

“UTI”: Requiem for a Heavyweight

Tom Finucane

Maryland ACP

February 3, 2018

- No relevant disclosures

Objectives

1. Report an involuntary shudder and feeling of unease each time the phrase “UTI” is uttered.

Objectives

2. Begin “transitioning clinical practice from the Body-as-Battleground to the Human-as-Habitat perspective (which) will require rethinking how one manages the human body.”

Costello E. Science 2012

Limitations

- Some patients require prompt empiric antibiotics without discussion.
- We're considering stable patients with normal urinary tracts.
- Pregnant women and patients soon to undergo invasive urologic procedures benefit from antibiotic treatment of ASB.

What exactly are we talking about?

What do you mean when you say, “I think this patient has a UTI.”

IDSA guidelines for CA-UTI

–**Definition #1**

–Definitions. “UTI refers to significant bacteriuria in a patient with symptoms or signs attributable to the UT and no alternate source.”

Definition 2

- “presence of microbial pathogens within the urinary tract.”

Mody, JAMA, 2104

- “a urinary tract infection is defined as microbial infiltration of the *otherwise sterile* urinary tract”

Barber, Clin Infect Dis 2013

Definition #3

- “Uncomplicated UTI: acute onset of dysuria, frequency, or urgency in a healthy, nondiabetic, adult, nonpregnant woman without known functional or anatomical abnormalities of the urinary tract.”

Grigoryan. JAMA. 2014

Definition 4

- In this document, CA-UTI, CA-ASB, and CA-bacteriuria are each considered to represent infection of the urinary tract, because bacteria are not normal inhabitants of the urinary tract.

Same IDSA CA-UTI guidelines

More definitions, or not

- Pyelonephritis
 - Urinary symptoms not required
- “Bacteremic UTI”, “Urosepsis”
 - 18/133 had urinary symptoms
 - 27/65 had “UTI” as admission dx
- The cause of change in mental or urine status
- Definition is often not given (eg *Mandell*)

What do YOU mean really when you say, “I think she has a UTI”?

- General usage:

I want to give that lady some antibiotics.

- ***Treating a “real UTI”***

A real “UTI

- Significant bacteriuria
Any idea where that came from?
- Symptomatic
Any idea why that happens?

Antibiotic treatment of a “real UTI”

Acute uncomplicated cystitis rarely progresses to severe disease, even if untreated; thus, the primary goal of treatment is to ameliorate symptoms.

Hooton, NEJ, 2012

- But ... how can he say that ... ?
- Based on randomized trials!

Acute uncomplicated cystitis rarely progresses to severe disease, even if untreated; thus, the primary goal of treatment is to ameliorate symptoms.

Hooton, NEJ, 2012

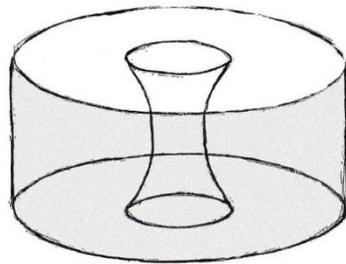
Reflect on the treatment of patients without symptoms.

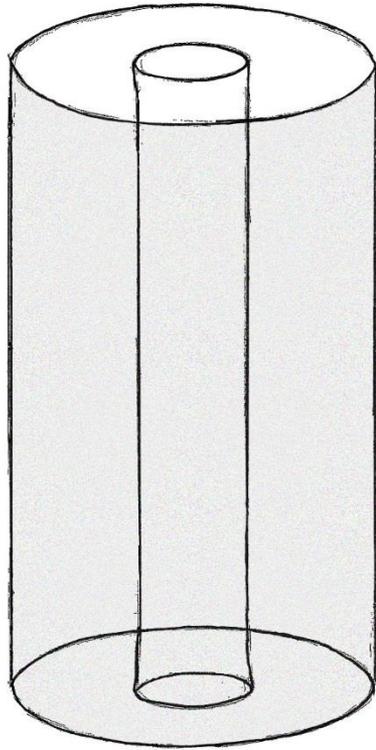
In the era of the microbiome, what does it mean to say

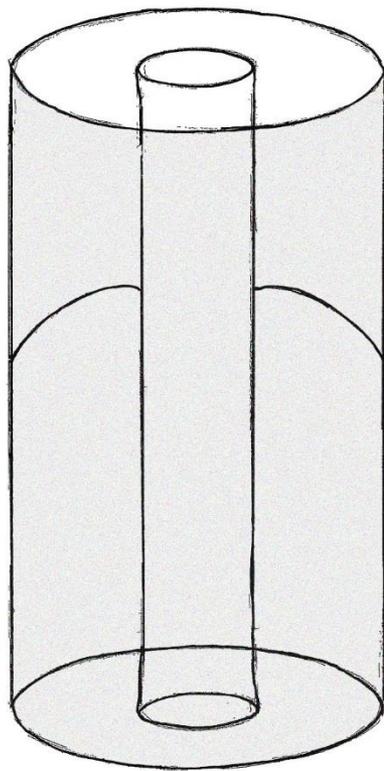
“... because bacteria are not normal inhabitants of the urinary tract”?

IDSA Guidelines

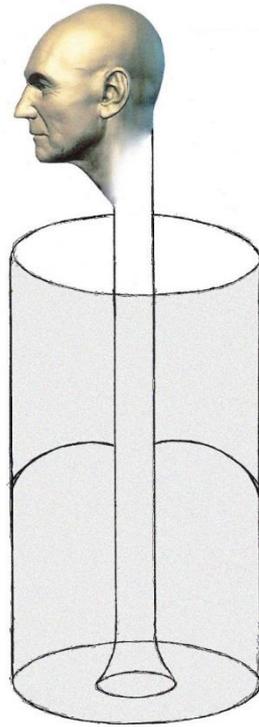
Solid torus

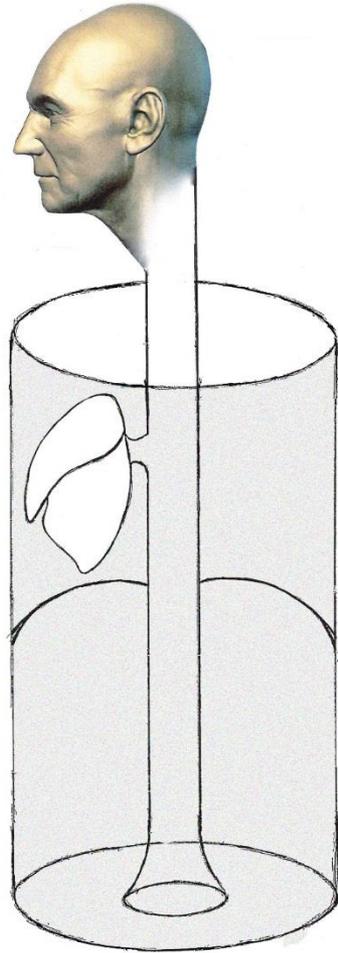


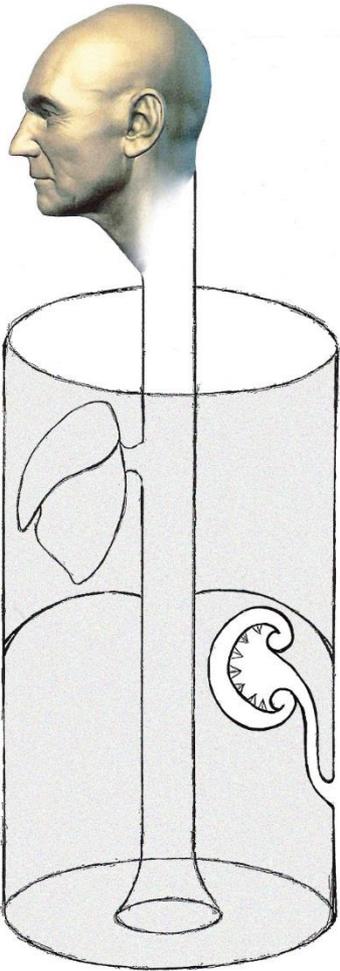


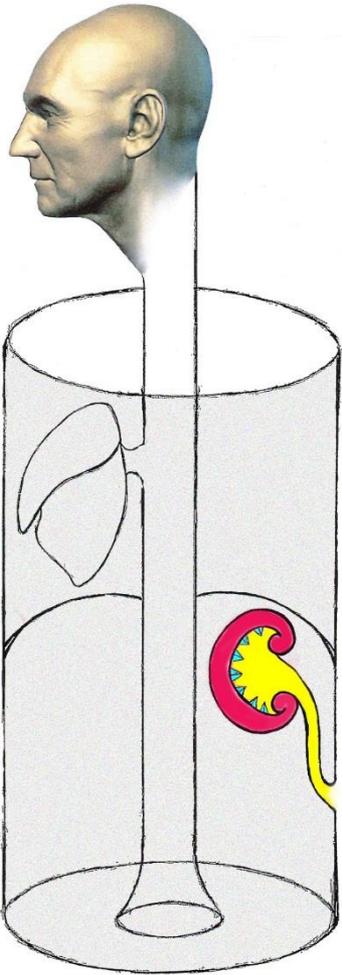


Solid torus as Starfleet Captain









- It is absurd to believe that we could ever claim victory in a war against organisms that outnumber us by a factor of 10^{22} , outweigh us by a factor of 10^8 , have existed for 1000 times longer than our species,
- and can undergo as many as 500,00 generations during 1 of our generations.

Spellberg B.
CID 2008

And actually ...

“Urine is not sterile”

Hilt. J Clin Micro 2014

Using modern diagnostic techniques
“the state of healthy urine is, in fact, one
of ‘asymptomatic bacteriuria’”

Fouts Journal of Translational Medicine, 2102

And there is a ubiquitous urinary virome.

Evidence of Uncultivated Bacteria in the Adult Female Bladder

Wolfe AJ J Clin Microbio. 2012

A diverse microbial community with dozens of species in urines of women with “sterile” urine.

- An expanded quantitative urine culture protocol
 - plating larger volumes of urine
 - incubation under varied atmospheric conditions
 - prolonged incubation times“demonstrate(s) that many of the organisms identified in urine by 16S rRNA gene sequencing are, in fact, cultivable.”

Hilt. J Clin Micro 2014

- Detection of Intracellular Bacterial Communities in Human Urinary Tract Infection. PLoS Med 2007

Rosen DA, Hooton TM, Stamm WE,
Humphrey PA, Hultgren SJ

- The human urine virome in association with UTI.

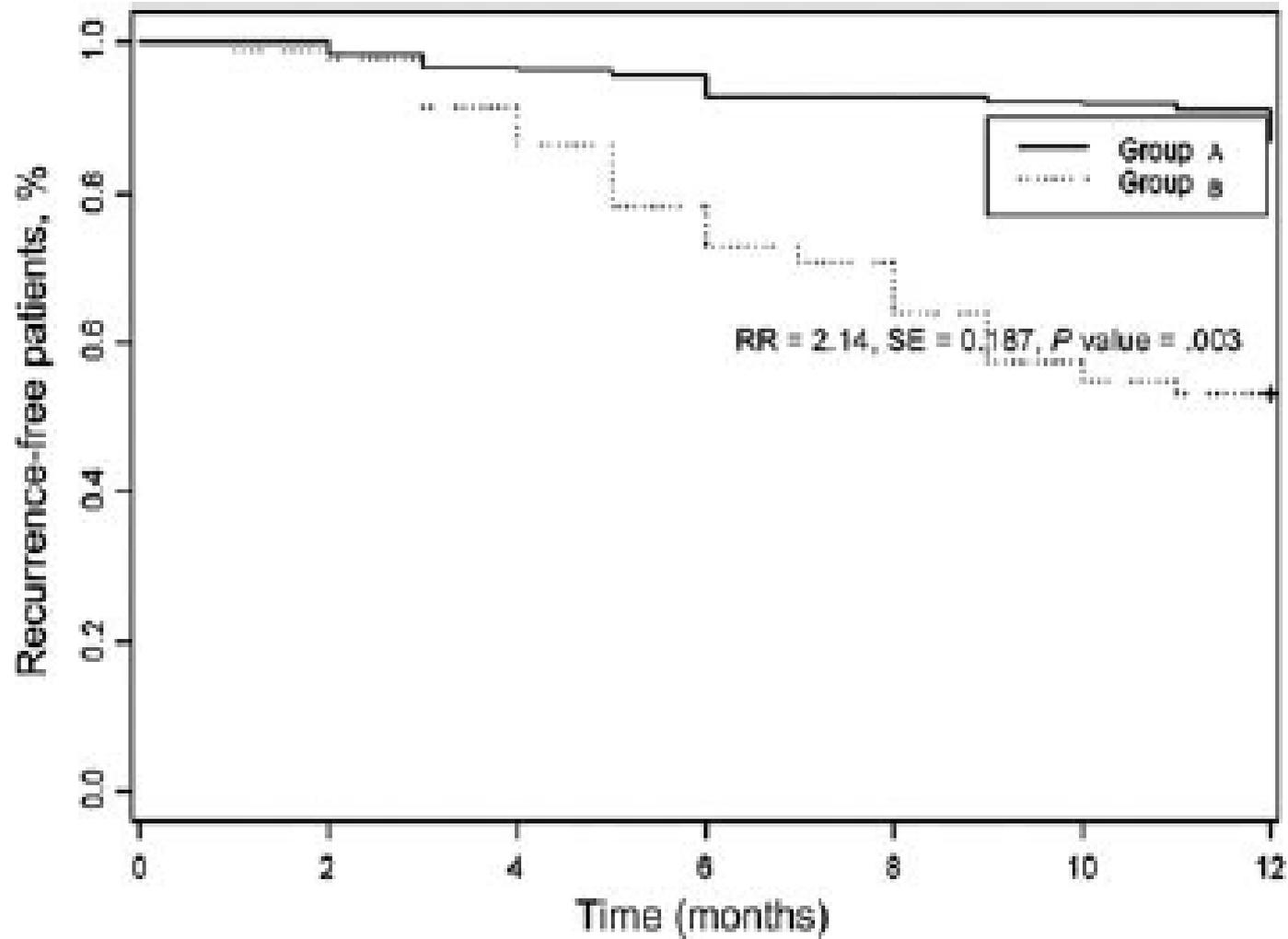
Santiago-Rodriguez. 2015
Frontiers Microbiol

In the era of the microbiome

- 700 women, age 18-40 with asymptomatic bacteriuria
- Recent recurrent “UTIs”
- Randomized to treat/not treat
- F/up at 3, 6, 12 months and call-ins

Cai T. CID 2012

The Role of Asymptomatic Bacteriuria in Young Women with Recurrent UTIs



- “... human medicine has more to do with park management than it does with battlefield strategy.”

Costello

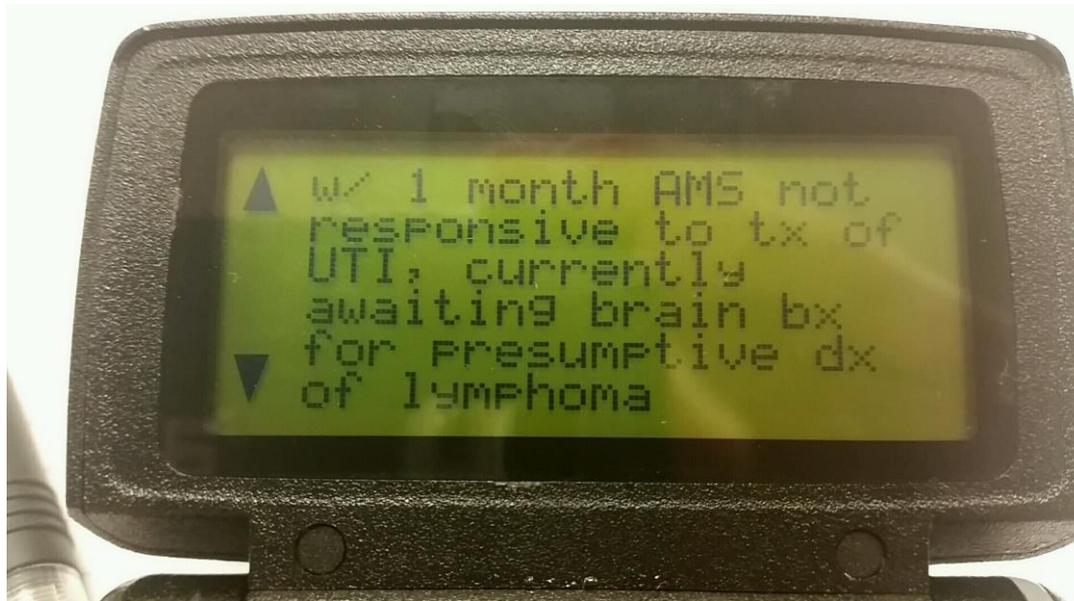
Delirium, other neurologic symptoms, or generalized functional decline in LTC?

- Asymptomatic bacteriuria is the normal state of the healthy urinary tract.
- Could it be that we can safely ignore anything that cannot be cultured with standard clinical lab techniques?
- A study of prosthetic joint infection

Altered mental status is most common reason to culture urine in LTC

- Stone ND. Surveillance definitions of infxn in LTC: Revisiting the McGeer criteria. ICHE 2012
- High KP. Clinical Practice Guideline for the Evaluation of Fever and Infection in LTCFs: Update by the IDSA. CID 2009
- Loeb. Minimum criteria for the initiation of antibiotics in residents of long-term-care facilities: results of a consensus conference. ICHE 2001

Does bacteriuria cause delirium?



Propositions

- Do not ask “does this patient have a real UTI?” (for this is a bogus question).
- Ask instead “is benefit more likely than harm if we give antibiotics?”
- If you use the term “UTI”, accompany it with the bimanual “air quotes” sign

Objectives

1. Report an involuntary shudder and feeling of unease each time the phrase “UTI” is uttered.

Objectives

2. Begin “transitioning clinical practice from the Body-as-Battleground to the Human-as-Habitat perspective (which) will require rethinking how one manages the human body.”

Costello E. Science 2012