cefepime+ Tobra	Mero+ Cipro	Piptazo+ Cipro	Cefepime+ Cipro
All Patients	51→95%	96→100%	85→99%	97→99%	94→98%	85→98%	96→98%

- ◆ *Escherichia coli*\*  
Outpatient ceftazolin/cephalexin susceptibility is 79% in 2013 (78, 85, 92%). Outpatient TMP/SMX susceptibility is 74% (69, 69, 70%). Outpatient ciprofloxacin susceptibility is 97% (93, 95, 91%). Nitrofurantoin susceptibility is 100% (100, 98, 99%) and should only be used for uncomplicated UTIs in patients with CrCl >60 mL/min.
- ◆ *Haemophilus influenzae*  
National incidence of β-lactamase production is 37% (2010)
- ◆ *Stenotrophomonas maltophilia*  
Routine antimicrobial susceptibility testing is performed on sterile sites and cystic fibrosis isolates. TMP/SMX is the most active agent versus this organism.

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## CDPH ASP Toolkit 2015

### Example 5.2 University of California San Francisco Medical Center Adult and Pediatric Antibiograms 2013 (7 of 8 continued)

#### UCSF PEDIATRIC SUSCEPTIBILITY DATA 2013

N/A-testing NOT APPLICABLE to organism. PIP-piperacillin, CZOL-celazolin, CTRX-ceftriaxone, CTAZ-ceftazidime, CFPM-cefepime, GEN-gentamicin, TOB-tobramycin, T/S-trimethoprim/sulfamethoxazole, CIP-ciprofloxacin, MER-meropenem, P/T-piperacillin-tazobactam, PCN-penicillin, NAF-nafcillin, ERY-erythromycin, CLIN-clindamycin, DOX-doxycycline, VANC-vancomycin, AMP-ampicillin  
 Total isolates include Floor Isolates and ICU Isolates from UCSF and Mt. Zion Hospitals (Does not include Outpatient)

#### Gram-positive isolates (% strains susceptible, tested from all sites) 2013 data represents top row

Organism	Total Isolates	PCN	NAF	ERY	CLIN	CIP	DOX	T/S	VANC	
Staphylococcus aureus	2013	93	0	<b>63</b>	<b>50</b>	<b>85</b>	<b>74</b>	94	99	100
	2012	127	0	<b>69</b>	<b>54</b>	<b>71</b>	<b>75</b>	91	92	99
	2011	121	5	79	59	78	83	94	95	100
MRSA	2013	34	N/A	N/A	<b>23</b>	<b>82</b>	<b>41</b>	100	<b>97</b>	100
	2012	39	N/A	N/A	<b>5</b>	<b>38</b>	<b>38</b>	97	87	100
	2011	26	N/A	N/A	15	64	73	100	92	100
MSSA	2013	59	N/A	100	<b>65</b>	87	<b>95</b>	91	100	100
	2012	88	0	100	75	85	<b>91</b>	88	94	99
	2011	95			71	82	73	93	96	100
Staphylococcus epidermidis	2013	25	0	20	<b>4</b>	<b>60</b>	<b>56</b>	88	<b>48</b>	100
	2012	44	0	30	25	<b>70</b>	<b>65</b>	86	<b>45</b>	100
	2011	46	2	26	30	57	74	85	65	100
Streptococcus pneumoniae†	2013	<b>25</b>	See below	N/A	<b>68</b>	<b>70</b>	N/A	<b>64</b>	<b>50</b>	100
	2012	<b>32</b>	See below	N/A	<b>75</b>	<b>60</b>	N/A	<b>76</b>	<b>29</b>	100
	2011	6	See below	N/A	50	83	N/A	67	83	100

† Rates prior to 2012 do not include Mt. Zion strains

- \*Staphylococcus aureus Outpatient Nafcillin susceptibility 79% (79, 74, 77, 76%) (Nafcillin resistance predicts cephalosporin resistance).

#### Pediatric Inpatient Vancomycin MIC Distribution for *S. aureus*

Vancomycin MIC (All <i>S. aureus</i> )	2012	2013
0.5	0% (0/126)	1.1% (1/91)
1	93% (117/126)	94.5% (86/91)
2	7% (9/126)	4.4% (4/91)
Vancomycin MIC (MRSA only)		
0.5	0% (0/39)	2.9% (1/34)
1	85% (33/39)	91.2% (31/34)
2	15% (6/39)	5.8% (2/34)

#### Pediatric Outpatient Susceptibilities for *S. aureus*

Outpatient 2013	Total Isolates	ERY	CLIN	CIP	DOX	T/S	VANC
<i>Staphylococcus aureus</i>	226	55	86	83	92	95	100
MRSA (21%)	47	18	74	50	91	87	100
MSSA	179	65	89	91	92	97	100
Outpatient 2012	Total Isolates	ERY	CLIN	CIP	DOX	T/S	
<i>Staphylococcus aureus</i>	148	57	86	82	96	99	
MRSA	38	11	87	53	90	100	
MSSA	110	73	86	92	98	99	

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## CDPH ASP Toolkit 2015

### Example 5.2 University of California San Francisco Medical Center Adult and Pediatric Antibiograms 2013 (8 of 8 continued)

◆ Enterococcus spp. *Enterococcus faecalis* species are 100% AMP susceptible. *Enterococcus faecium* can be multi-drug resistant. Check vancomycin susceptibilities for all isolates from sterile sites. The addition of gentamicin (1 mg/kg Q8h) is required for bactericidal activity in serious systemic enterococcal infections. Of 13 (18, 23, 23, 31) enterococcal bacteremias in 2013, 1 was vancomycin-resistant.

◆ <sup>t</sup>Streptococcus pneumoniae Across all isolates, 64% (16/25 isolates) were PCN susceptible, 100% levofloxacin susceptible, and 68% erythromycin susceptible. Among PCN-nonsusceptible isolates, 1/6 (16%) were ceftriaxone susceptible, and 100% were vancomycin susceptible. There were no isolates from blood or CSF.

**NOTE: For the treatment of meningitis, pending susceptibilities VANC empirically should be added to the regimen since failures (due to highly resistant isolates) have been reported with ALL third generation cephalosporins.**

Inpatient Pediatric Enterococcal Blood Isolates

		Total Isolates	Amp	Dapto	Linez	Q/D	Tetr	Vanc
Enterococcus faecalis	2013	10	100	100	100	0	27	100
	2012	15	100	100	100	0	0	100
	2011	15	100	100	100	0	13	100
Enterococcus faecium	2013	1	0	100	100	N/T	0	100
	2012	3	0	100	100	100	0	100
	2011	8	0	75	100	100	38	38
Other Enterococcal species	2013	2	100	100	100	100	100	50

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