

### Microbiology of urine samples from women presenting to primary care with symptoms of urinary tract infection (UTI): results from the POETIC observational study

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#### OBJECTIVES

Resistance in Gram Negative Organisms - Studying Intervention Strategies (R-GNOSIS) is a large European collaborative focussing on multi drug resistant Gram negative organisms. Work package 2, Point Of Care Testing for Urinary Tract Infection in Primary Care (POETIC), encompasses an observational study of the presentation, management and outcome of uncomplicated UTI. Here we describe the microbiology of urine samples collected from GP centres in Cardiff, Southampton, Spain and the Netherlands.

#### METHODS

593 urines were collected from women aged 18 and 89 years presenting to GPs in the four centres with UTI symptoms. Urines were cultured on chromogenic agar, quantified (total colony counts), isolates identified by MALDI-ToF, and species specific counts calculated. Culture growth was categorised as pure (PR), predominant (PD), mixed 2 isolates (M2), mixed >2 (M>2) isolates and no growth (NG).

#### RESULTS

Organisms and quantity of growth from 293 urines with PR or PD growth are shown in the Table. *Enterobacteriaceae* (ENB) represented 88.7% & 86.4% of PR growths at  $>10^5$  and  $10^4$ - $10^5$ cfu/mL compared with 18% and 20.2% at  $10^3$ - $10^4$  and  $<10^3$ cfu/mL. Non *S. saprophyticus* coagulase negative staphylococci (CNS) and *Enterococcus* species (ENT) represented 2.6% & 5.4% of PR growths at  $>10^5$  and  $10^4$ - $10^5$ cfu/mL compared with 36% and 70.5% at  $10^3$ - $10^4$  and  $<10^3$ cfu/mL. For all age ranges, PR/PD growth was seen in 47-54%. *E. coli* was present in 85-88% of pure growths  $>10^5$  from age range 18-34 & 35-49yrs and 72-73% from age range 50-65 & 65-89yrs. *S. saprophyticus* was seen at  $>10^5$  in 20% of urines from age range 18-34yrs, 3% at 35-49 & 50-65yrs and 0% at 65-89yrs. Purity of growth was similar in all age ranges, however no growth was seen in 4.9% of 18-34 yr olds compared 9.8%, 12.9% & 8.2% in 35-49, 50-64 & 65-89 yrs.

#### CONCLUSIONS

There was pure or predominant growth in 48.4% (293) of urines, with only 67% (197) of these at  $>10^5$ . Negative cultures were less likely and *S. saprophyticus* more common in under-34yr olds. Contamination (M2 & M>2) was similar in all age ranges. In some urines, pure growths of CNS and *Enterococcus* species, not normally associated with UTI, were present at  $>10^5$ .

Table: Urine samples from women presenting to primary care with UTI symptoms: percentage of each quantity of pure or predominant growth.

Organisms	Quantity of Growth (cfu/mL)		
	$<10^3$	$10^3$ - $10^4$	$10^4$ - $10^5$ $>10^5$
<i>Enterobacteriaceae</i> (n=218)	4	1	16 79
CNS (not <i>S.saprophyticus</i> )(n=31) 74		3	6 16
<i>S. saprophyticus</i> (n=19)	5	0	16 79
<i>Enterococcus</i> species (n=19) 58		11	11 21
<i>Lactobacillus</i> species (n=3)	0	100	0 0
Group B <i>streptococcus</i> (n=2)	0	100	0 0
<i>Candida</i> species (n=1)	0	100	0 0