Antimicrobial Stewardship: Educational Strategies

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Challenges

- For seasoned clinicians, antimicrobial stewardship was never taught during their medical training
  - "This is the way I've always done it"
  - "It's worked so why should I change my approach?"
- For physicians-in-training, there is an eagerness to learn but the "See one, Do one, Teach one" model of medical training tends to perpetuate poor antimicrobial prescribing habits
- How do we change the culture?
- How do we break this cycle?

Breaking the Cycle via Education

- Two aspects to education
  - What is antimicrobial stewardship (antimicrobial resistance, consequences of antimicrobial use, and how to optimize antimicrobial use)?
  - What is an antimicrobial stewardship program and what are its goals?
- It's necessary to reinforce this education regularly and repeatedly in order to change the culture

Get the message out to stakeholders and involve them

- Brand and market your ASP
- Present at departmental meetings and medical staff/hospital committees (and do this repeatedly)
- Recruit physician champions in each department to spread the message to their peers and to identify priority areas for improving antibiotic use
  - Put them on the antimicrobial stewardship committee
  - Get their help on development of treatment guidelines

ANTIMICROBIAL STEWARDSHIP PROGRAM

starting July 2, 2012, page

77-BUGS

for inpatient antibiotic pre-approval or stewardship consults

The primary goal of the antimicrobial stewardship program (ASP) is to improve patient outcomes while reducing antimicrobial resistance, superinfection, and drug toxicity. We serve as a resource to medical staff to help guide antimicrobial therapy. More information about ASP can be found on the "Hand" icon on the Novell desktop.

Our main strategies include:

1) Prospective audits - examine and assess the appropriate use of antibiotics, optimal dosing, proper monitoring and de-escalation

2) Formulary restriction - require pre-approval from ASP or ID for select antimicrobials (see below for pre-approval list)

PROSPECTIVE AUDITS	ANTIBIOTIC PRE-APPROVAL	ASP CONSULT
In an effort to optimize antimicrobial therapy, we may contact you with suggestions of more appropriate therapy based on microbiology data, laboratory results, etc. We are here to help you!	Amikacin Aztreonam Cefepime Ertapenem Doxycycline IV Trimethoprim/Sulfamethoxazole IV Ticarcillin/Clavulanate Piperacillin/Tazobactam Any non-formulary antimicrobial Ciprofloxacin Linezolid Meropenem Rifampin	Page us at 77-BUGS (2847) for all of your focused antimicrobial questions. For more complex questions requiring family interviews and/or patient examination, please consult the ID service.

Contact Brian Lee, MD (p 6987) or Cynthia Huwe, Pharm.D. (p 5820) for questions

CHILDREN'S HOSPITAL & RESEARCH CENTER OAKLAND

Regular Didactic Lectures

- Pediatric residents: antimicrobial stewardship noon conference scheduled annually near the start of the academic year
- Pediatric ID fellows: antimicrobial stewardship lecture included in annual mini-intensive for first-year fellows
- Hospital staff/community physicians: Pediatric Grand Rounds dedicated to an antimicrobial stewardship/resistance topic scheduled annually during Get Smart About Antibiotics Week

November 16-22, 2015

GET SMART

Know When Antibiotics Work

What is Antimicrobial Stewardship?

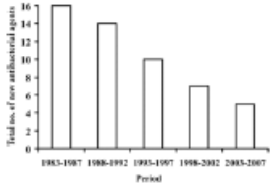
Overuse of antibiotics is on the rise. Up to 50% of antibiotic use in hospitals is either unnecessary or inappropriate.

Antimicrobial stewardship programs ensure that antibiotic therapy is optimized so that the right patient gets the right antibiotic via the right route at the right dose and for the right duration.

Why is Antimicrobial Stewardship important?

Antibiotic overuse promotes the rapid development of drug-resistant bacteria. These "superbugs" can spread from person to person and cause antibiotic-resistant infections that can ultimately lead to illness or death.

With declining antibiotic development, we need to preserve the antibiotics currently available by using them more judiciously.



Antibiotic overuse can also result in increased drug toxicity, allergic reactions, and other complications, such as *Clostridium difficile* infection.

Inappropriate antibiotic use in food animals also has a significant impact. Resistant bacteria can be transmitted to humans through the foods we eat and may contribute to antibiotic-resistant infections in humans.

How does UCSF Benioff Children's Hospital Oakland promote Antimicrobial Stewardship?

We have a BUGS team that offers the following services for our clinicians to help them optimize the care of patients:

1. Staff Education
Newsletters, noon conferences, and grand rounds addressing the optimal use of antibiotics

2. Antibiogram & Treatment Guidelines
Resources to help physicians choose the right antibiotic for the suspected/proven infection

3. Stewardship Consultations
Availability 24/7 via pager for antibiotic-related questions

4. Prospective Audits
Regular assessment of the appropriateness of antibiotic use in all inpatients

5. Drug Level Monitoring
Assistance in interpreting drug levels and adjusting dosing regimens for vancomycin and aminoglycosides using pharmacokinetic calculations

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UCSF Benioff Children's Hospital Oakland

Regular Newsletters "Tip of the Month"

- Make newsletter eye-catching
- Keep the message relevant AND concise
  - Summarize a recent journal article with a clear take home message that can inform clinical practice
  - Educate physicians about an antimicrobial process change that can enhance patient care

BUGS AND DRUGS

Antimicrobial Stewardship Program Newsletter

Page **77-BUGS** for antibiotic pre-approval, ASP consult or therapeutic drug monitoring

MAY 2014

Tip of the month:

Cephalexin alone is sufficient for nonpurulent cellulitis

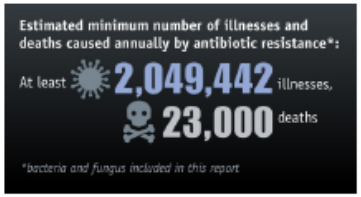
- Skin infections with purulent drainage/abscess are usually caused by *Staph aureus* (often MRSA), but the microbiology of nonpurulent cellulitis has been less clear, leading some to treat with 2 antibiotics.
- Now a double-blind, randomized-controlled trial involving children and adults has demonstrated that **cephalexin combined with trimethoprim-sulfamethoxazole is no better than cephalexin alone in patients with nonpurulent, uncomplicated cellulitis without abscess.**

Cephalexin Plus TMP/SMX vs. Cephalexin Alone for treatment of nonpurulent cellulitis	
Clinical cure rate	No significant difference (P=0.66)
Progression to abscess	No significant difference (P=1)

- These results support the Infectious Disease Society of America recommendation that cephalexin alone is reasonable for most cases of uncomplicated cellulitis (MRSA coverage is usually not necessary). In contrast, for purulent cellulitis/abscess, single drug therapy targeting *Staph aureus* (including MRSA) is appropriate.

Pallin DJ et al. *CID* 2013:56(12): 1754-62.
Chambers H. *CID* 2013;56:1763-4.

CDC Antibiotic Resistance Threats



Urgent Threats:
Clostridium difficile

Carbapenem-resistant Enterobacteriaceae
Drug-resistant *Neisseria gonorrhoeae*

Serious Threats:
Multidrug-resistant *Acinetobacter*
Drug-resistant *Campylobacter*
Drug resistant *Salmonella/Shigella*
ESBL, VRE, MRSA
Drug resistant *S. pneumoniae*
Multidrug-resistant *Pseudomonas*

Concerning Threats:
Vancomycin-resistant *Staphylococcus aureus*
Clindamycin-resistant Group B *Streptococcus*

BUGS AND DRUGS

UCSF Benioff Children's Hospital Oakland

Antimicrobial Stewardship Program Newsletter

November 2015

Page **77-BUGS** for antibiotic pre-approval, ASP consult or therapeutic drug monitoring.

Tip of the Month:

How to minimize delays in the first dose of antimicrobials among hospitalized patients

Problem:

- A delay in the first dose of an antimicrobial can lead to a delay in clinical response and recovery for the patient

What you can do:

- When placing an order for the FIRST dose of an antimicrobial for a suspected or proven infection:
  - ✓ Click "Include Now" so the first dose will be timed promptly
  - ✓ Change priority of order to "Urgent" to alert pharmacy and nursing
  - ✓ Verbally inform the bedside nurse of the urgent order

Keep in mind that NOT every antimicrobial must be ordered or given "urgently".

Examples include:

1. PO antimicrobials
2. Antimicrobial prophylaxis
3. Continuation of doses or coverage already started at an outside hospital
4. Dosing changes
5. Streamlining to a narrower regimen from a broader one

Future Directions

- Incorporate a mandatory antimicrobial stewardship rotation into pediatric ID fellowship training
- Recruit residents/fellows/attendings to lead or participate in quality improvement projects and guideline development related to antimicrobial stewardship
  - Implementation of penicillin allergy testing
  - Algorithms for use of procalcitonin