Example 4.3 Eden Medical Center Sutter Health Antibiogram Analysis (page 1 of 3)

Eden Medical Center Sutter Health 2015 Antibiogram Analysis – comparison with 2014

1. Staph aureus
   a. Total Staph aureus isolated increased by 22%
   b. MRSA
      i. 188 isolates (37% of all S. aureus isolates)
         1. Down from 40% last year
         2. Overall still continuing trend down since peak 2006-7 (63%)
            also seen nationally
   c. MSSA
      i. 327 isolates (63% of all S. aureus isolates)
   d. Clindamycin sensitivity is has two patterns
      i. Most of the resistance is in MRSA (increase from ~40% to almost
         50% resistant from 2014-2015
      ii. MSSA still usually Clindamycin sensitive ~85%
   e. Levofloxacin sensitivity has two patterns
      i. MRSA only 30% sensitive to levofloxacin
      ii. MSSA stable about 80% sensitive
   f. Trimethoprim-sulfa sensitivity remains excellent at 98%
   g. Vancomycin 100% sensitive. No VISA or VRSA seen
   h. Tetracycline ~96% sensitive (both MRSA and MSSA)

2. Enterococcus
   a. Total number of isolates increased by >25% (245 to 335) but total E.
      faecium which is more resistant is stable.
   b. 30 VRE isolates in 2015. (about 90% of E. faecium are VRE)
   c. E faecalis plus NOS
      i. Increasing resistance to levofloxacin from 25% to 33% in one year
      ii. Almost all ampicillin sensitive
   d. About 80% of all enterococcus are resistant to tetracycline

3. Streptococcus pneumoniae
   a. Only 6 isolates from sterile sites that are penicillin screen resistant
   b. Number of isolates from sterile sites continues to progressively decrease
      – probably due to implementation of immunizations

4. E. coli, Klebsiella, Proteus increase ~30%
   a. E. coli 2249 isolates
   b. Klebsiella 436 isolates
   c. Proteus 300 isolates
   d. ESBL very stable at 8-10%
   e. Cefazolin remains unreliable at ~ 50% sensitivity
   f. Cefoxitin and ceftriaxone sensitivity remain very good at 87-96%
   g. Levofloxacin stable but misses 1 out of 4 E. coli and 1 out of 3 Proteus.

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

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Example 4.3 Eden Medical Center Sutter Health Antibiogram Analysis (page 2 of 3)

Eden Medical Center Sutter Health 2015 Antibiogram Analysis – comparison with 2014

5. Pseudomonas
   a. 218 isolates – about same number as last year.
   b. ~85-90% sensitive to Zosyn, imipenem, ceftazidime, cefepime, and gentamicin (stable)
   c. ~ 1/3 resistant to fluoroquinolones (stable)

6. Acinetobacter and Stenotrophomonas without enough isolates to draw conclusions

7. Citrobacter and Enterobacter antibiogram available as needed, no special trends/

TAKE HOME POINTS

- Staph aureus
  - MRSA incidence is gradually decreasing. (down to ~37%)
  - Do not use empiric clindamycin waiting for sensitivity results. Would usually cover MSSA but almost 50% of the MRSA are resistant.
  - Do not use empiric levofloxacin waiting for sensitivity results. Would usually cover MSSA but 70% MRSA would be resistant.
  - Vancomycin, trimethoprim/sulfa, tetracycline sensitivities remain excellent for MRSA

- Enterococcus
  - E. faecalis almost always ampicillin sensitive
  - E. faecium usually VRE
  - Do not use empiric Levofloxacin for enterococcus. Coverage unpredictable and increasing resistance seen in last year

- E. coli, Klebsiella, and Proteus
  - ESBL incidence little lower at 8-10%
  - Cefotixin or ceftriaxone/flagyl covers E. coli, Klebsiella, and Proteus very well and could be expected to work for appendicitis/ diverticulitis.
  - Very sensitive to Ceftriaxone and Cefotixin (87-96%).
  - Zosyn (89-100%) about same but has extra coverage for Pseudomonas, if needed.
  - Cefazolin covers <50% (43-46%)
  - Do not use empiric Levofloxacin: Levofloxacin misses 25% E. coli and almost 50% of the Proteus species.

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Eden Medical Center Sutter Health 2015 Antiibiogram Analysis – comparison with 2014

- Recommend Cefoxitin or ceftriaxone/metronidazole over cefazolin/metronidazole for prophylaxis or treatment for abdominal surgery/diverticulitis, etc.
  - CRE remains a major risk concern but thus far has not been significant at our facility

- **Pseudomonas:** (218 isolates)
  - Relative to other isolates, incidence of Pseudomonas is lower year over year.
  - Zosyn, imipenem, ceftazidime, and cefepime all provide equivalent coverage.
  - Levofloxacin is inferior missing 1 out of 3 isolates.

- **No pus in the cellulitis** – Probably not MRSA. Do not need vancomycin. Use cefazolin

- **Minimize levofloxacin/ciprofloxacin usage** both inpatient and outpatient
  - Increases risk of binary toxin positive aggressive C. difficile disease
  - Unreliable coverage for Staph aureus, enterococcus, E. coli, Proteus, and Pseudomonas
  - Part of treatment for CAP going to ICU
  - Can use for de-escalation for discharge if no other oral alternatives.

- **Non critical patients from community** can receive ceftriaxone instead of very broad spectrum e.g. piperacillin/tazobactam, imipenem, ceftazidime or cefepime.

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