Tests I Wish You'd Never Ordered

(Choosing Wisely ©)

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I have no financial relationships to disclose

75 YEARS OF DEDICATION TO OUR MEMBERS

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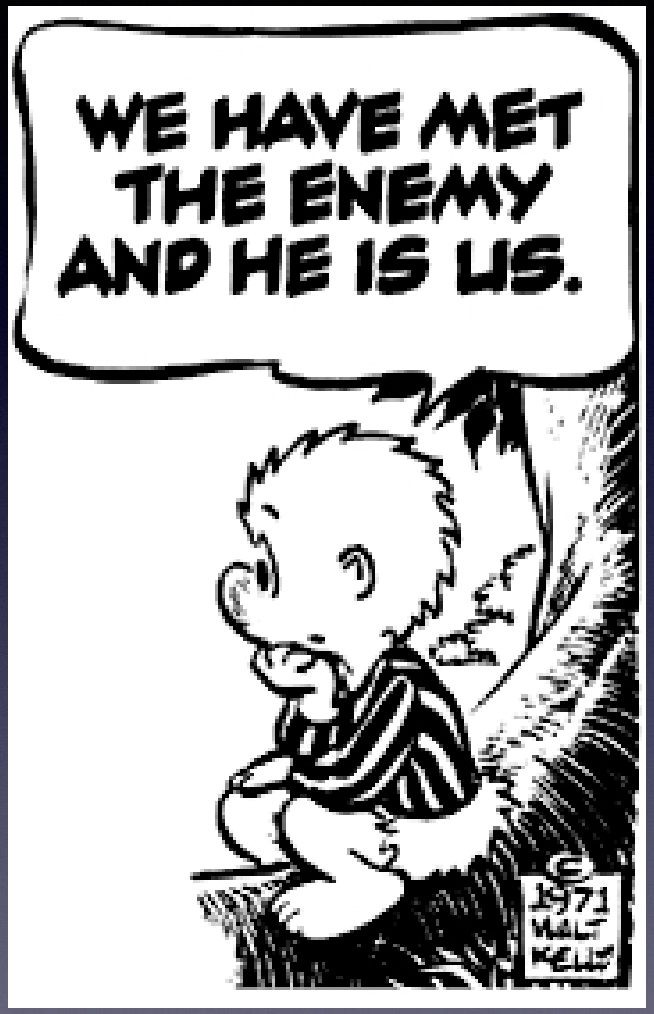
“We have met the enemy and he is us.”


WE HAVE MET THE ENEMY AND HE IS US.

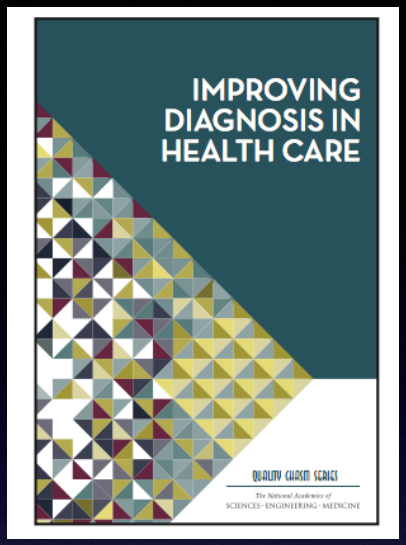

AH, POGO, THE BEAUTY OF THE FOREST PRIMEVAL GETS ME IN THE HEART.
IT GETS ME IN THE FEET, PORKYPINE.
IT IS HARD WALKIN' ON THIS STUFF.
YEP, SON, WE HAVE MET THE ENEMY AND HE IS US.

Walt Kelly

Medical Error Is Third Leading Cause of Death in US

Medical error is the third leading cause of death in the United States, after heart disease and cancer……say authors Martin Makary, MD, MPH, professor of surgery, and research fellow Michael Daniel, from Johns Hopkins University School of Medicine.

BMJ 2016;353:i2139



Sept 22, 2015

Improving Diagnosis in Health Care, a continuation of the landmark Institute of Medicine reports *To Err Is Human: Building A Safer Health System* (2000) and *Crossing the Quality Chasm: A New Health System for the 21st Century* (2001) finds that diagnosis—and, in particular, the occurrence of diagnostic errors—has been largely unappreciated…… The committee concluded that most people will experience at least one diagnostic error in their lifetime, sometimes with devastating consequences.

What???

A friend who had been coughing for three weeks received the following email from her internist after a clinic visit: "Chest x-ray impression: 3.6 × 2.3 × 6.0 cm left upper lobe mass. This may represent a focal pneumonia; however, at patient's age, a primary lung malignancy is highly concerning. Recommend CT chest with contrast for further evaluation."

Friedman E. You've Got Mail. JAMA, June 7, 20

The report was accompanied by this "personal" note:
"Miss ——, please be seen in the ER if not feeling better. Clearly it's pneumonia and suspicion of malignancy that requires CT chest and pulmonary consultation. Hope all goes well, good luck with everything!"

Friedman E. You've Got Mail. JAMA, June 7, 2016

- Several years ago I went to my internist and he suggested that I get an MRI of my heart...I asked why...I didn't have any risk factors and I didn't have any symptoms...the internist said that these MRIs are incredible and really informative.
  I said OK...but I didn't get it

from…..Ellen M. Friedman, MD, FAAP, FACS
Professor, Otolaryngology
Director, Center for Professionalism in Medicine
Baylor College of Medicine

- The next year, the internist looked in my chart and said that he couldn't find the results of my cardiac MRI...and I admitted that I hadn't gotten it because I didn't see why I needed one. The internist said that it was really important to get this as a baseline study even though I didn't have symptoms, so that in the future we would have this information. I still didn't see the point, but I thought if this guy has asked for this twice, I might as well get it… WELL...

- I got the cardiac MRI. The MRI said that I have the heart of a 23 year old…PERFECT. All vessels were healthy… BUT they saw a mass in my lung that needed attention

- I was shocked

- I didn’t smoke or have any risk factor...BUT the Chief of Pediatrics at my hospital had died two years earlier of lung cancer, also without any risk factors....so I was worried. This was followed up with PFTs, and a PET scan of the lungs...the PET scan showed the lung mass AND a breast mass which raised the concern of breast cancer

- Eventually, after repeated visits, mammograms etc and a great deal of personal distress it turned out that I did NOT have breast or lung cancer and the lung lesion was a probable teratoma, present since birth, which required another image a year later...but no further workup or biopsy...ALL BECAUSE OF THE CARDIAC MRI THAT I DIDN’T NEED!!!!!!

Primum non nocere…..

Someday, YOU - and every single person you know and love - will be a patient

Our Previous Opinionated Panelists

- Mark Baldwin, DO (Nephrology)
- Jack Bragg, DO (Gastroenterology)
- John Bulger, DO (Internal Medicine)
- Martin Burke, DO (Cardiology)
- Robert Chilton, DO (Cardiology)
- Patrick Cullinan, DO (ICU)
- Mitchell Davis, DO (Gastroenterology)
- Robert DiGiovanni DO, Rheumatology
- Gregg Friess, DO (Hematology/Oncology)
- Scott Girard, DO (Internal Medicine)
- Robert Hasty, DO (Internal Medicine)
- Leonard Hock, DO (Geriatrics)
- Kevin Hubbard, DO (Hematology/Oncology)
- Marc Kaprow DO (Palliative Care)
- Bryan Martin, DO (Allergy/Immunology)
- Jack Prior, DO (Nephrology)
- Robbie Rose, DO (Neurology)
- John Sutton, DO (Endocrinology)
- Paul Wenig, DO (Rheumatology)
- Sandra Willsie, DO (Pulmonary / Critical Care)

- Robert DiGiovanni DO, FACOI
  Rheumatology
- Stephen Sokalski DO, FACOI
  Infectious Disease
- Kevin Hubbard DO, MACOI
  Hematology/Oncology

Tests I wish you'd never ordered: ANA

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Disclosures: None


Bermuda formal attire
AOA approved when too warm for traditional Osteopathic leisure suit
ACGME approval pending

Case #1: Routine Physical Exam

- 34 year old single Mom presents for Rheumatology consultation for positive ANA speckled pattern 1:160
- CFO at computer programming Co.
- High degree of concern: “My Doctor told me I have Lupus.”

- What symptoms were you having that prompted your Doctor to order an ANA?
- “I have no symptoms. He found it on my routine blood tests.”
- Already a danger signal: Ordering tests in an asymptomatic population.

- Are you having joint pains or unusual rashes?
- “No”
- Do you have dry eyes or mouth?
- “No”
- Have you had miscarriages or blood clots?
- “No”

- Do you have muscle weakness or difficulty swallowing?
- “No”
- Any hair loss? “No”
- Fatigue, fever, something? “No”

- Physical exam: Top 1% of patients I have ever seen.
- CBC, CMP, Complete UA, ESR, CRP, TSH, Lipids, RF normal
- As expected of me, I order anti-dsDNA Ab, Lupus anticoagulant, Cardiolipin Abs, Beta-2 glycoprotein, complements, anti-thyroid Abs, Hep C serology and SPEP: negative or normal

- Well, good news: I don’t find any significant clinical findings of Lupus or other autoimmune disease at this time.
- Let’s recheck things in 6 months to be safe.

- Problem is: She had been denied disability insurance because her Doctor had diagnosed her with Lupus in his EHR. No matter what I say, this will follow her for life. An Actuarial has decided her future.
- She never develops signs or symptoms of Lupus
- The following year, she is involved in a serious MVA. Unable to resume employment, she is destitute awaiting social security.
- Did we help her or fail her? (rhetorical)

Case #2: Fatigue

- 55 y/o WF with Chief c/o fatigue
- No other organ specific complaints, e.g., sicca complex, arthritis, C-P, GI, GU
- Typical labs ordered: CBC, CMP, TSH but also an ANA.
- Normal except pos. ANA 1:160 speckled

- Possible Lupus?
- Patient is started on prednisone 30mg po daily and tapered off over one month.
- Initially feels increase in energy but symptoms of fatigue recur
- Steroids repeated several times over the ensuing months.

- She develops severe low back pain and pain in the right groin
- Rheumatology referral prompted
- Work-up reveals an L-2 compression and osteonecrosis (AVN) of the right hip
- SPEP and IFE show a MGUS
- Berlin questionnaire puts her at high risk for sleep apnea (fatigue)

- Hard to make a causal relationship between fatigue and a pos. ANA
- Look for other causes of the fatigue as Lupus is a diagnosis of exclusion
- Micro-Architectural changes in bone tissue can occur quickly with steroids within 3 months. (VERT)
- Unnecessary steroid complications in this case.

SLICC† Classification Criteria for Systemic Lupus Erythematosus

RheumTutor.com

Requirements: ≥ 4 criteria (at least 1 clinical and 1 laboratory criteria)
OR biopsy-proven lupus nephritis with positive ANA or Anti-DNA

Clinical Criteria

1. Acute Cutaneous Lupus*
2. Chronic Cutaneous Lupus*
3. Oral or nasal ulcers *
4. Non-scarring alopecia
5. Arthritis *
6. Serositis *
7. Renal *
8. Neurologic *
9. Hemolytic anemia
10. Leukopenia *
11. Thrombocytopenia (<100,000/mm^3)

Immunologic Criteria

1. ANA
2. Anti-DNA
3. Anti-Sm
4. Antiphospholipid Ab *
5. Low complement (C3, C4, CH50)
6. Direct Coombs' test (do not count in the presence of hemolytic anemia)

†SLICC: Systemic Lupus International Collaborating Clinics
* See notes for criteria details

Petri M, et al. Arthritis and Rheumatism. Aug 2012

Guidelines for the Clinical Use of the ANA

Primer on the Rheumatic diseases
thirteenth edition
Appendix II p. 688

Very useful

- SLE 95-100 %
- Systemic Sclerosis 60-80 %

Somewhat Useful

- Sjogrens Syndrome 40-70 %
- Inflammatory myositis 30-80 %

Useful for monitoring or prognosis

- Juvenile chronic oligoarticular arthritis with uveitis 20-50 %
- Raynauds 20-60 %

ANA intrinsic part of Diagnostic criteria

- Drug-Induced Lupus 100%
- Auto-immune Hepatic Disease 100%
- MCTD 100%

ANA not useful

- Rheumatoid Arthritis 30-50 %
- Multiple Sclerosis 25 %
- ITP 10-30 %
- Thyroid Disease 30-50 %
- Fibromyalgia 15-25 %
- Discoid Lupus 5-25 %

ANA positivity in Normal persons

- >/= 1:40 titer 20-30 %
- >/= 1:80 titer 10-12 %
- >/= 1:160 titer 5 %
- >/= 1:320 titer 3 %

Clinical Utility of ANA outside the Rheumatology Clinic

- Retrospective study 2013
- The authors (Rheumies) reviewed the records of patients referred to them from 7/2007 - 7/2009 for pos ANA
- PPV for pos ANA for ANA-associated rheumatic diseases and Lupus specificity was calculated

- 232 patients were seen for a pos ANA
- In this cohort, the ANA had a positive predictive value for Lupus of 2.1% and any ANA-associated Rheumatic disease of 9.1%
- No ANA-associated rheumatic disease was found in any patient with ANA < 1:160 titer
- Most common reason for ANA testing was widespread pain (54/232 23.2%)

- Hence, about 90% of patients referred to these Rheumies had no evidence of an ANA-associated rheumatic disease
- The poor predictive value of ANA for Rheumatic disease is thought to be be attributable to low pre-test likelihood of ANA-assoc rheum ds
- Abeles, AM; Abeles, M. AM J. Med 2013 Apr 123(4)

How about ANA in the hospital setting?

- Slater, et al: Arch Int Med 1996
- retrospective study in a 400 bed teaching hospital
- Consecutive 10 months: 1010 patients in whom ANA was ordered
- Sensitivity, specificity, PPV, NPV calc.

- 153 positive ANA
- Patients > 65 more likely to have +ANA
- SLE dx established in 17 patients
- Other ANA-associated rheumatic diseases established in 22 patients

- Sensitivity of the ANA test for Lupus: 100%
- Specificity of the ANA for Lupus: 86%
- Other Rheumatic Diseases: sensitivity: 42% and specificity 85%
- BUT: the PPV of the ANA test was only 11% For Lupus and 11% for other rheumatic diseases

- Conclusions: Although the ANA had a high sensitivity and specificity for Lupus, the PPV was very low in this cohort of hospitalized patients
- Clinicians should be aware of the low PPV in patients without symptoms of rheumatic disease, particularly the elderly
- Selectivity could increase PPV

When to order an FANA

- Patient with polyarthritis (particularly in the presence of rash)
- Sicca Complex
- Suspected Lupus Nephritis
- Myositis
- Clinical Scleroderma/Sclerodactaly
- Multisystem disease

- Hematological disease (Leukopenia, hemolytic anemia, thrombocytopenia)
- Anti-Phospholipid AB syndrome
- Polyserositis
- In the Ddx of Neuro-psychiatric ds

When Not to order an ANA

- Routine Lab or as part of a Routine Physical
- Low Back Pain
- Fatigue? All by itself; I would say “No”
- Older patient with obvious Nodal OA of the hands
- Hospitalized patient without signs or symptoms of Rheumatic Disease. The Rheumie team with get revenge in the the form of extended length of stay !


Old Brain
"Filter"
Young Brains
New ideas!

Thank you!

TESTS I WISH YOU'D NEVER ORDERED

Stephen Sokalski DO, FACOI

Advocate Christ Medical Center

Disclosure Information
ACOI 75th Annual Convention & Scientific Sessions

- I have no financial relationships to disclose.

ACOI 75
75 YEARS OF DEDICATION TO OUR MEMBERS

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PAN CULTURE, INCLUDING UA, WITH REFLEX TO CULTURE AND SUSCEPTIBILITY TESTING

Advocate Christ Medical Center

SITUATION

- (NURSE) DOCTOR, YOUR PATIENT WAS JUST ADMITTED FROM LAST ROUNDUP NURSING HOME. SHE DOESN'T FEEL WELL. IT'S FRIDAY PM AND THE NURSING HOME SENT HER TO THE ER TO BE ADMITTED. WHAT DO YOU WANT ME TO ORDER?
- (DOCTOR) ROUTINE LABS AND PAN CULTURE.
- (NURSE) CBC, CMP, BLOOD CULTURES AND UA WITH REFLEX TO CULTURE AND SENSITIVITIES. PT IS INCONTINENT, IT'S FRIDAY, SO SHE HAS A FOLEY INSERTED.

LAB RESULTS

- CBC NORMAL
- CMP = ELEVATED BUN AND CREATININE
- UA = 30 TO 50 WBCS
- URINE CULTURE SENT AND PENDING
- THIRD DAY OF ADMISSION, PATIENT IS IMPROVING, BUT THE URINE CULTURE IS GROWING >100,000 MDRO E COLI
- GODAMYCIN IS ORDERED FOR “UTI”
- YOUR HOSPITAL IS CREDITED FOR HAVING A CAUTI AND WILL BE FINANCIALLY PENALIZED

THE REAL FACTS

- ASYMPTOMATIC BACTERIURIA WITH PYURIA IS COMMON IN NURSING HOME PATIENTS (25%TO 50% OF WOMEN, 25% TO 40% OF MEN). IT IS A BENIGN CONDITION.
- PREVENTION OF SYMPTOMATIC UTI IS NOT PREVENTED BY ANTIBIOTIC TREATMENT.
- ANTIBIOTIC TREATMENT WILL INCREASE THE RATE OF ANTIBIOTIC RESISTANT BACTERIURIA.
- 1/3 OF UNTREATED ASB PATIENTS WILL HAVE NEGATIVE CULTURES IN 6 MONTHS, 1/3 WILL HAVE A NEW ORGANISM
- 45% TO 65% OF ASYMPTOMATIC BACTERIURIA PATIENTS RECEIVE INAPPROPRIATE ANTIBIOTIC THERAPY.
- GUESS WHY WE HAVE SUCH HIGH CRE RATES IN ECFS ?

THE REAL FACTS

- CLOUDY URINE IS NOT AN INDICATION OF A UTI
- FOUL SMELLING URINE IS NOT AN INDICATION OF A UTI
- UNEXPLAINED ACUTELY ALTERED MENTAL STATUS ALONE IS NOT AN INDICATION OF A UTI
- FEVER WITH NO OTHER EXPLANATION IS NOT
- RIGORS WITH NO OTHER EXPLANATION IS NOT

THE REAL FACTS

- SYMPTOMS OF A UTI INCLUDE:
  - DYSURIA
  - TEMP OF 38C OR HIGHER
  - WBC > 12,000
  - URINARY FREQUENCY, FLANK PAIN, HEMATURIA.
- TESTING IS INDICATED FOR URINARY RETENTION, OBSTRUCTION OF A FOLEY CATHETER, ACUTE NEPHROLITHIASIS, SEPSIS WITH NO SOURCE

THE REAL FACTS

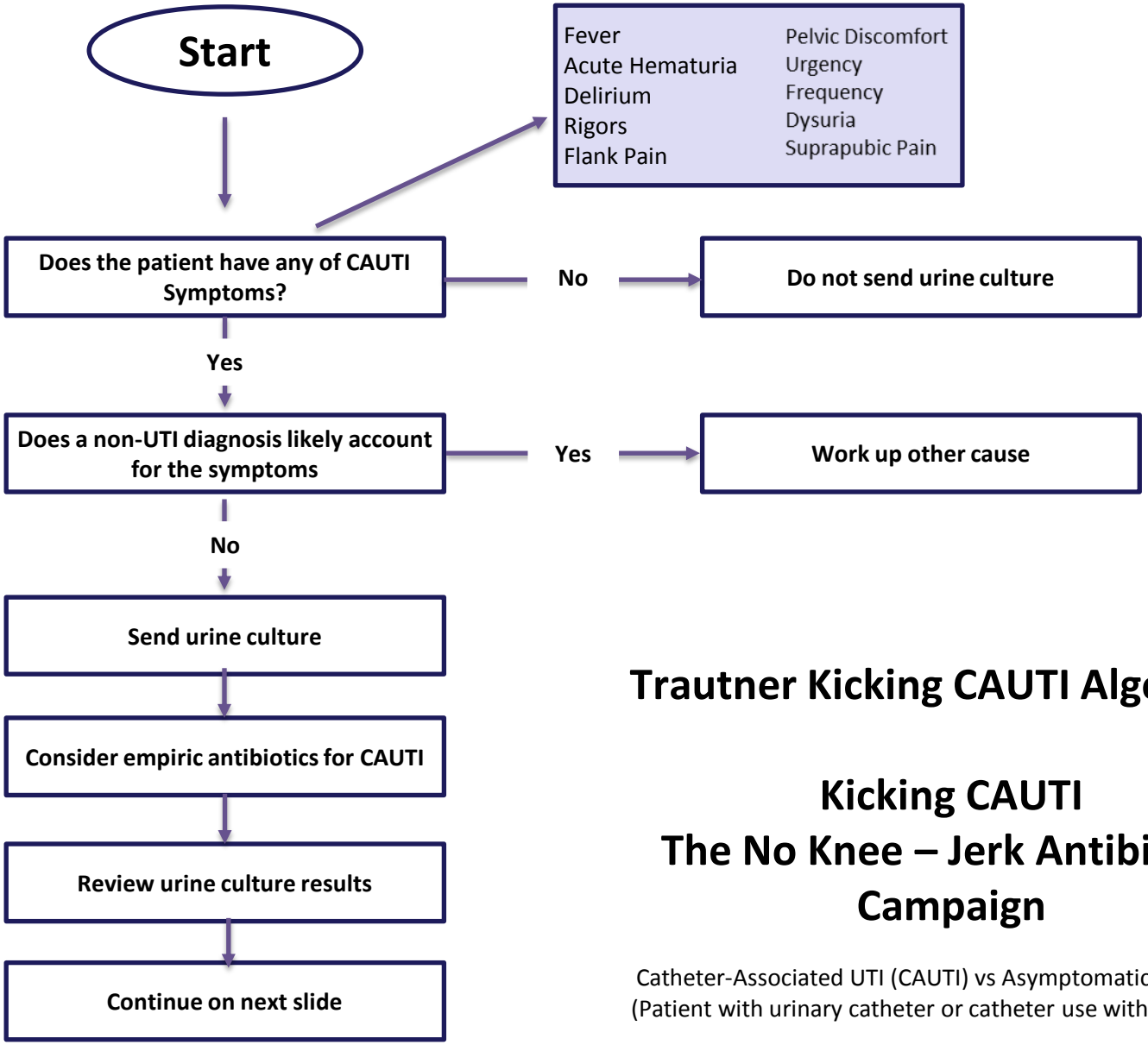
- THE ONLY COMMON REASONS FOR CULTURING AND TREATMENT OF ASYMPTOMATIC PYURIA/BACTERIURIA ARE:
  - BACTERIURIA IN PREGNANCY
  - BACTERIURIA IN A PATIENT WHO IS TO UNDERGO CYSTOSCOPY OR OTHER INVASIVE UROLOGIC PROCEDURE

THE TRUE FACTS

- CULTURES FROM PATIENTS WITH INDWELLING FOLEYS SHOULD BE DONE BY REMOVING THE FOLEY CATHETER, THEN GETTING THE CULTURE AFTER INSERTION OF A NEW CATHETER.
- FOLEY CATHETERS LEFT IN PLACE FOR >72 HOURS DEVELOP A BIOFILM WHICH HARBORS MICROORGANISMS.
- CULTURING THE FOLEY TIP OR URINE FROM AN INDWELLING CATHETER WILL IDENTIFY BIOFILM ORGANISMS NOT NECESSARILY THE CAUSE OF A UTI

THE DOWN SIDE

- INAPPROPRIATE URINE CULTURES CAN LEAD TO:
  - INAPPROPRIATE ANTIBIOTIC USAGE
  - POOR ANTIBIOTIC STEWARDSHIP
  - SELECTION FOR RESISTANT MICROORGANISMs
  - CLOSTRIDIUM DIFFICILE COLITIS
  - INCREASED LENGTH OF STAY
  - INCREASED COST OF STAY
  - SIDE EFFECTS OF THE ANTIBIOTICS, INCLUDING ENCEPHALOPATHY
  - CMS PENALTIES FOR CAUDI WHICH AFFECTS ALL MEDICARE BILLING (A LOT)



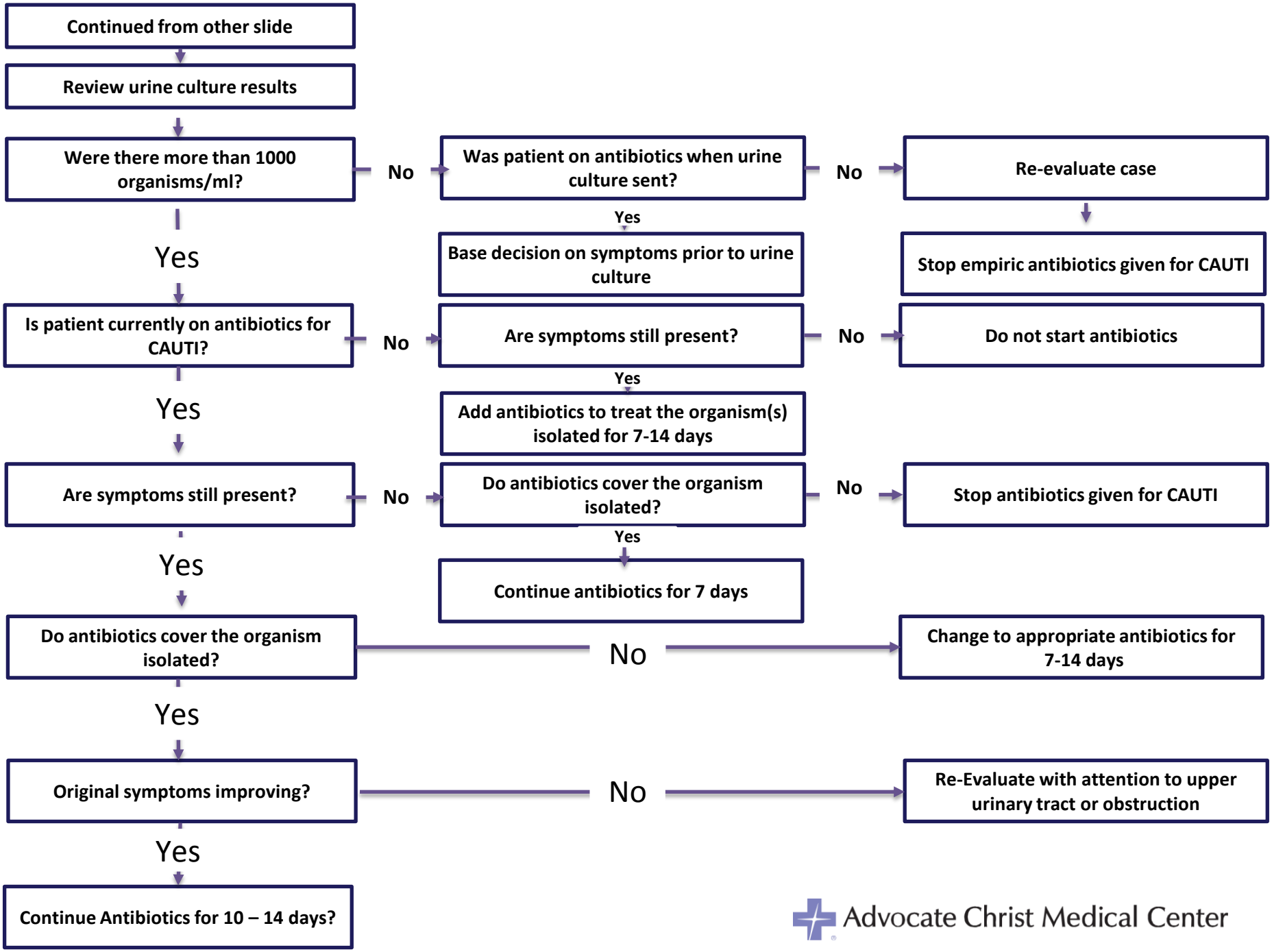
Trautner Kicking CAUTI Algorithm

Kicking CAUTI
The No Knee – Jerk Antibiotics Campaign

Catheter-Associated UTI (CAUTI) vs Asymptomatic Bacteriuria
(Patient with urinary catheter or catheter use within 48 hours)

MICHAEL E. DEBAKEY VETERANS AFFAIRS MEDICAL CENTER

Advocate Christ Medical Center



Advocate Christ Medical Center

Tests I Wish You'd Never Ordered 2016

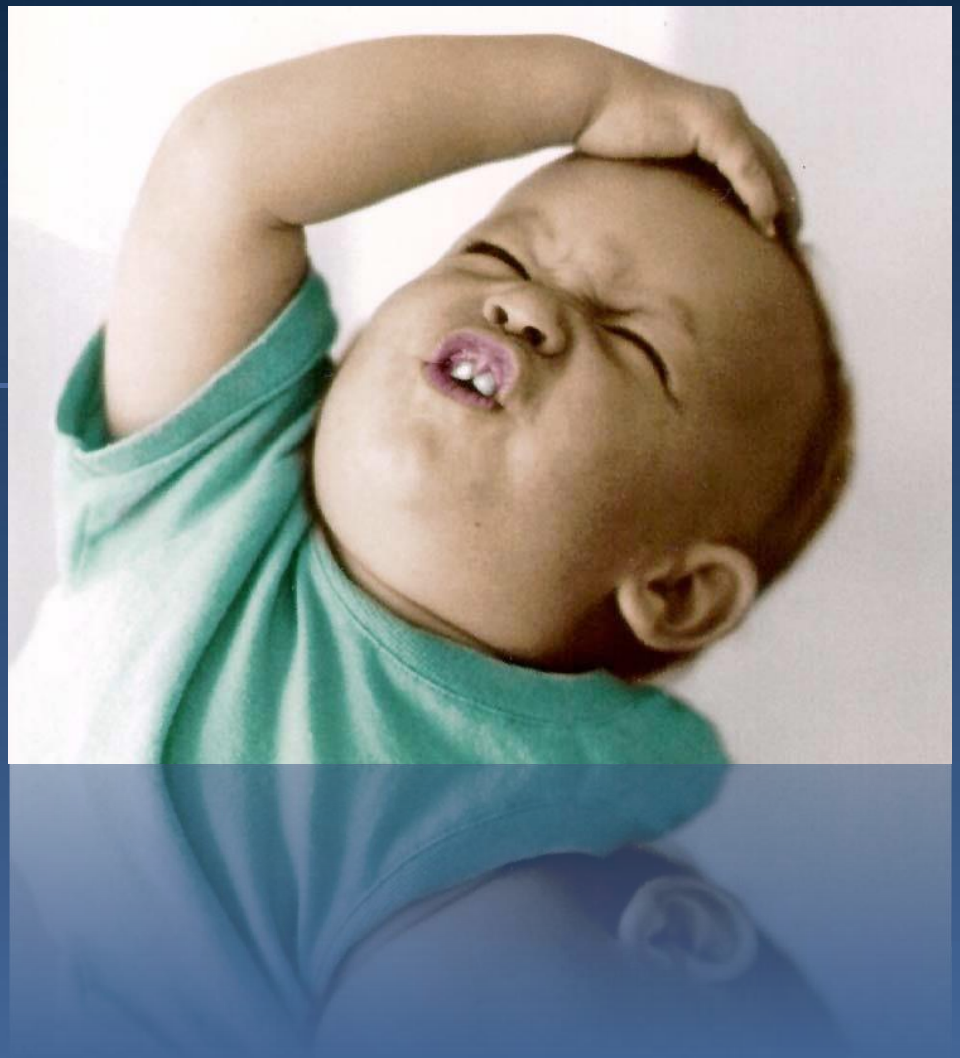
"Here We Go Again!!!"

Kevin P. Hubbard, DO, MACOI

Chief - Division of Specialty Medicine

Professor and Chair - Section of Internal Medicine

Kansas City University - College of Osteopathic Medicine



Case #1

- 88 y/o woman with end-stage diastolic heart failure, chronic kidney disease, paroxysmal a-fib, recurrent CHF with multiple hospitalizations most recently with respiratory failure necessitating BiPAP, desiring to pursue comfort care with hospice
- Resides at ECF, followed by hospice; DNR and advance directive in place
- ECF staff found that patient had inadvertently removed her O_2 during the night, patient was resting comfortably and not in distress
- ECF staff checked pulse-ox “just to see” at 45%

Case #1

- ECF staff contacted 911, had patient transported to local hospital.
  - ER evaluation included CT/angio of chest to r/o PE (despite a normal D-dimer, platelet count, and PT/PTT), multiple labs, cardiac enzymes
- NO notification of family or hospice RN. Admitted to ICU for further care. Pt. placed on BiPAP (one thing she said she didn't want)
- Hospital notified hospice RN and administrator on call
- Six hours of discussion with facility, family ensued
- Plans, all of which had been made previously, were reinstated and patient transferred back to facility…cost $17,000

Case #2

- 78 y/o man with end-stage dementia and a renal mass suspected to represent renal cell carcinoma who resides in ECF; has diagnosis of COPD and has used O_2 for exacerbations in past
- Resides at ECF, followed by hospice; DNR and advance directive in place
- Patient was resting comfortably and not in distress
- ECF staff chose to do pulse oximetry “just in case”: result was 47%

Case #2

- ECF staff contacted 911, had patient transported to local hospital. With low pulse oximetry, EMS elected to intubate patient in the field prior to transfer
- ER evaluation included ABG, multiple labs, cardiac enzymes
- NO notification of family or hospice RN. Admitted to ICU for further care

Case #2

- Hospital notified hospice RN and administrator on call
- Family notified 5 hours after initial event, requested extubation in view of patient's advance directive and DNR request
- Patient transferred back to facility within 48 hours where he currently resides
- Cost: $27,000

Discussion

- **Dyspnea…**

"a term used to characterize a subjective experience of breathing discomfort that is comprised of qualitatively distinct sensations that vary in intensity. The experience derives from interactions among multiple physiological, psychological, social, and environmental factors, and may induce secondary physiological and behavioral responses."

Consensus statement of the American Thoracic Society, 2012

Discussion

- Is the patient dyspneic?
  - Resting quietly in room
  - No distress
- What was the problem?
  - Pulse ox read 45% in first case, 47% in the second

How Reliable is Pulse Oximetry?

Other variables to consider…

- Carbon monoxide - pulse oximeter may not distinguish between Hb bound to O_2 and CO
- Methemoglobinemia - in high amounts, will cause a false reading SaO_2 ~85%
- Anemia - falsely lowers SaO_2
- Conditions that affect SaO_2 sensing
  - Hypotension of any cause
  - Bright lights
  - Electromagnetic fields
  - Fingernail polish
  - Skin pigmentation

Important Points to Consider

- “No element of the physical examination or laboratory investigation can reliably imply the presence or intensity of dyspnea. Respiratory rate, blood gas values, and pulmonary function testing all correlate poorly with patients' reports of breathlessness. The patient's own description of his or her symptom is the only reliable indicator of dyspnea”

Shadd J, Dudgeon D; Dyspnea; In Palliative Medicine, 2nd ed, 2009

- In a terminally ill patient who is not in distress, there is ***no role*** for pulse oximetry!!!