Progress and Opportunity: UMC's Antimicrobial Stewardship Program

Louisiana Antibiotic Stewardship Summit 2019

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Objectives

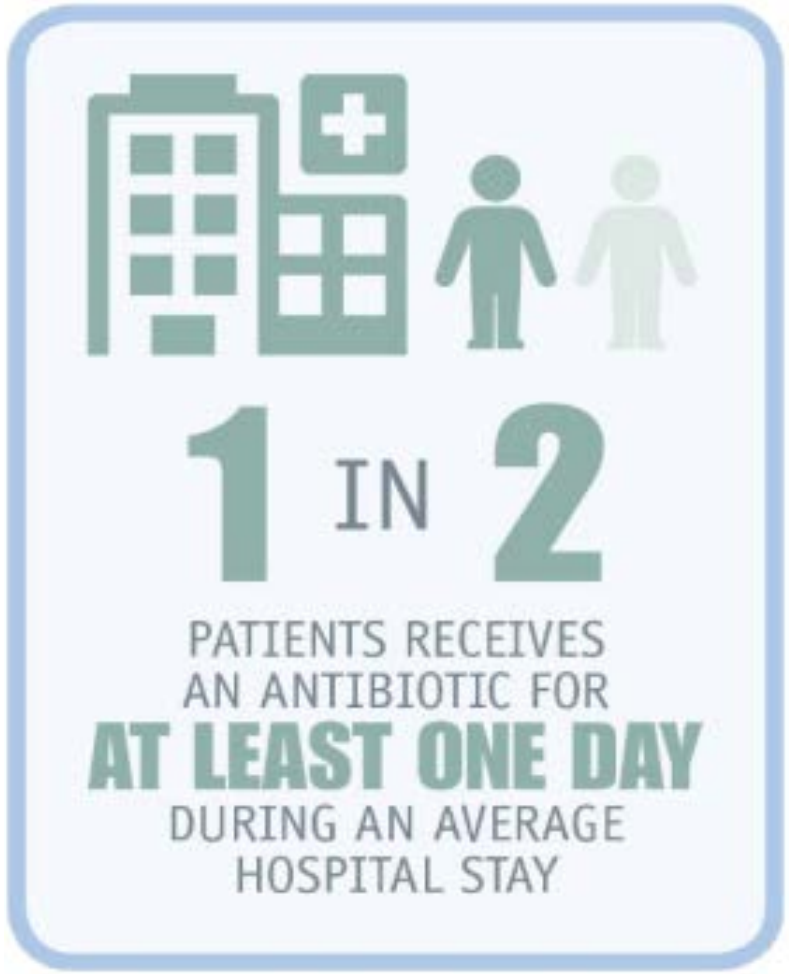
- ❑ Review UMC's Experience with Antimicrobial Stewardship Program Implementation
- ❑ Discuss UMC's ASP Successes
- ❑ Discuss UMC's ASP challenges and opportunities

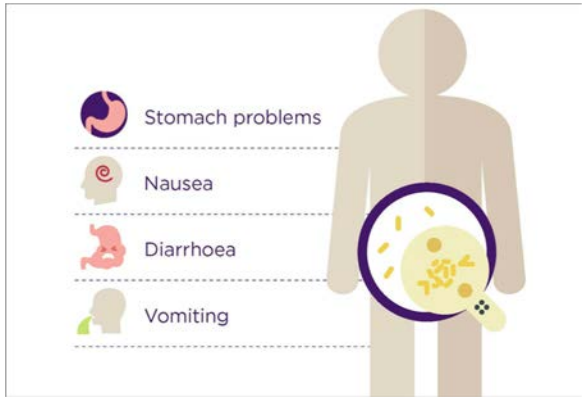
Question 1

Which best describes your primary institution?

A. Large (more than 500 beds) and / or Academic Center
B. Non-teaching Community Hospital (between 200 to 500 beds)
C. Non-teaching Community Hospital (Less than 200 beds)
D. Other

Antibiotics are overused in Hospitals





ALP et al., Morbidity and Mortality Weekly Report 63, no. 9 (2014): 194-200.

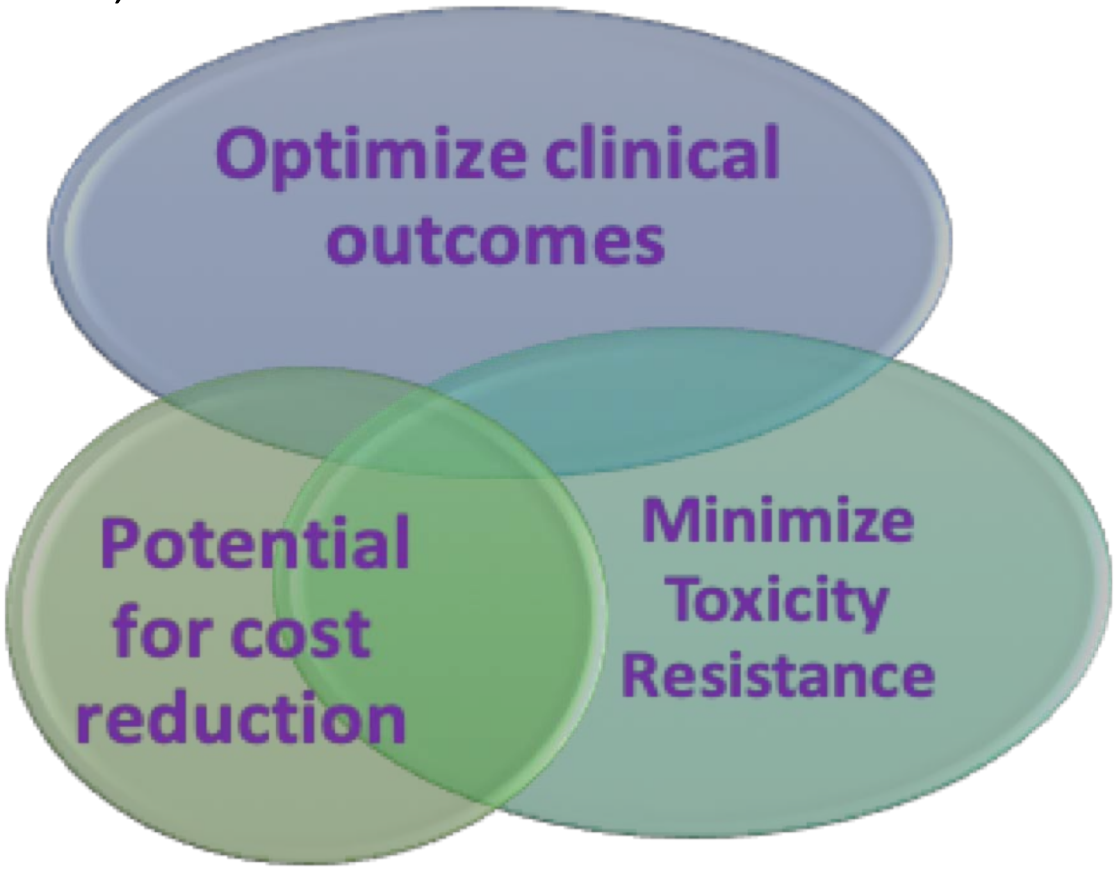
What is Antimicrobial Stewardship?

Formal Process that insures every patient receives

...an antibiotic only when one is needed, with

Antimicrobials

✓Selection
✓Dosing
✓Duration



UMC's ASP Timeline

Started discussions on ASP

Jan 2011

2011-2012

ASHP Mentorship Grant on ASP

Formal ASP

Aug 2014

2016-2017

Two Critical Care Clinical Pharmacists

HIV Clinical Pharmacist

Oct 2018

Dec 2018

IDSA Center of Excellence

Systemwide Implementation / Coordination

University Medical Center (UMC) of New Orleans

- ❑ 446 Bed Teaching Hospital / LCMC Health
- ❑ 640 physicians (300 resident/year)
- ❑ **Services**:
  - Level 1 Trauma Center
  - Surgical (Bariatric, Neurosurgery, Plastic)
  - Burn Center
  - Cancer Center
  - Comprehensive Pulmonary Hypertension Center
  - Other services:
    - Cardiology & Heart/ Vascular Services
    - Gastroenterology
    - Hyperbaric Oxygen Therapy
    - Infectious Diseases Services
    - Orthopedics / Urology
    - Primary Care and Palliative Medicine

UMC
UNIVERSITY
MEDICAL CENTER
NEW ORLEANS
REV. AVERY C. ALEXANDER
ACADEMIC RESEARCH HOSPITAL

Clinical Pharmacy staff

UMC UNIVERSITY MEDICAL CENTER NEW ORLEANS

Inpatient

- Infectious Diseases
  -Antibiotic Stewardship / HIV
- Critical Care
  -TICU / Burn / MICU
- Other
  -Med. Surg / Pain Management

AND

Outpatient

- Anticoagulation Clinic

AND

2 PGY1 Pharmacy Residents

Inpatient

- Internal Medicine
  - 3 LSU teams
  - 1 Tulane team
- Cardiology Consult

AND

Outpatient

- Ambulatory Care
  -Primary Care
  -Anticoagulation
- Emergency Room

Adopted all CDC CORE ELEMENTS

Education
Reporting
Tracking

ACTION

Drug Expertise
Accountability
Leadership Commitment

Champion
Dr. Julio Figueroa, MD

TEAM
Multidisciplinary

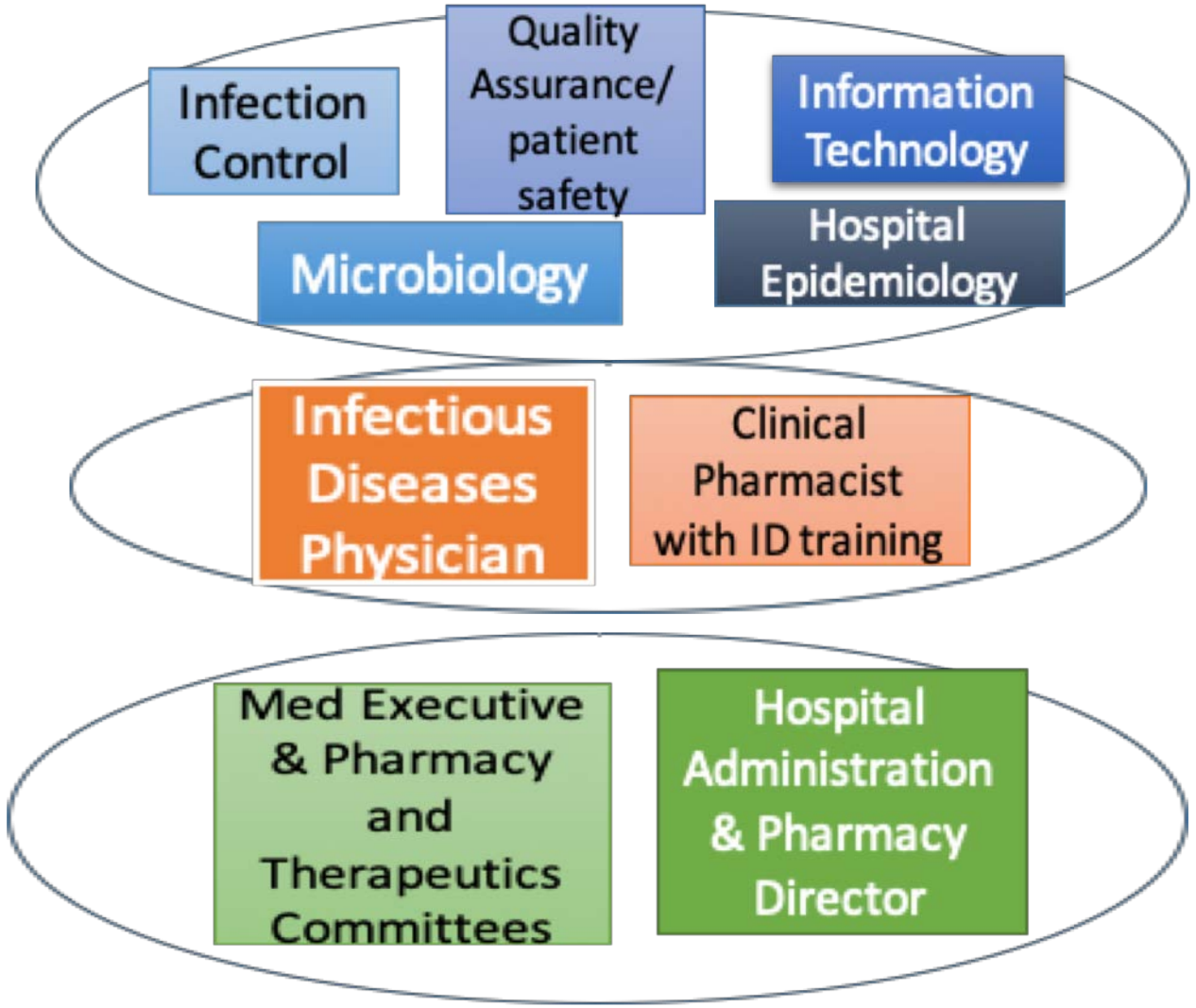
Question 2

Does your program have an MD Champion?

A. Yes
B. No
C. Not sure

Core Team & Supporting stakeholders

- Monthly meetings
  - ASP Journal Clubs
- CULTURE change that embraces prudent antibiotic use
- MAKE THEM BELIEVE IT!
  - Patient safety is linked to antibiotic resistance



Refining our tools- USE EPIC to its fullest potential

Continuous Process

- Broad Spectrum antibiotics > 48 hours
- Vancomycin and Aminoglycosides
- Restricted antimirobials
- IV to PO qualifying medication lists
- CrCl<50 a list
- Positive blood cultures

- Vancomycin ≥ 3 days and negative cultures
- Recent Positive cultures
- Vancomycin Therapy for unlikely pathogen
- Duplicate therapy
- Pathogen-drug mistmatch
- Patients on ≥ 3 antibiotics
- Antibiotic therapy ≥ 7 days
- Disease-drug mismatch(linezolid-UTI)

Sequentially implemented recommended 

based on baseline information and set goals!

Set Goals…. GO!

- ❑ Decrease antibiotic budget by **20%** each year for 2 years
- ❑ Increase staff knowledge about bacterial resistance and appropriate antibiotic use

DECREASE

- Duration of IV antibiotics by 30%
- Patients receiving ≥ 3 antibiotics by 50%
- Vancomycin use > 3 days by 30%

INCREASE

- IV to PO conversion by 50% OR decrease ratio of IV days / PO days
- De-escalation (C&S results) by 80% of targeted antibiotics
- Appropriate antibiotic therapy for blood stream infections (within 24 hours of positive blood culture- 100%)

ELIMINATE

- Duplicative therapy with selected broad spectrum agents
- Vancomycin therapy for blood culture contamination

CREATE

- Pathways / Guidelines for 80% of all infections related hospitalizations
- Antibiograms design / Release

Don't promise what you can’t deliver

Selling the Program

Program posters around the hospital

Introduce program to new hires

ANTIMICROBIAL STEWARDSHIP NEWS

UMC UNIVERSITY MEDICAL CENTER NEW ORLEANS

Initial Baseline Data identified …

2013 Data

- HIGH Piperacillin-tazobactam / Vancomycin / Ciprofloxacin
- Specifically in Critical Care Units and Surgical Units
- Vancomycin dosing and monitoring NOT Consistent

2014 ACTIONS

- Hired full time Infectious Diseases Pharmacist, A MUST
- Prospective Review of broad spectrum antibiotics at 48 hours (A-I)
- Daily Vancomycin Dose Optimization (A-II)
- Started monthly meetings with multidisciplinary group / Journal Club

Dellit TH, et al. Clin Infect Dis. 2007; 44:159-77

Continued implementing other ACTIONS!

2014 / 2015 ACTIONS

- ASP Charter and Goals
- Vancomycin / Aminoglycosides Dosing and monitoring policy (A-I)
  - Vancomycin Dosing Card (A-I)
- Formulary Restriction (B-III) / IV to PO Conversion (A-III) – updated policies

Other interventions

- EPIC enhancements- needed robust patient lists
- Prospective review of positive blood and CNS cultures (A-II)
- Develop institutional Treatment Guidelines (A-I)
  - SSTIs / HAP & VAP / CAP / Sepsis

Dellit TH, et al. Clin Infect Dis. 2007; 44:159-77

The big move!

2015 / 2016 Data

- Much bigger hospital
- Service expansion and volume increase
- Antibiotic utilization still high in critical care / surgical units
- Burn unit opened in late 2016
- Needed an APP for Treatment Guidelines

2016 / 2017 ACTIONS

- Started creation of UMCNO App- Antimicrobial Stewardship Toolkit
- July 2016, TICU Clinical pharmacist hired
- July 2017, MICU Clinical Pharmacist hired
- Started ASP standardization process across LCMC

Standardization and Expansion

2017 Reporting

- Needed a comparator!
- Weekend coverage not consistent
- Identified need for HIV therapy dosing and monitoring

2017 / 2018 ACTIONS

- Enrolled 4 units in AHRQ Antibiotic Safety Project
- Added PRN staff for weekend coverage
- Developed PGY1 Pharmacy Residency
  - MUEs and Stewardship projects
- October 2018, HIV Clinical Pharmacist hired
- Standardization across LCMC System:
  - Continued Guideline / APP development
  - EPIC upgrade- Antimicrobial Stewardship Module

Take home points? What are the potential ACTIONS?

2017 - 2018 Reporting

- Hospital Continues to expand…Now at 446 beds
- Overall antibiotic utilization is trending in the right direction
- Vancomycin utilization continues to slightly increase (ie., Med / isolation & Surg. unit)
- Ciprofloxacin utilization overall is decreasing
  - Med / Isolation and Surg units use ciprofloxacin the most (could improve on IV to PO)
- Med / Isolation higher utilization than comparator (Vancomycin, Daptomycin, Cipro)

2018 / 2019 ACTIONS

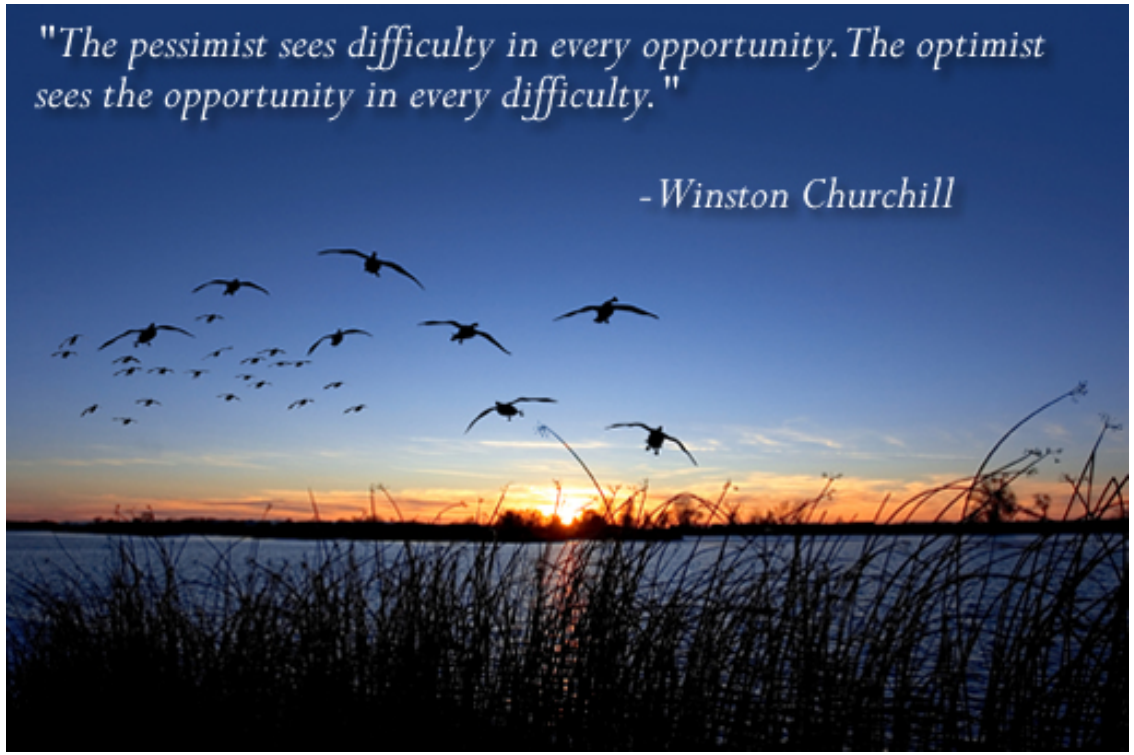
- Decrease ABX utilization, especially in Med / Isolation
  - Add pharmacist to Med / Isolation and surgical units
  - Conduct diseases state reviews (sepsis, skin soft tissue infections, pneumonia)
- Other:
  - Expand Use of procalcitonin and conduct prospective reviews of results
  - Expand desensitization protocol
  - Increase IV to Po conversions

Additional Opportunities

- ED / Outpatient Antibiotic Stewardship Prescribing (both IV and PO)

- Expansion / Standardization of ASP to the other facilities in the system

- NHSN Reporting- Compare UMC to other similar facilities



Conclusion

5-year program

- Cost decrease
  - > 20% annually for initial 2 years
- Antibiotic consumption decreased,
  - esp. targeted antibiotics
- C diff
  - below 50th percentile CMC SIR for last 3 years
- Bacterial Resistance
  - Stable and slight decrease
- Accomplishments led to:
  - 3 additional Clinical pharmacist positions
  - App Toolkit creation and development
  - System-wide implementation
  - IDSA Center of Excellence