

UROPATHOGENS AND SUSCEPTIBILITY IN WOMEN WITH UNCOMPLICATED UTI IN PRIMARY CARE

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ANTIMICROBIAL SUSCEPTIBILITY IN AMBULATORY
CARE IN BELGIUM: AN OBSERVATIONAL STUDY OF
**UROPATHOGENS IN HEALTHY WOMEN WITH
CYSTITIS** AND PREVALENCE OF ESBL PRODUCING
BACTERIA IN PRIMARY CARE. (2014 -2015)

Heytens Stefan, Claeys Geert, Christiaens Thierry, De Sutter An

Three of a kind

- **Wich bacteria are found** in Belgian women with uncomplicated urinary tract infections in primary health care, and what is their susceptibility pattern anno 95-96? Christiaens T, Heytens S, Verschraegen G, De Meyere M, De Maeseneer J. **Acta Clinica Belgica** 1998; 53:184-8.
- **Evolution of bacterial susceptibility pattern of E coli** in uncomplicated urinary tract infections in a country with high antibiotic consumption : a comparison of two surveys with a 10 year interval. De Backer D, Christiaens T, Heytens S, De Sutter A, Stobberingh E, Verschraegen G. **Journal of Antimicrobial Chemotherapy** 2008; 62, 364-368.
- **Evolution of bacterial susceptibility pattern of E. coli** in uncomplicated urinary tract infections in a country with high antibiotic consumption: a comparison of three surveys with a 10 year interval (1995 - 2005 - 2015).

UROPATHOGENS AND SUSCEPTIBILITY IN WOMEN WITH CYSTITIS AND PREVALENCE OF ESBL PRODUCING BACTERIA IN PRIMARY CARE. (2014 -2015)

1. Why not simply use existing data?
2. Results of the previous studies
3. Can we still recommend TMP ?
4. Women with urinary complaints but a negative culture?
5. Prevalence of ESBL producing *E. coli*

What was the resistance rate against TMP-SMX in most European countries in 2008 (ARESC)

1 - < 5%

2 - > 5%

3 - > 10 %

4 - > 20%

Which bacteria and susceptibility pattern 1995-1996

Christiaens et al 1998

1. Why not simply use existing data?

- Can we use data of the regional laboratories?
- Which bacteria are found in Belgian women with uncomplicated urinary tract infections in primary health care, and what is their susceptibility pattern anno 95-96? Christiaens T, Heytens S, Verschraegen G, De Meyere M, De Maeseneer J. **Acta Clinica Belgica** 1998; 53:184-8.

WHICH BACTERIA AND SUSCEPTIBILITY PATTERN 1994-1995

Christiaens et al 1998

	Ampicillin	TMP-SMX	Nitrofurantoin	fluoroquinol
OUR STUDY				
Regio Gent 1995-96 Christiaens e.a. (n=138)	73%	83%	99%	99%
REGIONAL LABORATORIES (outpatients)				
Hasselt 1994 (n=4140)	63%	80%	91%	95%
Leuven 1994 (n=2019)	64%	80%	93%	94%
Gent 1994 (n=1416)	58%	80%	94%	90%

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1. Why not simply use existing data?
- 2. Results of the previous studies**

EVOLUTION OF BACTERIAL SUSCEPTIBILITY PATTERN OF E. COLI IN UNCOMPLICATED URINARY TRACT INFECTIONS IN A COUNTRY WITH HIGH ANTIBIOTIC CONSUMPTION: A COMPARISON OF TWO SURVEYS WITH A 10 YEAR INTERVAL (1995 – 2005) De Backer D, Christiaens T, Heytens S, De Sutter A, Stobberingh E, Verschraegen G

Distribution of uropathogens (%)

	1995 % (n=176)	2005 % (n=111)
<i>E. coli</i>	78.4	77.5
<i>S. saprophyticus</i>	9,1	13.5
<i>Proteus spp.</i>	4	2.7
<i>Klebsiella pneumoniae</i>	0	0.9
Other gram –	2.8	3.6
Gram +	4.5	1.8

Susceptibility pattern (%)

	<i>E. coli</i>	
	1995 % (n=138)	2005 % (n=86)
Nitrofurantoin	99.3	100
TMP-SMX	83.3	86
Ofloxacin	99.3	100
Ampicillin	73.2	62.8

HIGH RESISTANCE RATES AGAINST TMP-SMX?

3. Can we still recommend TMP ?

- Alarming resistance rates against TMP-SMX (> 20%) (ARESC project, 2008)
- TMP still recommended
- Should we continue to recommend TMP?

HIGH RESISTANCE AGAINST TMP-SMX?

Naber et al (2011)

- Recommendation country-specific
- Threshold: resistance rate > 20%
- Also for TMP (lower rate of adverse events)

Gupta et al (2011):

- TMP-SMX remains a highly effective treatment
- when resistance rate < 20%
- Early clinical and microbiological cure rates: 90%–100%

EVOLUTION OF BACTERIAL SUSCEPTIBILITY PATTERN OF E. COLI IN UNCOMPLICATED URINARY TRACT INFECTIONS IN A COUNTRY WITH HIGH ANTIBIOTIC CONSUMPTION: A COMPARISON OF THREE SURVEYS WITH A 10 YEAR INTERVAL (1995 – 2005 – 2015)

AND ...

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What percentage of symptomatic women has a negative culture ($< 10^5$ CFU/ml)?

1 $< 10\%$

2 $10\% - 15\%$

3 $15\% - 25\%$

4 $> 25\%$

A 35 years old woman is consulting with dysuria and frequency since 2 days. She has no other complaints and is in good health. The dipstick test was positive for LE and negative for nitrite. The GP had sent a midstream urine sample to the lab and received the following report:
bacterial count: 10^4 CFU/ml; identification: E coli.
Which of the following statements is correct?:

1 - It is a UTI

2 - It is not a UTI

3 - There is still doubt about the diagnosis

WHAT ABOUT THE CULTURE NEGATIVE WOMEN?

**PREVALENCE AND EVOLUTION OF ESBL PRODUCING E
COLI IN FAECES IN AMBULATORUY PATIENTS IN
PRIMARY CARE**

Heytens S, Christiaens T, De Sutter A, Claeys G

SYMPTOMATIC WOMEN AND NEGATIVE CULTURE

4. Women with urinary complaints but a negative culture?

What do they have?

SYMPTOMATIC WOMEN AND NEGATIVE CULTURE

4. Women with urinary complaints but a negative culture?

What do they have?

An infection?

Culture negative women have an infection: arguments

1. Cut off rate

Culture negative women have an infection: arguments

1. Cut off rate: $10^5 \Rightarrow 10^3$ cfu/ml

Culture negative women have an infection: arguments

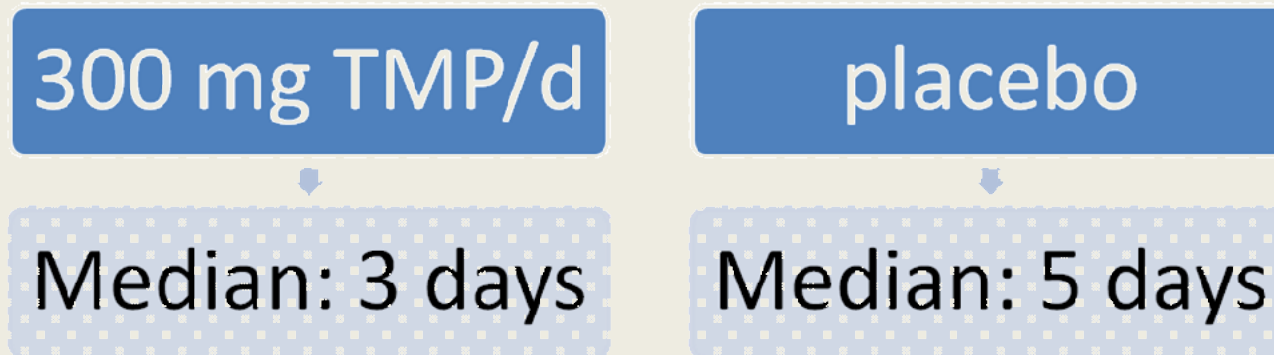
1. Cut off: $10^5 \Rightarrow 10^3$ cfu/ml

2. Richards et al (2005)

Culture negative women have an infection: arguments

Richards et al 2005

Symptomatic but neg LE and Nitrite



P=0.002

Culture negative women have an infection: arguments

1. Cut off: $10^5 \Rightarrow 10^3$ cfu/ml

2. Richards et al (2005)

3. Routine laboratory protocol

- Micro-organisms that are not routinely cultured
Chlamydia trachomatis, Mycoplasma genitalium
- Fastidious growing bacteria
 - Gardnerella, Ureaplasma*
 - Causative agents?

Culture negative women have an infection: arguments

1. Cut off: $10^5 \Rightarrow 10^3$ cfu/ml
2. Richards et al (2005)
3. Routine laboratory procedure
- 4. Intracellular *E. coli***
- 5. 'New' uropathogens**
 - *Aerococcus urinae*
 - *Actinobaculum schaalii*

ESBL producing *E. coli*

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5. **PREVALENCE OF ESBL PRODUCING E COLI IN FAECES IN AMBULATORUY PATIENTS IN PRIMARY CARE 2014-2015.**

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ESBL producing *E. coli*

Strömdahl et al (2011)

	2008	2010
PHCU	2.1%	3.0%
Hospital	1.8%	6.8%

ESBL producing *E. coli*

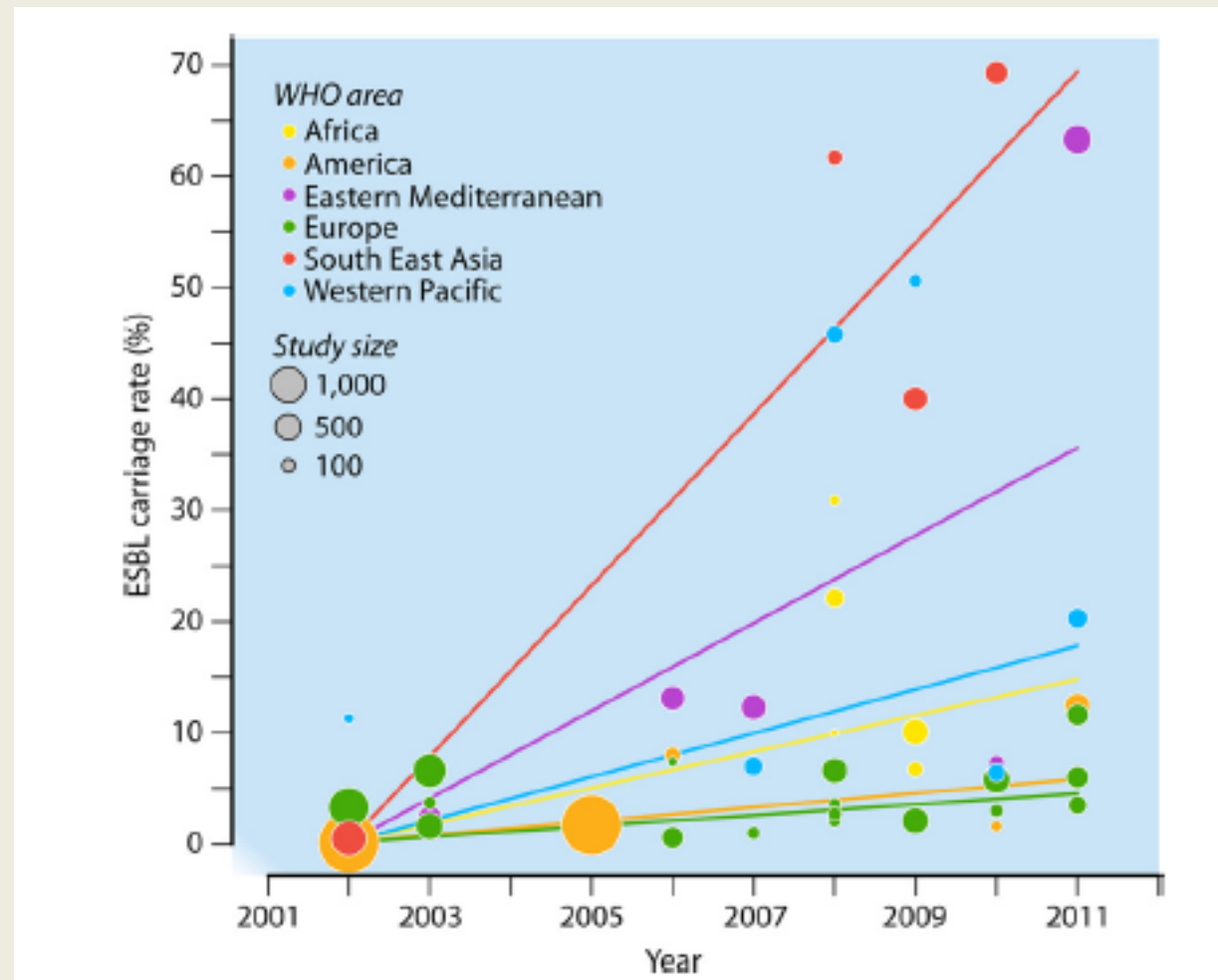
ESBL producing *E. coli* in healthy students

Non published, results Ghent university

2005	2010
0,5%	5%

Evolution of ESBL carriage rates in the community according to their geographical and temporal distribution

Woerther et al, 2013. Clin Microbiol. Rev.



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STUDY DESIGN

In- / exclusion criteria

INCLUSION

- Adult non pregnant women with dysuria or urinary frequency or urgency

EXCLUSION

- No signs of complicated UTI
- Symptoms < 7 days
- Temp < 38°C
- No prominent gynaecologic complaints
- Known nephrologic or urologic problems
- Diabetes
- Immunocompromizing condition (leukemia, immunosuppressiva)
- Frequent episodes of UTI (> 3/year or > 2 in last 3 months)

Methods

- Same or similar practices in the Ghent region
- At consultation
 - Midstream urine sample
 - Dipslide
 - Recipient for PCR
 - Anal swab
- Second anal swab after 1 week



Antimicrobial susceptibility in ambulatory care in Belgium:
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prevalence of esbl producing bacteria in primary care. (2014 -2015)

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