



AMR Surveillance in Estonia

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AMR Surveillance background

- EARSS
 - +Data since 2001 (*E. coli*, *S. aureus*, *S. pneumonia*, *E. faecalis/faecium*)
 - +10 labs
 - +Coverage 100% of blood cultures
 - +Since 2004 + *A. baumannii*, *P. aeruginosa*, *K. pneumonia*
 - Low number of sets/1000 patient days
 - Represents mainly nosocomial pathogens, few data from community
- Other studies
 - 1999-2003 *S. pneumonia* in children
 - 2003 Gram negative bacteria in ICU (n=4)
 - 2004 invasive infections (EARSS labs/hospitals)
 - Molecular epidemiology of GN - ongoing study

Publications: AMR in Estonia

- Naaber P, Kõljalg S, Maimets M. Antibiotic Usage and Resistance – Trends in Estonian University Hospitals. IJAA; 2000; 16: 309-315
- Naaber P, Tamm E, Pütsepp A, Kõljalg S, Maimets M. Nasopharyngeal carriage and antibacterial susceptibility of *S. pneumoniae*, *H. influenzae* and *M. catarrhalis* in Estonian children. CMI; 2000; 6: 675-677
- Kõljalg S, Naaber P, Mikelsaar M. Antibiotic resistance as an indicator of bacterial chlorhexidine susceptibility. J Hosp Infect; 2002; 51: 106-113.
- Lõivukene K, Naaber P. Antibiotic susceptibility of anaerobic bacteria in Estonia during 1999 and 2001. Anaerobe. 2003; 9: 57-61
- Lõivukene K, Kermes K, Sepp E, Adamson V, Mitt P, Kallandi Ü, Otter K, Naaber P. The surveillance of antimicrobial resistance of invasive pathogens: Estonian experience. Eurosurveillance monthly releases 2006; Volume 11 / Issue 2. <http://www.eurosurveillance.org/em/v11n02/1102-225.asp>
- K Lõivukene, K Kermes, E Sepp, V Adamson, P Mitt, M Jürna, H Mägi, Ü Kallandi, K Otter, P Naaber. The comparison of susceptibility of gram-negative invasive and nosocomial pathogens in Estonian hospitals. *Antonie van Leeuwenhoek*. 2006 (in press)

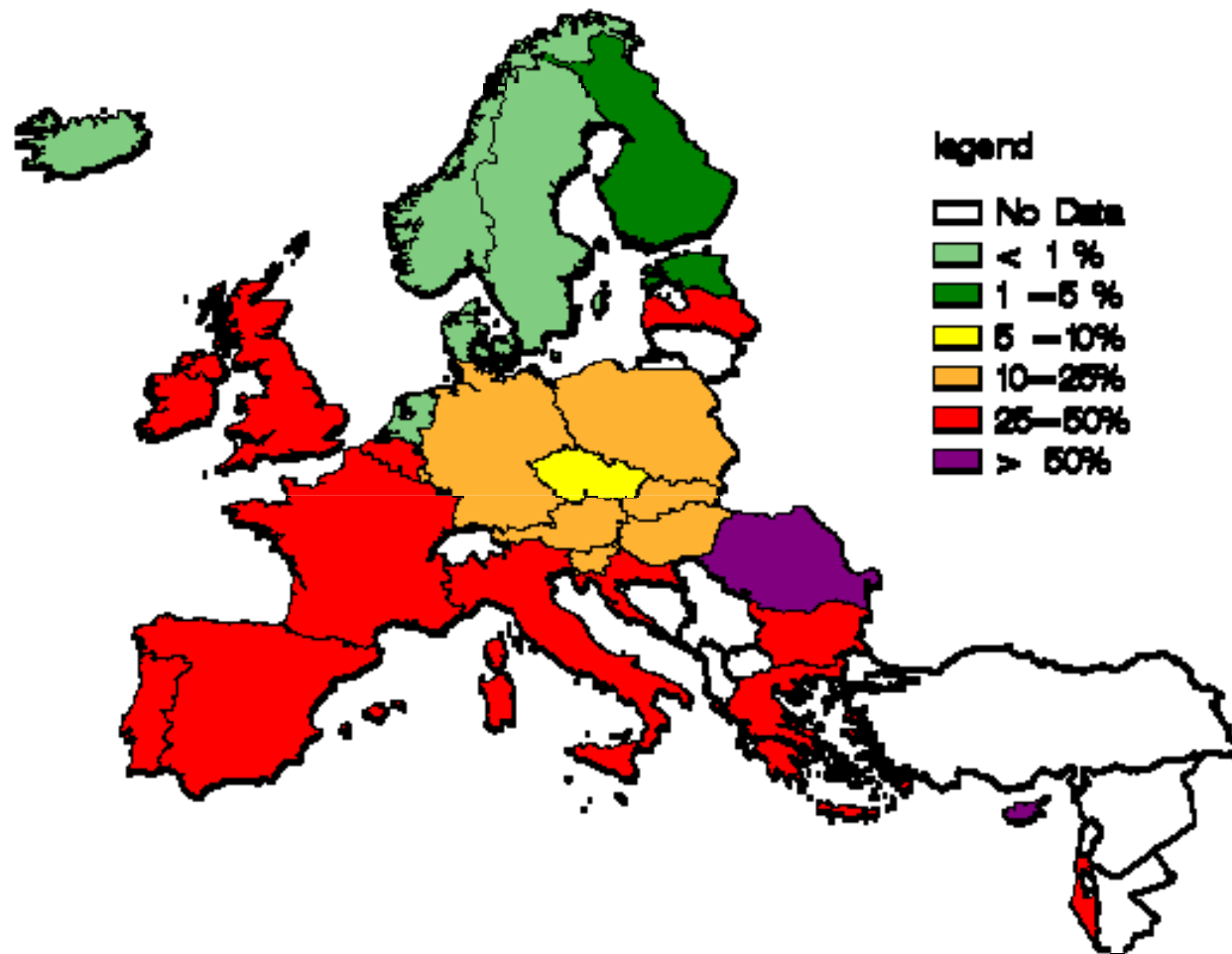
Resistance in Estonia:

Are our bacteria more resistant or sensitive as compared with other European countries?

EARSS, MRSA

Proportion of MRSA isolates in participating countries in 1998, 2000, 2001, 2002, 2003, 2004, 2005

(c) EARSS



Prevalence of Gram-negative bacteria in ICU

Lõivukene et al. (submitted to Scandinavian Journal of Infectious Diseases)

Pathogen	Country (reference)/incidence (%)							
	Estonia 2003	Sweden: Sörberg, 2003	Germany: Jones, 2004	France: Jones, 2004	Italy: Jones, 2004	Europe: Goossens, 2000	Italy: Lizioli, 2003	Turkey: Meric, 2005
Total Gram-negatives	60	39.5	46.8	55.2	52.5	62.2	33	49.5
<i>K. pneumoniae</i>	12.0	4.7	5.4	2.7	3.5	8.9	ND	2.1
<i>A. baumannii</i>	12.0	1.9	ND	ND	ND	4.5	ND	26.8
<i>P. aeruginosa</i>	9.0	4.7	10.8	13.8	22.3	15.5	14.5	12.4
Total Gram-positives	29.2	45.7	41.7	42.5	44	37.8	56	45.3
<i>S. aureus</i>	11.0	12.5	13.6	17.2	18.1	ND*	20.2	30.9
CoNS	6.1	15.8	16.4	16.7	18.7	25.7 ^a	11.3	2.1
Enterococci	2.7	8.5	11.7	5.3	7.2	8.4	8.9	11.3

AMR of Gram-negatives in ICU

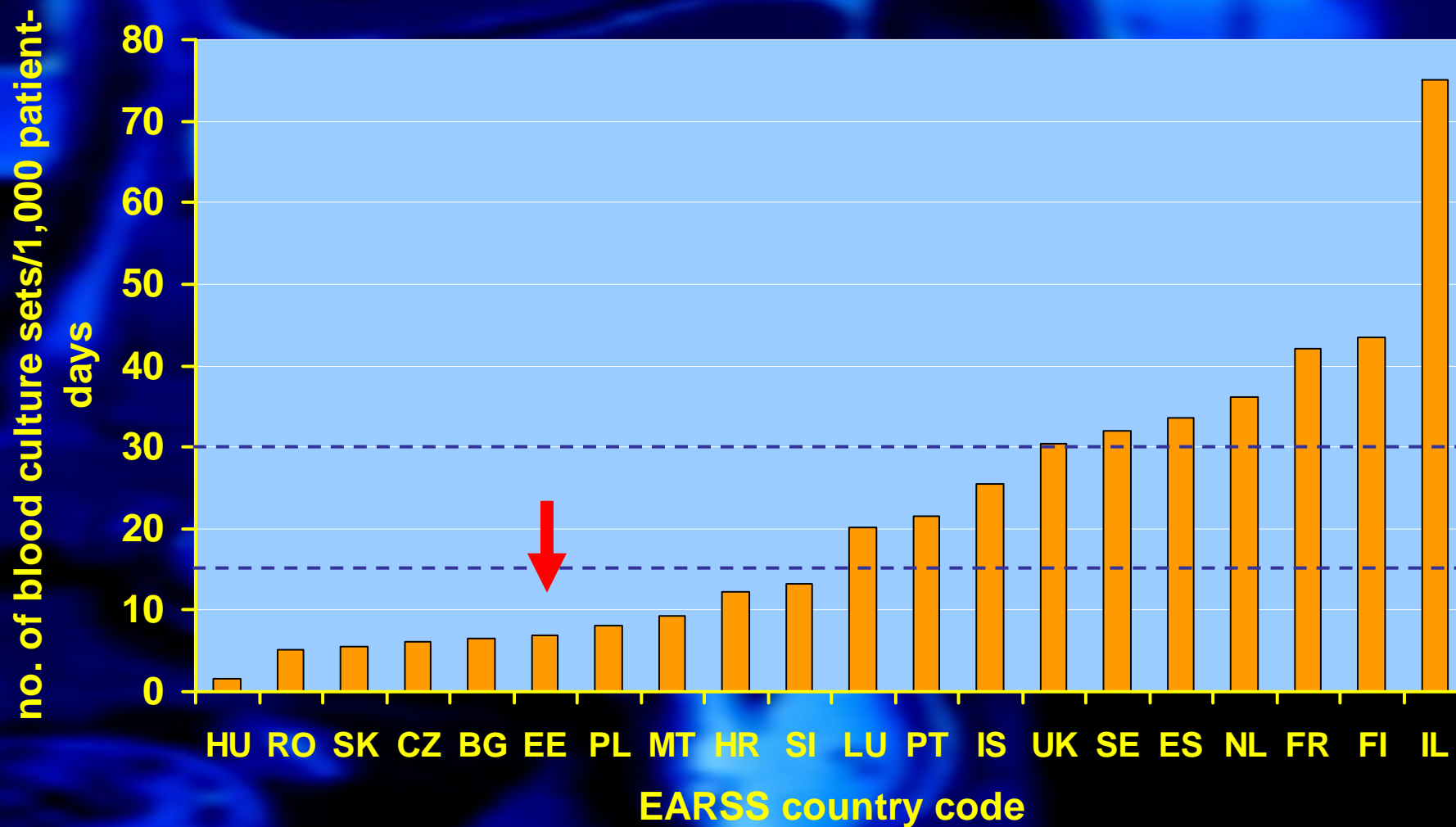
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Antibiotics	Country (reference)/MIC _{50/90} mg/L and/or % of susceptibility and method						
	Estonia 2003	Europe: Garcia- Rodriguez, 2002	Europe: Goossens 2000	Italy: Jones, 2004	Germany: Jones, 2004	France: Jones, 2004	Sweden: Sörberg, 2003
<i>A. baumannii</i>							
Meropenem	0.75/3; 95%	79.6%	ND	74.5%	96.0%	68%	ND
<i>P. aeruginosa</i>							
Ceftazidime	1.5/48; 58%	70.6%	1-2/16-32	56.7%	76.2%	70.2%	97.7%
Meropenem	1/16; 81%	76.1%	0.5-1/8	57.3%	77.8%	81.1%	ND
Imipenem	3/>32; 72%	68.2%	2-4/8-16	59.7%	70.5%	69.5%	74.7%

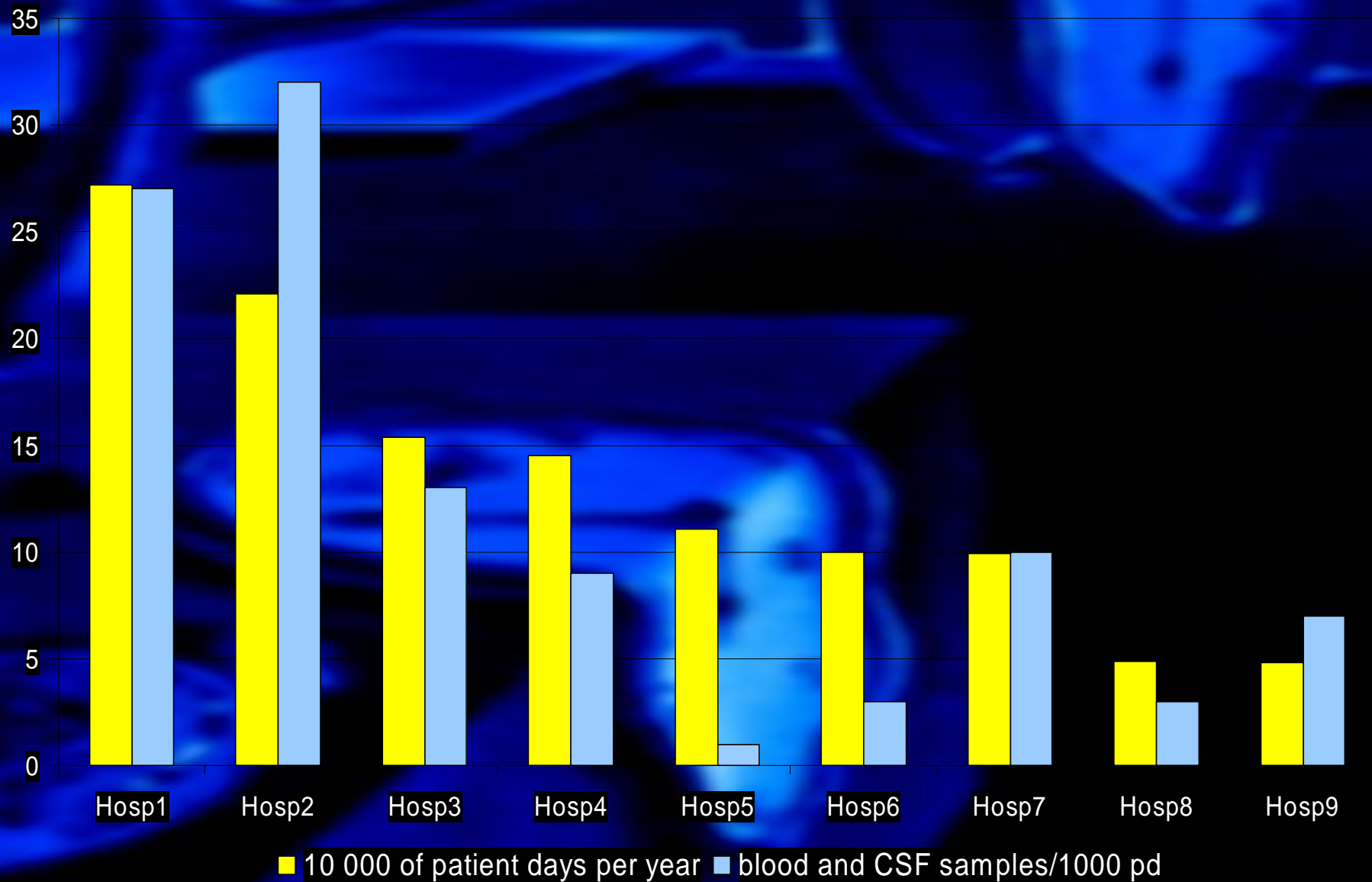
ARM surveillance: problems

- Few data from community
- Difficulties in comparison of data
 - Sampling habits
 - number of cultures/patient days
 - specimens structure
 - List of antibiotics – since April 2005 consensus minimum list of AB for testing in lab
- Need for more quantitative data (MIC)

Blood culture sets: number per 1,000 patient-days



Sampling in Estonian Hospitals



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Distribution of pathogens according to sampling sites in ICUs

	ICUs of TUC, 2005				Italy	Belgium
	AIÜI	AINE	AIPU	AION	2001	2003
Respiratory	46%	68%	59%	7%	46- 54%	43%
Wound	14%	4%	11%	41%	ND	20%
Blood/CSF	18%	19%	14%	41%	14- 33%	21%

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