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Paper Poster Session
Urinary tract infections

Susceptibilities of *E. coli* recovered from urines considered urinary tract infection (UTI) positive and contaminated

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Background: Microbiological diagnosis of UTI is problematic. *E. coli* (EC) are the commonest pathogens causing UTI (>80%), however EC is also the predominant contaminant found in both UTI positive and negative urines. The source of most EC causing UTI and contamination is the bowel. It is unknown if the EC classified as uropathogens (URO) and contaminants (CON) are the same. In this study we aim to determine if there are any differences in susceptibilities to urinary antimicrobials in EC classified as URO and those classified as CON. We will also consider whether antimicrobials used to treat microbiologically undiagnosed UTI would be successful.

Material/methods: EC from a total of 824 urines collected as part of the DUTY study were studied. 79 were URO (using criteria $\geq 10^5$ cfu/mL) causing UTI, 745 EC were recovered from urines considered UTI negative. Of the latter, 507 were present with >2 other bacteria and considered a CON. Susceptibilities to amoxicillin (AMOX), co-amoxiclav (fixed 2mg/L clav) (COA), cephalexin (CLX), ciprofloxacin (CIP), Trimethoprim (TRM), Nitrofurantoin (NIT) & Cefpodoxime (CPD) were performed by agar dilution using Mueller Hinton agar and interpreted using EUCAST breakpoints. CPD resistant isolates were further investigated for ESBL production. Numbers of isolates recovered from urine and colony counts were performed.

Results: Susceptibilities of EC considered uropathogens and contaminants are shown in Table 1. Of 36 CPD resistant EC, 14 contained ESBLs, all CTX-M genes (8 CTX-M group 1, 6 CTX-M group 9). EC present with >2 bacteria and $<10^5$ cfu/ml less likely to be R to AMOX, CIP & TRM and more likely to be R to COA, CLX & CPD than those present alone or with 1 other bacterium and $\geq 10^5$ cfu/mL.

Conclusions: Resistance to TRM & AMOX were higher in EC considered uropathogens (causing UTI) than contaminants, possibly due to prior exposure to the drug. Resistance to CPD was higher in contaminants than those causing UTI.

Table 1: Comparison of urinary antimicrobial MICs in *E. coli* recovered from urines diagnosed as UTI positive, urines diagnosed as UTI negative and urines containing >2 colony types (contaminated).

	AMOX	CoA	CLX	CIP	TRM	NIT	CPD
Range (UTI POS)	0.5->128	0.5-128	2-32	<0.008-16	0.25->128	1-16	0.12-1
Range (CON)	0.5->128	0.06->128	1->128	0.008-64	0.015->128	2-32	0.03->128
Geomean (UTI POS)	27.6	5.6	5.1	0.03	3.9	6.1	0.3
Geomean (CON)	17.9	6.3	7.3	0.02	0.8	10.7	0.4

MIC ₅₀ (UTI POS)	8	4	4	0.015	1	8	0.25
MIC ₅₀ (CON)	4	4	8	0.015	0.25	8	0.25
MIC ₉₀ (UTI POS)	>128	16	8	0.12	>128	8	0.5
MIC ₉₀ (CON)	>128	32	8	0.015	>128	16	0.5
% Resistance (UTI POS)	49.4	16.5	1.3	3.8	27.9	0	0
% Resistance (CON)	36.7	22.9	3.4	3.2	7.7	0	4.5