

NethMap's highlights 2009

SWAB's surveillance systems

Antibiotic use

- SWAB working group on antimicrobial use
- Foundation for Pharmaceutical statistics (SFK)
- CBS data on population statistics

Antibiotic resistance

- SWAB working group on antimicrobial resistance
- Netherlands Institute for Health Services Research (NIVEL)
- University Hospital Maastricht
- National Institute for Public Health and the Environment (ISIS/GRAS/CIB/RIVM)

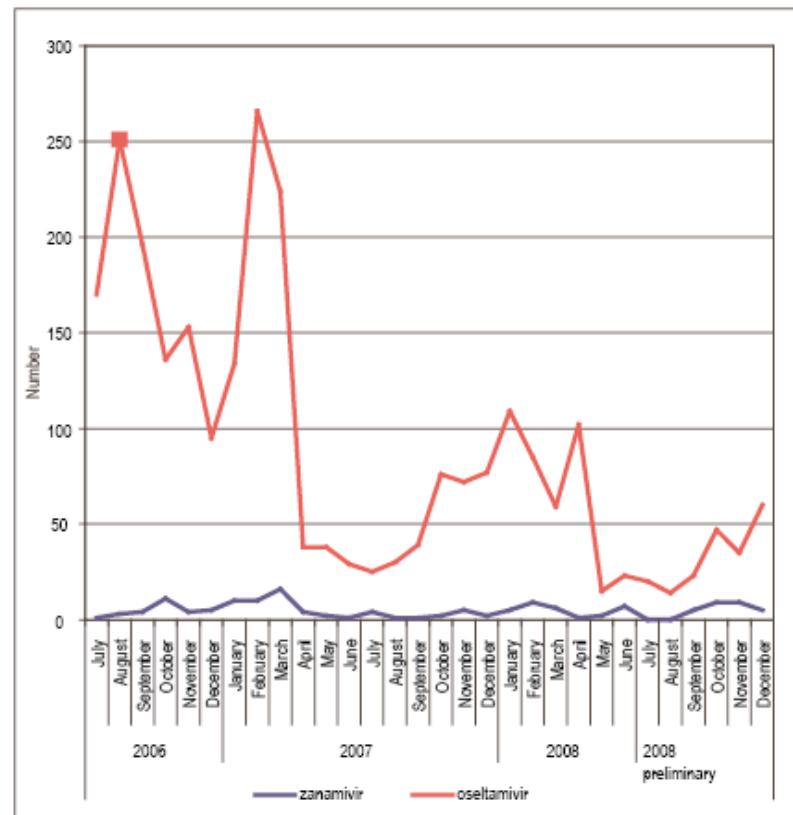


New in NethMap 2009

- Conversion from CLSI to EUCAST susceptibility criteria
- Virology: antiviral drug use and emerging resistance in influenzaviruses



NethMap 2009 presents data on resistance of influenza viruses and use of neuraminidase inhibitors and M2 ion channel blockers in The Netherlands, 2005/2009 – 2008/20091



**NethMap
2009**

NethMap 2009: community and primary care





Drug use in primary health care

NethMap 2009

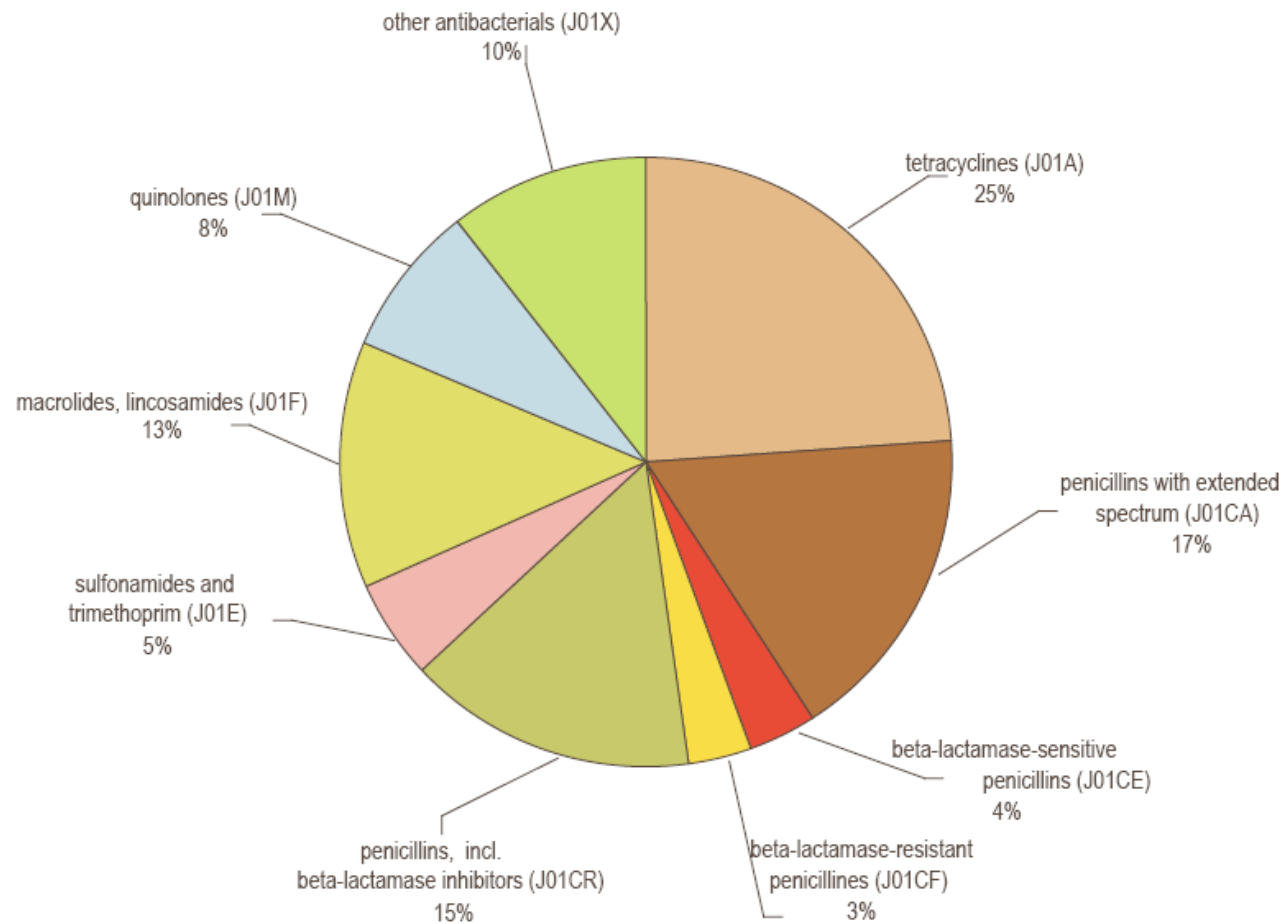


Figure 1. Distribution of the use of antibiotics for systemic use (J01, DDD/1000 inhabitant-days) in primary health care, 2008 (Source: SFK)



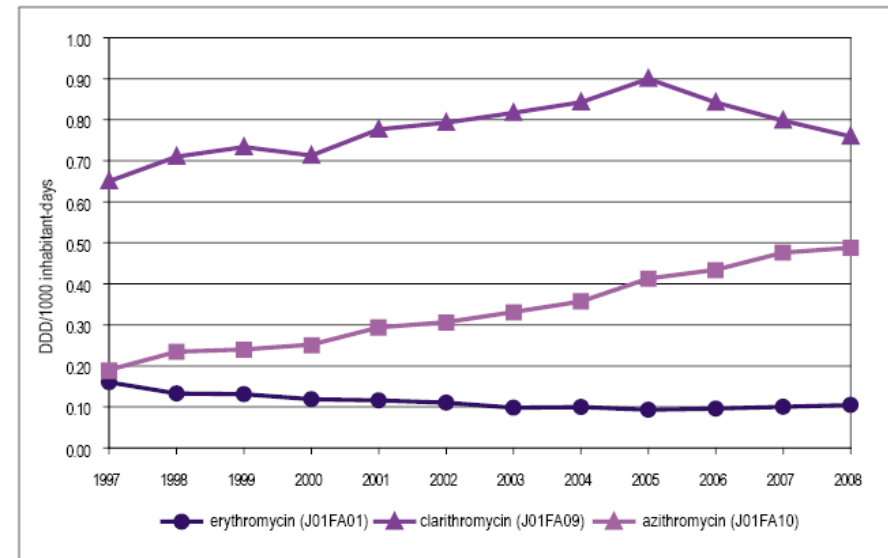
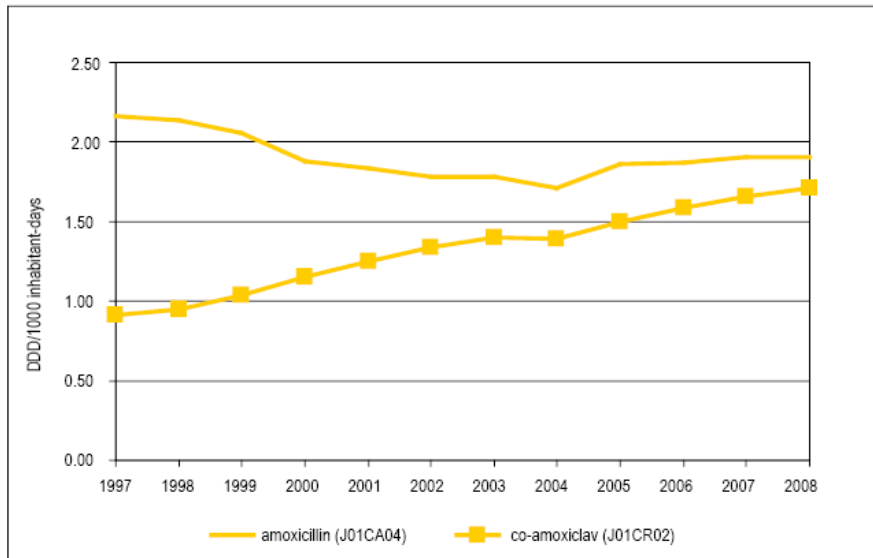
2009 NethMap surveillance highlights outside hospitals

- > 10 % increase in use in a 2 yr period to 11 DDD/1000 inhabitant days
- Replacement by β -lactam + β -lactamase inhibitors, increase in use of fluoroquinolons and macrolides
- Increase in macrolide and tetracycline resistance in pneumococci
- High prevalence of multiresistant *S. aureus* in nursing homes
- Stable low MRSA
- Increase of BLNAR *H. influenzae* to 10%
- Alarming rise in resistant *N. gonorrhoeae*
- Low prevalence of MDTB



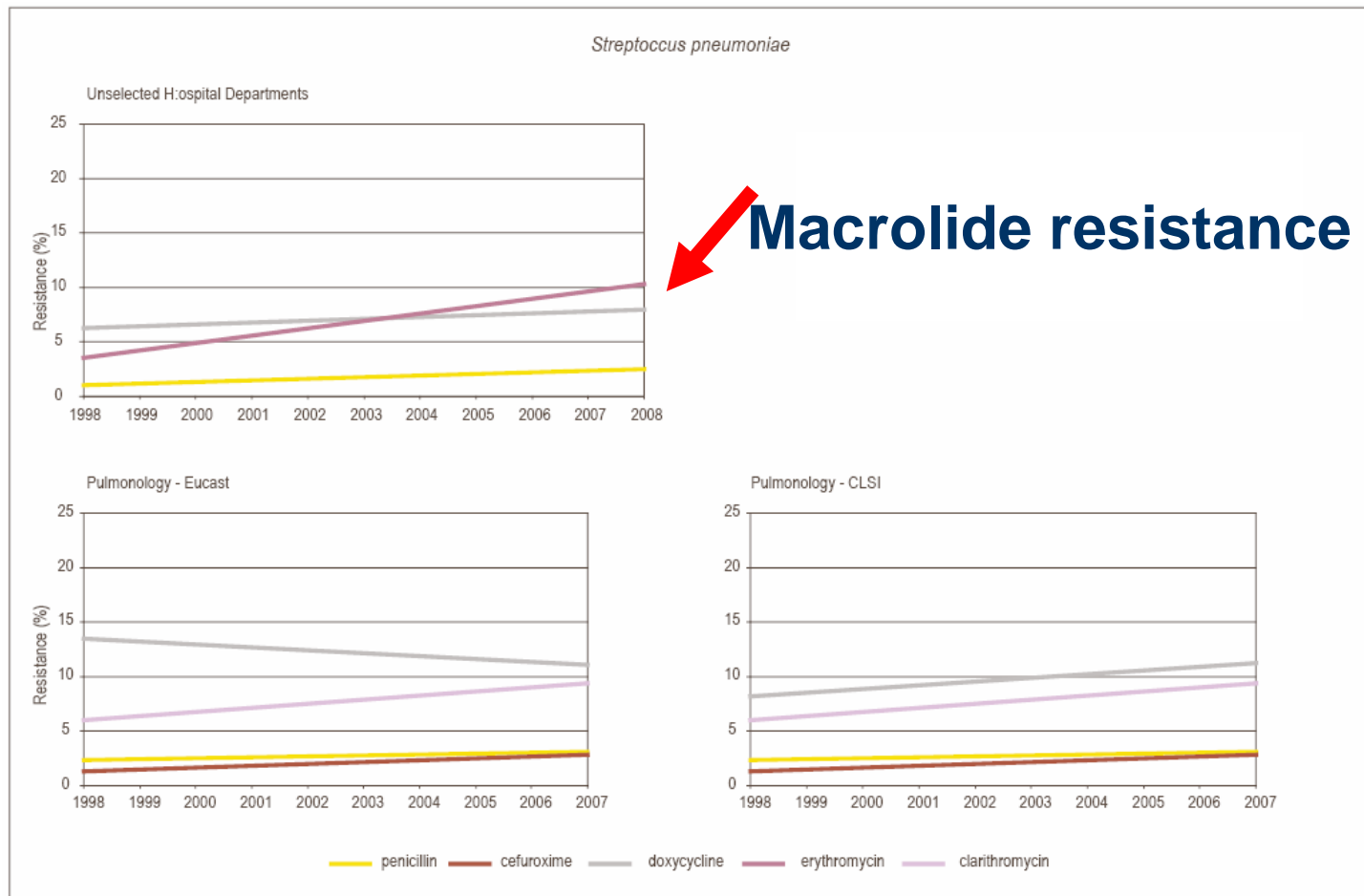
Drug use in primary health care

NethMap 2009



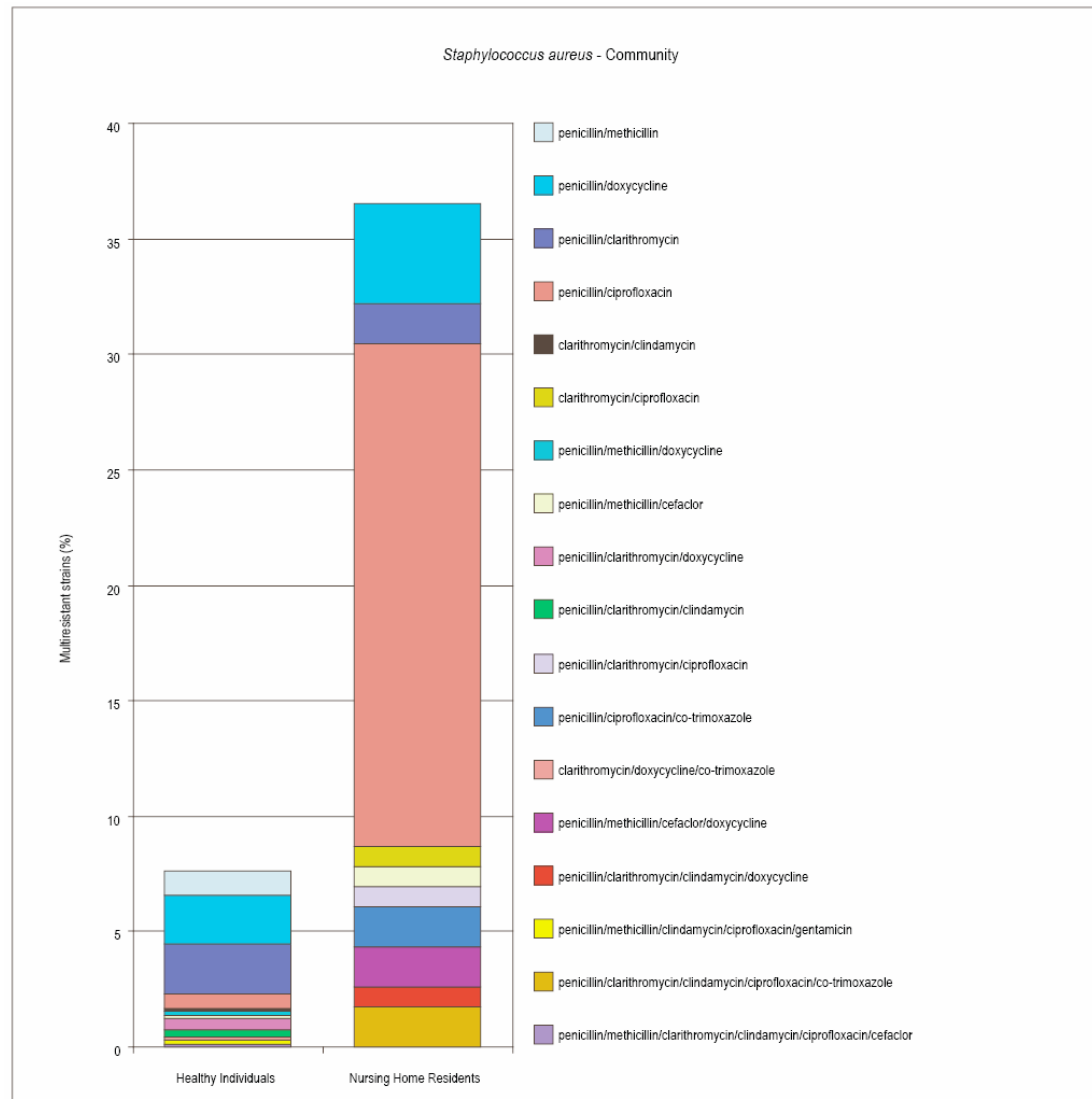
**Replacement of amoxicillin by co-amoxiclav.
Rising trend in use of macrolides**

Trends in macrolide + doxycycline resistance in *S. pneumoniae*.



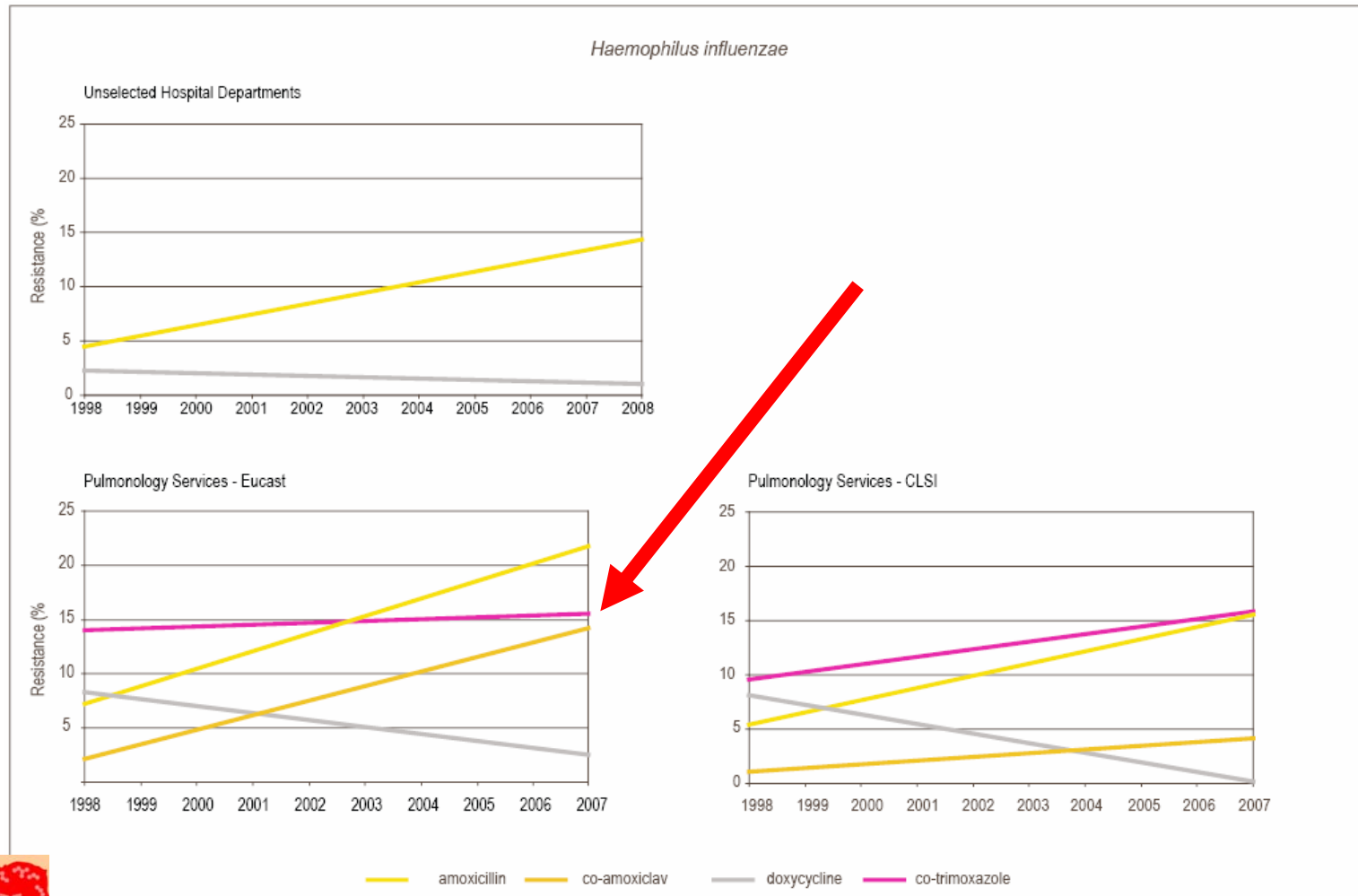
NethMap 2009

Distribution of multiresistance in *S. aureus* in healthy individuals, GP patients and nursing home residents

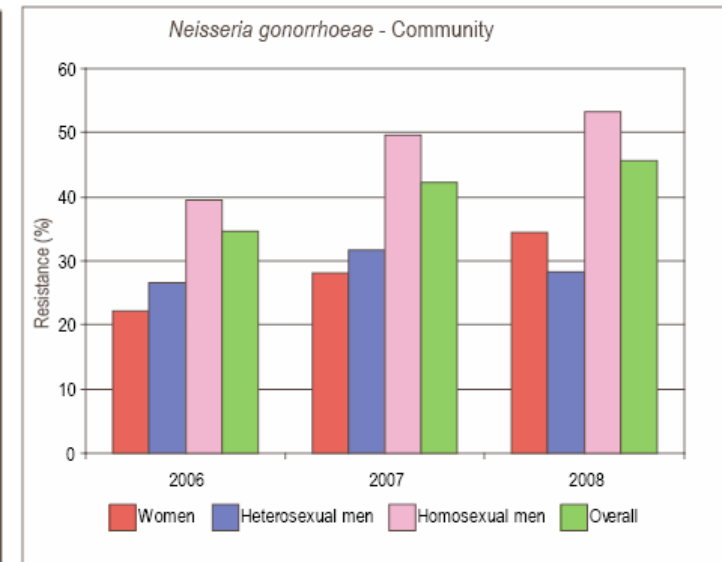
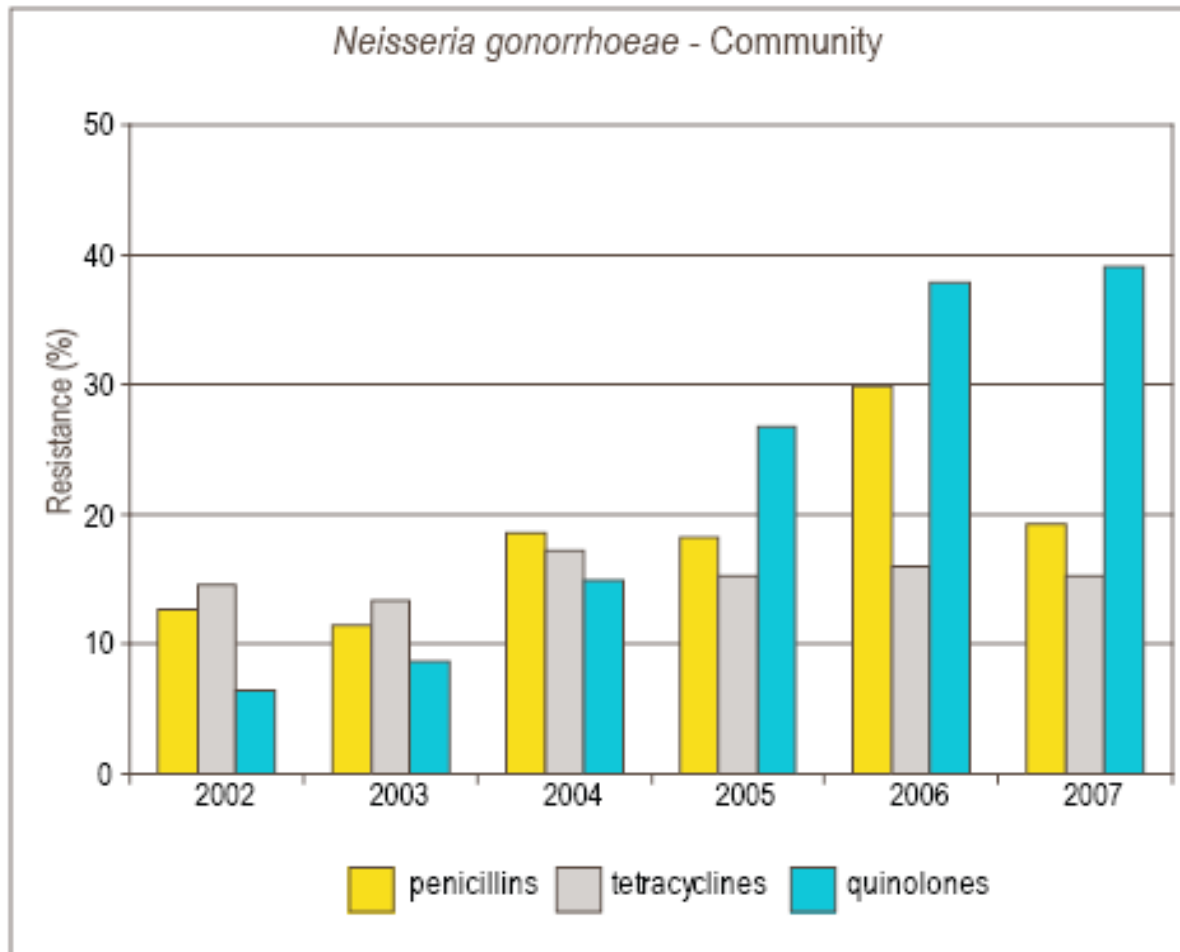


NethMap 2009

Resistance in *H. influenzae* increase in BLNAR strains?



Trends in resistance in *N. gonorrhoeae* GRAS



NethMap 2009



NethMap 2009: Hospitals





Drug use in hospitals

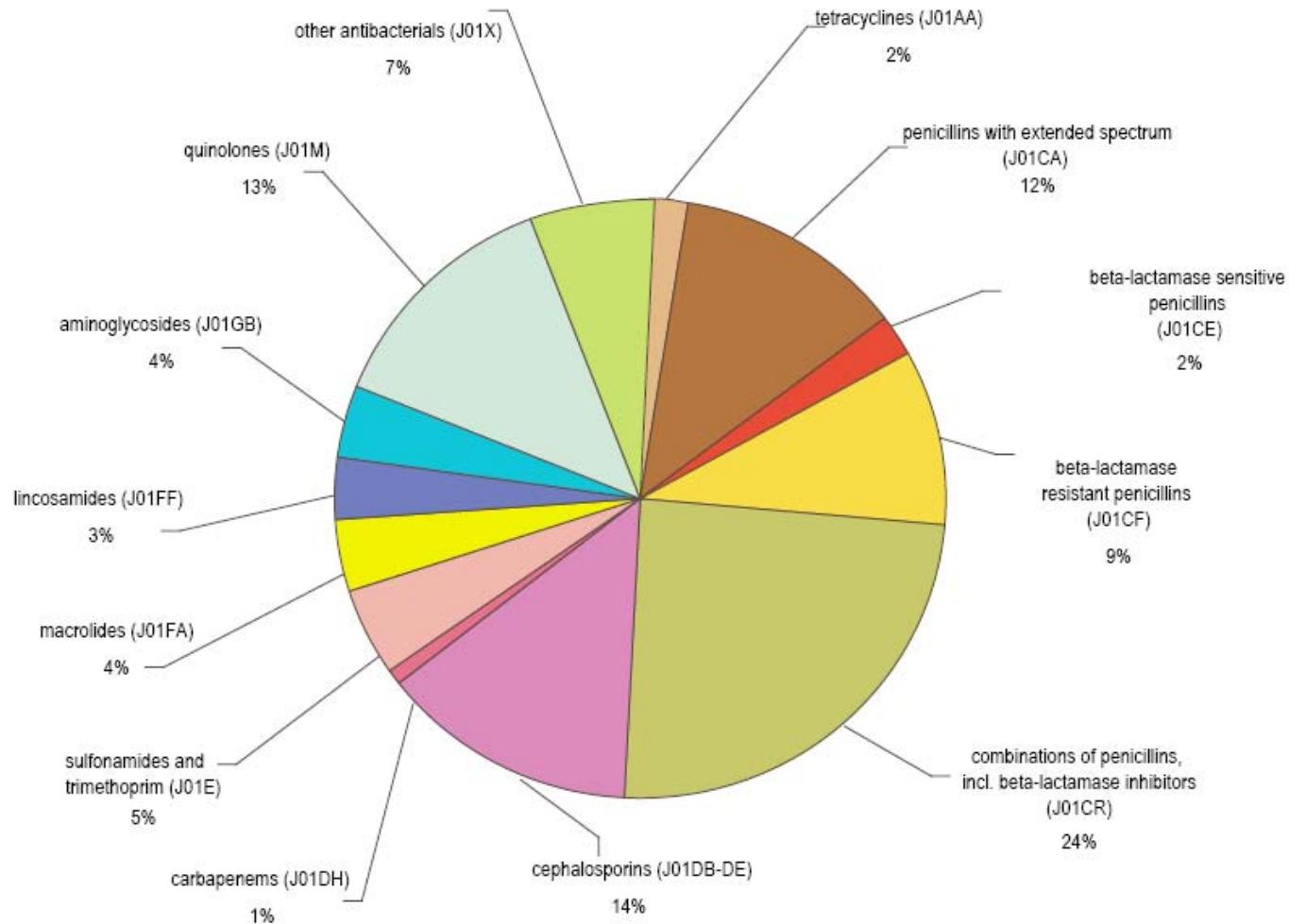


Figure 6. Distribution of the use of antibiotics for systemic use (J01, DDD/100 patient-days) in hospitals, 2007



2009 NethMap surveillance highlights inside hospitals

- Further increase total use but stable use/100 admissions
- increase in antibiotic pressure by cephalosporins, carbapenems and glycopeptides
- CLSI>EUCAST: > 10% resistance to cephalosporins and co-amoxiclav
- Rise of ceftazidime resistant *Klebsiella* in ICU's to 5%
- Antimycotic use university hospitals 6x general hospitals
- Slow 0,8% increase MRSA to 2.8% of which 0,7 % by animal husbandry related strains

“In relation to antibiotic resistance development, the measure of antibiotic use should be a reflection of the antibiotic selection pressure exerted”.

Antibiotic use in hospitals
Hospital resource indicators 2003-2007

DDD per 100 patient-days

DDD per 100 admissions

No. Beddays + 6,4 %

No. Admissions + 21%

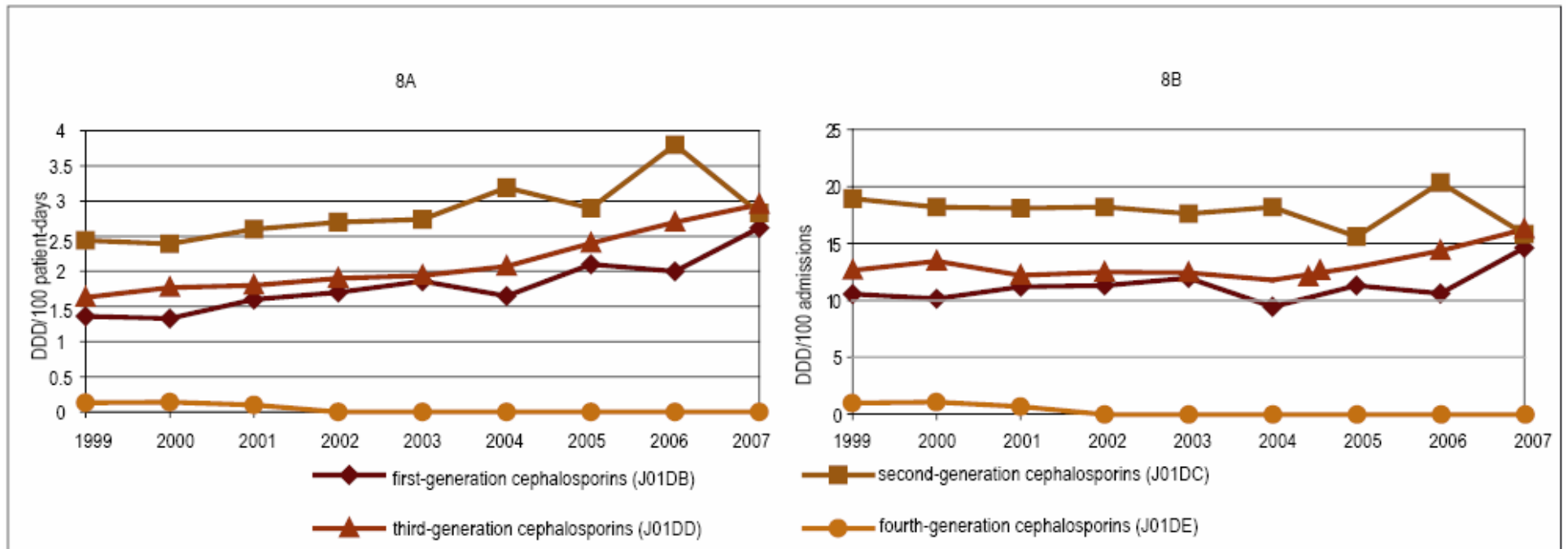


NethMap 2009

- **> hospital & patient exposure:** cephalos, carbapenems, lincos, glycopeptides, nitrofurantoin
- **> hospital & = patient exposure:** extended spectrum penicillins, penicillin-penicillinase inhibitor combinations, macrolides, F-quinolones
- **= hospital & < patient exposure:** tetracyclines, amoxicillin, piperacillin, non F-quinolones,
 - trimethoprim
- **= hospital & ≤ patient exposure:** aminoglycosides, trimethoprim-sulfa

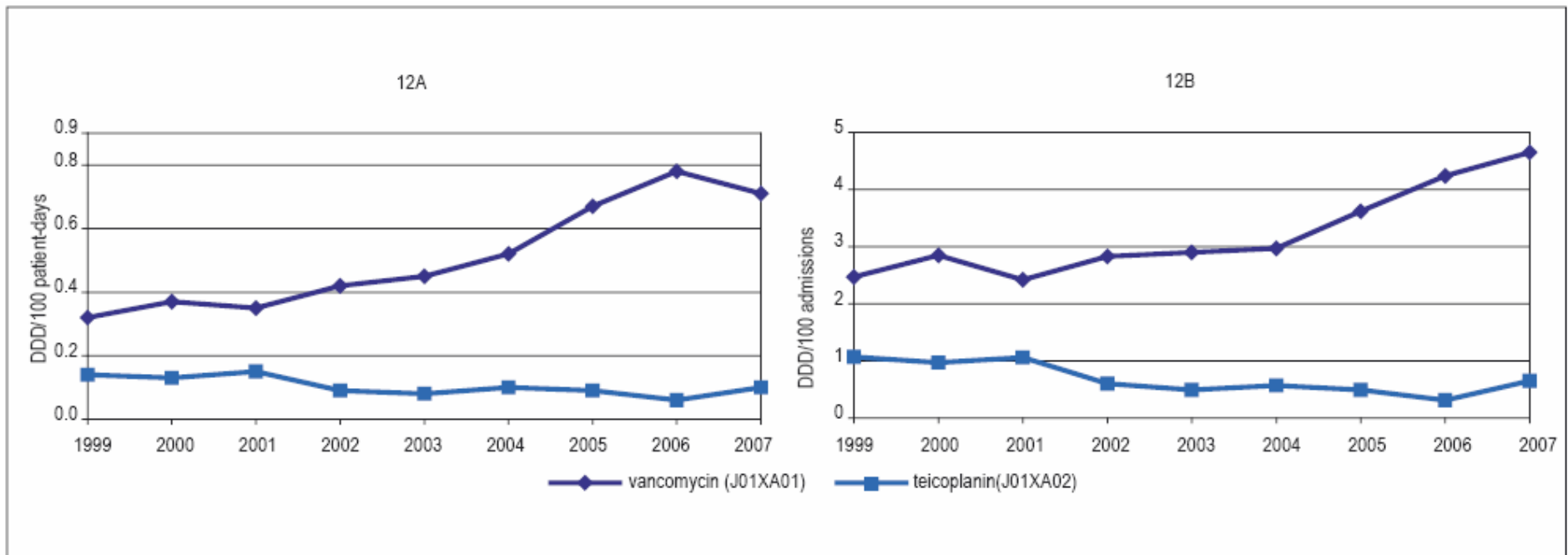


Trend in cephalosporin use in hospitals



NethMap 2009

Trend in glycopeptide use in hospitals



DDD's/100 patient days

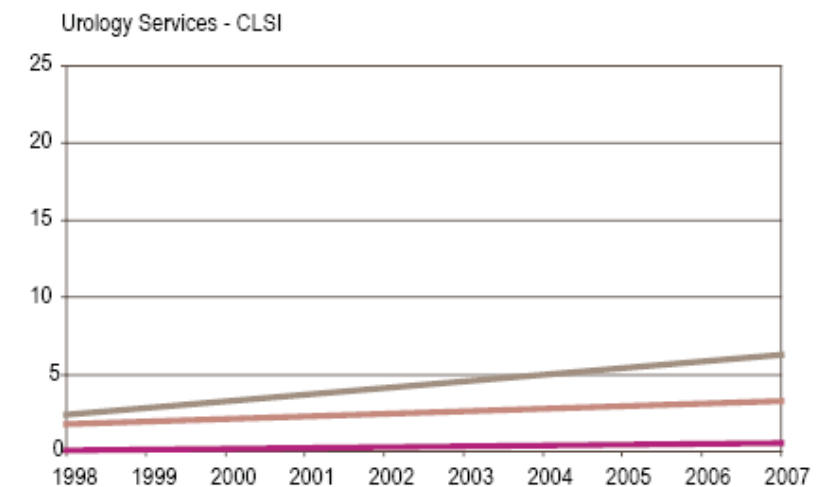
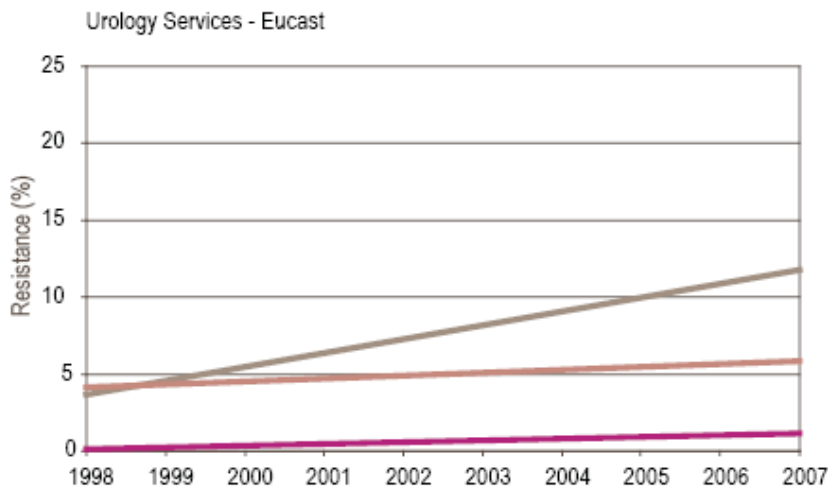
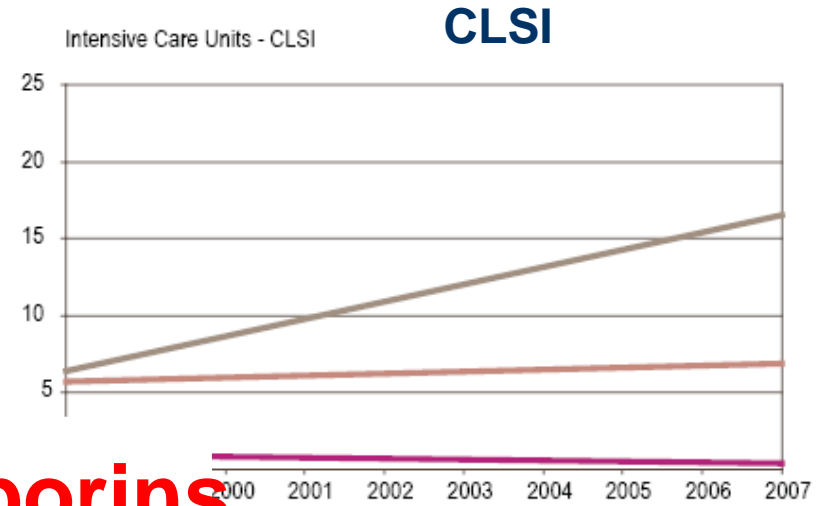
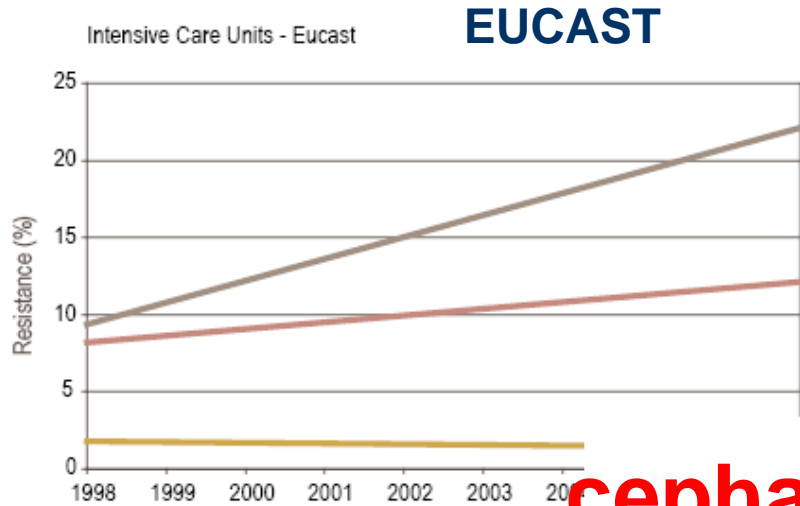
DDD's/100 admissions



Netmap
2009

Conversion from CLSI to EUCAST

Escherichia coli

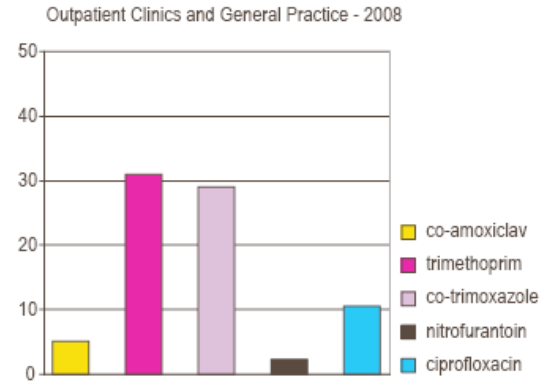
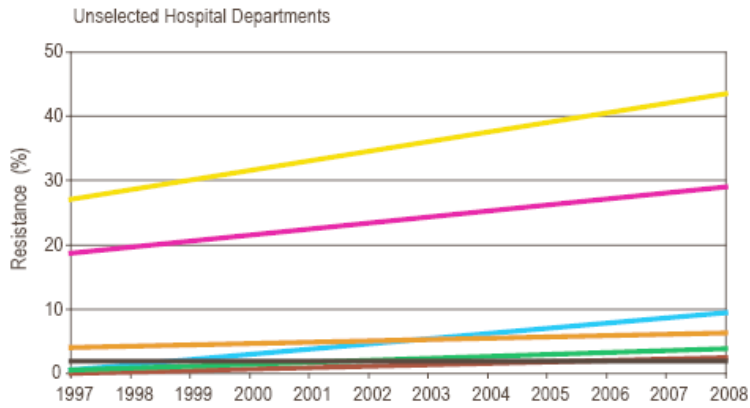


cephalosporins



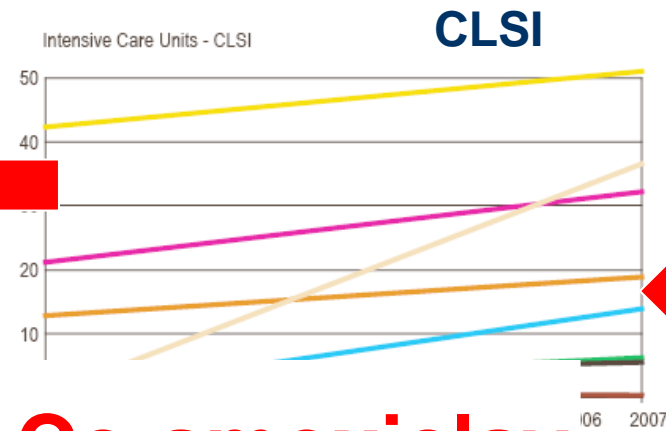
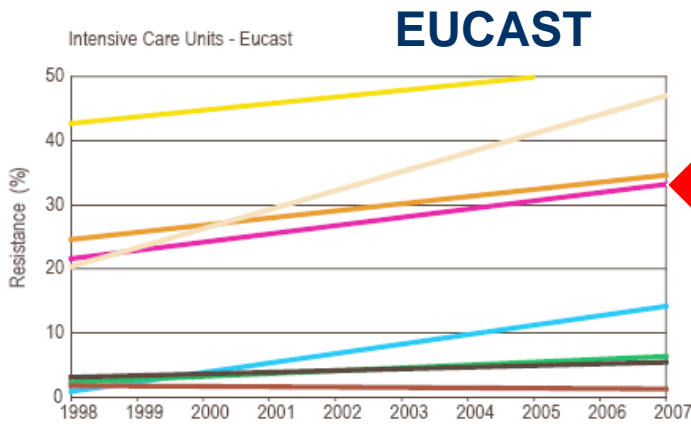
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— cefaclor — cefuroxime — ceftazidime

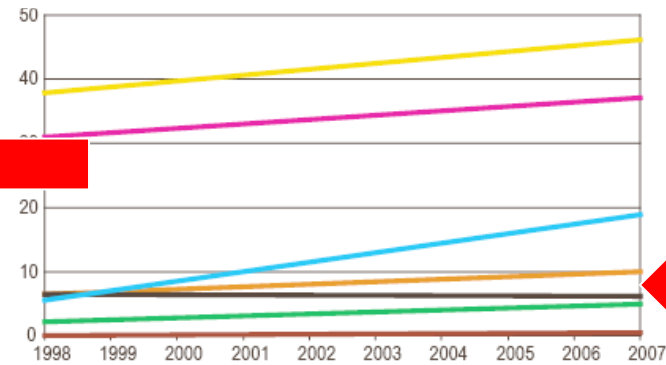
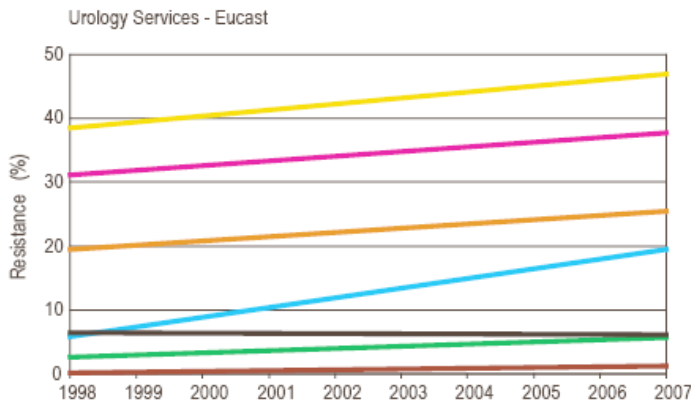


NethMap 2009

E. coli



Co-amoxiclav

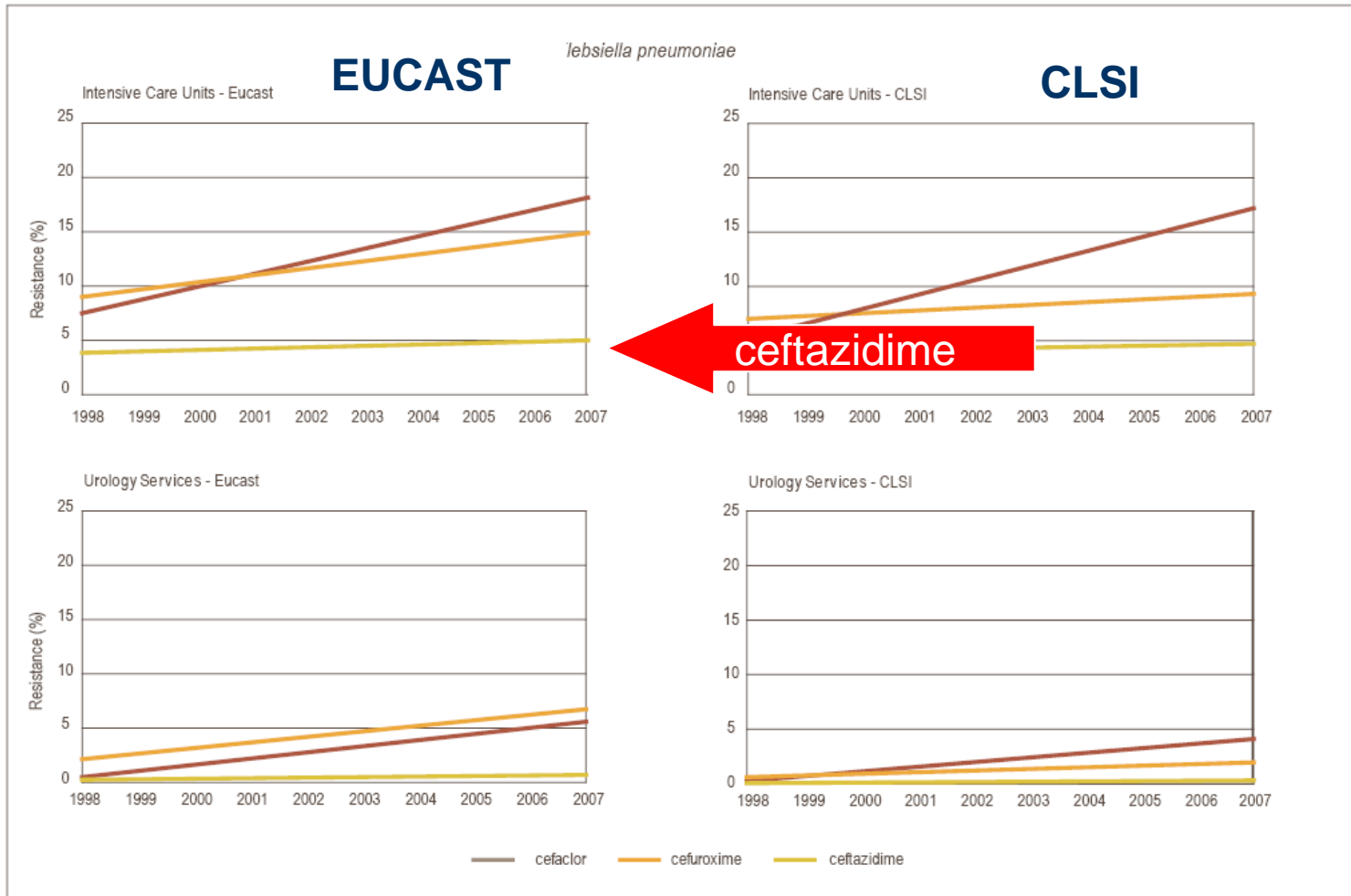


— amoxicillin
 — co-amoxiclav
 — piperacillin
 — cefazidime
 — gentamicin
 — trimethoprim
 — nitrofurantoin
 — ciprofloxacin

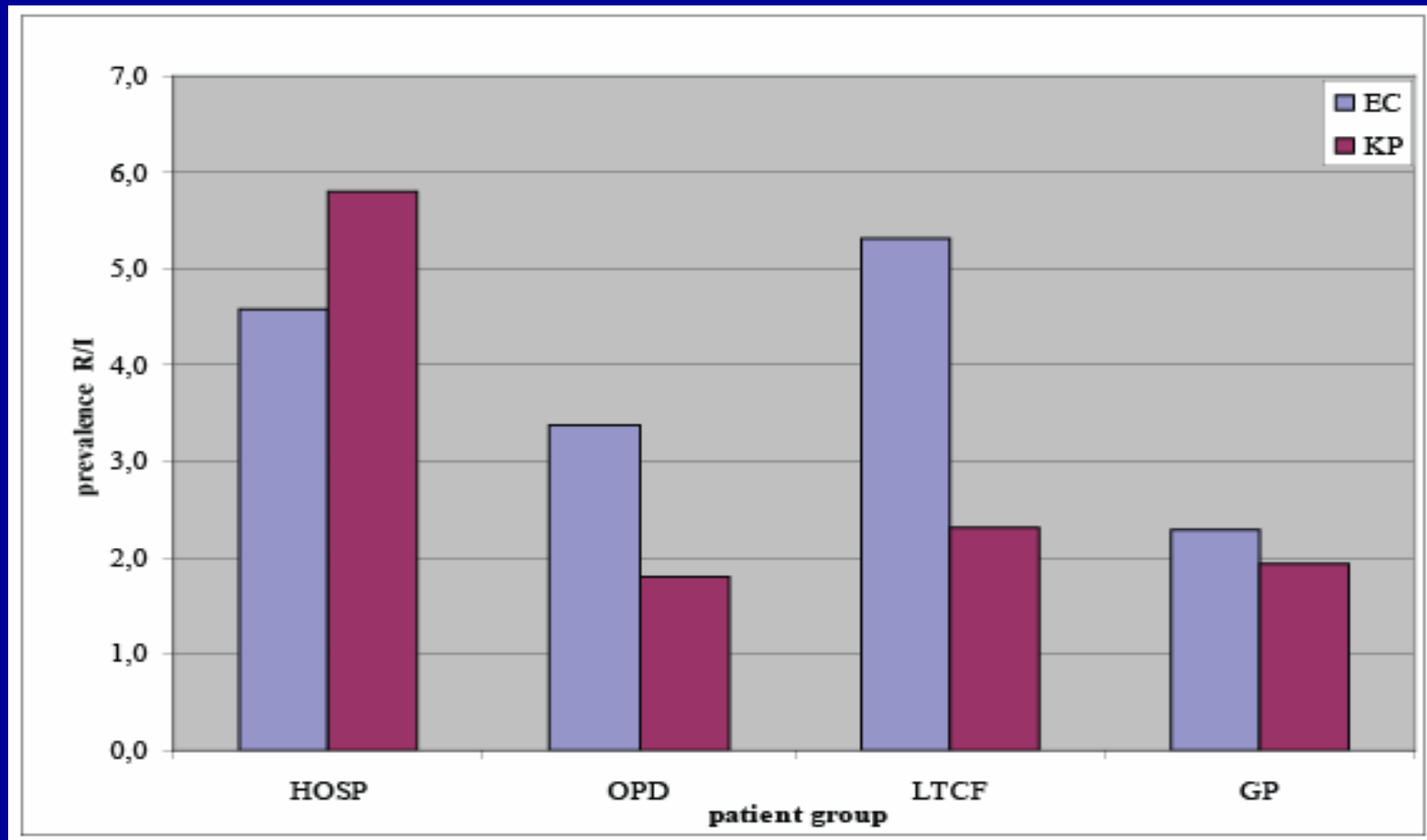
Resistance of *Klebsiella pneumoniae* in hospitals



NethMap 2009



ESBLs have become a problem in UTIs in- and outside the hospital
(total N of isolates included: 30.096 *E. coli* and 3.750 *K. pneumoniae*)

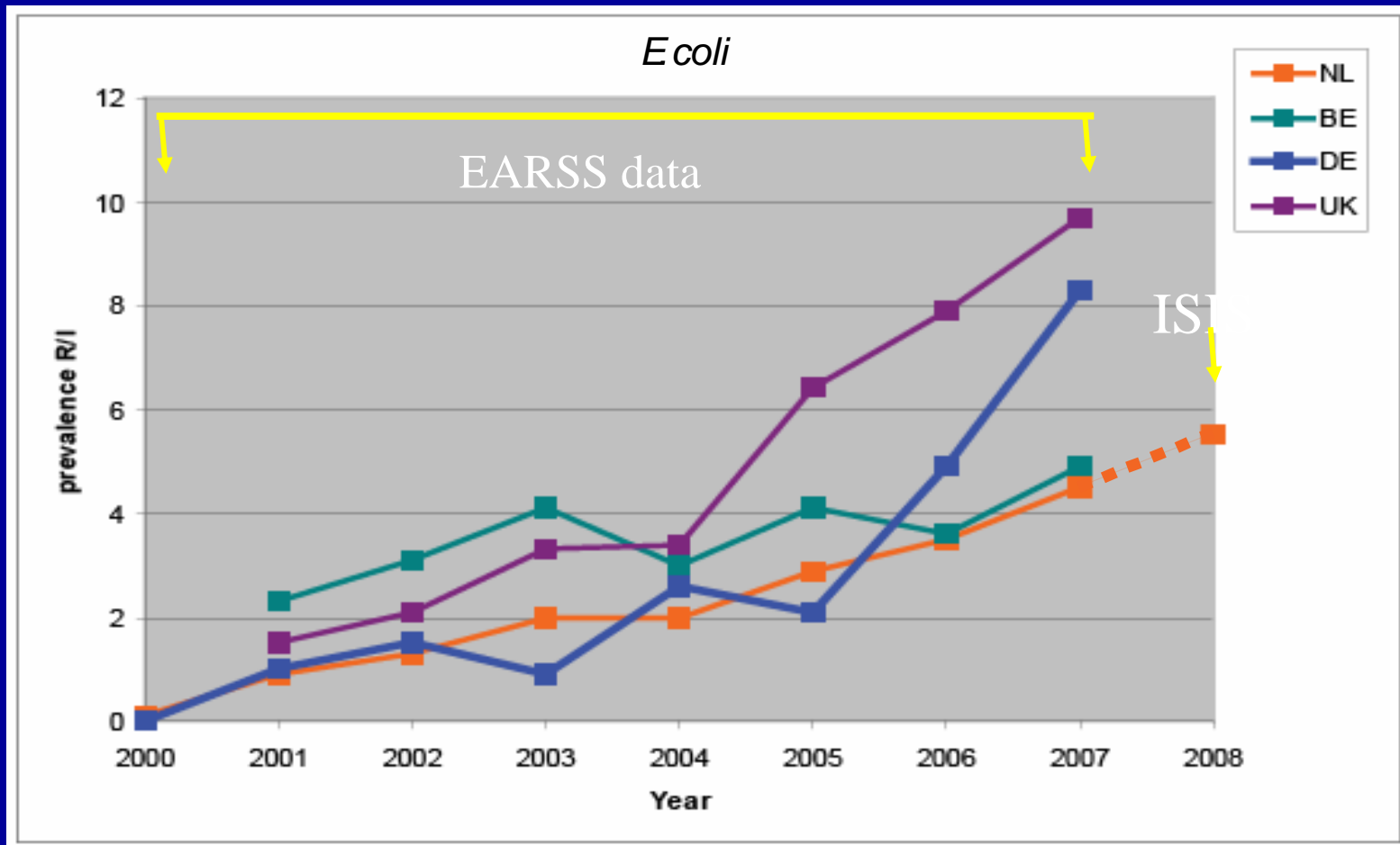


OPD, out patient department; LTCF, long term care facility; GP, general practitioner

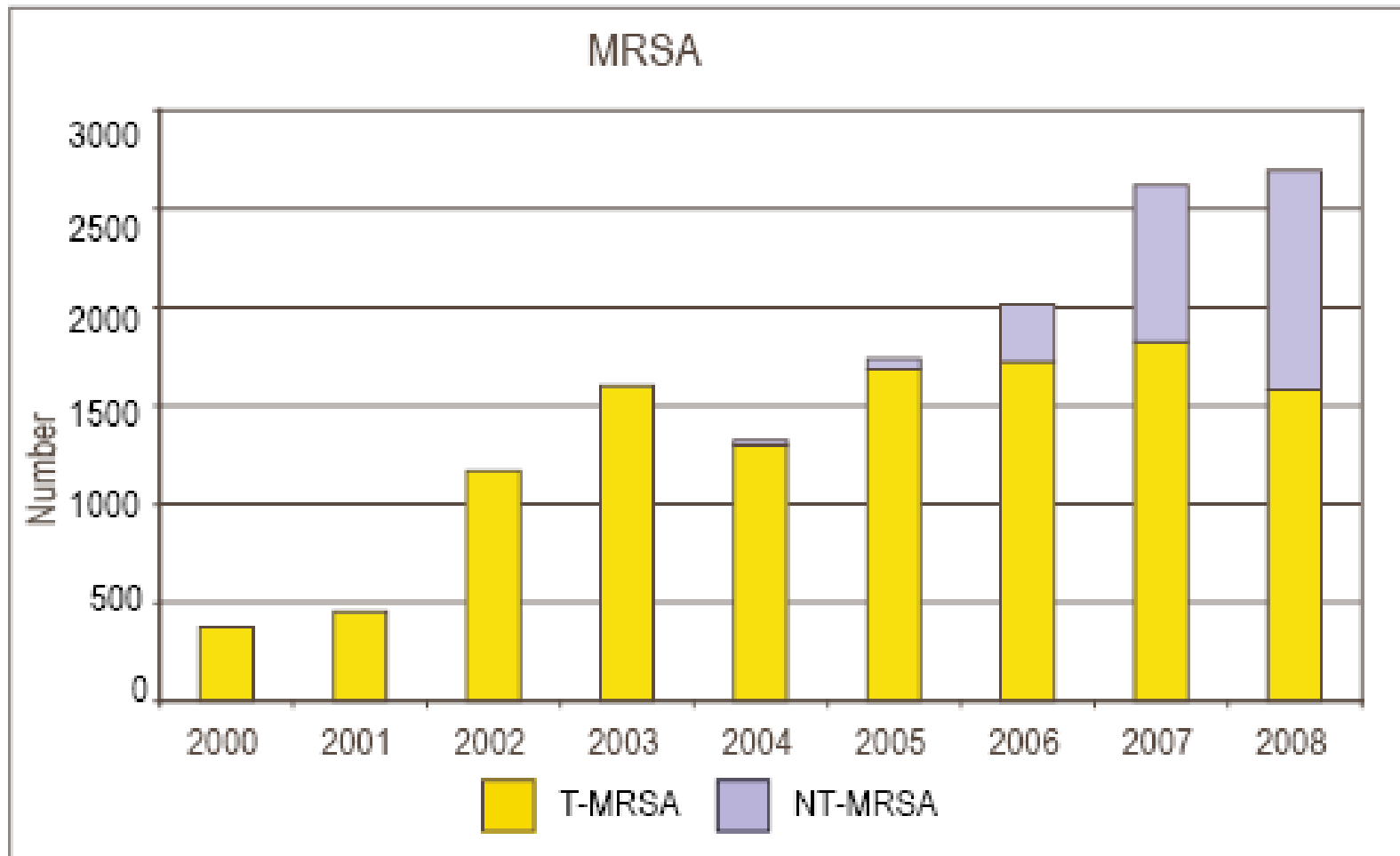
2008 Prevalence of isolates I/R to CEPH3 among 814 blood & CSF *E. coli* isolates :

5.2%

(Prevalence among 164 *K. pneumoniae* : 7.9%)



**42% increase compared to 2006.
Different distribution over the country**



The background of the slide is a dark red, irregularly shaped area that resembles a torn piece of paper. This red area is filled with numerous small, light-colored icons representing various types of bacteria and pills. The bacteria are depicted as small circles, some in pairs or chains, and some as elongated, rod-like shapes. The pills are shown as small, light-colored rectangular shapes. The overall effect is a dense, textured background of medical and pharmaceutical symbols.

SWAB

STICHTING WERK GROEP ANTIBIOTICABELEID

First results of the new Dutch Infectious Diseases Surveillance Information System-Antimicrobial Resistance (ISIS-AR)

Epidemiology of extended-spectrum beta-lactamases (ESBLs) in the Netherlands

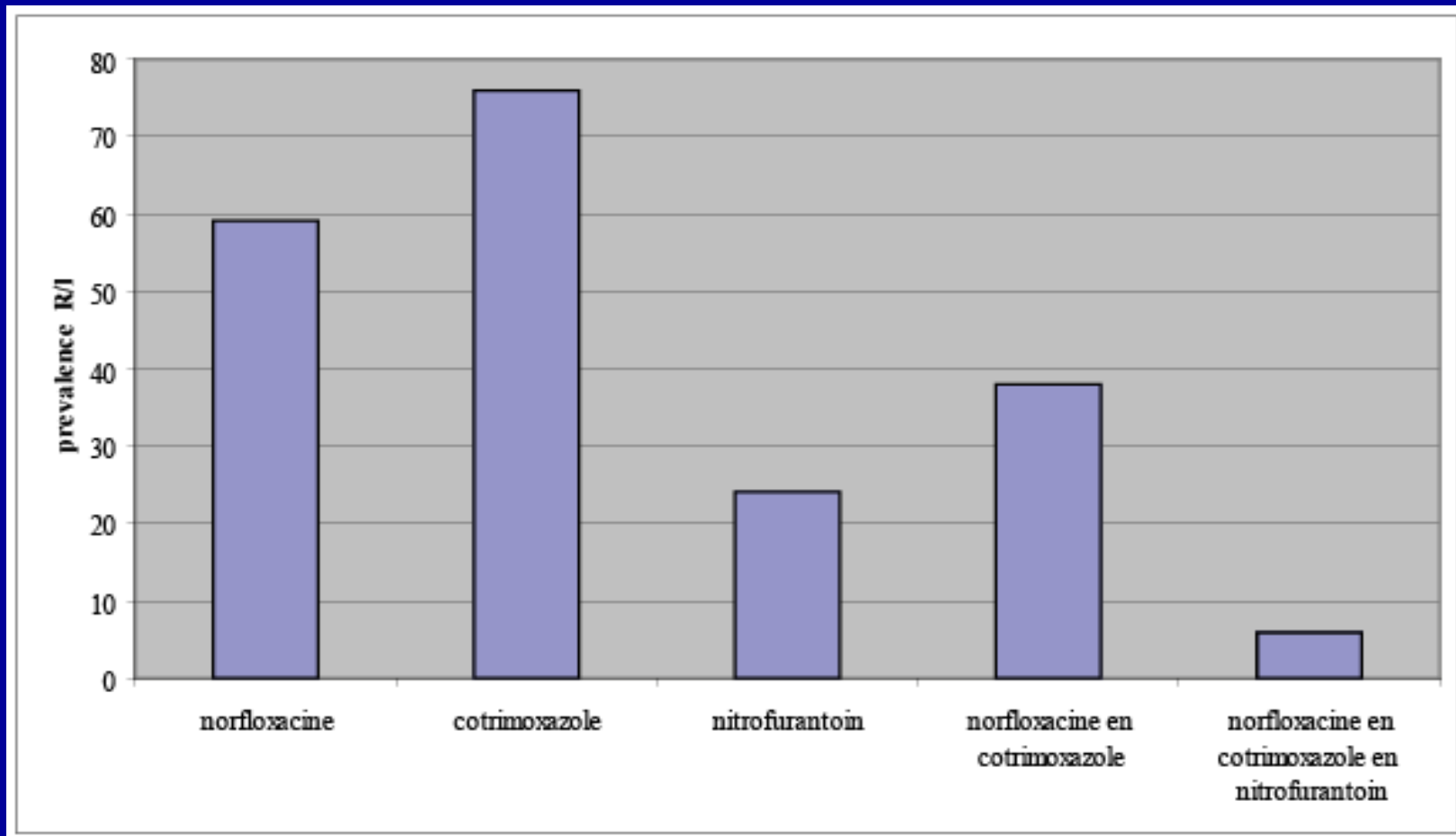
M. A. Leverstein-van Hall, J. Muilwijk, E. Boel, J. Marcelis, R. Vreede, W. Dorigo-Zetsma, L. Sabbe, B. Hendrickx, J. Schellekens, N. van de Sande-Bruinsma (Bilthoven, Utrecht, Tilburg, Delft, Hilversum, Goes, Groningen, Terneuzen)

Aim of study: To determine the prevalence of *Escherichia coli* (EC) and *Klebsiella pneumoniae* (KP) isolates (intermediate) resistant (I/R) to 3d generation cephalosporins (CEPH3) in

- 1) blood and CSF isolates
- 2) urine isolates from the hospital (HOSP), out-patient-departments (OPD), long-term care facilities (LTCF) and general practitioner (GP).

Data of the first clinical isolate per species per body site per patient per lab (N=11) collected in 2008 were analyzed

High rate of co-resistance for oral drugs in ESBL positive urine isolates from the general practitioner (N=365)



Conclusions

- Dutch ESBL prevalence rates among blood and CSF isolates are increasing and have become similar to the rates in neighboring countries
- ESBLs have a significant prevalence outside the hospital
- About half of the ESBL positive isolates is co-resistant to quinolones, aminoglycosides and cotrimoxazole
- Oral treatment of urinary tract infections is hampered by multi-resistant ESBL positive isolates, thus increasing morbidity and costs