St. Elizabeth's Medical Center

A STEWARD FAMILY HOSPITAL



Impact of a Nurse-Pharmacist Driven Antimicrobial Stewardship: Redefining the Team

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Background

- The Centers for Disease Control and Prevention and the World Health Organization have recognized the worldwide emergence of antimicrobial resistance that has limited and complicated the treatment of infections.1
- In 2017, the Joint Commission mandated acute care hospitals to implement antimicrobial stewardship (AMS) programs. Core elements were developed to help hospitals achieve this goal.²
- In 2019, the core elements were updated incorporating nursingbased actions.²
- Our institution's AMS program includes all the core elements apart from nursing involvement.

Objective

 To integrate bedside nurses in collaboration with pharmacy to expand our institution's AMS program and improve microbiology cultures.

Methods

Developed a toolkit which consists of three parts:

- . Identify AMS nurses and garner leadership support
- 2. Provide education (continuing education program)
- 3. Develop AMS culture algorithms to guide nursing to appropriate culturing practices with ID involvement

AMS nurse receives orders for Clostridioides difficile (C. difficile), respiratory, or urine culture

If intervention is denied by provider, ID Pharmacist will contact ordering provider for further evaluation

AMS nurse utilizes an algorithm to assess the appropriateness of the culture(s) ordered

If culture(s) deemed inappropriate, AMS nurse will contact provider to intervene

Should I Collect a Respiratory Specimen for Bacterial Culture Algorithm for Adult Intensive Care Unit Patients Developed by The Johns Hopkins Hospital Department of Antimicrobial Stewardship Does the patient have at least 2 of the 4 following signs and symptoms?

New oxygen requirement despite suctioning

Do not collect a

respiratory specimen

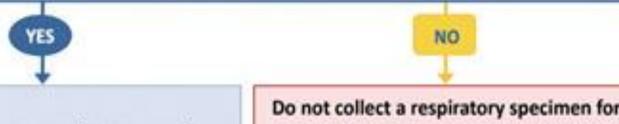
for bacterial culture,

communicate with

ordering provider

Outcome

- Purulent respiratory secretions
- New infiltrate on chest X-ray (atelectasis and edema are not considered infiltrates)
- Fever/hypothermia (not induced) OR increased peripheral white count (leukocytosis)



Did the patient have a respiratory specimen collected for bacterial culture within the last 72 hours that was sent to work up respiratory symptoms?

Collect respiratory

specimen for

bacterial culture

bacterial culture as pneumonia is unlikely communicate with ordering provider

Consider other reasons for the patient's signs and symptoms

Do not collect a respiratory specimen for bacterial culture for: Assessment of treatment response

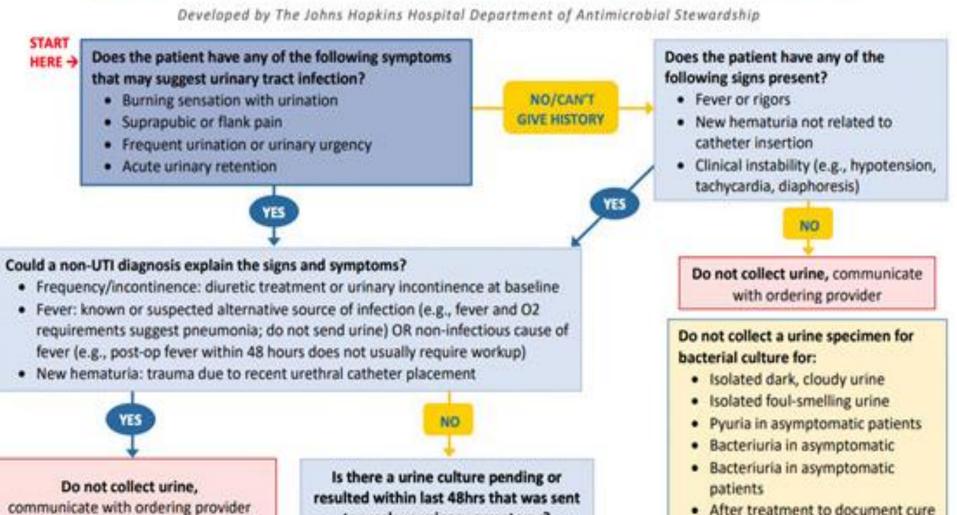
- Isolated fever or leukocytosis in patients not meeting above criteria Isolated increased secretions
- Change in color of respiratory secretions

Tips to Avoid Inappropriate C. difficile Testing

AMS Culture Algorithms³

- 1. Don't test patients for *C. difficile* if they had < 3 unformed stools in the past day
- 2. Don't test patients who received laxatives within the past 48 hours (stop laxatives and monitor)
- 3. Don't test patients in whom diarrhea has an alternative explanation (e.g., laxatives, tube feedings) in the absence of evidence of disease (persistent diarrhea, abdominal pain, leukocytosis, fever)
- 4. Don't retest within 7 days
- 5. Don't' test for cure
- 6. Don't test based on smell or color of stool

Should I Collect Urine for Bacterial Culture? Algorithm for Inpatients with or without a Urethral Catheter*



Collect urine for

- · After treatment to document cure "Weakness"
- History of UTI

UTI symptoms

 Routine on admission · After urethral catheter change Mental status changes without evidence of systemic infection of

 Nurse/pharmacist collaboration led to improved microbial culture practices in the ICU

Conclusions

- Pharmacists support and guidance for interdisciplinary teams in AMS will elevate patient care
- Future vision is to expand further to other hospital services

Aim Statement and Measures

Aim Statement

Measures

≥20% of ICU C. difficile, respiratory, and urine culture interventions made by nursepharmacist AMS team will be accepted by March 4th, 2022

The percentage of interventions accepted for inappropriate <i>C. difficile</i> , respiratory, and/or urine cultures weekly

Duagas	■ The time (in hours) to discontinue inappropriate <i>C. difficile</i> , respiratory and/or urine cultures
Process	■ Intervention by type

Balancing	The average time the nurse/pharmacist spent to assess appropriateness of <i>C. difficile</i> , respiratory, and urine cultures

Results

Do not collect urine,

ordering provider

ommunicate with

to work up urinary symptoms?

Baseline Characteristic n= 129		
Mean age in years, (range)	60 (20-99)	
Male, n(%)	70 (54)	

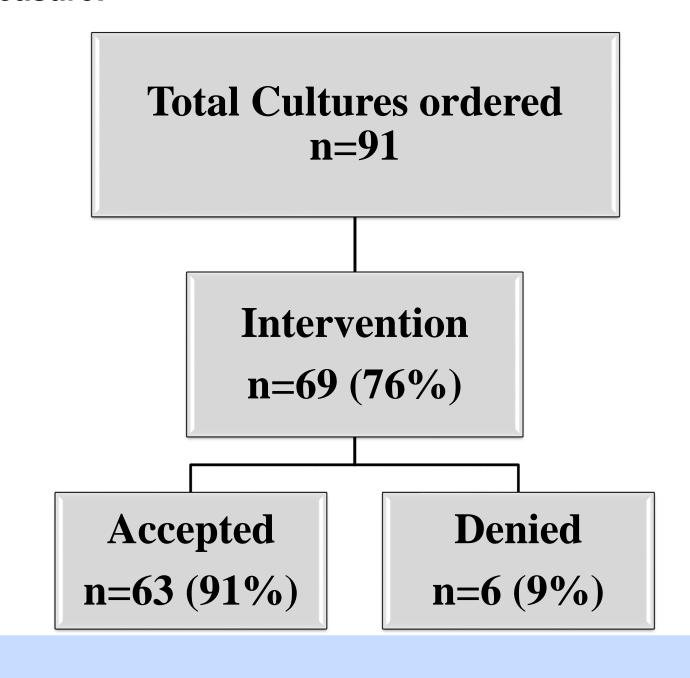
Outcome Measure:

*This algorithm does NOT apply to patients

with neurogenic bladder, pregnant women

or patients undergoing urologic procedures

where mucosal bleeding is expected

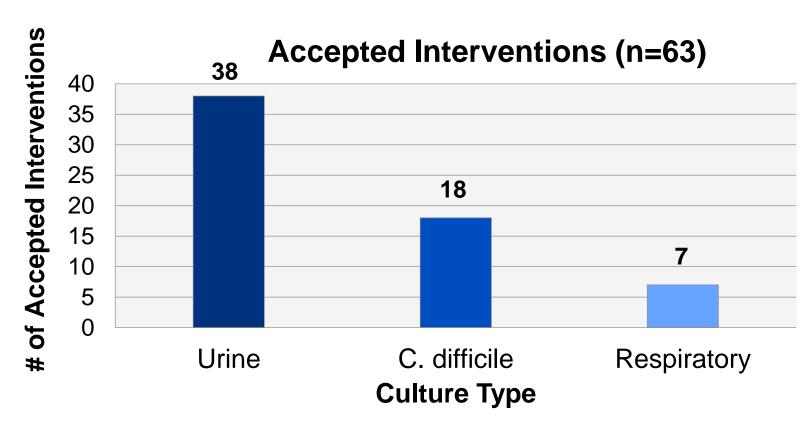


Results

Process Measures:

The time to discontinue inappropriate *C. difficile*, respiratory, and/or urine cultures:

■ Mean: 2 hours Range: 1-12 hours



Balancing Measure:

The average time the nurse/pharmacist spent to assess appropriateness of *C. difficile*, respiratory, and urine culture:

15 minutes

Limitations

- Single center study
- Small sample size
- Staffing turnover
- Data collected during weekdays only

References

- 1. Olans RN, Olans RD, DeMaria A Jr. The Critical Role of the Staff Nurse in Antimicrobial Stewardship—Unrecognized but Already There. Clin Infect Dis. 2016 Jan 1;62(1):849
- 2. CDC. Core Elements of Hospital Antibiotic Stewardship Programs. Atlanta, GA: US Department of Health and Human Services, CDC; 2019. Available at https://www.cdc.gov/antibiotic-use/coreelements/hospital.html. Accessed September 5, 2021
- 3. Toolkit to Enhance Nursing and Antibiotic Stewardship Partnership. John Hopkin's Medical Center. https://www.hopkinsmedicine.org/antimicrobialstewardship/nursing-toolkit/index.html. Accessed August 25, 2021

Disclosures

The authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities.