III Congresso Triveneto di Malattie Infettive

Infezioni urinarie acquisite in comunità, in ospedale e nelle strutture residenziali: patogeni principali e pattern di resistenza

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ULSS 18 Rovigo

INFEZIONI DELLE VIE URINARIE IN AMBITO OSPEDALIERO

- Prevalenza 23–49% tra le infezioni nosocomiali
- Quasi esclusivamente complicate, eterogeneità di fattori
- Spesso catetere associate
- Ampio spettro di specie patogene
- Variabilità: geografia, periodo, reparto

Clin Microbiol Infect 2001: 7: 523–531

A European perspective on nosocomial urinary tract infections I. Report on the microbiology workload, etiology and antimicrobial susceptibility (ESGNI–003 study)

E. Bouza, R. San Juan, P. Muñoz, A. Voss and J. Kluytmans on behalf of the Co-operative Group of the European Study Group on Nosocomial Infections (ESGNI)

One-day prevalence study (29 febbraio 2000)
228 ospedali, 29 nazioni

UTI >=48 ore dopo ospedalizzazione,
<=2 uropatogeni >=10^5 CFU/ml
Candida>=10^3 CFU/ml

Table 6 Micro-organisms most frequently (>1%) isolated from urine samples

EU countries ($n=421$)		Non-EU countries ($n=186$)		Total ($n=607$)	
Escherichia coli	156 (37.4%)	*Escherichia coli*	56 (30.6%)	*Escherichia coli*	216 (35.6%)
Enterococcus sp.	70 (16.8%)	*Enterococcus* sp.	26 (14.2%)	*Enterococcus* sp.	96 (15.8%)
Candida sp.	41 (9.8%)	*Pseudomonas aeruginosa**	19 (10.4%)	*Candida* sp.	57 (9.4%)
Klebsiella sp.	35 (8.4%)	*Proteus* sp.	18 (9.8%)	*Klebsiella* sp.	50 (8.3%)
Proteus sp.	30 (7.2%)	*Candida* sp.	16 (8.7%)	*Proteus* sp.	48 (7.9%)
Pseudomonas aeruginosa	23 (5.5%)	*Klebsiella* sp.	14 (7.7%)	*Pseudomonas aeruginosa*	42 (6.9%)
Enterobacter sp.	16 (3.8%)	*Acinetobacter* sp.	5 (2.7%)	*Enterobacter* sp.	21 (3.5%)
Staphylococcus aureus	9 (2.2%)	*Citrobacter* sp.	5 (2.7%)	*Staphylococcus aureus*	14 (2.3%)
CNS	8 (1.9%)	CNS	5 (2.7%)	CNS	13 (2.1%)
Citrobacter sp.	7 (1.7%)	*Staphylococcus aureus*	5 (2.7%)	*Citrobacter* sp.	12 (2%)
Acinetobacter sp.	6 (1.4%)	*Enterobacter* sp.	4 (2.2%)	*Acinetobacter* sp.	11 (1.8%)
Morganella sp.	5 (1.2%)	*Streptococcus agalactiae*	3 (1.6%)		

*$P=0.03$.
CNS, coagulase-negative staphylococci.

Table 7 Individual micro-organisms percentage of antibiotic resistance

	Non-EU countries		EU countries		Total		
Antibiotics	**no. tested**	**%**	**no. tested**	**%**	**no. tested**	**%**	***P* value**
Escherichia coli	Total: 56		Total: 156		Total: 212		
Cotrimoxazole	15/49	30.6	30/113	26.5	45/162	28	
Ampicillin	29/50	58	81/151	53.6	110/201	54.8	
AM-CLAV	14/55	25.4	13/138	9.4	27/193	14.2	0.01
Ciprofloxacin	4/48	8.3	14/153	9.1	18/201	9	
Gentamicin	9/46	19.5	2/141	1.4	11/187	5.8	0.0001
Pseudomonas aeruginosa	Total: 19		Total: 23		Total: 42		
Ceftazidime	3/19	15.8	2/21	9.5	5/40	12.5	
Cefepime	2/13	15.4	1/13	7.7	3/26	11.5	
Imipenem	2/16	12.5	3/21	14.3	5/37	13.5	
Ciprofloxacin	12/19	63.2	6/23	26.1	18/42	42.9	0.028
Gentamicin	13/18	72	5/21	23.8	18/39	46	0.004
Tobramycin	9/13	69.2	3/21	14.3	12/34	35.3	0.02
Amikacin	6/15	40	1/21	4.7	7/36	19.4	0.02
Enterococcus sp.	Total: 26		Total: 70		Total: 96		
Ampicillin	3/24	12.5	10/65	15.4	13/89	14.6	
Vancomycin	0/18	0	1/56	1.8	1/74	1.35	
Ciprofloxacin	8/16	50	25/56	44.6	33/72	45.8	

Distribution of microorganisms isolated in healthcare-associated infections, by main type of infection, ECDC pilot point prevalence survey, 2010 (n=1,165)

	All types of infection	Pneumonia or other lower respiratory tract infection	Surgical site infection	Urinary tract infection	Bloodstream infection	Gastrointestinal infection
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
HAIs and microorganisms						
HAIs, total	1,531 (100)	394 (25.7)	290 (18.9)	264 (17.2)	200 (13.1)	119 (7.8)
HAIs with microorganisms	905 (59.1)	191 (48.5)	172 (59.3)	187 (70.8)	188 (94.0)	48 (40.3)
Microorganisms, total	1,165 (100)	249 (100)	247 (100)	210 (100)	228 (100)	65 (100)
Major groups of microorganisms						
Gram-positive cocci	410 (35.2)	46 (18.5)	134 (54.3)	39 (18.6)	95 (41.7)	21 (32.3)
Enterobacteriaceae	404 (34.7)	80 (32.1)	58 (23.5)	134 (63.8)	79 (34.7)	18 (27.7)
Gram-negative bacteria, non-*Enterobacteriaceae*	226 (19.4)	91 (36.5)	36 (14.6)	29 (13.8)	30 (13.2)	7 (10.8)
Fungi	69 (5.9)	23 (9.2)	5 (2.0)	7 (3.3)	17 (7.5)	4 (6.2)
Top 15 microorganisms (accounting for (92.4% of total number microorganisms)						
Escherichia coli	177 (15.2)	24 (9.6)	29 (11.7)	78 (37.1)	29 (12.7)	10 (15.4)
Staphylococcus aureus	141 (12.1)	26 (10.4)	53 (21.5)	2 (1.0)	26 (11.4)	5 (7.7)
Pseudomonas aeruginosa	131 (11.2)	44 (17.7)	24 (9.7)	21 (10.0)	17 (7.5)	6 (9.2)
Enterococcus spp.	114 (9.8)	4 (1.6)	33 (13.4)	32 (15.2)	21 (9.2)	11 (16.9)
Coagulase-negative staphylococci	97 (8.3)	3 (1.2)	33 (13.4)	3 (1.4)	38 (16.7)	1 (1.5)
Klebsiella spp.	94 (8.1)	22 (8.8)	7 (2.8)	30 (14.3)	25 (11.0)	3 (4.6)
Candida spp.	56 (4.8)	15 (6.0)	3 (1.2)	6 (2.9)	16 (7.0)	3 (4.6)
Enterobacter spp.	49 (4.2)	13 (5.2)	10 (4.0)	6 (2.9)	10 (4.4)	1 (1.5)
Acinetobacter spp.	49 (4.2)	18 (7.2)	5 (2.0)	5 (2.4)	9 (4.0)	1 (1.5)
Streptococcus spp.	45 (3.9)	13 (5.2)	11 (4.5)	2 (1.0)	4 (1.8)	4 (6.2)
Proteus spp.	35 (3.0)	5 (2.0)	6 (2.4)	15 (7.1)	4 (1.8)	0 (0)
Anaerobic bacilli	24 (2.1)	1 (0.4)	5 (2.0)	0 (0)	5 (2.2)	11 (16.9)
Serratia spp.	17 (1.5)	11 (4.4)	1 (0.4)	0 (0)	5 (2.2)	0 (0)
Other *Enterobacteriaceae*	17 (1.5)	3 (1.2)	0 (0)	1 (0.5)	4 (1.8)	3 (4.6)
Stenotrophomonas maltophilia	16 (1.4)	11 (4.4)	3 (1.2)	0 (0)	1 (0.4)	0 (0)
Citrobacter spp.	15 (1.3)	2 (0.8)	5 (2.0)	4 (1.9)	2 (0.9)	1 (1.5)

Point Prevalence Survay
PPS-HAI

Maggio-ottobre 2010
23 nazioni
66 ospedali

Zarb et al. Eurosureillance , 2012

Recommendations for the Empirical Treatment of Complicated Urinary Tract Infections Using Surveillance Data on Antimicrobial Resistance in the Netherlands

Maike Koningstein[1], Akke K. van der Bij[1,2*], Marlieke E. A. de Kraker[1], Jos C. Monen[1], Jan Muilwijk[1], Sabine C. de Greeff[1], Suzanne E. Geerlings[3], Maurine A. Leverstein- van Hall[1,4], on behalf of the ISIS-AR Study Group[¶]

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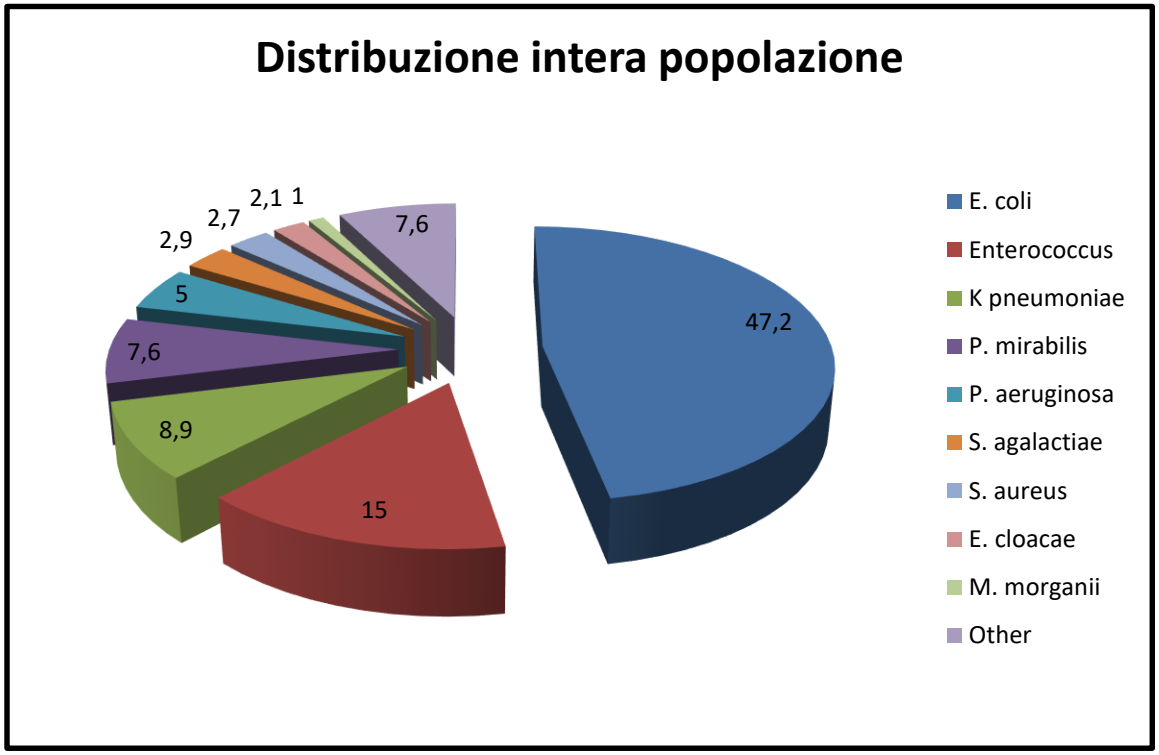
Progetto ISIS-AR
(Infectious Disease Surveillance Information System on Antimicrobial Resistance)

- ✓ Gennaio-dicembre 2012
- ✓ 22.922 isolati da 23.357 pazienti
- ✓ 32 laboratori di microbiologia clinica (65% totale)
- ✓ Copertura >50% della popolazione
- ✓ Primo isolato paziente ospedalizzato >=18 anni
- ✓ Mancanza di dati clinici: non differenziazione tra UTI e batteriuria asintomatica
- ✓ Hospital Associated UTI: raccolta dopo il 2° giorno di ospedalizzazione
- ✓ No pazienti ICU



Isolato	HA-UTI	CA-UTI	Urosepsi
E. coli	45.4%	51.1%	67.8%

Table 1a. All uropathogens	AMX	AMC	CXM	CAZ	CTX/CRO	3GC	CARB	CIP	SXT	NIT#	GEN	AMO+GEN	AMC+ GEN	CXM+ GEN	3GC+GEN
	%NS	%NS	%NS	%NS	%NS	%NS	%NS	%NS	%NS	%NS	%NS	%NS	%NS	%NS	%NS
E. coli	46.8	18.1	12.6	4.9	5.8	6.3	0	17.2	28.4	2.5	6.0	5.0	2.8	2.4	1.6
Enterococcus spp.	16.7	16.7	IR	IR	IR	IR	24.4	NA	94.1	13.4	LLR	16.7	16.7	IR	IR
P. mirabilis^	22.2	10.7	1.3	1	0.9	1.3	0.1	10.6	30.4	IR	8.2	4.1	2.2	0.2	0.1
K. pneumoniae	IR	11.5	14.6	7.4	7.9	8.4	0.2	10.8	17.3	33.0	4.7	4.7	3.7	3.9	3.9
P. aeruginosa	IR	IR	IR	4	IR	IR	4.9	13.1	IR	IR	5.0	5.0	5.0	5.0	5.0
beta-haemolytic streptococci	0	0	0	NA	0.5	0.5	0	NA	18.3	3.6	NA	0	0	0	0
S. aureus	74.9	2.5	2.5	IR	2.5	IR	3.2	22.6	4.8	11	1.3	1.3	0.8	0.7	0.9
K. oxytoca	IR	11	13.2	1.7	2.8	3	0.2	4	4	5.1	1.3	1.3	1.9	1.2	0.7
E. cloacae	IR	IR	IR	13.5	26.2	26.9	0.7	8.9	10.6	21.8	7.9	7.9	7.9	7.9	7.0
M. morganii^	IR	IR	IR	15.3	20.4	22.1	0	13.8	17.7	70.6	8.6	8.6	8.6	8.6	2.2

AMX: amoxicillin, AMC: amoxicillin-clavulanic acid, CXM: cefuroxime, CAZ: ceftazidime, CTX: cefotaxime, CRO: ceftriaxone, 3GC: 3rd generation cephalosporins, CARB: carbapenems, CIP: ciprofloxacin, SXT: trimethoprim-sulphamethoxazole, NIT: nitrofurantoin, GEN: gentamicin.

doi:10.1371/journal.pone.0086634.t001

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Antimicrobial susceptibility of *Escherichia coli* from community-acquired urinary tract infections in Europe: the ECO·SENS study revisited☆

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- Giugno 2007-novembre 2008 (ECO SEN I:1999-2000)
- 73 centri europei (Austria, Grecia, Portogallo, Svezia, Gran Bretagna)
- IVU comunitarie, non complicate, non ricorrenti
- 1697 campioni donne 18-65 anni (età media 40.7 anni)
- 1224 positivi (72.1%)
- 905 *Escherichia coli* (74% pazienti con coltura positiva)
- 6 ESBL (5 CTX-M), 5 pm-AmpC

Nazione	n	AMP	AMC	SXT	NIT	CIP	GEN	FOS	CTX	CAZ
Austria	146 (126)	28.8 (17.5)	8.9 (2.4)	14.4 (9.5)	0.7 (0.8)	4.1 (0.0)	1.4 (0.8)	0.7 (0.0)	2.7 (N/T)	2.7 (N/T)
Grecia	209 (132)	23.6 (22.0)	4.3 (0.8)	18.2 (11.4)	0.0 (3.0)	5.7 (1.5)	1.0 (0.8)	2.9 (0.7)	1.4 (N/T)	0.5 (N/T)
Portogallo	144 (86)	34 (45.3)	6.9 (9.3)	16.7 (26.7)	1.4 (5.8)	7.6 (5.8)	2.8 (3.5)	0.7 (0.0)	0.0 (N/T)	0.0 (N/T)
Svezia	203 (193)	21.2 (15.5)	2.5 (5.7)	16.3 (8.3)	0.0 (0.0)	2.5 (0.0)	1.5 (0.0)	1.0 (0.5)	1.5 (N/T)	1.0 (N/T)
UK	201 (180)	31.8 (37.2)	1.0 (2.8)	14.4 (12.2)	0.0 (0.0)	0.5 (0.6)	0.5 (0.0)	0.5 (0.0)	0.5 (N/T)	0.5 (N/T)
ECOSENS II	903	28.0	4.5	16.1	0.3	3.9	1.3	1.2	1.2	0,9
ECOSENS I	717	26.1	3.9	12.3	1.4	1.1	0.7	0.4	N/T	N/T

Krisken M et al. Clinical Microbiology and Infection 2015

Comparative *in vitro* activity of oral antimicrobial agents against *Enterobacteriaceae* from patients with community-acquired urinary tract infections in three European countries

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Editor: L. Poirel
Article published online: XXX

1190 Enterobacteriaceae (agosto 2013-gennaio 2014)		
	Totale	ESBL
Femmine	79%	3.9%
Maschi	21%	7.1%

E. coli	Femmine		
	<18 y	**18-65 y**	**>65 y**
CIP (R%)	5.2		37.4
SXT (R%)	13.8	14	29.7
ESBL	6.9	3.9	10.2

Organism (*n*)/Antimicrobial agent	Percent of isolates susceptible and resistant by country						Significant differences in rates between countries (p values)					
	BE (n = 178)		DE (n = 179)		ES (n = 181)		BE versus DE		BE versus ES		DE versus ES	
E. coli **(total n = 538)**	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)
Amoxicillin–clavulanic acid	77.0	23.0	81.6	18.4	57.5	42.5	n.s.	n.s.	<0.001	<0.001	<0.001	<0.001
Cefuroxime	94.4	5.6	87.2	12.8	83.4	16.6	<0.01	<0.01	<0.001	<0.001	n.s.	n.s.
Cefixime	96.1	3.9	89.9	10.1	86.7	13.3	<0.01	<0.01	<0.001	<0.001	n.s.	n.s.
Cefpodoxime	95.5	4.5	89.9	10.1	86.2	13.8	<0.05	<0.05	<0.001	<0.001	n.s.	n.s.
Ceftibuten	97.8	2.2	91.1	8.9	92.3	7.7	<0.01	<0.01	<0.01	<0.01	n.s.	n.s.
Ceftriaxone	96.6	3.4	90.5	9.5	89.5	10.5	<0.01	<0.01	<0.01	<0.01	n.s.	n.s.
Ciprofloxacin	87.1	12.9	82.7	17.3	59.7	39.8	n.s.	n.s.	<0.001	<0.001	<0.001	<0.001
Norfloxacin	84.8	12.9	77.1	19.0	53.6	42.0	<0.05	<0.05	<0.001	<0.001	<0.001	<0.001
Fosfomycin	98.9	1.1	100	0	97.2	2.8	n.s.	n.s.	n.s.	n.s.	<0.05	<0.05
Nitrofurantoin	99.4	0.6	99.4	0.6	100	0	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Trimethoprim–sulfamethoxazole	85.4	14.6	80.4	18.4	68.5	30.9	n.s.	n.s.	<0.001	<0.001	<0.001	<0.001
	BE (n = 58)		DE (n = 68)		ES (n = 70)		BE versus DE		BE versus ES		DE versus ES	
K. pneumoniae **(total n = 196)**	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)
Amoxicillin–clavulanic acid	82.8	17.2	88.2	11.8	75.7	24.3	n.s.	n.s.	n.s.	n.s.	<0.05	<0.05
Cefuroxime	89.7	10.3	89.7	10.3	92.9	7.1	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Cefixime	91.4	8.6	95.6	4.4	95.7	4.3	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Cefpodoxime	91.4	8.6	95.6	4.4	95.7	4.3	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Ceftibuten	91.4	8.6	95.6	4.4	95.7	4.3	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Ceftriaxone	91.4	8.6	95.6	4.4	95.7	4.3	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Ciprofloxacin	91.4	5.2	91.2	8.8	92.9	5.7	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Norfloxacin	81.0	12.1	80.9	16.2	88.6	8.6	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Fosfomycin	74.1	25.9	77.9	22.1	50.0	50.0	n.s.	n.s.	<0.001	<0.001	<0.001	<0.001
Trimethoprim–sulfamethoxazole	87.9	10.3	91.2	8.8	91.4	8.6	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
	BE (n = 83)		DE (n = 71)		ES (n = 80)		BE versus DE		BE versus ES		DE versus ES	
P. mirabilis **(total n = 234)**	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)	S (%)	R (%)
Amoxicillin–clavulanic acid	79.5	20.5	90.1	9.9	86.3	13.8	<0.05	<0.05	n.s.	n.s.	n.s.	n.s.
Cefuroxime	96.4	3.6	100	0	96.3	3.8	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Cefixime	98.8	1.2	94.4	5.6	100	0	n.s.	n.s.	n.s.	n.s.	<0.05	<0.05
Cefpodoxime	97.6	2.4	94.4	5.6	100	0	n.s.	n.s.	n.s.	n.s.	<0.05	<0.05
Ceftibuten	98.8	1.2	94.4	5.6	100	0	n.s.	n.s.	n.s.	n.s.	<0.05	<0.05
Ceftriaxone	98.8	1.2	98.6	0.0	100	0	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Ciprofloxacin	67.5	18.1	74.6	12.7	76.3	16.3	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Norfloxacin	65.1	32.5	70.4	25.4	73.8	23.8	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Fosfomycin	73.5	26.5	73.2	26.8	75.0	25.0	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Trimethoprim–sulfamethoxazole	65.1	28.9	62.0	33.8	67.5	28.8	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

[a]BE, Belgium; DE, Germany; ES, Spain; n.s., not significant.

Infezioni delle vie urinarie in RSA

- **Seconda infezione più diffusa dopo quelle delle vie respiratorie**

- **Prevalenza 0.6%-21.8%**
- **Incidenza tra 0.3 e 0.8 ogni mille giorni di ricovero**

- **30-50% dell'utilizzo di antibiotici in RSA dovuto a IVU**

- **Maggiore prevalenza batteriuria asintomatico rispetto alla IVU sintomatica**

- **Batteriuria asintomatica in non cateterizzati:**
  18%-57% nelle donne e 19%-38% negli uomini

- **Rischio correlato alla durata della cateterizzazione**

Incremento dal 3% all 8% per ogni giorno di cateterizzazione
Prevalenza del 100% dopo 30 giorni

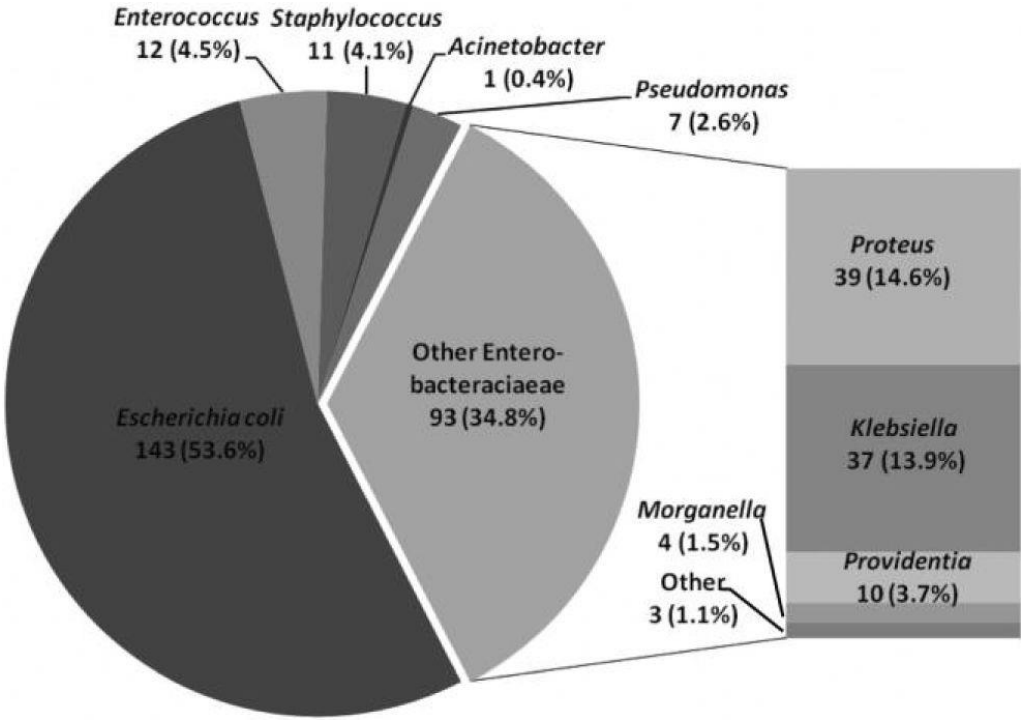
Genao L. et al. Ann. Longterm Care. 2012
Urinary Tract Infections in Older Adults Residing in Long-Term Care Facilities

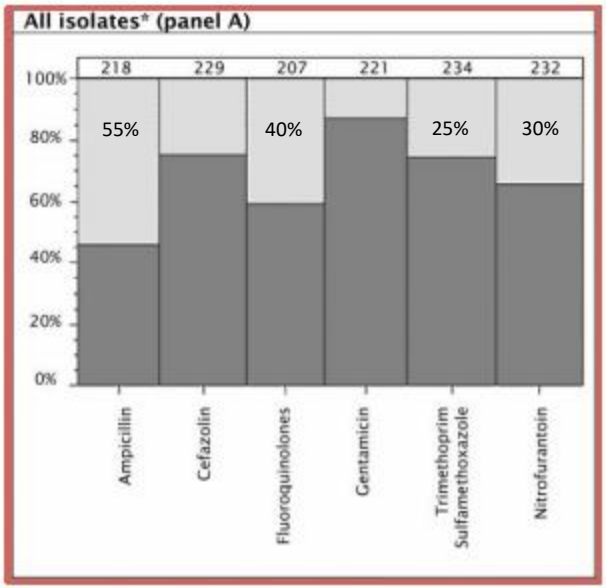
Infect Control Hosp Epidemiol. 2009 November ; 30(11): 1116–1119. doi:10.1086/647981.

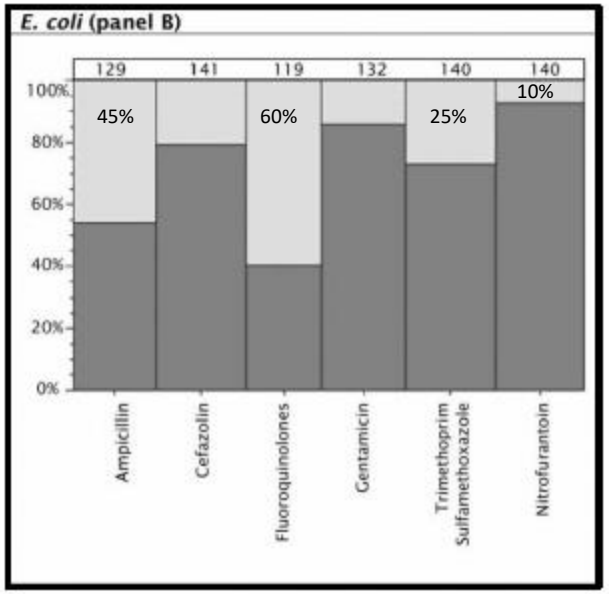
Antimicrobial Susceptibility of Bacteria Isolated from Urine Samples Obtained from Nursing Home Residents

Rituparna Das, MD, **Eleanor Perrelli, MSN**, **Virginia Towle, MPhil**, **Peter H. Van Ness, PhD, MPH**, and **Manisha Juthani-Mehta, MD**
Department of Internal Medicine, Section of Infectious Diseases, Yale School of Medicine, New Haven, Connecticut (all authors).

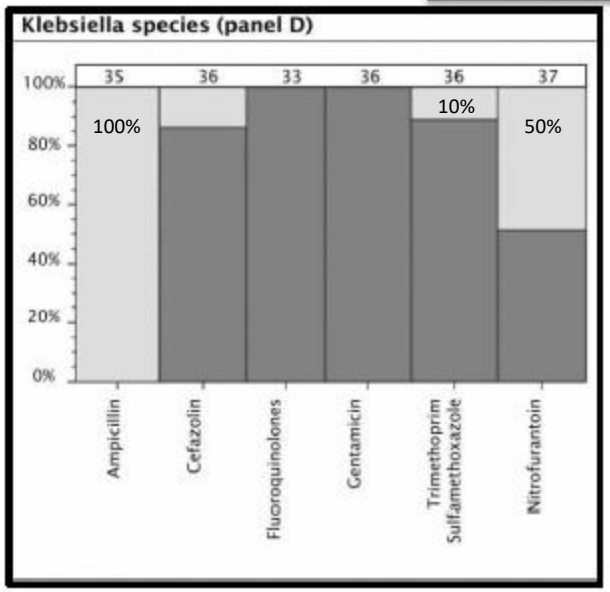
- ✓ 5 Nursing Homes
- ✓ (Maggio 2005-maggio 2007)
- ✓ 551 pazienti arruolati nello studio
- ✓ Non cateterizzati
- ✓ 411 urine, 267 positivi ≥10^4
- ✓ Breakpoint CLSI

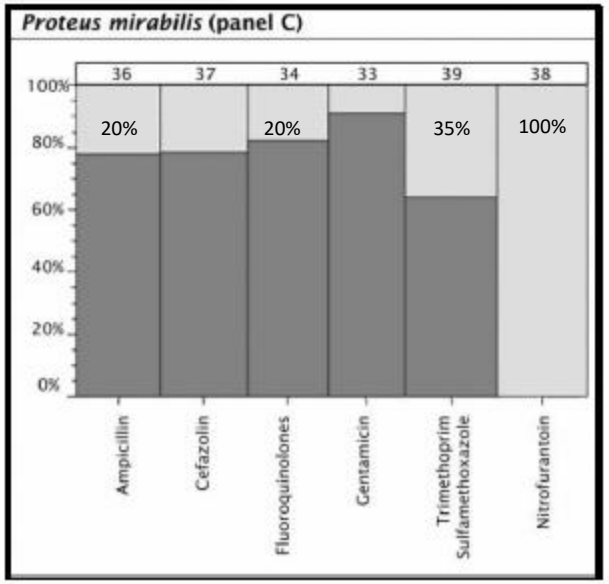



All isolates* (panel A)
218 229 207 221 234 232
100%
80%
60%
40%
20%
0%
55%
40%
25%
30%
Ampicillin
Cefazolin
Fluoroquinolones
Gentamicin
Trimethoprim Sulfamethoxazole
Nitrofurantoin


E. coli (panel B)
129 141 119 132 140 140
100%
80%
60%
40%
20%
0%
45%
60%
25%
10%
Ampicillin
Cefazolin
Fluoroquinolones
Gentamicin
Trimethoprim Sulfamethoxazole
Nitrofurantoin


Sensitivity
Susceptible
Resistant


Klebsiella species (panel D)
35 36 33 36 36 37
100%
80%
60%
40%
20%
0%
100%
10%
50%
Ampicillin
Cefazolin
Fluoroquinolones
Gentamicin
Trimethoprim Sulfamethoxazole
Nitrofurantoin


Proteus mirabilis (panel C)
36 37 34 33 39 38
100%
80%
60%
40%
20%
0%
20%
20%
35%
100%
Ampicillin
Cefazolin
Fluoroquinolones
Gentamicin
Trimethoprim Sulfamethoxazole
Nitrofurantoin

RegioneEmilia-Romagna

SERVIZIO SANITARIO REGIONALE EMILIA-ROMAGNA

Agenzia sanitaria e sociale regionale

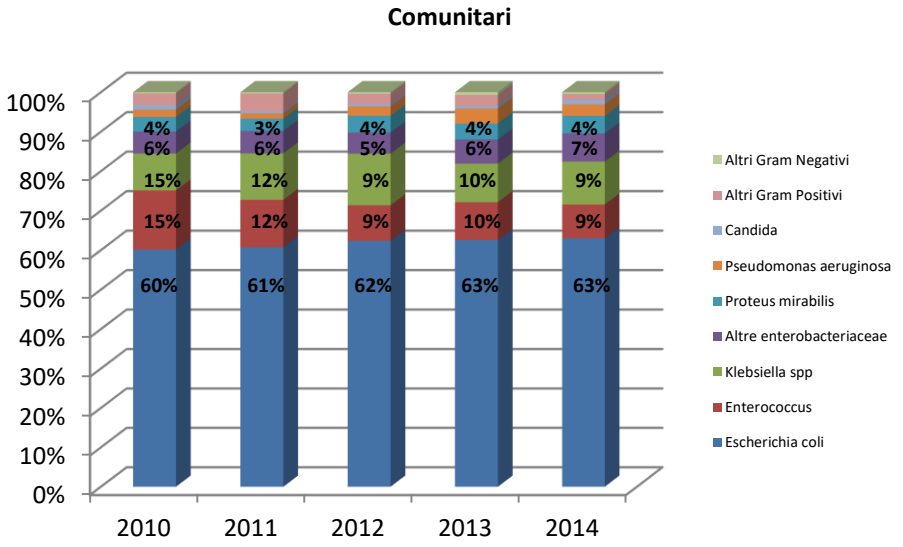
Sorveglianza dell'antibioticoresistenza e uso di antibiotici sistemici in Emilia-Romagna

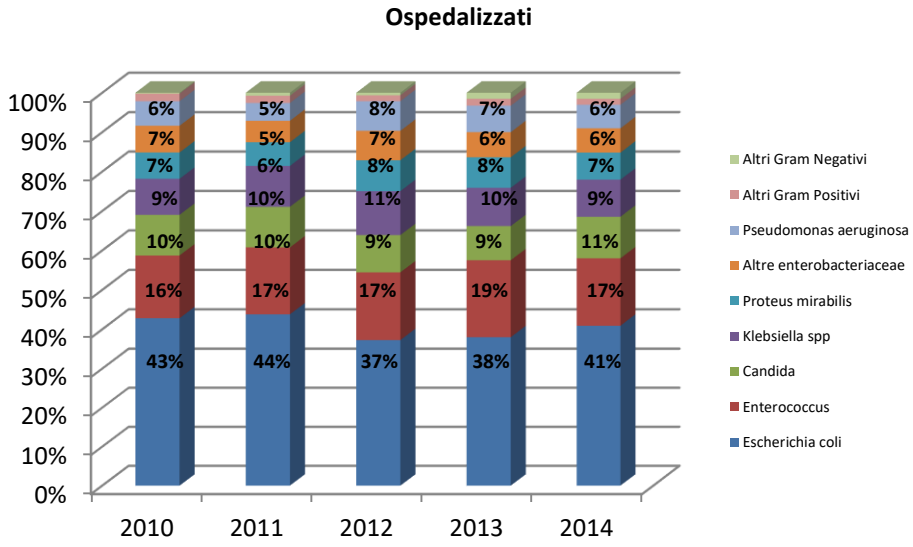
Rapporto 2014

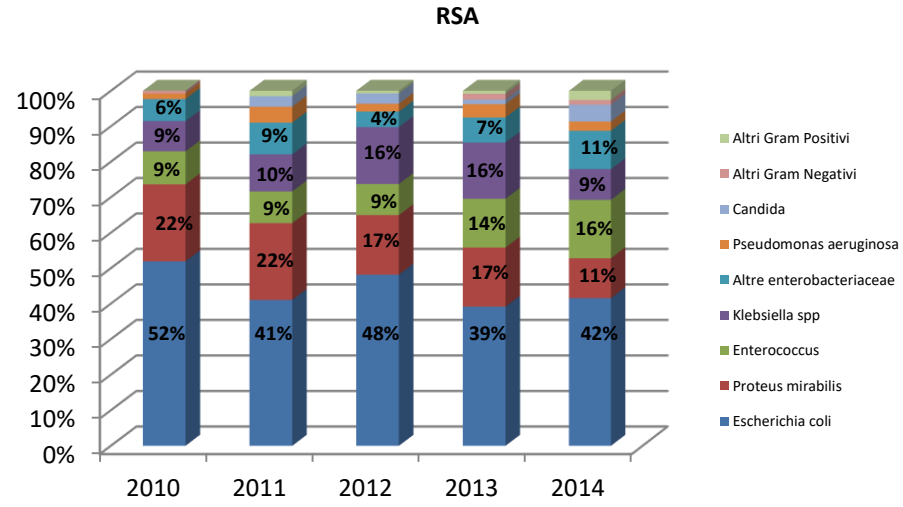
Tabella 2. Colture batteriche eseguite nel 2014 per materiale e tipologia di struttura richiedente

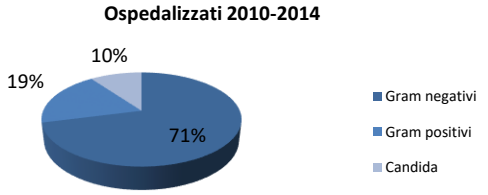
	Ospedale		Ambulatorio		Altra struttura		Totale	
	N esami	% colture positive	N esami	% colture positive	N esami	% colture positive	N esami	% colture positive
Urine	96.839	31,9	236.325	20,0	10.205	48,5	343.369	23,9
Sangue	67.983	23,9	7.278	31,0	1.995	20,7	77.256	24,5
Liquor	1.505	9,8	175	14,3	68	5,9	1748	10,1
Pus essudati	35.694	34,4	27.545	16,0	2.428	57,9	65.667	27,7
Feci	31.977	12,0	20.860	8,0	2.932	31,7	55.769	11,4
Materiali alte vie respiratorie	24.027	44,6	4.812	31,0	1.482	58,8	30.321	43,2
Materiali basse vie respiratorie	12.696	20,6	25.232	21,0	442	47,1	38370	21,1
Tamponi genitali	10.666	18,7	39.698	29,0	3.918	26,1	54.282	26,5
Altro materiale	9.581	30,7	5.089	26,0	684	31,1	15.354	29,2
Totale	290.968	28,1	367.014	20,0	24.154	41,5	682.136	24,3

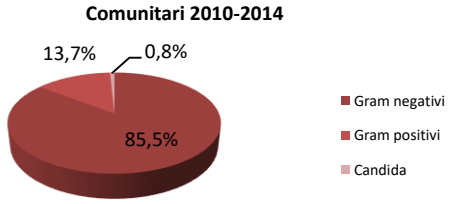
Epidemiologia isolamenti patogeni urinari ULSS 18 Rovigo 2010-2014

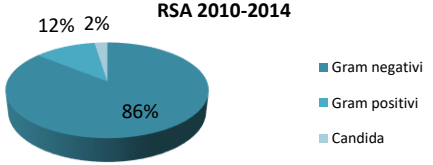




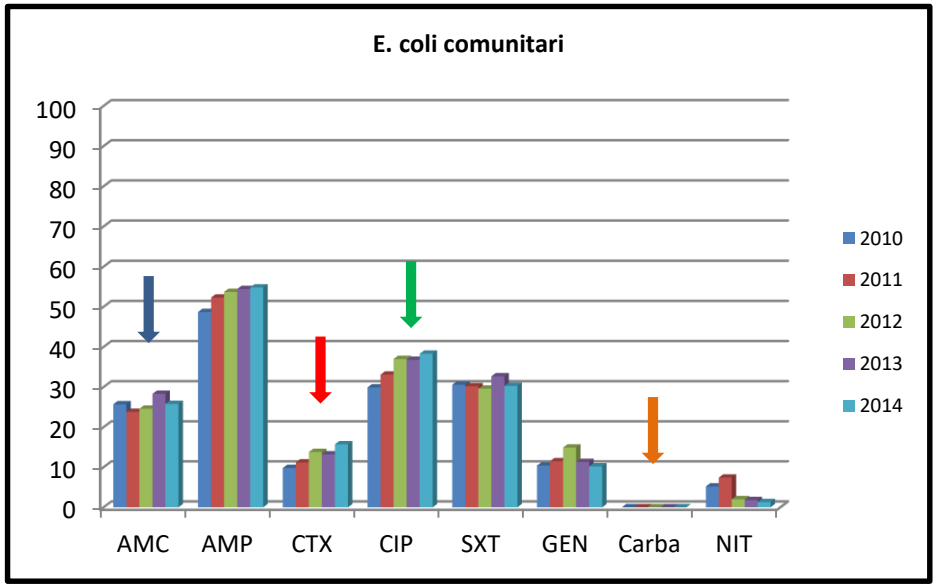


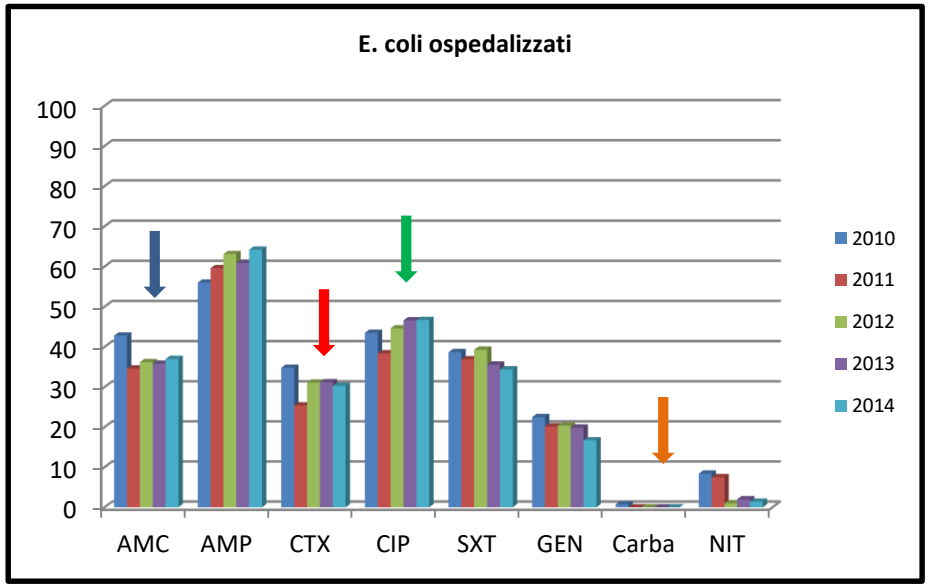


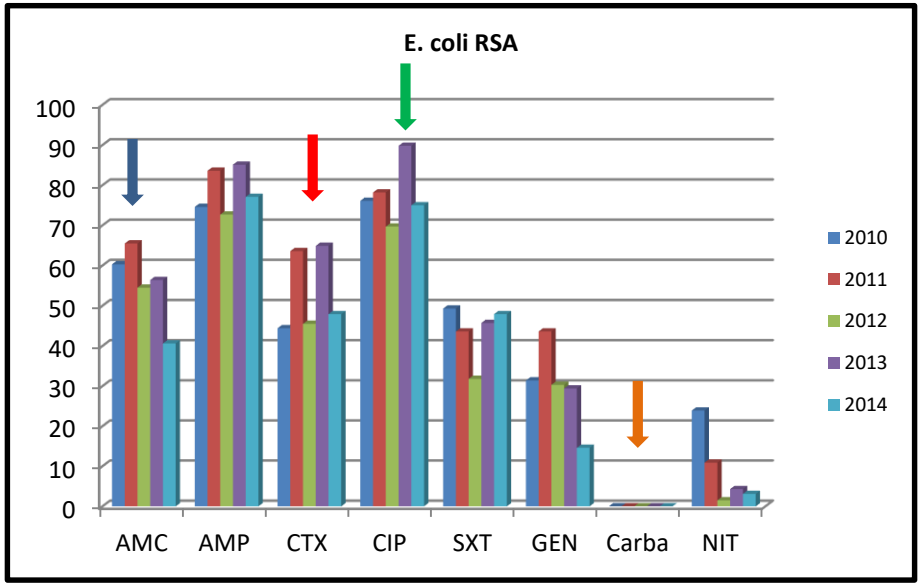




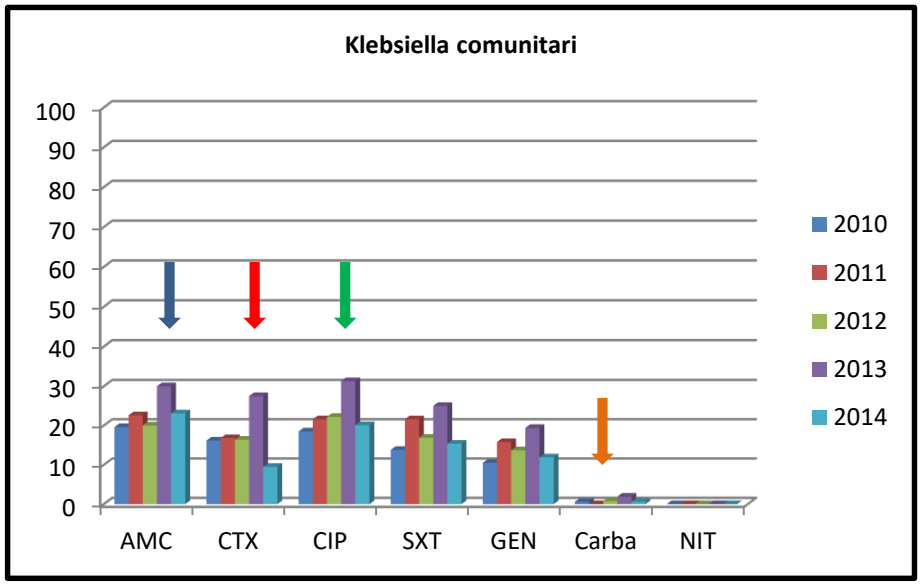
Antibiotico-resistenza *Escherichia coli* ULSS 18 Rovigo

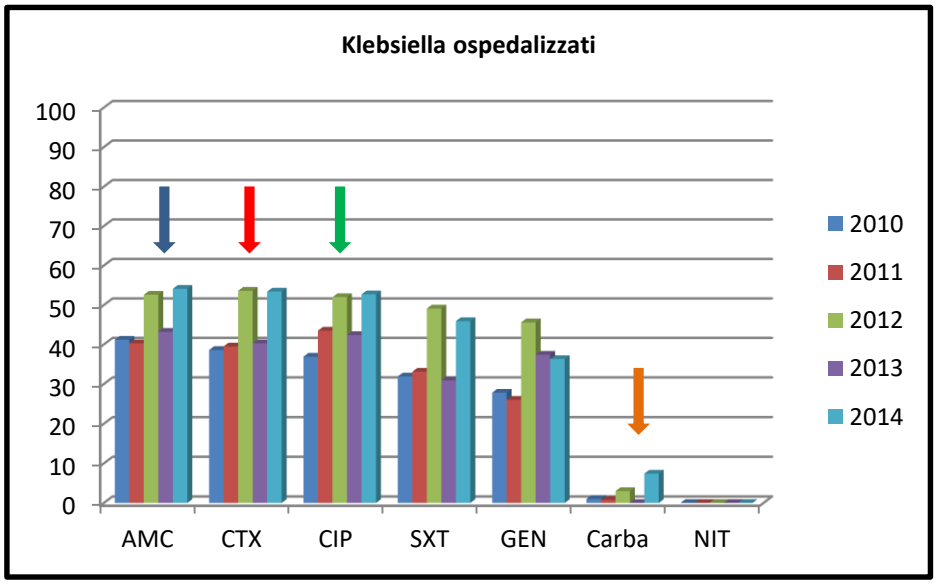


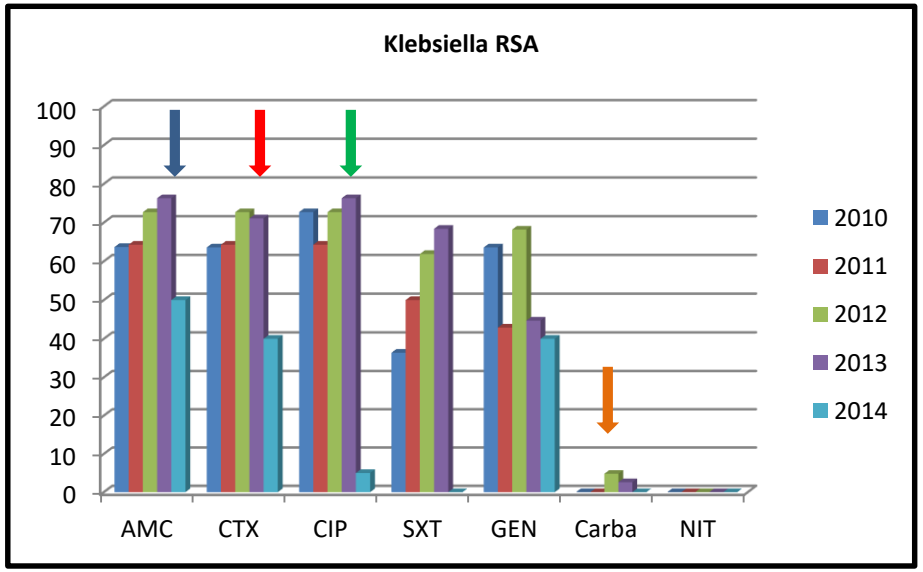




Antibiotico-resistenza *Klebsiella* spp. ULSS 18 Rovigo







American Journal of Clinical Pathology 2012;137:778-784

Microbiology and Infectious Disease / Laboratory Reporting of Urine Cultures

Impact of Laboratory-Reported Urine Culture Colony Counts on the Diagnosis and Treatment of Urinary Tract Infection for Hospitalized Patients

Jennie H. Kwon, DO,[1] Maureen K. Fausone,[2] Hongyan Du, MB, MS,[2,3] Ari Robicsek, MD,[1,3,4,6] and Lance R. Peterson, MD[1,2,5,6]

185 casi di infezioni vie urinarie in ambito nosocomiale analizzati retrospettivamente

- ✓ Caratteristiche del paziente
- ✓ Presenza di catetere a permanenza
- ✓ Segni clinici e sintomatologia
- ✓ Esame chimico fisico e del sedimento
- ✓ Urinocoltura

- Pz. con conta batterica ≥ 100.000 CFU/ml
  → probabilità 73.86 volte più elevata di IVU clinicamente significativa

- Possibile riduzione del numero di positivi del 38%

- Refertazione basata esclusivamente su cut-off di crescite in piastra può incoraggiare il trattamento di batteriurie non clinicamente significative , causando un uso degli antimicrobici inappropriato

GRAZIE PER L'ATTENZIONE

Sorlozano et al. America Journal of Infection Control. 2014

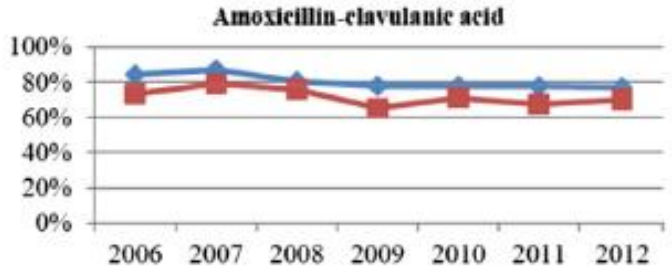
Evolution of the resistance to antibiotics of bacteria involved in urinary tract infections: a 7-years surveillance study.

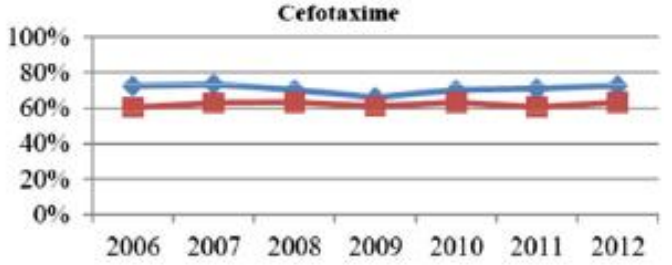
N=31758 (01/2006-12/2012)	Totale	Comunitari	Ospedalizzati
Escherichia coli	55.2% (50.1%-59.4%)	55.6% (51.5%-59.4%)	54.2% (50.1%-57.4%)
E. faecalis	18% (14.7%-22.1%)		
Klebsiella	10.3% (7.2%-12.9%)		
Other (*Proteus, Enterobacter,Citrobacter, P aeruginosa, A. baumannii, S. aureus, S. saprophyticus, S. agalactiae*)		15.3%	16.8%

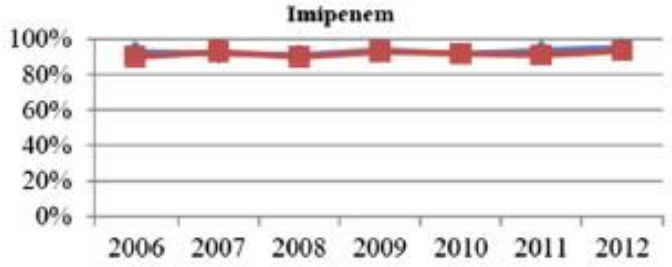
ESBL	Comunitari		Ospedalizzati	
	E. coli	***Klebsiella***	***E. coli***	***Klebsiella***
2010	7.5%	4.4%	5%	8.6%
2011	7.4%	5.9%	9.8%	31.8%
2012	8.6%	6.6%	10.8%	7.3%

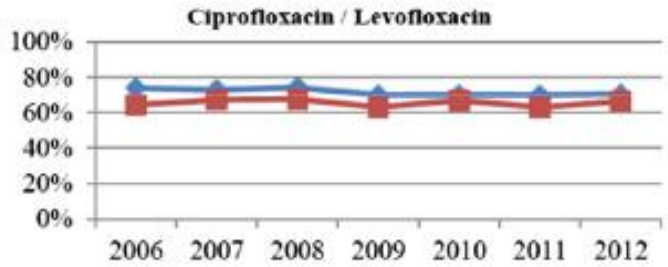
(S%)	IMP	AK	TZP	AMC	CIP	PHO	FUR	SXT
E. coli	98-100	92-100	87-94	52-68	13-24	88-93	93-98	39-52
Klebsiella	91-100	66-100	33-84	6-50	6-50	40-78	16-78	7-67

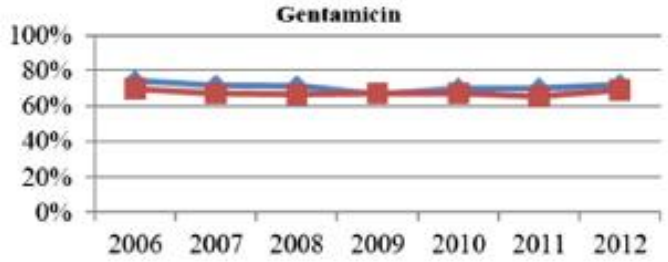
Attività (%) differenti antibiotici su popolazione totale n= 31.758

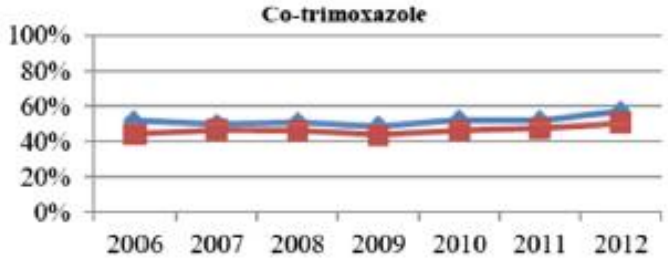


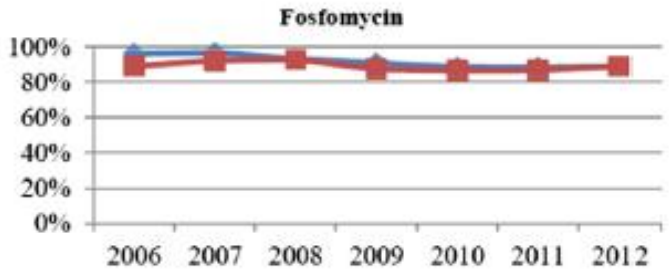


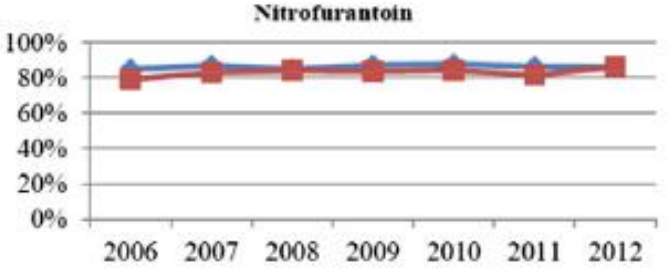












Ricci G et al. Giornale di Gerontologia. 2010; 58:270-277

Le infezioni delle basse vie urinarie nell'anziano in residenza sanitaria assistenziale: studio osservazionale di 54 mesi

- ✓ **Giugno 2006-dicembre 2009**
- ✓ **185 soggetti (75% femmine, 25% maschi)**
- ✓ **Età media 84.1±7.72 [(femmine 85.2±7.1; maschi 80.5±8.4)]**
- ✓ **708 urinocolture positive [(76% femmine, 24% maschi)]**
- ✓ **382 IVU sintomatica (54%) [285 femmine (53%), 97 maschi (57%)]**
- ✓ **326 Batteriuria asintomatica (46%) [253 femmine (47%), 73 maschi (43%)]**
- ✓ **155 Catetere vescicale (22%) [97 femmine (18%), 58 maschi (34%)]**

Ceppo	n	Prevalenza	Femmine	Maschi (%)	IVU (%)	BA (%)	CV (%)	no CV (%)	P
Escherichia coli	405	57%	*64%	36%	55%	59%	*41%	62%	<0.0003
P. mirabilis	92	13%	12%	18%	12%	14%	17%	12%	
Klebsiella spp	77	11%	10%	14%	13%	8%	10%	11%	
Altre Enterobatt.	57	8%	8%	9%	7%	9%	13%	6%	
P. aeruginosa	31	4%	3%	*8%	6%	2%	*12%	2%	<0.0003
Enterococcus spp	22	3%	2%	6%	2%	3%	2%	3%	

Agenzia sanitaria e sociale regionale

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EMILIA-ROMAGNA

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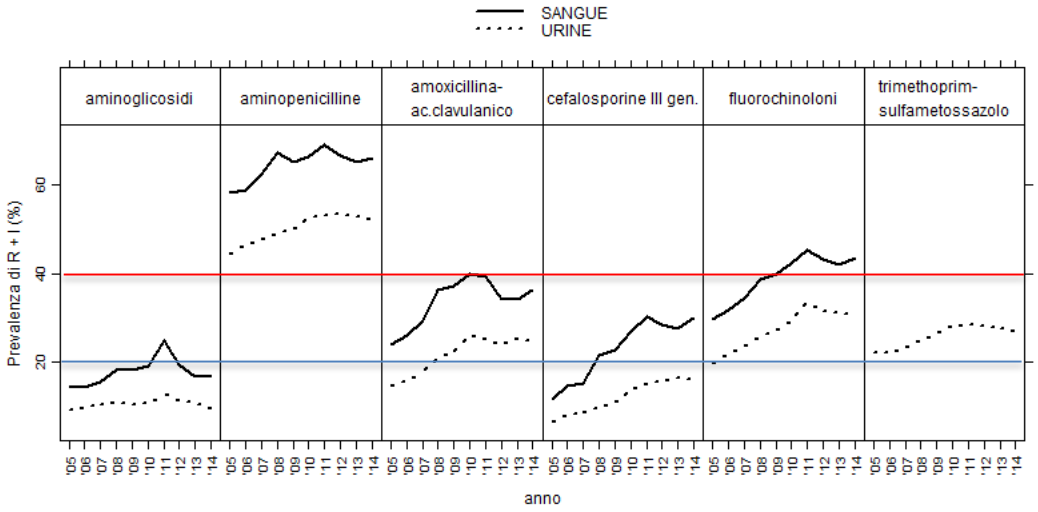
Rapporto 2014

4.1. Escherichia coli

Figura 2. Antibioticoresistenza di Escherichia coli: emocolture/liquorcolture e urinocolture



4.2. Klebsiella pneumoniae

Figura 3. Resistenze di Klebsiella pneumoniae: emocolture e urinocolture

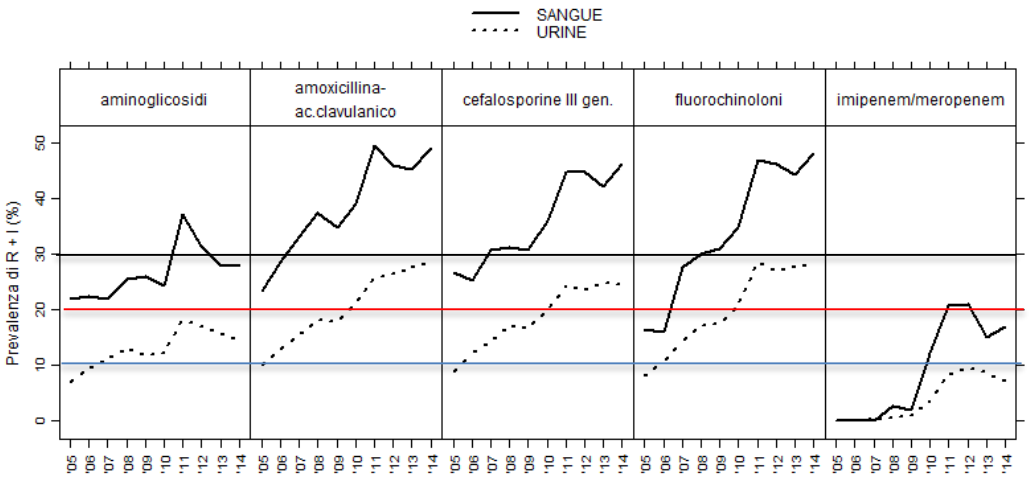
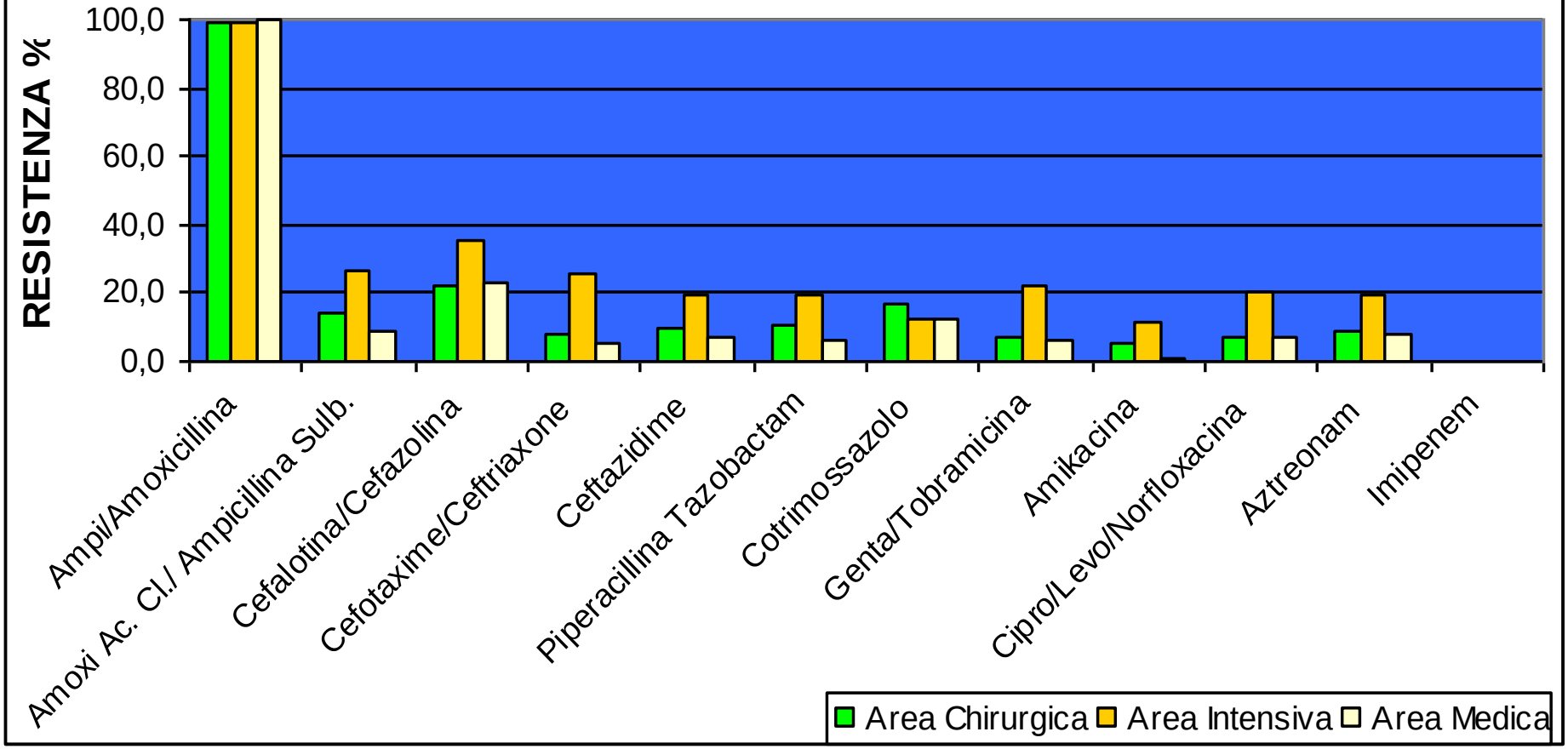


Grafico 5. Antibiotico-resistenza di ***Klebsiella pneumoniae*** nelle Aree Assistenziali degli Ospedali partecipanti al Progetto SISIOV- **anno 2005**



International Journal of Antimicrobial Agents 39 (2012) 45–51

Antimicrobial susceptibility of *Escherichia coli* from community-acquired urinary tract infections in Europe: the ECO·SENS study revisited☆

Gunnar Kahlmeter*, Hanna Odén Poulsen

Central Hospital, S-351 85 Växjö, Sweden

- Giugno 2007-novembre 2008
- 73 centri europei (Austria, Grecia, Portogallo, Svezia, Gran Bretagna)
- IVU comunitarie, non complicate, non ricorrenti
- 1697 campioni donne 18-65 anni (età media 40.7 anni)
- 1224 positivi (72.1%)
- 905 *Escherichia coli* (74% pazienti con coltura positiva)

Resistance rates amongst *Escherichia coli* from urinary tract infections in five European countries in 2008 (ECO·SENS II) compared with resistance rate in the first ECO·SENS study in 2000 [5,6].

Country	*n*	Resistance rate (%)[a]													
		AMP	MEC	AMC	TMP	SUL	SXT	NIT	NAL	CIP	GEN	FOS	CDR	CTX	CAZ
Austria	146 (126)	28.8 (17.5)	0.0 (1.6)	8.9 (2.4)	15.8 (9.5)	21.2 (25.4)	14.4 (9.5)	0.7 (0.8)	9.6 (2.4)	4.1 (0.0)	1.4 (0.8)	0.7 (0.0)	4.1 (0.8)	2.7 (N/T)	2.7 (N/T)
Greece	209 (132)	26.3 (22.0)	1.4 (0.8)	4.3 (0.8)	19.1 (13.6)	23.4 (19.7)	18.2 (11.4)	0.0 (3.0)	13.4 (6.8)	5.7 (1.5)	1.0 (0.8)	2.9 (0.7)	1.4 (3.0)	1.4 (N/T)	0.5 (N/T)
Portugal	144 (86)	34.0 (45.3)	1.4 (2.3)	6.9 (9.3)	17.4 (26.7)	31.3 (44.2)	16.7 (26.7)	1.4 (5.8)	16.0 (11.6)	7.6 (5.8)	2.8 (3.5)	0.7 (0.0)	0.7 (2.3)	0.0 (N/T)	0.0 (N/T)
Sweden	203 (193)	21.2 (15.5)	0.5 (1.6)	2.5 (5.7)	16.3 (8.3)	22.7 (16.6)	16.3 (8.3)	0.0 (0.0)	6.4 (2.6)	2.5 (0.0)	1.5 (0.0)	1.0 (0.5)	1.5 (5.2)	1.5 (N/T)	1.0 (N/T)
UK	201 (180)	31.8 (37.2)	1.0 (2.8)	2.0 (2.8)	14.9 (12.2)	26.4 (37.3)	14.4 (12.2)	0.0 (0.0)	7.0 (2.2)	0.5 (0.6)	0.5 (0.0)	0.5 (0.0)	1.5 (1.7)	0.5 (N/T)	0.5 (N/T)
ECO·SENS II	903	28.0	0.9	4.5	16.7	24.8	16.1	0.3	10.2	3.9	1.3	1.2	1.8	1.2	0.9
ECO·SENS I[b]	717	26.1	1.6	3.9	13.1	25.8	12.3	1.4	4.3	1.1	0.7	0.4	2.8	N/T	N/T

Krisken M et al. Clinical Microbiology and Infection 2015

Comparative in vitro activity of oral antimicrobial agents against Enterobacteriaceae from patients with community-acquired urinary tract infections in three European countries

1190 Enterobacteriaceae (agosto 2013-gennaio 2014)		
	Totale	ESBL
Femmine	79%	3.9%
Maschi	21%	7.1%

E. coli	Femmine		
	<18 y	**18-65 y**	**>65 y**
CIP (R%)	5.2		37.4
SXT (R%)	13.8	14	29.7
ESBL	6.9	3.9	10.2