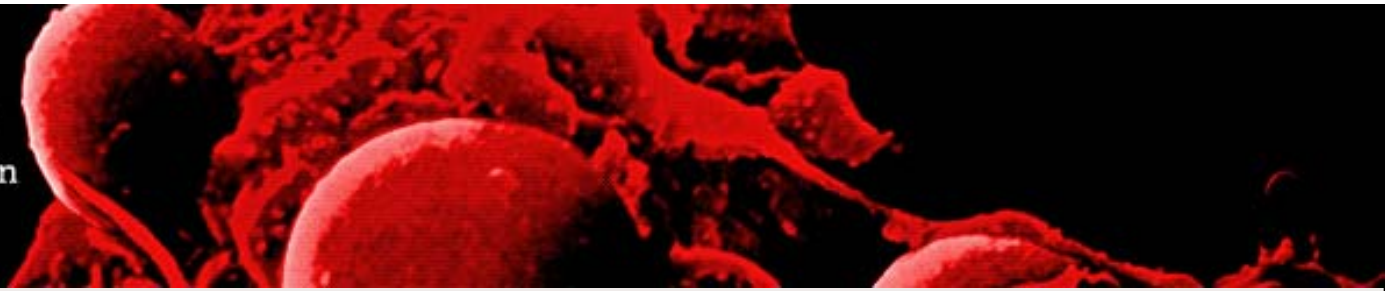




Nijmegen Institute for  
Infection, Inflammation  
& Immunity



# Barriers to implementation of a local antibiotic policy and how to remove them

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Acknowledgement: Jos WM van der Meer MD PhD FRCP FRCP (Edin)  
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# Practice guidelines for antibiotic policy

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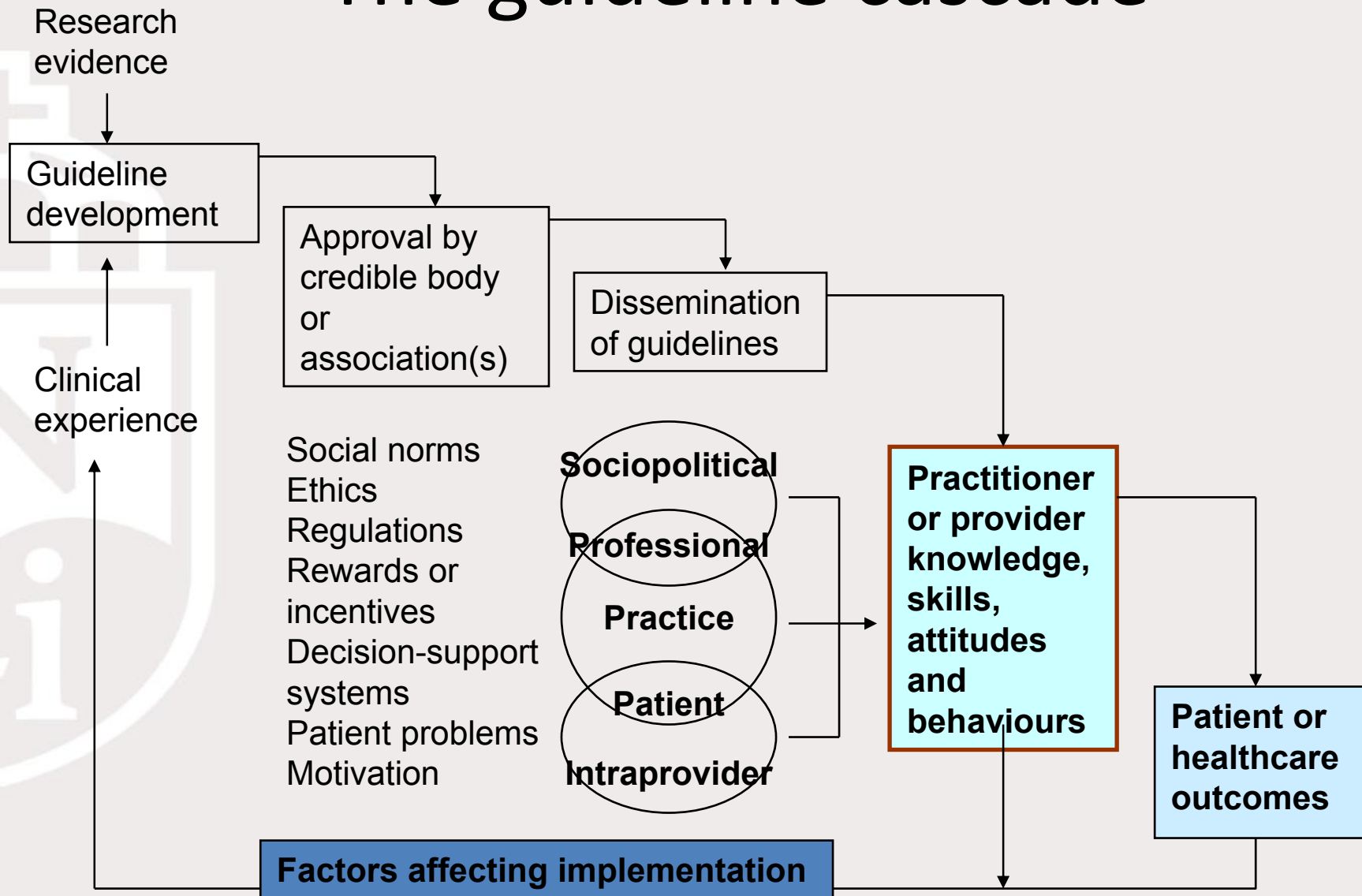
Practice guidelines aim to

- improve quality
- reduce costs
- reduce unwanted variation

*Implementation*

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# The guideline cascade



# Practice guidelines

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~ 50% of the hospital use of antibiotics is inappropriate

Adherence to guidelines:  
20 - 100%

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# Factors that influence change

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- Limiting = barriers
  - Facilitating = facilitators
-

# Barriers to implementation of antibiotic policy

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*Barriers* are factors that limit or  
restrict complete physician  
adherence to a guideline

*[Cabana et al  
JAMA 282:1458, 1999]*

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# Barriers to implementation of antibiotic policy

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- Barriers that cannot be changed
  - Barriers that can be changed
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# Barriers to implementation of antibiotic policy

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Barriers can be

- cognitive
  - behavioural
  - organisational
  - sociocultural
  - financial
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# Barriers to implementation of antibiotic policy

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1. The culture
2. The system
3. The physician
4. The patient



# 1. Barriers in the culture

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- There are profound cultural differences between countries that influence prescribing habits
- 

*[Hofstede -- Haaijer-Ruskamp]* in:

Hulscher M, Grol R & Van der Meer JWM. Lancet 2010; 10, March 2010, p 167-75

# Barriers in the culture

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## Hofstede's Dimensions and Scores.

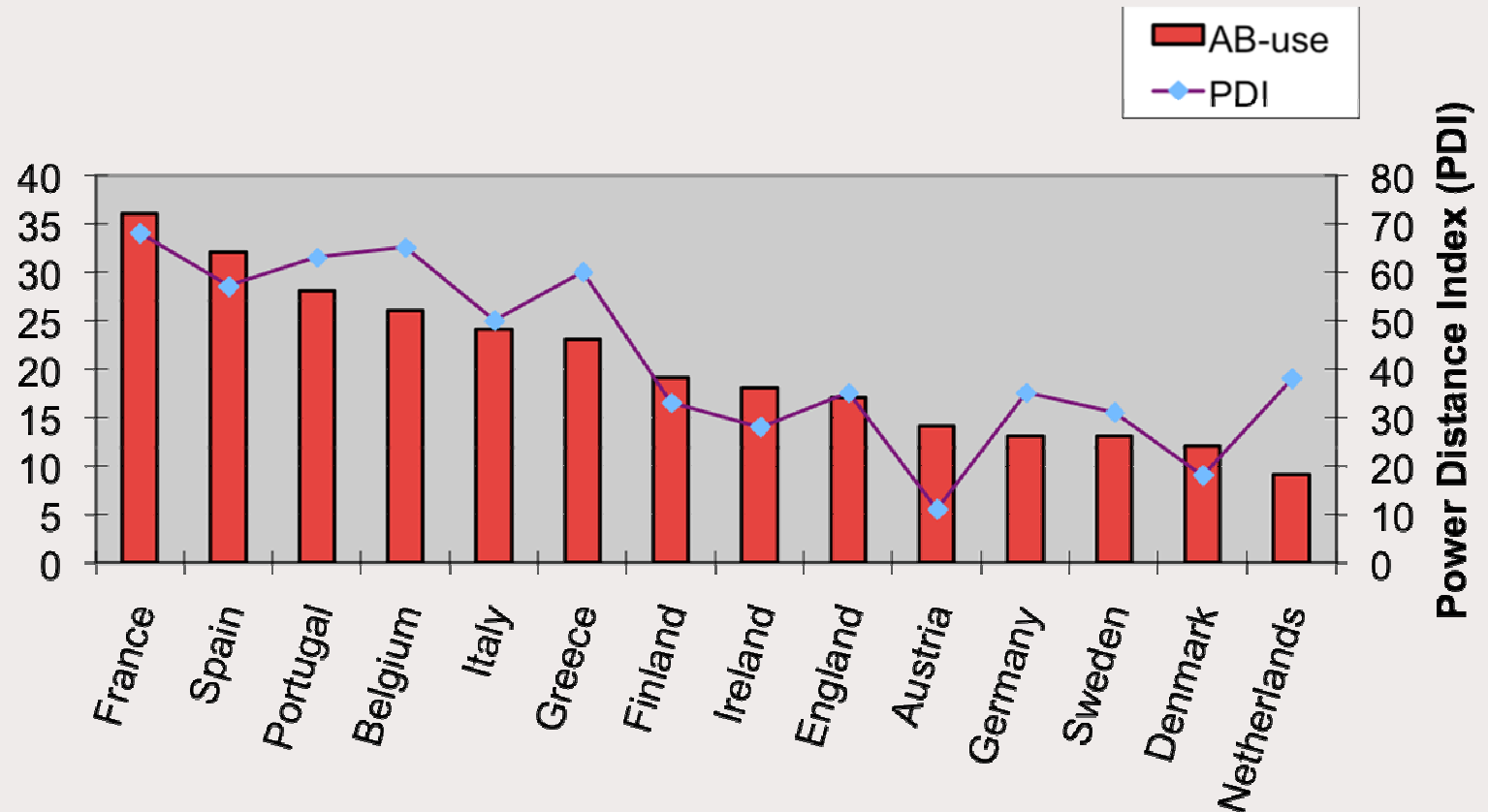
- Power Distance
- Individualism
- Uncertainty Avoidance
- Masculinity
- Long term orientation

[//geert-hofstede.international-business-center.com](http://geert-hofstede.international-business-center.com)

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# Antibiotic use and power distance index

Antibiotic use in DDD/  
1000  
inhabitants and  
day



# Barriers in the culture

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Consumers/patients differ in

- Ideas about health
  - Ideas about cause of disease
  - Labeling of illness
  - Coping strategies
  - Ideas and expectations about treatment
-

# Barriers in the culture

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- Egalitarian societies (NL, UK, Scandinavia) consume fewer antibiotics than hierarchical societies (F, I, Spain, Portugal, Greece)
- Coincides with protestant and catholic countries

Deschepper et al. BMC Health Serv Res 2008;8:123

Kooijker & van der Wijst. Europeans and their medicines. Social and Cultural Planning  
IOffice of the Netherlands, Dongen (2003)

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## 2. Barriers in the system

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- Lack of resources
  - Reimbursement systems
  - Lack of time
  - Organisational constraints
  - Other persons in the system
-

# Watching the system

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Outside to inside

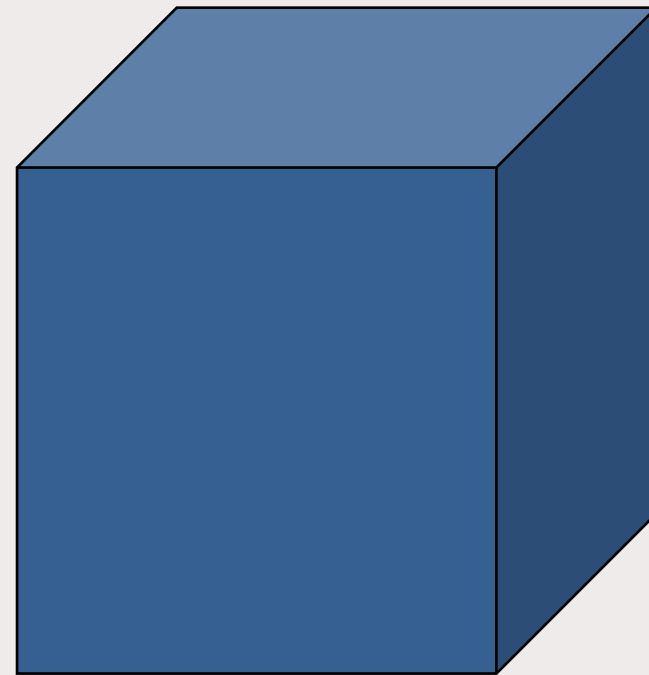
Inside to outside

Top to bottom

Bottom to top,  
and ...

Front to backside

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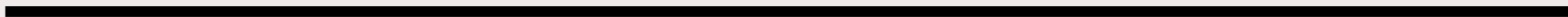
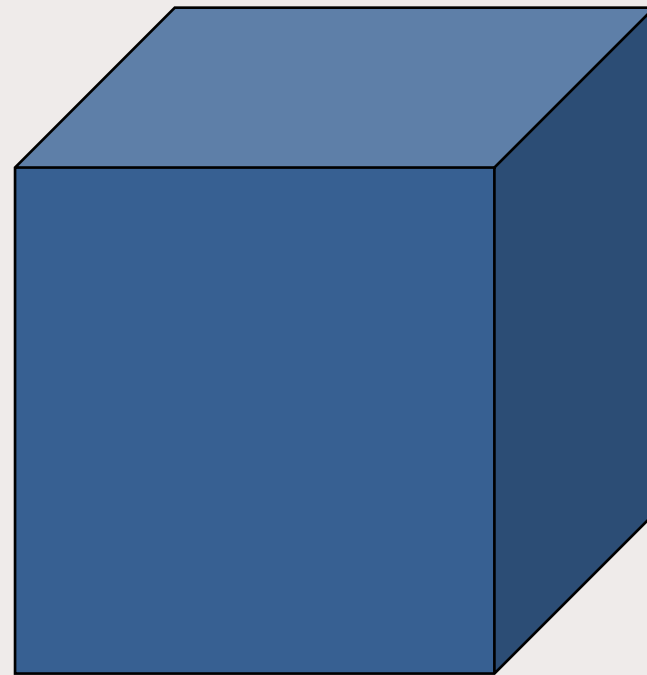


# Watching the system

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Backside:

Contains persons  
with specific  
interests  
with their own aims



# Backside of the organisation

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To reach compliance with peri-operative antibiotic prophylaxis (e.g. timing) one needs to address anaesthesiologists, rather than surgeons.

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*Gyssens et al. Pharm World Sci 1997;19:89-92*

*Gyssens et al. J Antimicrob Chemother 1996;38:301-8*

### 3. Barriers in physicians

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- Barriers that cannot be changed:  
Gender, age, ethnicity, specialty
  - Barriers that can be changed:  
Culture (?), knowledge, ...
-

# Barriers in physicians

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Changing physician behavior is considered by many to be an exercise in futility - an unattainable goal intended only to produce premature aging in those seeking the change. The more optimistic might describe the process as uniquely challenging.

Sbarbaro Clin Infect Dis 2001;33 S240-4

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## Barriers in physicians

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...The end result is the creation of physicians who have deep-seated confidence in their own abilities and feel secure in making decisions with which others may strongly disagree...

... The most important quality of a physician is the ability to exercise independent judgment in the care of a individual patient..

# Behaviour change in physicians

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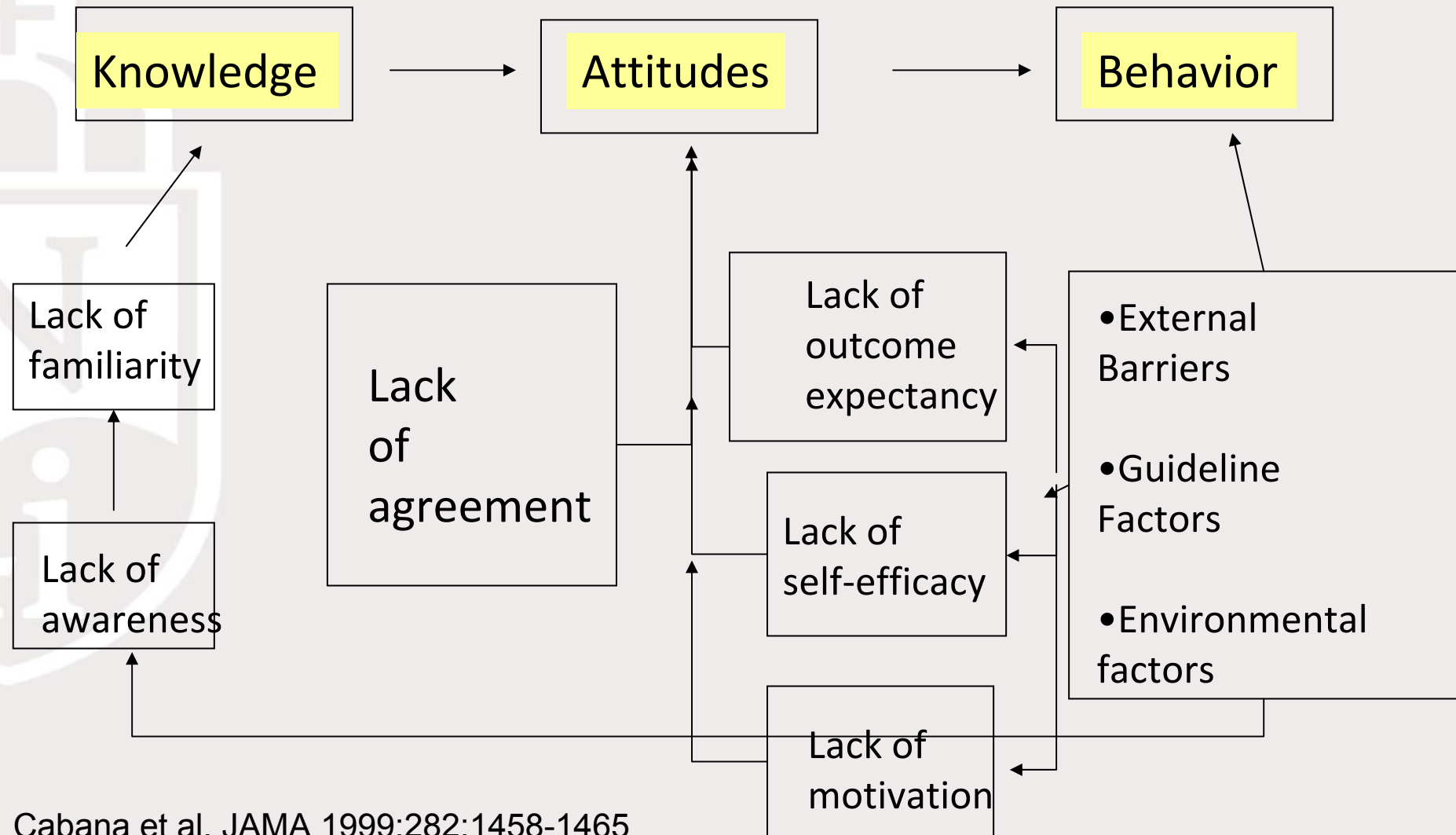
*Sequence:*

Knowledge → Attitudes → Behaviour

**Woolf SH Arch Int Med 153:2646, 1993**

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# Barriers to physician adherence to practice guidelines in relation to (behavior) change; **a professional perception model**



Cabana et al, JAMA 1999;282:1458-1465

# Barriers in physicians

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- 
1. Knowledge: lack of awareness  
lack of familiarity
  2. Attitude: lack of agreement  
lack of self-efficacy  
lack of outcome expectancy  
inertia
  3. Behaviour: external barriers

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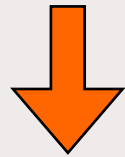
Cabana et al JAMA 282:1458, 1999



# Barriers in physicians

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1. Knowledge: lack of awareness  
lack of familiarity




- Amount of information
- Time needed to stay informed
- Guideline accessibility

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Cabana et al JAMA 282:1458, 1999

# Barriers in physicians

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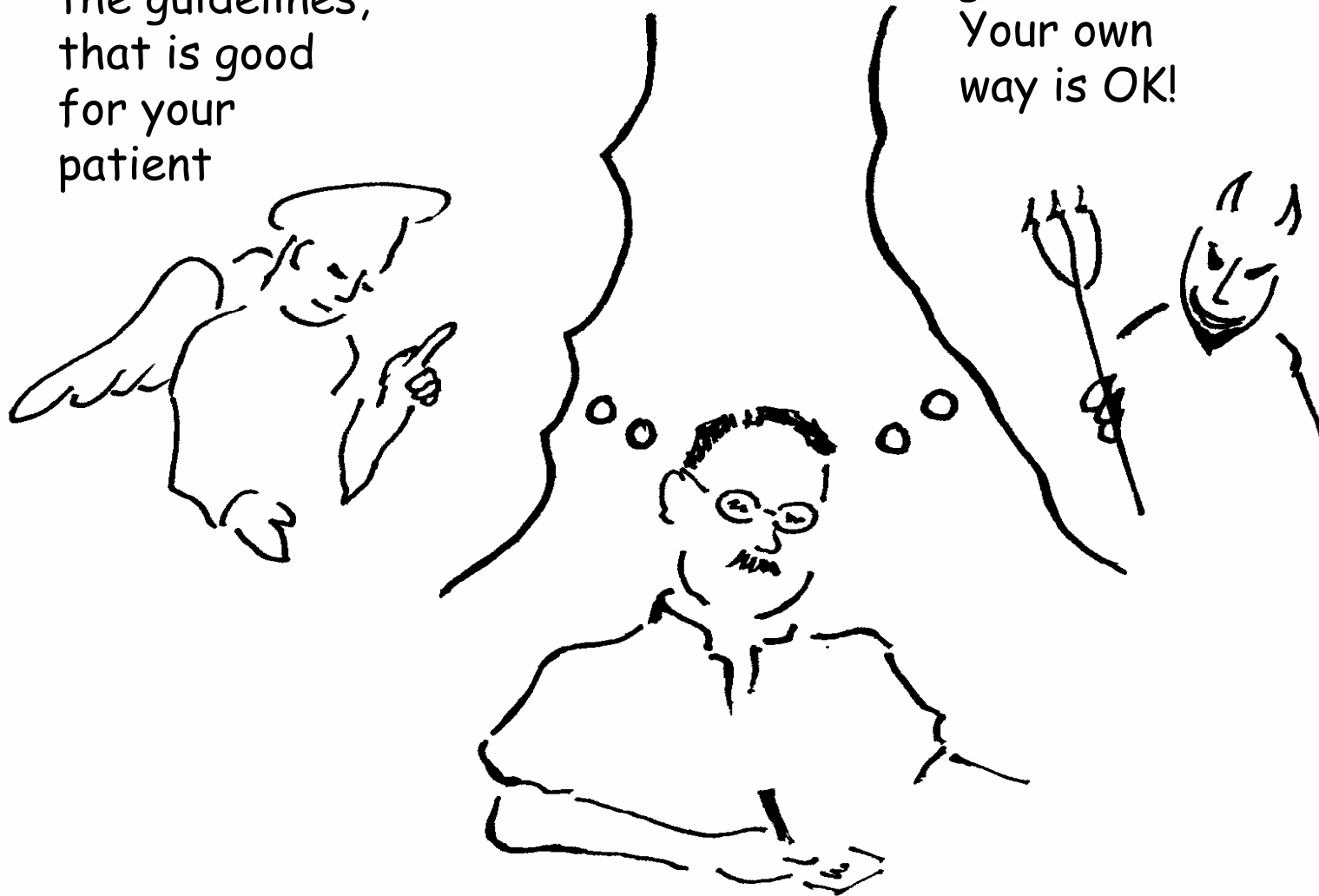
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Cabana et al JAMA 282:1458, 1999

Comply with  
the guidelines,  
that is good  
for your  
patient

To hell with  
guidelines,  
Your own  
way is OK!



# Barriers in physicians

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Attitude of supervisors  
and local opinion leaders:  
participation  
&  
endorsement

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Guidelines are for beginners!



Once more:

Features of guidelines that may improve physician adherence

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- Simplicity
  - Feasibility/applicability
  - Flexibility (allowing for personal judgement)
  - Testing/piloting (shown to improve outcomes)
- 
- Intended to improve quality of care
  - Not intended to reduce costs
  - Not used in litigation or disciplinary actions

Adapted from Finch & Low Clin Microbiol Infect 2002;8 suppl 2:69-91; Christakis et al. Pediatrics 1998, Flores et al. Pediatrics 2000

# Methods to identify barriers (1)

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## Qualitative

- Focus group discussions
  - with professionals
  - with patients
- Face-to-face interviews
- Telephone interviews

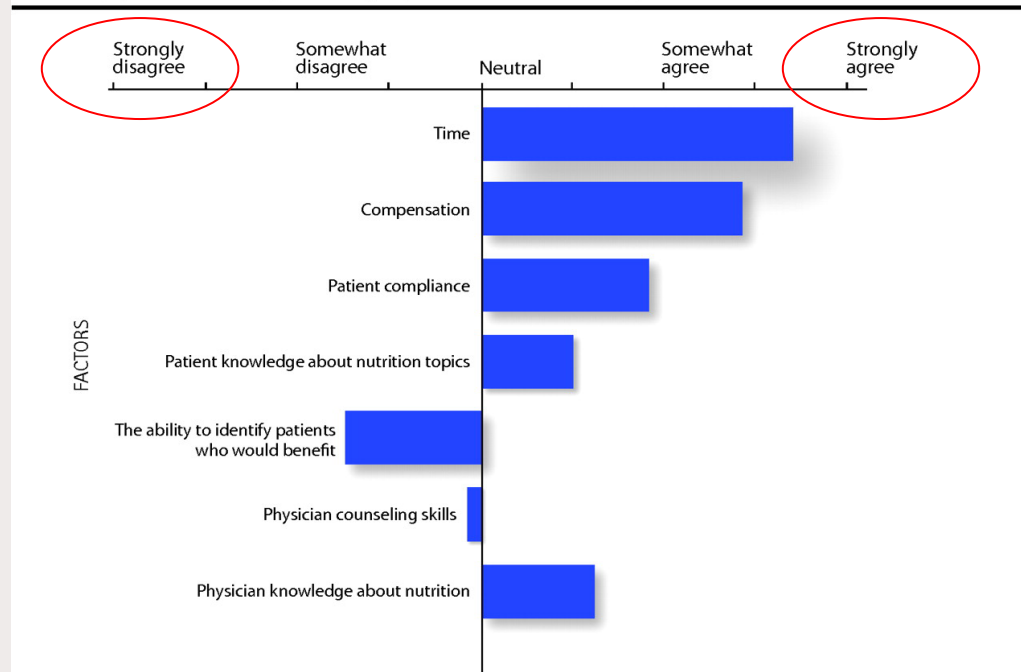
## Quantitative

- Surveys: (semi) structured questionnaires
  - Paper
  - On line (email, web based ..)

# Methods to report barriers (2)

## 5-point Likert scale

**Figure 2.** Barriers to providing nutrition counseling in family practice: Physicians were asked to indicate the extent to which each of these factors were barriers to effective nutrition counseling in the family practice setting; for the purpose of illustration only, neutral was considered to be zero.



Wynn et al. Can Fam Physician 2010;56:e109-16



## Example 1. Barriers analysis:

Multisite intervention on Surgical Prophylaxis in the Netherlands. The “CHIPS” study

12 Dutch hospitals

### EDUCATIONAL INTERVENTION:

- Feedback of quality-of-use review
- Implementation of national guidelines

Before : analysis of barriers

Van Kasteren et al. J Antimicrob Chemother 2003; 2005; Clin Infect Dis 2007

Mannien et al. Infect Control Hosp Epidemiol 2005

## Example 1. Questionnaire and focus groups

– item *timing within 30 minutes before incision*

Questionnaire:

Not a high priority for anaesthetists, and there were barriers affecting **attitude**, such as lack of motivation to change or a lack of outcome expectancy.

Focus groups:

Anaesthetists and anaesthesiology nurses pointed out several determinants of the timing of the first dose that could be identified as organisational constraints

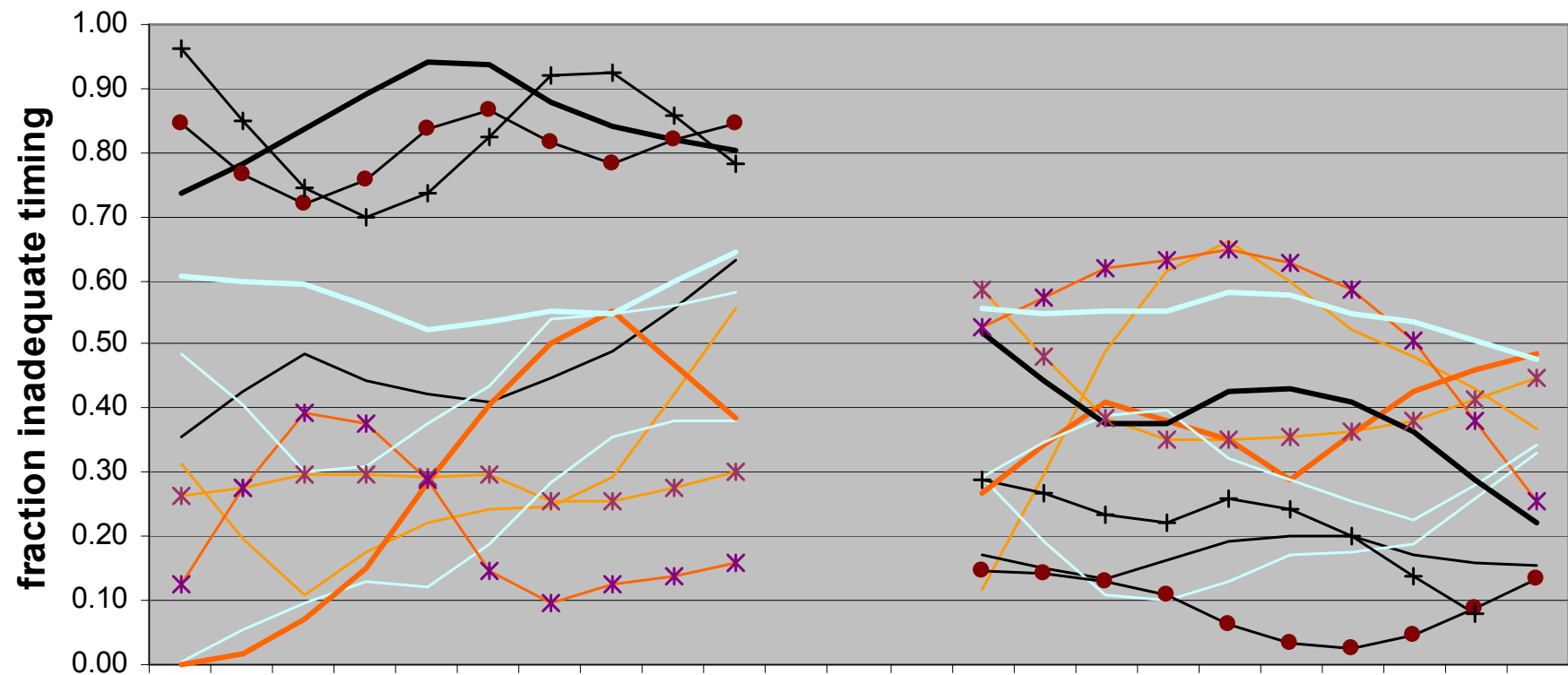
- time of arrival at the surgical suite
- time spend in the holding area
- the need of a test dose before the actual administration of the full dose of the antibiotic
- delaying administration after intubation
- administration as infusion instead of bolus injection
- a written order for prophylaxis instead of the need to wait for instructions.

# Example 1. Barriers in the CHIPS study (NL)

## 12 Hospitals

Experienced barrier	Antibiotic choice		duration		timing	
	Hospitals (A to L)					
	Barrier present	Successful implement ation	Barrier present	Successful implementa tion	Barrier present	Successful implementation
Internal barriers knowledge						
<i>Lack of awareness</i>	1(F)	1(F)	-	-	-	-
Internal barriers attitude						
<i>Lack of agreement</i>	2 (B,F)	0	7 (C,D,F,G,I,K)	2 (G,I)	-	-
<i>Lack of outcome expectancy</i>	-	-	5(C,D,F,K,L)	0	1 (M)	0 (M)
<i>Lack of motivation</i>	-	-	-	-	1 (D)	0 (D)
External barriers						
<i>Environmental factors, organisational constraints</i>	2 (C,M)	0	1 (H)	1 (H)	11 ( A,B,C, E,F,G,H,I,J ,K,L)	4 (G,H,J,K)

## Example 1. Intervention to improve the Timing of prophylaxis (11 hospitals), orthopedic procedures



## Example 2. Barriers analysis and how to remove them

### The Institute for Healthcare Improvement (US)

#### **Lack of support by leadership**

Solution: Use opinion leaders (physicians)/champions and data and if possible; a business case for the project may help to win leadership support.

#### **Uneven physician acceptance of new practices**

Solution: Use physician opinion leaders, review the medical literature, and feed back data on a surgeon-specific level. Work first with your early adopters and use their stories to convince the majority.

[www.ihl.org/IHI/Programs/Campaign](http://www.ihl.org/IHI/Programs/Campaign)



## Example 3. MATRA project -Surgical prophylaxis guideline, Zagreb, November 2007

### Solutions to remove the barriers

- Involvement of surgeons and anesthesiologists. How about the **nurses**?
- More involvement of **certain** societies
- Introduce the concept of « **local champions** » to disseminate into professional groups
- Profile of the local champion
  - Motivated
  - Clinician!
  - Charismatic
  - Enthusiastic
  - Well informed
  - Authoritative?
  - Experienced

Dutch Ministry of Foreign Affairs. The Matra Programme. Available from: [http://www.minbuza.nl/en/themes/european-cooperation/the\\_matra\\_programme\\_file](http://www.minbuza.nl/en/themes/european-cooperation/the_matra_programme_file)

Prins JM, Degener JE, de Neeling AJ, Gyssens IC, the SWAB board . Experiences with the Dutch Working Party on Antibiotic Policy (SWAB). Euro Surveill. 2008;13(46):pii=19037.  
<http://www.eurosurveillance.org/>

### Example 3. MATRA project -Surgical prophylaxis guideline

- “The most important barrier to implementation will be the difference between the recommendation of an evidence based guideline regarding duration of prophylaxis (single dose or max. 24h) and actual practice in Croatia (often several days)”

*MATRA Workshop report, Zagreb November 2006*

See also Goossens, ESAC point prevalence surveillance

## Example 4. Barriers identification

-item *Earlier initiation of antibiotics for severe infections*

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Delay is common and multi-factorial:

- Physicians
  - Habits for taking culture specimens
  - Nurses
  - Accessibility of antibiotics in ED
  - Financial restraints
- 

Natsch et al Eur J Clin Microb Infect Dis 17:681, 1998

Natsch et al Arch Int Med 160:1317, 2000



# Conclusion (1)


## Implementation of guidelines

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- Good preparation and planning
- Creating support/acceptance by stakeholders
- Development of realistic goals for improvement
- Practical tools for support
- **Analysis of barriers to implementation**
- Plan for interventions
- Development of indicators for monitoring

## Conclusion (2)

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- 
- ✓ **Start** an intervention with an inventory of **barriers and facilitators**
  - ✓ 'Evidence' and consensus are important
  - ✓ This allows for revision and evaluation of planned intervention strategies