

HUSRES Annual Report 2011
Martti Vaara



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The basis of this HUSRES 2011 report is the HUSLAB/Whonet database 2011, which contains susceptibility data on more than 199.000 bacteria isolated and studied in 2011 by HUSLAB. The susceptibility interpretations are according to EUCAST 2011.

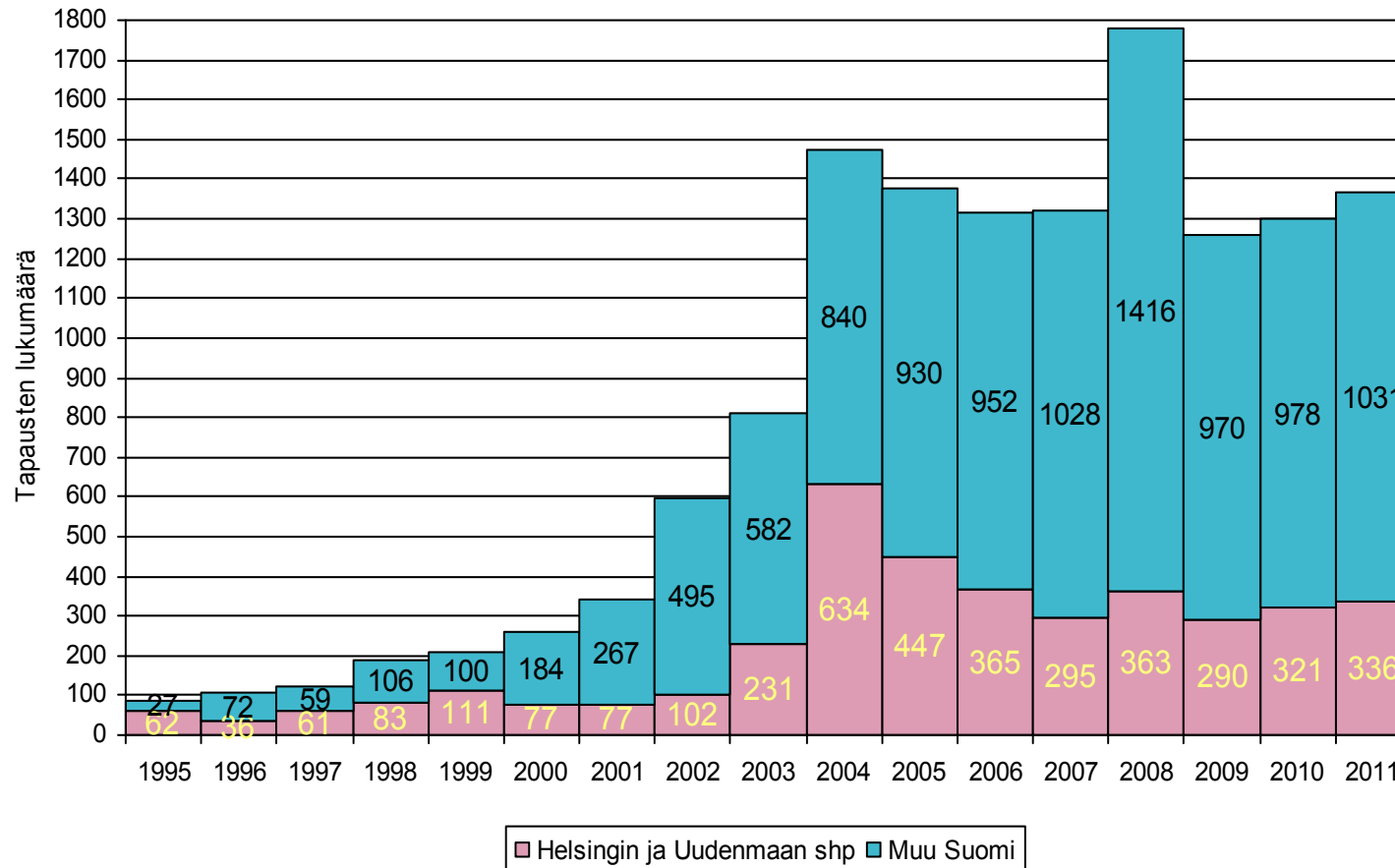
The isolates originate from patients in Helsinki University Central Hospital, other hospitals in Helsinki - Uusimaa region, as well as outpatient health centers.

HUSRES 2011 report contains data on 31 clinically most important bacterial species/groups.

Previous annual reports from 2000 are also located at www.huslab.fi

MRSA cases in Finland 1995 – 2011

Pink columns: Helsinki and Uusimaa District, blue columns: other parts of Finland



Source: National Institute for Health and Welfare

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Staph. aureus 2011 (%R+I)

Pus and blood isolates from in Helsinki University Central Hospital, from out-patients and from other sources. One isolate per patient (the most resistant). MRSA screenings excluded.

Material	n	Oxa	Ery	Cli	Lev	Rif	Fus	Dox	Net	Lnz	SxT
HUCH (7 hosp)	1732	3	6	6	3	0	5	4	0	0	0
Blood isolates	423	2	5	5	1	1	6	3	0	0	0
Jorvi Hospital	649	3	7	6	3	0	7	4	0	0	1
Peijas Hospital	379	2	5	3	2	0	5	3	0	0	0
Hyvinkää Hosp	333	2	5	5	2	0	6	3	0	0	1
Helsinki City H	640	6	7	6	4	1	6	3	1	0	1
Outpatients	3124	2	6	5	3						
All sources	8166	3	6	5	2	0	6	4	0	0	0

Coagulase-negative *staphylococci* 2011 (%R+I)

Pus and blood isolates. HUSLAB material from hospitals in Helsinki and Uusimaa districts. One isolate per patient (the most resistant).

	n	Oxa	Ery	Cli	Lev	Rif	Fus	Dox	Net	Lnz	SxT
St. epidermidis	1758	71	55	44	50	15	56	20	20	0	41
St. haemolyticus	48	96	94	60	94	11	38	23	30	0	72
St. lugdunensis	75	4	11	10	3	0	12	2	0	0	0

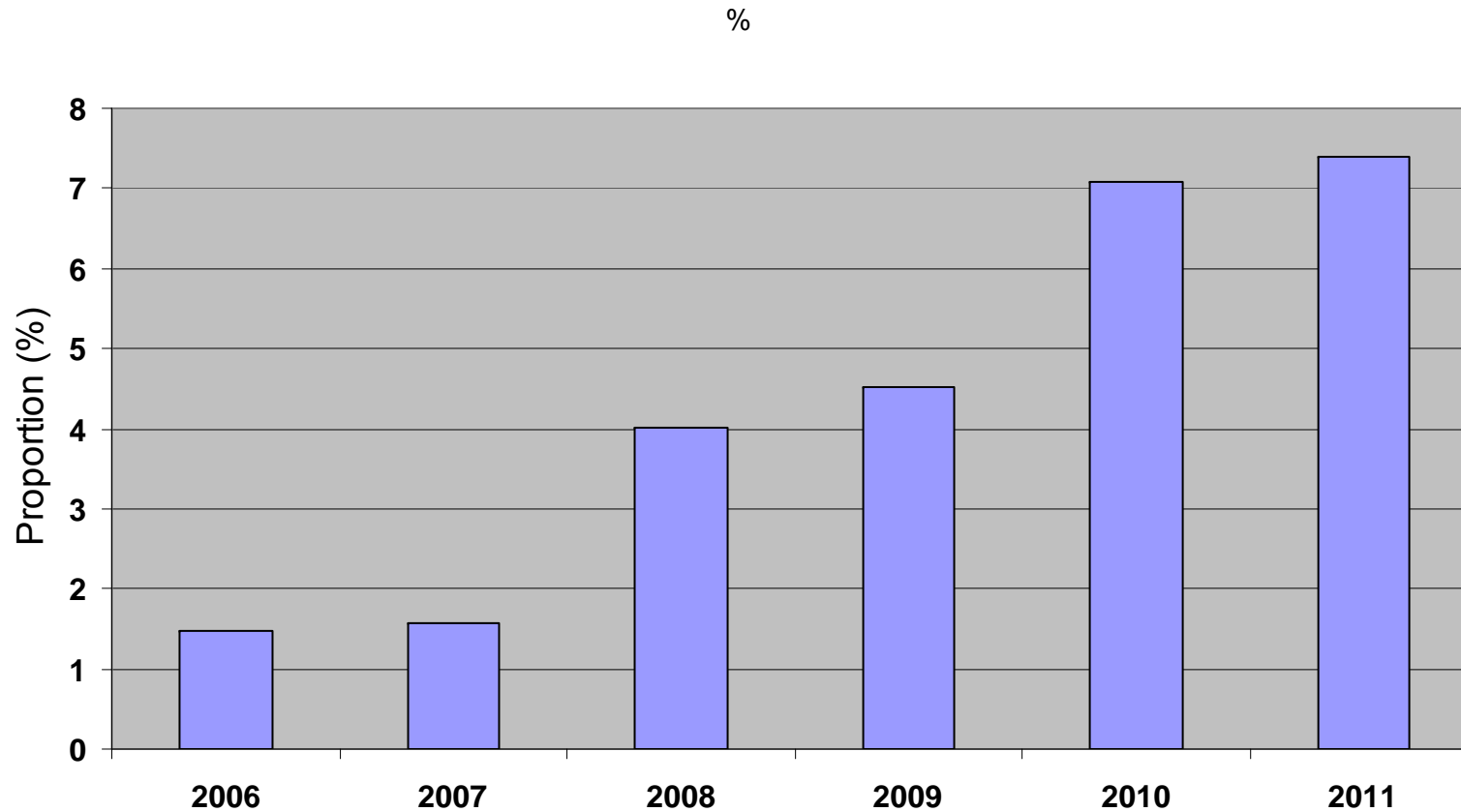
Streptococcus pneumoniae 2011 (%R+I)

HUSLAB material from Helsinki and Uusimaa districts. One isolate per patient (the first isolate).

	All	Blood
Penicillin - R	0,3	0,0
Penicillin - I*	19	17
Ceftriaxone - R	0,0	0
Ceftriaxone - I	1,7	0
Erythromycin	27	21
Clindamycin	15	7
Doxycycline	19	
Sulphamet-Trim.	25	
Imipenem		0,0
Levofloxacin		2
Moxifloxacin		2
Telithromycin		8
<i>n</i>	704	191

*Should be interpreted (i) as S in pneumonia at the adult dose of 2 milj. IU x 6 and (ii) as R in meningitis

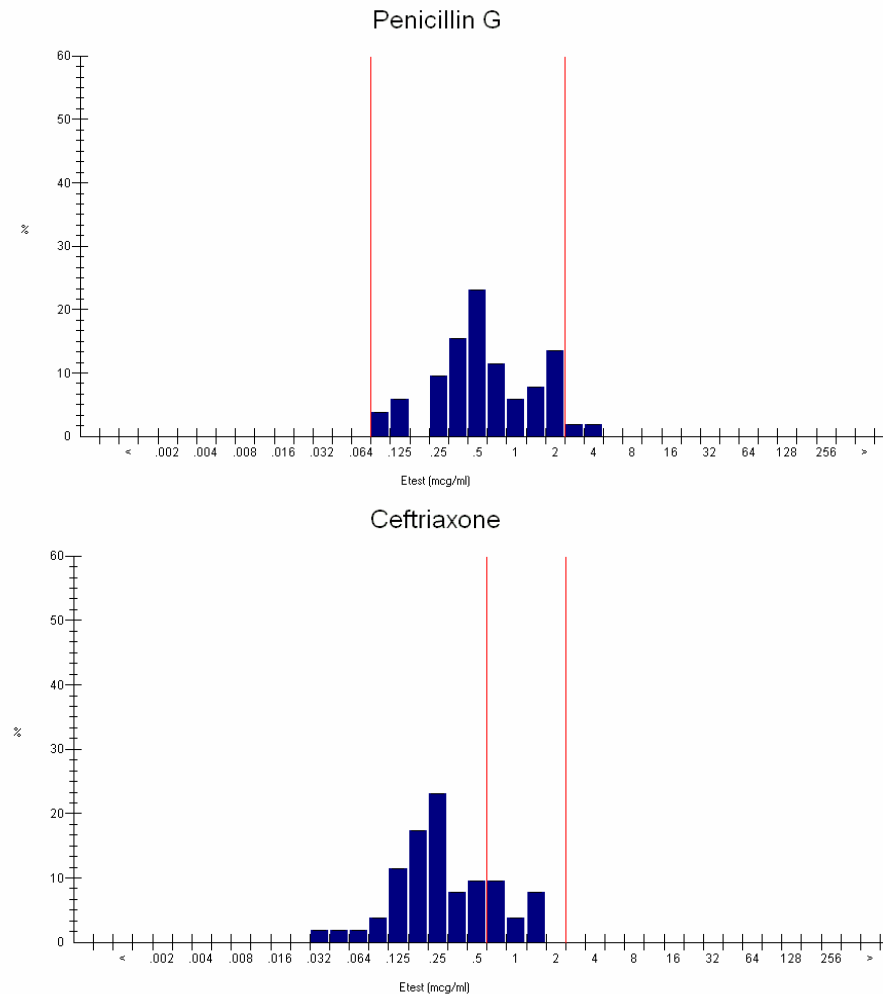
Multiresistant pneumococci* 2006 – 2011 (HUSLAB)



* Pen MIC > 0.064 µg/ml and non-susceptibility to Ery, Cli, Dox and SxT.
One isolate per patient.

Multiresistant pneumococci* 2011 (HUSLAB)

MIC distribution for penicillin G and ceftriaxone ($n = 52$)



* Pen MIC > 0.064 μ g/ml and non-susceptibility to Ery, Cli, Dox and SxT.

Beta-hemolytic streptococci 2011 (%R+I)

HUSLAB material from Helsinki and Uusimaa Districts.
One isolate per patient (the first isolate).

	S. pyogenes	S. agalact.	Group G
Penicillin	0	0	0
Cephalosp. I gen	0	0	0
Erythromycin	4	12	12
Clindamycin	3	11	11
n	8484	4698	4245

Group G: *S. dysgalactiae* spp. *equisimilis* group G strains

***Streptococcus viridans* group, blood isolates 2011**

HUSLAB material from Helsinki and Uusimaa Districts.
One isolate per patient (the first isolate).

Penicillin -I	8
Penicillin -R	3
Ceftriaxone -I	0
Ceftriaxone -R	0
Erythromycin I+R	31
Clindamycin I+R	9
Gentamycin -high res.	1
Vancomycin	0

n = 116

Str. anginosus [milleri] group 2011 (%R+I)

Pus and blood isolates, HUSLAB material from Helsinki and Uusimaa Districts.
One isolate per patient (the first isolate).

n = 620

Penicillin	0
Cephalospor. I gen.	0
Erythromycin	9
Clindamycin	8
Vancomycin	0

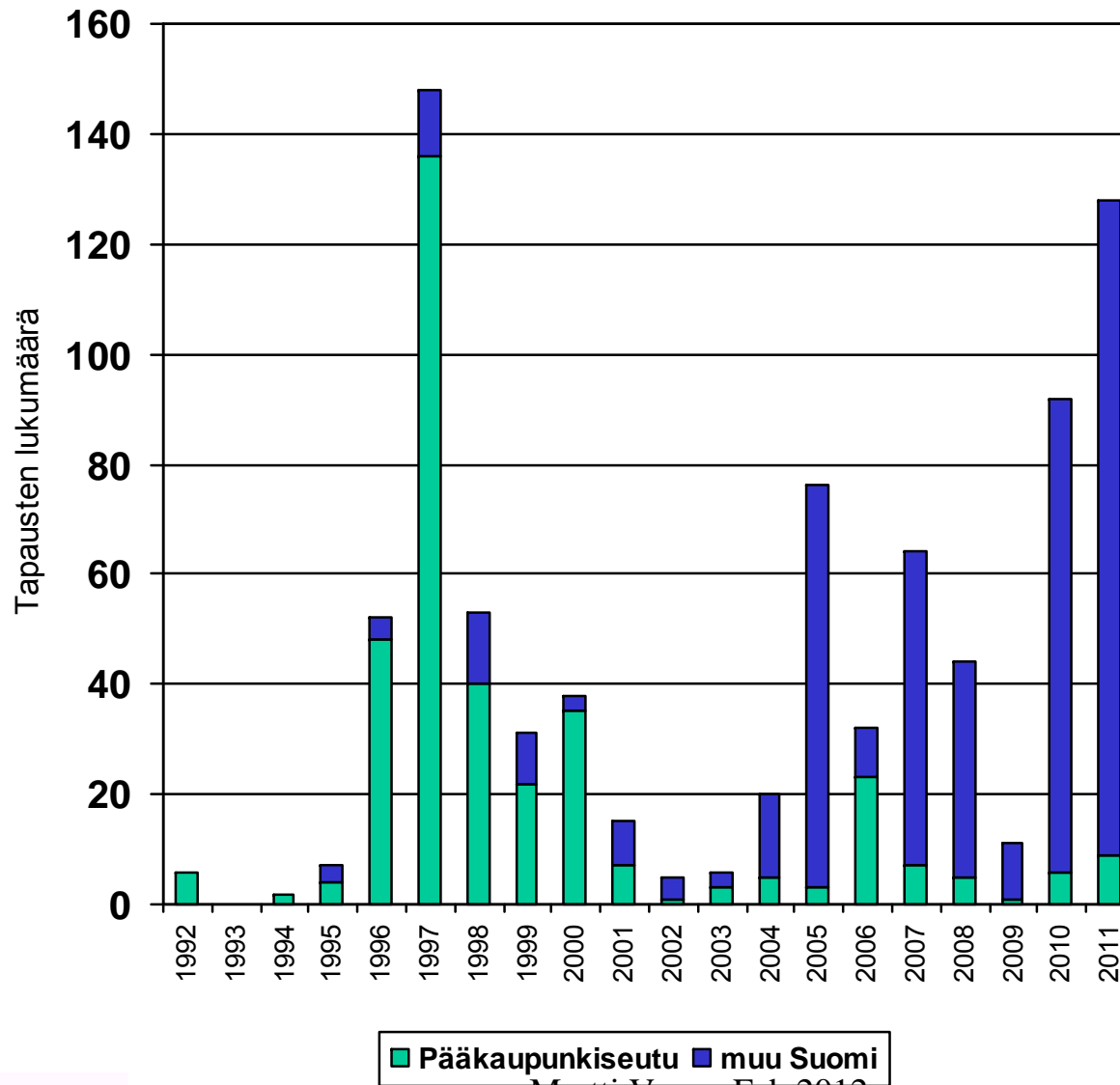
E. faecalis and *E. faecium* 2011

%R+I (pus & blood); %R (urine). HUSLAB material from Helsinki and Uusimaa districts. One isolate per patient (the most resistant).

	<i>E. faecalis</i>			<i>E. faecium</i>		
	pus	blood	urine	pus	blood	urine
Ampicillin	0	0	0	95	90	98
Imipenem	1,4	1		96	90	
Pip/taz	2,2	0		95	90	
Linezolid-I	0	0		0	1	
Linezolid-R	0	0		0	1	
Vancomycin	0	0	0	1	0	0
Gentam. (hi)		13			12	
Levofloxacin		37	22		94	94
Nitrofurantoin			1			91
SuTri			22			93
<i>n</i>	1114	108	4230	354	71	1054

VRE cases in Finland 1992-2011

Green columns: Helsinki and Uusimaa District; blue columns: other parts of Finland



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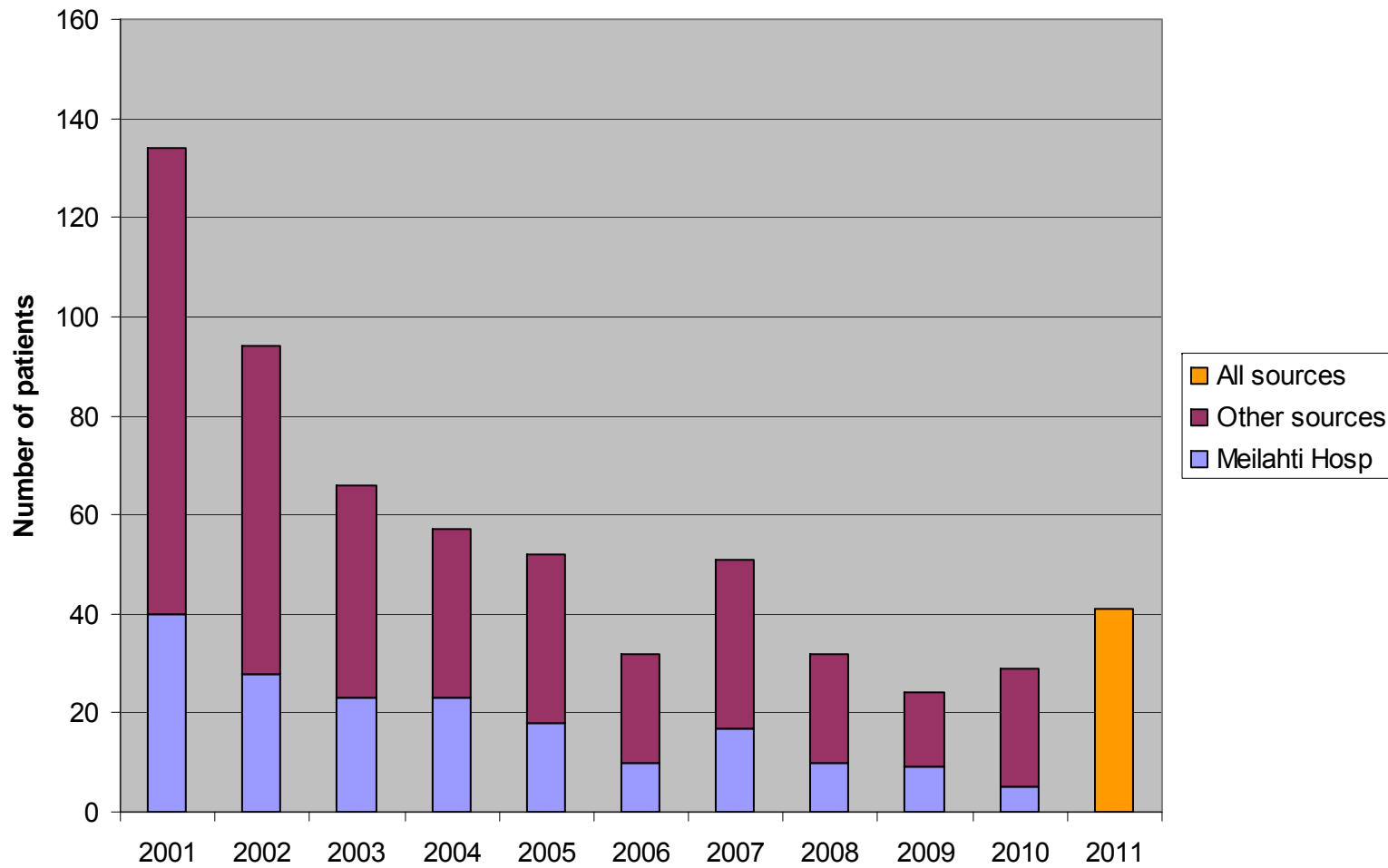
Pseudomonas aeruginosa 2011 (%R+I)

Pus and blood isolates. One isolate per patient (the most resistant isolate). HUSLAB material from selected hospitals in Helsinki and Uusimaa Districts

	n	Ctaz	Mero	Pi-Tz	Tob	Ami	Cip
Meilahti	214	14	24	19	9	8	27
Töölö	165	12	23	16	5	5	21
Helsinki City hospitals	197	10	22	15	4	4	25
Jorvi Hospital	209	9	21	16	6	2	23
Peijas Hospital	114	7	17	11	9	4	18
Childrens´ Hospital	39	13	13	15	3	8	10
Uusimaa regional hospitals	188	9	17	12	5	4	15
Outpat. in Health Cntrs	734	6	10	9	5	2	14

Ps. aeruginosa, MDR strains 2001-2011*

*Nonsusceptibility to 1) meropenem and 2) tobramycin as well as 3) ceftazidime and/or piperacillin-tazobactam. HUSLAB material from Helsinki and Uusimaa District.



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Resistance profiles of *P. aeruginosa* strains resistant to meropenem and ceftazidime ($n=108$)

HUSLAB material 2011. One isolate per patient (the first)

Profile					<i>n</i>
Mero	Ceftaz	PipTz	Cip	Tob	40
Mero	Ceftaz	PipTz	Cip		34
Mero	Ceftaz	PipTz			33
Mero	Ceftaz	PipTz		Tob	1

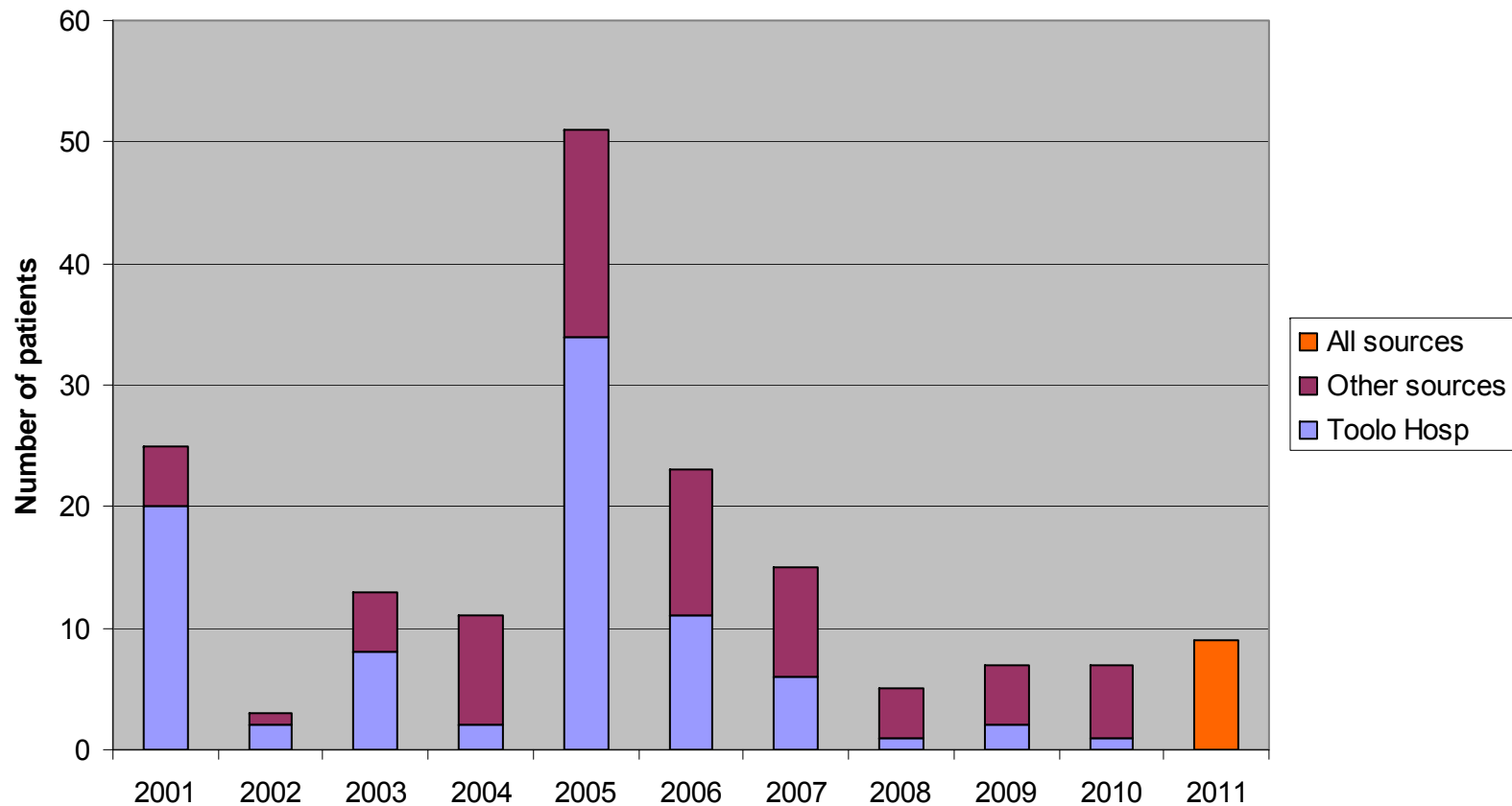
***Acinetobacter* spp. and *S. maltophilia* 2011 (%R+I)**

Pus and blood isolates from Helsinki University Central Hospital. One isolate per patient (the most resistant).

	n	Mero	Pi-Tz	Tob	Levo	SuTri
Acinetobacter	192	4	12	6	7	10
S. maltophilia	203	R	R	R	25	2

Acinetobacter spp., MDR strains*

*Nonsusceptibility to meropenem, tobramycin and piperacillin-tazobactam
HUSLAB material from Helsinki and Uusimaa District.



Enterobacteriaceae 2011 (%R+I)

Pus and blood isolates at hospitals in Helsinki University Central Hospital. One isolate per patient (the most resistant).

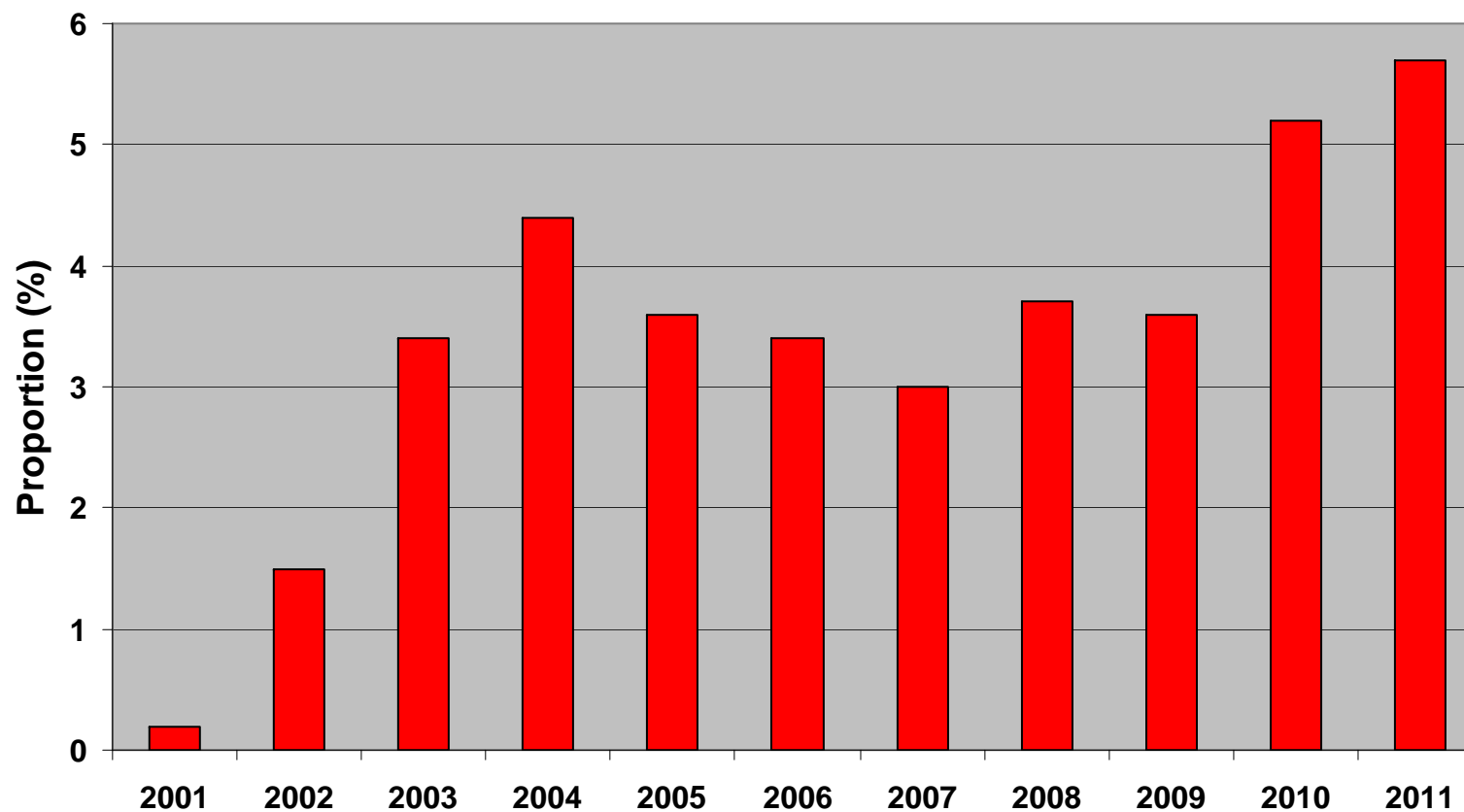
	n	Cfur	Ctax	Pi-Tz	Tob	Levo	Mero
E. coli	1386	10	8	8*	7	13	0
Kl. pneumoniae	284	11	5	5*	3	6	1
Kl. oxytoca	168	9	3	7	1	1	0
Proteus mirabilis	113	2	1	1	4	7	0
Ent. cloacae	355	(41)	30**	30***	1	3	1
Citrob. spp.	116	(27)	22**	22***	5	3	0
Serratia marc.	170	96	8**	8***	12	4	0
Proteus vulgaris	54	91	6**	6***	6	2	0
Morganella morg	63	94	21**	21***	0	3	0

*: all ESBL strains reported here as nonsusceptible

** : Resistance (due to *ampC* derepression mutation) develops easily during therapy to cefotaxime and other III gen. cephalosporins, hence cephalosporin monotherapy not recommended.

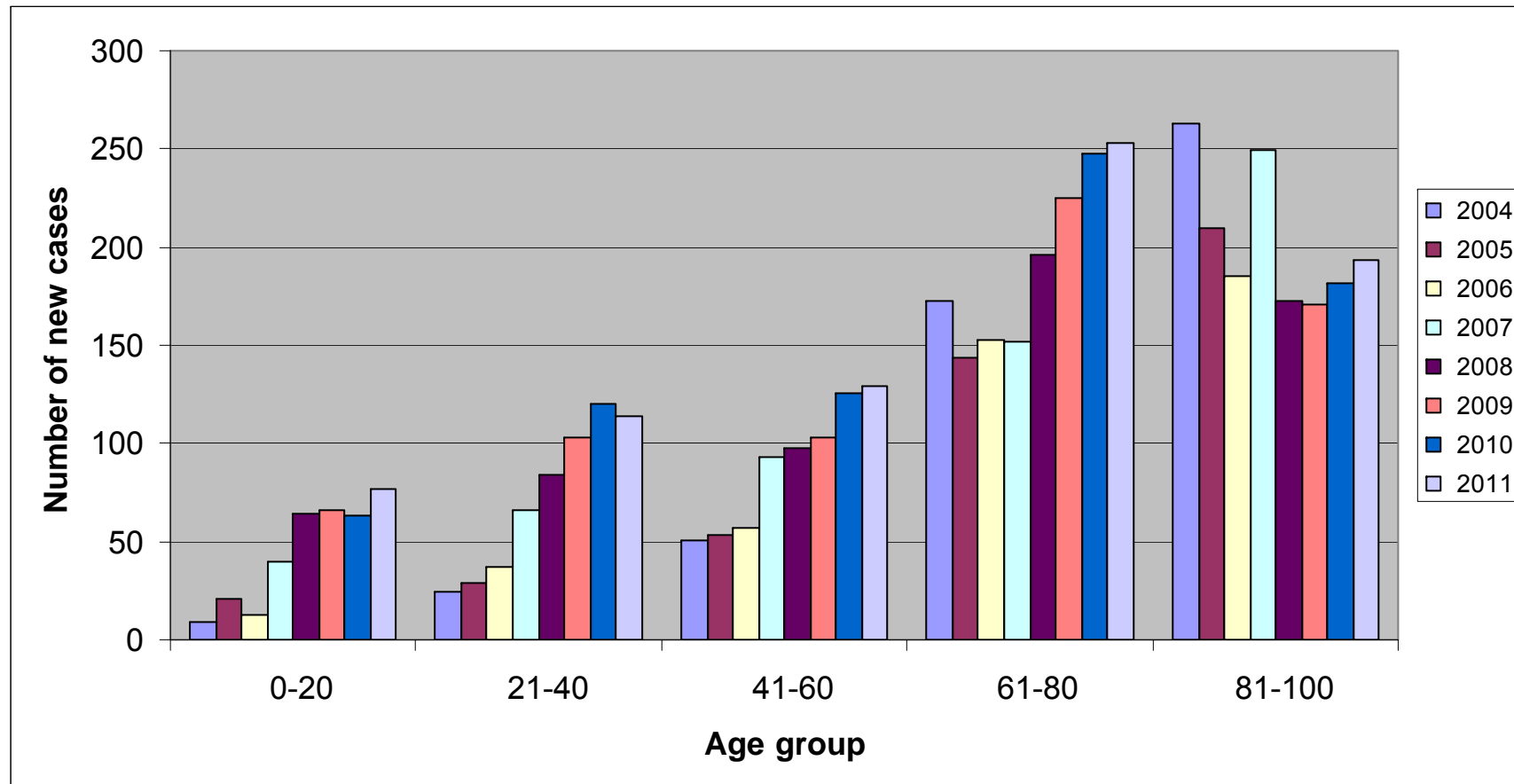
***: all cefotaxime-nonsusceptible strains (mainly *ampC* strains) reported here as nonsusceptible

Frequency of *E. coli* ESBL among all *E. coli* blood isolates. HUSLAB material 2001- 2011



One isolate per patient.

E. coli ESBL 2004 – 2011,
number of new cases by age categories in Huslab material

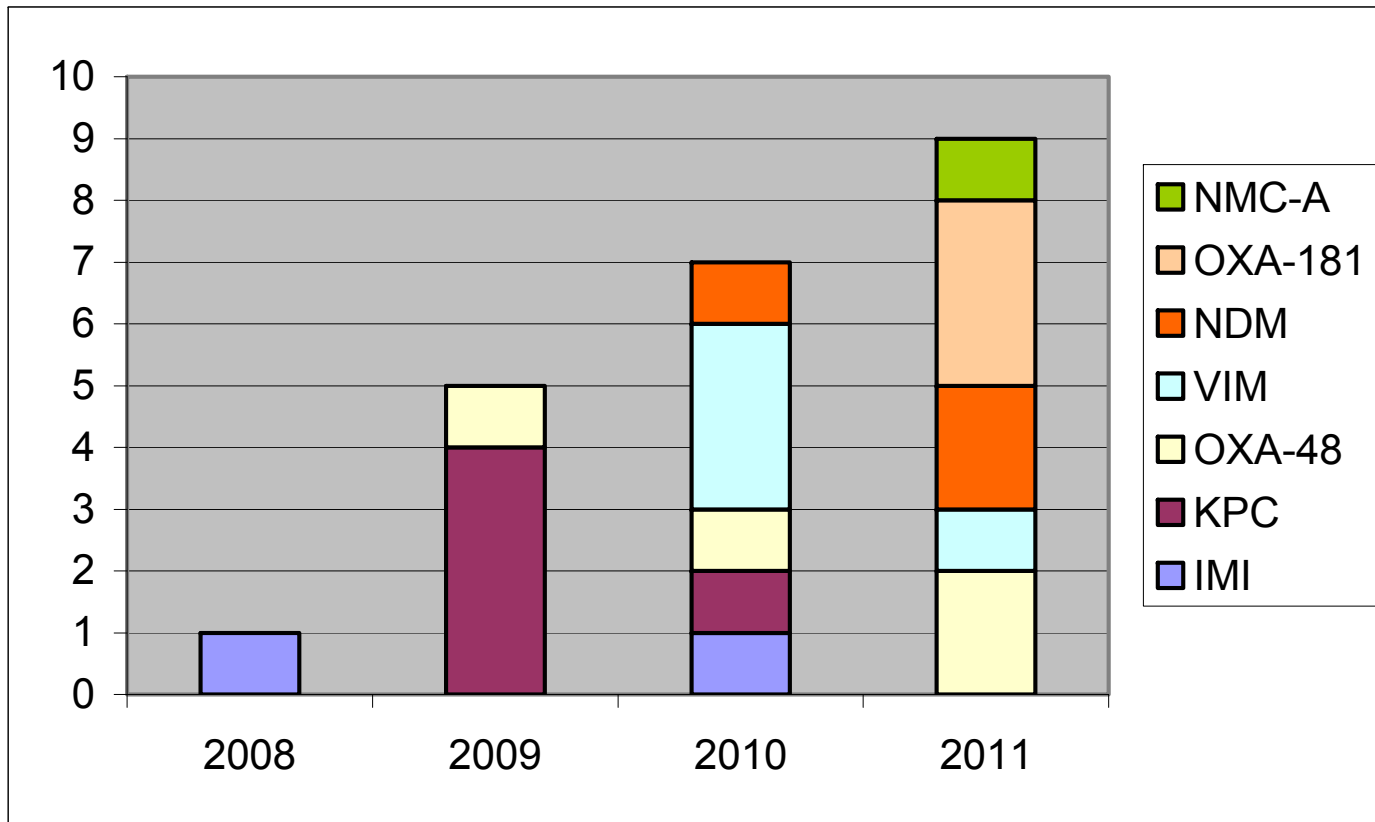


ESBL strains, resistance to non-betalactams and carbapenems 2011

% R+I in blood, pus, and urine isolates. HUSLAB material from Helsinki and Uusimaa districts. One isolate per patient (the most resistant isolate).

	E. coli
Ciprofloxacin	68
Levofloxacin	78
Tobramycin	46
Sulphatrimetoprim	62
Trimetoprim	65
Nitrofurantoin	6
Meropenem	0,1
Ertapenem	2,6
<i>n</i>	1043

Carbapenemase-producing *Enterobacteriaceae* (CPE) in Finland 2008-2011



Jalava, Kirveskari, Vaara
(HUSLAB and THL)

Enterobacteriaceae, urine isolates 2011 (%R)

HUSLAB material from Helsinki and Uusimaa districts. One isolate per patient (the most resistant).

	E. coli	Kl. pneum.	P. mirabilis	Other
Nitrofurantoin	1	14	100	27
Mecillinam	9	8	8	31
Cephalexin	14	9	2	58
Cefuroxime	6	4	1	36
Ciprofloxacin	11	3	3	4
Trimetoprim	24	23	42	22
n	24562	2863	919	2161

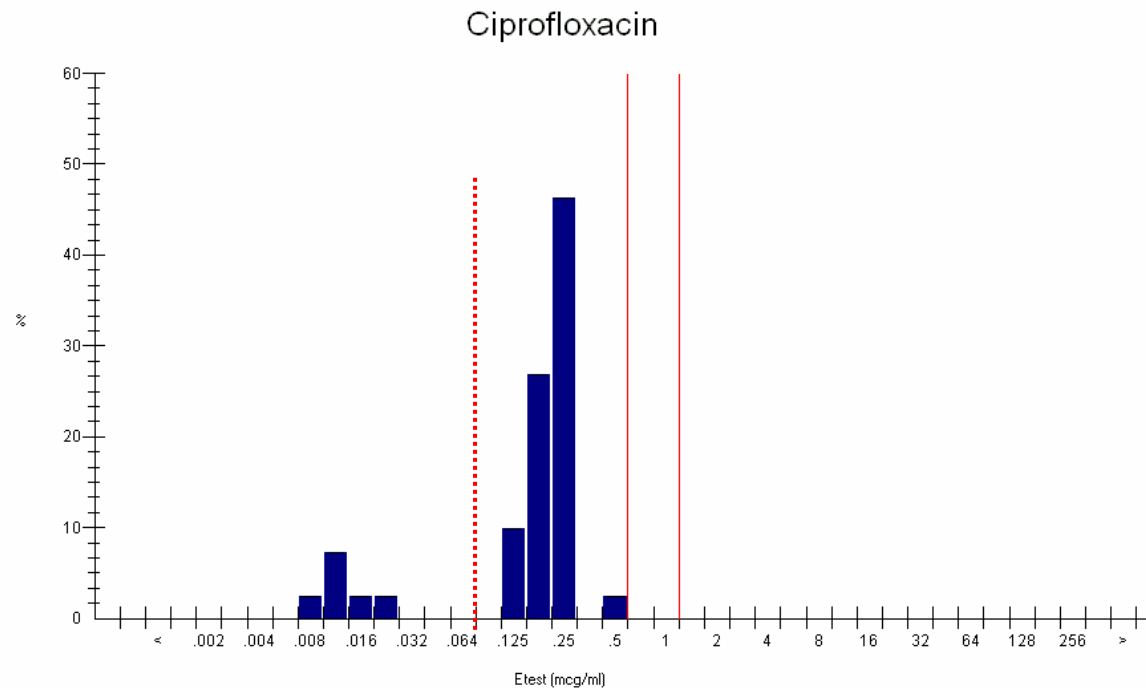
Salmonella typhi 2005 -2011, susceptibility to ciprofloxacin

HUSLAB material from Helsinki and Uusimaa Districts.

One isolate per patient (the first isolate), $n = 22$

EUCAST 2011

Salmonella - there is clinical evidence for ciprofloxacin to indicate a poor response in systemic infections caused by *Salmonella* spp with low-level fluoroquinolone resistance (MIC>0.064 mg/L). The available data relate mainly to *S. typhi* but there are also case reports of poor response with other *Salmonella* species.

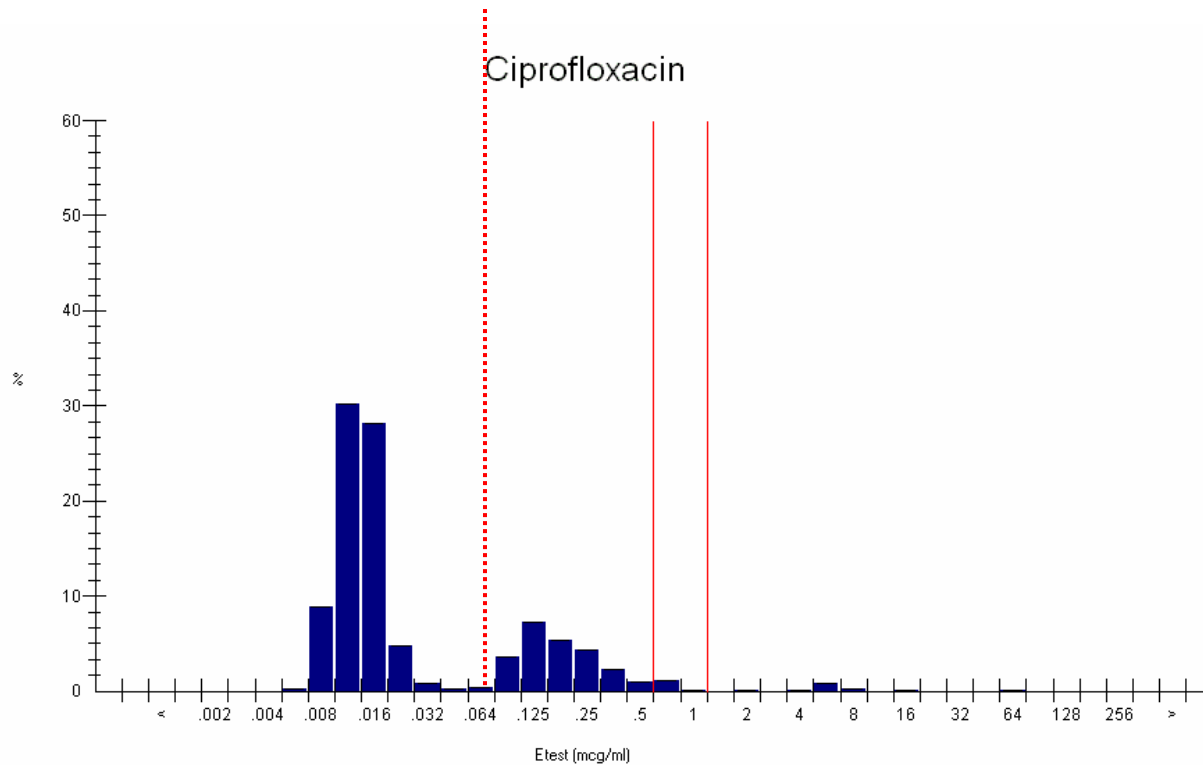


Salmonella spp 2005 -2011, susceptibility to ciprofloxacin

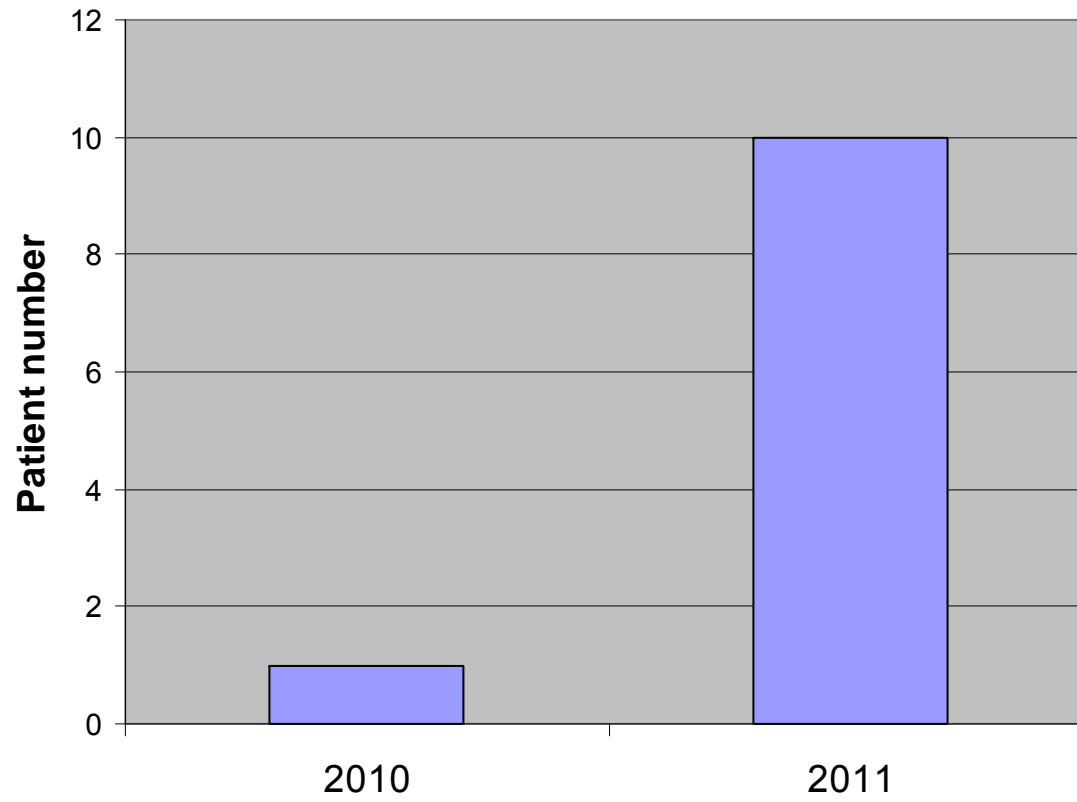
HUSLAB material from Helsinki and Uusimaa Districts.
One isolate per patient (the first isolate), $n = 2758$

EUCAST 2011

Salmonella - there is clinical evidence for ciprofloxacin to indicate a poor response in systemic infections caused by *Salmonella* spp with low-level fluoroquinolone resistance (MIC>0.064 mg/L). The available data relate mainly to *S. typhi* but there are also case reports of poor response with other *Salmonella* species.



Salmonella ESBL, HUSLAB material 2005 - 2011



Shigella spp. 2011 (%R+I)

HUSLAB material from Helsinki and Uusimaa Districts.
One isolate per patient (the first isolate)

n = 34

Ampicillin	29
Ceftriaxone*	6
Ciprofloxacin	29
Sulphatrimetoprim	71
Doxycycline	76

* ESBL strains

H. influenzae & *M. catarrhalis* 2011 (%R+I)

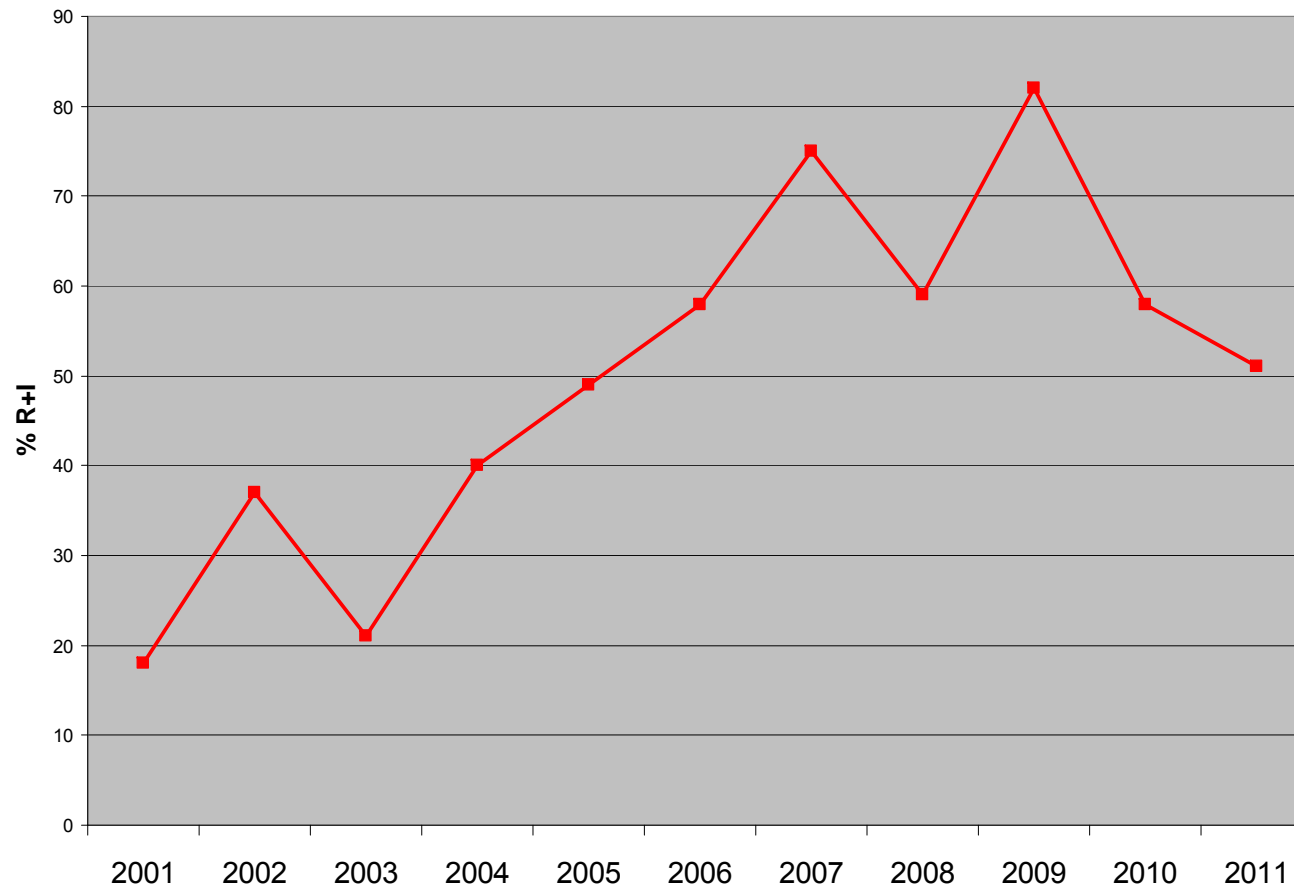
HUSLAB material from Helsinki and Uusimaa Districts.
One isolate per patient (the first isolate).

	H. influenzae	M. catarrh.
Ampicillin	22	100
Amoxycill-clavul.	2	0
Cefuroxime	8	0
Doxycycline	3	1
Ciprofloxacin	0	0
Sulphameth-trim.	25	8
Azithromycin	see*	7
n	781	355

* According to EUCAST 2011 breakpoints, the susceptibility of most isolates should be interpreted as I.

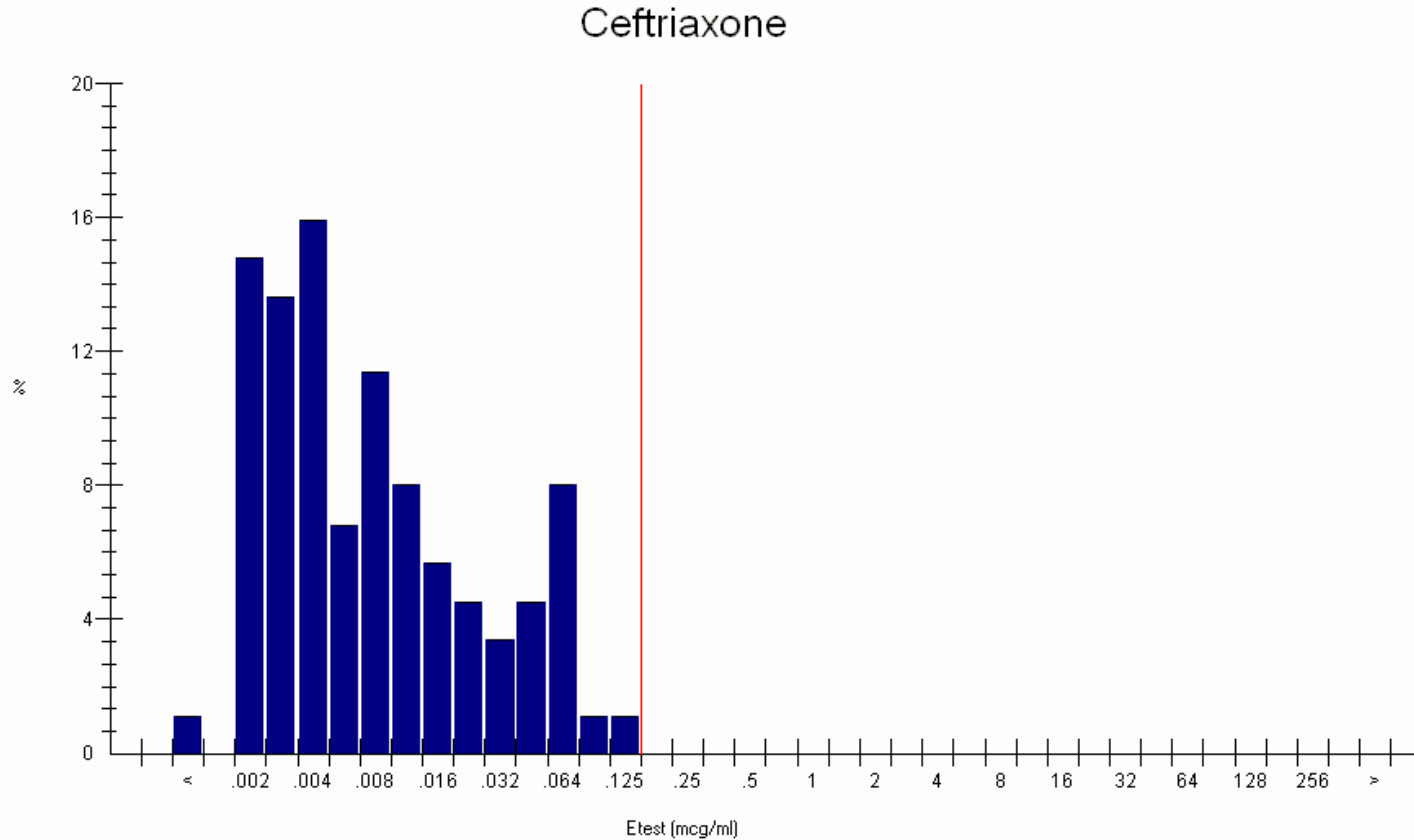
Neisseria gonorrhoeae, resistance to ciprofloxacin 2001-2011

HUSLAB material from Helsinki and Uusimaa Districts (2011, $n = 88$)



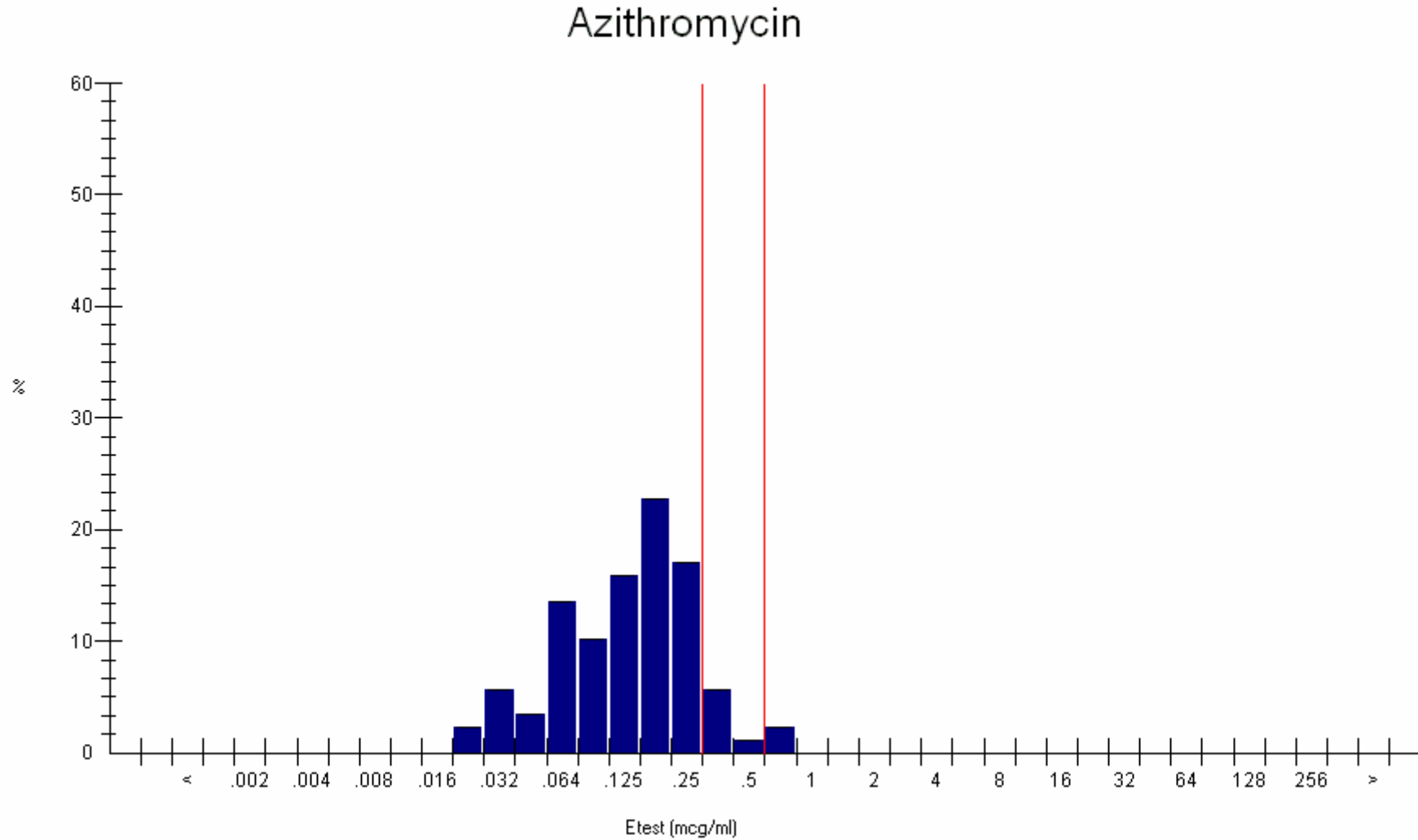
Neisseria gonorrhoeae, MIC of ceftriaxone 2011

HUSLAB material from Helsinki and Uusimaa Districts ($n = 88$)



Neisseria gonorrhoeae, MIC of azithromycin 2011

HUSLAB material from Helsinki and Uusimaa Districts ($n = 88$)



Neisseria meningitidis 2009 - 2011 (%R+I)

HUSLAB material from Helsinki and Uusimaa Districts.
One isolate per patient (the first isolate)

Penicillin-I	2
Penicillin-R	0
Ceftriaxone	0
Meropenem	0
Ciprofloxacin	0
Chloramphenicol	0
n	43

***Bacteroides fragilis* group 2011 (%R+I)**

HUSLAB material from Helsinki and Uusimaa Districts.

One isolate per patient (the first isolate)

n = 1043

Metronidazole	0
Piperacillin-tazobactam	3
Imipenem	1
Clindamycin	42
Doxycycline	18
Penicillin G	100