

# Diagnostic Stewardship Interventions to Ensure Appropriate Use of Diagnostic Testing

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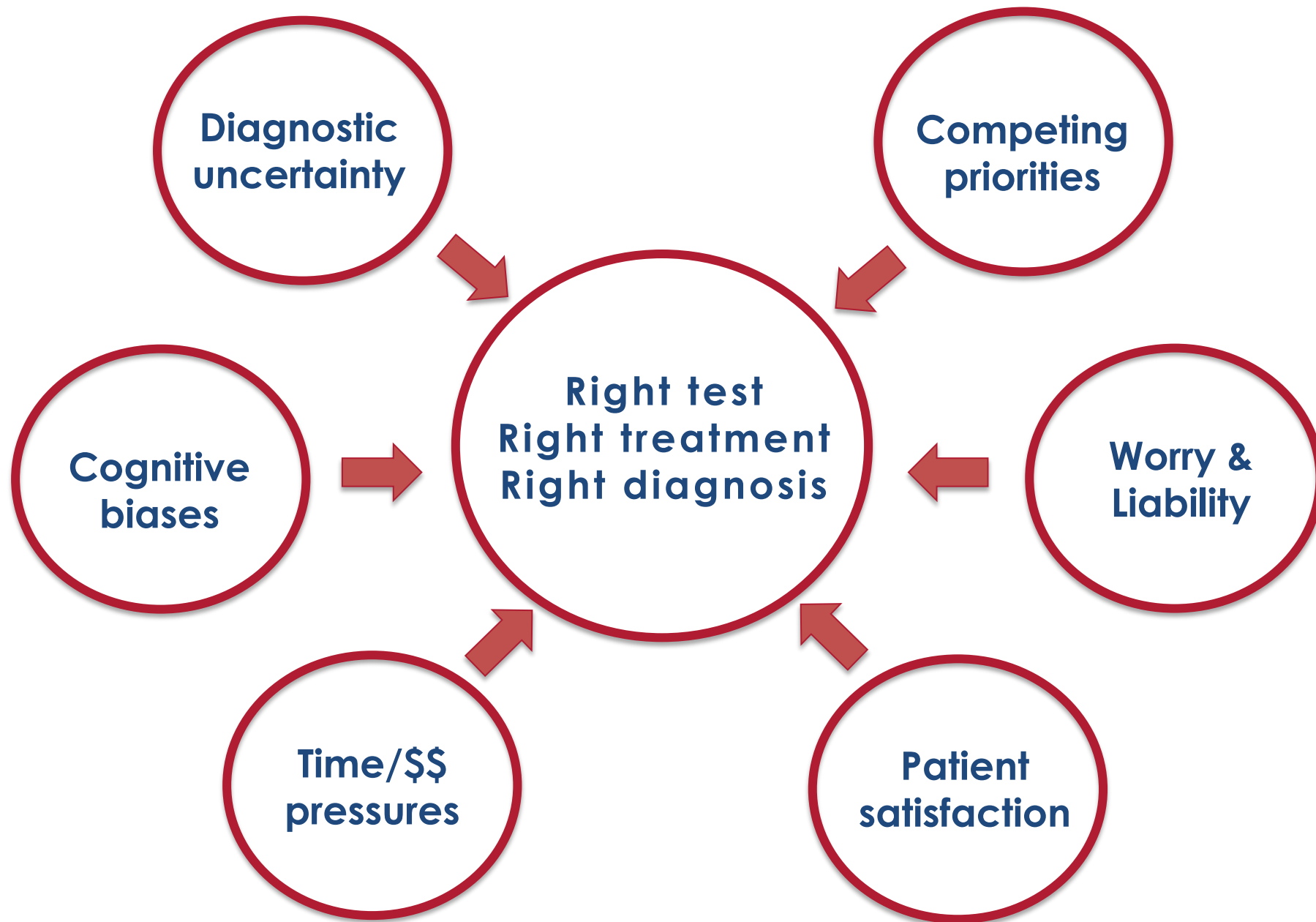
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No Conflicts of Interest or Disclosures

*Imagine*





80 year-old woman with dementia presents for altered mental status.  
She comes in alone from her nursing home and is unable to provide any history.

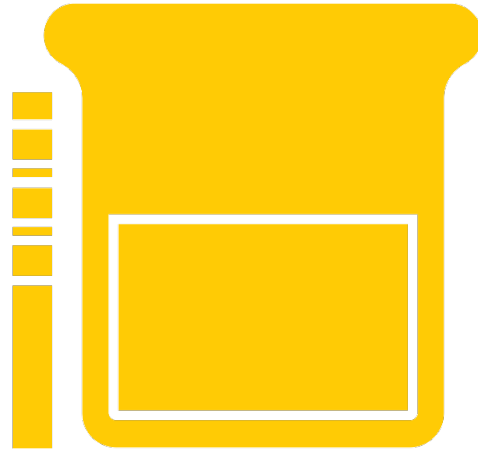
### Physical exam

Stable vital signs, oriented x 1

Exam difficult due to poor patient cooperation

### Laboratory findings

WBC 10,000 (80% PMNs)



+ LE, + WBC, occ bacteria,  
numerous squamous  
cells  
(culture pending)

What's your next step?

# THE RIGHT ANSWER?

Have diagnostic stewardship in place so  
the UA was never obtained in the first  
place....

# DIAGNOSTIC STEWARDSHIP

Diagnostic stewardship involves modifying the process of ordering, performing, and reporting diagnostic tests to improve the treatment of infections and other conditions.

Diagnostic stewardship optimizes testing to reduce diagnostic error and improve diagnosis

## Viewpoint

August 15, 2017

### **Diagnostic Stewardship—Leveraging the Laboratory to Improve Antimicrobial Use**

Daniel J. Morgan, MD, MS<sup>1,2</sup>; Preeti Malani, MD, MSJ<sup>3,4</sup>; Daniel J. Diekema, MD, MS<sup>5,6</sup>

## Viewpoint

March 2, 2023

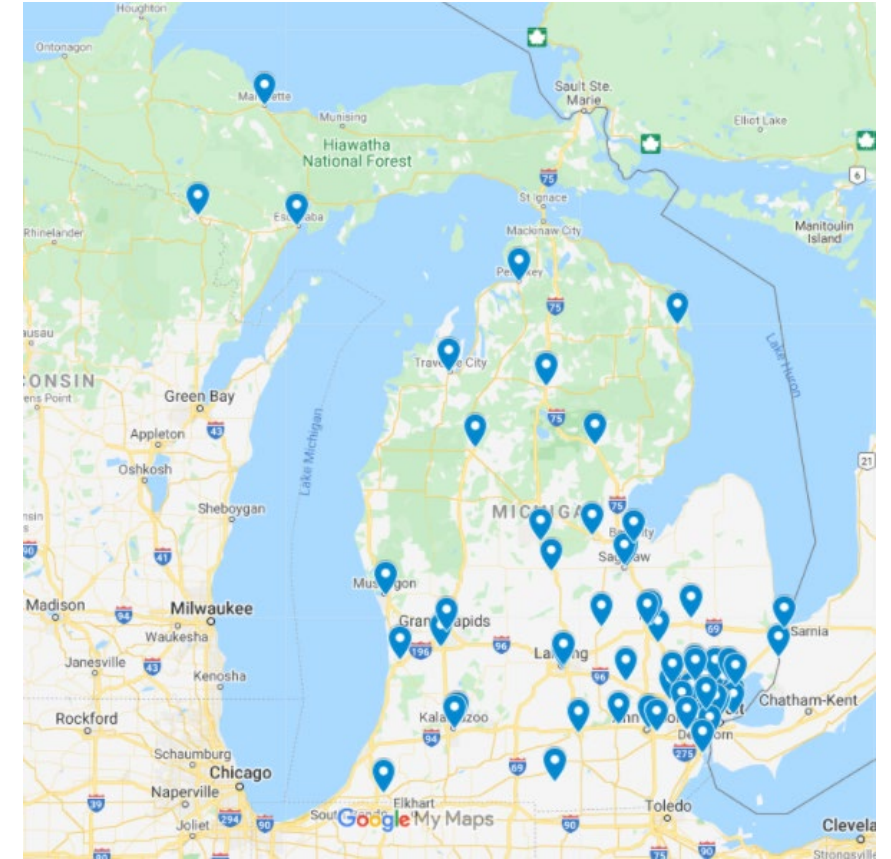
### **Diagnostic Stewardship to Prevent Diagnostic Error**

Daniel J. Morgan, MD, MS<sup>1,2</sup>; Preeti N. Malani, MD, MSJ<sup>3,4</sup>; Daniel J. Diekema, MD, MS<sup>5,6</sup>



# HOW EFFECTIVE IS DIAGNOSTIC STEWARDSHIP?

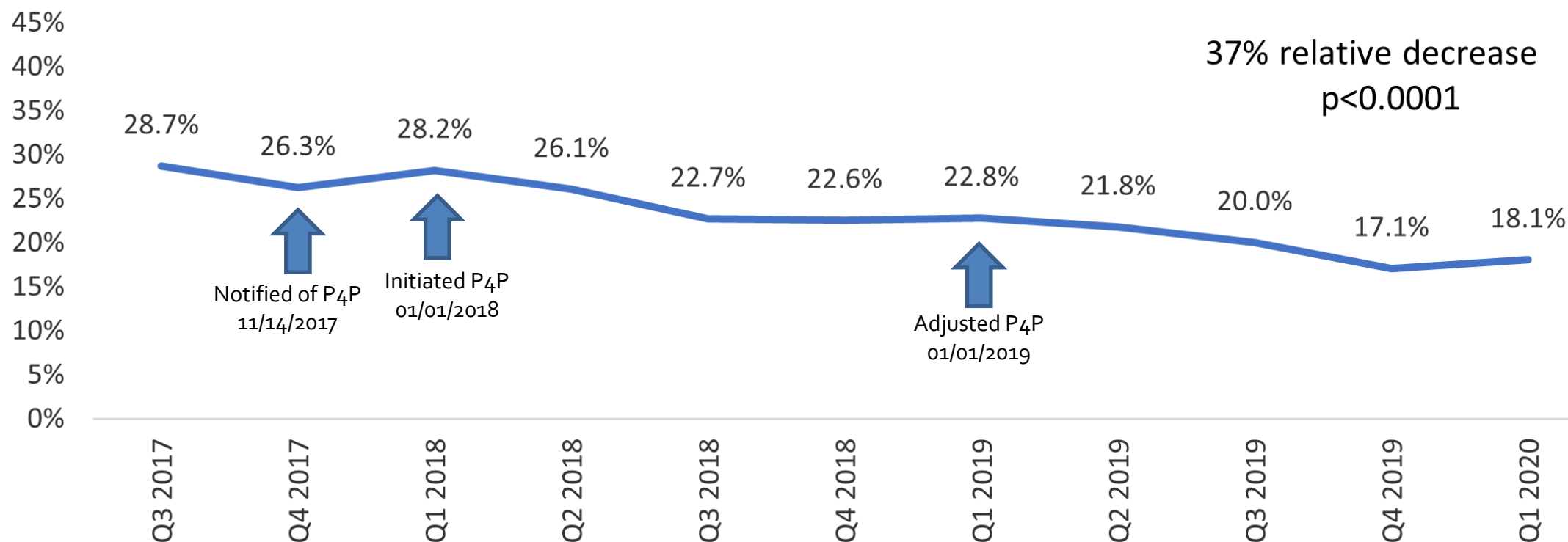
- One common diagnostic error is: misdiagnosis of asymptomatic bacteriuria as a urinary tract infection
- Is diagnostic or antibiotic stewardship better?



# Misdiagnosis and treatment of ASB as UTI, over time



14,572 patients, 46 HMS hospitals



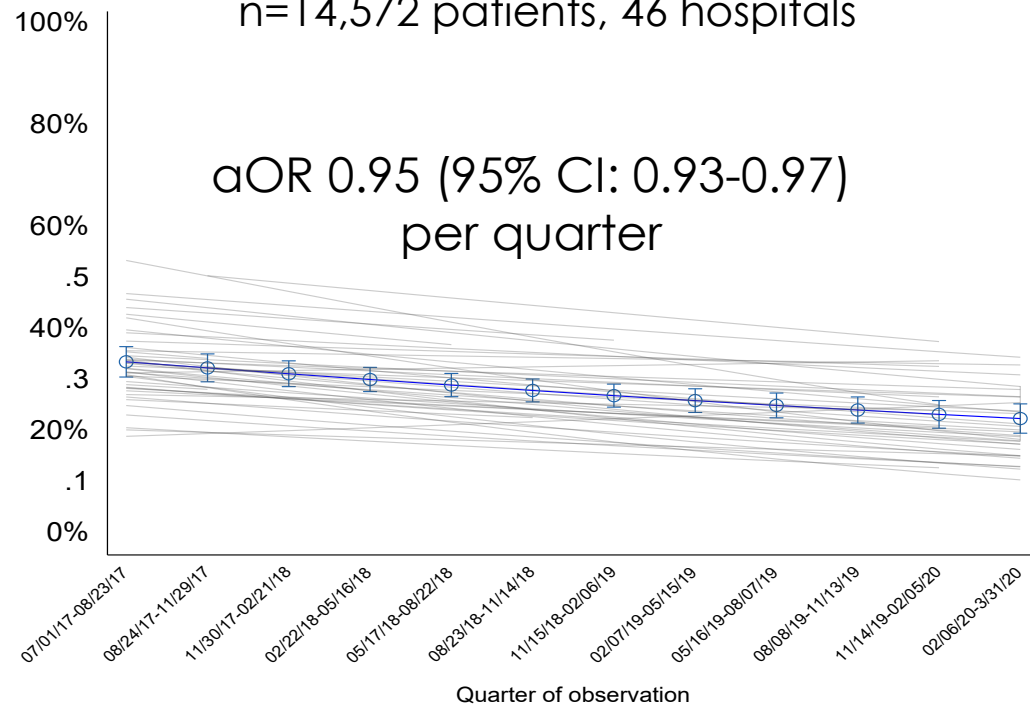
Vaughn VM et al. "A Statewide Quality Initiative to Reduce Unnecessary Antibiotic Treatment of Asymptomatic Bacteriuria." *JAMA Internal Medicine*. 2023.

NQF endorsed metric (#3690)- <https://mi-hms.org/inappropriate-diagnosis-urinary-tract-infection-uti-hospitalized-medical-patients>

# Was it diagnostic vs. antibiotic stewardship that did it?

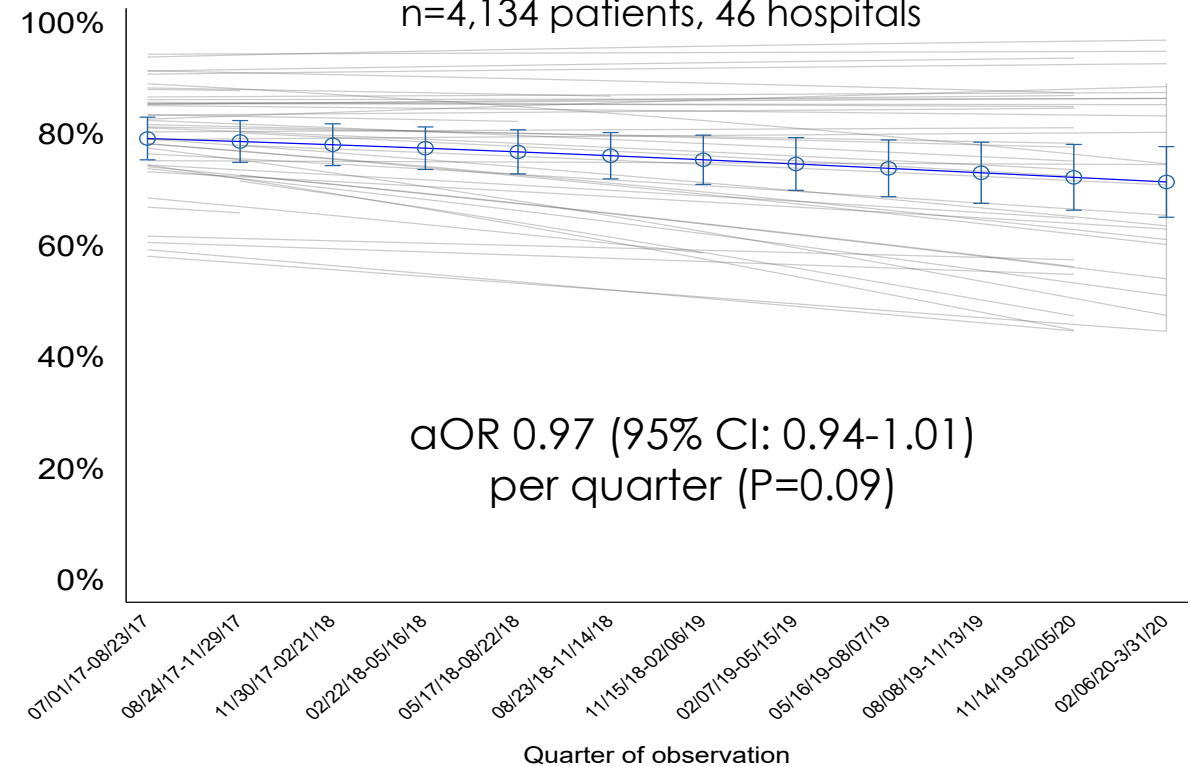
## Diagnostic Stewardship Metric

Patients with a Positive Urine Culture who Had Asymptomatic Bacteriuria Over Time  
n=14,572 patients, 46 hospitals



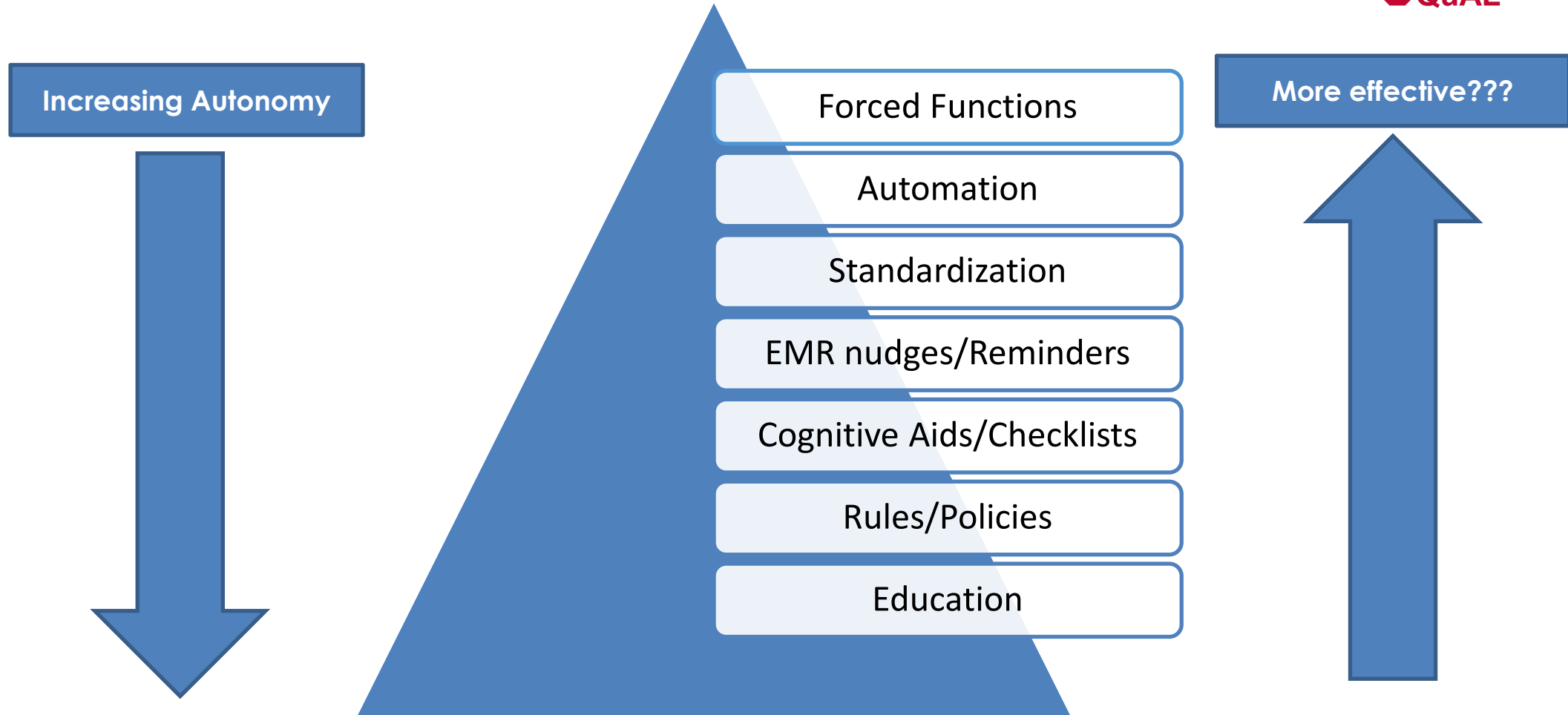
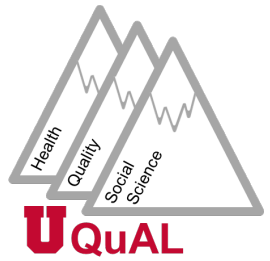
## Antibiotic Stewardship Metric

Percent of Patients with Asymptomatic Bacteriuria who were Treated with Antibiotics  
n=4,134 patients, 46 hospitals



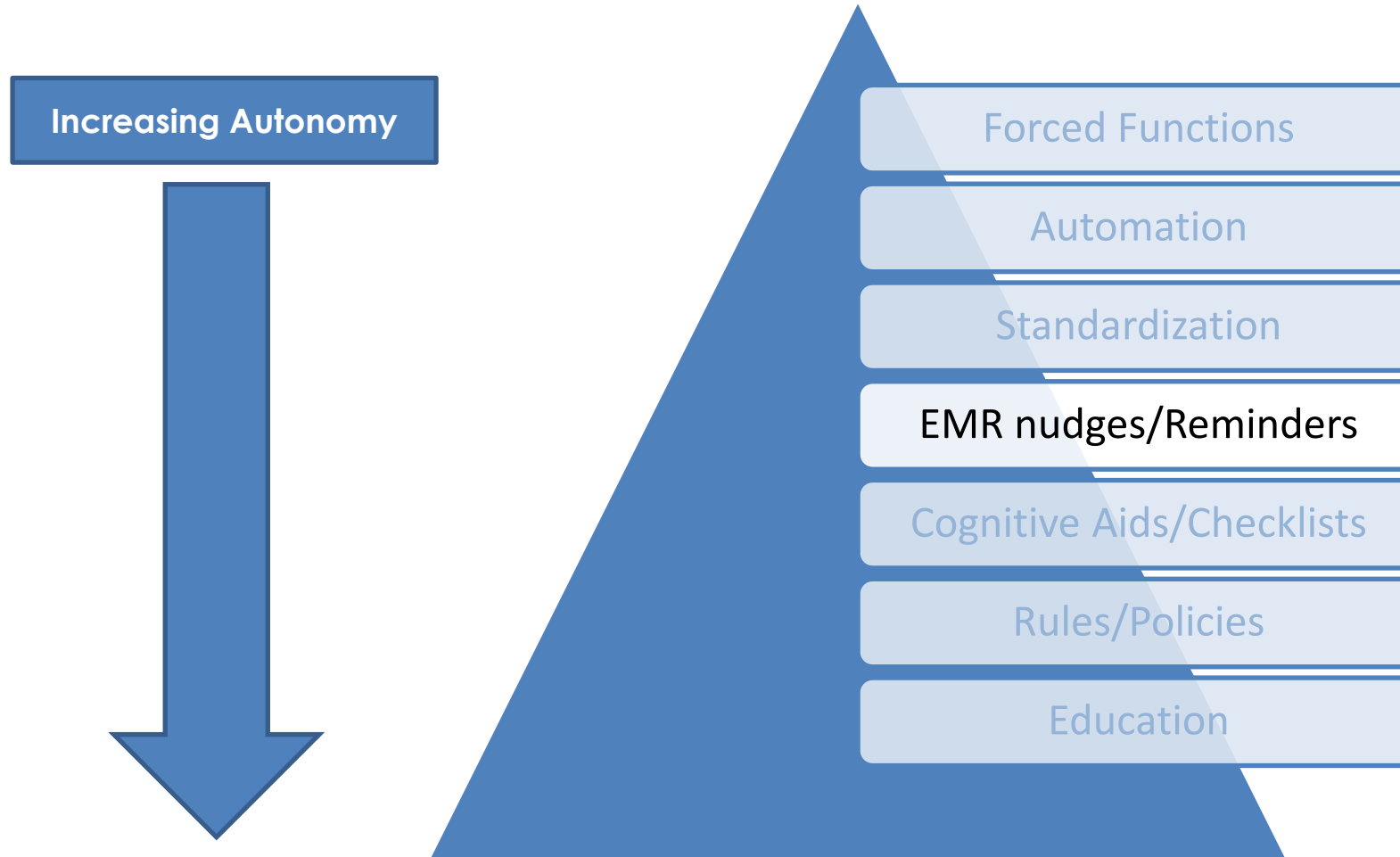
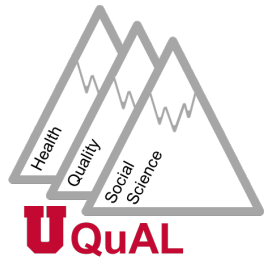
**Nearly 100% of reduction was from  
diagnostic stewardship**

# Now that we've said that... how do you do diagnostic stewardship?



Advani S, Vaughn VM. "Quality Improvement Interventions and Implementation Strategies for Urine Culture Stewardship in the Acute Care Setting: Advances and Challenges." Curr Infect Dis Report. Oct 2021.

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## Diagnostic stewardship: Improving use of diagnostic tests for better quality and value in hospital medicine

Valerie M. Vaughn MD, MSc , Daniel J. Morgan MD, MS

First published: 13 March 2024 | <https://doi-org.ezproxy.lib.utah.edu/10.1002/jhm.13321>

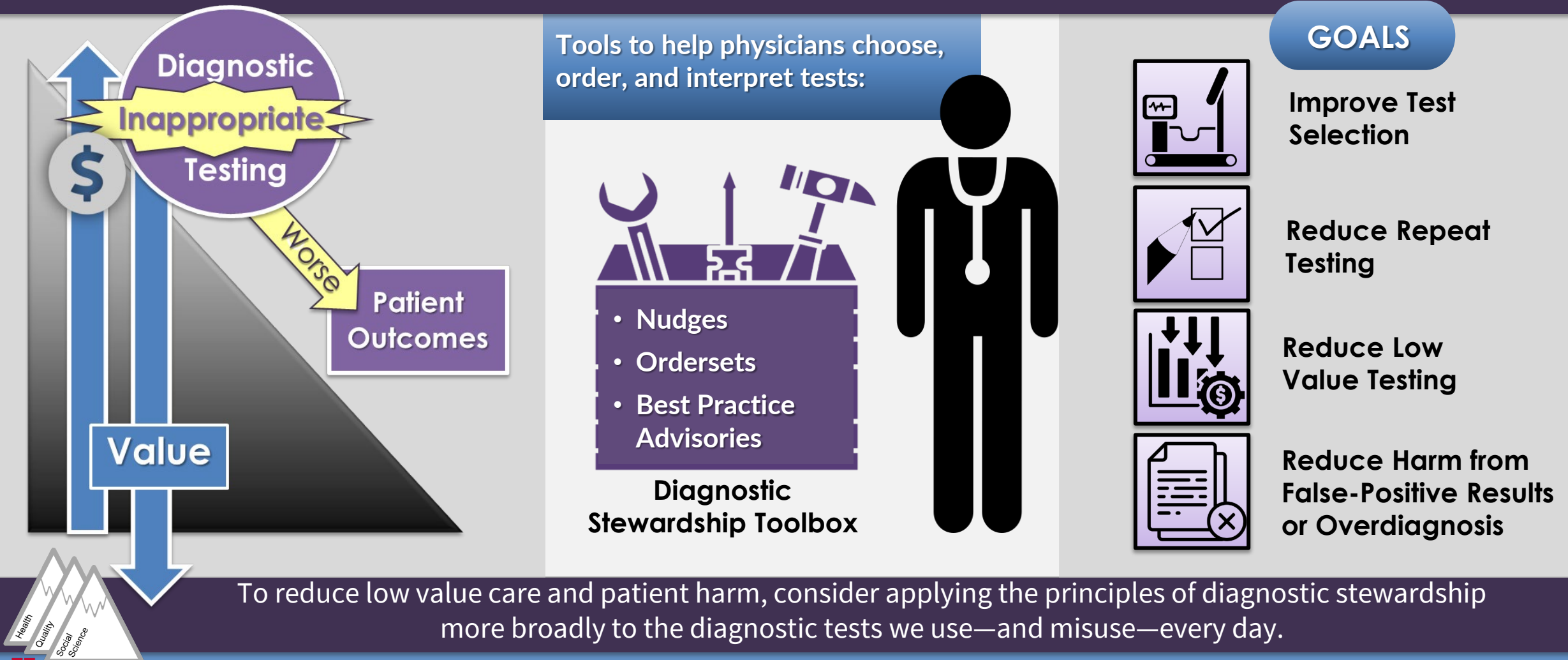
In some ways—diagnostic stewardship is what many of us have been always doing

But it provides a systematic way through thinking about diagnostic testing

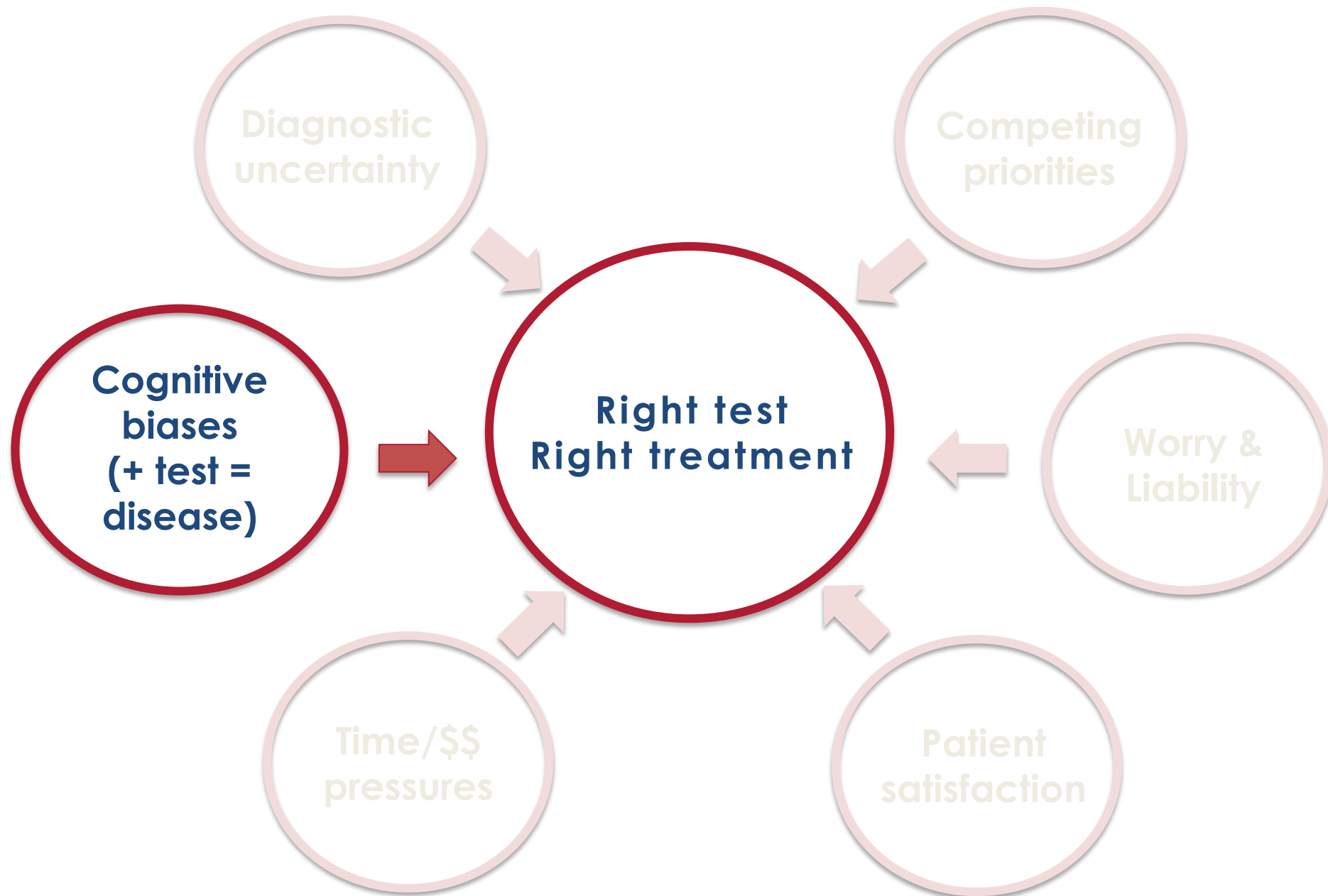
# Diagnostic Stewardship:

## Improving Use of Diagnostic Tests for Better Quality and Value

Diagnostic Stewardship: Behavioral and system approaches to encourage high value diagnostic testing







## BRIEF REPORT

CID 2014:58 (1 April)

# Reducing Antimicrobial Therapy for Asymptomatic Bacteriuria Among Noncatheterized Inpatients: A Proof-of-Concept Study

Jerome A. Leis,<sup>1,2</sup> Gabriel W. Rebick,<sup>1</sup> Nick Daneman,<sup>1</sup> Wayne L. Gold,<sup>1</sup>  
Susan M. Poutanen,<sup>1,3,4</sup> Pauline Lo,<sup>3</sup> Michael Larocque,<sup>3</sup>  
Kaveh G. Shojania,<sup>2</sup> and Allison McGeer<sup>1,3,4</sup>

<sup>1</sup>Division of Infectious Diseases, Department of Medicine, University of Toronto;  
<sup>2</sup>Department of Medicine, University of Toronto Centre for Quality Improvement and  
Patient Safety; <sup>3</sup>Department of Microbiology, University Health Network/Mount  
Sinai Hospital, Toronto; and <sup>4</sup>Division of Medical Microbiology, Department of  
Laboratory Medicine and Pathobiology, University of Toronto, Ontario, Canada

Positive Urine Culture

Reflex



Antibiotic Use

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~~Positive Urine Culture~~

~~Reflex~~

~~Antibiotic Use~~

“The majority of positive urine cultures from inpatients without an indwelling urinary catheter represent asymptomatic bacteriuria. If you strongly suspect that your patient has developed a urinary tract infection, please call the microbiology laboratory.”

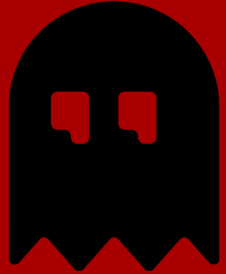
Rates of antibiotic treatment for asymptomatic bacteriuria fell from 48% to 12%

# Conclusion



- Clinicians have to learn many, many new tests every year
  - Please make our lives easier!
- Diagnostic stewardship >> antibiotic stewardship
- There's a plethora of Dx stewardship strategies
  - Choose the one that works for you!

**As new diagnostic tests become available (e.g., AI), how can we use diagnostic stewardship principles to make sure they're used well?**



Antibiotic  
Stewardship

# Questions?

*Keep In Touch!*

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