

Antibiotic restriction policies: are they applicable (and desirable) outside the western world ?

Paul M. Tulkens

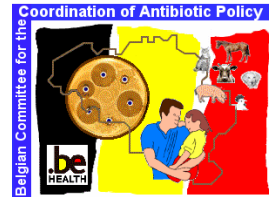
Cellular and Molecular Pharmacology Unit
Catholic University of Louvain, Brussels

Belgian Antibiotic Policy Committee
Federal Public Service "Public Health", Brussels

Belgium



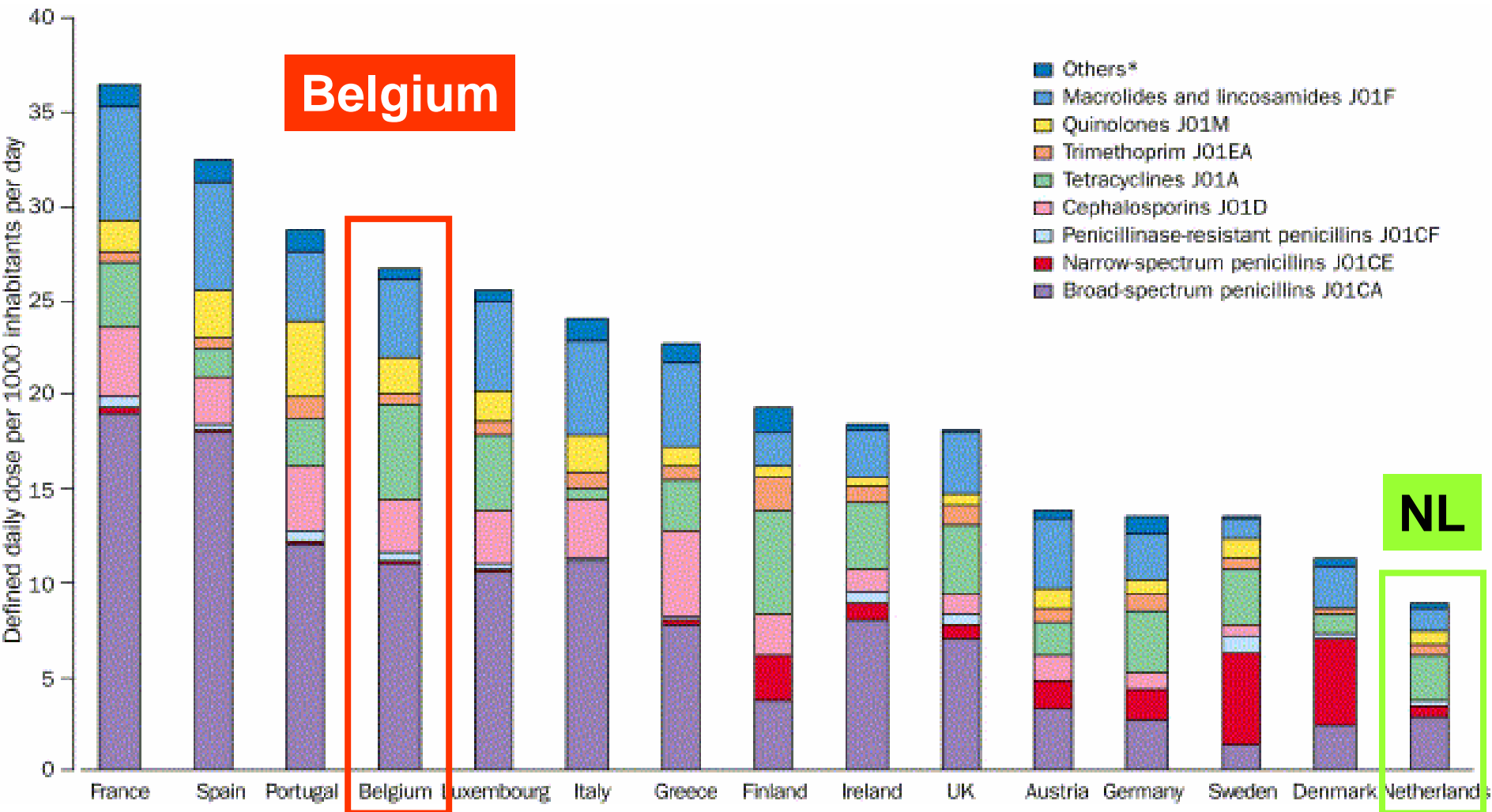
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www.bapcoc.be

- There is a huge variation in antibiotic consumption among countries with not always good reasons and sound explanation !
 - ➔ can we understand that and what can we do ?
- Countries with lower use of antibiotics are not (necessarily) seeing more infections !
- The problem is probably more mis-use than overuse
- But support to research for new antibiotics (or new means to protect against infection) is also needed ...

Huge variations among countries...



Cars et al., Lancet. 2001 Jun 9;357(9271):1851-3.

Huge variations among close countries with similar socio-economic background...



Why such variations ?

- are pathologies different ?
- are hygienic conditions different ?
- are environments different ?
- are patients different ?
- are doctors different ?
- are public and scientific authorities different ?

No...

The Dutch would say yes,
but not the Belgians...

it rains a lot on both
sides..., but globally,
this is a temperate
climate ...

Why such variations ?

- are the patients different ?



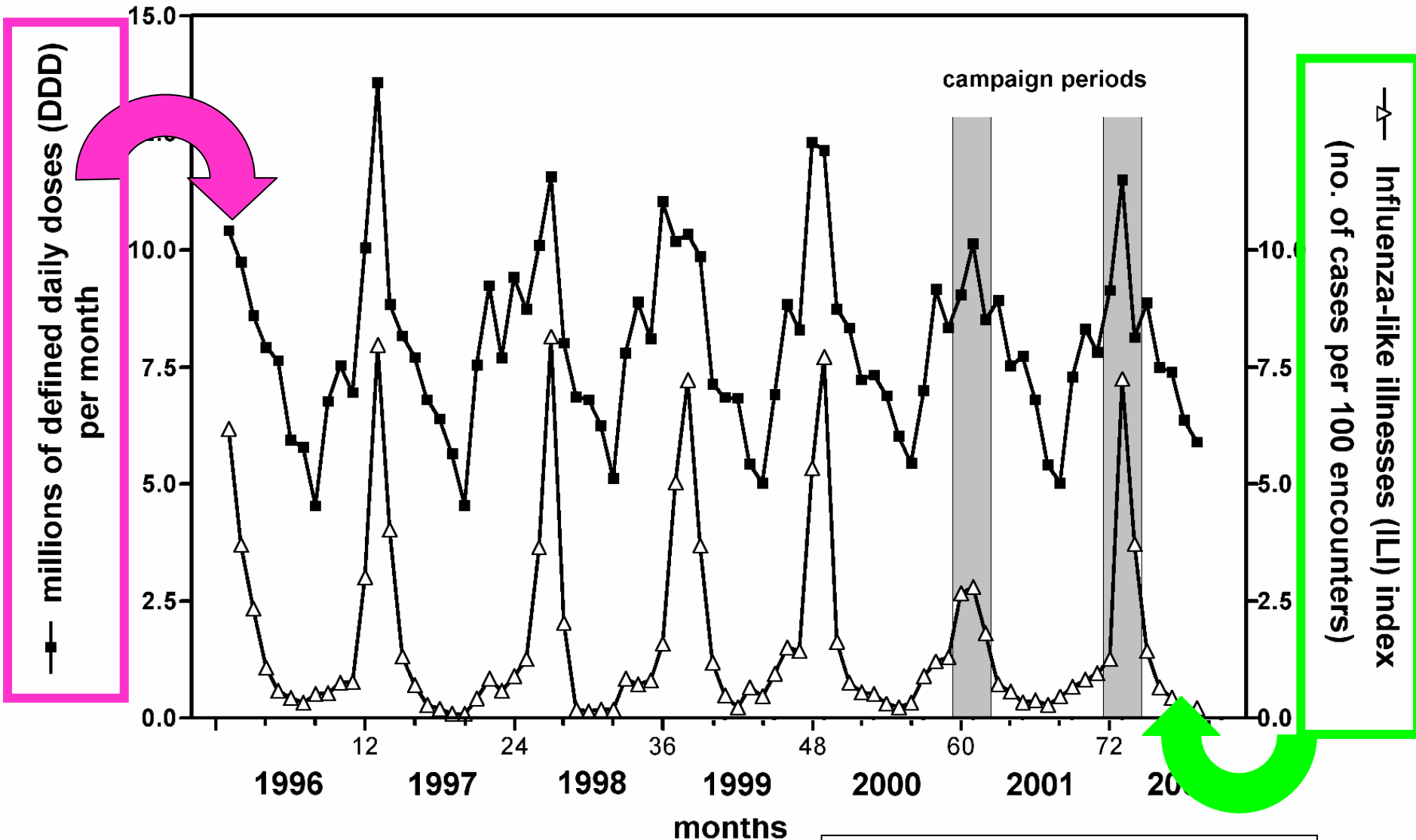
F. Verhaegen, *Le grand rondeau du Mardi-Gras à Binche*.



<http://www.dutchcostumes.nl/>

They both have a good time, but they react very differently when it goes to minor infections ...

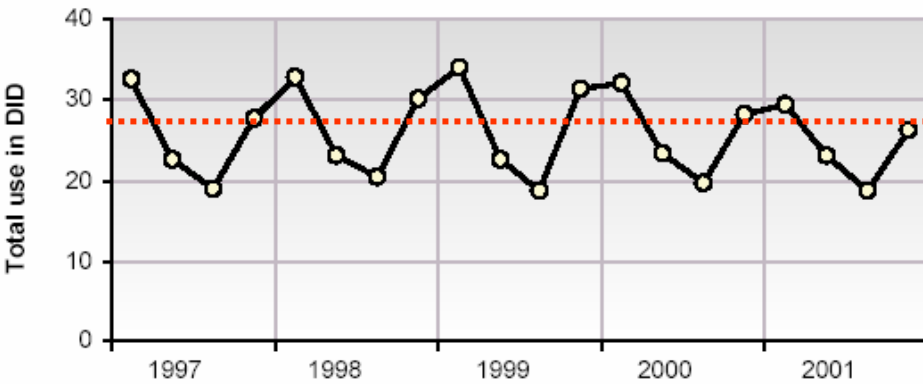
Do patients expect things that cannot be given
(and may not be needed) ?
The case of influenza in Belgium ...



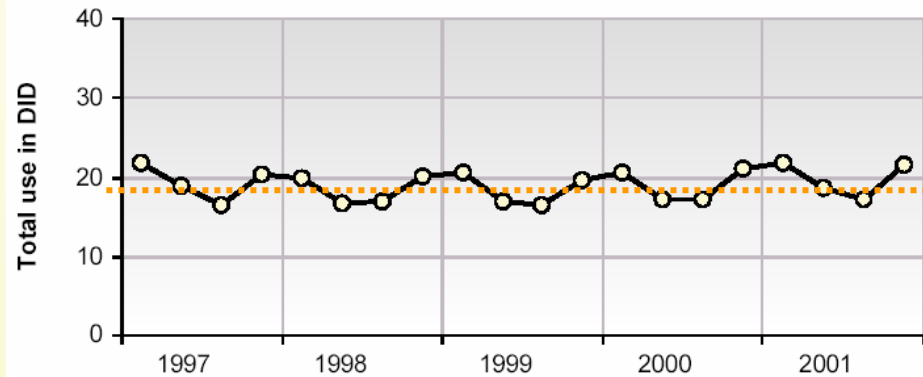
Bauraind et al. JAMA 2004 Nov 24;292(20):2468-70.

Do patients expect different things ?

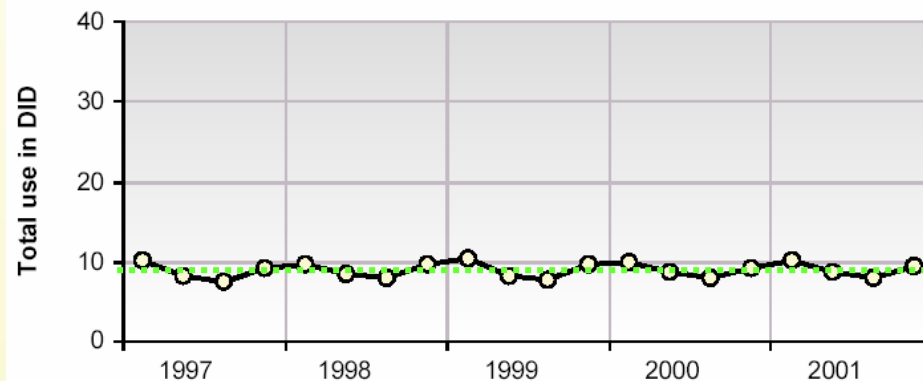
Belgium: temperate climate but large annual AB consumption and large seasonal variations



Finland: quite cold climate but medium annual AB consumption and modest seasonal variations



The Netherlands: a bit more humidity but VERY low annual AB consumption and ... almost no seasonal variation



DID: defined daily doses per 1,000 inhabitants and per day

ECCMID 2003 : Results of the ESAC Retrospective Data Collection

Why is the public important ?

- Antibiotic sales in the community represent > 85 % of all systemic antibiotic sales and is, therefore, an important component in the selection pressure
- Most of these AB are prescribed to patients with minor respiratory tract infections that are often self-limiting and self-healing and in which AB real usefulness is doubtful
 - pharyngitis
 - bronchitis
 - flu-like syndrome
 - acute sinusitis
- Doctors believe they **must** prescribe, and pharmacist they must deliver antibiotics because of the demand of the patient



Use antibiotics with caution ... Belgian antibiotic campaigns

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http://www.antibiotiques.org/

Ce site a été réalisé pour les campagnes de sensibilisation 2000-2003.
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"Santé Publique, Sécurité de la Chaîne alimentaire et Environnement"
avec le soutien des Communautés française et germanophone

les antibiotiques:
à utiliser
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Société Belge de Pneumologie
Société Royale Belge d'Otorhinolaryngologie et de
Chirurgie Cervico-faciale
Société Belge d'Infectiologie et de Microbiologie Clinique

GRAPHIC DESIGN: A.S.B.L. QUESTION SANTE
Site Web opéré par l'Université catholique de Louvain (UCL)

less...

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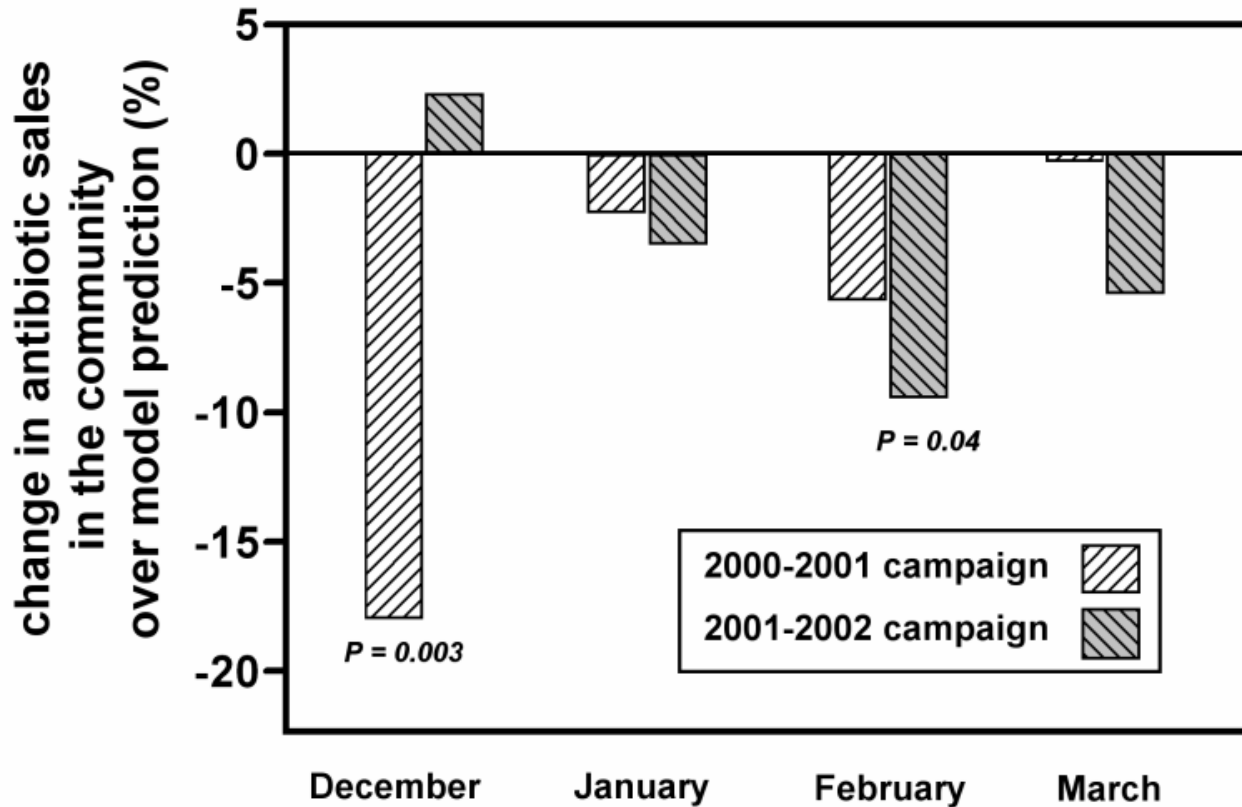
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and better ...

Success of two public campaigns in Belgium ...

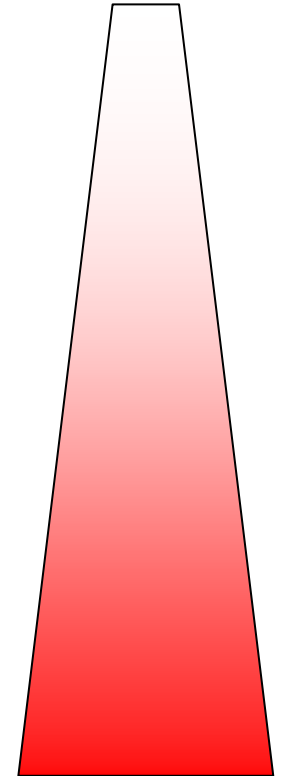


- significant reduction of AB prescriptions (sales = prescriptions in Belgium) during the influenza epidemic periods
- no significant-side effect detected
- cost-effective for public health

from Bauraind *et al.*, JAMA 2004; 292:2468-70;
more details on <http://www.antibiotiques.org/english/>

Can you make public campaigns in your country ?

- know what is used and for what ...
→ **good statistics ...**
- identify potential sites of action
→ **what will be your target ?**
- be multidisciplinary
→ **patients' demand is not only medical ...**



see more in Eur J Clin Pharmacol. 2006 May;62(5):373-9.
National campaigns to improve antibiotic use.
Goossens H, *et al.*

Why such variations ?

- are pathologies different ?
- are hygienic conditions different ?
- are environments different ?
- are patients different ?
- **are doctors different ?**
- are public and scientific authorities different ?



Potential reasons for overprescription by GP's... (as from literature survey)

- antibiotics is an "easy" solution (no education needed);
- I want to maintain my relation of "authority and protection" with the patient ...
- I have no clear diagnostic (could be a bacterial infection...)
- patients won't wait ... (The Dutch approach does not work where I am)
- I do not see antibiotic resistance ... what is the problem then ?
- Restrictive guidelines are nice but made by people who do not see my patients
- Guidelines are out of date ...
- I simply have no time to listen and talk to the patient... I want to be "safe"
- If I do not give an antibiotic, the patient will go to another doctor and/or to a specialist ...
- Industry is presenting me with really new, attractive molecules. Why not using them ?

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Doctors are not that different, but it all has to do with the way you can answer these questions...

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What could public authorities do ?

- promote better and cheap diagnostic approaches
- support the collection of resistance data in the community
- support the setting of guidelines adapted to the reality of the country
- reinforce the role of the pharmacists and doctors-pharmacists relationships for quality of care and enforcement of guidelines
- decreasing the pressure on parents and family towards doctors for a "fast cure" in face of minor diseases (socio-economical factors)
- control Industry pressure (and find new economic structures)



Is this applicable in our country ?

- antibiotics must be put under prescription
- sufficient independent statistical data on
 - resistance (including mechanisms, if related to the risk of spread)
 - antibiotic usage in the main indications must be obtained
- Scientific Societies and University must be made alert and involved in a process of rational decrease of antibiotic pressure
- GP's must be given the time to obtain better diagnostic and to propose "non antibiotic" therapies when appropriate
- for infections affecting children, appropriate surveillance and hygiene must be in place

But what about hospital ?

- guidelines should be set at the national level and used as basis for local guidelines
- the clinical laboratory must report more MIC distributions and provide clinicians with more frequent epidemiological surveys
- local antibiotic teams must be set up and antibiotic formulary must be set up on a rational way, taking epidemiological data and PK/PD aspects in full consideration
- pharmacists should be involved to ensure a quality of drug delivery and adherence to the guideline ...

Do countries (or hospitals) with restrictive policies see more infections than others ?

- The short answer is "No"
- The long answer is that
 - if you are rational
 - if you maintain a sufficient level of surveillance
 - if you offer good diagnostic procedures and possibility to reconsider the original diagnostic
 - if your actions are geared to "overuse" rather than to "use"

you will not miss cases that need antibiotics while decreasing the overall pressure significantly...

The most frequent problem is not so much overuse it-self than mis-use ...

- overuse creates resistance...
 - but suboptimal treatments create more resistance
 - avoid antibiotic use when not needed;
 - if needed, treat to eradicate...
 - re-evaluate treatments with poor outcome
 - stop useless treatments
(this is what Dutch microbiologists do most ...)
-
- What can you do ?
 - be demanding to Industry for evidence of usefulness and for adequation of dosages to desired clinical outcomes (including prevention of resistance)
 - set up the local groups which will evaluate the quality of prescriptions and match them to proved outcomes

A decision making matrix for antibiotic prescribing ...

What if...

Risk of

No treatment

Poor outcome

RISK

Adverse event

no risk

Resistance

no risk

Drug cost

no risk

A decision making matrix for antibiotic prescribing ...

Risk of	What if...		
	No treatment	Optimal treatment	
Poor outcome	RISK	no risk	
Adverse event	no risk	RISK	
Resistance	no risk	RISK	
Drug cost	no risk	COST	

A decision making matrix for antibiotic prescribing ...

Risk of	What if...		
	No treatment	Optimal treatment	Sub-optimal treatment
Poor outcome	RISK	no risk	RISK
Adverse event	no risk	RISK	RISK
Resistance	no risk	RISK	RISK
Drug cost	no risk	COST	COST

To conclude and to make ethical decisions...

- Restrictive policies (and their corollaries) must be in the hands of the physicians and they must take this seriously
- National campaigns and other actions are useful but should not only be aimed at antibiotic use reduction per se
- Adverse effects must be looked for but not overstated (and risk balance appreciated)
- Antibiotic restrictive policies are not a "cheap" way to resistance control and should be part of more comprehensive policies aimed at improving care quality.
- Research on new antibiotics should not be stopped, but rather promoted ... and countries with cheap labor but good skills could play a critical role...