

All Aboard!

MULTIDISCIPLINARY ENGAGEMENT IN ANTIBIOTIC STEWARDSHIP

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Disclosers

I HAVE NO DISCLOSERS

Objectives

- Understand the importance of multidisciplinary engagement in antibiotic stewardship
- Know how to encourage multidisciplinary engagement
- Learn how to implement a Hospital-based PCN allergy testing program



Why is Antibiotic Stewardship Important?

- Reduces the misuse of inappropriate antibiotic prescribing
 - Wrong antibiotics
 - Wrong dose of antibiotics
 - Wrong duration
- Slows the emergence of antibiotic resistance
- Decreases adverse outcomes
- Saves money



Why is Antibiotic Stewardship Important?

- 1 in 3 antibiotic prescriptions (47 million prescriptions annually) are not necessary!
- Only half the patients who need antibiotics receive the recommended first-line antibiotics according to guidelines.
- ► Using guideline-directed antibiotics can
 - ▶ Reduce rates of C. difficile
 - Improve sepsis outcomes
 - Reduce incidence of resistance
- Average cost savings were \$732 per patient in hospitals that have a stewardship program

7 Core Elements of Antibiotic Stewardship



"You can do what I cannot do. I can do what you cannot do. Together we can do great things."

MOTHER TERESA

Importance of Multidisciplinary Engagement

- We all have our strengths and weaknesses
- We are stronger (more successful) together
- Antimicrobial stewardship has many different components which requires the expertise of many people
- Regulatory compliance
 - ▶ Joint Commission MM.09.01.01
 - CMS §482.42(b)(1)



Antibiotic Stewardship Program Team Members



Administration

- Principle member to facilitate implementation
 - Allocate resources
- ▶ Engaged O-Suite CEO, COO, CFO, CQO, CMO
 - Chief Medical Officer
 - Chief Quality Officer
- Influences
 - Financial implications (cost/benefit)
 - Regulatory (CMS, Joint Commission)
 - Patient satisfaction (HCAPS)
 - Media attention



Physicians

- Physician leaders in your organization
 - Chief of Staff
 - ► Hospital Medicine Director
 - ► Infectious disease physician
- Roles
 - ► Engages the medical staff
 - Educates stakeholders
 - ► Assists in clinical decision making
- ► Influences
 - Shared responsibility and accountability
 - Interprofessional collaboration
 - Improved patient outcomes



Pharmacists

- Appoint one pharmacist to oversee
- Roles
 - Provide utilization and cost data
 - ► Formulary
 - ► Tracking and trending outcomes
 - Education
 - Physician advisor
- Influences
 - Shared responsibility in clinical decision making
 - Regulatory and cost savings
 - Improved patient outcomes
 - Prevention of antibiotic resistance



Nursing

Nurse leader

- Nurse manager (medical and surgical)
- Roles
 - Educate and encourage nursing staff on ASP
 - Educate patients about the importance of stewardship
 - Data collection
- ► Influences
 - Patient care and satisfaction
 - ► Clinical collaboration
 - ► Frontline staff



Infection Control Officer

Roles

- Works with pharmacist to compile antibiotic resistance data to help facilitate appropriate antibiotic usage in institution/community
- Educate clinical staff
- Help in hospital policy making
- ► Influences
 - Improved outcomes
 - ▶ Sepsis. C. diff, CLABSI, CAUTI, etc.
 - Incorporating ASP into infection control strategies





Laboratory

- Microbiology director
- Roles
 - Reports antibiotic resistance data
 - Updates physicians or pharmacists when culture results are available

Influences

- Key participant in developing institutional resistance data
- Education of clinical staff
- Active role in real-time reporting improving patient outcomes



Information Technology

- IT specialist who works in EMR development
- Roles
 - Develops order sets for specific conditions
 - PNA, UTI, Sepsis
 - PCN allergy testing order set
- ► Influences
 - Important in achieving a usable ASP
 - The system can make or break the ASP

Nurse Educator

Roles

- Develops education material relating to ASP
- Disseminates education programs relating to ASP

Influences

- Regulatory
- Education material that is pertinent to caring for patients
- Must work collaboratively with other departments to develop education material



7 Core Elements of Antibiotic Stewardship

- Leadership Commitment
 - Administration, Physicians, Nursing
- Accountability
 - Physicians
- Drug Expertise
 - Pharmacists
- Action
 - All members
- ► Tracking
 - ▶ Pharmacist, IT, Lab, Infection control
- Reporting
 - Pharmacist, IT, Lab, Infection control, physician
- Education
 - Nurse educator



How to Encourage Engagement

- Pick dynamic leaders for your team
- Don't try to do everything at once
- Early adopters
- Competitions/make it fun
- Be transparent
 - Share what works and what did not
- Show value of what you are doing
 - Patient outcomes and satisfaction
 - Cost savings

Real-World Example

PENICILLIN ALLERGY TESTING

Problem: Penicillin Allergy

- Approximately 10% of patients report an allergy to PCN
- 90% of patients who report PCN allergy do not actually have a true allergy
- The incidence of anaphylaxis to PCN is 0.02% to 0.04%
- Cutaneous reactions are the most common reported reaction
- In patients who have previously tested positive for PCN allergy, there is a 10% decrease/year of a subsequent positive reaction
 - 80-100% of patients will ultimately test negative for PCN allergy after 10 years of PCN avoidance

Problem: Penicillin Allergy

- Cross-reactivity with other PCN-related compounds (i.e. cephalosporins) has resulted in avoidance of drug use.
 - ► Aminopenicillins <2%
 - ► Carbapenems <1%
 - ► Cephalosporins <3%
- Leads to usage of other antibiotics which may be less favorable
 - Side effects (Fluoroquinolones)
 - Broader spectrum than needed (carbapenems)



IDSA Guidelines for Implementing Antibiotic Stewardship Program

Recommendation 13: In patients with a history of B-lactam allergy, we suggest that ASPs, promote allergy assessments and penicillin (PCN) skin testing when appropriate.

Solution: PCN-Allergy Skin Testing

- ► ASP Team made aware of the problem
- Physician engagement
 - Educated the team on the problem
 - Educated the team on the solution
 - Provided real-world examples that had been encountered at the hospital
 - Provided data showing the cost/benefit of PCN allergy testing
- Administrative engagement
 - Green-light to begin pilot program



Pilot Project

▶ Infection control nurse

- Trained to do PCN skin testing on selected patients
- Update and remove PCN allergy from patient's allergy list if tested negative
- Educated patient
- Nurses
 - ▶ Update allergy list on admission
- Physicians
 - Notify Infection control nurse of patient with PCN who would benefit from PCN-based antibiotics
- Pharmacy
 - Notify physicians if PCN-based antibiotic was more most appropriate and encourage PCN-allergy testing
 - Gather data



Pilot Project

- Feed back brought back to ASP Team
 - Positive feedback from physicians, pharmacy, and patients
 - Decrease in use of inappropriate antibiotics
 - No patient harms
- Decision to implement this program hospital-wide

PCN-Allergy Testing Program



Physician-led education

Department of Hospital Medicine quarterly meeting Medical Executive Committee Meeting

General Medical Staff Meeting



Infection Control Nurse

Trained other staff how to do testing



Nurse supervisors

Trained nurses how to do testing Trained nurses on importance of accurately entering allergy list

PCN-Allergy Testing Program



Administration

CMO and CQO assisted with clinical buy-in

Pharmacy and Lab

Clinical decision support to physicians on best antibiotic choice and if PCN allergy testing would be helpful Data collection and reporting



Information Technology

Develops a PCN-allergy testing order-set



Nurse Educator

Developed learning module in employee education material with competency test

Problems



Staff turnover

Re-educate how to do testing



"Individual commitment to a group effort-that is what makes a team work, a company work, a society work, a civilization work." Vince Lombardi





Questions?

Resources

- <u>https://www.pewtrusts.org/en/research-and-analysis/articles/2019/02/14/what-is-antibiotic-stewardship-and-how-does-it-work#:~:text=Effective%20antibiotic%20stewardship%20can%20reduce,a%20patient%27s%20course%20of%20therapy.</u>
- https://aricjournal.biomedcentral.com/articles/10.1186/s13756-019-0471-0
- <u>https://www.beckershospitalreview.com/quality/7-core-elements-of-antimicrobial-stewardship-programs.html</u>
- <u>https://www.idsociety.org/globalassets/idsa/practice-guidelines/implementing-an-antibiotic-stewardship-program-guidelines-by-the-infectious-diseases-society-of-america-and-the-society-for-healthcare-epidemiology-of-america.pdf</u>
- https://www.ncbi.nlm.nih.gov/books/NBK459320/