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Antibiotiques en médecine : les espoirs du soir !

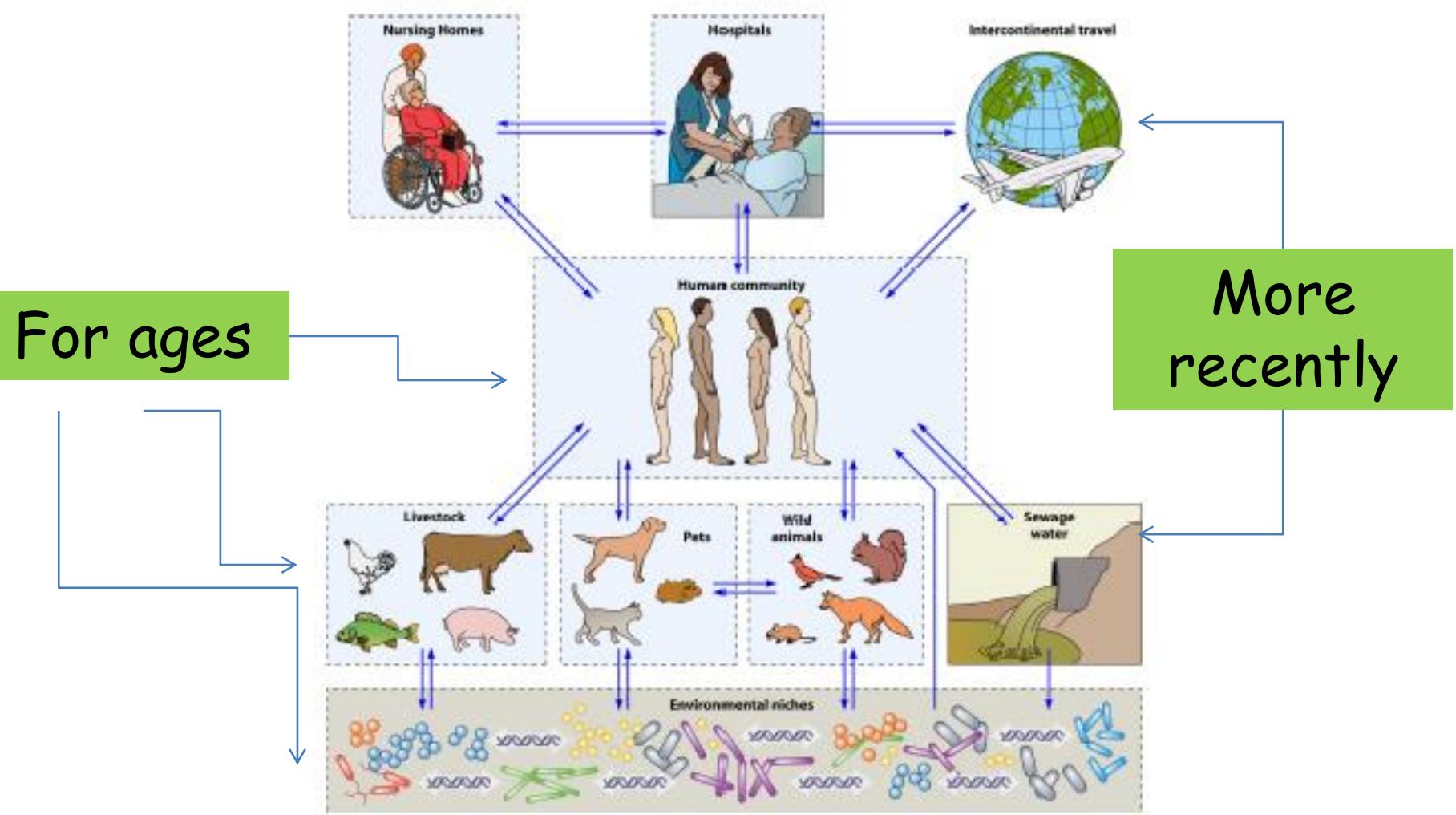
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DOI : DaVolterra (French Law Innovation and Research)

Bacteria circulate between ecosystems



Somewhere in the Indian subcontinent

(Credit F. Baquero)



Consommation des antibiotiques en ville

Europe – 2002

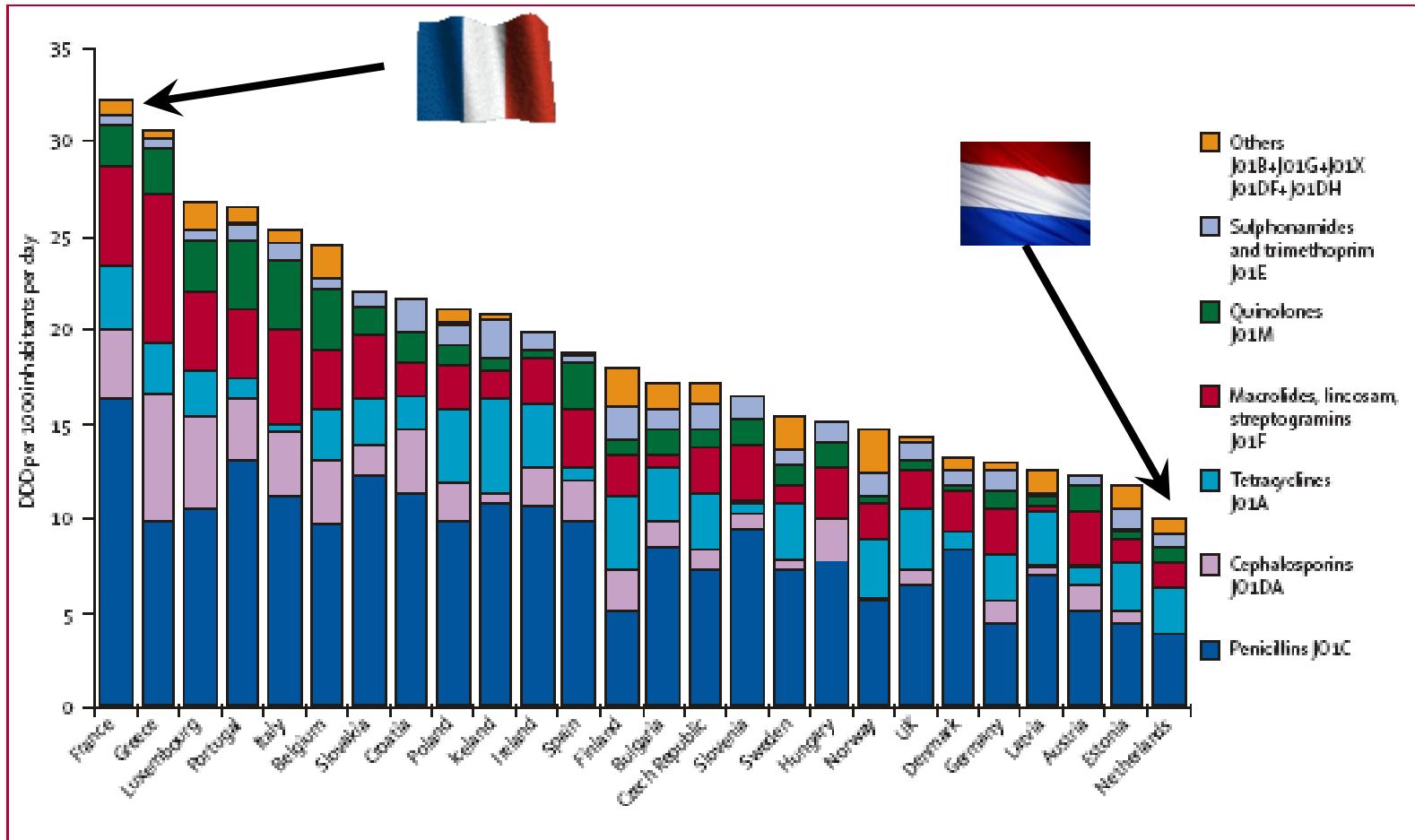
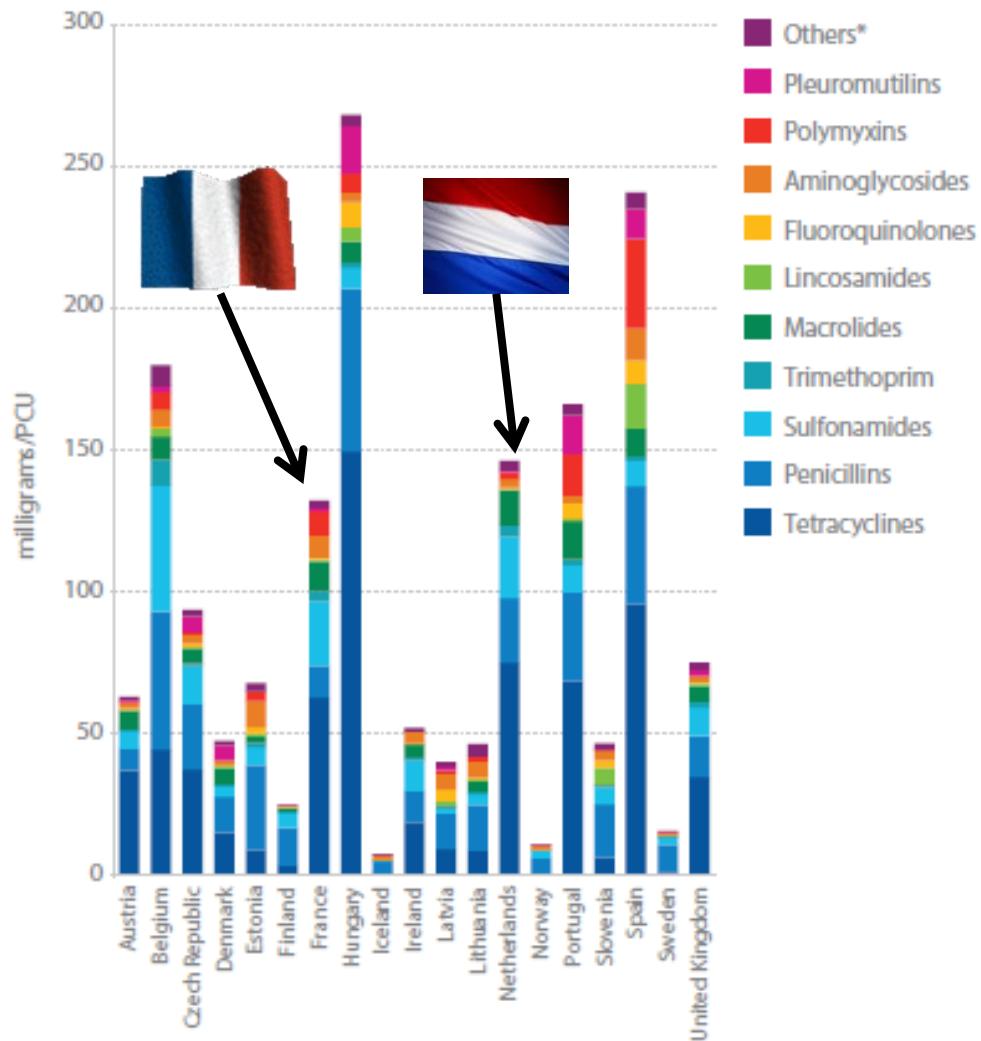


Figure 1: Total outpatient antibiotic use in 26 European countries in 2002

ESAC Goossens et al., Lancet 2005

Figure 19: Sales of Antibiotics for Food-Producing Animals⁴³

Sales of antibiotics for food-producing animals, including horses, in milligrams of antibiotics per population correction unit (PCU, i.e. 1 kilogram of animal), 2010

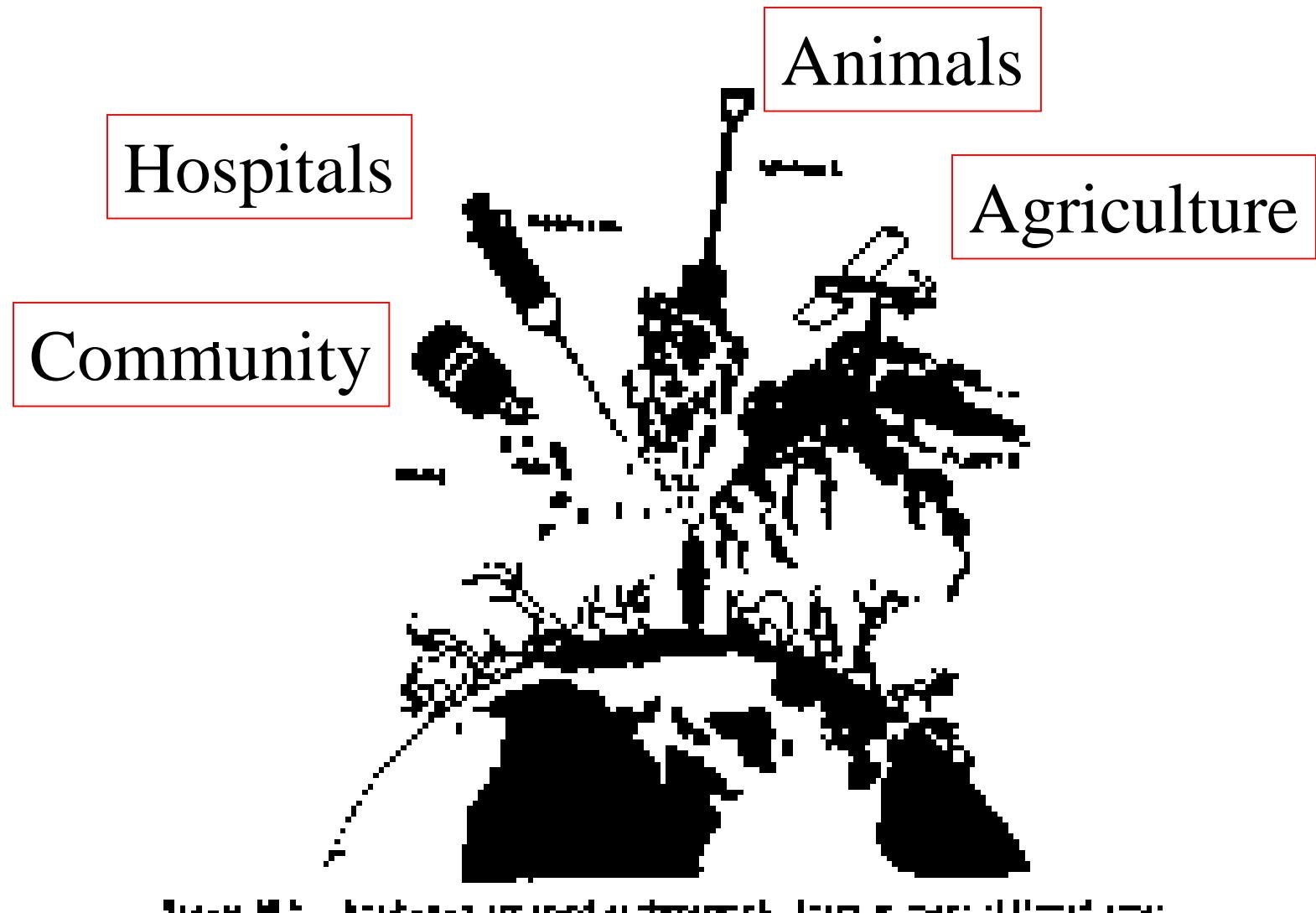


Source: Adapted from *Sales of Veterinary Antimicrobial Agents in 19 EU/EEA Countries in 2010*. 2012. European Medicines Agency.

Quantities of antibiotic use

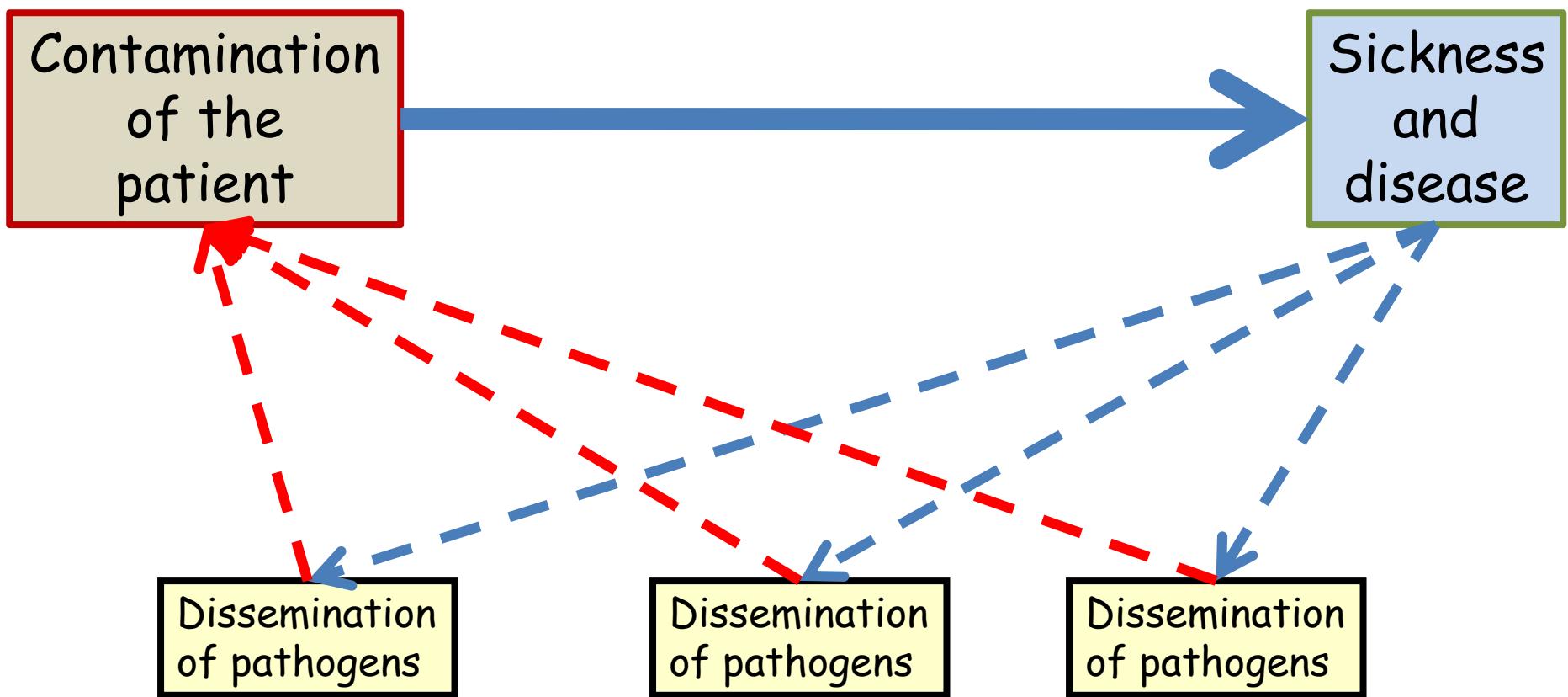
- No solid global figures (in the hands of academia at least...);
- But **millions of tons** altogether since 1945 :
 - In humans because of the miracle in the first patients
 - In animals because of the miracle in humans
 - In agriculture because bacterial diseases matter there too!
 - Most of it in non infected subjects!!!

Global use of antibiotics

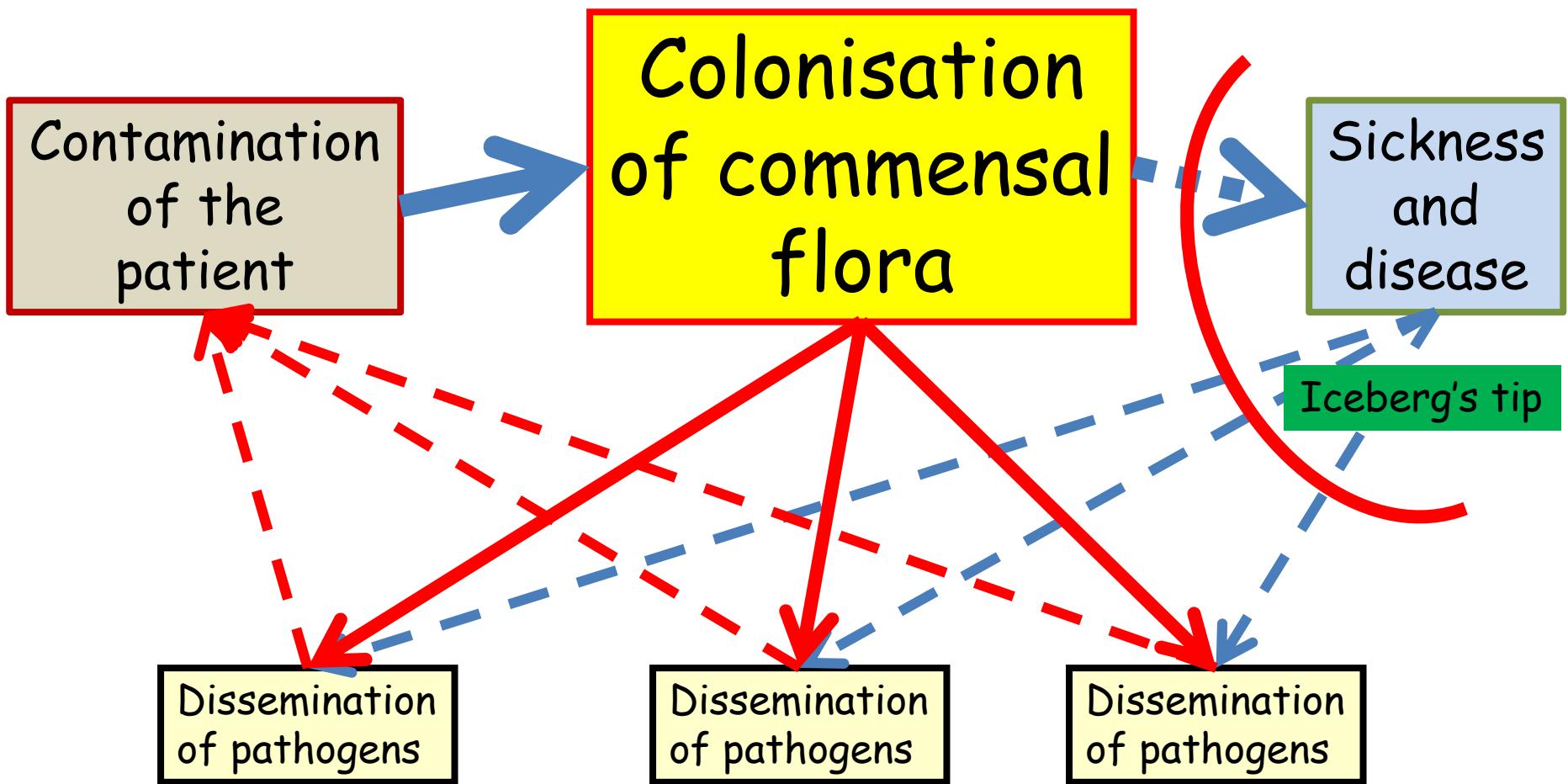


Source : The antibiotic paradox, S. Levy

« Classical » natural history of *E. coli* infections



« New » natural history of bacterial infections



« New » natural history of bacterial

Ce modèle s'applique
particulièrement aux *E. coli*
multirésistants (E-ESBL) :

- ✓ Commensaux
- ✓ Pathogènes
 - Infections urinaires
 - Septicémies

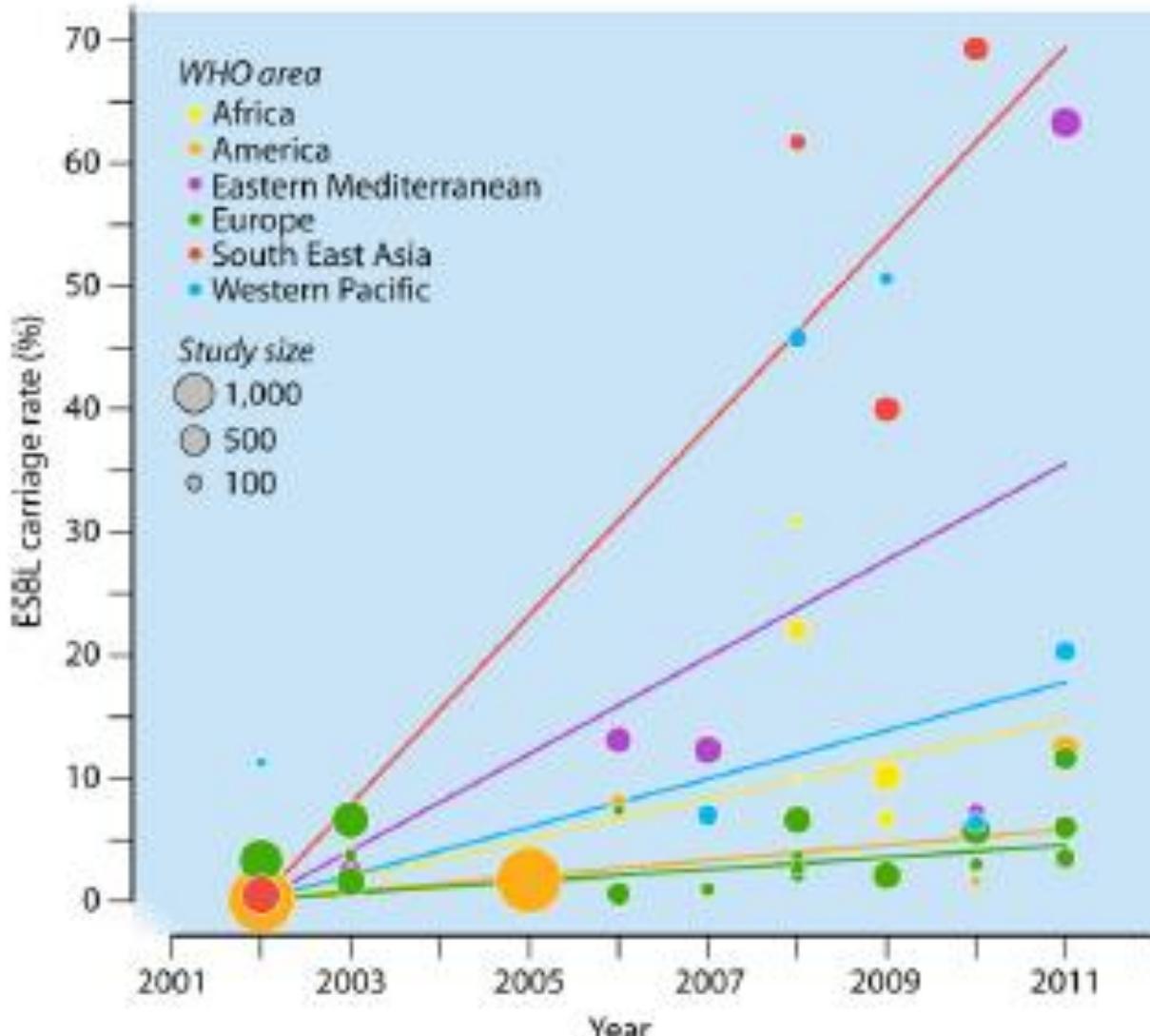
DISSEMINATION
of pathogens

DISSEMINATION
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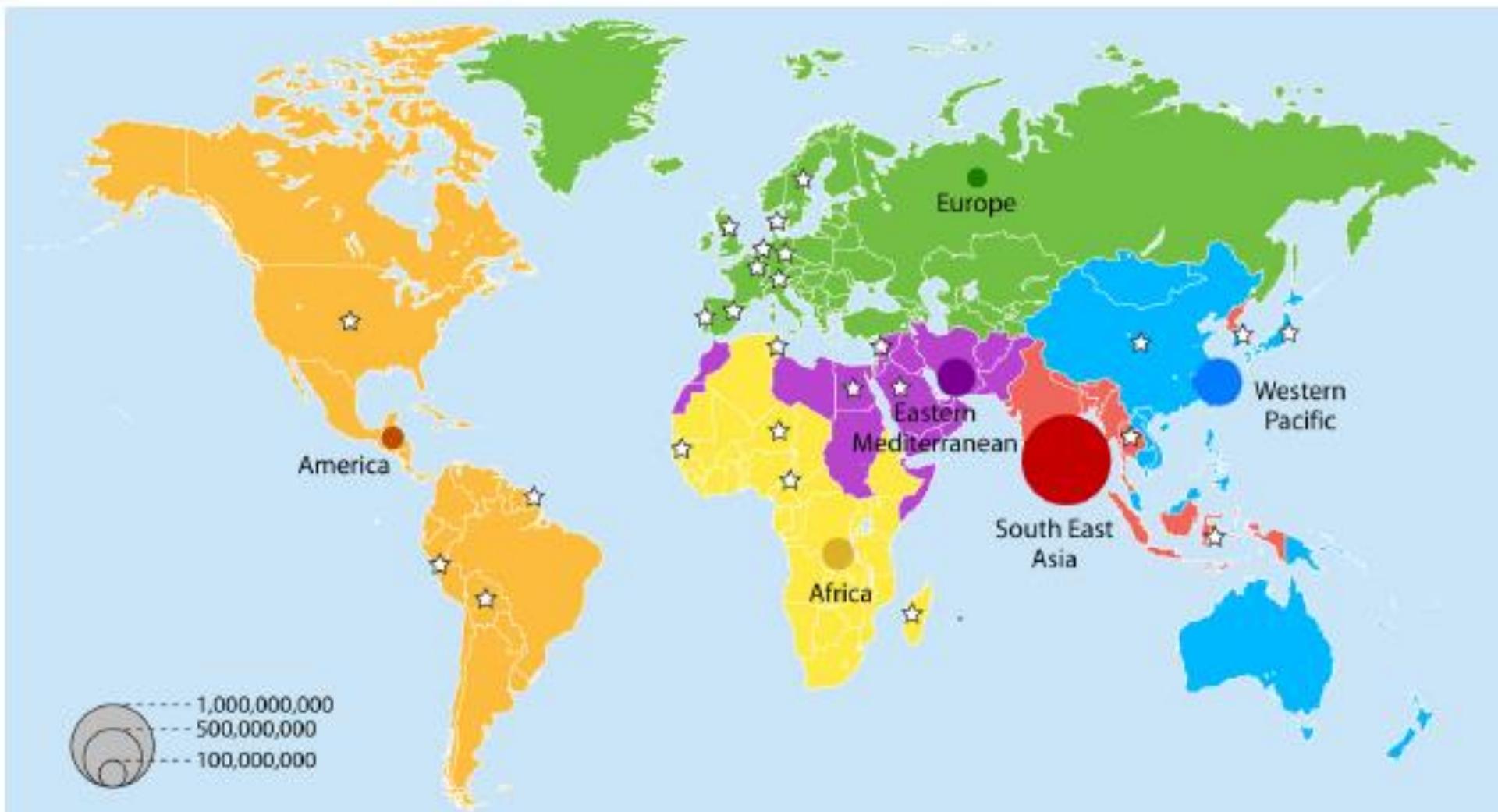
DISSEMINATION
of pathogens

Trends in E-ESBL carriage overtime

(Woerther *et al.* CMR, 2013)



Estimated number of E-ESBL carriers (Woerther *et al.* CMR 2013)



We have only three tools to fight AMR...

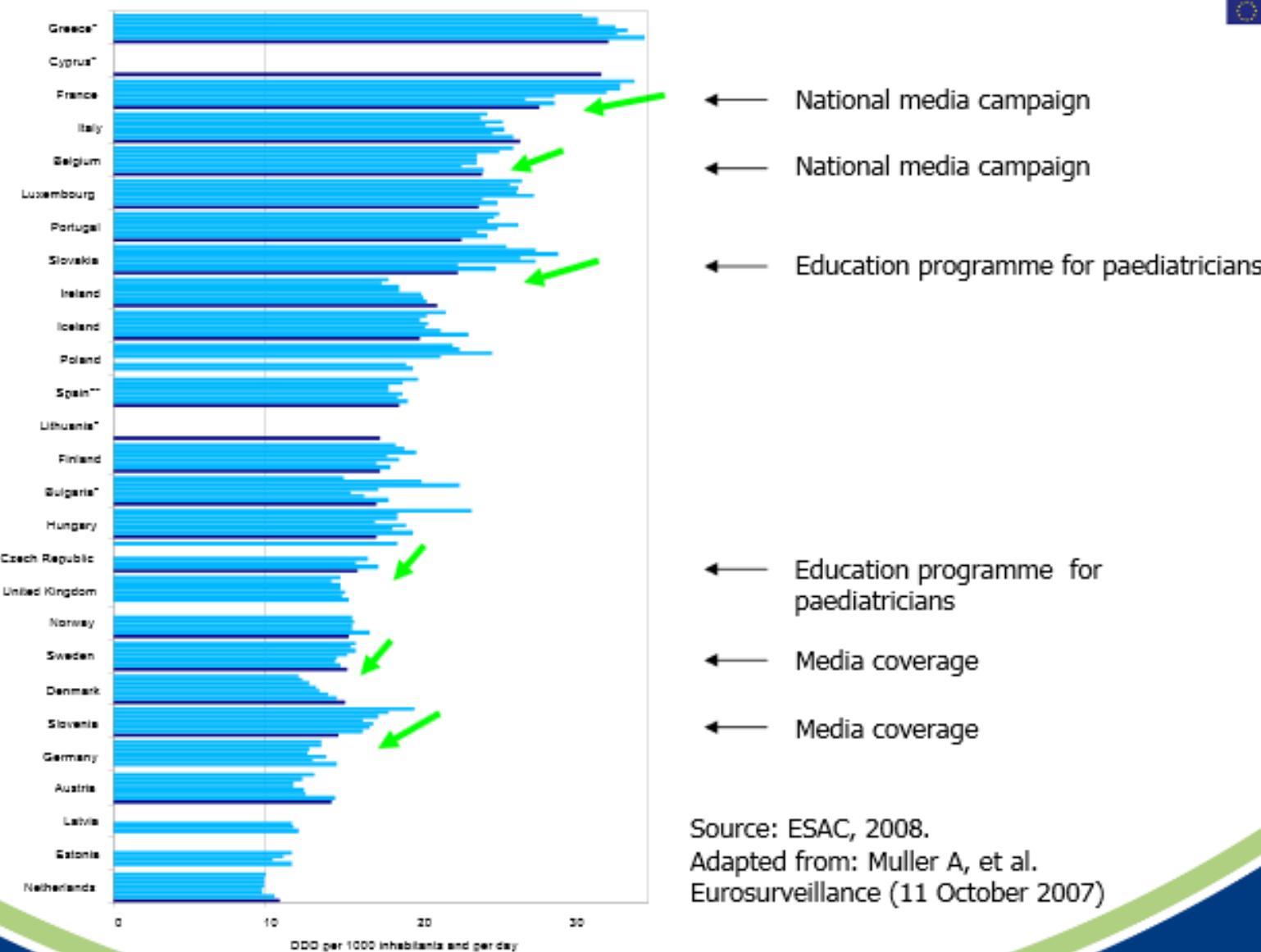
1. Hygiene : works in hospitals (MRSA), difficult in the community
2. Develop new antibiotics : No established Economic Model...
3. **Reduce unnecessary antibiotic usage.**



LATEST FIGURES ON **ANTIBIOTIC RESISTANCE** IN EUROPE

Zsuzsanna Jakab, ECDC Director

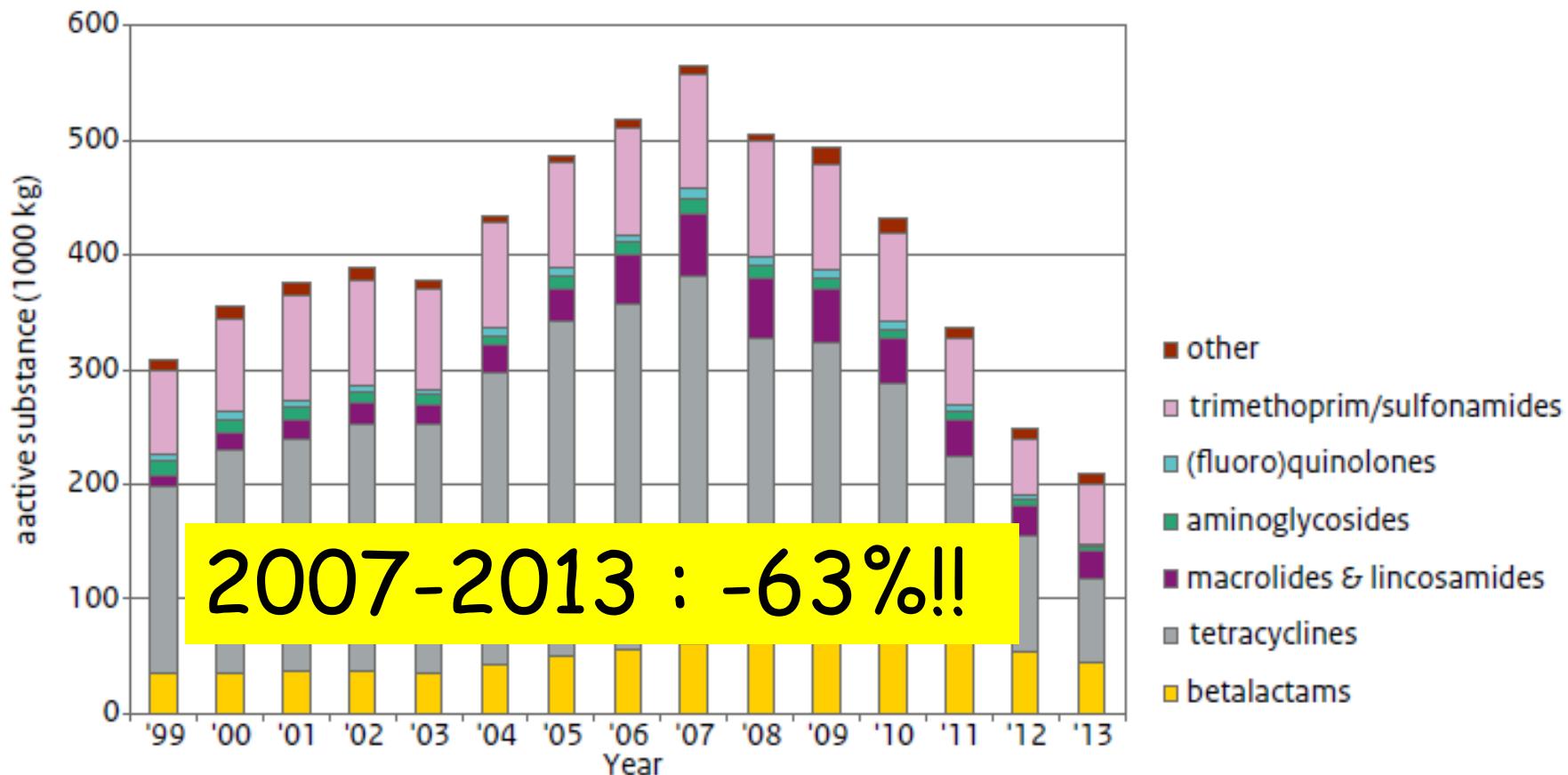
Total Outpatient Antibiotic Use (ATC J01) in 27 European Countries, 1999-2006



Source: ESAC, 2008.
Adapted from: Muller A, et al.
Eurosurveillance (11 October 2007)

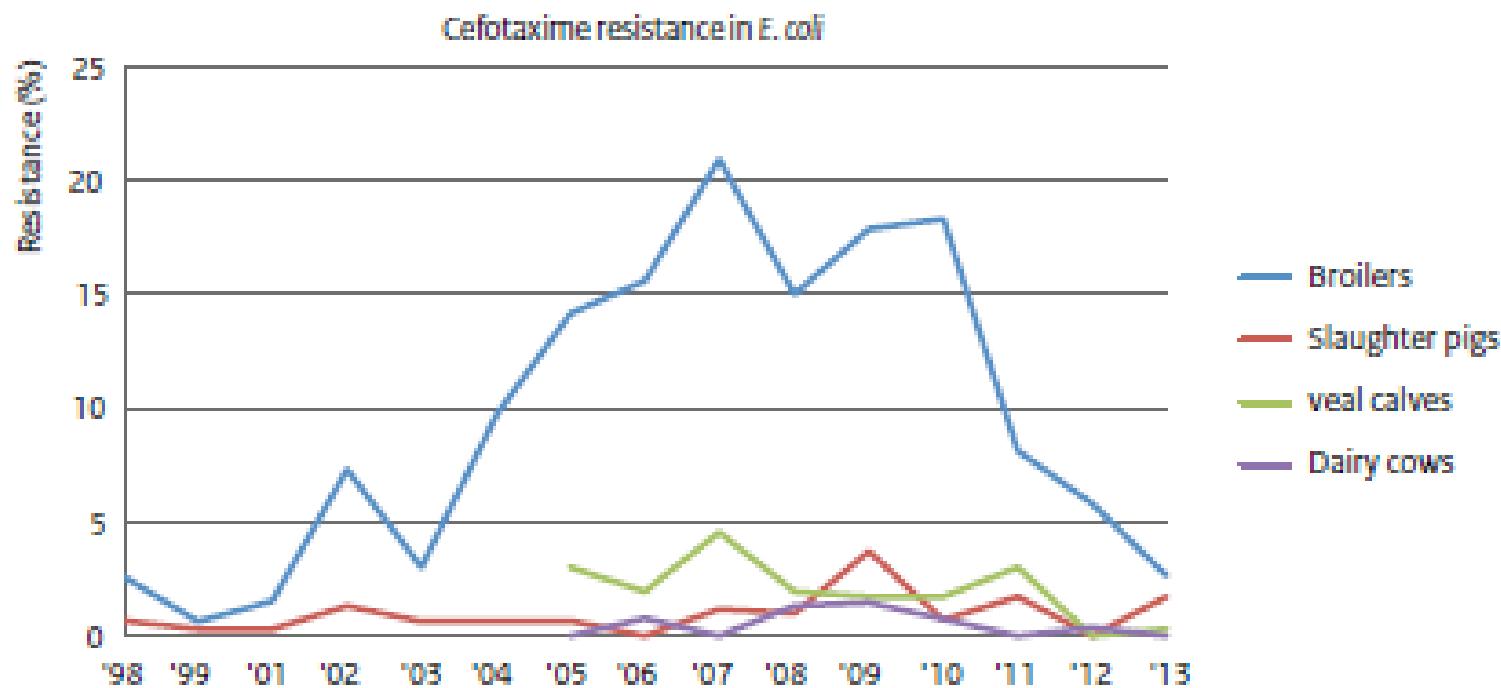
Le contrôle de l'usage des antibiotiques par les éleveurs hollandais est impressionnant

Figure ABuse 01. Antimicrobial veterinary medicinal product sales 1999-2013 in kg (thousands)

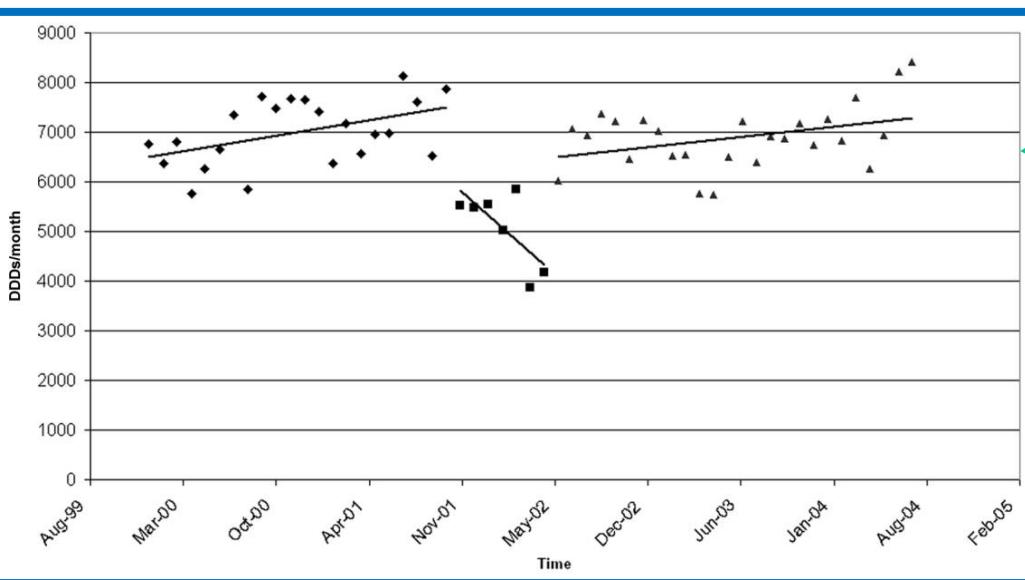


Les ESBL disparaissent des *E. coli*!!

Figure ESBL01. Trends in cefotaxime resistance (%) of *E. coli* isolated from faeces of broilers, slaughter pigs, veal calves and dairy cows.

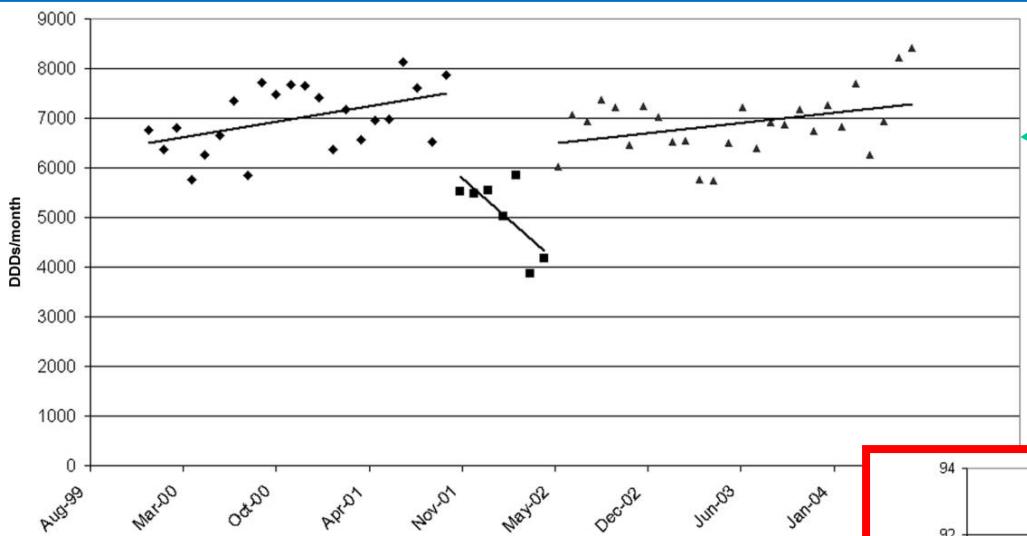


Impact of Quinolone Restriction on Resistance of *E. coli* Isolated from Urine by Culture in a Community Setting

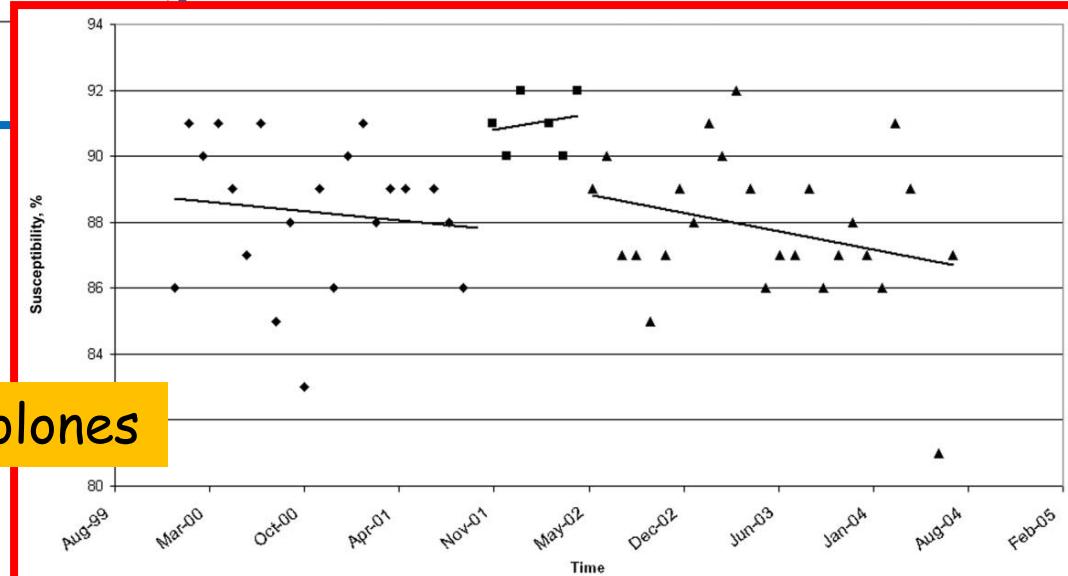


Quinolone use, Israel
1999-2004

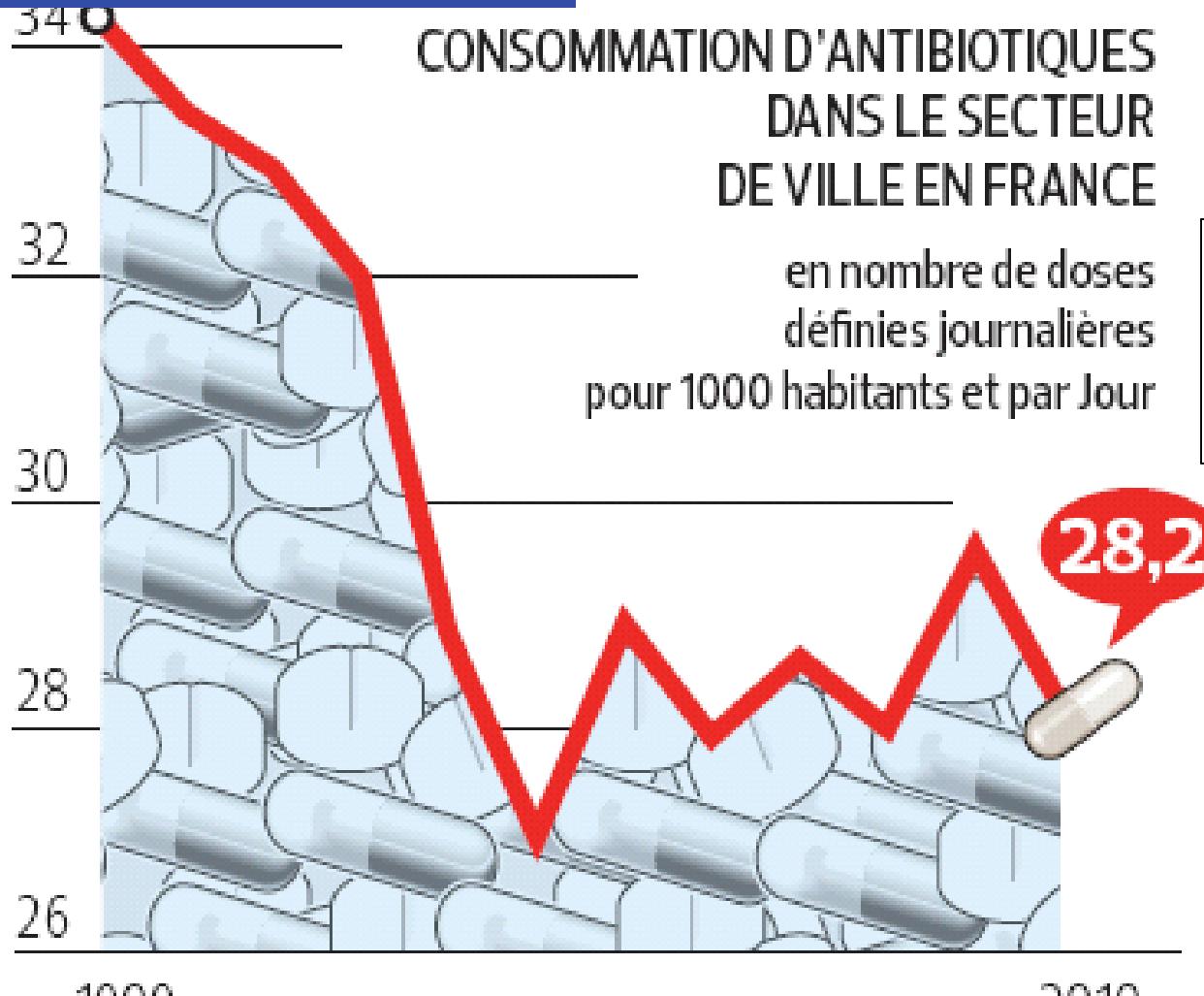
Impact of Quinolone Restriction on Resistance of *E. coli* Isolated from Urine by Culture in a Community Setting



Quinolone use, Israel
1999-2004



UTI *E. coli* susceptibility to quinolones



Source : Afssaps

**Antibiotiques :
la France sur la
mauvaise pente**

Le Figaro, 21 Juin 2011

Les deux plans français sont-ils suffisants ?

- Plan humain :
 - Plan d'alerte et non « d'action »
 - Le premier s'appelait « Préserver les antibiotiques »
 - Les résultats à mis parcours sont très décevants
- Plan vétérinaire
 - Ecoantibio : -25% (seulement!)
 - En attente des résultats...
- Deux plans est-ce « plan-plan » ?
- Pour un haut fonctionnaire délégué interministériel à l'antibiorésistance !

Et
maintenant
place à la
discussion !