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Infection Prevention

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Learning Objectives

- Define the definition of a urinary tract infection (UTI)
- Differentiate between criteria for colonization and infection
- Identify interventions to prevent UTIs
- Identify how to properly wear personal protective equipment (PPE)
- Implement interventions to decrease PPE fatigue in staff

Urinary Tract Infections

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Definition of a Urinary Tract Infection

- **Qualifying Diagnosis:**
  >100,000 CFU/ml colonies of bacteria growing in the urine with no more than two species of microorganism
- **And one or more of the following:**
  - Fever >100 degrees F(orally) or two degrees above the baseline
  - Peripheral WBC count >14,000
  - Dysuria, frequency, new/increase incontinence, altered mental status, hematuria, costovertebral angel pain or tenderness

https://www.cdc.gov/nhsn/pdfs/ltc/ltcf-uti-protocol-current.pdf

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Testing for Urinary Tract Infection

- A urine dip stick that shows leukocytes is NOT an automatic urinary tract infection
- A urine sample must be sent to a lab for a culture, and if indicated, a sensitivity to determine which antibiotic will work
- If the culture returns with less than 100,000 colony count of one organism, or more than two different bacteria, it is not a urinary tract infection

Colonization

- The **presence of a microorganism in or on a host**, with growth and multiplication but without any overt clinical expression or detected immune response in the host at the time it is isolated

- If a urine culture reports less than 100,000 CFU/ml colonies of bacteria growing in the urine and/or more than two species of microorganisms, it is not a urinary tract infection and demonstrates colonized urine

Jarvis, W.R. (1996). The Epidemiology of Colonization. https://pubmed.ncbi.nlm.nih.gov/8789688/

Causes of Urinary Tract Infections

- The main cause of UTIs, at any age, is usually bacteria
- Escherichia coli (*E. coli*) is the primary cause, but other organisms can also cause a UTI
- In older adults who use catheters or live in a nursing home or other full-time care facility, bacteria such as Enterococci and Staphylococci are more common causes
- Several other things put older adults at risk for developing a UTI including:
  - A history of UTIs
  - Dementia
  - Catheter use
  - Bowel incontinence
  - Bladder incontinence
  - A prolapsed bladder

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Prevention of Urinary Tract Infections

- Keep residents hydrated – offer fluids such as water throughout the day
- Remove foley catheters unless absolutely needed
- Provide good perineal hygiene
- Change adult brief after bowel movements and provide good perineal hygiene
- Take residents to the bathroom every two to four hours

https://www.cdc.gov/nhsn/pdfs/training/2018/ltcf/epidemiology-prevention-uti-508.pdf

Before You Call a Provider Collect This Information

- What are your resident's sign and symptoms/Including current diagnosis
- Vital signs
- Look at the resident's advance directive (does the resident or Power of Attorney want treatment?)
- Allergies

Examples of Documentation Before and After UTI Diagnosis

Before UTI Diagnosis

1. Mrs. J. has new episode of urinary frequency and urgency, VS 124/82.74.18. Oral T. 100.4; alert, WNL for her; has history of UTI's; complains of burning with urination; urine is cloudy and foul smelling; has positive urine dip, urine sent for C&S.

2. Mr. S. has a new episode urinary incontinence and c/o right costal vertebral angle (CVA) tenderness, urine cloudy and + urine dip; sent for C&S. VS 168/86.88.18 T. 98.4

After UTI Diagnosis

1. Mrs. J. has NEW diagnosis of UTI (E.Coli >100,000); Day two of oral Bactrim DS with no apparent adverse effects today. VS 92/60. 84.12: T. 98.4; has urinary frequency and urgency. Peri care given each toileting episode. Frequent fluids given.

2. Mr. S. has a new UTI (P. aeruginosa >100,000); Day three of oral Ciprofloxacin, with no apparent adverse reaction. VS 132/80. 88.16; T. 98.8; Continues to c/o urinary incontinence and right costal vertebral angle (CVA) tenderness – good peri care given each toileting episode; Tylenol given for CVA tenderness pain. Frequent fluids given to resident.

Let's Decide – Which of These are Urinary Tract Infections?

- Mrs. P is an 88-year-old female complaining of burning when urinating
- Temperature is 100.6 (baseline for her is 97 degrees F)
- She is incontinent of bowel and bladder and wears an adult brief
- Urine is cloudy and foul smelling
- Urine sample is sent to the lab for a culture and sensitivity if needed
- Voided urine lab result reveals $\geq$ 100,000 CFU/ml of e-coli bacteria
- Does Mrs. P. have a urinary tract infection?
- Does she need antibiotics for treatment?

Second Scenario

- Mr. K is a 92-year-old male with a history of urinary incontinence
- He is not complaining of any discomfort, temperature 98 degrees F.
- The CNA who changed his brief noticed that his urine was very dark
- A voided urine sample was taken and sent to the lab for culture
- The lab result returned with ≤ 50,000 CFU/ml of klebsiella pneumoniae (K. pneumoniae)
- Does Mr. K. have a urinary tract infection?
- Does Mr. K. need antibiotics for treatment?

Personal Protective Equipment (PPE)

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Assessment

- Is everyone wearing masks (correctly) at all required times?
- Are staff suffering from Personal Protective Equipment (PPE) fatigue?
- Is there vigilance in the use of PPE by caregivers?

Are Masks Still Beneficial?



CDC: Effectiveness of Face Mask or Respirator Use in Indoor Public Settings for Prevention of SARS-CoV-2 Infection — California, February–December 2021 | MMWR (cdc.gov)

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Not Appropriate for Airborne Diseases

- Masks with valves
- Dust Mask
- Face Mask
- Cloth Masks

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N95 Respirator Use

- HCP should have specific respirator fit tested before use and annually
- Always perform a user seal check when donning
- Use N95 respirator that has been fit tested to you
- Use for airborne isolation (i.e., tuberculosis, measles, chicken pox, novel infectious diseases with unknown transmission routes)
- Use for aerosol-generating procedures with known or suspected COVID-19 residents (this would be the use of nebulizers, CPAP and BIPAP machines)



Image source: CDC/Debora Cartagena. CDC Public Health Image Library.

OSHA video on use of N95 respirator: https://www.youtube.com/watch?v=oU4stQgCtV8

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Gown Use

- Worn by the health care personnel to protect their clothes from infectious blood, body fluid, secretions, and any other source of infectious material
- When putting the gown on, make sure to tie all the ties on the gown; assistance may be needed by other healthcare personnel

CDC: Using PPE: https://www.cdc.gov/coronavirus/2019-ncov/hcp/using-ppe.html

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How to Protect Your Eyes

Must protect the entire eye from contact with the virus

Can use goggles or face shield

DO NOT

- Touch the front of the eye protection (handle the ties or straps only)
- Hang eye protection around neck

Eyewear Disinfection Process



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Let's Talk About Gloves

- **When/why to use gloves:**
  - Prevent health care personnel direct exposure to blood or body fluids
  - Prevent exposure to cleaning products
- **The basics:**
  - Work clean to dirty — do not touch your face with gloves or unclean hands
  - Avoid touching environmental surfaces as much as possible
- **When to change your gloves:**
  - When moving dirty to clean within a resident/participant encounter
  - After each use

Always wash your hands after removing gloves and before putting on a new pair of gloves!

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PPE: Clean vs. Contaminated

- **Gloves:**
  - Contaminated: outside
  - Clean: inside
- **Gowns:**
  - Contaminated: outer front and sleeves
  - Clean: inside of gown, back and ties
- **Eye protection*:**
  - Contaminated: outside front of shield/goggles
  - Clean: straps or ties
- **Face masks and respirators:***
  - Contaminated: outer front
  - Clean: straps and ties

*Inside of mask and inside of eye protection are not “clean,” but are considered not contaminated by exposure to others.
DO NOT share masks between employees **OR** share face shields or goggles that have not been cleaned and disinfected due to potential to spread between employees.

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How Much PPE Is Enough?

"A facility/home should maintain an inventory of PPE to assure at least a 14-day supply using the CDC PPE burn rate calculator."

How much PPE is needed to treat a COVID-19 resident/client/participant?

It depends on several factors, including the facility/home and if there are COVID-19 positive individuals as well as the number of positive individuals. For example, three PPE items – gowns, N95 respirators and face masks – what is generally needed to treat one individual for one day may range from:

- Gowns: 6 to 12
- N95 respirators: 1 to 5
- Face masks: 0 to 18

PPE burn calculator: https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/burn-calculator.html

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Do We Still Need Hand Hygiene if We Wear Gloves?



https://youtu.be/9R8fHo6WfzY

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Personal Protective Equipment
Fatigue

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Personal Protective Equipment Fatigue

- Long shifts, wearing uncomfortable PPE can make staff hot, dehydrated, and fatigued
- Leadership should monitor staff for fatigue in general, and specifically PPE use
- Encourage staff to:
  - Perform self-care
  - Take breaks when scheduled
  - Hydrate and eat during the shift

https://blogs.cdc.gov/niosh-science-blog/2020/06/10/ppe-burden/

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Self-Care Practices for Well-Being

- Take a time out
- Eat well-balanced meals
- Limit caffeine and alcohol
- Get enough sleep
- Get physical activity daily
- Practice breathing
- Limit news, be aware of media impact on mood
- Get involved in helping others
- Examine your thoughts and environment
- Accept that you can't control everything
- Use humor
- Learn your triggers
- Talk with someone

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Adapted from: Anxiety & Depression Association of America: Tips to Manage Anxiety and Stress, and Comagine Health: YouTube video: Wound Care for Burnout

Helping Others to Maintain Well-Being

- Provide information on self-care, stress, and coping
- Watch for changes in sleep, eating and mood as indications that individuals may need additional assistance adapting to changes, processing emotions, or implementing wellness strategies
- Develop ways for individuals to maintain social connections with friends and family while social distancing
- Maintain routines and structure as much as possible
- Incorporate wellness activities to help offset restrictions of activities outside of the setting
  - If activities are group-based, follow protocols for safe distancing, mask wearing, hand hygiene and shared equipment cleaning

CDC: Guidance for Group Homes for Individuals with Disabilities
Hwang TJ, Rabheru K, Peisah C, et al: Loneliness and social isolation during the COVID-19 pandemic. *Int Psychogeriatr*. 2020;32(10):1217-1220.

Self-Care in Five Minutes or Less

- Practice going to sleep at a consistent time each night. Try five minutes earlier than your usual time to start: American Nurses Association: Well Being Initiative: Guide to Sleeping Better and Restoring Energy
- Practice Bhramari Breath (also called “Bee Breath”): The One-Minute Self-Care Ritual I Practice Every Day by Lillian Daniels
- Listen to a joke, story or kind message: **Joy4All hotline** at 403-209-4300 and https://www.joy4all.ca/
- Use apps and other streaming resources: Nurses Together, American Nurses Foundation & Moodfit (getmoodfit.com) (free to nurses)
- Meditations you can do at work – Headspace (Netflix, YouTube, other resources for subscription)
- Other Microsteps to Self-Care: FRF-Microstep-Sheet.pdf

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How to Sustain Infection Prevention and Control Best Practices and Principles

- Ownership
- Training
- Resources
- Support
- Quality

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We're in This for the Long Haul

- Need to forgive ourselves when it does get in
- Celebrate our efforts
  - Have infections been contained quickly, to staff only? Have you had a period of time without COVID in your setting? Do you acknowledge all the hard work (structural and process) as well as outcomes?
- Debrief with your team as events happen
  - Create psychological safety
  - Learn from what went well and what did not
  - Expect variability in performance
  - Focus on process, not people

- Build in opportunities for staff to practice self-care
  - Long-term stress can be damaging

"The negative screams at you, but the positive only whispers."

- Barbara Fredrickson

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Breaking the “Panic-Then-Forget” Cycle

What is the “Panic-Then-Forget” cycle?

- This will not be the last world pandemic or global health emergency
- History always repeats itself, even if we choose not to learn from it
- This cycle has prevented the development of effective health emergency preparedness across the globe
- We must invest in preparedness at the community, state, federal and global levels to prevent and/or mitigate future pandemics

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The World Health Organization: The best time to prevent the next pandemic is now: countries join voices for better emergency preparedness

Questions?

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