Urinary Tract Infections: LTC Facilities

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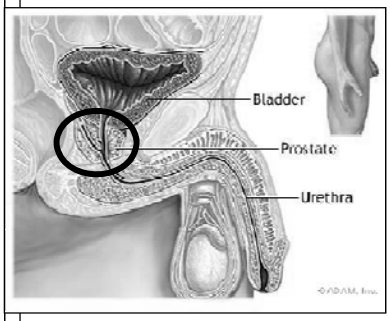
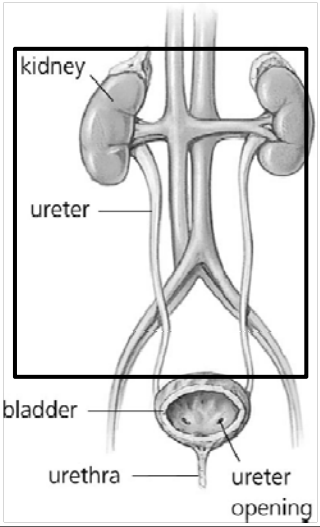
Urinary Tract Infection (UTI): Definition

- *"Clinically detectable condition associated with invasion by disease causing microorganism of some part of the urinary tract.*
- *'Urosepsis' is systemic inflammatory response to infection (sepsis)."*

--CMS F315 June 28, 2005
https://www.cms.gov/transmittals/downloads/r8som.pdf

Classification of UTI





Upper tract UTI

Lower tract UTI

Epidemiology: Bacteriuria in Elderly

Asymptomatic

	Positive Urine Culture (%)	
POPULATION	**Women**	**Men**
Community >70 yrs	10-18	4-7
Long-Term Care	25-55	15-37
Chronic Catheter	>90%	>90%

Symptomatic

1-2.4 / 1000 resident days LTC
0.6 / 1000 with standardized criteria

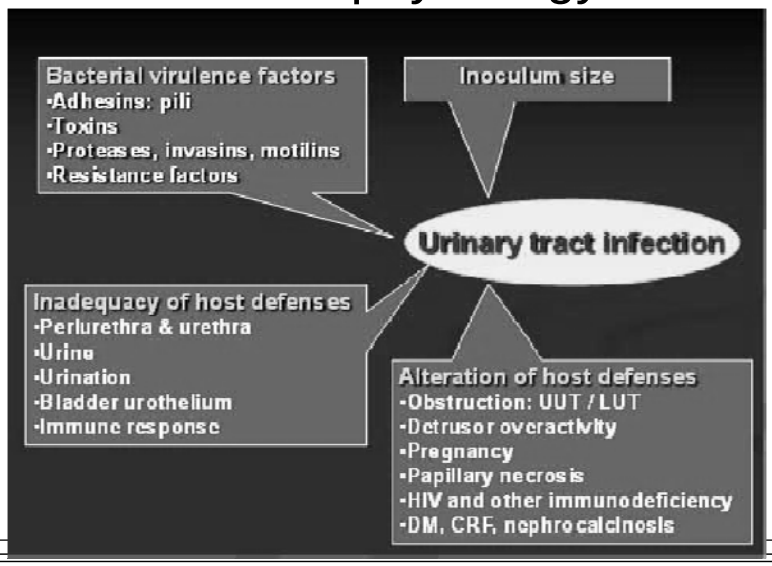
Nicolle LE. UTI in Hazzard's Geriatric Medicine 6th ed. 2009

Risk Factors in LTC

- Age
- Urinary incontinence
- Prior UTI (women)
- BPH (men)
- Dementia
- Mobility limitations
- Bladder dysfunction (DM, PD, CVA)

Buhr GT et al.
Clin Geriatr Med 2011; 27:229

Pathophysiology



Infecting Bacteria: Asymptomatic LTC

Women

- E coli (47-77%)
- Proteus mirabilis (2-27%)
- Klebisella pneum (7-11%)
- Pseudomonas (5-9%)
- Enterococcus (5-8%)

Men

- Proteus mirabilis (30-36%)
- E coli (11-27%)
- Klebsiella pneum (6-9%)
- Enterobacter (2-9%)
- Enterococcus (5-24%)

Nicolle LE. UTI in Hazzard's Geriatric Medicine 6th ed. 2009

Common Clinical Features

- Lower urinary tract symptoms
  - Dysuria
  - Urgency
  - Frequency
  - Suprapubic pain/tenderness
  - Hematuria
  - Cloudy urine
- Systemic symptoms
  - Nausea/vomiting
  - Fever/chills
  - Flank pain
  - Delirium
  - Functional decline

Diagnosis

- Asymptomatic bacteriuria: Urine Culture
  - $\geq 10^5$ cfu/mL on 2 voided consecutive specimens (women)
  - $\geq 10^5$ cfu/mL on 1 clean-catch urine specimen (men)
  - $\geq 10^2$ cfu/mL on 1 catheterized urine specimen

Nicolle LE et al. IDSA Guidelines.
Clin Infect Dis 2005: 40:643

Diagnosis

- Symptomatic bacteriuria: Urine Culture
  - $\geq 10^4$ cfu/mL (pyelonephritis or fever with local GU symptoms)
  - $\geq 10^3$ cfu/mL (acute lower urinary tract symptoms)
  - $\geq 10^5$ cfu/mL (external catheter in men)
  - $\geq 10^3$ cfu/mL (aspirated indwelling catheter)

Nicolle LE. UTI in Hazzard's Geriatric Medicine 6th ed. 2009

F315 Indications to Treat Symptomatic UTI: residents without catheter (≥3)

- *Fever* (increase of > 2° F; rectal temp > 100°F)
- *New or increased burning, pain on urination, frequency or urgency*
- *New flank or suprapubic pain/tenderness*
- *Change in character of urine* (new bloody urine, foul smell or amount of sediment) or lab report of + result (nitrite +, pyuria, microhematuria)
- *Worsening of mental or functional status* (confusion, lethargy, unexplained falls, recent onset of Incontinence, decreased activity or appetite)

https://www.cms.gov/transmittals/downloads/r8som.pdf

F315 Indications to Treat Catheter-associated UTI: (≥2)

- *Fever or chills*
- *New flank pain or suprapubic tenderness*
- *Change in character of urine* (new bloody urine, foul smell, increased sediment or lab report of +pyuria, microscopic hematuria)
- *Worsening of mental or functional status*

https://www.cms.gov/transmittals/downloads/r8som.pdf

What is the CMS/F315 guidance for indwelling (Foley) catheters/incontinence?

CMS/F315

- F315 released by CMS in June 28, 2005
- Intent of F315
  - incontinent resident to maintain as normal urine function as possible (assess/manage)
  - Indwelling urinary catheter Is not justified without medical indication
  - Prevent UTI through appropriate care

https://www.cms.gov/transmittals/downloads/r8som.pdf

Indications for Catheters

- Urinary retention that cannot be treated or corrected medically or surgically
  - PVR ≥200 ml
  - Inability to manage retention/incontinence with intermittent caths
  - Persistent overflow incontinence, SUTI, renal dysfunction

https://www.cms.gov/transmittals/downloads/r8som.pdf

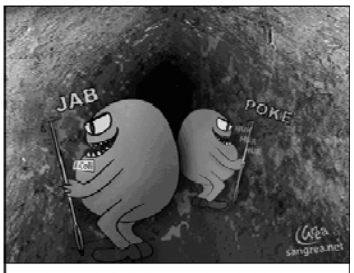
Indications for Catheters

- Contamination of stage 3 or 4 pressure ulcers when urine impedes healing despite appropriate care for the UI
- Terminal illness or severe impairment (uncomfortable or intractable pain)

https://www.cms.gov/transmittals/downloads/r8som.pdf

Risks of Indwelling urinary Catheters

- UTI (with or without symptoms): biofilm
- Obstruction due to encrustations, kinking
- Bladder spasms
- Urinary leakage
- Urethral erosion, infection
- Sepsis



The dreadful truth behind urinary tract infections

Compliance with F315: Urinary Incontinence and UTI

- Recognize and assess factors affecting urinary function and risk of UTI
- Attempt correction of underlying causes of UI
- Monitor response to preventive efforts and interventions
- Revise approaches as appropriate

https://www.cms.gov/transmittals/downloads/r8som.pdf

Discuss management of the resident with dementia and a suspected urinary tract infection.

Dementia and UTI

- Dementia is risk factor in LTC for UTI
- Symptoms of UTI might not be reported
- No practice guideline: F315 criteria apply
- Monitor for symptoms/signs of UTI
  - Fever
  - Clinical deterioration
  - Check suprapubic/flank tenderness

How can recurrent urinary tract infections be managed?

Recurrent UTI

- Recurrent: 2 or more infections in 6 months
  - Relapse
  - Reinfection
- Might indicate structural abnormality (obstructive uropathy)
  - Check PVR
  - If catheter: check perineal hygiene technique

Preventing Recurrent UTI

- Eliminate chronic indwelling catheter
  - Condom catheter in non-demented men
- Improve resident walking, transfers, bed mobility
- Replace chronic with intermittent caths
- Vaginal estrogen for women?
- Cranberry juice or tablets?
- Abx? Not shown to be effective in LTC

Buhr GT et al. Clin Geriatr Med 2011; 27:229

Discuss urinary tract infection prevention strategies in the catheterized and non-catheterized resident.

Best Practice: UTI Prevention

- Adequate fluid intake
  - Cranberry juice 10 ounces/extract 300-400 mg daily
- Promote complete bladder emptying
  - Every 3-4 hours
- Perform daily perineal skin care
  - Prevent excessive skin wetness, contact with urine/feces
  - “front-to back” cleaning
- Appropriate incontinence products
  - super absorbent polymer

Newman DK. Ostomy/wound management 2006;52:34

Avoiding CAUTI

- Limiting unnecessary catheterization
- Discontinuation of catheter
- Strategies to consider before catheter
  - Education and training of staff
- Alternatives to indwelling catheters
  - Condon caths in men (effectiveness?)
  - Intermittent caths
  - Suprapubic caths

Hooten TM et al. IDSA Guidelines. Clin Infect Dis 2010;50:625

Prevention of CAUTI: Society for Healthcare Epidemiology of America (SHEA)

Catheter Insertion

- Clean technique for Intermittent cath
- Secure cath to prevent movement/urethral traction
- Perform cath at regular intervals
- Check PVR to avoid unneeded cath insertion

Catheter Maintenance

- Closed drainage system
- Replace catheter for break in aseptic technique
- Keep collecting bag below bladder level
- Use clean collecting container to empty bag
- Routine hygiene for meatal care

Gould CV et al. Infect control hosp managment 2010: 31:319

Keeping Seniors Healthy