Quelle corrélation entre la consommation d'antibiotiques et la transmission des résistances animal-homme ?

Le point de vue de la médecine humaine

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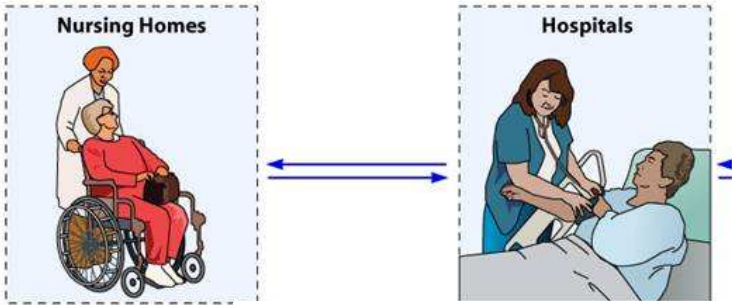
DOI: CS DaVolterra (LIR)

News › Science

Chief Medical Officer Dame Sally Davies: Resistance to antibiotics risks health 'catastrophe' to rank with terrorism and climate change

INDEPENDENT

Michael McCarthy | @mjpmccarthy | Tuesday 12 March 2013 |



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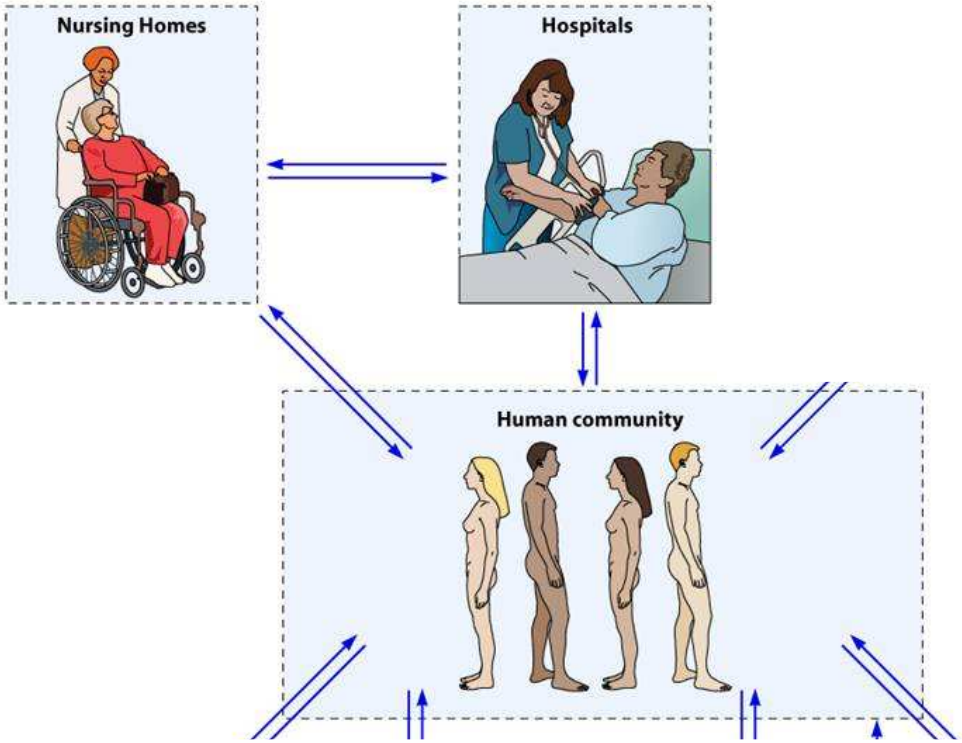
Une vision médicale de l'antibio résistance



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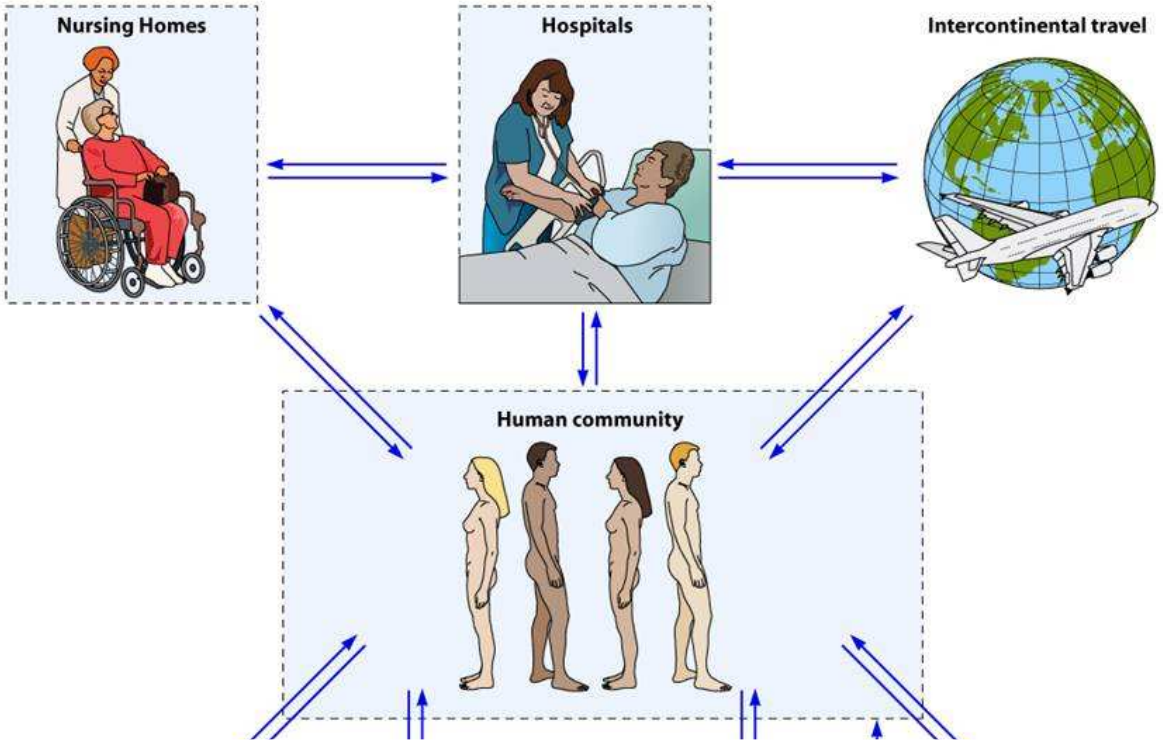

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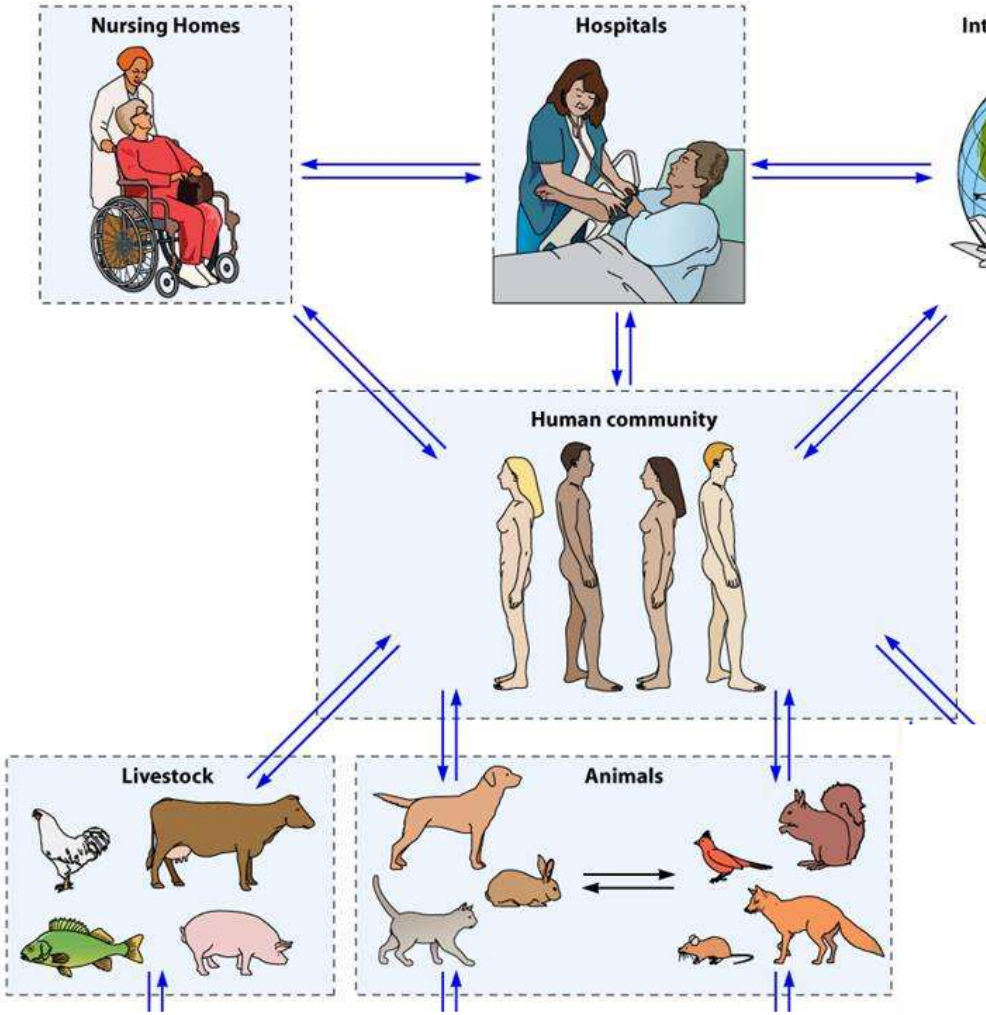

Une vision médicale de l'antibio résistance

Que le concept « one health » élargit au monde animal

Le débat n'est plus contradictoire sur ce point !

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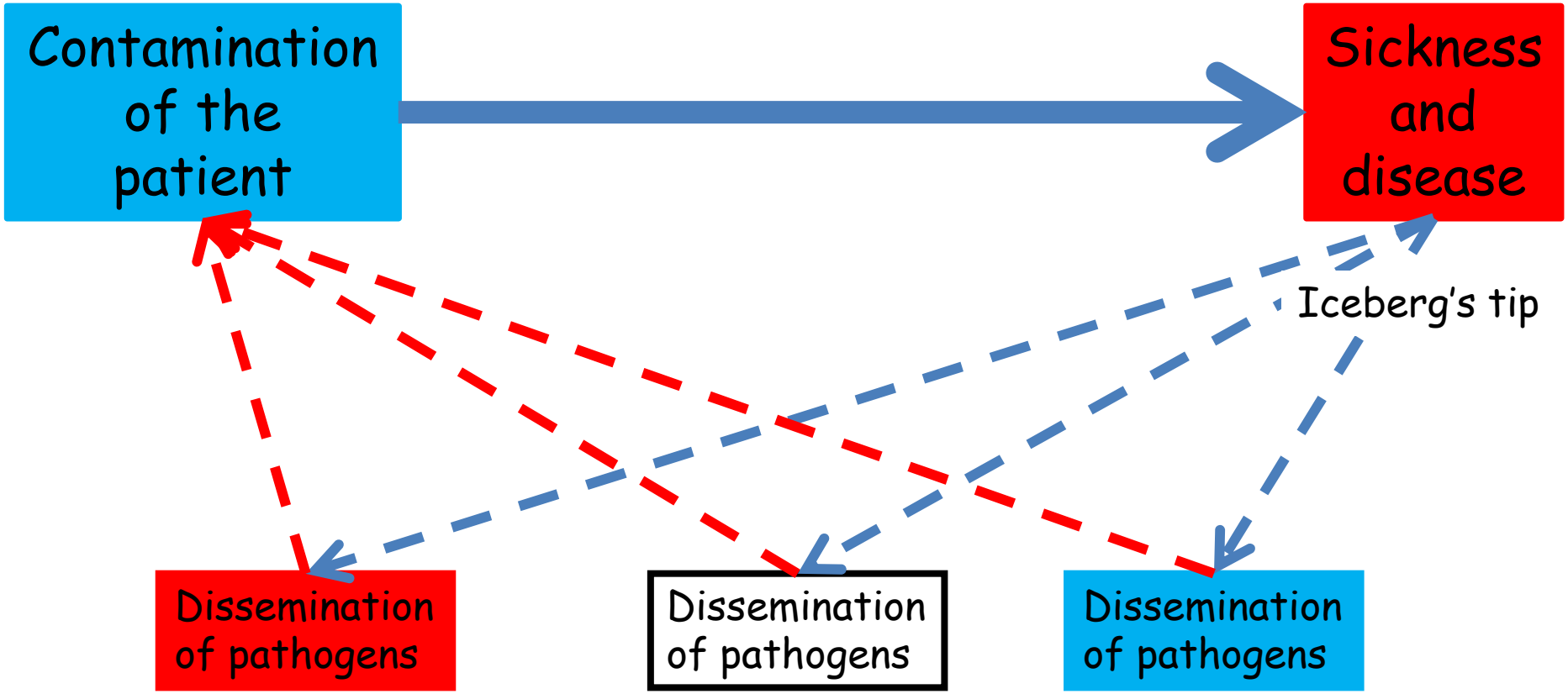
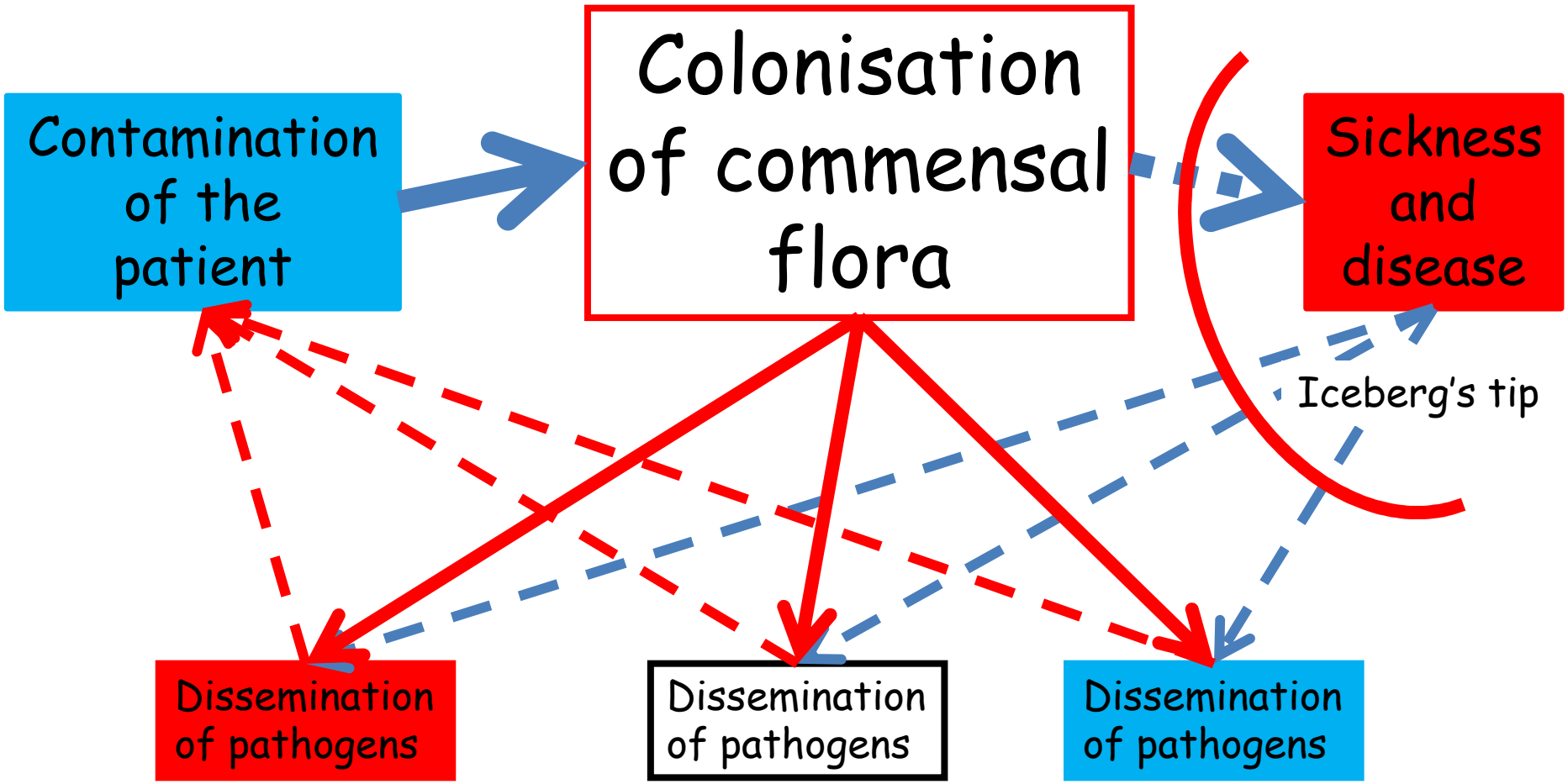
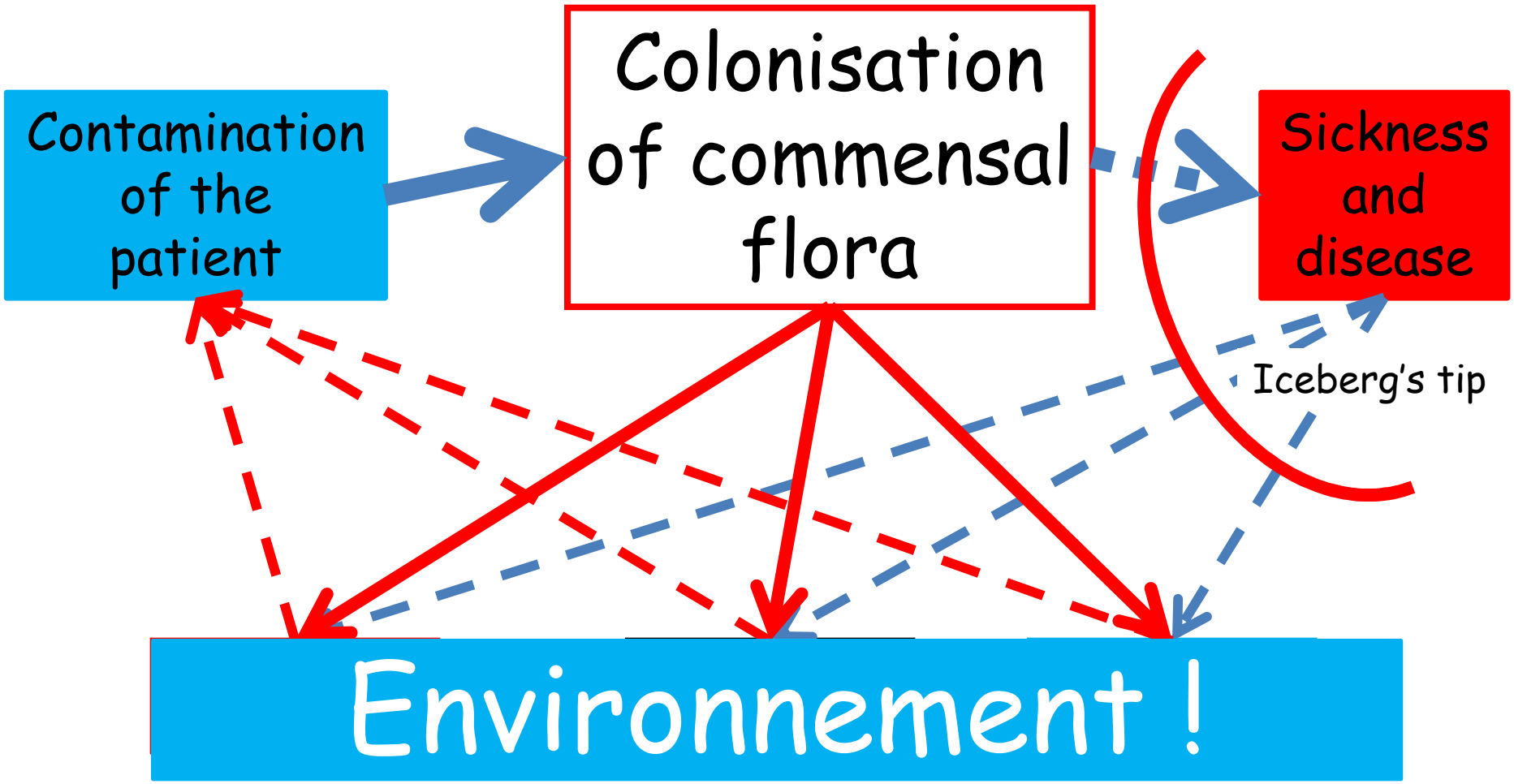
« Classical » natural history of bacterial infections

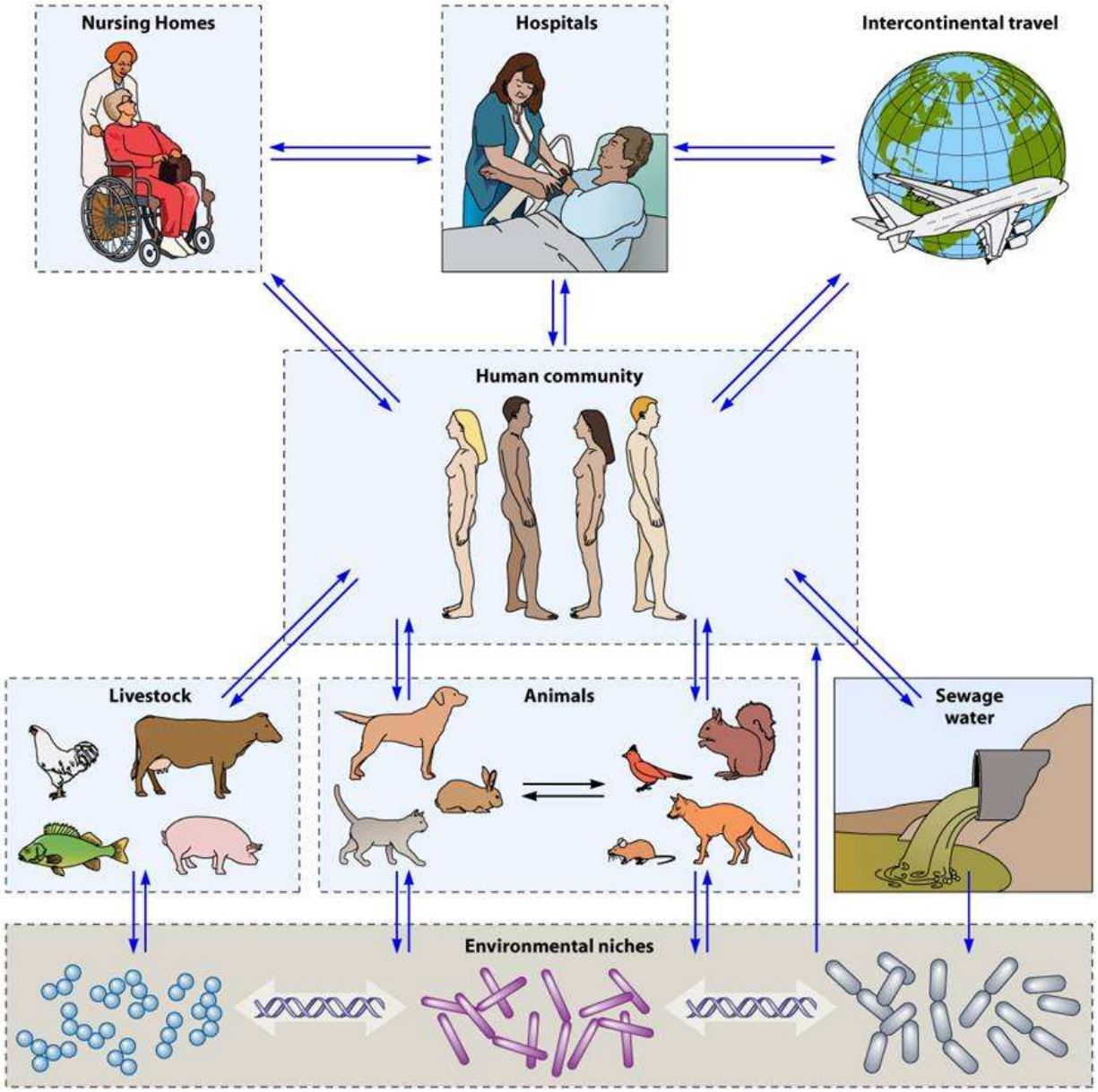


« New » natural history of bacterial infections



« New » natural history of bacterial infections





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Une vision médicale de l'antibio résistance

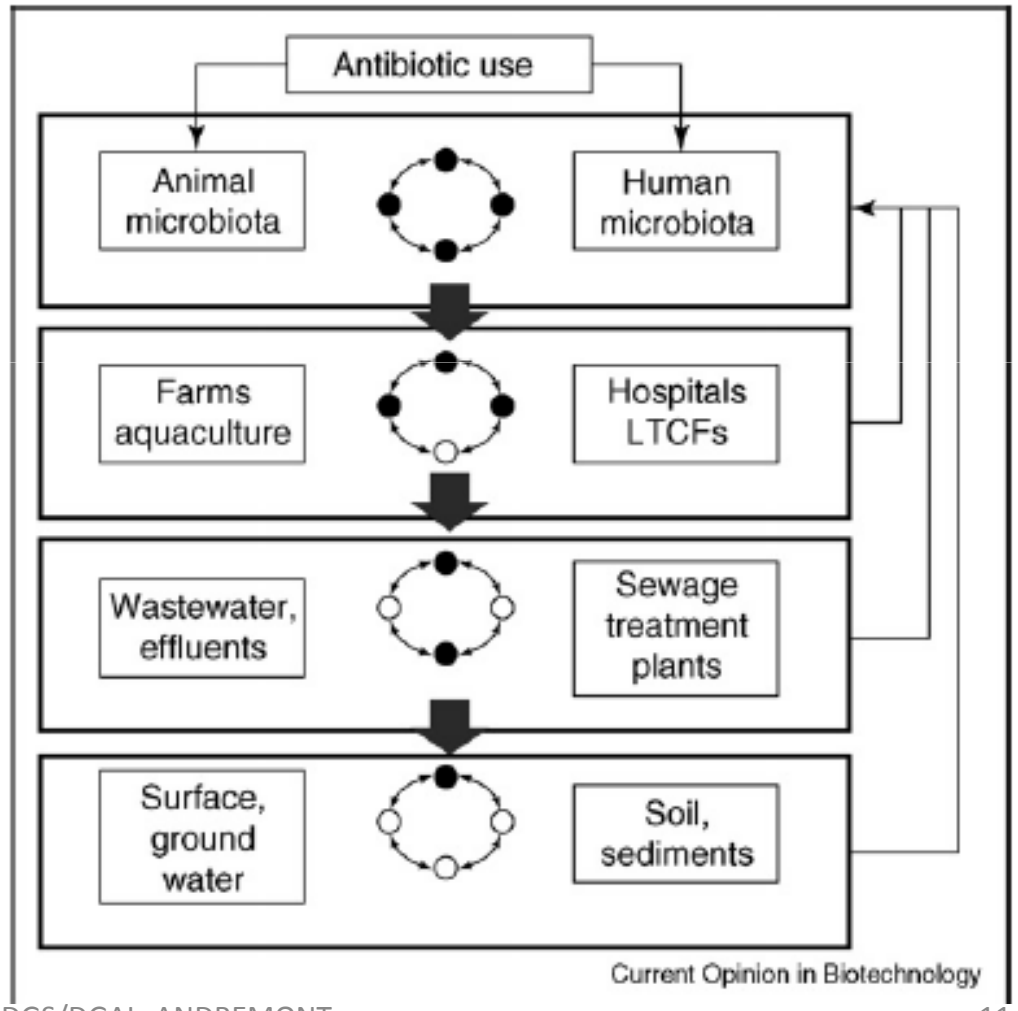
Que le concept « one health » élargit au monde animal

Qu'il faut étendre à l'environnement

The four genetic reactors in antibiotic resistance, where genetic exchange and recombination shapes the future evolution of resistance determinants.

Baquero, F

Current Opinion in Biotechnology 2008, 19:260–265



Environmental Science & Technology

Article

pubs.acs.org/est

Comprehensive Evaluation of Antibiotics Emission and Fate in the River Basins of China: Source Analysis, Multimedia Modeling, and Linkage to Bacterial Resistance

Qian-Qian Zhang, Guang-Guo Ying,* Chang-Gui Pan, You-Sheng Liu, and Jian-Liang Zhao

ACS Publications

DOI: 10.1021/acs.est.5b00729
Environ. Sci. Technol. 2015, 49, 6772−6782

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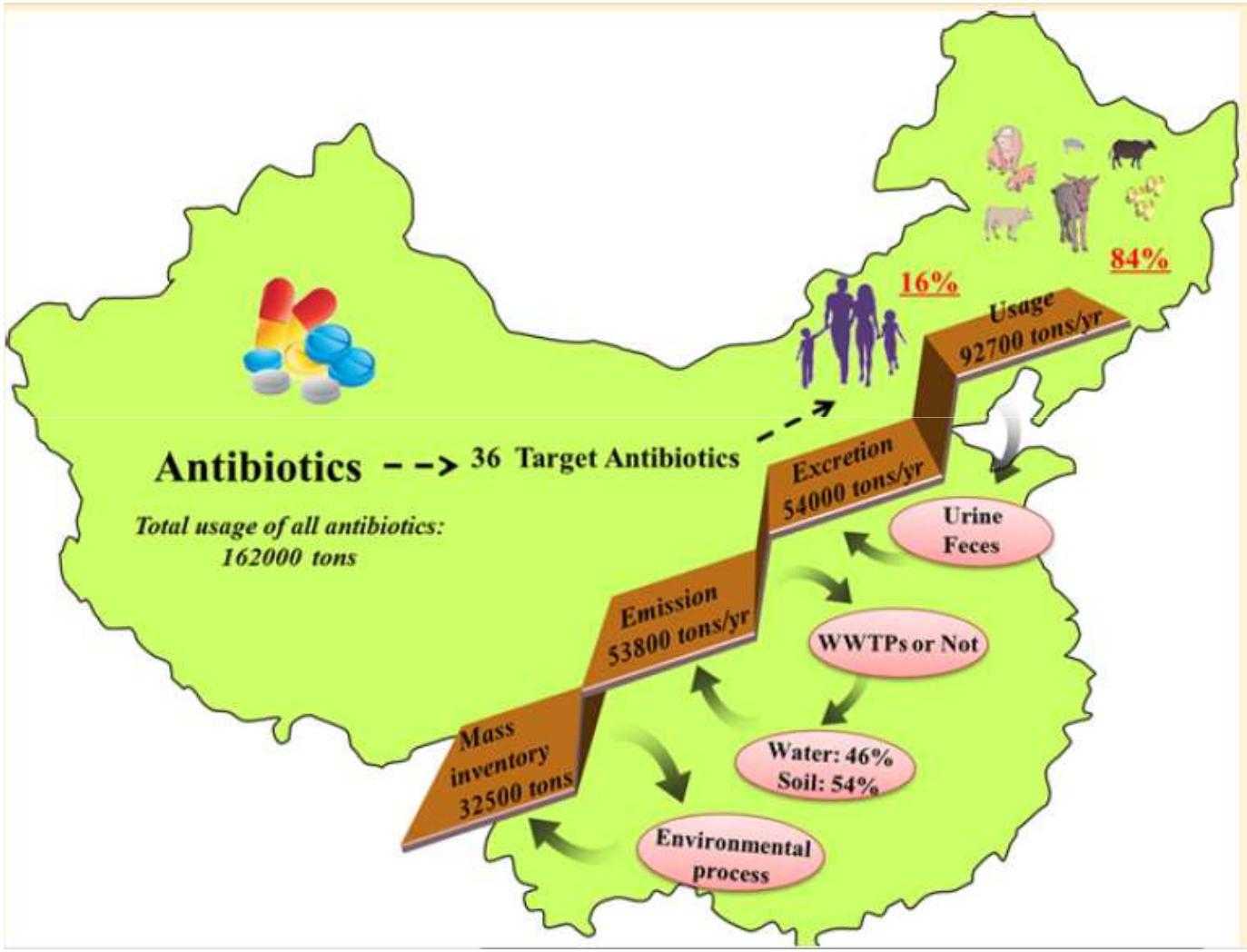
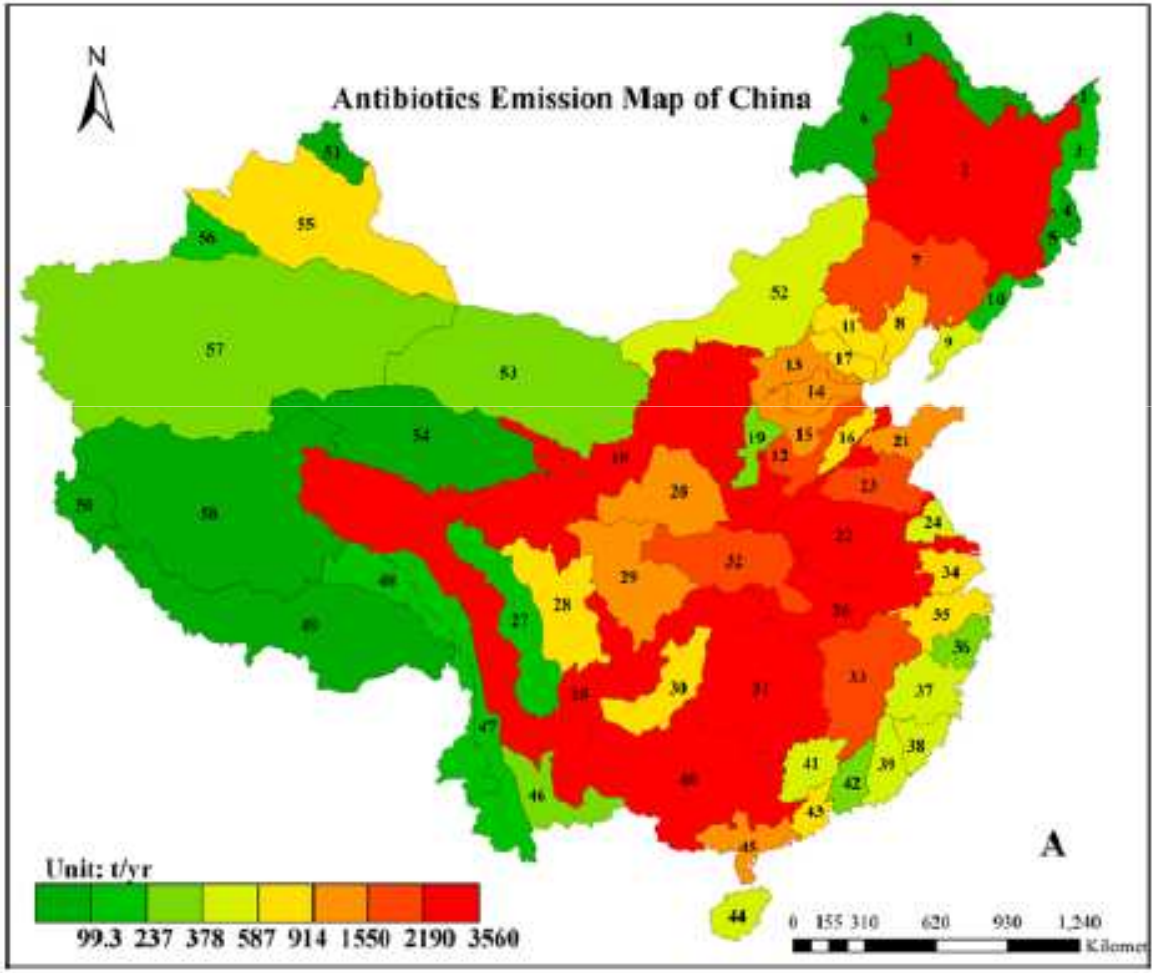


Zhang QQ. Environ. Sci. Tech. 2015

The total environmental emission of the antibiotics for each basin with the unit of t/yr



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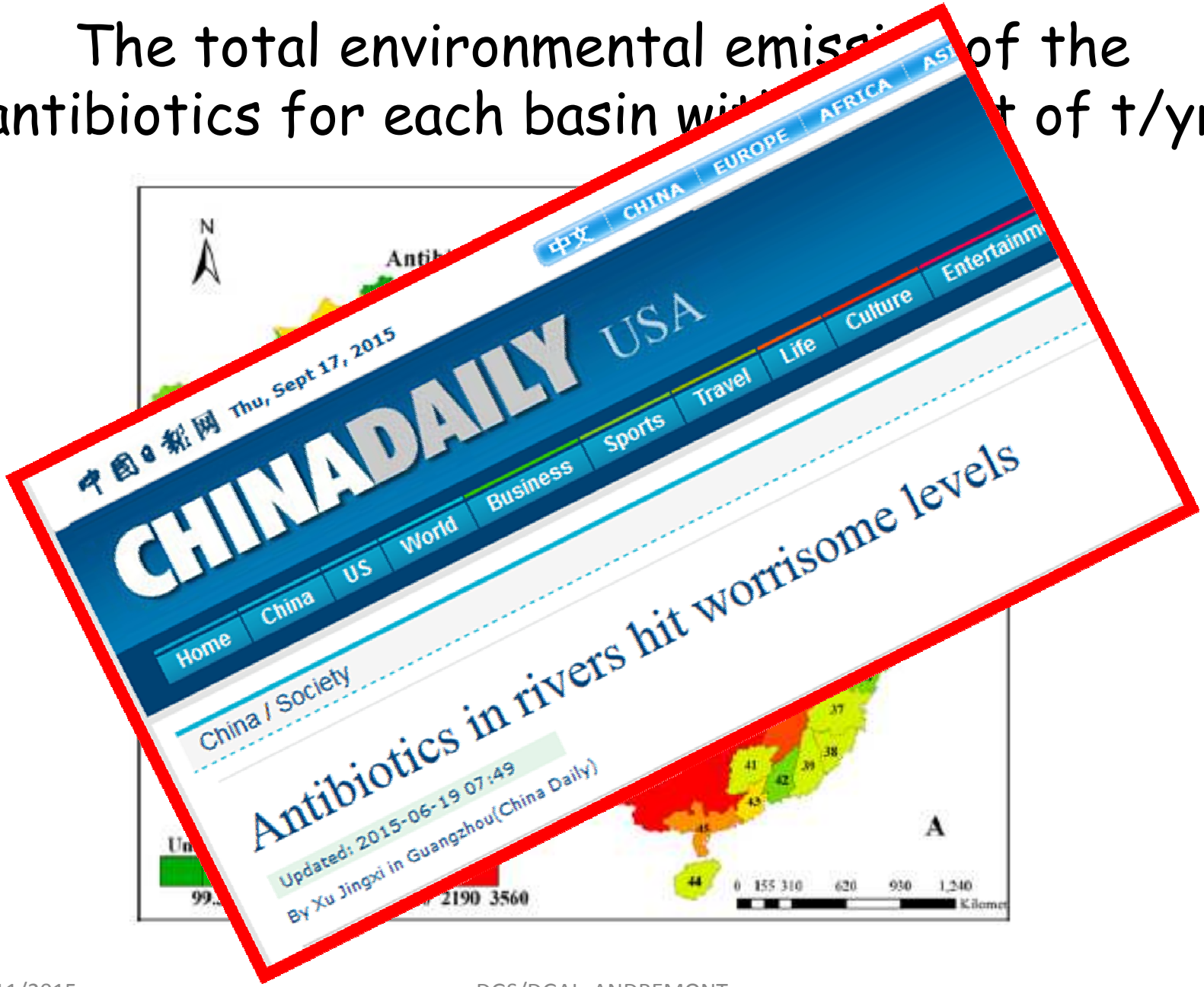

CSH PRESS GENOME RESEARCH

Country-specific antibiotic use practices impact the human gut resistome

Kristoffer Forslund, Shinichi Sunagawa, Jens Roat Kultima, et al.

Genome Res. 2013 23: 1163-1169 originally published online April 8, 2013
Access the most recent version at doi:10.1101/gr.155465.113

- ✓Metagenomic data
- ✓Quantify the totality of known resistance genes (resistome)
- ✓68 classes and subclasses of antibiotics.
- ✓In 252 fecal metagenomes from three countries,

Country-specific antibiotic use practices impact the human gut resistome

Kristoffer Forslund, Shinichi Sunagawa, Jens Roat Kultima, et al.

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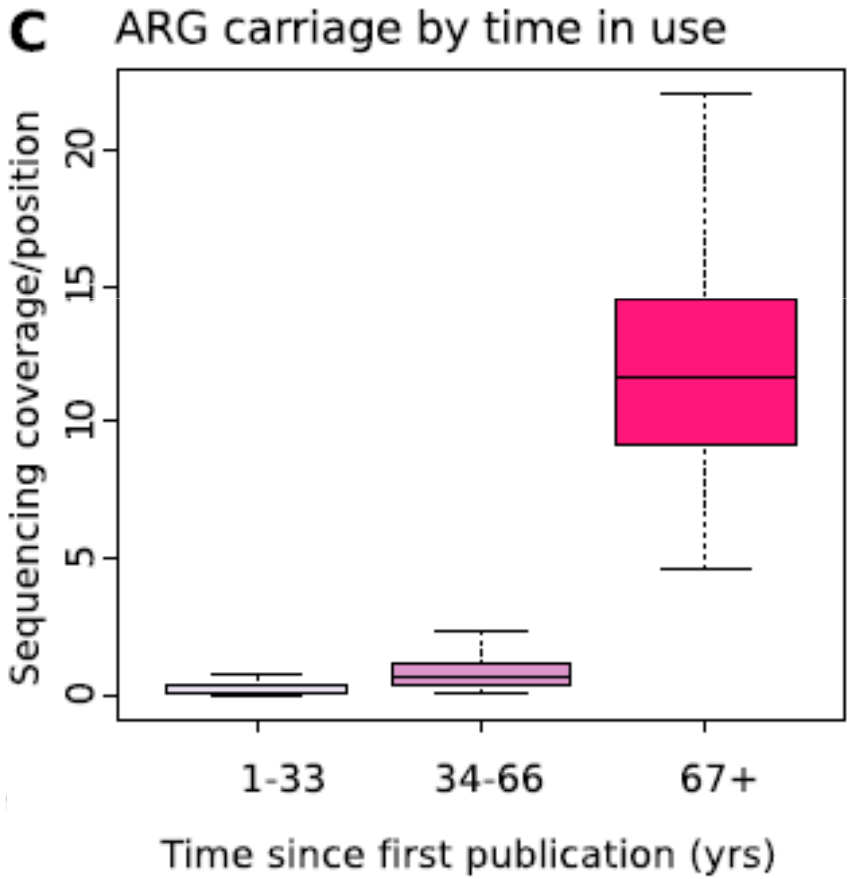

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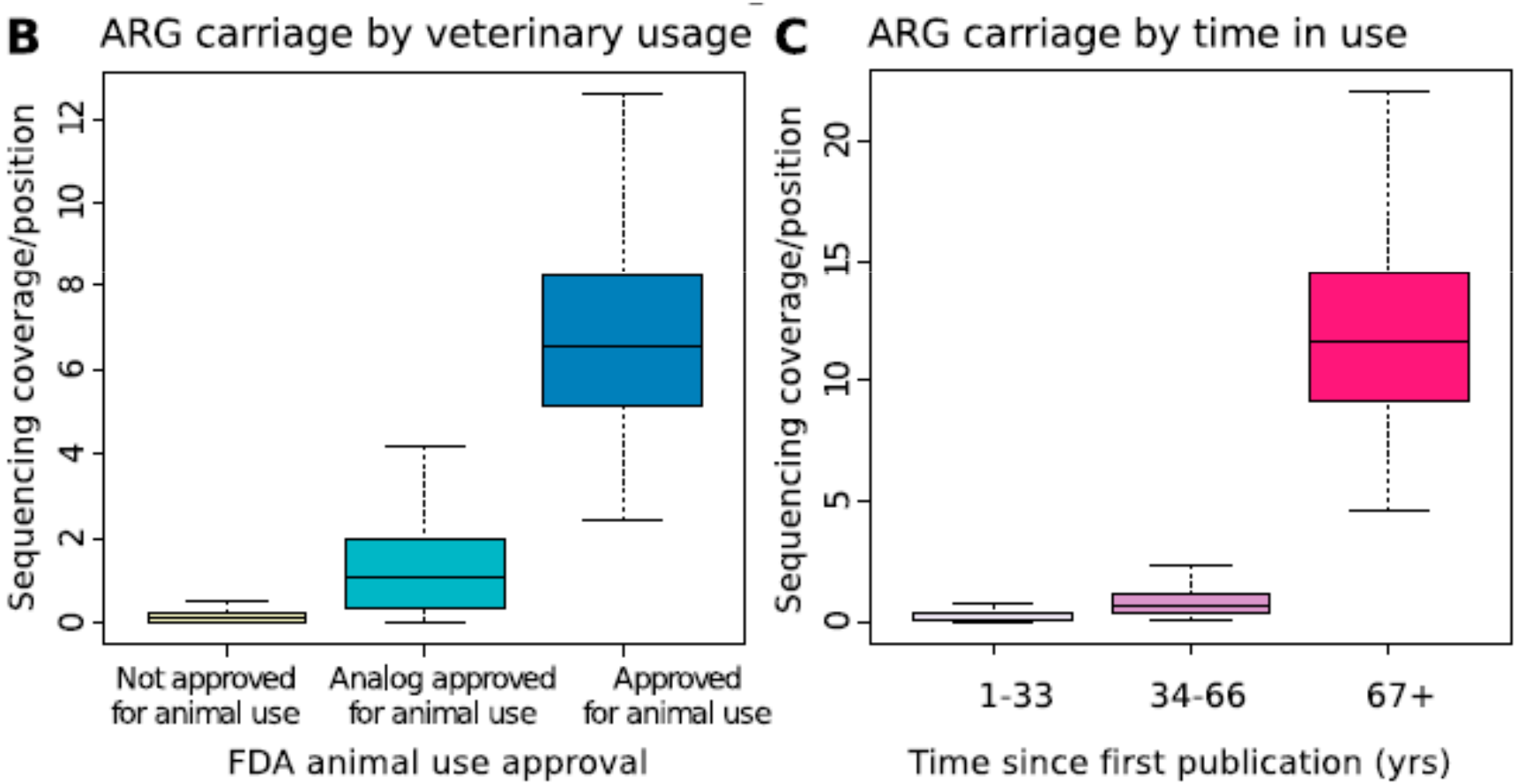
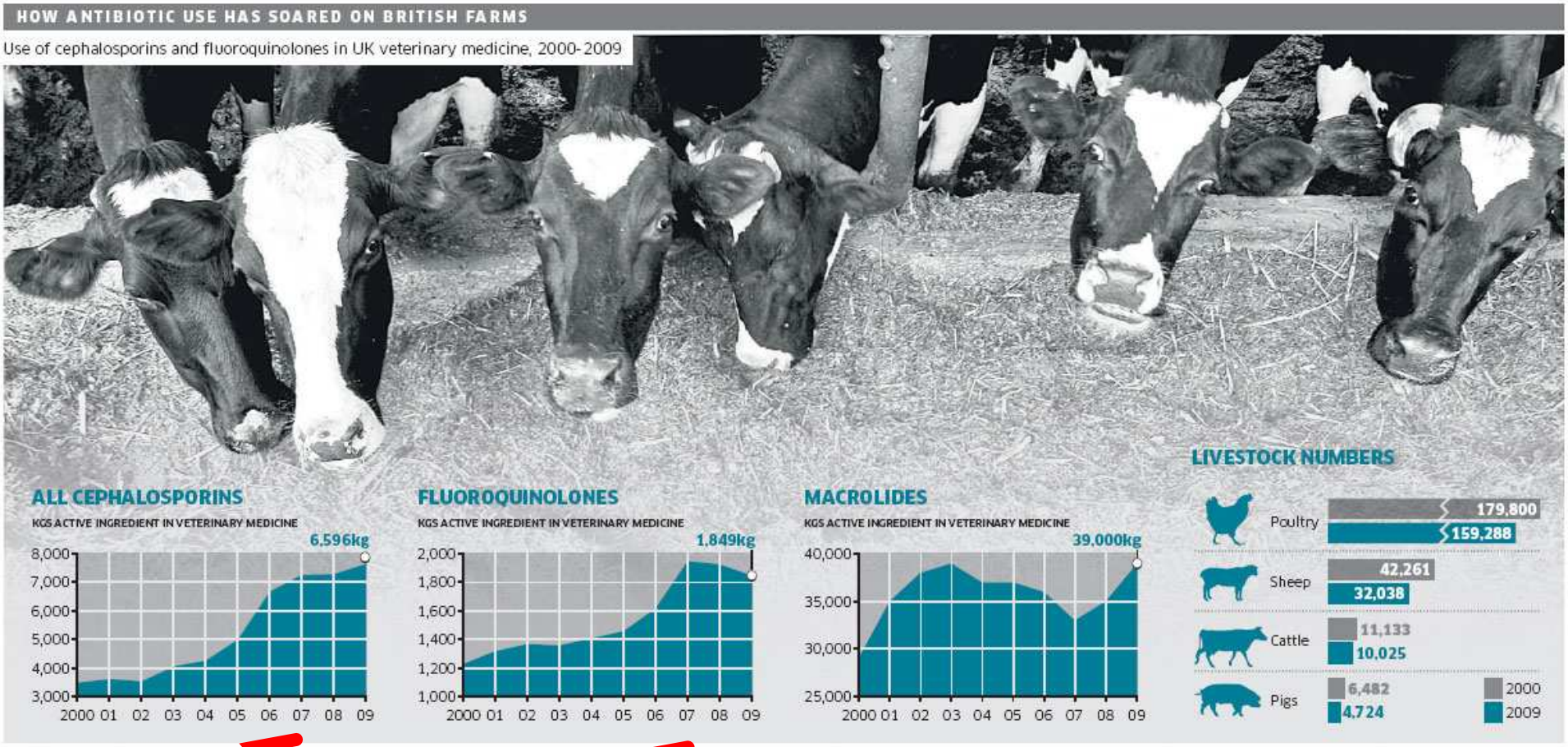


L’accélération semble s’être produite entre 2000 et 2010, au moment où les génériques bon marché ont modifié les pratiques : En médecine humaine mais aussi en agriculture

La dynamique de la consommation animale : UK



THE INDEPENDENT

June 17, 2011

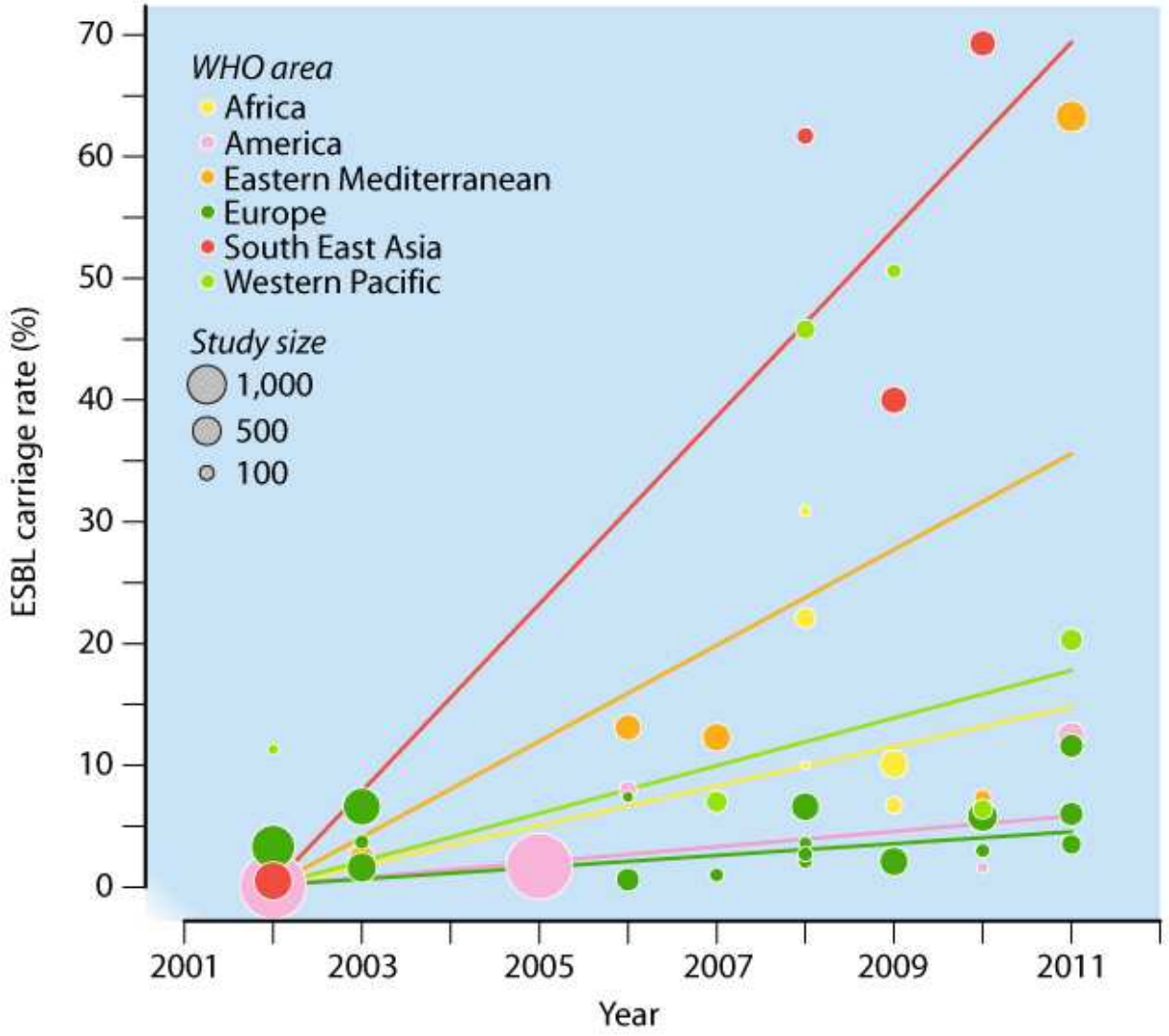


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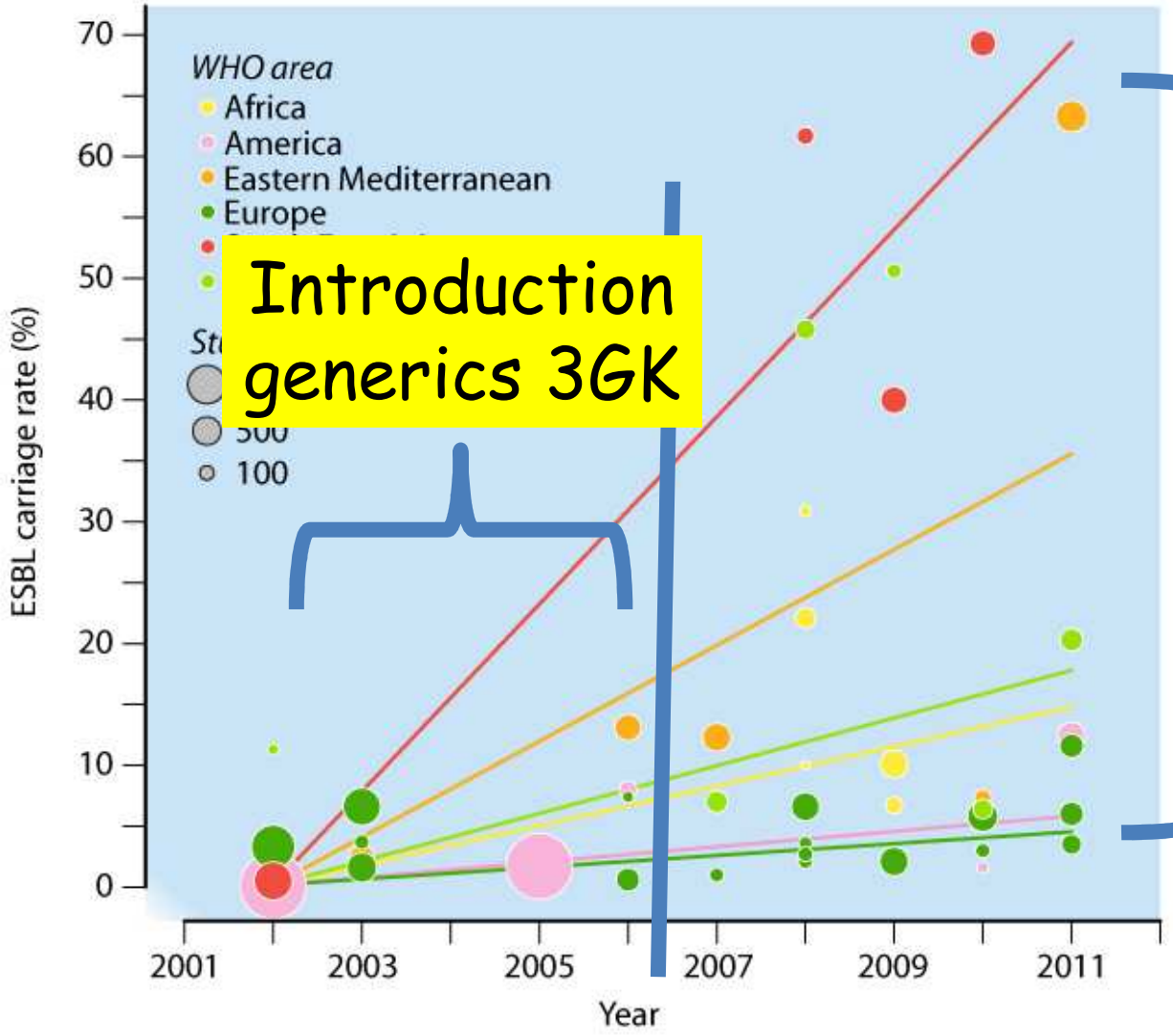
Figure 01

Evolution of ESBL carriage rates in the community worldwide



Introduction generics 3GK

Gap between EU and the « South »

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Figure 01

Evolution of ESBL carriage rates in the community

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ResistanceMap BETA

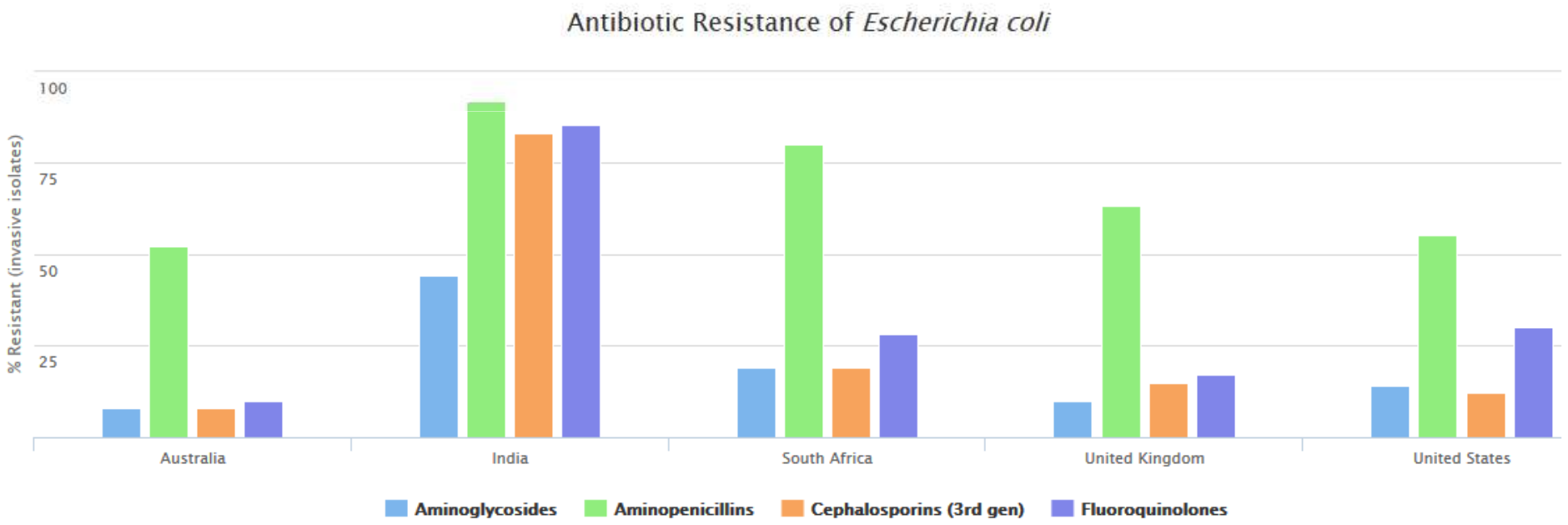
CDDEP THE CENTER FOR Disease Dynamics, Economics & Policy WASHINGTON DC • NEW DELHI

Antibiotic Resistance | Antibiotic Use | Countries | Drug Resistance Index | About | News and Research

Antibiotic Resistance

Clinical isolates as a proxy of nfections

Map | Trend | Chart



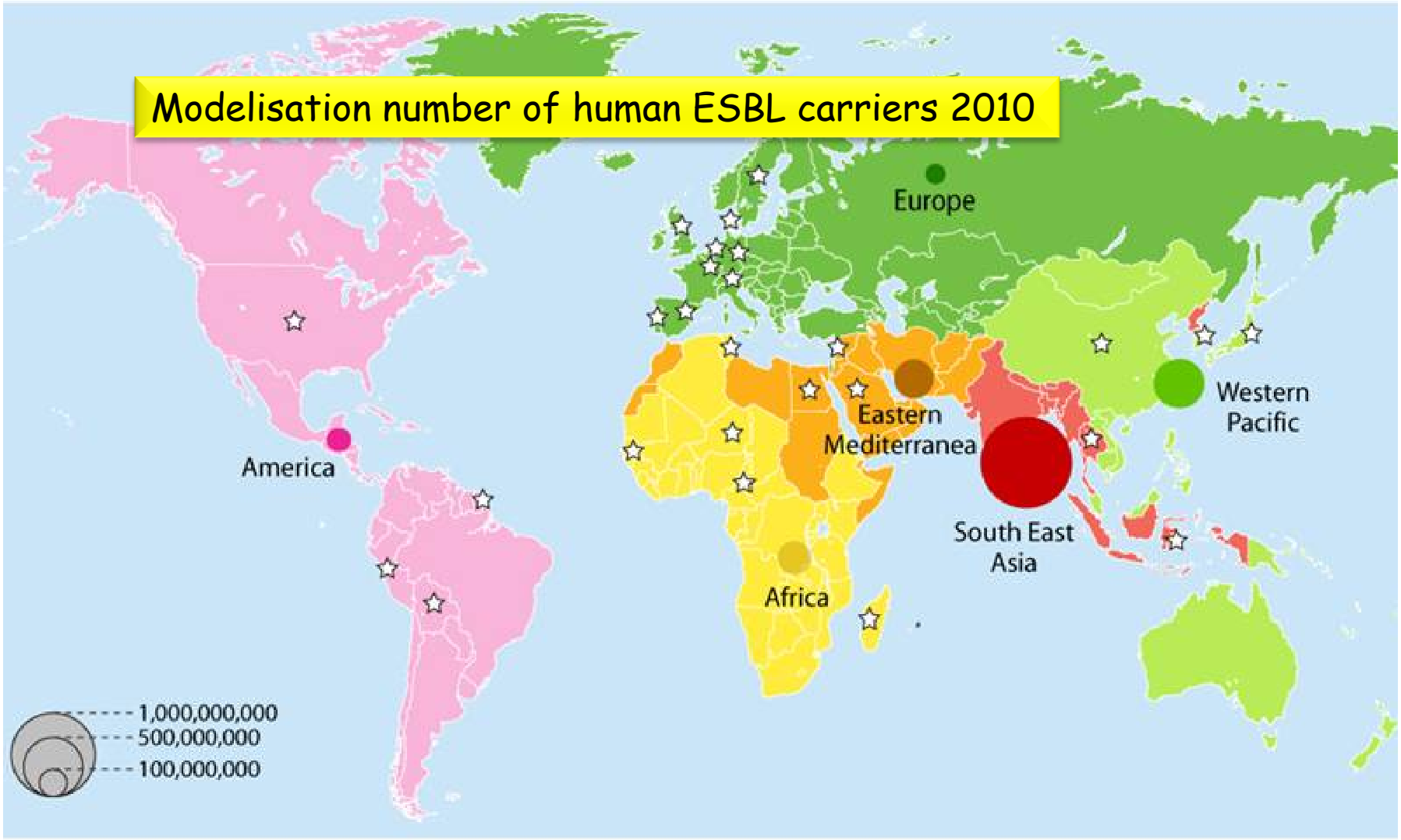


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Figure 3: World Bank map of countries with critically high sanitation needs – the larger the circle, the greater the need

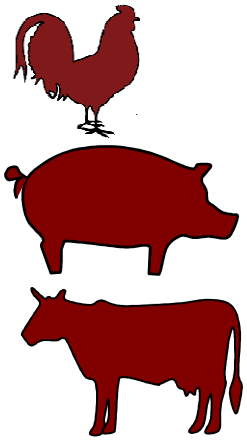
Un modèle holistique

- Les gènes de résistance existent depuis des millions d'années dans l'environnement
- En l'absence de pression de sélection ils ne diffusaient pas aux bactéries humaines
- Le mésusage et la surconsommation aboutit à une véritable « pollution » antibiotique
- Qui est le moteur de la dissémination

The ONE HEALTH concept

A. Bousquet_Melou

Vet Hazard



Commensal flora

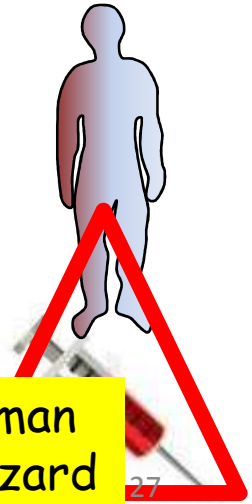
Resistance genes

zoonotic pathogens

Environment

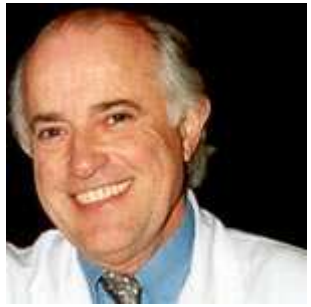
Food chain

Commensal flora



Human Hazard

AMR should be viewed as a global ecological problem with commensal flora as the turntable of the system



Jean carlet & Garance Upham

http://www.globalhealthdynamics.co.uk/wp-content/uploads/2015/06/10_Andremont-Walsh.pdf

Les messages du coté de la médecine humaine

- Coordonner les actions humaines (DGS) et animales (DGAL) ne suffira pas
- Associer l'environnement à la journée de l'an prochain.

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

Ministère
de l'Écologie,
du Développement
durable
et de l'Énergie

Les antibiotiques sont d'abord faits pour guérir les humains.
Les autres utilisations, aussi importantes soient-elles économiquement, ne sont que secondaires.

Je vous remercie de votre attention