



Allegan General Hospital

Snapshots of Our Journey Towards An Antibiotic Stewardship Program



August 18, 2017



Facts

- Annually, *C. difficile* infections
 - More than 500,000 patients are affected
 - 15,000 deaths in U.S.
- Annually, more than 2 million patients are infected by an organism that cannot be treated by the recommended antibiotic
 - More than 20,000 of these patients die
- Loss of effective antibiotics threatens delivery of life-saving medical care



Based on CDC 2017 publication of 'Implementation of Antibiotic Stewardship Core Elements at Small and Critical Access Hospitals', p.1.





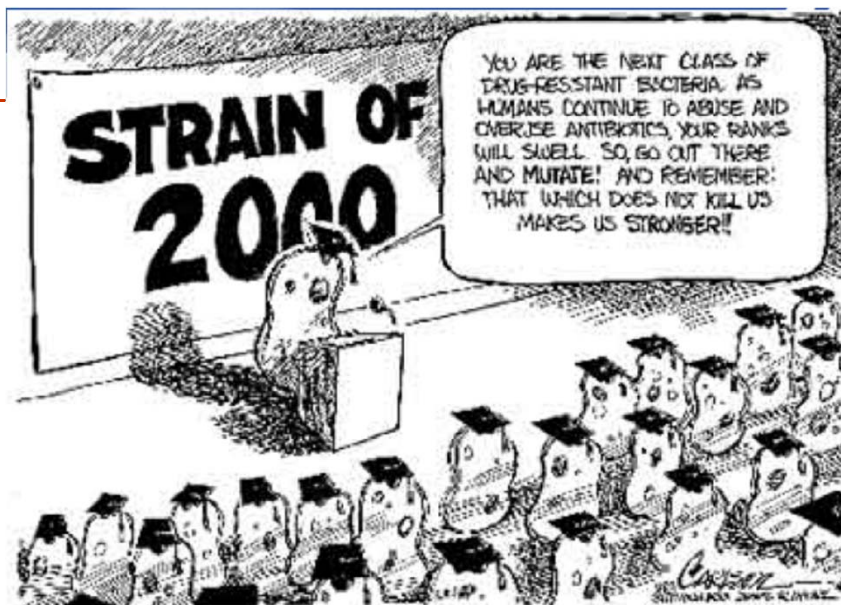
Definition

Antibiotic Stewardship is a coordinated program that promotes appropriate use of antimicrobials (including antibiotics), improves patient outcomes, reduces microbial resistance, and decreases the spread of infections caused by multidrug-resistant organisms. *

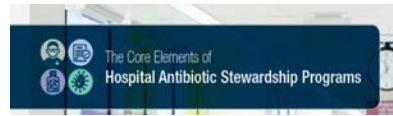
ANTIBIOTIC STEWARDSHIP PROGRAMS AND ACTIVITIES CAN:

- IMPROVE PATIENT OUTCOMES**
By reducing unnecessary antibiotic prescribing, antibiotic stewardship programs and activities can improve the treatment of infections and prevent avoidable side effects, reactions, and other problems for patients.
- DECREASE *C. DIFFICILE* INFECTIONS**
Antibiotic stewardship programs and activities significantly reduce *C. difficile* infections. For example, reducing the use of high-risk antibiotics (fluoroquinolones) by 30 percent can lower *C. difficile* infections by 26 percent in hospitals.² Reducing overall antibiotic prescribing in outpatient settings by 10 percent could lower *C. difficile* infections in the community by 17 percent.³
- DECREASE ANTIBIOTIC RESISTANCE**
Preventing infections and improving antibiotic prescribing could save 37,000 lives from antibiotic-resistant infections over 5 years.
- DECREASE COSTS**
Antibiotic stewardship programs have consistently demonstrated annual savings of \$200,000 to \$400,000 in hospitals and other healthcare facilities. According to a University of Maryland study, implementation of an antibiotic stewardship program saved one hospital a total of \$17 million over 8 years.

*<https://apic.org/Professional-Practice/Practice-Resources/Antimicrobial-Stewardship>



Resources

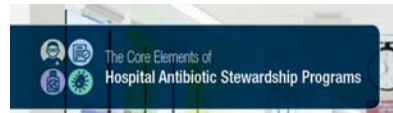


<https://www.cdc.gov/getsmart/healthcare/pdfs/core-elements.pdf>

- CDC
 - Core Elements of Hospital Antibiotic Stewardship Programs
 - Core Elements of Outpatient Antibiotic Stewardship
 - Implementation of Antibiotic Stewardship Core Elements at Small and Critical Access Hospitals
- Other organizations/networks



Follow Guidelines



<https://www.cdc.gov/getsmart/healthcare/pdfs/core-elements.pdf>

- CDC Core Elements of Hospital Antibiotic Stewardship Programs 2015
 - Address agenda using elements, p.4
 - 'What Can Be Done to Make Physicians' Lives Easier?'
 - Proceed at a steady pace as advised
 - "Avoid implementing too many policies and interventions simultaneously", p.7
 - Communicate, Educate, Involve, Follow-up
- Multidisciplinary committee co-chaired by Pharmacy and Physician Champion
 - Inclusion of OP (clinics/offices)



Coordinated Team Efforts



- Communication and Education
 - Standing orders, IT processes, patient flow, policies/protocols, orientation/competency, and data collection/applications
 - Antibigram
 - How to use, and develop tracking/trending outcomes and begin focus on specific organisms/antibiotics
 - Strategic Quality Support System (SQSS)
 - Cloud-based tool designed to help manage and optimize quality
 - Patient Education



Help Your Antibiotics Do Their Job

- Take as directed
- Finish the full prescription even if you are feeling better
- Help prevent antibiotic resistance

The graphic features a central superhero character with a purple body and a red cape, with a large letter 'A' on its chest. To the left, a group of green and blue cartoon bacteria characters are shown. To the right, a green cartoon bacterium is running away from the superhero. The background is white with a yellow sunburst effect behind the superhero.

Engagement



- Discussion and Purposeful Action
 - Prioritization of interventions based on need as well as available resources and expertise
 - broad
 - pharmacy-driven, and
 - infection and syndrome specific
 - Meaningful Use
 - Let the data speak!

<https://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html>



Beginning Tips To Know

- Certain parameters being equal, the higher % more likely to eradicate
- Making comparisons of data from one year to another
- Essential tool for treating an infection empirically
- Can serve as alternative to a C&S report until results are available
- Pitfalls include rapid development of resistance in vivo versus in vitro as well as inaccuracy due to small number of isolates

Antibiogram:

A lab report that illustrates overall susceptibility of bacteria to antibiotics

Antibiogram Report by Organism Class
6/16/2016 - 12/31/2016

Organism	Amoxicillin	Cefazolin	Cefepime	Ceftriaxone	Ciprofloxacin	Clindamycin	Colistin	Linezolid	Mecillinam	Moxifloxacin	Netilmicin	Piperacillin/tazobactam	Ticarcillin/clavulanic acid	Vancomycin
<i>Acinetobacter baumannii</i>	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1
<i>Enterobacter cloacae complex</i>	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1
<i>Enterobacteriaceae</i>	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1
<i>Escherichia coli</i>	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1
<i>Klebsiella pneumoniae</i>	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1
<i>Multidrug resistant enterobacteriaceae</i>	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1
<i>Morganella morganii</i>	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1
<i>Proteus mirabilis</i>	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1
<i>Providencia stuartii</i>	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1
<i>Pseudomonas aeruginosa</i>	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1
<i>Stenotrophomonas maltophilia</i>	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1	100 / 1



Get Specific



Antibiotic	Susceptible (%)	Susceptible (#)	Resistant (%)	Resistant (#)
Amoxicillin	85	85	15	15
Amoxicillin/Clavulanate	95	95	5	5
Clindamycin	80	80	20	20
Cefepime	90	90	10	10
Ceftriaxone	90	90	10	10
Fluoroquinolones	80	80	20	20
Vancomycin	100	100	0	0

- Inpatient and Outpatient Antibiograms
 - Education and Application
 - Look for patterns – review and articulate in meetings
- 85 / 86**
- Ratio of 85/86 indicates 85% of isolates were susceptible to a particular drug. 86 is the number of isolates.
 - 30 isolates is recommended minimum # of isolates
 - 100/1 is not significant as only one tested organism
 - If same patient presents with E.coli 5 times in a year, count only as 1
 - Changes/trends provide insight for guidance in what or what not to prescribe



Policies & Electronic Health Record

- Antibiotic/Antimicrobial Time-Out
- Antibiotic/Antimicrobial Chart Documentation
- IV to PO Conversion Plan
- Look to guidelines for build of CPOE orders
- Monitor/report compliance

STANDARD WORK TITLE: IV to PO Conversion Plan
SCOPE: Organization Wide

Safe and Unsafe Antibiotics:

- LIKELY TO CAUSE C. DIFFICILE: Clindamycin, Keflex, Ceftin, Ceclor, All other cephalosporins, Amoxicillin, ...
- MIDDLE OF THE ROAD: Cipro, Levoflox (also Levaquin) Tequin, Avelox, Bactrim, Erythromycin, ...
- SAFE TO TAKE: Macrodantin (Macrobid) Sulfa, Aminoglycoside, Flagyl (metronidazole) Oral and IV Vancomycin.



Rx for QI and PI: SQSS

Task	Jun 2017	Jul 2017	Aug 2017	Sep 2017
IV to PO Conversion - Azithromycin IV to PO Same Dose & Frequency		n/a		
IV to PO Conversion - Levofloxacin IV to PO Same Dose & Frequency		n/a		

Activity	Completed	Completer	Min	Max	Result	Status	Notes
QI Initiative Prophylactic Antibiotic Discontinued Within 24 Hours After Surgery End Time (SCIP-3a) Overall Rate at 100%	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017		
	C 100%	C 100%	C 100%	C 100%	C 100%		

Quality Initiative
 Prophylactic Antibiotic Discontinued Within 24 Hours After Surgery End Time (SCIP-3a) Overall Rate at 100%

Period of
 May 2017 (Delete)


Percentage patients with prophylactic antibiotic discontinued within 24 hours after surgery end time
 100

Plan
 Do
 Check
 Act
 Stop

[Practitioner Profile - Central line association blood stream infection](#)

Notes

Reducing Antibiotic-Induced Infections Through Effective Antibiotic Stewardship



Moving Forward



- Recently released CDC Small and CAH core element recommendations
- Review specific interventions (SQSS)
- CPOE protocols versus guidelines – CDC/IDSA recommend review/compare current guideline releases and local resistance patterns to current practices
- Medication Use Evaluation (MUE)
- MPRO Governor’s Award (OP)
- General antibiotic use measure
 - Days of Therapy (DOT)





*Allegan General Hospital's mission is to always provide exceptional,
compassionate, personalized healthcare for our community.*

November 13-19 is CDC's U.S. Antibiotic Awareness Week

<https://www.cdc.gov/getsmart/week/index.html>

Thank you!

Respectfully submitted by
Gail Warren, Quality and Infection Prevention Director
Allegan General Hospital