

W23: Urinary catheterization: Evaluating benefit versus risk and the application of new technology

Workshop Chair: Diane Newman, United States

27 August 2013 14:00 - 17:00

Start	End	Topic	Speakers
14:00	14:20	Introduction and overview of workshop	<ul style="list-style-type: none"> • Diane Newman
14:20	15:00	Current use of indwelling, intermittent and external catheters with differentiation of various catheterization techniques, indications, complications and nursing management	<ul style="list-style-type: none"> • Diane Newman
15:00	15:30	Use of catheters for incontinence procedures	<ul style="list-style-type: none"> • Tomas Griebling
15:30	16:00	Break	None
16:00	16:30	Catheter self-management and impact on the patient's quality of life	<ul style="list-style-type: none"> • Mary Wilde
16:30	17:00	Current guidelines on the use of urinary catheters	<ul style="list-style-type: none"> • Sharon Eustice

Aims of course/workshop

This workshop will provide a comprehensive review of current indications, use and complications associated with urinary catheters providing evidence-based guidelines with translation to clinical practice. New catheter technology will be reviewed. Objectives include:

1. Detail the current use of indwelling, intermittent and external catheters.
2. Differentiate the various catheterization techniques, indications, complications and nursing management.
3. Understand the perioperative use of catheters for incontinence surgery with a discussion of protocols for discontinuing catheters.
4. Describe self-management techniques and quality of life burden of patients with urinary catheters.
5. Present evidence-based guidelines on the use of urinary ca

"Ins and Outs" of Catheters: Evaluating Benefit Versus Risk and the Application of New Technology

ICS Workshop # 23

Diane K. Newman, DNP ANP-BC FAAN
Chair

Tomas L. Griebling, MD, MPH
Mary Wilde, RN, PhD
Sharon Eustice, RN, NP

International Continence Society, Barcelona, August 27, 2013, Workshop 23

Workshop 23 Outline

Start	End	Topic	Speakers
14:00	14:20	Introduction and Overview of Workshop	Diane Newman, DNP, CRNP Chair
14:20	15:00	Current use of indwelling, intermittent and external catheters with differentiation of various techniques, indications, complications and nursing management	Diane Newman, DNP, CRNP
15:00	15:30	Use of Catheters for Incontinence Procedures: Surgical Issues and Geriatric Principles	Tomas L. Griebling, MD, MPH
15:30	16:00	Break	
16:00	16:30	Catheter self-management and impact on the patient's quality of life	Mary Wilde, RN, PhD
16:30	17:00	Current guidelines on the use of urinary catheters	Sharon Eustice, RN, NP

Objectives

- To detail the current use of indwelling, intermittent and external catheters.
- To differentiate the various catheterization techniques, indications, complications and nursing management.
- To understand the perioperative use of catheters for incontinence surgery with a discussion of protocols for discontinuing catheters.
- To describe self-management techniques and the quality of life burden of patients with urinary catheters.
- To present evidence-based guidelines on the use of urinary catheters.

Current use of indwelling, intermittent and external catheters

Diane K. Newman, DNP, ANP-BC, FAAN

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Philadelphia, Pennsylvania

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Division of Urology, University of Pennsylvania Health System



Intermittent & External Urinary Catheterization

- Indwelling Urinary Catheterization (IUC)
- Intermittent Catheterization (IC)
- External Urinary Catheterization (EC)

• International Consultation on Incontinence 2013

Cottenden, Bliss, Buckley, Fader, Gartley, Hayder, Ostaszewicz, Wilde, Management using Continence products. In Abrams P, Cardozo L, Khoury S, Wein A (Eds.); *Incontinence: Proceedings from the 6th International Consultation on Incontinence*. Plymouth UK: Health Publications, 1651-1787.

Indwelling Urinary Catheter (Foley)

Indwelling Urinary Catheterization

- Definition
 - Closed, sterile system
 - Allows for continual bladder drainage
 - Insertion of a flexible tube in the bladder
 - Either via urethra or suprapubic (S/P) opening
 - Short term use – defined as 2 to 4 weeks
 - Long term - > 30 days

Referred to as a “Foley”

Routes of an IUC

- 2 methods of insertion
 - Through the urethra or suprapubic (S/P) opening (usually 2 cm above pubic bone)

Hunter, Bharmal, Moore. Long-term bladder drainage: Suprapubic catheter versus other methods: A scoping review. *NeuroUrology*. 2012 Nov 28.

Guideline for Prevention of Catheter-Associated Urinary Tract Infection 2009

SECTION 1: SCOPE
This guideline applies to patients who are hospitalized and who require a urinary catheter for a period of 24 hours or longer. The guideline does not apply to patients who are hospitalized and who require a urinary catheter for a period of less than 24 hours. The guideline does not apply to patients who are hospitalized and who require a urinary catheter for a period of 24 hours or longer and who are also receiving intravenous antibiotics for a urinary tract infection.

SECTION 2: OBJECTIVES
The purpose of this guideline is to provide clinicians with evidence-based recommendations for the prevention, diagnosis, and management of catheter-associated urinary tract infections (CAUTIs) in hospitalized patients who require a urinary catheter for a period of 24 hours or longer.

SECTION 3: RECOMMENDATIONS
1. Urinary catheters should be inserted only when necessary and should be removed as soon as possible.
2. Urinary catheters should be inserted using aseptic technique.
3. Urinary catheters should be secured to the patient's leg to prevent movement.
4. Urinary catheters should be changed only if necessary and only using aseptic technique.
5. Urinary catheters should be flushed with sterile water or sterile saline solution every 8 hours.
6. Urinary catheters should be changed every 7 days, unless there is a clinical indication to change them more frequently.
7. Urinary catheters should be changed every 30 days if the patient is receiving intravenous antibiotics for a urinary tract infection.

Gould, Umscheid, Agarwal, Kuntz, Pegues, and the Healthcare Infection Control Practices Advisory Committee (HICPAC), Guideline for the Prevention of Catheter – Associated Urinary Tract Infections 2009
http://www.cdc.gov/ncidod/dhqp/pdf/guidelines/CAUTI_Guideline2009final.pdf

Patient Perspective

- Indwelling urinary catheters (IUC)
 - Patients report:
 - An IUC is uncomfortable.
 - They are painful.
 - Restrict activities of daily living.
 - Decreased activity increases risk of pressure ulcer and venous thromboembolism.

Saint, Lipsky, & Gould. Indwelling urinary catheters: a one-point restraint? *Ann Intern Med*. 2002 Jul 16;137(2):125-7

Studies Suggest Efforts to Maintain Compliance with Practice Guidelines Is Difficult

Foley catheter use in 31% of patients in acute care hospital was deemed inappropriate

% Unaware Their Patient Had A Urinary Catheter	
Attending Physician	38%
Residents	27%
Interns	22%
Medical Students	21%

Saint, Sarraj, Jeff Witte, John Aronoff, et al. Are physicians aware of which of their patients have indwelling urinary catheters? *The American Journal of Medicine*. 109:6 (2000): 476-80.

Inappropriate Reasons for IUC Use

Urinary incontinence	
Use of diuretics	
Bed rest or decreased mobility	
Unaware of recommendations	
Physician uncertainty about the patient's medical course	Convenience of hospital staff
	Reluctance to perform IC
	For routine monitoring of intake and output
	Monitoring of renal function in the absence of being critically ill

© Gould, Umscheid, Agarwal, Kuntz, Pegues, and the Healthcare Infection Control Practices Advisory Committee (HICPAC). Jain, Potluri, Barbero, & Gonzalez (1855) Overview of Indwelling Urinary Catheter in Hospitalized Medical Patients. Arch Intern Med. 185(14):1659-1666. doi:10.1001/archinternmed.2009.141

IUC Complications

- » Infection (CaUTI)
 - Bacteriuria
 - Catheter-associated urinary tract infection (common)
 - Urosepsis
- » Catheter Obstruction and Blockage
- » Urethral Damage (men)
 - Urethritis
 - Urethral stricture
 - False passage
- » Hematuria
- » Urine leakage or bypassing around the catheter
- » Expulsion of the catheter

Catheter-associated Urinary Tract Infections - CaUTI

- 70%-75% of all hospital-acquired infections UTIs have been attributed to an indwelling urinary catheter (IUC) (Pennsylvania, 2009)
- 50% of SCI men or women performing intermittent catheterization develop bacteriuria (Nicolle, 2012)
- Low prevalence of UTIs in men with an external catheter (Saint, 1999)

Nicolle (2012) Urinary catheter-associated infections. Infect Dis Clin North Am. Mar;26(1):13-27.
Pennsylvania Patient Safety Authority 2009 Annual Report. Harrisburg, PA: Pennsylvania Patient Safety Authority, 2010. http://patientsafetyauthority.org/Documents/Annual_Report_2009.pdf. Accessed September 15, 2012.
Saint, et al. (1999) Urinary catheters: what type do men and their nurses prefer? J Am Geriatr Soc. 47: 1453-7

What We Know

- Biofilms rapidly colonise catheters
- Current materials and design give little advantage
- Biofilm defense against host attack and antimicrobial agents
- Biofilm-like in bladder by uropathogenic *E. coli*
- Link to inflammatory response, cystitis etc
- New strategies required

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Prevention of CAUTI's

- Hand washing is the key---

	Wash time	↓ Bacteria log
Hand washing	15 sec	0.5 - 1.0
Hand washing	30 sec	1.8 - 2.8
Alcohol hand rubs	30 sec	3.2 - 5.8

Before and after handling of the catheter, drainage tubing or collecting bag.

Widmer A. (2000) Replace hand washing with use of a waterless alcohol hand rub? Clin Infect Dis;31:136-43

Studies Suggest Efforts to Maintain Compliance with Practice Guidelines Is Difficult

Average compliance to hand washing protocols at a large teaching hospital was 48%

Hand Washing Compliance	
Nurse	52%
Physician	30%
Nursing Asst	47%
Other	38%

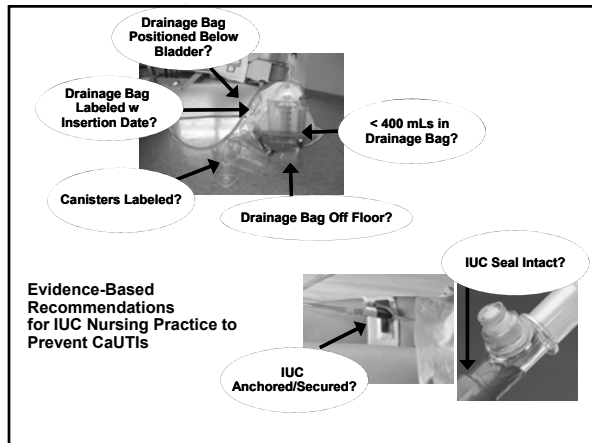
Pillet, Diddier, and Philippe Mourouga. Compliance with handwashing in a teaching hospital. Annals of Internal Medicine 130.2 (1999): 128-30.

IUC – No new design in decades

Duette

Tissue response- urethra

- Tissue response differs between patients
- Immune system tries to attack the catheter itself and the bacteria in the biofilm
- Latex very high risk of scarring



Intermittent Catheterization (IC)

Intermittent Catheterization (IC)

- » Definition:
 - Insertion of a catheter into the bladder to allow for drainage
 - Removed after drainage (referred to as “in and out”)
- » Regular bladder emptying benefit:
 - Reduces intravesical pressure
 - Improves blood circulation in the bladder wall making the bladder mucous membrane more resistant to infectious bacteria
- » Indications:
 - Urinary retention
 - Incomplete bladder emptying

Newman & Wilson. (2011). Review of intermittent catheterization and current best practices. *Urologic Nursing*, 31(1), 12-28.

Catheterization Techniques – Current Evidence based on a Cochrane Review


- No evidence that any of the following strategy is better than any other for all clinical settings:
 - Specific technique (aseptic or clean)
 - Catheter type (coated or uncoated)
 - Method (single-use or multiple-use)
 - Person (self or other)

Moore, Fader, Gelliffe (2007). Long-term bladder management by intermittent catheterisation in adults and children. *Cochrane Database Syst Rev*. Oct 17;(4):CD006008.

IC Insertion Technique

Sterile (SIC)
Usual technique in environments such as hospitals <ul style="list-style-type: none"> ▪ Sterile gloves ▪ Genitalia disinfection ▪ Sterile single-use catheter ▪ Sterile drainage tray
Can be performed with a non-lubricated catheter using external gel or a hydrophilic catheter
Used when catheterization occurs in institutions (hospitals, nursing homes)

Aseptic
<ul style="list-style-type: none"> ▪ Sterile catheter ▪ Genitalia disinfection or cleansing ▪ Sterile gloves ▪ Sterile lubricant (if catheter is not pre-lubricated)




EAUN, Evidence-based Guidelines for Best Urological Health Care: Catheterisation, Urthral intermittent in adults: Dilatation, urethral intermittent in adults, March 2013

IC Insertion Technique

No-touch
Catheter is inside a protective sleeve or collection bag or product packaging may be used to hold the catheter during insertion
User or caregiver never touches the catheter
Can be performed with a pre-lubricated gel or hydrophilic catheter


Clean, Single-use
Use of a sterile, non-lubricated disposable catheter lubricated with either an external gel or a hydrophilic catheter
User touches the catheter with clean hands – the product does not feature a protective sleeve or collection bag
User disposes of catheter after insertion



EAUN, Evidence-based Guidelines for Best Urological Health Care: Catheterisation, Urthral intermittent in adults: Dilatation, urethral intermittent in adults, March 2013

IC Insertion Technique

Clean, Re-used
Re-used by the same patient for a limited period of time
Cleaned between catheterization episodes Rinsed and washed with soap and water or boiled or soaked in disinfectants. Air dried and stored in a ventilated container or zip-lock bag.
Can increase incidence of CaUTIs due to formation of biofilms
Use has been dependent on reimbursement



EAUN, Evidence-based Guidelines for Best Urological Health Care: Catheterisation, Urthral intermittent in adults: Dilatation, urethral intermittent in adults, March 2013

EAU Guidelines on Neurogenic Lower Urinary Tract Dysfunction (NLUTD)

- Intermittent, self- or third-party, catheterization (IC) is the gold standard for the management of NLUTD.
- Compared to clean IC, aseptic IC, provides significant benefit in reducing the potential for contamination.

Stohrer, Blok, Castro-Diaz, et.al. (2009) EAU guidelines on neurogenic lower urinary tract dysfunction. *Eur Urol.* Jul;56(1):81-8.

Pre-lubricated hydrophilic

- Coated with a substance that absorbs water and binds it to the catheter surface
- Extremely slippery smooth layer of water stays during insertion and withdrawal
- Advantages:
 - Easier insertion
 - Minimize patient discomfort, urethral stricture
 - Protects urethra from damage and irritation
- Disadvantage:
 - Can be slippery and difficult to manage
 - Water spillage resulting in “messes”
 - Surface dries after 5 minutes and catheter becomes “sticky” – SO NO REUSE
- One-time use only

SpeediCath
Photos Courtesy of Coloplast

More compact shorter length catheter for women

Pre-lubricated Hydrophilic- Evidence-base

- 56 subjects enrolled, 45 completed (> 50% men)
 - 22 in the treatment group (hydrophilic)
 - 23 in the control group
- Same number of symptomatic UTIs in both groups
- Number of symptomatic UTIs that required antibiotics was significantly smaller in the treatment group than in the control group ($P=.05$).
- 70% of the control group had at least 1 antibiotic treatment episode compared with 50% of those with the hydrophilic catheter ($P=.18$).
- Being female increased the risk of UTIs ($P=.01$).

Cardenas & Hoffman. (2009) Hydrophilic catheters versus noncoated catheters for reducing the incidence of urinary tract infections: as randomized controlled trial. *Arch Phys Med Rehabil.* Oct;90(10):1668-71.

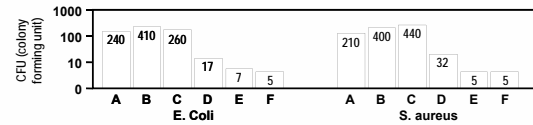
Gel pre-lubricated, self-contained systems

- Referred to as 'No-Touch'
- Closed system that provides aseptic catheterization.
- System is 100% latex-free
- Uses a pre-lubricated catheter.
- Catheter passes through a special guide mechanism at the top of the pocket.

Photo Courtesy of Hollister

Photo Courtesy of Coloplast

'No-Touch' Method: Reducing Bacteria



E. Coli
S. aureus
 Catheter A – EasiCath (Coloplast, Humlebaek, Denmark)
 Catheter B – SpeediCath (Coloplast, Humlebaek, Denmark)
 Catheter C – LoFric (Astra Tech, Mölndal, Sweden)
 Catheter D – LoFric H2O (Astra Tech, Mölndal, Sweden)
 Catheter E – Hollister Advance Intermittent Catheter (Hollister, Illinois, USA)
 Catheter F – VIALOG Mobile (Medical Service, Bad Liebenzell, Germany)

Results:
 The bacteria count on Catheter E and F was significantly lower than that recovered from the traditional hydrophilic catheters ($p < 0.05$).

Hudson & Murahata (2005) The 'no-touch' method of intermittent urinary catheter insertion: can it reduce the risk of bacteria entering the bladder? *Spinal Cord*, Oct;43(10):611-4.

IC Complications

- Infection:
 - Bacteriuria
 - Urinary tract infections
 - Chronic pyelonephritis - rare
- Urethral Damage (men)
 - Urethritis
 - Urethral stricture
 - Creation of a false passage
- Epididymitis
- Bladder stones
- Pain
- Hematuria
- Bladder stones

IC Complications (cont) Urethral Complications

- Urethral stricture
 - Inflammatory response to repeated catheterization
 - Risk increases with the number of years in IC
 - Use of hydrophilic catheters may decrease the incidence

Intermittent Self-Catheterization (ISC)

- Ideal/Successful Patient
 - Unobstructed urethra
 - Good vision
 - Good perineal hygiene
 - Compliant – motivated patient or caregiver
 - Ability to perform other self-care (e.g. dressing, transfers)
- Problem Patient
 - Obesity/large abdominal girth
 - Woman with abductor spasms

External Urinary Catheterization



External Urinary Collection Pouches

- Flexible form-fitting “ostomy” style pouch
- Skin friendly hydrocolloid attachment
- Pouch opening centered above the urinary meatus and used to funnel urine away into a urine collection system.
 - » Women:
 - » Training in device application by caregiver is necessary
 - » Application may be time-intensive
 - » Requires trimming of mons and labia hair
 - » Barrier paste may be used to smooth irregular contours
 - » Men:
 - » Useful with insufficient length for MEC
 - » Pouch opening centered over exposed shaft, adheres to pubis and scrotal tissues
 - » Requires trimming of pubic hair

Female
ouch

Female Pouch
in Place

Male Retracted
Penis Pouch

Use of Catheters for Incontinence Procedures: Surgical Issues and Geriatric Principles

Tomas L. Griebing, MD, MPH

**John P. Wolf 33rd Masonic Distinguished
Professor of Urology**

**Department of Urology and
The Landon Center on Aging
The University of Kansas**

Educational Objectives

- Review recent evidence-based data including recommendations for catheter use
 - Intraoperative / perioperative concepts
 - Catheter technology
 - Silver coated catheters
 - Antibiotic coated catheters
 - Nanotechnology
 - Antibiotic administration at the time of catheter removal or manipulation

Educational Objectives

- Discuss the relationship between catheter use and risk of delirium in geriatrics
- Examine effects of health policy and payment measures (United States)
- Outline justifications for indwelling catheter use in geriatric care
 - Risk / benefit
 - ‘Choosing Wisely’ Initiative

Intraoperative / Perioperative

Intraoperative / Perioperative

- Timing of catheter placement
 - Prior to preparation of the patient
 - After preparation on sterile surgical field
- Limited scientific data
- Often associated with surgeon preference or specific surgical procedure
 - Will the catheter be manipulated during surgery?
 - Urologic versus other surgical procedures?
 - Anesthesia monitoring of urinary output
 - Temperature monitoring

Intraoperative / Perioperative

- Transurethral catheter (Foley) versus other options (suprapubic or other drains)
 - Dependent on specific surgical procedure and surgeon preference
 - Will catheter be manipulated postoperatively?
 - How long is catheter drainage required?
 - Is the catheter necessary as a bridge across a reconstructive repair?
- General lack of evidence-based data

Intraoperative / Perioperative

- Transurethral versus suprapubic tube
 - Systematic review and meta-analysis
 - 12 Randomized controlled trials
 - 1,300 women undergoing gynecologic surgery
 - Primary outcome – urinary tract infections
 - Secondary outcomes
 - Need for recatheterization
 - Duration of catheterization
 - Catheter-related complications
 - Duration of hospital stay

Healy EF et al: *Obstet Gynecol* 2012, 120: 678-687

Intraoperative / Perioperative

- SP tubes reduced infection (20%) vs. Foley (31%)
 - OR 0.31, 95% CI 0.185-0.512, $p < 0.01$
- SP tubes increased complications (29% vs. 11%)
 - OR 4.14, 95% CI 1.327-12.9, $p = 0.01$
 - Mostly due to tube malfunction
 - No visceral injuries
 - No increased hospital stay
- Not procedures requiring urethral bridging
- Patient satisfaction and cost data lacking

Healy EF et al: *Obstet Gynecol* 2012, 120: 678-687

Catheter Technology

Catheter Technology

- Systematic review of 8 studies
 - Mostly men with spinal injury on CIC for retention
 - Gel reservoir and hydrophilic catheters vs. others
 - Somewhat lower rates overall UTI with gel reservoir and hydrophilic catheters, but otherwise NO overall differences.
 - Cost was higher with the special catheters
 - Cost effectiveness not demonstrated
 - But recommended diving patients options

Birmingham SL, et al: *BMJ* 2013, 345: e8639

Catheter Technology

- Cochrane review of 23 trials
 - 5,236 hospitalized adults in 22 parallel group trials
 - 27,878 adults in a cluster randomized cross-over trial
 - Silver or antibiotic treated catheters compared to control
 - Silver alloy catheters reduced asymptomatic bacteriuria
 - < 1 week (RR 0.54); > 1 week (RR 0.36)
 - Economic benefit is unclear
 - Antibiotic catheters showed short term effects only
 - *Schnuck R, et al: *Neurology* 2009; 73: 738-746*

Catheter Technology

- Do silver coated catheters increase strictures?
 - Retrospective review – single institution
 - Men undergoing robot assisted laparoscopic radical prostatectomy for prostate cancer
 - Two 12 month intervals with specific catheters
 - 188 men standard & 217 men silver alloy catheters
 - Median followup 18 months
 - 0 strictures standard vs. 6 strictures with silver alloy
 - Rate 0% vs. 2.8% (p = 0.03)
 - Limitations – nonrandomized, retrospective

Urology 2011; 78: 365-367

Catheter Technology

- Do antimicrobial or silver alloy catheters decrease infection?
 - Prospective, randomized, multicenter trial
 - 24 hospitals in UK
 - Adults requiring catheter \leq 14 days
 - Equally randomized 1:1:1 to silver alloy, nitrofurantoin, or control catheters
 - Primary outcome was symptomatic UTI
 - 3.3% reduction would be considered useful clinically
 - Secondary outcomes were comfort

Pickard R et al: Lancet 2012, 380: 1927-1935

Catheter Technology

- 7,102 subjects randomized – but 10% (708) excluded
- Of those catheterized, UTI occurred:
 - 228 (10.6%) of 2,153 with antibiotic catheter
 - 263 (12.5%) of 2,097 with silver alloy catheter
 - 271 (12.6%) of 2,144 with standard catheter (control)

- No statistically significant difference between groups
- Reduction of UTI in antibiotic group did not meet threshold

- Patients with antibiotic catheter had more discomfort

- Concluded that neither treated catheter was superior

Pickard R et al: Lancet 2012, 380: 1927-1935

Catheter Technology

- Antibiotic nanotechnology
 - 1,150 subjects randomized to catheter sprayed with sterile saline vs. antibiotic nanoparticles
 - Daily catheter care used same sprays
 - 7 days of indwelling catheterization
 - Outcome was bacterial colonization
 - Incidence of bacteriuria was reduced by treatment
 - 4.52% treated vs. 13.04% controls (p < 0.001)
 - Catheters also tested in an *in vitro* assay

He W et al: J Translational Med 2013, 10(Suppl 1):S14

- Reduced biofilm in treated vs. controls (p < 0.001)

Antibiotics and Catheter Removal

Antibiotics and Catheter Removal

- Use of antibiotics at time of catheter removal has been variable
- Often determined by surgeon / physician preference and training dogma or tradition
- Limited evidence-based data
- Theory is to reduce potential bacterial seeding from catheter biofilm or urine to reduce risk of UTI or urosepsis

Antibiotics and Catheter Removal

- Prospective, randomized trial 239 adults after elective abdominal surgery
 - 3 days of antibiotics (TMP/SMX) vs. control
 - Urine cultures before and 3 days after removal
 - Treated patients had reduced UTI incidence ($p < 0.001$)
 - 5 of 103 (4.9%) with antibiotics had UTI
 - 22 of 102 (21.6%) without antibiotics had UTI
 - Absolute risk reduction was 16.7%
 - Relative risk reduction was 77.5%
 - Number needed to treat = 6
 - Bacteriuria at 3 days also reduced (16.5% vs. 41.2%, $p < 0.001$)
- Pfefferkorn U et al: Ann Surg 2009, 249: 573-575*

Antibiotics and Catheter Removal

- Retrospective cohort study
 - Catheter removal 1 week after radical prostatectomy
 - 3 days of ciprofloxacin vs. no treatment
 - Single institution, two different surgeons
 - Antibiotics reduced incidence of UTI ($p = 0.019$)
 - 8 of 261 (3.1%) receiving antibiotics had UTI
 - 33 of 452 (7.3%) not receiving antibiotics had UTI
 - Number needed to treat = 24
 - Readmission for febrile UTI not significantly different
 - » 0% vs. 1.1%, $p = 0.16$

Pinochet R et al: Urol Int 2010, 85: 415-420

Antibiotics and Catheter Removal

- Prospective, randomized, placebo controlled trial of 140 adults undergoing abdominal or hip surgery
 - Catheter drainage for 3 – 14 days
 - Bacteriuria and UTI at 12 – 14 days post removal
 - Single dose antibiotics administered at removal
 - co-trimoxazole 960 mg ($n = 46$)
 - ciprofloxacin 500 mg ($n = 43$)
 - placebo ($n = 51$)
 - Bacteriuria incidence was 19%, 19%, 33% ($p > 0.05$)
- Hees BC et al: Clin Microbiol Infect 2011, 17: 1091-1094*

Delirium

Delirium

- Multifactorial syndrome
- High incidence after surgery
 - 10-15% of elective non-cardiac surgery
 - > 50% after emergency surgery
- Increased risk mortality within one year (2-3x)
- Increased risk cognitive decline, nursing home
- Beware underlying risks (prior episode, dementia)

Arch Intern Med 162:457-463, 2002
JAMA 291: 1753-1762, 2004

Delirium

- Confusion Assessment Method (CAM)
 - 1) Acute change mental status w/fluctuating course
 - 2) Inattention

AND either

 - Disorganized thinking or Altered level of consciousness

Sensitivity = 94 - 100%

Specificity = 90 - 95%

Inouye SK: Arch Intern Med 113:941-948, 1993
Inouye SK: NEJM 354:1157-1165, 2006

Delirium

- Prevention is key
 - Environmental orientation, family, sleep cycles
 - Assistive devices (hearing aids, glasses, etc.)
 - Avoid restraints – physical, chemical, catheters
 - Avoid risky drugs
 - Narcotics 2.5 – 2.7 fold increased risk
 - Sedative hypnotics 3.0 – 11.7 fold increased risk
 - Anticholinergics 4.5 – 11.7 fold increased risk

Delirium

- Computerized clinical decision support system
 - Consulting geriatrician
 - Removing catheter (72 & 76%, p=0.99) / restraints / avoiding anticholinergic medications
 - 60 older adults admitted to ICU, cognitive impairment (baseline) mean 74.6 years
 - Incidence of delirium 27-29% (p=0.85)
 - This system may not be effective for these outcomes Kahn BA et al: Am J Crit Care 2013, 22: 257-262

Delirium

- Clinical intervention trial
 - 60 older adults (mean age 74.6) with cognitive impairment admitted to ICU care
 - Randomized to electronic prompts to staff physicians to do preventive measures
 - Consult geriatrics, remove restraints, remove Foley
 - Discontinue anticholinergic medications
 - No differences observed in these 4 measures
 - No difference in incidence of delirium (27% vs. 29%)
 - Effectiveness of prompts? Kahn BA et al: Am J Critical Care 2013, 22: 257-262

Delirium

- Clinical study examining risk factors in ICU
 - 4 hospitals (1 academic, 2 community, 1 private)
 - 523 patients assessed using validated measures
 - Overall incidence of delirium 30%
 - Strongest patient factors
 - Smoking (OR 2.04)
 - Alcohol use \geq 3 drinks daily (OR 3.23)
 - Living alone at home (OR 1.94)
 - Care factors were also highly predictive Van Rompaey B et al: Critical Care 2009, 13: R77

Delirium

- Clinical care factors
 - Physical restraints (OR 33.84, 11.19 – 102.36)
 - Sedation (OR 13.66, 7.15 – 26.10)
 - Length of ICU stay > 2 days (OR 5.77, 3.71 – 8.97)
 - **Urinary catheter (OR 5.37, 95% CI 2.09 – 13.80)**
 - Benzodiazepine (OR 2.89, 1.44 – 5.69)
 - No visitors (OR 2.83, 1.50 – 5.36)
 - Isolation (OR 3.74, 1.69 – 8.25)
 - No normal food (OR 3.83, 2.36 – 6.22)

Van Rompaey B et al: Critical Care 2009, 13: R77

Health Policy and Payment Measures

Health Policy and Payment Measures

- Catheter associated UTI (CAUTI) listed in CMS 'never' events
- 2008 initiative
 - Goal to improve care and prevent complications
 - CMS ceased to provide additional payment for hospitalizations deemed preventable
 - Has it achieved what it was intended to do?

Health Policy and Payment Measures

- Survey of infection prevention specialists from 500 acute care hospitals in USA in 2010
 - 64% overall response
 - 81% reported increased emphasis on CAUTI
 - 69% increased time on educating staff on CAUTI
 - Only 15% had increased local budgeting
 - 71% reported more prompt urinary catheter removal

Lee GM et al: Am J Infect Control 2012, 40: 314-319
 – 27% obtain routine urine cultures on admission

Health Policy and Payment Measures

- Statewide study of Michigan hospitals before and after 2008
 - 767,531 adults discharged in 2007
 - 781,343 adults discharged in 2009
 - Hospital rates of CAUTI were very low in both years
 - Most UTIs were not classified as CAUTI
 - 0.09% in 2007 and 0.14% in 2009
 - Policy only reduced payment for 25 patients (0.003%)

Meddings JA et al: Ann Intern Med 2012, 157: 305-312
 – Raises issues about using claims data to report

Health Policy and Payment Measures

- Qualitative analysis of the CMS policy including CAUTIs in 2008 nonpayment policy
 - Semi-structured interviews with 36 hospital infection prevention specialists
 - Equivocal results on attitudes about including this
 - Two main groups of themes
 - Concerns over significance of problem, opportunity costs, financial significance, incentives
 - Concerns about clinical organizational behaviors

Palmer JA et al: Urol Nurs 2013, 33: 15-23

Health Policy and Payment Measures

- Agency for Healthcare Research & Quality (AHRQ) survey 398 hospitals
- Overall, payment penalties have not shown significant effect in reducing CAUTI
 - No changes among Medicare and other patients
 - Rates have been declining overall
 - Likely due to multiple factors including new clinical practices – but not necessarily due to payment or financial penalties

Lee GM et al: NEJM 2012, 367: 1428-1437
 Modern Healthcare 2012, 42: 8-9

Indwelling Catheters

Indwelling Catheters

- Indwelling catheters may be useful in highly selected older adults
 - Primarily retention – not incontinence
- May be useful when CIC is impossible
 - Physical limitations
 - Morbid obesity / Lower extremity contractures
 - Urethral strictures not amenable to surgical reconstruction
 - Cognitive limitations
 - Behavioral issues / dementia
 - Discomfort with CIC
 - Reduce caregiver / staffing burden for CIC
 - Surgical urinary diversion / reconstruction not possible

Indwelling Catheters

- F-Tag 315 – Urinary incontinence and catheters
 - Adopted in 2006 as a federal quality measure
 - Designed to improve continence care and reduce use of urinary catheters – particularly for urinary incontinence
 - Used in individual patient assessment
 - Component of continence promotion planning
 - Used by nursing home surveyors
 - Part of the overall assessment of facility quality
 - Linked to reimbursement to care facility

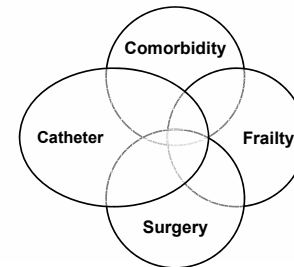
Johnson & Ouslander. J Am Med Dir Assoc 2006, 7: 607-610

Indwelling Catheters

- Risk of mortality
 - Prospective study 535 hospitalized adults >70 years
 - Indwelling catheter use without specific indication
 - Increased risk of death within 90 days of discharge
 - 25.0% with versus 10.5% without catheter died (p<0.001)
 - Limitation – those with specific clinical indication for catheterization were not studied

Holroyd-Leduc JM, et al. J Am Geriatr Soc 2007, 55: 227-233

Risk Assessment



'Choosing Wisely' Initiative

- Project of the American Board of Internal Medicine (ABIM) & multiple participating professional societies

www.choosingwisely.org

'Choosing Wisely' Initiative

- American Geriatrics Society
 - Don't use antimicrobials to treat bacteriuria in older adults unless specific urinary tract symptoms are present
 - Screening for and treatment of asymptomatic bacteriuria is recommended before urologic procedures for which mucosal bleeding is anticipated

www.choosingwisely.org

'Choosing Wisely' Initiative

- Society of Hospital Medicine (Adult)
 - Don't place, or leave in place, urinary catheters for incontinence or convenience or monitoring of output for non-critically ill patients
 - Acceptable indications
 - Critical illness
 - Obstruction
 - Hospice
 - Perioperative < 2 days for urologic procedures
 - Use weights instead to monitor diuresis

www.choosingwisely.org

Summary

- Care is highly tailored to each individual patient, particularly for operative catheter use
- Catheter technology has not substantially changed UTI risk
- Antibiotics appear useful at time of catheter removal

Summary

- Indwelling catheters increase risk of delirium
- Nonpayment policies have not impacted CAUTI rates
- Recommendations regarding indwelling catheters are evolving
- Research and evidence base are expanding

Catheter self-management and impact on the quality of life

Mary H. Wilde, RN, PhD

ICS conference Barcelona, Spain, August 27, 2013
Workshop 23—Urinary catheterization: Evaluating benefit versus risk and the application of new technology

Indwelling catheter problems

- UTI, blockage, dislodgement, leakage
(Wilde et al., 2013)
- Excess health care costs
- Recurrent problems affect the urinary tract over time, UTIs, trauma, strictures (WOCN 2009)
- Complications affect quality of life

Key catheter problems in past two months (Wilde et al. 2013)		Percent %	Rate/1000 catheter days		
UTI		31	6.22		
Blockage		24	11.08		
Dislodgement		12	3.57		
Other catheter problems	Percent %	Daily	Weekly to several times/ week	Monthly to several times/ month	Once in past 2 months
Leaking	43	9	10	51	29
Sediment	63	24	29	39	7
Kinks/twists	20	13	8	40	40
Bladder spasms	36	37	24	30	10
Autonomic dysreflexia	13	4	31	38	27

Treatments (Wilde et al. 2013)	UTI	Blockage	Unscheduled catheter changes	Percent %
	Percent %	Percent %	Weekly	
Extra home nurse visit	19	30	Several times a month	21
Extra office visit	25	23	Once a month	16
Emergency department	35	19	Once in past two months	59
Hospitalized	27		Changed by self	10
Catheter changed	65	70	Home care nurse	46
Urine cultured	65		Emergency department	31
Antibiotic prescribed	100			

Intermittent catheter problems

- Psychological and concerns about stigma and worry. (Shaw et al., 2008).
- Worries about UTIs
- Inconvenience of CIC in everyday activities
- Many without adequate insurance coverage & limited/inadequate choice in catheters and supplies
- Inaccessible bathrooms-too small, lacking in privacy, and/or unclean (Wilde et al., 2011)

External (Condom/sheath) catheter problems

- Selection of the correct product is needed.
 - Can cause pressure to the penis, even necrosis
 - Wetness to the skin and surrounding area
- For some, hard to apply due to retraction of the penis or obesity. Sometimes fall off.
- Appliance needs to be changed regularly. An "integral adhesive" is preferred. (Cottenden et al, 2013, ICI, 5th edition)
- Not indicated for men with high intravesical pressure; can cause hydronephrosis. Antimuscarinics and CIC are required. (Vaidyanathan et al., 2012)
- Product selection: Security, dryness, ease of application and removal (Cottenden et al, 2013, ICI, 5th edition)

Impact on quality of life

- Catheter related problems—troubleshooting, excess visits to providers
- Excess healthcare costs related to problems, especially recurrent trips to hospital/ED
- Emotional load on patients/family of dealing with problems
 - Quotes:
- **Indwelling catheter user:** "It's alright when it's working right." (Wilde, 1999)
- **CIC user,** who did not feel prepared: "Yeah she can go home and dress herself and take a shower but 'can she pee by herself...and go to the bathroom?' and that's gonna affect her social activities ...going out places with friends." (Wilde, 2003)

Stigma

- Catheter users can feel stigma related to catheter as well as disability.
- Stigma is a fundamental cause of health inequalities. It affects many life chances.
- Affects employment, housing, income, education, social relationships (e.g., isolation), psychological health, and health care. Issues inter-related; not separate. Hatzenbuehler, Phelan, & Link, 2013, AJPH

Stigma and Disability

- Concurrent disability limits employment, travel, access to clean bathrooms in indwelling and intermittent users.
- CIC user: "It's funny that they'll make the door wide enough, but once you get in you can't shut the door." (Wilde, 2011)

Visibility, stigma & shame

Stigmatizing conditions related to appearance can contribute to shame when others notice.

- Quotes from indwelling catheter users
- This person lost urine control while on a bus: "You're really soaked. It ruins the day. It ruins whatever you're drivin' in...It'll leak out and go all over the floor, or on the floor of the school bus. I had that happen sometimes, all over the school bus. The school bus transports me places...it soaks up on the floor. ...without another pair of pants, there's no sense in getting changed." (Wilde, 2003)

Stigmatized by looking different:

- Another person said: "You feel more or less [pause], you feel you are not as much a part of society when you got that, like you need more--how can I say that--you need more help, or [pause]. You don't fit in with the norm as much. It seems strange; it shouldn't be that way. But that is the way it is. If you don't look as normal as possible, the more people seem to shy away from you... it seems like you might be offending other people or something. The more normal you look, the less offensive you are to other people." (Wilde, 2003)

Normalizing by covering bag

- Quote: "If I've got a bag or a hose hanging down here, you'd see it. I don't care how hard, you'd be attracted to it. You're a nurse, you'd seen it a hundred, a thousand times. But you're still attracted. Your eyes go to it. It's something odd. But now with me, you don't see it. And I'm like a "normal" person (laughs). And I think that's half of it. You've made the decision, or the decision's been made for you, you have to have it. So conceal it." (Wilde, 2003)

Self-management

- A philosophy of care in which health care professionals support patients to identify problems, make decisions, and take appropriate actions

(Wilde, Tannenbaum, Bliss, Cheater, Booth, Self-management of urinary and fecal incontinence, in review)

What is known about self-management

- Literature on self-management for persons with diabetes, asthma, and weight control.
- Little known on self-management for catheter users.
- Theory development guided work to intervention research, particularly related to self-monitoring

Self-management

- Mediated, or influenced by, self-efficacy, i.e., confidence in one's capacity and capability for performing an activity (Richard & Shea, 2011).
- Most successful when patients are internally driven to participate in a collaborative process of care. (Bodenheimer et al., 2002; Lorig & Holman, 2003).

Theoretical frameworks

- Self-efficacy—confidence to do something (Bandura 1997)
 - Evidence that SE is good predictor of behavior
 - Behavior specific
 - Critical to self-management skills

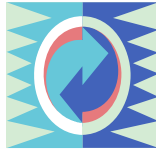
Self-monitoring Concept

(Wilde & Garvin, 2007)

- 1) Awareness of bodily symptoms, sensations, daily activities, and cognitive processes
- 2) Measurements, recordings, and observations that inform cognition or provide information for independent action or consultation with care providers.

Self monitoring ties together:

Knowledge from living with condition or awareness of what to notice



Recordings and observations (tools—diary, journals)

Exemplar---

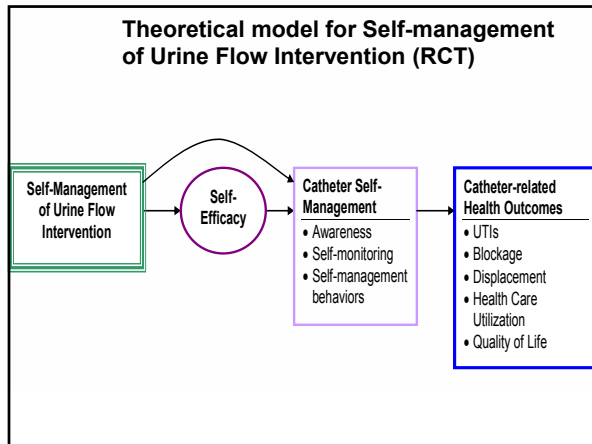
Woman with long-term urinary catheter

- “Getting in touch with yourself”
- “Listen and find out what going on with your body”
- “Paying attention to my body”
 - (Wilde 1999, 2002)

From Wilde's self-monitoring of urine flow pilot study (Wilde et al. 2008a)

- Study participants taught Awareness , i.e., what to notice
- And what to do about it through Observations or Recordings in their urinary diary (Intake and Output form and catheter journal)

Awareness: How has your thinking changed?	Self-monitoring: What are you doing to monitor urine flow?	Self-management: What is done to maintain urine flow? (Wilde 2008a)
Know I need to get more [fluid] <u>input</u> to manage catheter.	Not changed much. Thinking about it every day.	Think how much I am <u>drinking</u> . It has become a way of life...Made me more aware and change bad habits. A couple of times did not do and had UTI.
Know I need to get more [fluid] <u>input</u> to manage catheter.	Puts cloth between skin and catheter. No more blisters.	<u>Drinking</u> more, continually all day long.
Know I need to get more [fluid] <u>input</u> to manage catheter.	More aware. Not doing anything	Getting catheter changed at right interval of 4 weeks. (Had not been consistent.)




- ### Study design- RCT (N= 202)
- Four contacts with Intervention nurse: 3 home visits, 1 telephone call
 - Teaching self-monitoring for 3 days
 - Urinary diary I & O and catheter journal
 - Educational booklet
 - To increase awareness, self-monitoring (observations and recordings), and self-management behaviors
 - Data collection bimonthly for a year

Quick Guide to Problems and Action Strategies

Problem	Action Strategies	See Page Number
Decreased/inconsistent fluid intake	Increase fluid intake	7
UTI	Increase fluid intake Recognize early symptoms of UTI and acting on it	7 8
Catheter blocks	Increase fluid intake Promote catheter changes at best intervals	7 11
Adjustment to living with a catheter	Approaches for living with a catheter	9
Not sure of the best schedule for catheter changes	Promote catheter changes at best intervals	11
Kinks, twists, or tugs on catheter	Prevent kinks, twists, or tugs on catheter	13
Too much caffeine	Decrease caffeine	14
Catheter leaks	Decrease catheter leakage Empty urine bag	15 16
Urine bag odor	Clean urine drainage bag	17
Changes with sex	Make adjustments for sexual activity	18
Autonomic Dysreflexia (for people with spinal cord injury)	Recognize early symptoms of Autonomic Dysreflexia	19


Increase fluid intake (Wilde, 2008b)

- "I am more conscious of what I drink. I am adamant about drinking 6 glasses of water."
- Low fluid intake might be associated with blockage and urinary tract infection (UTI).

Paying Attention	Things You Can Do
Notice whether you are getting enough fluids throughout the day.	Drink 2000-3000 cc. fluids per day. More fluid than this is not advised as it can interfere with body defenses and/or electrolytes. If you like the water cold, keep several bottles in the fridge and refill them everyday. To add flavor to water, try 2 oz of cranberry or apple juice to 8-10oz of water. You may also try adding a little "Tang." Keep glasses of water scattered throughout the house. Secure a jug of water to your wheelchair. Use a rigid straw so you don't have to suck hard. You may want to drink around meal times and before bed. Have a caregiver remind you to drink water.
Notice changes in color or odor of urine.	If color gets dark or urine has foul smell, increase water.
If you are on fluid restriction, make sure that you stay within the restricted range.	Record occasionally to check that you are staying within range. 
Be aware of changes in daily activities, such as stress and illness, I & O.	Use a journal to increase awareness of how activity affects fluid intake.

Prevent kinks, twists, or tugs on the catheter
Kinks or twists can cause the bladder to overfill and may contribute to UTI. Tugging can cause traction on the urethra and may damage it. Lying down or sitting on the tube may cause it to leak or hurt.

"I am more aware of what's going on now, like checking the catheter all day and its position."

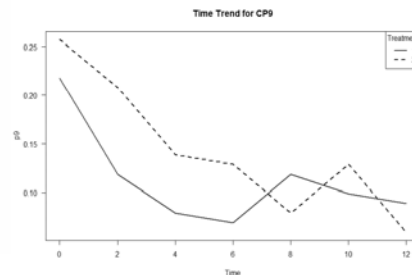
Paying Attention	Things You Can Do
Stay aware of the position of the tubing and catheter. 	Stretching new catheter tubing can help it to loop better and promote urine flow. Straighten the tubing, stand up or reposition yourself to improve flow and to prevent pain. Position catheter carefully with every position change. Don't run over the tubing.
Be aware of whether catheter is secured consistently in the right place.	Securing should be in the thigh for women and abdomen for men. If sensitive to adhesive tape, try a catheter holder made of cloth or secure tubing to clothing or bed linen.
Notice what you feel, especially over the bladder area or abdomen when the catheter is blocked.	Experiment with body and bag positions to see which ones improve flow. For men, you may need to position the testicles so that the tubing is straight in your body. "IF SOMETHING DOESN'T FEEL RIGHT, ACT ON IT QUICKLY!"

- ### Symptom recognition
- Urine Changes:
 - Color – Discolored, cloudy, dark, blood stained
 - Odor – Foul smelling, change in smell from usual
 - Sediment (grit) – Increased amount
 - Temperature – Fever chills,
Pain and/or pressure in bladder area or back (Burning possible, not common)
- Early, mild symptoms of autonomic dysreflexia (e.g., goosebumps, headaches, sweats) mainly in people with spinal cord injury
- General Symptoms Blahs!, feeling sick
- Functioning or mental changes – weakness, spasticity, change in the level of alertness (Wilde et al., 2013)

Some early results from Wilde RCT: UTI

UTI Rates	Intervention per 1000 catheter days/CIs	Comparison per 1000 catheter days/CIs	P values	Change in rates Intake to Follow up Intervention	Change in rates Intake to Follow up Comparison
Intake	6.93 (5.00, 9.37)	5.50 (3.79, 7.72)	0.32	P values	
First 6 months	4.37 (3.40, 5.53)	4.83 (3.82, 6.03)	0.55	0.0186	0.5334
Full 12 months	4.89 (4.12, 5.75)	4.12 (3.42, 4.91)	0.16	0.0465	0.1392

Early results from Wilde RCT: Blockage significantly different first 6 months in intervention group



Self-management Themes in CIC users (Wilde et al. 2011)

1) Embodied knowledge—awareness and self-monitoring	<p>"Listen to your body and then if you have sensation of when you need to go then...listen to that and just know."</p> <p>"It's kind of this back and forth battle with me knowing am I getting enough fluid intake?...I don't want to pee my pants, but yet I also don't want to not be having enough fluid intake where I'm dehydrating myself".</p>
2) CIC procedure—self-management	<p>"...the further you scoot down the easier it is to insert the catheter". [female participant]</p> <p>"...I just practice and practice and practice, and the more I got it, then the better I got at it, and after the first year, it's just been like rote, easy, simple, I don't even think about it".</p>

3) Catheter equipment—self-management	"...if cost was not an issue, then I would have been using the ones that are in the bags, self-contained. Then the cleanliness issue would be handled".
4) Bathroom access—awareness & self-management	"It's funny that they'll make the door wide enough, but once you get in you can't shut the door".
5) Stigma and hassles—awareness	"It can be hard; it can be almost harder to deal with the whole loss of bowel and bladder than it can be being paralyzed....if I had the choice to either walk again or get back the use of my bowel and bladder, I would rather have the use of my bowel and bladder and use a wheelchair the rest of my life and never walk again".
6) Adjustment—self-management	"This is a part of your life now, it's something you have to deal with ... so deal with it and just make the best out of it... before you know it, it will be ...years down the road and it's like no big deal".

Next study: Self-management in intermittent catheter users

- Interventional study --Awareness, self-monitoring, self-management
- Internet based
- Study nurses and peer forum leaders
- Online database-Intake & observation of self-cathing patterns

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Thank you

Questions?



Current guidelines on the use of urinary catheters

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Barcelona 26th -30th August 2013

Objectives

- Recognise the drivers towards clinical guidelines
- Understand what makes up a 'good' clinical guideline
- Appreciate similarities and differences between selected, available guidelines for indwelling urinary catheters

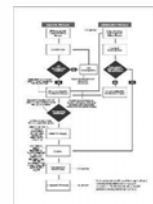
Scope of guideline production

- Professional associations or societies (e.g. Royal College of Nursing, ANZUNS, European Associations of Urology)
- Government departments (e.g. NICE, Centers for Disease Control and Prevention)
- Local communities and hospitals



Differences between guidelines and pathways

- Guidelines
 - The content of a guideline is based on a systematic review of clinical evidence - the main source for evidence-based care.
- Pathways
 - These are structured, multidisciplinary plans of care with the continuity and co-ordination; algorithms in a flow chart format of the decisions to be made and the care to be provided for a given patient or patient group for a given condition in a step-wise sequence.



<http://www.openclinical.org/guidelines.html>, accessed 30 April 2013

What elements make up a good guideline

- Review of the literature
- Reliability and reproducibility
- Clinical applicability and flexibility - the guideline should address the patients it applies to (and exceptions)
- Clarity - logical and easy to follow
- Multidisciplinary and integrated process
- Scheduled review



Guidice E L Critiquing Clinical Practice Guidelines (accessed online PPT on 30 April 2013)

Implementing guidance: key messages from 1994!



- Can change clinical practice and affect patient outcome
- Effective based on active implementation
- Should be based on reliable clinical and cost-effectiveness

www.york.ac.uk/instord/EHCehc18.pdf

What's the evidence that NICE guidance has been implemented in 2004?

Results from a national evaluation of an audit of patients' notes, and interviews

- Implementation of NICE guidance has been variable
- Adoption influenced by:
 - strong professional support
 - a stable and convincing evidence base
 - established good systems for tracking guidance implementation professionals involved are not isolated
- Guidance needs to be clear and reflect the clinical context

BMJ 2004; <http://www.bmj.com/content/329/7473/999.abstract> (accessed 7 May 2013)

International Consultation on Incontinence 2009

<http://www.ics.org>



Although guidelines and protocols for catheter-care practices are abundant, relatively few practices are supported by research evidence and even fewer by evidence from randomized controlled trials.

Why do we need guidelines for indwelling urinary catheter (IUC)?

- 1 in 4 patients admitted to hospital have an IUC
 - Some may require antibiotics
 - A few may experience life-threatening complications

Saint (2000) Clinical and economic consequences of nosocomial catheter-related bacteriuria. Am J Infect Control 28: 68-75

.....and care can go wrong!



Female urinary catheters cause
 From reporting to learning
 03 August 2009

MAKE SURE YOU SELECT THE CORRECT SIZE CATHETER

<http://www.npsa.npsa.nhs.uk>
 06/05/2009 accessed 6 May 2013

Female only catheters can cause severe trauma and haemorrhage if used in males.
 For further information, go to www.npsa.nhs.uk/rtr

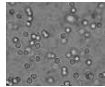
Nursing Documentation: Court Faults Nurse For Failing To Note Time Of Catheter Removal.

Immediately prior to her hysterectomy, the patient was given an indwelling urinary catheter to facilitate post-operative drainage. On the morning after surgery, the catheter was removed by one of the hospital's nurses. The nurse noted in the patient's chart that she had removed the catheter, but did not record the time of day. Later that day, the patient was unable to void her urine. According to the court record, because the nurse who removed the catheter did not record the time of day, there was a delay in inserting another catheter to enable the patient to void. The Court of Appeals of Georgia faulted the nurse who removed the catheter. The court ruled it was negligent nursing practice for the nurse not to have made note of the time of day when the catheter was removed.

Hartman v Shallowford Community Hospital 1995
<http://www.nursing.com/catheter3.pdf>
 accessed 8 May 2013

Infection is a significant problem

- 40% of all nosocomial infections are urinary tract infections (UTI)
 - 80% of these are related to IUC
- For every CAUTI the length of hospital stay and cost increases
- By the 20th day, bacteriuria is nearly universal (5% growth per day)



Saint (2000) Clinical and economic consequences of nosocomial catheter-related bacteriuria Am J Infect Control 28: 68-75
Stamm W (1991) Catheter-associated urinary tract infections: Epidemiology, pathogenesis, and prevention Am J Med 91: 9

Prevalence can be high

Key aim of all guidance:
Reducing the duration of catheter use!

HPA survey on HCAI and antimicrobial use across acute hospitals in England (Sept-Nov 2011)

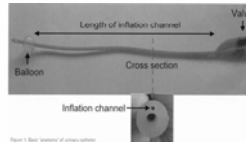


Table A.6: Prevalence of urinary catheterisation (UC) by ward specialty, all

Ward specialty group	Number of patients with UC in ward	Number of patients with UC in site	Prevalence UC in site
Total	5280	18328	18.3%
ICU	1301	1728	85.2%
Intensive and generalist	4308	338	7.6%
Emergency	1398	246	17.6%
Urology	231	44	19.1%
Cardiac	344	89	25.9%
Other speciality	113	27	23.9%
Cardiac	1638	283	17.3%
Medicine	1712	287	16.8%
Paediatrics	2742	46	1.7%
Clinical	8	0	0%

English National Point Prevalence Survey on Healthcare-associated Infections and Antimicrobial Use, 2011 (Preliminary Data) Published May 2012

What guidelines are available?

European & Asia 2008

US 2009

Ireland 2011



Compliance

Best Practice Recommendations (ICI 2009)

	GR	1	2	3
Indwelling catheters should only be used after alternative management strategies have been considered and rejected as unsatisfactory	A	X	✓	✓
Duration of catheterisation should be minimal	A	✓	✓	✓
A closed drainage system should be maintained to reduce risk of catheter associated infection	A	✓	✓	✓
Asymptomatic bacteriuria should NOT be treated with antibiotics (unless urological instrumentation is planned)	B	✓	✓	✓

Compliance

Best Practice Recommendations (ICI 2009)	GR	1	2	3
Routine urine culture in an asymptomatic patient is not recommended	C	✓	✓	✓
Silver-alloy catheters should be considered for short-term catheterised patients to reduce the risk of catheter-associated infection	A	✓	✓	No rec; unresolved
Catheter materials designed for long-term use (all silicone, silicone or hydrogel-coating) should be used where a catheter is expected to be used long term (i.e. >14days)	B	No consensus	✓	✓
Meatal cleansing with plain soap and water (not with antimicrobial agents) is recommended	A	✓	✓	✓

Compliance

Best Practice Recommendations (ICI 2009)	GR	1	2	3
Addition of disinfectants to drainage bags, bladder irrigation and antibiotic prophylaxis are NOT recommended as routine infection control measure	A	X	✓	✓
If an indwelling catheter is being considered, SPC should be considered alongside UC, following appropriate risk assessment	B	✓	✓	No rec; unresolved
SPC insertion should be carried out only by appropriately trained and skilled practitioners	C	X	✓	X
UC and SPC catheters and drainage bags should be adequately supported to prevent metal or cystostomy damage from traction	C	X	✓	✓

Compliance

Best Practice Recommendations (ICI 2009)	GR		
In patients with recurrent catheter encrustation and blockage, careful monitoring should be undertaken to identify a characteristic pattern of 'catheter life' and instigate pre-emptive catheter changes prior to likely blockage	C	No rec made	√

Specific recommendations
Patients with urethral catheters in place for 10 years or more should be screened for bladder cancer (C).

Specific recommendations
Governance: education, documentation and surveillance

Reduction in catheter-associated urinary tract infections by bundling interventions.

Clarke K et al 2012 Division of Hospital Medicine, Department of Medicine, Emory University School of Medicine, Atlanta,

- Bundle of four evidence-based interventions
 - Silver-alloy catheter
 - Securing the device
 - Avoid touching the floor
 - Removal at day 1 or 2 post-surgery
- During the study period, 33 of the 2228 patients were diagnosed with a CAUTI. Pre-intervention period was 5.2/1000.
- 7 months following the implementation of the fourth intervention, the rate was 1.5/1000 catheter days

European Association of Urology Nurses (2012)



Recommendations	LE	GR
• Silicone catheters (100%) might be preferable to other catheter materials to reduce the risk of encrustation in long-term catheterised patients who have frequent obstruction of the catheter (14)	1b	B
• Catheter materials designed for long-term use (100% silicone, silicone coating or hydrogel coating) should be used where catheter is expected to be used long-term (more than 2 weeks) (21, 31)	Unresolved issue	
• Silver alloy coated catheters may reduce the risk of catheter-associated bacteriuria in hospitalised patients during short-term catheterisation (less than 1 week) (32, 33)	1a	B
• Antibiotic-impregnated catheters may decrease the frequency of asymptomatic bacteriuria in hospitalised patients within 1 week	1a	B
• There is no evidence that antibiotic-impregnated catheters decrease symptomatic infection and therefore they cannot be recommended routinely	Unresolved issue	

http://www.eaunwills.org/fileadmin/EAUN/guidelines/EAUN_Paris_Guideline_2012_LR_online_file.pdf

Types of urethral catheter for reducing symptomatic urinary tract infections in hospitalised adults requiring short-term catheterisation

Pickard R et al (2012) Institute of Cellular Medicine, Newcastle University, Newcastle upon Tyne, UK.

- RCT: multicentre UK comparing three catheters in 24 hospitals
- Adults requiring temporary urethral catheterisation for a period of between 1 and 14 days
- Unconvincing findings for any particular catheter

UK drivers for improved care

Winning Ways	2003	Management of urinary catheters Audit of urinary catheter care and management
Saving Lives	2005	To reduce the incidence of UTI related to indwelling urinary catheters Audit of insertion techniques and continuing care
Emerging 4 Excellence	2010	To demonstrate a dramatic reduction in the rate of UTIs for patients (50% in England)
Safety Thermometer	2012	To deliver harm free care as defined by the absence of pressure ulcers, falls, CAUTI and VTE by December 2012



More focus on nurse-led approaches to reduce catheter use

- nurse-led interventions and informatics-led interventions:
 - computerized
 - chart reminders

Stop-Order

On admission all patients with an indwelling urethral urinary catheter will have catheter removed within 72 hours.

Exceptions

- urinary obstruction leading to urinary retention (where intermittent catheterisation is not viable)
- neurogenic bladder and urinary retention (where intermittent catheterisation is not viable)
- urological surgery
- open surgical wounds (stage 3 or 4) for incontinence patients

All exceptions should be fully documented and reviewed every 7 days.

If any concerns, please contact the patient's medical team or the Bladder & Bowel Service on 01726 291042

Bernard et al (2012) A review of strategies to decrease the duration of indwelling urethral catheters and potentially reduce the incidence of catheter-associated urinary tract infections.
Urologic Nursing

So what do we know?



- The international drivers towards clinical guidelines
- What makes up a 'good' clinical guideline
- Similarities and differences between selected, available guidelines for indwelling urinary catheters
- Recognition and opportunity to develop international standards for guideline development

'Work is being duplicated around the world, with institutions failing to work jointly, consolidating networks around health topics or fields'.

Alonso-Coello et al (2011) The updating of clinical practice guidelines: insights from an international survey. Updating Guidelines Working Group. Implement Sci. 2011; 6: 107

Thank you

