



**UWTASP**  
tele-antimicrobial stewardship program

echo

# ***The Non-Antibiotic Prescription***

Zahra Kassamali Escobar, PharmD, BCPS  
UW Medicine | Valley Medical Center  
zescobar@uw.edu

September 11, 2018

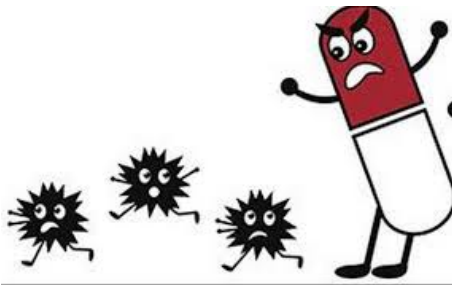
*This presentation is intended for educational use only, and does not in any way constitute medical consultation or advice related to any specific patient.*

# Non-Antibiotic Agenda

## 1.) Defining Risk

## 2.) Antibiotic Avoidance Examples

## 3.) Non-Antibiotic Prescription Pads



Antibiotics vs. Bacteria



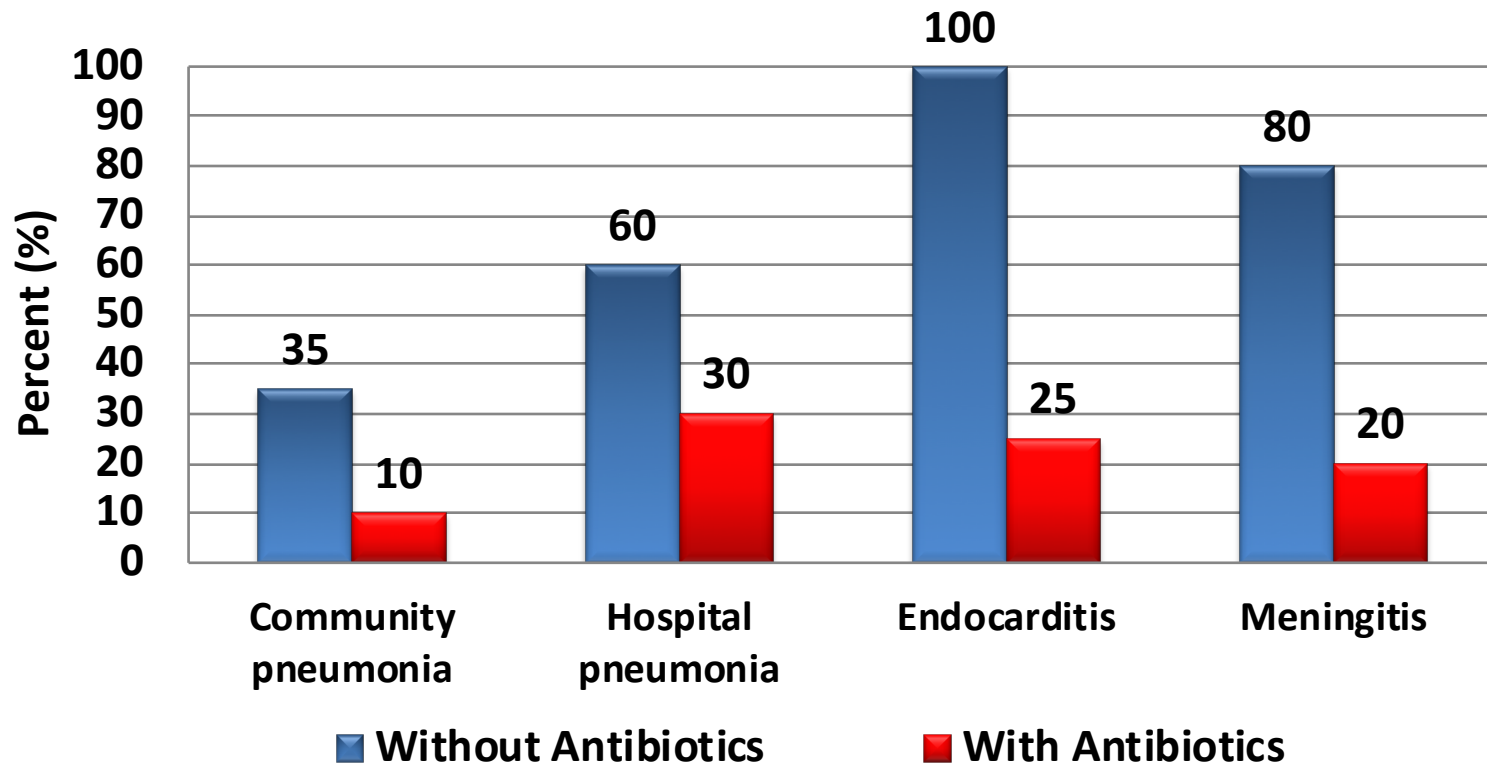
Antibiotics vs. Viruses

# Thanks to PENICILLIN ...He Will Come Home!



**On the One Hand:  
Antibiotics Save Lives**

# Mortality: Before and after antibiotics



1IDSA Position Paper '08 Clin Infect Dis 47(S3):S249-65; 2IDSA/ACCP/ATS/SCCM Position Paper '10 Clin Infect Dis In Press; 3Kerr AJ. Subacute Bacterial Endocarditis. Springfield IL: Charles C. Thomas, 1955 & Lancet 1935 226:383-4; 4Lancet '38 231:733-4 & Waring et al. '48 Am J Med 5:402-18; 5Spellberg et al. '09 Clin Infect Dis 49:383-91 & Madsen '73 Infection 1:76-81; 6'88 Lancet 2:349-60

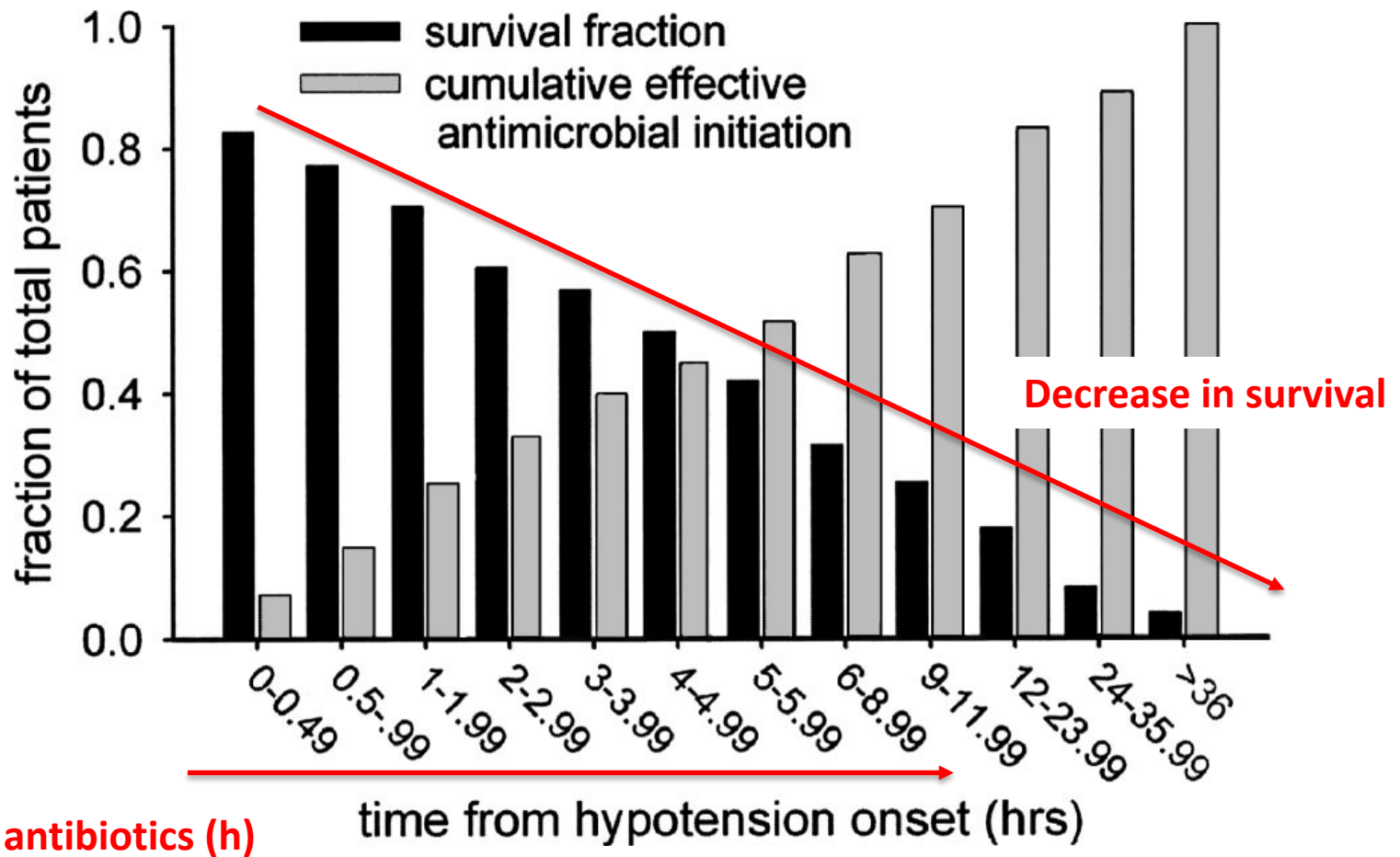


# Do you agree with this statement?

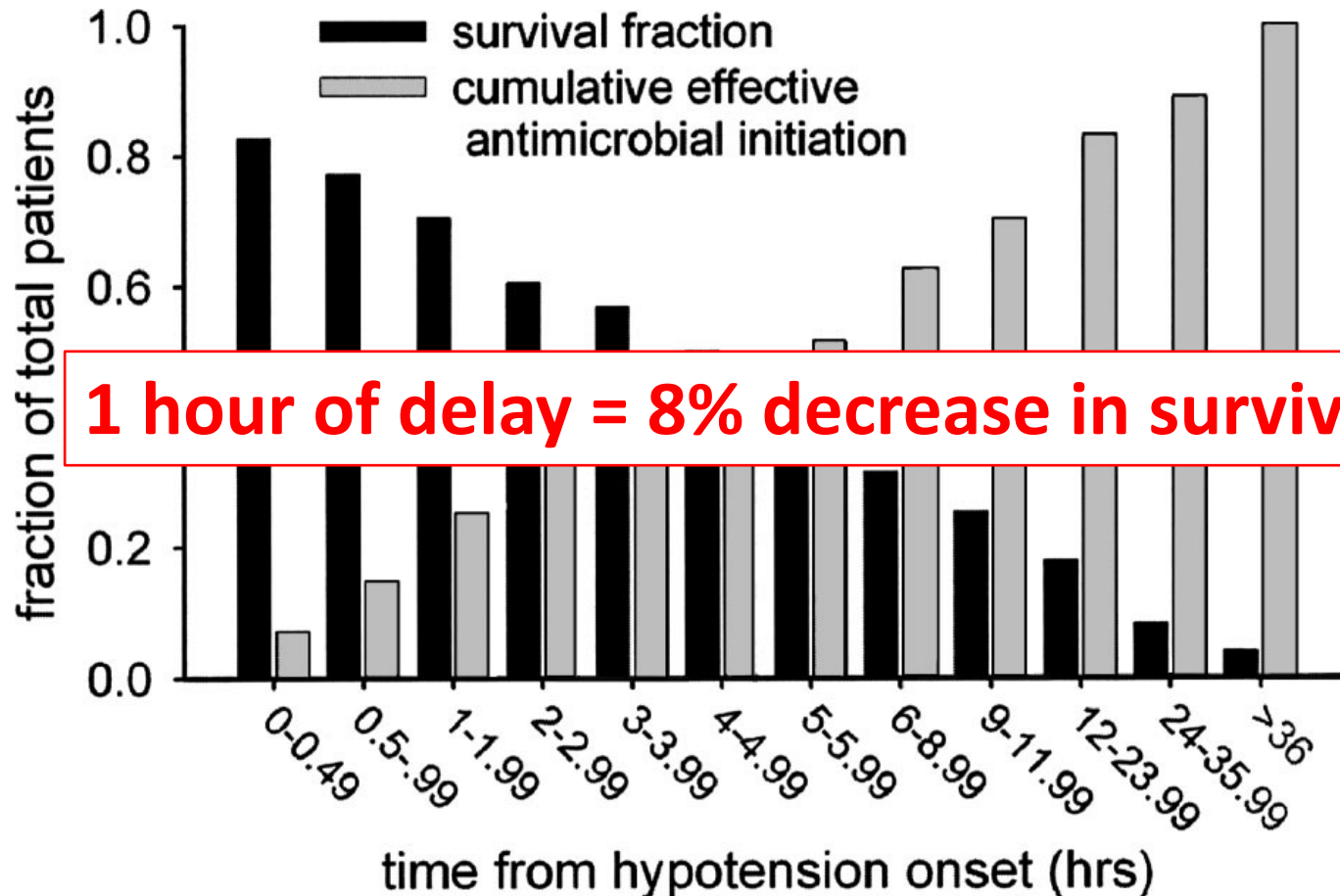
All patients with suspected infection and presenting to the ED should be started on antibiotics without delay

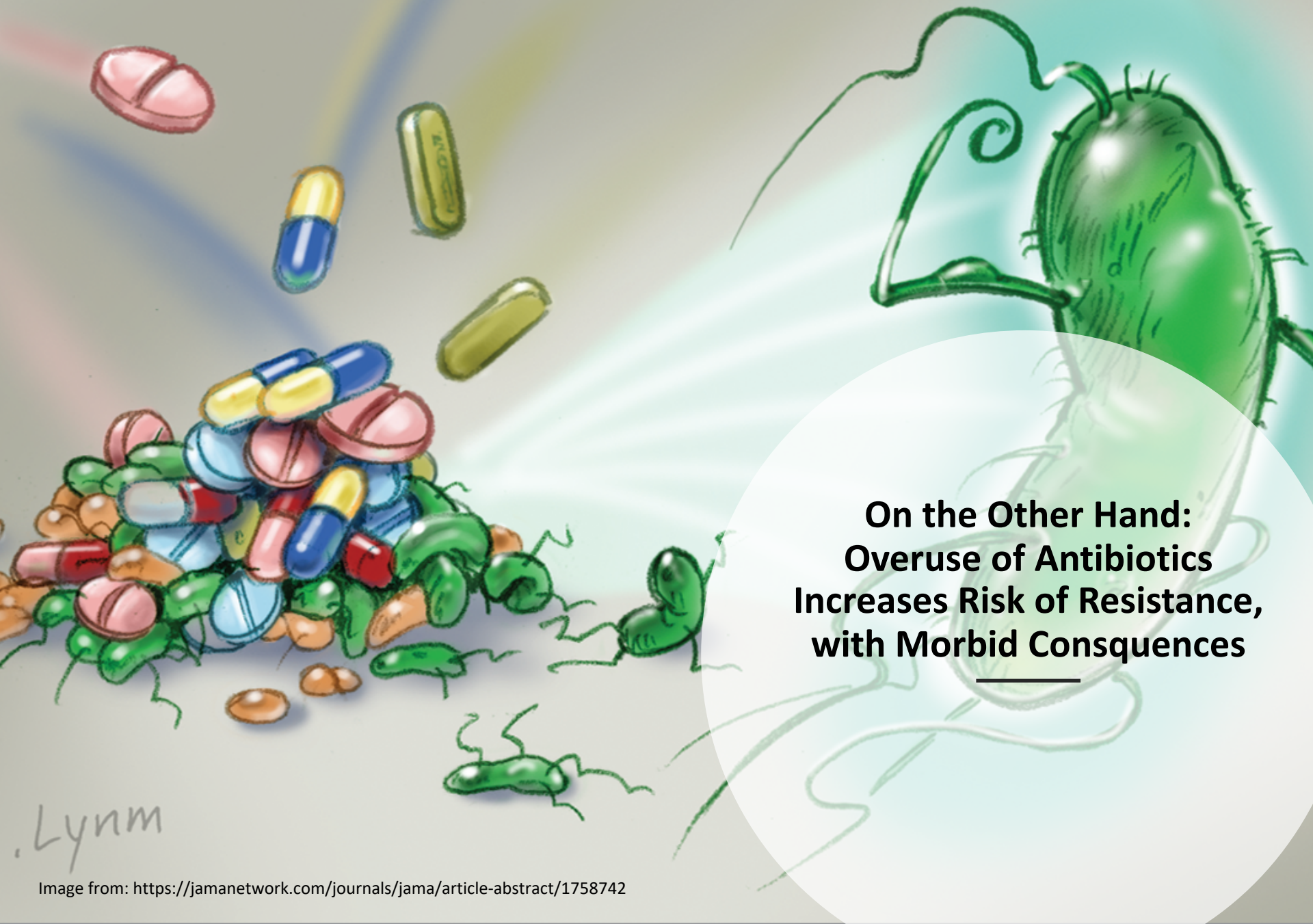
- Yes
- No

# Sepsis & the Risk of Not Starting Antibiotics



# Sepsis & the Risk of Not Starting Antibiotics

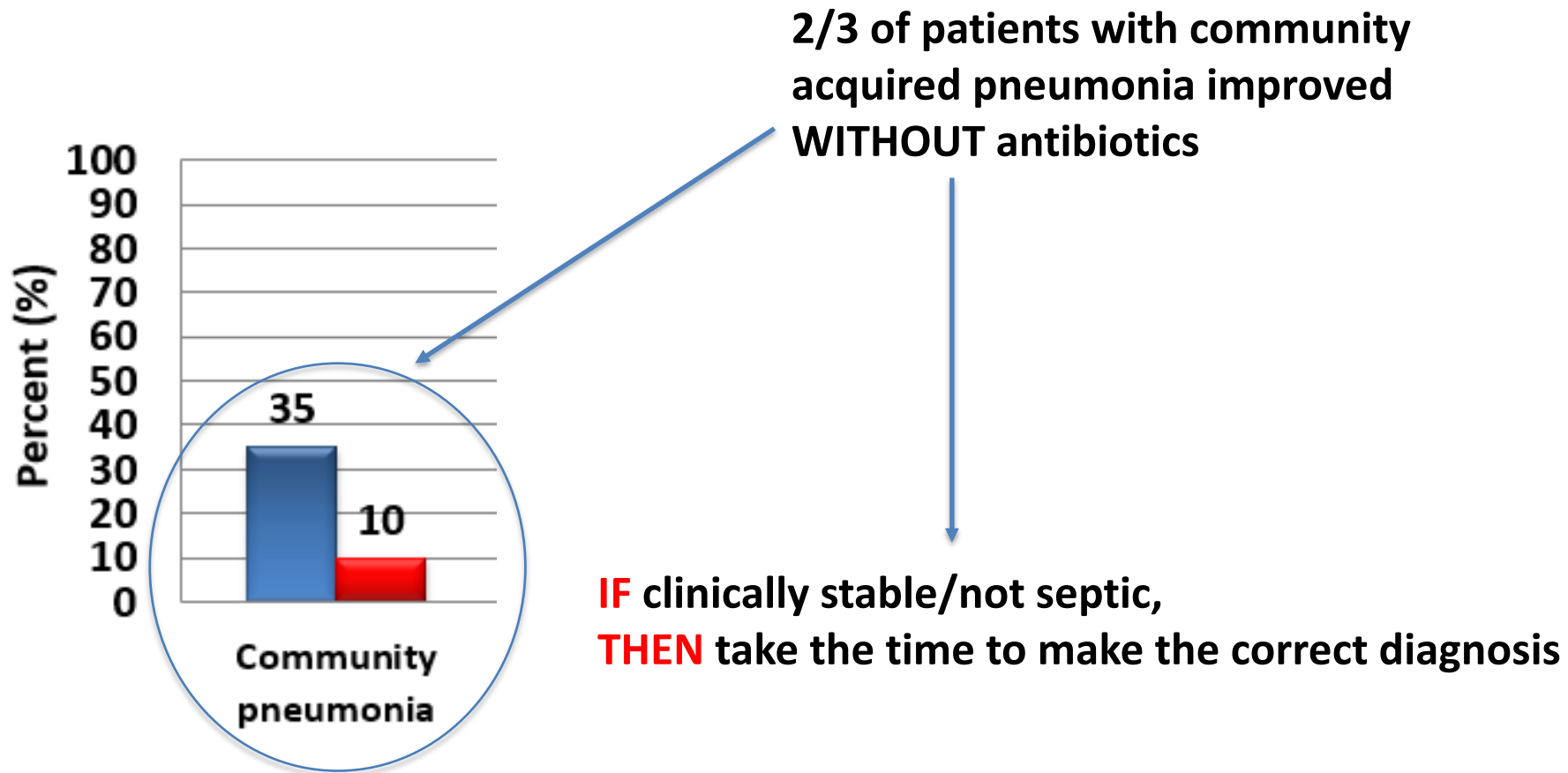




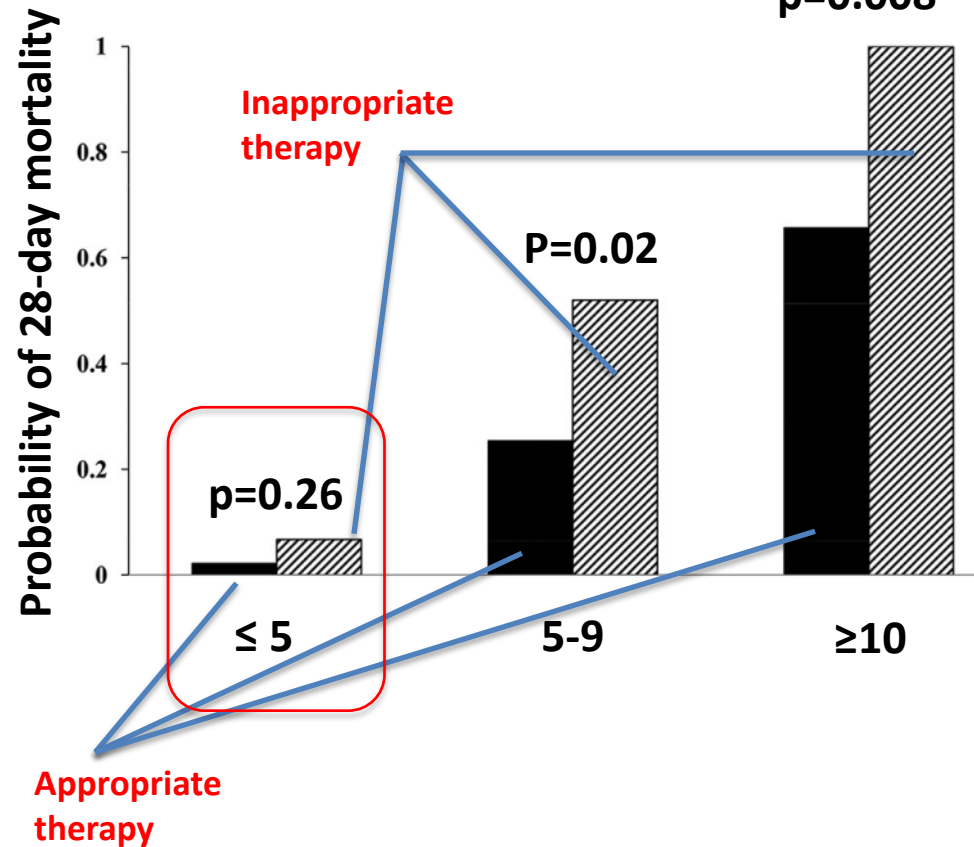
**On the Other Hand:  
Overuse of Antibiotics  
Increases Risk of Resistance,  
with Morbid Consequences**



# What is the Risk of Not Starting Antibiotics in NON-septic cases?



# Risk Depends on Patient-Specific Factors



Bloodstream infection mortality score variables	Score
Malignancy	3
Liver cirrhosis	4
High-inoculum infection*	4
Pitt bacteremia score	
0-1	0
2-3	2
$\geq 4$	5

\*Non-UTI, non catheter-related bloodstream infection

\*\*Pitt bacteremia score:

T (35.1-36 or 39.0-39.9°C, 1 point; 35 or 40°C, 2 points),

BP (hypotension, 2 points),

Mental status (disorientation, 1 point; stupor, 2 points; coma, 4 points),

Respiratory status (mechanical ventilation, 2 points),

Cardiac status (cardiac arrest, 4 points)



## 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

## Stewardship Innovation

- Avoid treatment of asymptomatic bacteriuria
- Single-center Canadian study
- Censor urine culture results for med/surg ward patients

# What if we stopped reporting urine culture results?

Proof of concept study to test intervention, before and after

646 Urine cultures  
16 weeks med/surg units

Positive Urine culture  
N = 151 (23%)

**STEWARDSHIP OPPORTUNITY**

Catheterized  
N = 77

Noncatheterized  
N = 74

UTI  
N=7 (3%)

UTI  
N=10 (2%)

*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.*



***...Once urine culture results are reported, they are difficult to ignore and reflexively result in the prescription of antimicrobial therapy, even for patients with a low suspicion of UTI.***

**Table 2. Outcomes Before and After Implementation of Modified Urine Culture Reporting of Noncatheterized Medical and Surgical Inpatients**

Outcome	Baseline		Intervention	
	Noncatheterized	Catheterized	Noncatheterized	Catheterized
Outcome measure				
ASB treatment rate	15/31 (48)	11/26 (42)	4/33 (12)	18/44 (41)
Process measures				
Total cultures reported	37/37 (100)	28/28 (100)	5/37 (14)	49/49 (100)
Labeling accuracy	35/37 (95)	25/28 (89)	37/37 (100)	41/49 (84)
Unintended consequences				
Calls to laboratory	0 (0)	0 (0)	5/37 (14)	1/49 (2)
Untreated UTI	1/37 (3)	1/28 (4)	0 (0)	0 (0)
Sepsis	0 (0)	1/28 (4)	0 (0)	1/49 (2)

Data are presented as No. (%).

Abbreviations: ASB, asymptomatic bacteriuria; UTI, urinary tract infection.

Censored urine culture results

# What if we **stopped ordering unnecessary** reporting urine culture results?

Proof of concept study to test intervention, before and after

646 Urine cultures  
16 weeks med/surg units

**STEWARDSHIP OPPORTUNITY**

**Upstream opportunity =  
LESS waste, MORE savings**

**Positive Urine culture  
N = 151 (23%)**

**STEWARDSHIP OPPORTUNITY**

Catheterized  
N = 77

Noncatheterized  
N = 74

UTI  
N=7 (3%)

UTI  
N=10 (2%)

*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.*

# Outpatient Opportunities

# Ibuprofen vs. Antibiotics for Treatment of UTI

## A randomized, controlled, double-blind, non-inferiority trial

**N= 383**  
Non-pregnant women, 18-20  
years old, with uncomplicated  
UTI

**N = 194**  
Pivmecillinam 200  
mg TID x3 days

**N = 189**  
Ibuprofen 600 mg  
TID x3 days

**Resolution of symptoms  
on Day 4 per patient diary**

**73.6%**

**38.7%**

**Secondary treatment with  
antibiotics**

**10%**

**46%**

**Pyelonephritis**

**0%**

**4%**



# Would you recommend ibuprofen instead of an antibiotic in a patient with uncomplicated cystitis?

- Yes
- No
- Maybe

# What Is Delayed Prescribing?



## WAIT. DO NOT FILL YOUR PRESCRIPTION JUST YET.

Your healthcare professional believes your illness may resolve on its own.

First, follow your healthcare professional's recommendations to help you feel better without antibiotics. Continue to monitor your own symptoms over the next few days.

- ☐ Rest.
- ☐ Drink extra water and fluids.
- ☐ Use a cool mist vaporizer or saline nasal spray to relieve congestion.
- ☐ For sore throats in adults and older children, try ice chips, sore throat spray, or lozenges.
- ☐ Use honey to relieve cough. Do not give honey to an infant younger than 1.

If you **do not feel better** in  days/hours or feel worse, go ahead and fill your prescription.

If you **feel better**, you do not need the antibiotic, and do not have to risk the side effects.

Waiting to see if you really need an antibiotic can help you take antibiotics only when needed. When antibiotics aren't needed, they won't help you, and the side effects could still hurt you. Common side effects of antibiotics can include rash, dizziness, nausea, diarrhea, and yeast infections.

Antibiotics save lives, and when a patient needs antibiotics, the benefits outweigh the risks of side effects. You can protect yourself and others by learning when antibiotics are and are not needed.

To learn more about antibiotic prescribing and use, visit [www.cdc.gov/antibiotic-use](http://www.cdc.gov/antibiotic-use).



Providers at my institution use delayed prescribing:

Yes

No

Not sure

# Symptom Relief for Viral Illnesses



**BE  
ANTIBIOTICS  
AWARE**

SMART USE, BEST CARE

## 1. DIAGNOSIS

- ☐ Cold or cough
- ☐ Middle ear fluid (Otitis Media with Effusion, OME)
- ☐ Flu
- ☐ Viral sore throat
- ☐ Bronchitis
- ☐ Other:

You have been diagnosed with an illness caused by a virus. Antibiotics do not work on viruses. When antibiotics aren't needed, they won't help you, and the side effects could still hurt you. The treatments prescribed below will help you feel better while your body fights off the virus.

## 2. GENERAL INSTRUCTIONS

- ☐ Drink extra water and fluids.
- ☐ Use a cool mist vaporizer or saline nasal spray to relieve congestion.
- ☐ For sore throats in older children and adults, use ice chips, sore throat spray, or lozenges.
- ☐ Use honey to relieve cough. Do not give honey to an infant younger than 1.

**Available in:**  
**Chinese**  
**English**  
**French**  
**Korean**  
**Portuguese**  
**Spanish**  
**Vietnamese**

## 3. SPECIFIC MEDICINES

- ☐ Fever or aches:

## 4. FOLLOW UP

- ☐ If not improved in  days/hours, if

Rx Patient Name: \_\_\_\_\_

Date: \_\_\_\_\_

The symptoms you presented with today suggest a **VIRAL** infection.

- ☐ Upper Respiratory Tract Infection (Common Cold): Lasts 7-14 days
- ☐ Flu: Lasts 7-14 days
- ☐ Acute Pharyngitis ("Sore Throat"): Lasts 3-7 days, up to ≤10 days
- ☐ Acute Bronchitis/"Chest Cold": Lasts 7-17 days
- ☐ Acute Sinusitis ("Sinus Infection"): Lasts 7-14 days



*When you have a viral infection, it is very important to get plenty of rest and give your body time to fight off the virus.*

### Duration of Illness to manage expectations

You have not been prescribed antibiotics because **antibiotics are not effective in treating viral infections**, can cause side effects (e.g. diarrhea, yeast infections) and may even cause serious harm.

If you follow these instructions, you should feel better soon:

- \* Rest as much as possible
- \* Drink plenty of fluids
- \* Wash your hands frequently
- \* Take over-the-counter medication, as advised:

- ☐ Acetaminophen (e.g. Tylenol®) for fever and aches
  - ☐ Ibuprofen (e.g. Advil®) for fever and aches
  - ☐ Naproxen (e.g. Aleve®) for fever and aches
  - ☐ Lozenges for sore throat
  - ☐ Nasal spray (contact your provider for recommendations) for nasal stuffiness.
- {NOTE: observe label directions; some products are problematic if overused!}
- ☐ Other: \_\_\_\_\_

Please contact your provider if:

- \* Symptoms do not improve in \_ day(s), or worsen at any time
- \* Other: \_\_\_\_\_

Prescriber: \_\_\_\_\_



This material was created by Regina Qu'Appelle Health Region and adapted by the Great Plains Quality Innovation Network, the Medicare Quality Improvement Organization for Kansas, Nebraska, North Dakota and South Dakota, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. 11SOW-GPQIN-KS-C3.10-18/0817

**The prescription pad is for use by providers in managing viral symptoms and can be printed in 5 1/2" x 8 1/2" pads of 50**  
**From: Qualis Health**

# Non-Antibiotics: Summary & Conclusions

## 1.) Defining Risk

- Septic shock - do not delay antibiotics
- Clinically stable inpatient - consider obtaining sufficient diagnostic information before starting antibiotics



## 2.) Inpatient strategies

- Rapid diagnostics may avoid unneeded antibiotic starts
- Reducing unnecessary urine cultures/censoring culture reports

## 3.) Outpatient strategies

- Delayed prescribing
- Non-antibiotic prescriptions
- Resources available at CDC website