

Example 9.1 Sutter Eden Medical Center Antimicrobial Formulary Review (1 of 3)

Antimicrobial formulary that is reviewed annually with changes made based on local antibiogram

The annual antibiogram provides essential information that should be used to guide empiric antimicrobial therapy pending final culture results. Presenting the antibiogram without an analysis of the results will limit the usefulness and is unlikely to be referred to by very many practitioners. The main points in analysis should be for sensitivity profiles of organisms of importance e.g. MRSA, ESBL, CRE, and VRE.

A copy of one of our reports is provided as an example of the analysis with recommendations at the end.

1. Data was compared to the last 6 years
2. Staph aureus
 - a. Incidence of MRSA as seen nationally is dropping, now down and stable for 2 years at 43%.
 - b. Clindamycin sensitivity has remained stable the last 2 years at about 75%.
 - i. MRSA is resistant to clindamycin 1/3 of the time
 - ii. MSSA still retains ~90% sensitivity
 - c. Levofloxacin sensitivity has increased again, now up to 62% from about 50% in 2011.
 - i. Most of the resistance is attributable to MRSA (2/3 resistant)
 - ii. MSSA sensitive is up to 87%
 - d. Trimethoprim-sulfa sensitivity remains excellent at 98%.
 - e. No Vanco MIC 2 or greater in 2013 probably related to using Vitek and not Microscan system.
 - f. Tetracycline sensitivity remains steady about 94%.
3. Enterococcus
 - a. Enterococcus faecalis
 - i. Levofloxacin resistance is probably stable. Data is difficult to interpret.
 - ii. Ampicillin sensitivity remains excellent at >95%.
 1. Different mechanism from VRE
 - iii. Tetracycline only ~10% sensitivity.
 - iv. Vancomycin >95% sensitive and stable.
 - b. Enterococcus faecium
 - i. VRE is the predominant isolate in this species.
 - ii. Tetracycline sensitivity is ~ 20%.
 1. May still be useful for urine if sensitive.
 - iii. Ampicillin sensitivity remains low at ~10%
4. Streptococcus pneumonia

For more info about this example contact Jeffrey Silvers, MD at Silverj@sutterhealth.org

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- a. Penicillin sensitivity has gradually been increasing from low of 66% 2007 to 100% 2011.
 - i. Number of isolates has decreased because of increased usage of vaccination
- 5. Acinetobacter
 - a. Huge issue with resistance
 - b. Although still small numbers: 32 isolates 2013 compared to 15 isolates 2012.
 - i. Ceftazidime sensitivity has progressively decreased from 1997 at 100% to 18% in 2013.
 - ii. Ciprofloxacin sensitivity has continued to spiral down. Decreased from 100% in 1997 to 37% in 2011 and now down to 25% (3/4 resistant now)
 - iii. Imipenem has decreased from sensitivity of 100% as recently as 2009 now stable last few years at 68% (1/3 resistant).
 - iv. Piperacillin-tazobactam (Zosyn) has decreased from 100% just for piperacillin alone in 1997 to 25% 2011 to 15% (6/7 resistant) in 2013. Again small numbers to compare 2011 and 2013.
- 6. E coli
 - a. ESBL stable about 8%
 - b. Cefazolin sensitivity down to about 77%
 - c. Levofloxacin stable about 75%
 - d. Cefoxitin almost 90% sensitive.
 - e. Zosyn and imipenem >95%
- 7. Klebsiella
 - a. Cephalosporin sensitivity historically frequently lower
 - b. ESBL more common in klebsiella
 - i. About 15%
 - ii. Ceftriaxone 100% down to 85% secondary to ESBL
- 8. Proteus mirabilis
 - a. Frequently acts like ESBL but labs can't report as such
 - i. ~10% resistant to cephalosporins
 - b. Trimethoprim-sulfa sensitivity took large drop to ~60%. Lowest in 20 years, and still with significant # isolates (182). Has been gradually decreasing from 90% over time. Was 70% in 2010.
- 9. Pseudomonas
 - a. Zosyn, ceftazidime, cefepime and Gentamycin sensitivity stable ~85%
 - b. Ciprofloxacin and levofloxacin resistance about 1/3 of the time

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2013 ANTIBIOGRAM TAKE-HOME MESSAGES

1. MRSA, although still prevalent is continuing the decline in incidence, as seen nationally and for us over the last few years. Nothing to suggest VISA in our data.
2. Clindamycin should not be assumed to treat MRSA unless sensitivity returns.
3. *E. faecalis*, is still the most common enterococcus isolated but with the new system, speciation is not performed.
4. *S. pneumonia* isolates continue in small number- low numbers because of efficacy of vaccination
 - a. continue to order appropriate immunizations
5. *Acinetobacter* is one of the scariest GNR organisms in 2013-2014. Our isolates have doubled and they tend to be very resistant. Recommend ID consult if treatment contemplated as inappropriate choices and doses can encourage resistance.
6. *E. coli*, *Klebsiella*, and *Proteus* still sensitive to cefoxitin. Should continue to work as surgical prophylaxis for GI surgery.
7. *Pseudomonas*, don't trust fluoroquinilones until sensitivity returns.

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