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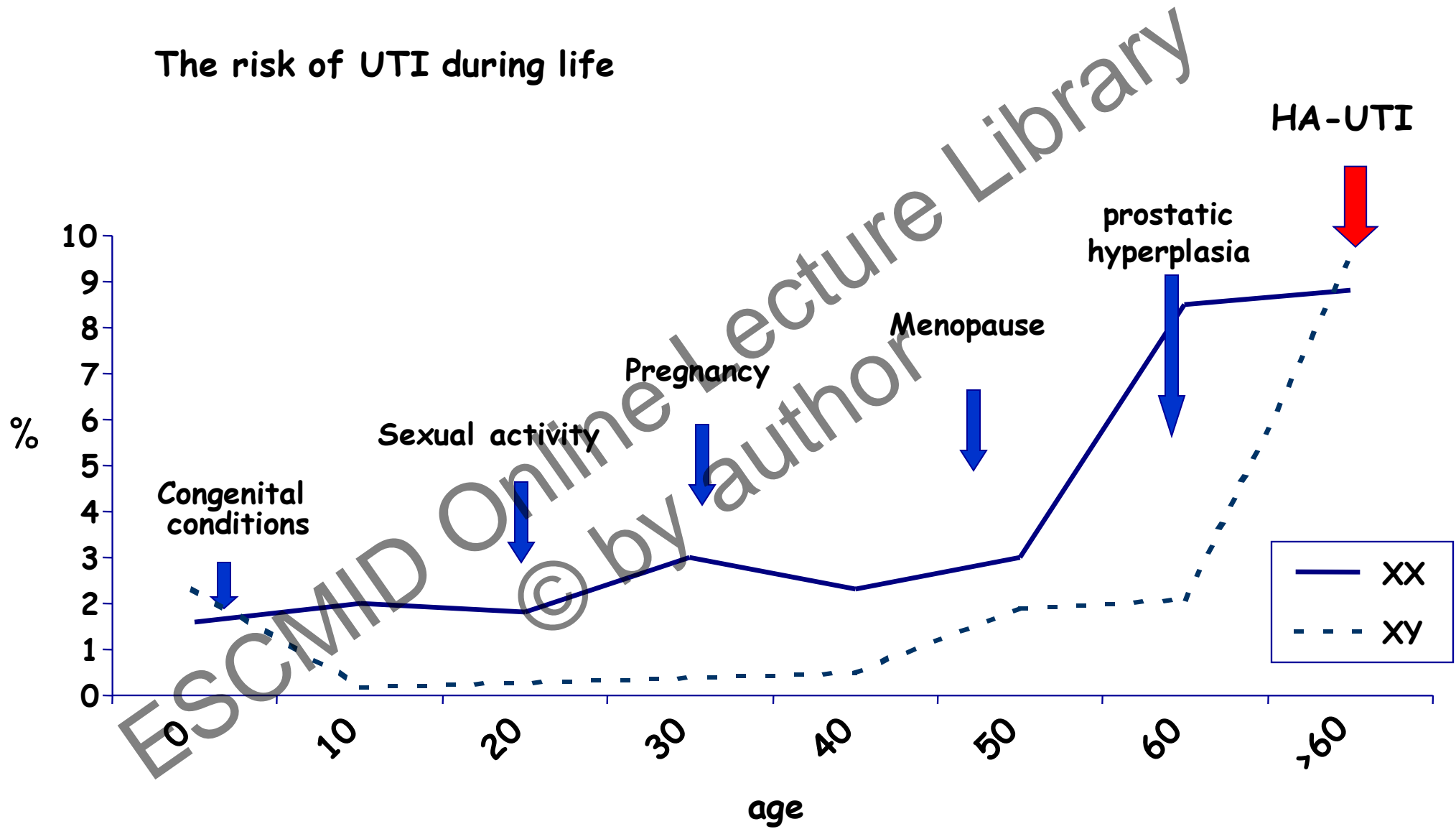
HA-UTIs according to age and gender PREVENTION AND TREATMENT

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The risk of UTI during life

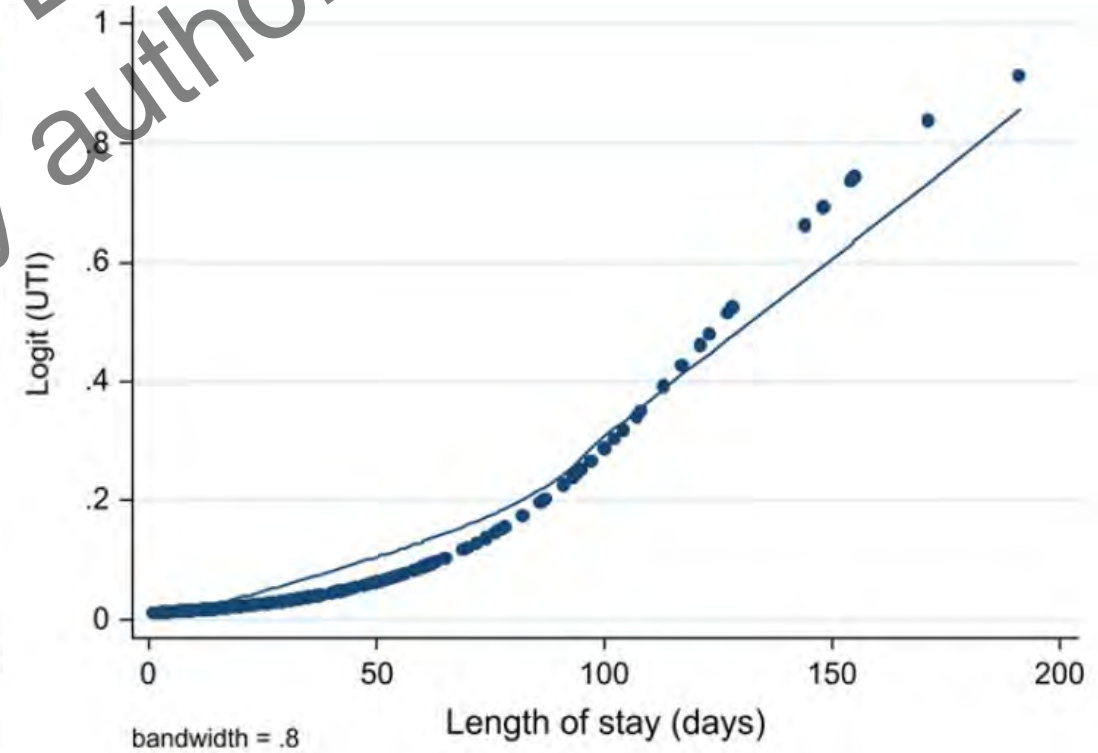
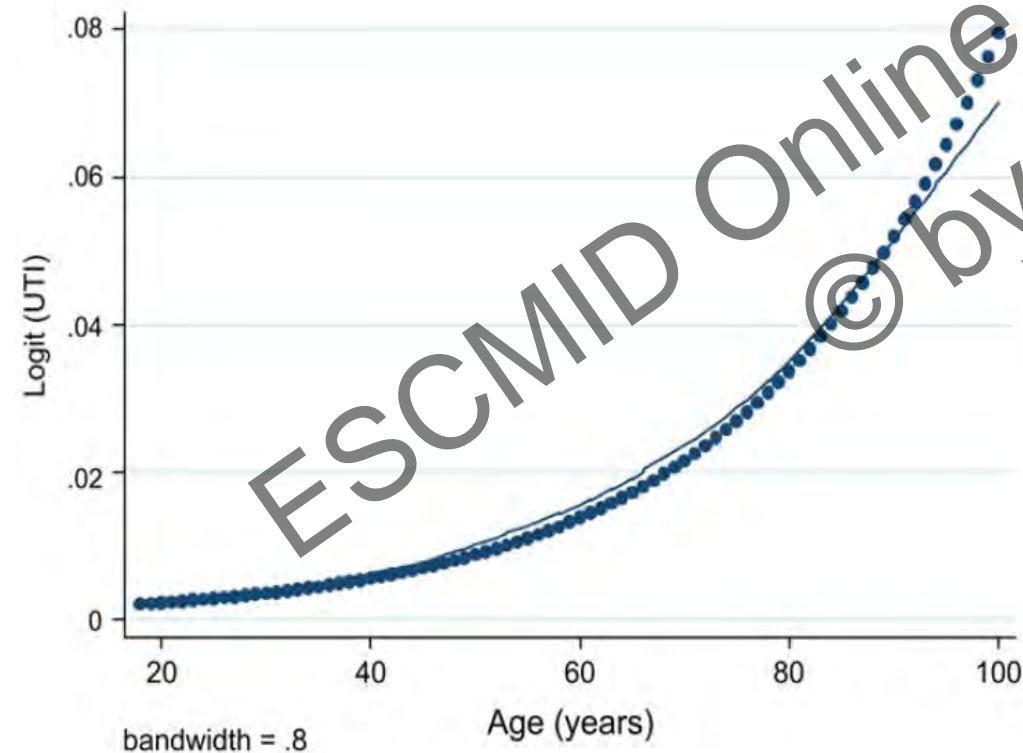


Factors associated with health care-acquired urinary tract infection

Graves N et al, *Am J Infect Control* 2007; 35:387-92

Prospective survey on >18 years old inpatients with a minimum stay of 1 night admitted to a 712-bed tertiary referral hospital and a 312-bed district hospital in SE Queensland. The working data set consisted of 4157 observations with 24 predictors. There were 849 multiple admissions (20.42%), and a total of 69 UTIs were diagnosed, which implies an incidence rate of 1.66% for the 4 months during which patients were recruited.

Log odds of UTI by length of stay and age.



Factors associated with health care-acquired urinary tract infection

Graves N et al, *Am J Infect Control* 2007; 35:387-92

Descriptive summaries and univariate analyses of candidate predictors

	OR	(95% CI)	P value
Length of stay > national average for ICD- 10 code	5.28	(2.46-11.34)	< .001
Male	0.44	(0.26-0.77)	.004
Transferred from/to another hospital	2.90	(1.39-6.04)	.004
Some assistance	2.58	(1.51-4.41)	.001
Underlying neurologic disease	2.59	(1.49-4.49)	.001
Ever had a stroke	1.94	(1.03-3.67)	.041
Urinary catheter in situ during admission	5.16	(2.84-9.36)	< .001
Unresolved spinal injury	4.07	(1.04-15.92)	.044
Admitted with fracture or dislocation	3.34	(1.75-6.38)	< .001

HA-UTIs

Health care-acquired urinary tract infections are not neglected HA infections

Health care-acquired urinary tract infections are the most frequently occurring of all health care-acquired infections among a general hospitalized population.

Health care-acquired urinary tract infections increase patient morbidity and can be associated with severe disease

The epidemiology of septic shock in French intensive care units: the prospective multicenter cohort EPISS study

Quenot JP et al, *Critical Care* 2013, 17:R65

Prospective, multicenter, observational cohort study in ICUs from 14 French general and university teaching hospitals. All consecutive patients with septic shock admitted between November 2009 and March 2011 were eligible for inclusion.

Among 10,941 patients admitted to participating ICUs between October 2009 and September 2011, **1495** (13.7%) patients were included. **Mortality at 28 days was 42%** (n=625).

Site of infection**	Survival Probabilities*				P value (log rank test)
	All (N=1488)	3 days	7 days	28 days	
Respiratory tract	798 (53.6%)	84.1%	77.4%	56.7%	0.84
Abdominal	285 (19.2%)	83.1%	75.0%	58.2%	0.83
Renal / urinary tract	209 (14.1%)	86.6%	82.8%	69.5%	<0.001
Bloodstream	196 (13.2%)	70.4%	63.3%	49.8%	<0.001
Other	88 (5.9%)	81.8%	75.0%	57.3%	0.99

Outcomes in UK patients with hospital-acquired BSI and the risk of catheter-associated urinary tract infections.

Melzer M, Welch C Postgrad Med J. 2013 Mar 21.

From October 2007 to September 2008, demographical, clinical and microbiological data were collected on patients with hospital-acquired bacteraemia. Patients were followed until death, hospital discharge or recovery from infection. Risk factors for 7-day mortality were determined and multivariate logistic regression was used to define the association between catheter-associated bacteremic UTIs and likelihood of death.

:

559 bacteremic episodes occurred in 437 patients.

Overall, there were 90 deaths (20.6%) at 7 days and 153 deaths (35.0%) at 30 days.

Among patients with catheter-associated bacteraemic UTIs, 7-day and 30-day mortalities associated with each bacteraemic episode were 25/83 (30.1%) and 33/83 (39.8%), respectively.

Compared with CVC-associated bacteraemic infections, there was a significant association between catheter-associated bacteraemic UTIs and 7-day mortality (OR 4.16, 95% CI 1.86 to 9.33). After adjustment for age and CCI, this association remained significant (OR 2.90, 95% CI 1.19 to 7.07).

HA-UTIs

Health care-acquired urinary tract infections are not the neglected HA infections

Health care-acquired urinary tract infections are the most frequently occurring of all health care acquired infections among a general hospitalized population.

Health care-acquired urinary tract infections increase patient morbidity and could be associated to severe disease

Silent catheter-associated bacteriuria, although not considered a disease, comprises a huge reservoir of resistant pathogens

Since some health care-acquired urinary tract infections can be prevented (from 17 to 69%), the ability to prevent them is a quality marker and a careful assessment of the change in costs and health benefits from prevention programs will affect decision regarding increases in infection control.

CA-UTI : Summary of recommendations from published guidelines

recommendation	CDC 2011	EAU 2008	IDSA 2010	HICPAC 2010	SHEA 2008
LIMITATION OF CATHETER USE					
Evaluate necessity of catheterization	y	y	y	y	y
Review ongoing need for catheter regularly	y	y	y	y	y
Evaluate alternative methods of drainage	y	U	y	U	y
CATHETER MAINTENANCE					
Maintain closed drainage system	y	y	y	y	y
Replace collecting system if break in asepsis	y	ND	ND	ND	U
Maintain drainage bag below the level of the bladder	y	y	y	y	y
Avoid routine irrigation	y	y	y	y	y

Implementation of these measures can reduce up to 50% of infections

Using a criteria-based reminder to reduce use of indwelling urinary catheters and decrease urinary tract infections.

Chen YY et al, Am J Crit Care. 2013;22:105-14

OBJECTIVES: To determine whether a reminder approach reduces the use of urinary catheters and the incidence of catheter-associated urinary tract infections.

METHODS: A randomized control trial was performed in 2 respiratory intensive care units in a 2990-bed tertiary referral medical center. Patients who had urinary catheters in place for more than 2 days were randomly assigned to either the intervention group (use of a criteria-based reminder to remove the catheter) or the control group (no reminder).

A total of 278 patients were recruited. Utilization rate of indwelling urinary catheters was decreased by 22% in the intervention group compared with the control group (relative risk, 0.78; 95% CI, 0.76-0.80; $P < .001$).

The intervention significantly shortened the median duration of catheterization (7 days vs 11 days for the control group; $P < .001$).

The reminder intervention reduced the incidence of catheter-associated infections by 48% (relative risk, 0.52; 95% CI, 0.32-0.86; $P = .009$) in the intervention group compared with the control group.

Inappropriate use of urinary catheters: A prospective observational study

Tiwari MM et al, *Am J Infect Contr* 2012;40: 51-4

A prospective review of electronic medical records of 436 patients admitted to an adult medical-surgical unit to examine the appropriateness of urinary catheter use.

A total of 144 patients (33.0%) had a urinary catheter in place at some point during hospitalization; 157 urinary catheters were used in these patients, for a mean of 1.1 ± 0.4 urinary catheters per patient. A total of 557 catheter days were recorded, with a mean duration of catheterization of 3.7 ± 3.9 catheter-days per catheterized patient

Variable	Total n	Mean \pm SD
Number of patients	436	-
Age, years	-	51.7 ± 19.2
Female sex	252 (57.8%)	
Length of stay, days	2,909	6.7 ± 9.5
Patients with urinary catheter	144	-
Total catheters	157	1.1 ± 0.4
Total catheter-days	557	3.7 ± 3.9
Appropriate catheter-days	382	2.6 ± 2.8
Inappropriate catheter-days	175	1.2 ± 2.7

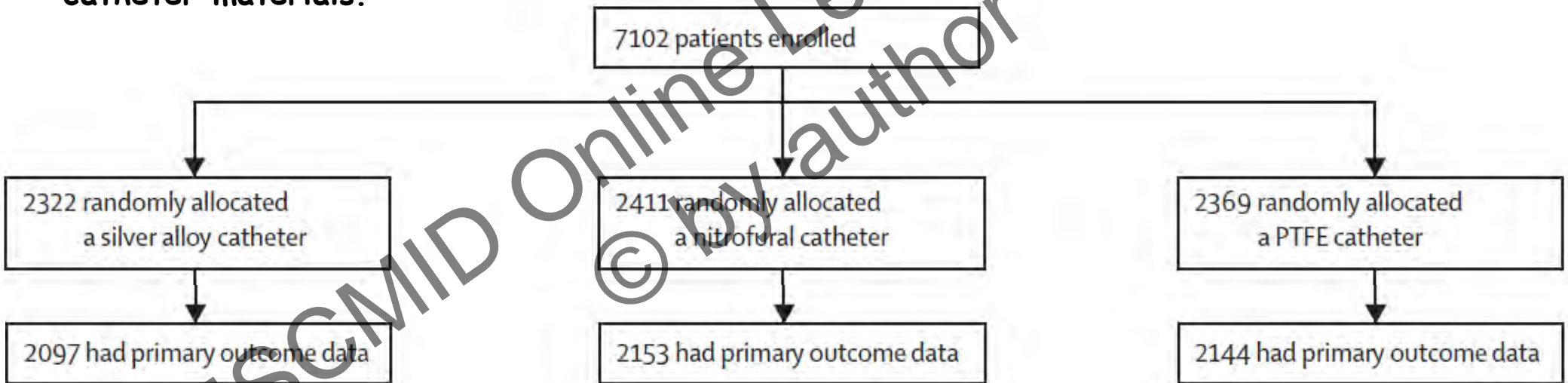
CA-UTI : Summary of recommendations from published guidelines

recommendation	CDC 2011	EAU 2008	IDSA 2010	HICPAC 2010	SHEA 2008
CATHETER INSERTION & SELECTION					
Use of aseptic technique/sterile equipment	Y	Y	Y	Y	Y
Use of barrier precautions for insertion	Y	U	U	U	Y
Use of the smallest bore catheter possible	Y	Y	U	U	Y
Use of silver alloy catheters	ND	Y	Y	Y	N
Use of antimicrobial-impregnated cath	ND	N	Y	Y	N
Use of hydrophilic catheters	ND	ND	N	Y	ND

Antimicrobial catheters for reduction of symptomatic urinary tract infection in adults requiring short-term catheterization in hospital: a multicentre randomized controlled trial

Pickard R et al, *Lancet* 2012; 380: 1927-35

A multicentre, randomized, controlled trial, enrolling adults undergoing urethral catheterization for an anticipated duration of up to 14 days from 24 UK National Health Service hospitals that provide surgical care in various specialties. Wide eligibility criteria were used. Ineligible patients were those who had symptomatic urinary tract infection at baseline, had undergone urological procedures in the previous 7 days, or had allergies to catheter materials.



The primary outcome was **incidence of symptomatic UTI** at any time up to 6 weeks after randomization. Secondary outcomes included incidence of microbiologically confirmed symptomatic CA-UTI, incidence of bacteriuria up to 3 days after catheter removal, changes in health-related quality of life during the 6 weeks of trial participation, and urethral discomfort related to catheterization.

Antimicrobial catheters for reduction of symptomatic urinary tract infection in adults requiring short-term catheterization in hospital: a multicentre randomized controlled trial
Pickard R et al, Lancet 2012; 380: 1927-35

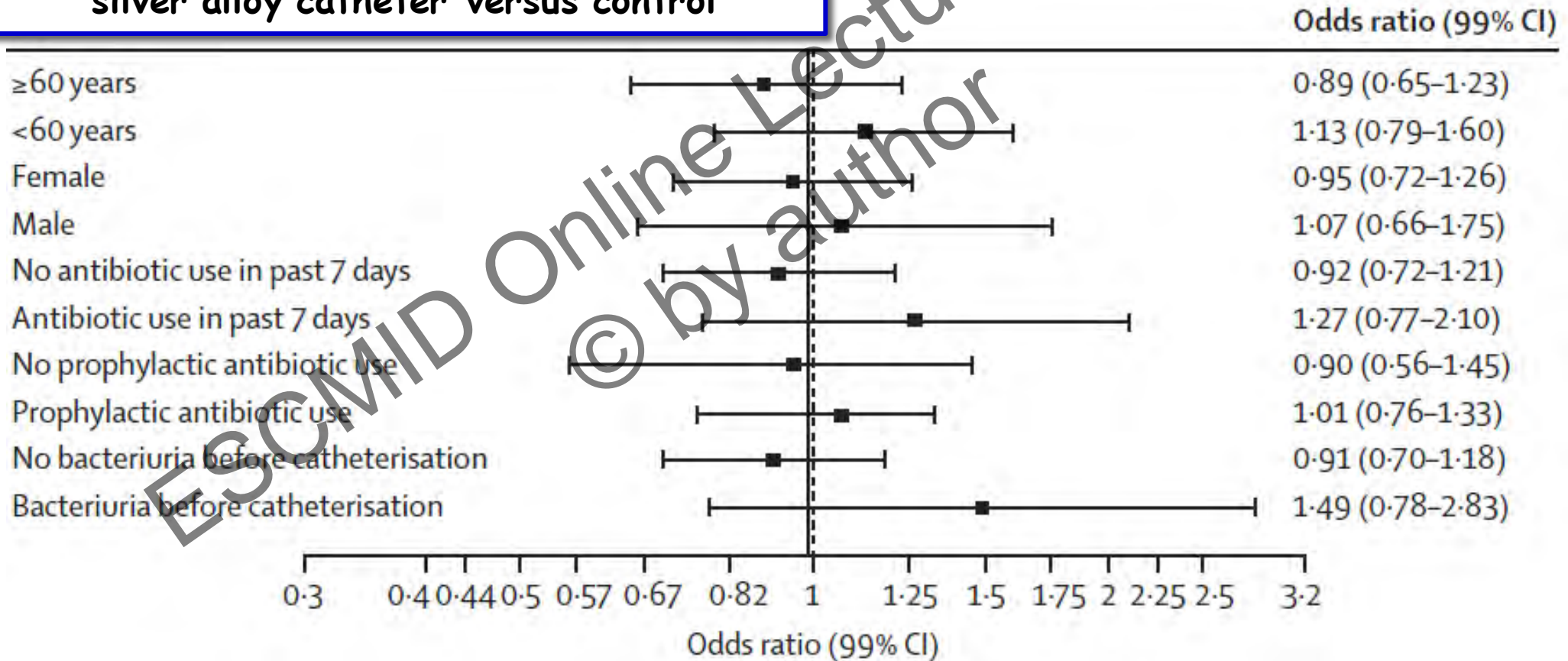
**Symptomatic antibiotic-treated UTI within 6 weeks of randomization
 (primary outcome)**

	Silver alloy catheter	Nitrofuril catheter	PTFE catheter control
Incidence	263/2097 (12.5%)	228/2153 (10.6%)	271/2144 (12.6%)
Absolute risk difference (95% CI) vs control	-0.1% (-2.4 to 2.2)	-2.1% (-4.2 to 0.1)	..
Unadjusted odds ratio (95% CI)	0.99 (0.81 to 1.22; p=0.92)	0.82 (0.66 to 1.01; p=0.037)	..
Adjusted odds ratio (95% CI)	0.96 (0.78 to 1.19; p=0.69)	0.81 (0.65 to 1.01; p=0.031)	..

Antimicrobial catheters for reduction of symptomatic urinary tract infection in adults requiring short-term catheterization in hospital: a multicentre randomized controlled trial

Pickard R et al, *Lancet* 2012; 380: 1927-35

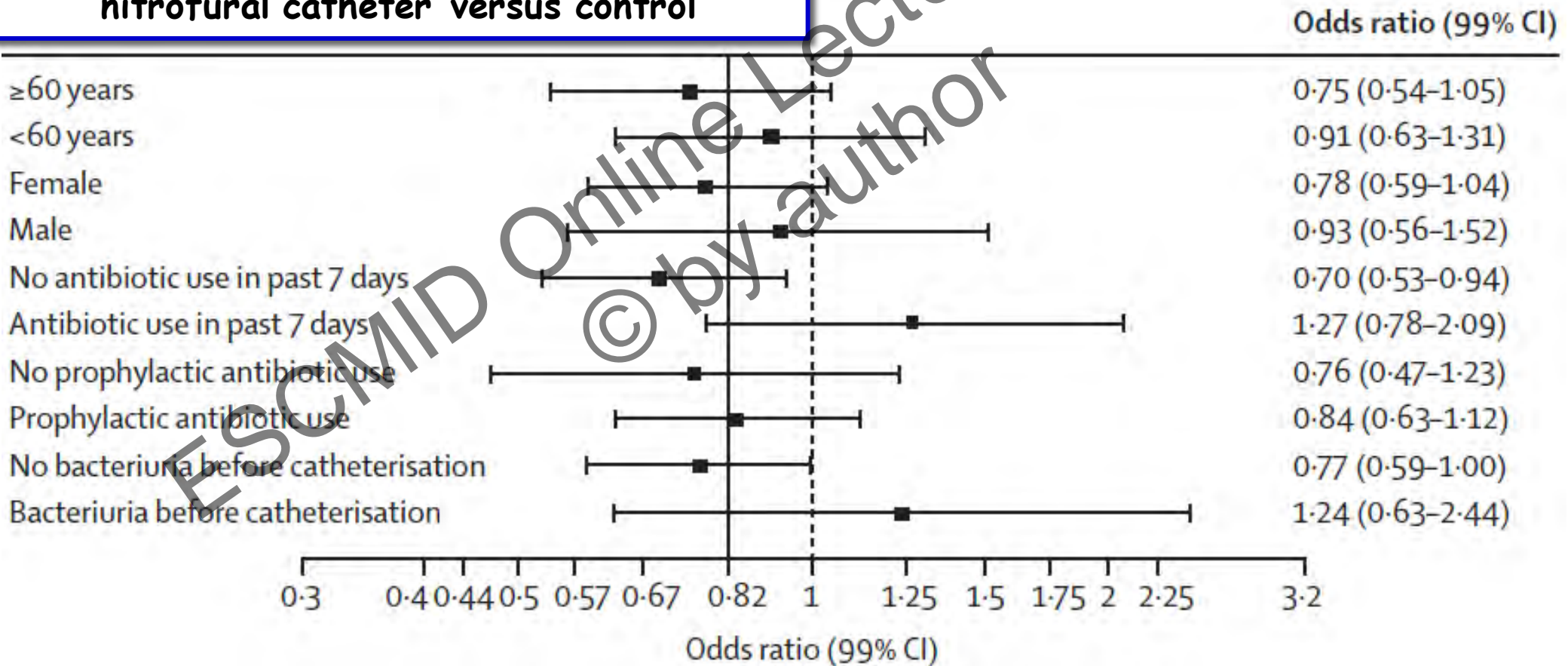
Ca-UTI up to 6 weeks after randomization silver alloy catheter versus control



Antimicrobial catheters for reduction of symptomatic urinary tract infection in adults requiring short-term catheterization in hospital: a multicentre randomized controlled trial

Pickard R et al, *Lancet* 2012; 380: 1927-35

Ca-UTI up to 6 weeks after randomization nitrofurantoin catheter versus control



Antimicrobial catheters for reduction of symptomatic urinary tract infection in adults requiring short-term catheterization in hospital: a multicentre randomized controlled trial
Pickard R et al, Lancet 2012; 380: 1927-35

Symptomatic antibiotic-treated UTI up to 6 weeks after randomization associated with a positive urine culture ($\geq 10\ 000$ cfu per mL)

	Silver alloy catheter	Nitrofuril catheter	PTFE catheter control
Incidence	263/2097 (12.5%)	228/2153 (10.6%)	271/2144 (12.6%)
Absolute risk difference (95% CI) vs control	-0.1% (-2.4 to 2.2)	-2.1% (-4.2 to 0.1)	..
Unadjusted odds ratio (95% CI)	0.99 (0.81 to 1.22; p=0.92)	0.82 (0.66 to 1.01; p=0.037)	..
Adjusted odds ratio (95% CI)	0.96 (0.78 to 1.19; p=0.69)	0.81 (0.65 to 1.01; p=0.031)	..

Symptomatic or asymptomatic bacteriuria detected by urine culture up to 3 days after catheter removal ($\geq 10\ 000$ cfu per mL)

	Silver alloy catheter	Nitrofuril catheter	PTFE catheter control
Incidence n (%)	310/1785 (17.4%)	249/1846 (13.5%)	321/1839 (17.5%)
Absolute risk difference (95% CI) vs control	-0.1% (-3.2 to 2.8)	-4.0% (-6.7 to -1.2)	..
Unadjusted odds ratio (95% CI)	0.99 (0.82 to 1.21; p=0.94)	0.74 (0.60 to 0.91; p=0.001)	..
Adjusted odds ratio (95% CI)	0.99 (0.81 to 1.21; p=0.89)	0.73 (0.59 to 0.90; p=0.001)	..

Antimicrobial catheters for reduction of symptomatic urinary tract infection in adults requiring short-term catheterization in hospital: a multicentre randomized controlled trial
Pickard R et al, Lancet 2012; 380: 1927-35

Self-reported participant discomfort ratings with catheter in place

	Silver alloy catheter	Nitrofurantoin catheter	PTFE catheter control
Incidence of any discomfort	322/1829 (17.6%)	496/1879 (26.4%)	396/1889 (21.0%)
Absolute risk difference (95% CI) vs control	-3.4% (-6.4 to -0.4)	5.4% (2.2 to 8.7)	..
Odds ratio of experiencing discomfort (95% CI)	0.81 (0.67 to 0.98)	1.35 (1.13 to 1.62)	..

Self-reported participant discomfort ratings for catheter removal

	Silver alloy catheter	Nitrofurantoin catheter	PTFE catheter control
Incidence of any discomfort	521/1817 (28.7%)	707/1867 (38.9%)	499/1881 (26.5%)
Absolute risk difference (95% CI) vs control	2.2% (-1.3 to 5.6)	11.3% (7.8 to 14.9)	..
Odds ratio of experiencing discomfort (95% CI)	1.11 (0.94 to 1.31)	1.69 (1.44 to 1.97)	..

Application of a nanotechnology antimicrobial spray to prevent lower urinary tract infection: a multicenter urology trial. *He et al. J Translational Med 2012, 10(Suppl 1):S14*

JUC is made by using a nano-manufacturing technology, with nano-cations on the nano-scale molecular structure produced and then prepared in water-soluble spray. Upon application, JUC prevents bacterial growth by forming an invisible, positively charged protective film on the sprayed surface. therefore it can be regarded as a physical antimicrobial agent.

An in vitro test to explore the mechanism of biofilm formation was performed and subsequently a multicenter clinical trial to investigate the efficacy of CA-UTI prevention with the application of JUC was subsequently conducted.

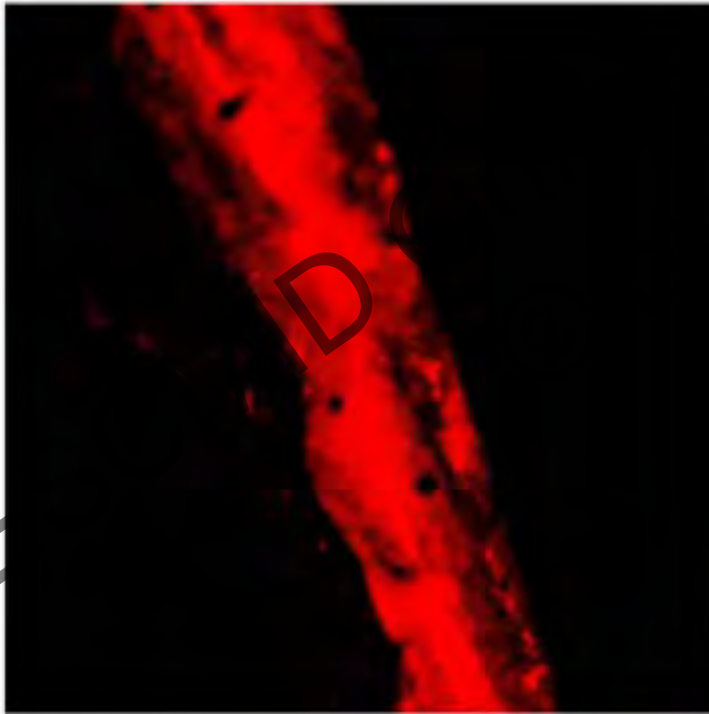
In vitro testing

Siliconized latex urinary catheters were cut into sample fragments and sterilized by autoclaving. The sterilized sample fragments were randomly divided between the therapy and the control groups. The sample fragments were respectively sprayed with JUC and distilled water. A *E. coli* suspension was injected into 24 well plates in which the sample fragments were placed. The plates were then incubated at 37 °C and washed with PBS solution every 48 hours. At 16 hours and at 7 days of incubation, the samples were extracted for confocal laser scanning microscopy. The bacterial biofilm was dyed red using propidium iodide fluorescent dye.

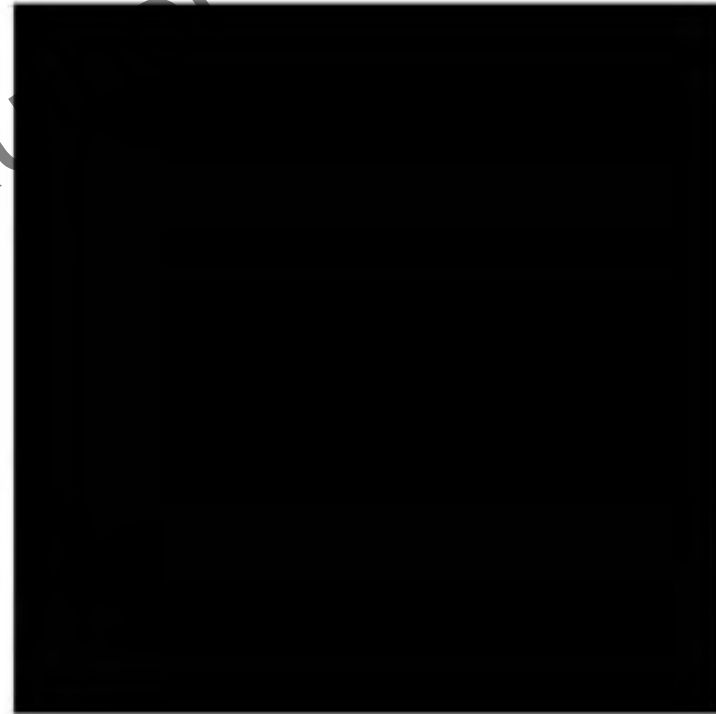
Application of a nanotechnology antimicrobial spray to prevent lower urinary tract infection: a multicenter urology trial. *He et al. J Translational Med 2012, 10(Suppl 1):S14*

Control and JUC group at 16 hours

DISTILLED WATER



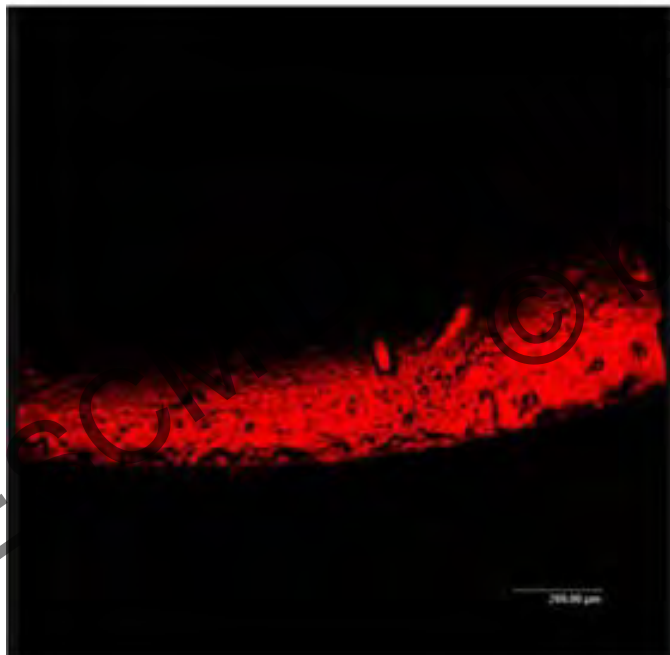
JUC



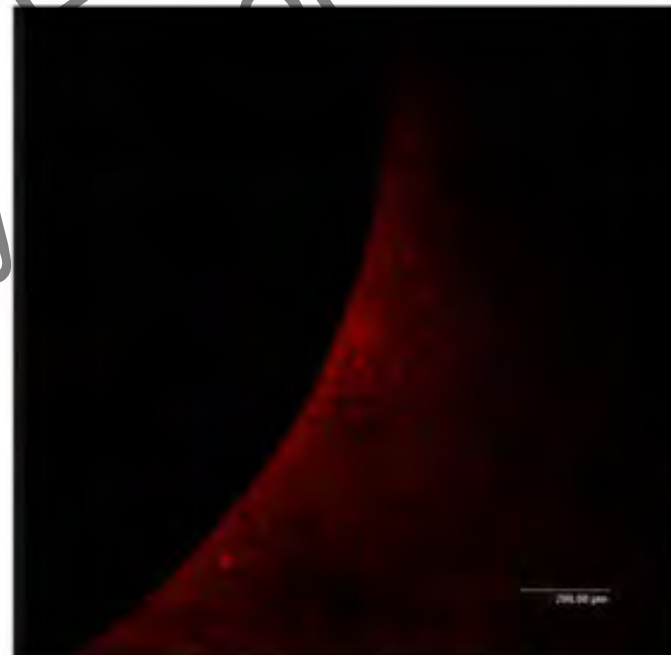
Application of a nanotechnology antimicrobial spray to prevent lower urinary tract infection: a multicenter urology trial. *He et al. J Translational Med 2012, 10(Suppl 1):S14*

Control and JUC group at 7days

DISTILLED WATER



JUC



Application of a nanotechnology antimicrobial spray to prevent lower urinary tract infection: a multicenter urology trial. *He et al. J Translational Med 2012, 10(Suppl 1):S14*

Clinical trial

Patients undergoing urological surgery in need of an indwelling urethral catheter and more than 7 days of hospitalization were recruited. A total of 1,150 patients (869 male and 281 female), aged from 2 to 82 years of age, were accrued. All patients were operated due to urological diseases, including but not limited to urinary tract stones, tumors, prostatic hyperplasia, ureteral stenosis and hydronephrosis.

The midstream urine bacterial culture was negative at the time of inclusion in the study.

Exclusion criteria of the study included patients with a long-term use of balloon catheter, intermittent self-catheterization, previous treatment of percutaneous paracentetic suprapubic cystostomy and UTI patients. Patients were randomized according to the order of surgical treatment.

In therapy group, prior to the insertion of the catheter into the ureter of the patient at the time of surgery, JUC was sprayed on the surface of the catheter to allow the formation of a physical antimicrobial membrane. After surgery, in addition to traditional nursing care, JUC was sprayed onto the skin and mucous membrane around the urethral orifice, the catheter and the drainage tube attachment point. This was done twice a day with 1 ml per spray (approximately 10 sprays) until the catheter was removed on the 7th day.

Application of a nanotechnology antimicrobial spray to prevent lower urinary tract infection: a multicenter urology trial. *He et al. J Translational Med 2012, 10(Suppl 1):S14*

Comparison of post-operative urinary bacterial culture between the control and therapy group

GROUPS	N. of CASES	BEFORE SURGERY	DAY 7 AFTER SURGERY
therapy	575	0	26 (4.5%)
controls	574	0	75 (13.%)

P < .001

Decreased Urethral Mucosal Damage and Delayed Bacterial Colonization During Short-Term Urethral Catheterization Using a Novel Trefoil Urethral Catheter Profile in Rabbits

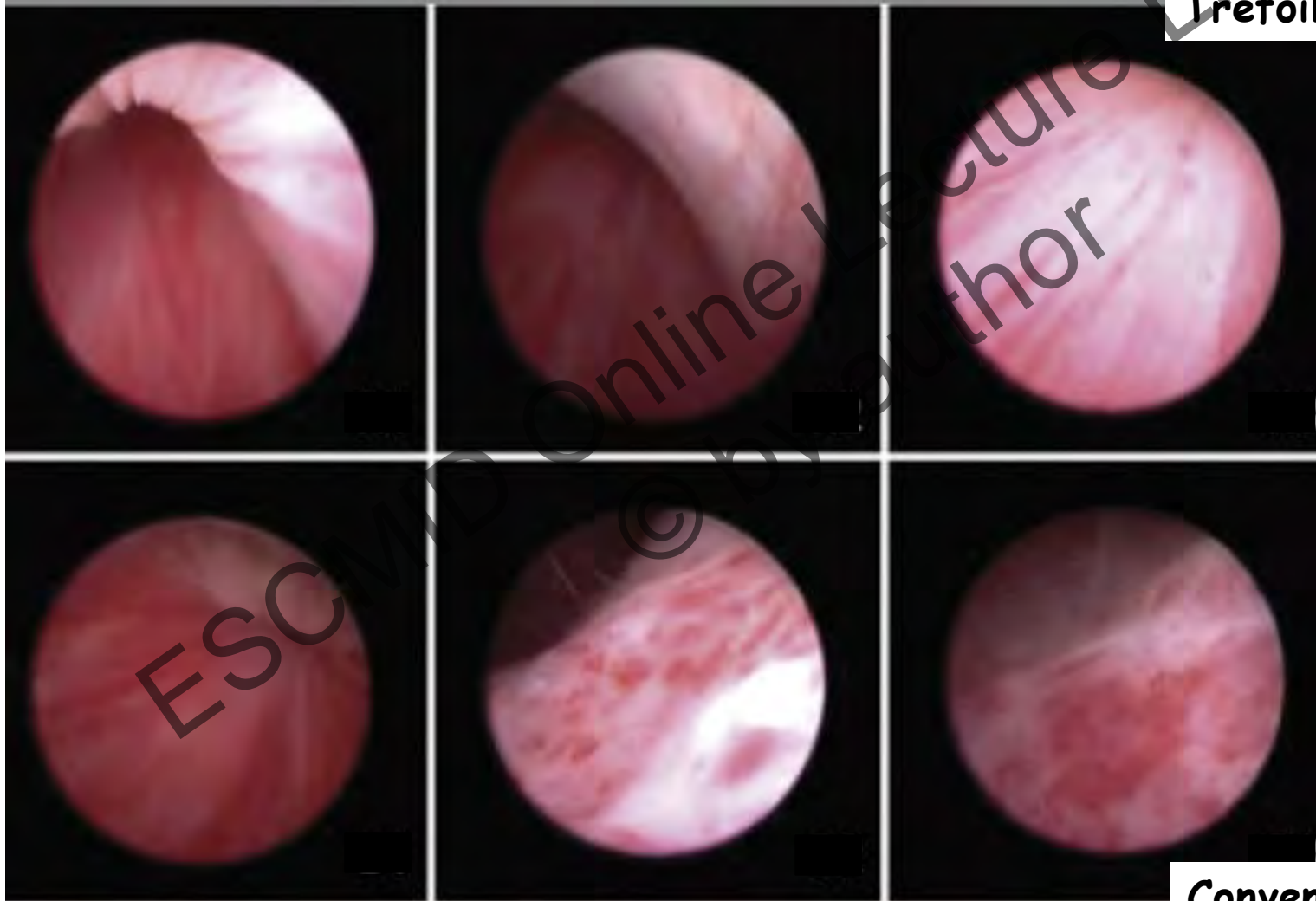
Sun Y et al, J Urology 2011; 186: 1497-1501



Decreased Urethral Mucosal Damage and Delayed Bacterial Colonization During Short-Term Urethral Catheterization Using a Novel Trefoil Urethral Catheter Profile in Rabbits

Sun Y et al, J Urology 2011; 186: 1497-1501

Trefoil Urethral Catheter



Conventional Catheter

CA-UTI : Summary of recommendations from published guidelines

recommendation	CDC 2011	EAU 2008	IDSA 2010	HICPAC 2010	SHEA 2008
DIAGNOSTICS AND ANTIMICROBIALS					
Avoid routine urine cultures	Y	Y	Y	Y	Y
Avoid use of systemic Atb prophylaxis	ND	Y	Y	Y	Y
Do not treat asymptomatic bacteriuria	ND	Y	Y	ND	Y
Use of hydrophilic catheters					
GENERAL MEASURES					
Practice strict hand hygiene	Y	Y	ND	Y	Y
Specifically trained personnel	Y	Y	Y	Y	Y
Written protocols for catheter care	ND	Y	Y	Y	Y

High proportion of HA-UTI in the absence of prior exposure to urinary catheter: a cross-sectional study

Uçkay I et al, *Antimicrob Res Infect Contr* 2013, 2:5

A nationwide period prevalence survey of HA infections conducted in 49 Swiss hospitals and including 8169 adult patients hospitalized in medical, surgical, intermediate, and ICU wards.

Patient characteristics	UTI (n = 126)	No UTI (n = 8043)	P value
Urinary catheter exposure (%)			<0.001
Yes	73 (57.9)	1912 (23.8)	
No	53 (42.1)	6131 (76.2)	
Female gender (%)	85 (67.5)	4228 (52.6)	0.001
Mean age (\pm SD)	71.8 (15.6)	62.4 (19.0)	<0.001
Mean length of stay (\pm SD)	20.5(22.2)	11.4 (41.0)	<0.001
Recent stay in intensive care (%)	34 (27.0)	1030 (12.8)	<0.001
Mean ASA score (\pm SD)	2.81 (0.67)	2.33 (0.89)	<0.001
Immune suppression	26 (20.6)	1047 (13.0)	0.01
Hemiplegia	24 (19.1)	777 (9.7)	<0.001
Dementia	9 (7.1)	290 (3.6)	0.04

High proportion of HA-UTI in the absence of prior exposure to urinary catheter:
a cross-sectional study

Uçkay I et al, *Antimicrob Res Infect Contr* 2013, 2:5

multivariate logistic regression analysis

Variables associated with HA-UTI

	OR	95% CI
exposure to IC	3.9	2.6-5.9
female gender	2.1	1.4-3.1
ASA score > 2 points	3.2	1.1-9.4
hospital stay >20 days	1.9	1.4-3.2

Variables associated with Catheter- UTI

prolonged hospital stay >40 days	2.9	1.3-6.1
female gender	1.6	1.0-2.7

Variables associated with HA-UTI without exposure to IC

female gender	3.3	1.7-6.5
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HA-UTI

From prevention to treatment

Some traditionally inpatient procedures are now routinely being performed on an outpatient basis: patients attending day-hospital centers for chronic infusive therapies, hemodialysis clinics, patients undergoing ambulatory surgical procedures, people living in nursing homes with on site home medical care.

These patients acquire infections under circumstances which cannot easily be classified as HA or CA infections; therefore, we can call these infections "community-onset healthcare-associated (HCA) infections" as happened for pneumonia and blood stream infections.

TOWARD a NEW CLASSIFICATION of UTI ?

Community-onset healthcare-related UTI: Comparison with community and hospital-acquired urinary tract infections

Aguilar-Duran S et al, J Infect 2012; 64: 478-483

Prospective observational cohort study conducted at a 600-bed university tertiary care hospital in Barcelona, Spain, between June 2009 and February 2010.

HCA-UTI definition. Community acquired UTI occurring in patients fulfilling any of the following criteria:

1. Having received specialized treatment (including change of urinary catheter) at their home by qualified healthcare workers within 30 days prior to hospital admission.
2. Having attended a day hospital, hemodialysis clinics or received intravenous chemotherapy within 30 days prior to hospital admission.
3. Having been admitted to an acute care hospital for 2 or more days within 90 days prior to the new hospital admission.
4. Having resided in a nursing home or long-term care facility.

HA-UTI definition: UTI occurring 48 hours after the hospital admission

251 patients included (66 HA, 88 CA and 97 HCA UTI).

Community-onset healthcare-related UTI: Comparison with community and hospital-acquired urinary tract infections

Aguilar-Duran S et al, *J Infect* 2012; 64: 478-483

Clinical features and outcome

	HA UTI (n = 66)	CA UTI (n = 88)	HCA UTI (n = 97)	p value HA vs HCA	p value CA vs HCA
Admission SAPS-II, mean (SD)	25.3 (8.3)	24.7 (10.5)	27.0 (9.2)	0.23	0.12
Prior antibiotic use (3 months)	40 (60.6)	21 (23.9)	46 (47.4)	0.11	<0.01
Indwelling urinary catheter	48 (72.7)	0	29 (29.9)	<0.01	<0.01
Intermittent	48	0	17		
Permanent	0	0	12		
Urological procedures (1 month)	3 (4.5)	0	9 (9.3)	0.36	<0.01
Clinical presentation:					
Cystitis	21 (31.8)	12 (13.6)	11 (11.3)	<0.01	0.66
Pyelonephritis	3 (4.5)	21 (23.9)	14 (14.4)	0.06	0.13
Prostatitis	0	1 (1.1)	1 (1.0)	1.00	1.00
Urinary sepsis	42 (63.6)	54 (61.4)	71 (73.2)	0.22	0.11
Inadequate empirical therapy	18 (30.5)	13 (14.9)	20 (21.5)	0.25	0.33
30-day mortality	6 (9.1)	1 (1.1)	5 (5.2)	0.35	0.21

Community-onset healthcare-related UTI: Comparison with community and hospital-acquired urinary tract infections

Aguilar-Duran S et al, *J Infect* 2012; 64: 478-483

Microorganisms isolated

	HA UTI	CA UTI	HCA UTI Overall	p value HA vs HCA	p value CA vs HCA
<i>Escherichia coli</i>	36 (54.5)	66 (75.0)	69 (71.1)	0.03	0.62
Quinolone R	4 (6.1)	10 (11.4)	11 (11.3)	0.28	1.00
ESBL	5 (7.6)	1 (1.1)	8 (8.2)	1.00	0.03
Multidrug R	10 (15.2)	9 (10.2)	27 (27.8)	0.08	<0.01
<i>Klebsiella</i> spp,	10 (15.2)	9 (10.2)	8 (8.2)	0.20	0.80
ESBL, n (%)	1 (1.5)	0	1 (1.0)	1.00	1.00
<i>P. aeruginosa</i>	7 (10.6)	1 (1.1)	9 (9.3)	0.79	0.02
Multidrug R	3 (4.5)	1 (1.1)	6 (6.2)	0.74	0.12
<i>Proteus</i> spp.	4 (6.1)	5 (5.7)	4 (4.1)	0.71	0.73
Other Gram-negative rods	6 (9.1)	4 (4.5)	2 (2.1)	0.06	0.42
<i>Enterococcus</i> spp	1 (1.5)	1 (1.1)	4 (4.1)	0.64	0.37

Healthcare-associated, community-acquired and hospital-acquired bacteraemic UTI in hospitalized patients: a prospective multicentre cohort study in the era of antimicrobial resistance

Horcajada JP et al, Clin Microbiol Infect 2102 Oct 31

A prospective cohort study at 8 tertiary-care hospitals in Spain, from Oct 2010 to Jun 2011

667 episodes of Bacteriemic UTI

(246 HCA, 279 CA and 142 HA).

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Healthcare-associated, community-acquired and hospital-acquired bacteraemic UTI in hospitalized patients: a prospective multicentre cohort study in the era of antimicrobial resistance

Horcajada JP et al, Clin Microbiol Infect 2102 Oct 31

Clinical characteristics and outcome

	HCA n = 246	CA n = 279	p ¹	HA n = 142	p ²
Severe sepsis or septic shock	91 (37)	84 (30)	0.09	45 (32)	0.29
Inappropriate empirical therapy	51 (21)	36 (13)	0.02	40 (28)	0.10
Median length of stay (range) days	9 (1-66)	7 (0-47)	0.02	13 (0-87)	<0.001
All-cause 30-day mortality	28 (11.4)	11 (3.9)	0.001	29 (20.4)	0.01

Healthcare-associated, community-acquired and hospital-acquired bacteraemic UTI in hospitalized patients: a prospective multicentre cohort study in the era of antimicrobial resistance

Horcajada JP et al, *Clin Microbiol Infect* 2102 Oct 31

Uropathogens isolated from blood cultures

	HCA n = 246	CA n = 279	p ¹	HA n = 142	p ²
Escherichia coli	176 (72)	230 (82)	0.003	70 (49)	<0.001
Other Enterobacteriaceae	9 (4)	4 (1)	0.06	14 (10)	0.02
Pseudomonas aeruginosa	9 (4)	5 (2)	0.18	23 (16)	<0.001
ESBL-prod Enterobacteriaceae	33 (13)	12 (5)	<0.001	17 (12)	0.68
FQ-resistant Enterobacteriaceae	124 (50)	69 (25)	<0.001	51 (36)	0.006
Amoxi/clav R Enterobacteriaceae	73 (30)	52 (19)	0.003	45 (32)	0.68
Pip/tazo R Enterobacteriaceae	37 (16)	19 (7)	0.001	27 (25)	0.06

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