

The Urine Dipstick: A Quick Way To Over-Treat!

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Objectives

- * Discuss what is a Urinary Tract Infection (UTI)
- * Reflect on current practices and beliefs around UTI
- * Understand the laboratory's perspective
- * Share evidence-based strategies to recognize signs and symptoms of UTI in the LTC setting
- * Discuss benefits and risks of treatment
- * Consider significant changes we can make in practice

What is a Urinary Tract Infection



- * It is an invasion and multiplication of microorganisms of one or more structures in the urinary system, causing an infectious disease
- * Treatment depends on symptoms and lab results
- * Most common bacterial infection in elderly
- * UTI accounts for 25-30% of bacterial infections in older adults (Richards 2004)
- * Most common reason for antimicrobial prescriptions in LTC

Why are UTIs common in the elderly?

- * Incontinence
- * Intermittent or long-term indwelling catheterization
- * Dehydration
- * Immobility
- * Age-related physiological changes
- * Chronic disease such as diabetes
- * Over-screening without symptoms

Current Beliefs

- * Urine is sterile, therefore bacteria in the urine is bad!
- * Smelly urine is bad!
- * We should know what is in the urine on admission so we can detect changes!

Screening



- * Screening for and treatment of asymptomatic bacteremia in elderly residents of long-term care homes is not recommended (Nicolle et al. 2005)
- * Repeated screening following treatment is not indicated.
- * The nurse has a crucial role in identifying the subtle or atypical symptoms of a UTI (Midthun)

Overtreatment & inappropriate treatment contributes to:

- * Antibiotic Resistance
- * Drug Interactions
- * Adverse Effects
- * Kidney Failure

Challenges to Assessment of UTI

- * Severe underlying conditions such as:
 - * Cognitive impairment
 - * Aphasia
 - * Altered Sensation
 - * Medications
 - * Incontinence
 - * Resident/Significant Decision Maker pressure to “do something”
 - * Lack of febrile response

Algorithm

- * Using an Algorithm to assist in the diagnosis of a UTI and not just a requisition
- * Identify the signs and symptoms
- * Rule out alternative diagnosis

Clinical Assessment

- * If fever is present (37.9 or 1.5 degrees C above baseline on 2 occasions in the last 12 hours), order C&S if one other sign or symptom (Loeb et al. 2005)
- * If no fever is present, order C&S if 2 or more signs or symptoms



Signs and Symptoms

- * Dysuria (burning)
- * Urgency
- * Urinary catheter
- * Frequency
- * Flank pain
- * Shaking/chills (rigors)
- * Suprapubic pain
- * Urinary incontinence
- * Gross hematuria (blood in urine)



The kidney symptoms microscopic hematuria and flank pain together can be signs of kidney stones, nephritis, kidney mass, or renal cell carcinoma.



Algorithm continued

- * Push fluids (1500 mL per day) upon approval of primary practitioner to see if improvement
- * Obtain urine for C&S and initiate antibiotic therapy
- * If results not significant
 - * Stop antibiotic/do not treat
- * If significant
 - * review susceptibility, Creatinine Clearance
 - * discuss with primary practitioner
 - * obtain antibiotic order

Are you obtaining quality results if using dip sticks?

- * Factors that affect quality results are:
 - * Sample
 - * Strips
 - * Technique
 - * Timing
 - * Reading of results
 - * Controls



Laboratory concerns related to dip sticks errors

- * Sensitivity
 - * Different Brands
- * Test Result Errors
 - * Nitrate
 - * Protein
 - * Leucocyte Esterase



Nitrite

- * Sources of error
 - * Not enough nitrates in urine (vegetables in diet) for conversion – false negative
 - * Red pigment in urine – false positive
 - * Gram positive infection – false negative



Protein



- * Sources of error :
 - * Pigmented urines interfere with reading
 - * Excessive wetting of strip - false positives
 - * Highly alkaline pH - false positives
 - * Proteins other than albumin present – false negatives

Leukocyte Esterase



- * Sources of error
 - * Certain antibiotics – false negative
 - * High glucose – false negative
 - * High levels of albumin – false negative
 - * Normal pathologic pyuria



Collecting a proper specimen

- * Urine specimen collection should be done in a manner that minimizes contamination
- * Non-catheterized resident:
 - * 2 Acceptable Methods only!
 - * Mid-stream urine (MSU)
 - * “In and Out” Catheterization (Gopal et. Al. 2009)
- * Indwelling catheterized resident:
 - * Sampling port
 - * Tubing
 - * Never from a catheter collection bag



Rideaucrest Implementation

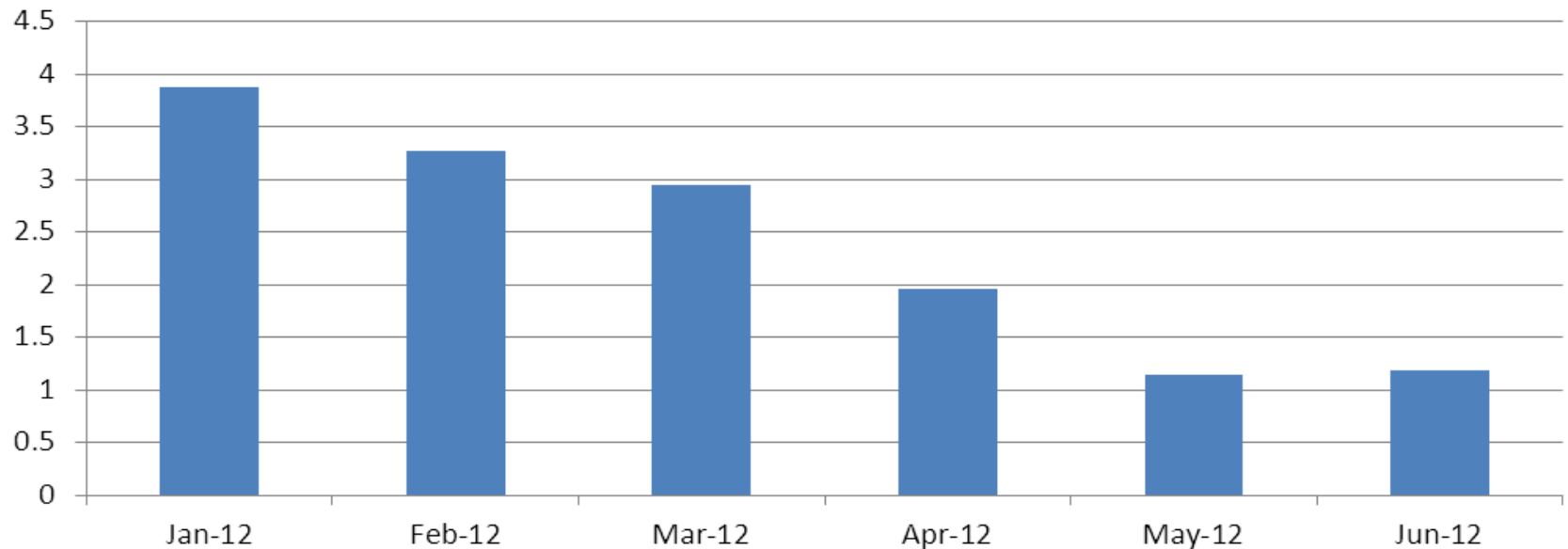
- * January 2012
 - * ICP began to perform daily surveillance using staff charting, antibiotic orders, lab reports and nursing reports
 - * Noticed increased diagnosis and treatment of Urinary Tract Infections without supporting documentation
 - * Random use of dip sticks to “diagnose” UTIs without sending urine for lab testing
 - * Reviewed collection practices
 - * Asymptomatic Residents with nosocomial resistant microorganisms from overprescribed antibiotics
 - * ICP presented catheterization and peri-care education

Implementation continuation

- * March 2012
 - * ICP working with Nurse Practitioner to provide education related to UTIs
 - * Introduced Algorithm to nursing leadership, Professional Advisory Committee and nursing staff
- * April 2012
 - * Once nursing staff comfortable with algorithm, dip sticks removed from floor

Results

Urinary Tract Infection Rates per 1000 resident days



Catheter & Peri Care
education

UTI education &
Algorithm

No more
Dip Sticks

Treatment options



- * Asymptomatic: NO ANTIBIOTIC INDICATED
- * Symptomatic:
 - * Physician driven
 - * Standard algorithms
 - * Treat but review once the C&S results come in
 - * Charting to include signs and symptoms

Conclusion

- * UTIs are the most common infection in older adults
- * Major impact on resident outcomes, cost, antibiotic use & subsequent development of resistance
- * Focus on prevention & accurate workup (algorithm)
- * Charting to focus on assessment and detailed explanation of signs and symptoms

Conclusion

- * When obtaining antibiotic orders from GP's inform them of:
 - * signs and symptoms,
 - * CrCl,
 - * Coumadin,
 - * if resident needs oral suspension



Merci

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