UNIVERSITÉ DE GENÈVE
FACULTÉ DE MÉDECINE

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HUG
Hôpitaux Universitaires de Genève

The impact of hand hygiene in the prevention and control of multidrug-resistant bacteria

World Health Organization 1st Global Patient Safety Challenge

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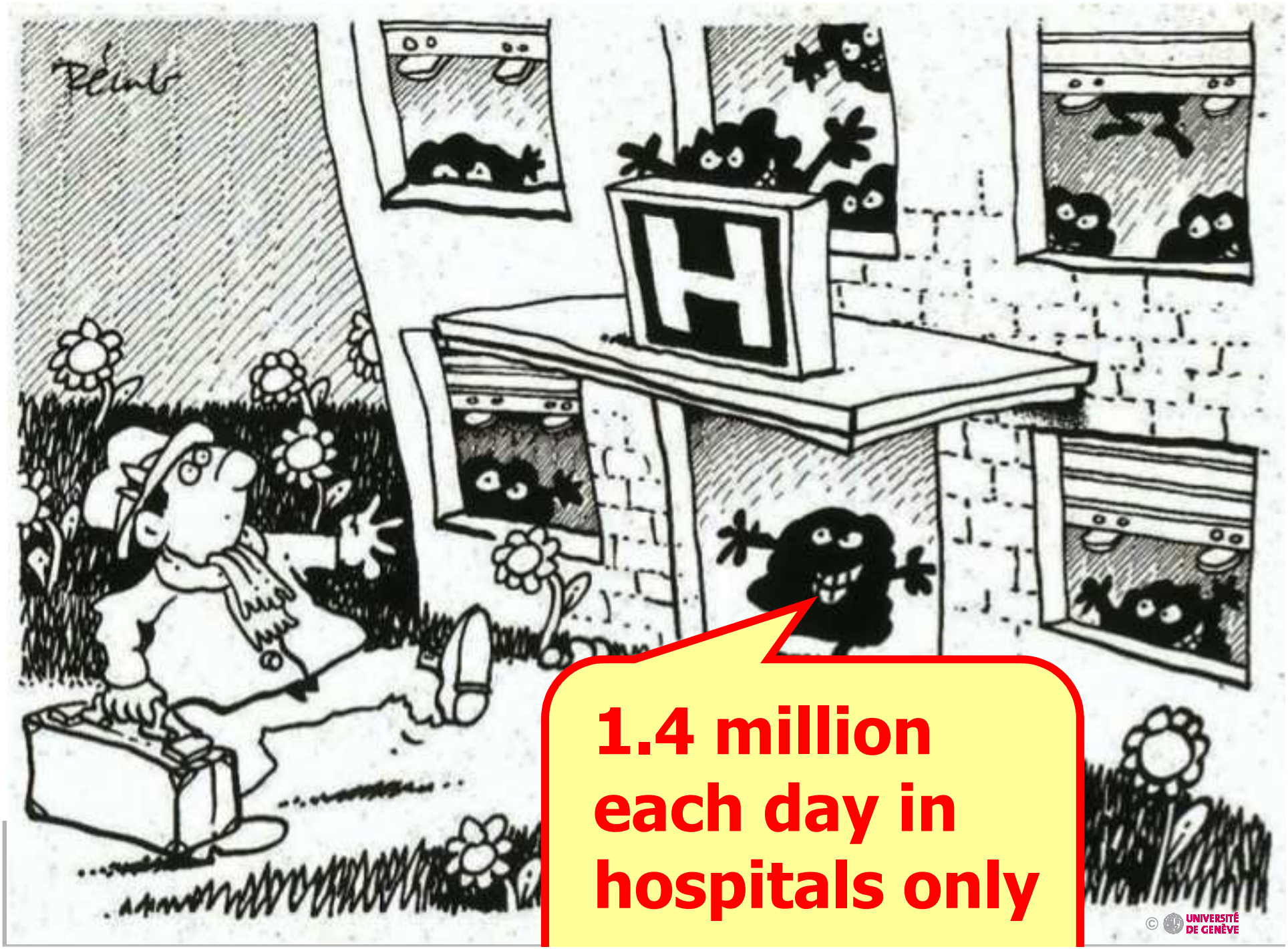
World Health Organization (WHO) Patient Safety

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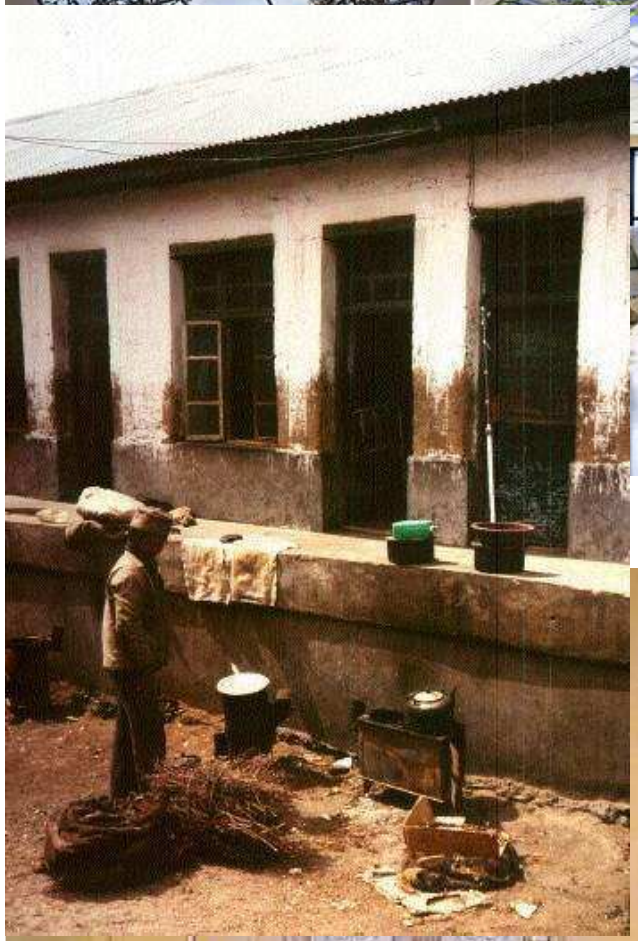
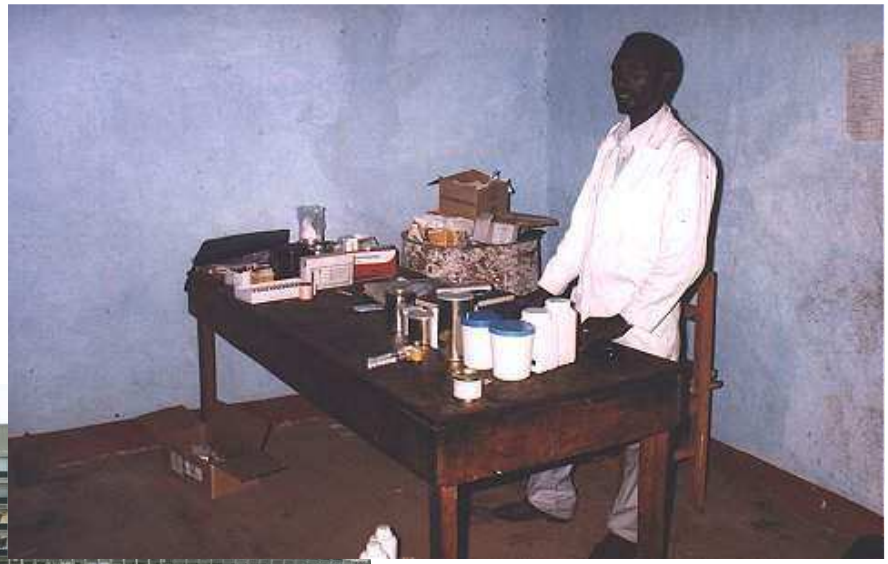
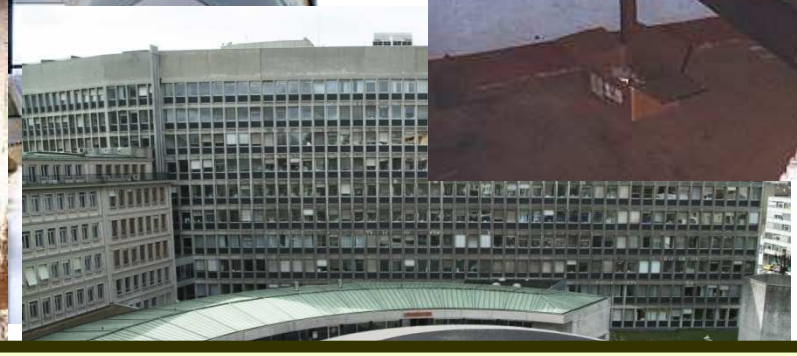











Burden of disease outside hospitals is unknown

No hospital, no country, no health-care system in the world can claim to have solved the problem

Objectives of the Challenge

Burden of HCAI **Stakeholders' engagement**	1. Awareness
Country pledges **National campaigns**	2. Mobilising nations
Implementation strategies	3. Technical guidelines and tools

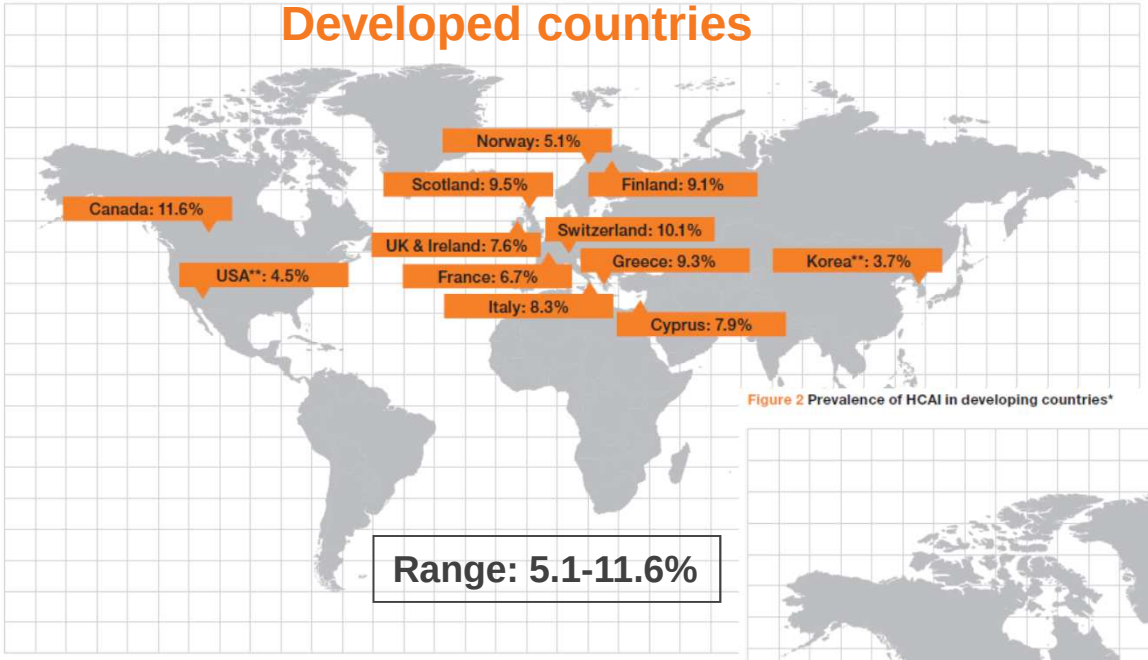
Estimates of the global burden of health care-associated infection are hampered by limited availability of reliable data

First Challenge area of work on the burden of health care-associated infection: ***understanding the magnitude of the problem***

The Lancet, Volume 377, Issue 9761, Pages 228 - 241, 15 January 2011

Prevalence of HAI worldwide

Figure 1 **Prevalence of HCAI in developed countries***



* Systematic review conducted by WHO, 1995-2008

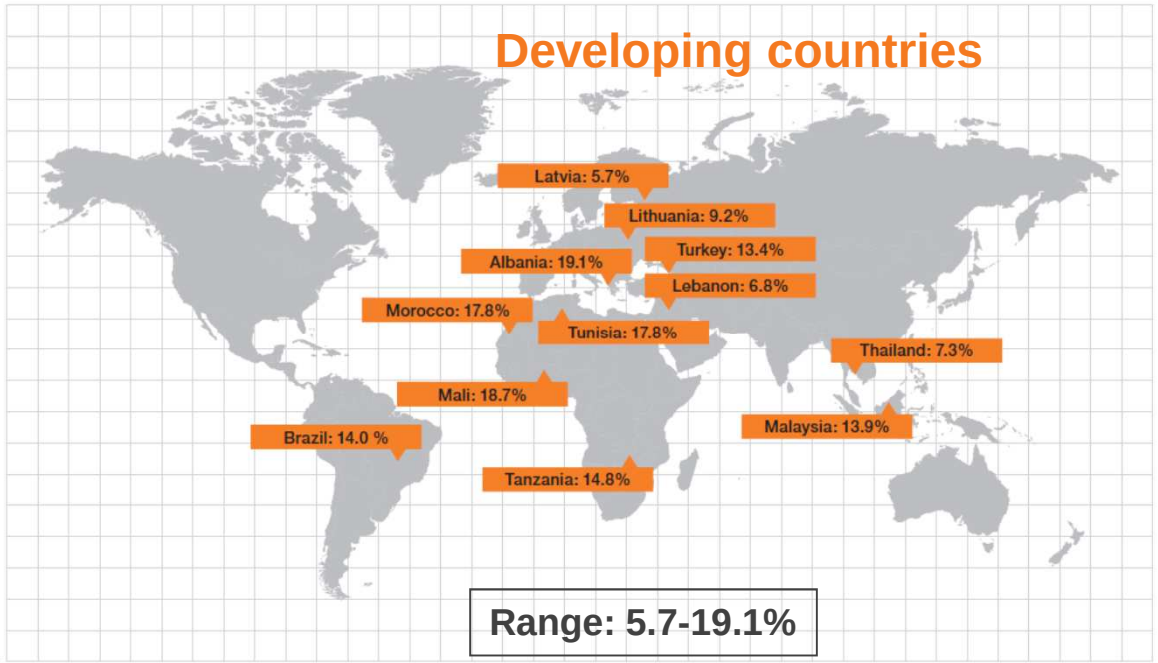
**Incidence

The Burden of Health Care-Associated Infection Worldwide: A Summary - *First Global Patient Safety Challenge* http://www.who.int/gpsc/

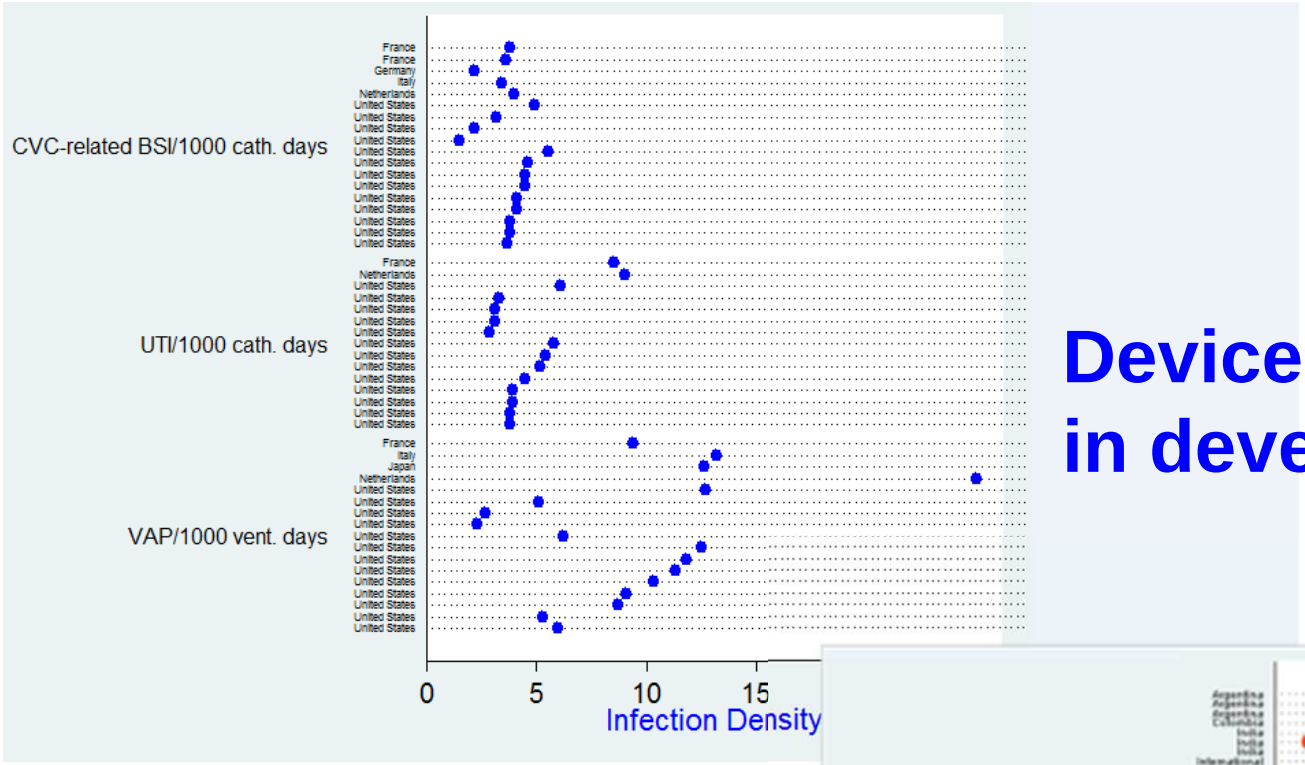
Allegranzi B et al, The Lancet, Dec 2010

at least x 2

Figure 2 **Prevalence of HCAI in developing countries***



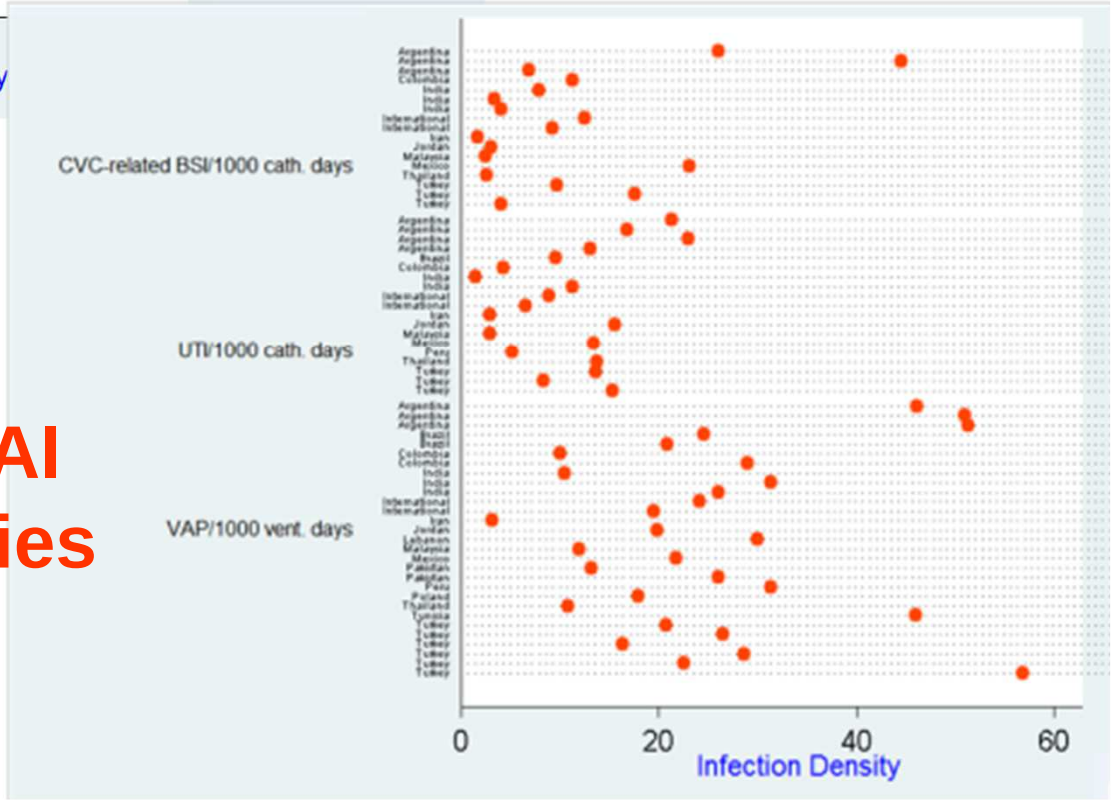
* Systematic review conducted by WHO, 1995-2008



Device-associated HAI in developed countries

x 2-18

Device-associated HAI in developing countries



Allegranzi B et al, The Lancet, Dec 2010

Articles

Burden of endemic health-care-associated infection in developing countries: systematic review and meta-analysis

Benedetta Allegranzi, Sepideh Bagheri Nejad, Christophe Combescure, Wilco Graafmans, Homa Attar, Liam Donaldson, Didier Pittet

Summary

Background Health-care-associated infection is the most frequent result of unsafe patient care worldwide, but few data are available from the developing world. We aimed to assess the epidemiology of endemic health-care-associated infection in developing countries.

Methods We searched electronic databases and reference lists of relevant papers for articles published 1995–2008. Studies containing full or partial data from developing countries related to infection prevalence or incidence—including overall health-care-associated infection and major infection sites, and their microbiological cause—were selected. We classified studies as low-quality or high-quality according to predefined criteria. Data were pooled for analysis.

Findings Of 271 selected articles, 220 were included in the final analysis. Limited data were retrieved from some regions and many countries were not represented. 118 (54%) studies were low quality. In general, infection frequencies reported in high-quality studies were greater than those from low-quality studies. Prevalence of health-care-associated infection (pooled prevalence in high-quality studies, 15·5 per 100 patients [95% CI 12·6–18·9]) was much higher than proportions reported from Europe and the USA. Pooled overall health-care-associated infection density in adult intensive-care units was 47·9 per 1000 patient-days (95% CI 36·7–59·1), at least three times as high as densities reported from the USA. Surgical-site infection was the leading infection in hospitals (pooled cumulative incidence 5·6 per 100 surgical procedures), strikingly higher than proportions recorded in developed countries. Gram-negative bacilli represented the most common nosocomial isolates. Apart from meticillin resistance, noted in 158 of 290 (54%) *Staphylococcus aureus* isolates (in eight studies), very few articles reported antimicrobial resistance.

Interpretation The burden of health-care-associated infection in developing countries is high. Our findings indicate a need to improve surveillance and infection-control practices.

Funding World Health Organization.

Introduction

Health-care-associated infections are deemed the most frequent adverse event threatening patients' safety worldwide.[1–3] However, reliable estimates of the global burden are hampered by a paucity of data adequately describing endemic infections at national and regional levels, particularly in resource-limited settings.[4] In countries where less than 5% of the gross national product is spent on health care, and workforce density is less than five per 1000 population,[3] other emerging health problems and diseases take priority.[5] The epidemiological gap leading to the absence of reliable estimates of the global burden is mainly because surveillance of health-care-associated infection expends time and resources and needs expertise in study design, data collection, analysis, and interpretation. Very few countries of low and middle income have national surveillance systems for health-care-associated infections. Data from the International Nosocomial Infection Control Consortium,[7] and findings of two systematic reviews on hospital-acquired neonatal infections[8] and ventilator-associated pneumonia,[9] suggested not only that risks of health-care-associated infection are significantly higher in developing countries but also that the effect on patients and health-care systems is severe and greatly underestimated.

The aim of this systematic review and meta-analysis is to assess the burden of endemic health-care-associated infection in developing countries by collation of available data from published studies on epidemiology. We also aim to investigate constraints linked to surveillance of health-care-associated infection in resource-limited settings and identify perspectives for improvement.

Methods

Search strategy and selection criteria

We undertook a literature search and review process according to a protocol designed before data collection. We aimed to identify studies on the epidemiology of health-care-associated infection in developing countries, with a particular focus on the most frequent bacterial infections—urinary-tract infection, surgical-site infection, bloodstream infection, hospital-acquired pneumonia, and ventilator-associated pneumonia. We searched Medline for reports published between January, 1995, and December, 2008, with no language restriction. We used a comprehensive list of terms (panel 1), including MeSH

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See Online/Comment DOI:10.1016/S0140-6736(10)62005-3

First Global Patient Safety Challenge, WHO Patient Safety, Geneva, Switzerland (BA Bagheri Nejad MD, S Bagheri Nejad MD, W Graafmans PhD, H Attar PhD); I. Donaldson MD; Prof D Pittet MD); Division of Clinical Epidemiology, University of Geneva Hospitals and Faculty of Medicine, Geneva, Switzerland (C Combescure PhD); Infection Control Programme, and WHO Collaborating Centre on Patient Safety (Infection Control and Improving Practice), University of Geneva Hospitals and Faculty of Medicine, Geneva, Switzerland (Prof D Pittet); and National Patient Safety Agency, London, UK (L Donaldson)

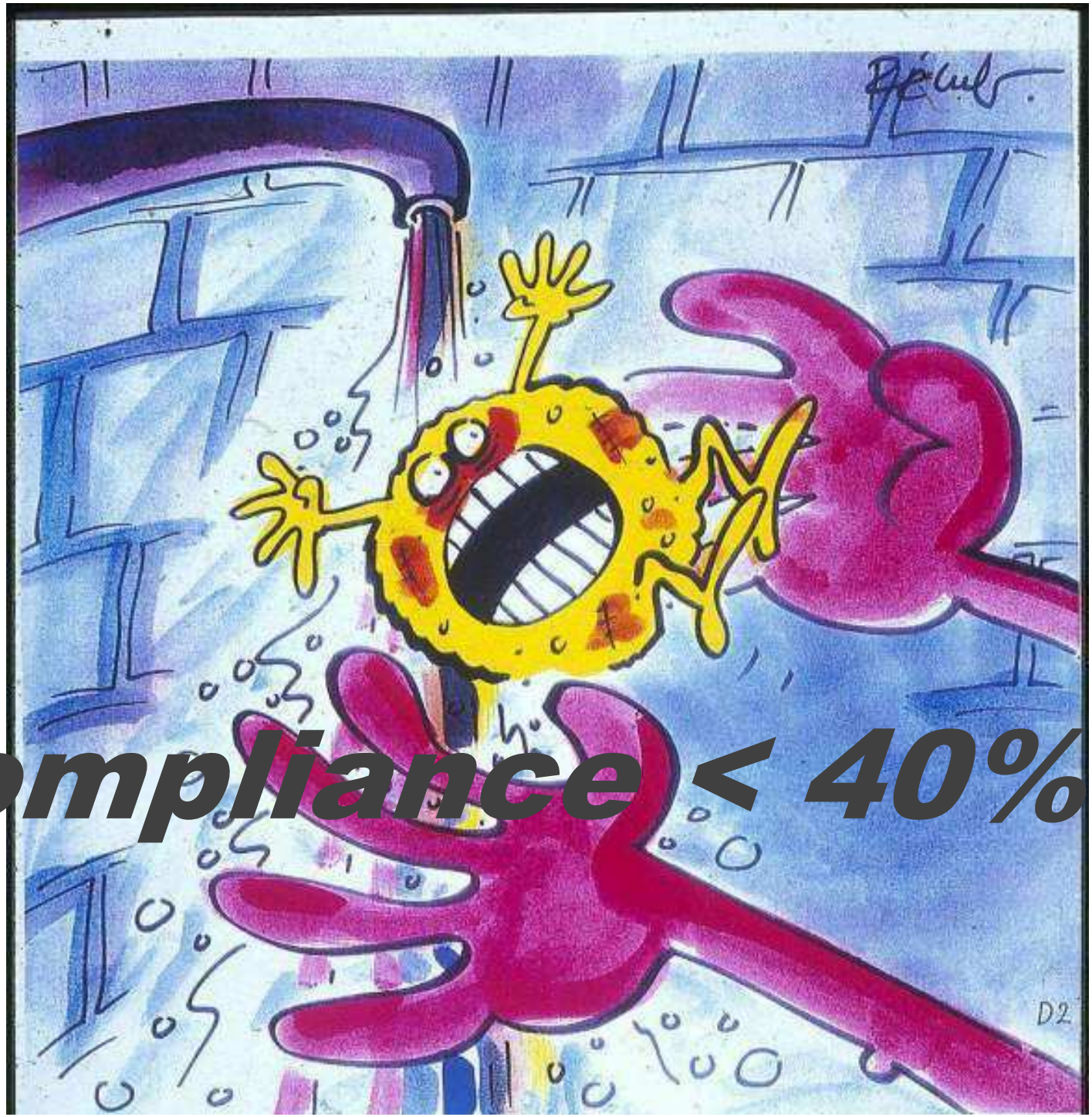
Correspondence to: Prof Didier Pittet, Infection Control Programme, University of Geneva Hospitals and Faculty of Medicine, 4 Rue Gabrielle Perret-Gentil, 1211 Geneva 14, Switzerland didier.pittet@hcuge.ch

An original article on the HCAI endemic burden in developing countries published by the WHO *Clean Care is Safer Care* team in *The Lancet*

Allegranzi B et al.
Lancet 2011; 377:228-41. Epub 2010 Dec 9.

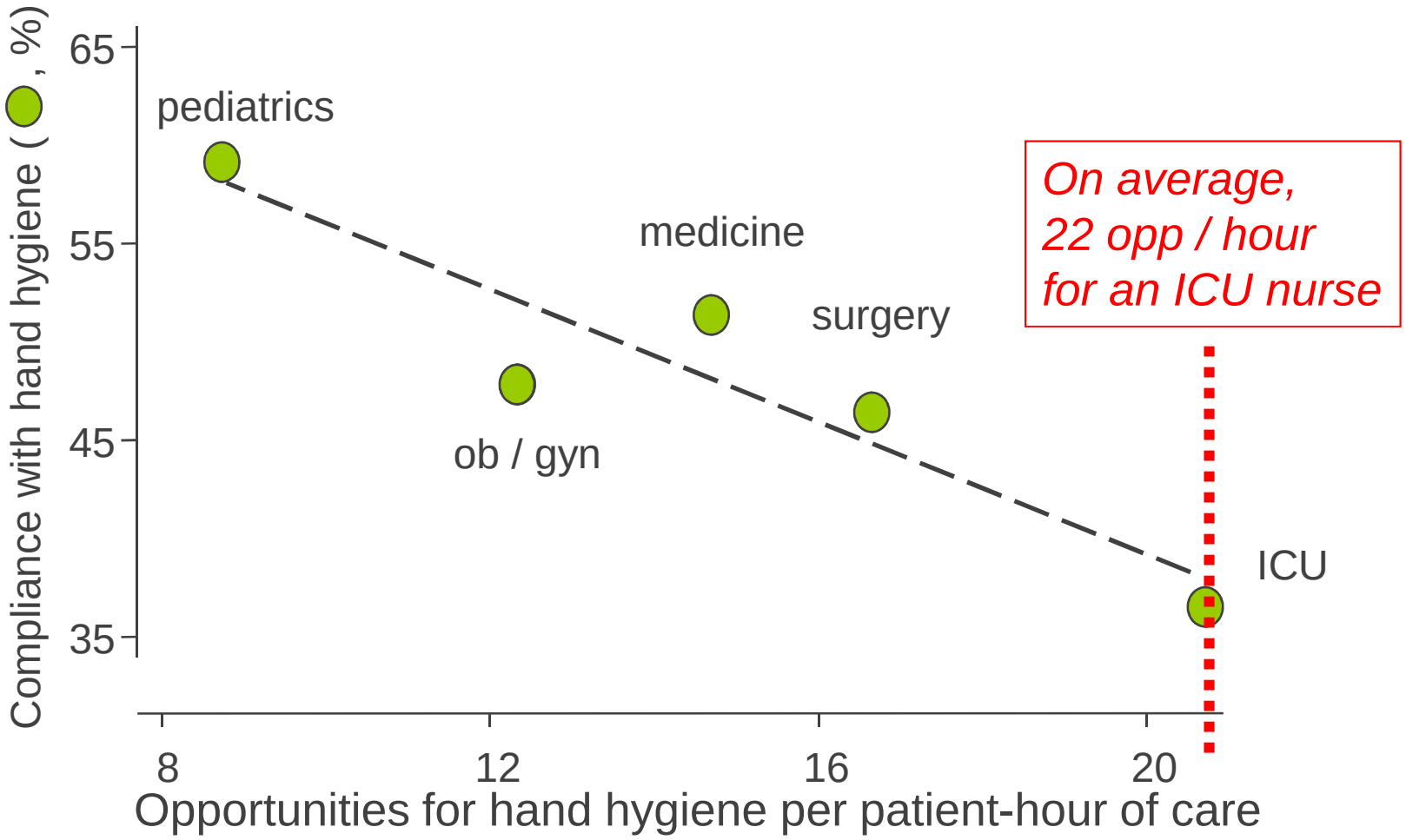
When health care is the problem,

we need a solution…


Compliance < 40%

Hôpitaux Universitaires de Genève

Relation between opportunities for hand hygiene for nurses and compliance across hospital wards



adapted from Pittet D et al. *Annals Intern Med* 1999; 130:126

Time constraint = major obstacle for hand hygiene

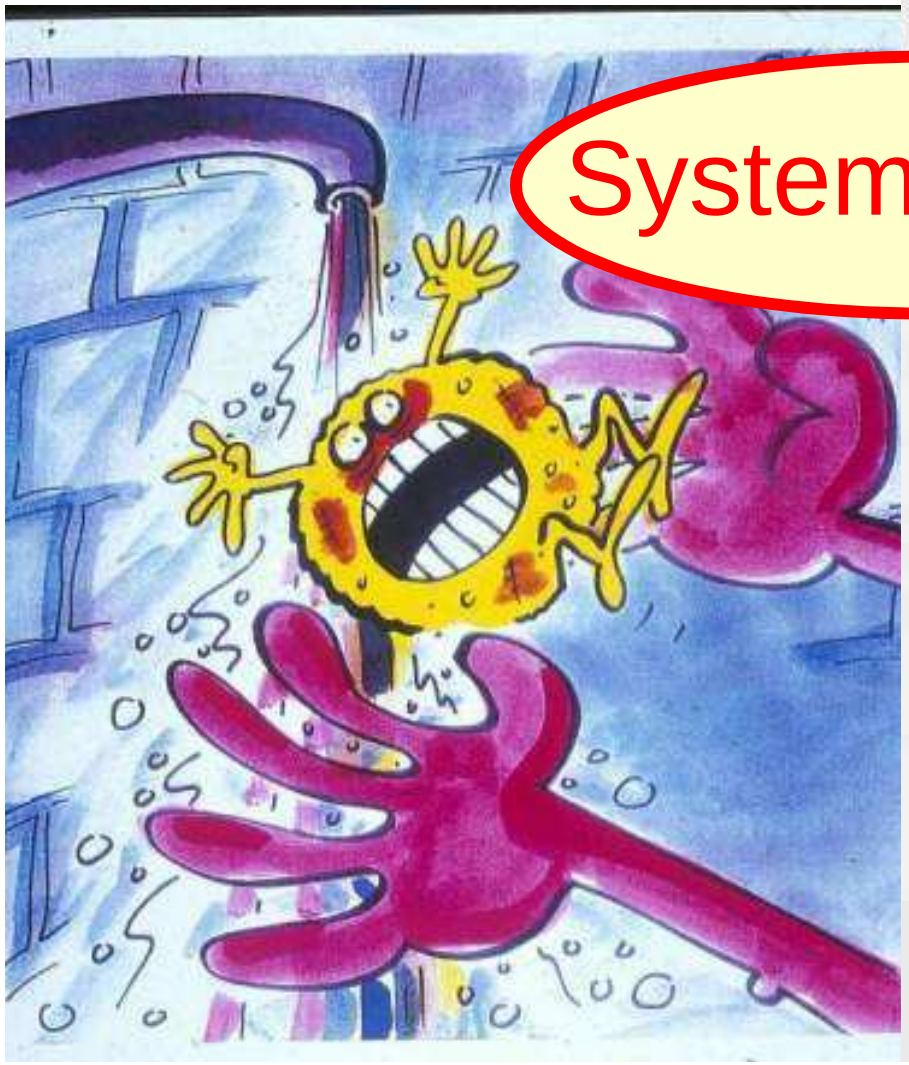
handwashing
soap + water

1 to 1.5 min

alcohol-based
hand rub

15 to 20 sec

Handwashing …
an action of the past
(except when hands are visibly soiled)



System change

Alcohol-based hand rub is standard of care

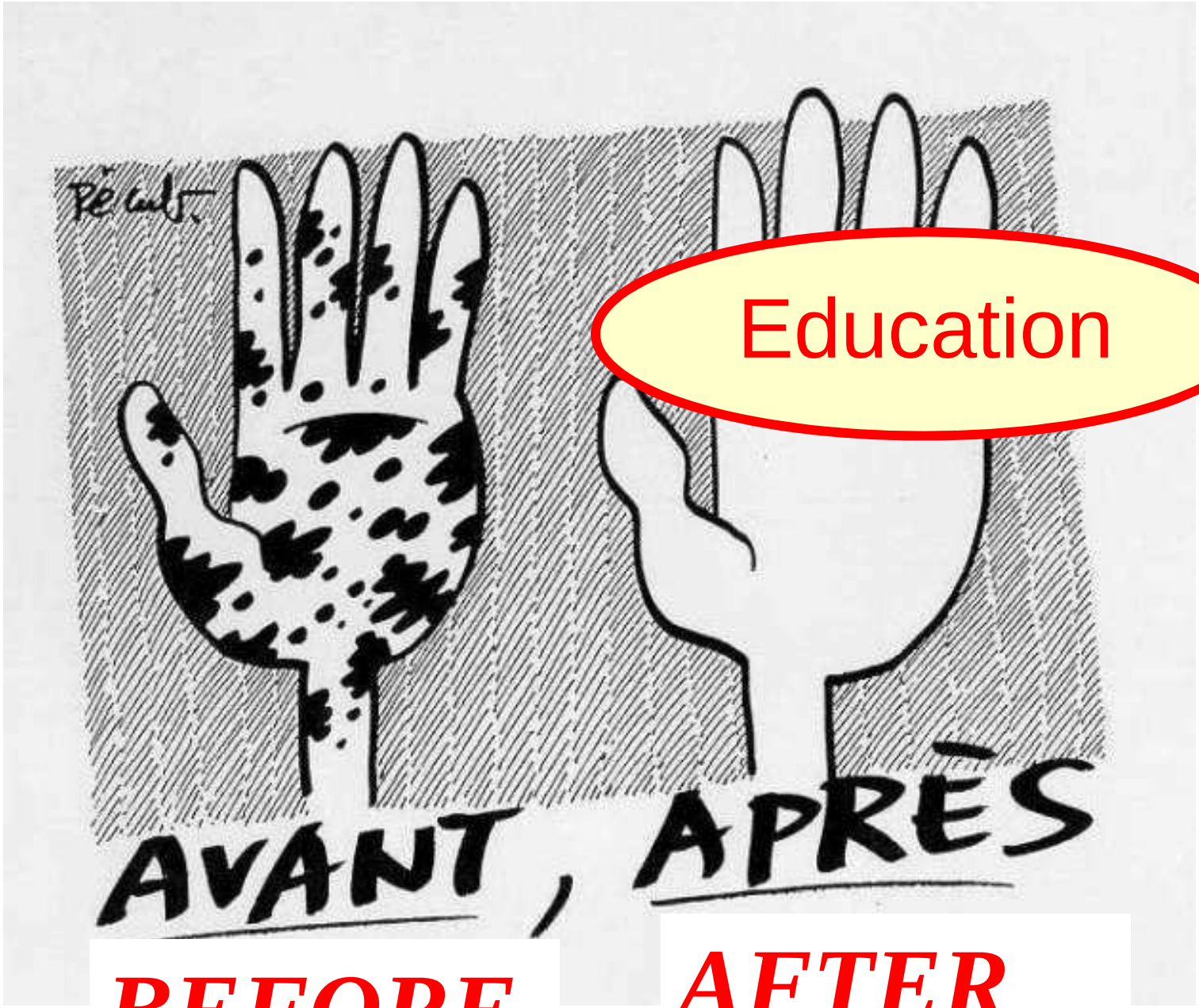
Alcohol-based hand rub at the point of care

HUG

The University of Geneva Hospitals, 1995

Before and after any patient contact
After glove use
In between different body site care

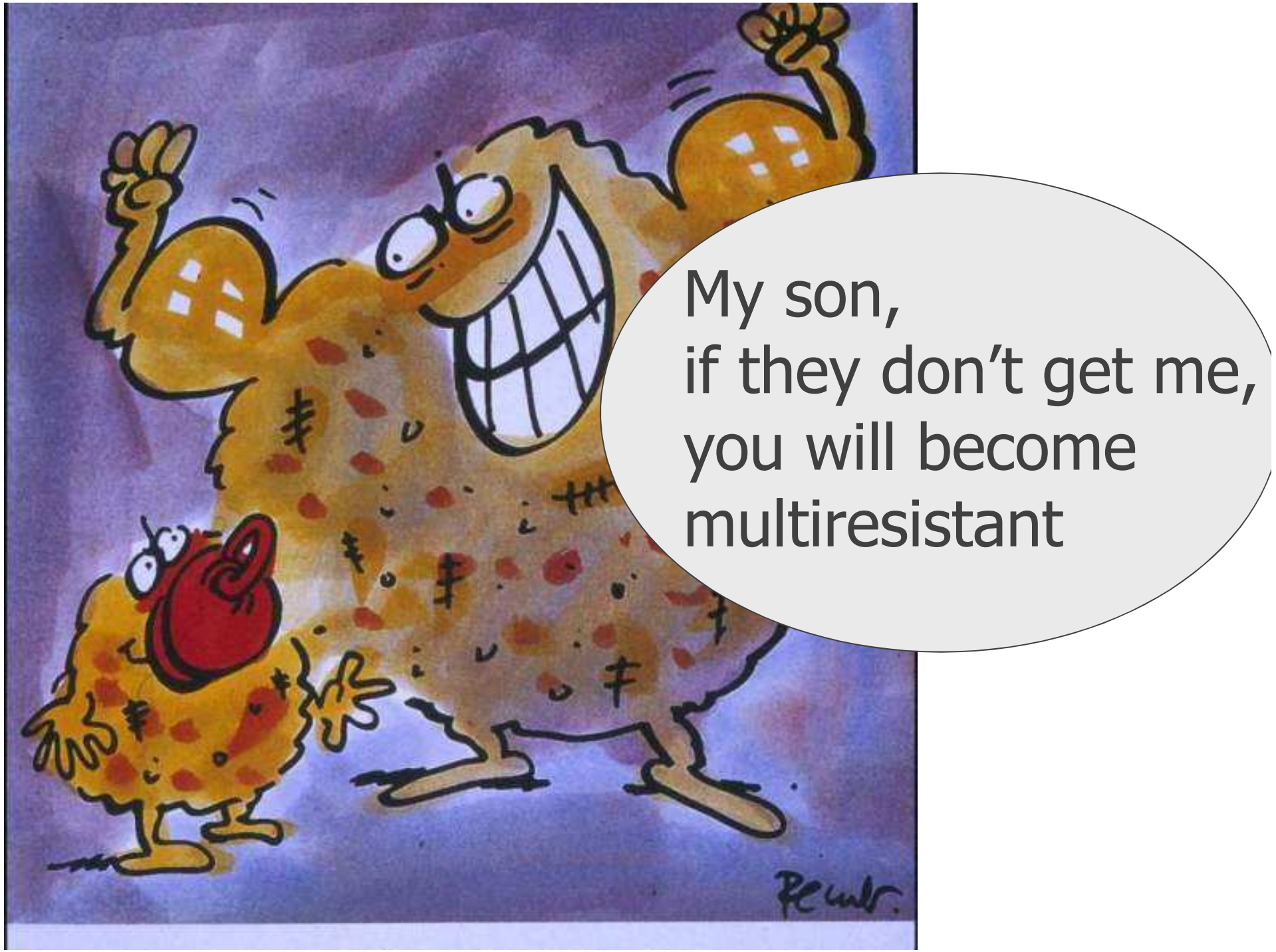
The University of Geneva Hospitals (HUG), 1995

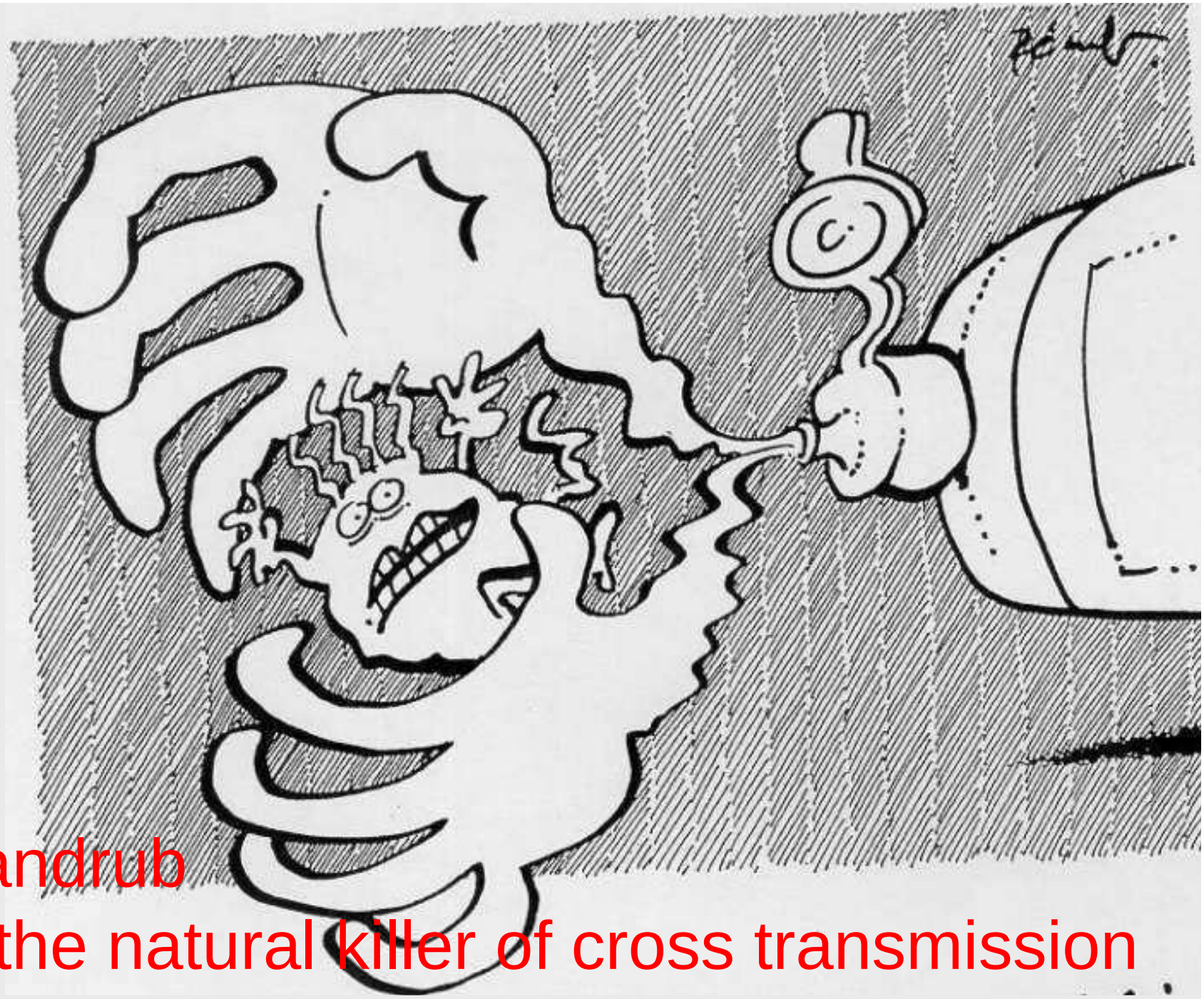


The University of Geneva Hospitals (HUG), 1995 - 1998

« Talking walls »


LES MAINS QUI SAVENT SE LAVENT
MAIS QUI DONC A INVENTÉ L'ASEPSIE ?
LES MAINS QUI SAVENT, SE LAVENT !
LES MAINS QUI SAVENT, SE LAVENT !

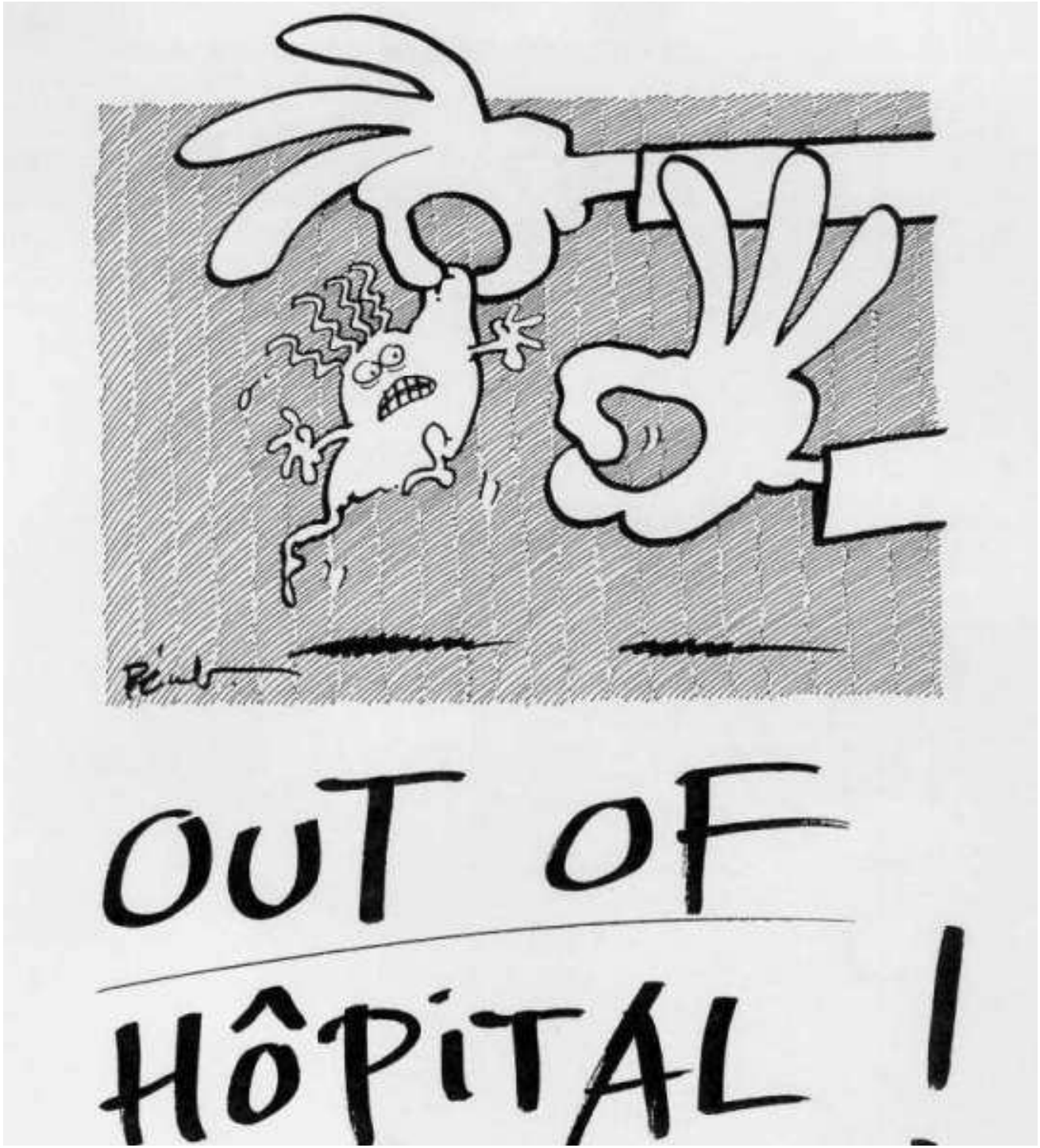

My son,
if they don't get me,
you will become
multiresistant



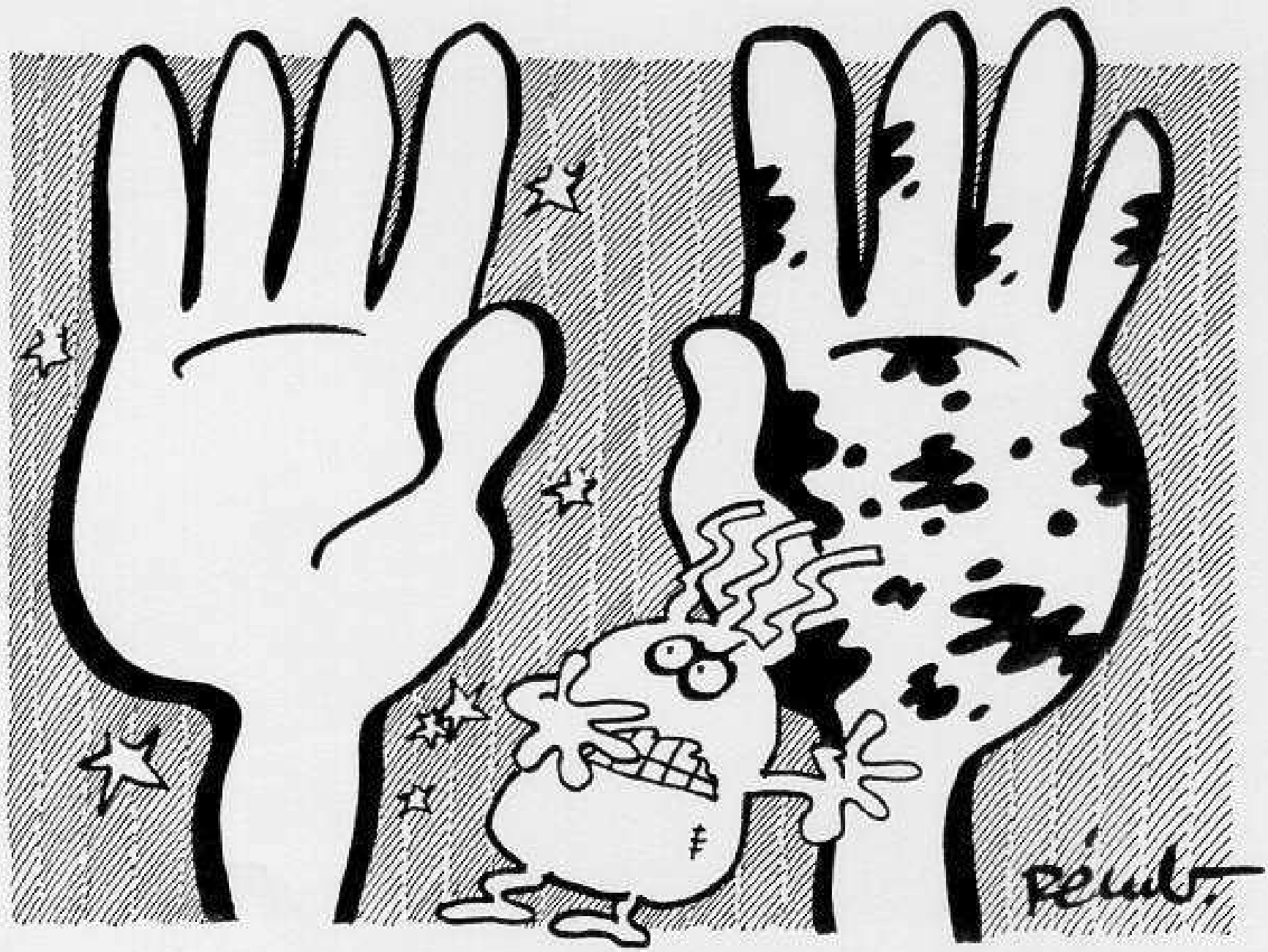
Handrub
is the natural killer of cross transmission

Dirty Staph

…out
of
hospital



The University of Geneva Hospitals (HUG), 1995 - 1998



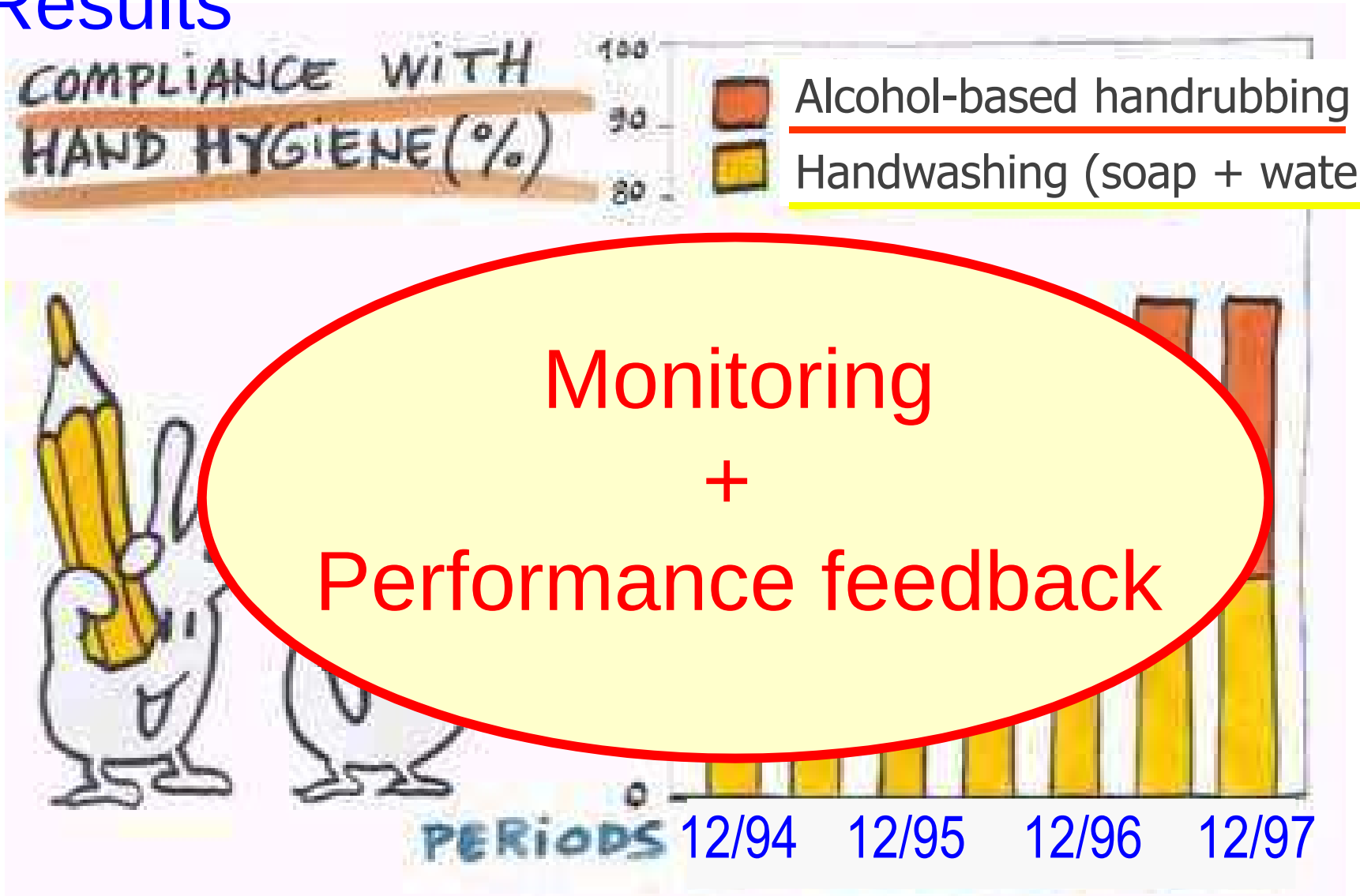
The University of Geneva Hospitals (HUG), 1995 - 1998

Doctor Freud,
in this hospital,
it's become impossible
to cause infections
any more !

Safety culture

Geneva's University Hospitals against *Dirty Staph* : war has been declared

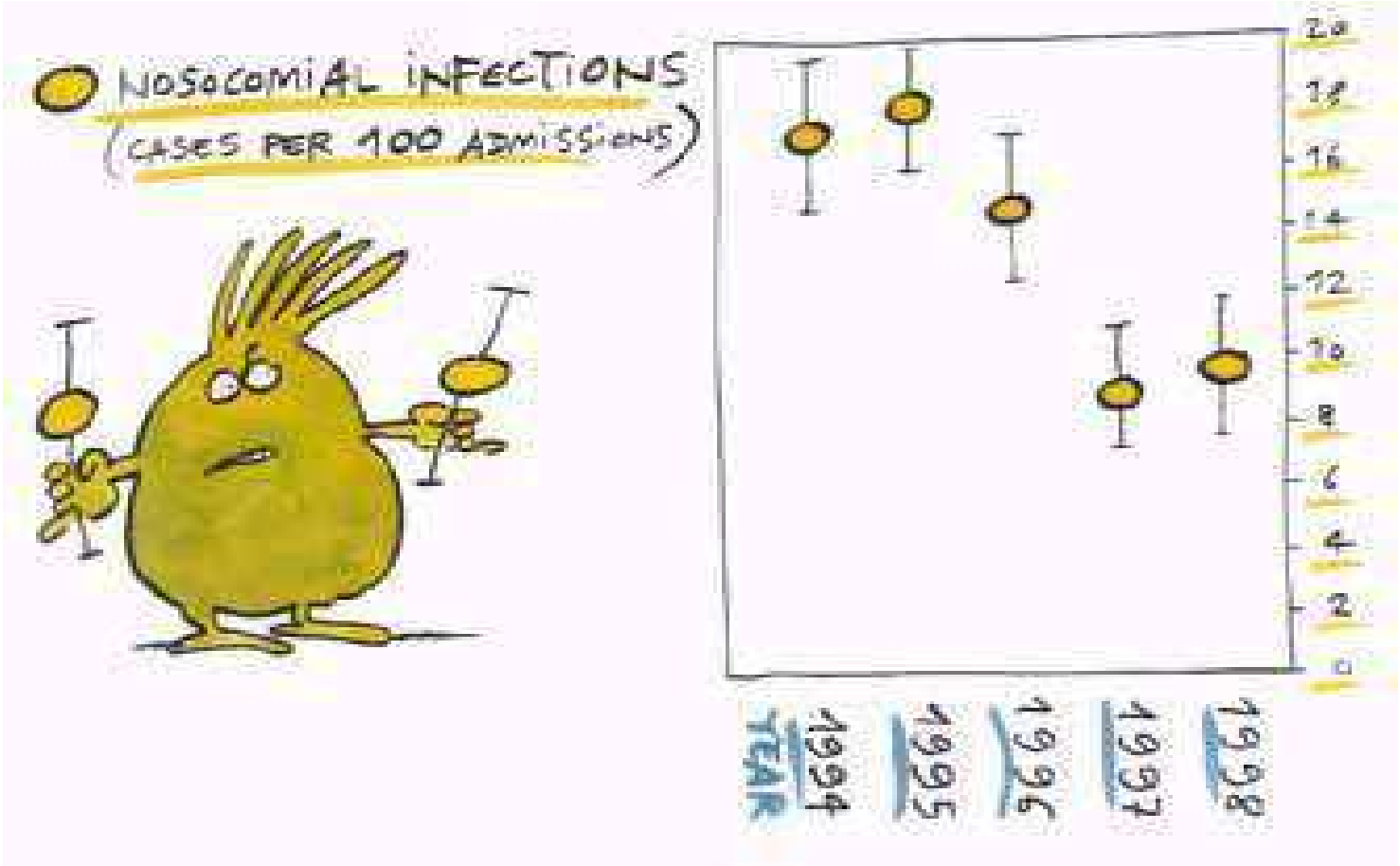
Results



www.hopisafe.ch

Pittet D et al, *Lancet* 2000; 356: 1307-1312

Hospital-wide nosocomial infections; trends 1994-1998



50%

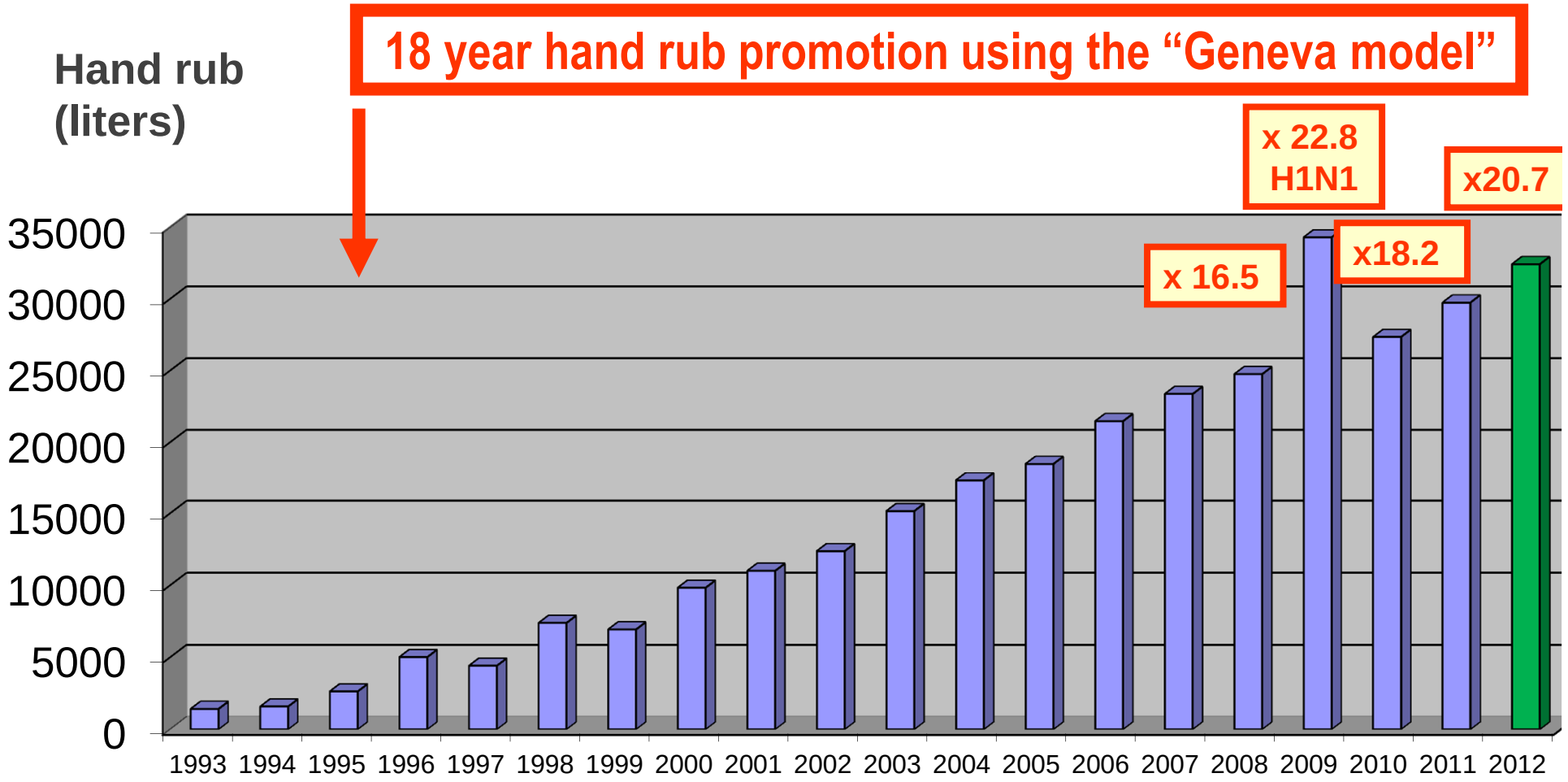
www.hopisafe.ch

Pittet D et al, *Lancet* 2000; 356: 1307-1312

The University of Geneva Hospitals (HUG), 8 years follow-up

Pittet D et al, *Inf Control Hosp Epidemiol* 2004; 25:264

Use of alcohol-based hand rub HOPIRUB^{R} (liters)
University of Geneva Hospitals, Switzerland



Effectiveness of a hospital-wide programme to improve compliance with hand hygiene

Didier Pittet, Stéphane Hugonnet, Stephan Harbarth, Philippe Mourouga, Valérie Sauvan, Sylvie Touveneau, Thomas V Perneger, and members of the Infection Control Programme

THE LANCET • Vol 356 • October 14, 2000

« Geneva model » of hand hygiene promotion, Reproduced with success (2002-2005)

- in single hospitals in France, Belgium, USA, Australia …
- in multiple hospitals in Hong Kong, Australia, Belgium, …
- in national promotion campaigns: Belgium, the UK, Switzerland

World Health Organization

Patient Safety

A World Alliance for Safer Health Care

SAVE LIVES
Clean Your Hands

Through the promotion of best practices in hand hygiene and infection control, the First Global Patient Safety Challenge aims to reduce health care-associated infection (HCAI) worldwide

Clean hands reduce the burden of infection

From 1975 to June 2013,
at least 50 studies demonstrated
the effectiveness of hand hygiene
to reduce
health care-associated infection

- *Pittet D. Lancet 2005; 366:185-86*
- *Allegranzi B and Pittet D.*
J Hosp Infect 2009;73:305-15

When health care is the problem,

we have the solution,

we need to act on implementing the solution…

Objectives of the Challenge

Burden of HCAI Stakeholders' engagement	1. Awareness
Country pledges National campaigns	2. Mobilising nations
Implementation strategies	3. Technical guidelines and tools


Lancement
1st Global Patient Safety Challenge
WHO HQ, 13 octobre 2005


Launch
1st Global Patient Safety Challenge
WHO HQ, 13 October 2005


Launch
1st Global Patient Safety Challenge
WHO headquarter, Geneva, Switzerland
13 October 2005

Political commitment is essential to achieve improvement in infection control

Ministerial pledges to the First Global Patient Safety Challenge

I resolve to work to reduce health care-associated infection (HCAI) through actions such as:

- acknowledging the importance of HCAI;
- hand hygiene campaigns at national or sub-national levels;
- sharing experiences and available surveillance data, if appropriate;
- using WHO strategies and guidelines…

World Health Organization | Patient Safety — A World Alliance for Safer Health Care | SAVE LIVES Clean Your Hands

Saudi Arabia

Kenya

France

Bangladesh

USA

Bhutan

Northern Ireland

Russia

Republic of Ireland

Kabul, Afghanistan - April 2012

World Health Organization

Patient Safety

A World Alliance for Safer Health Care

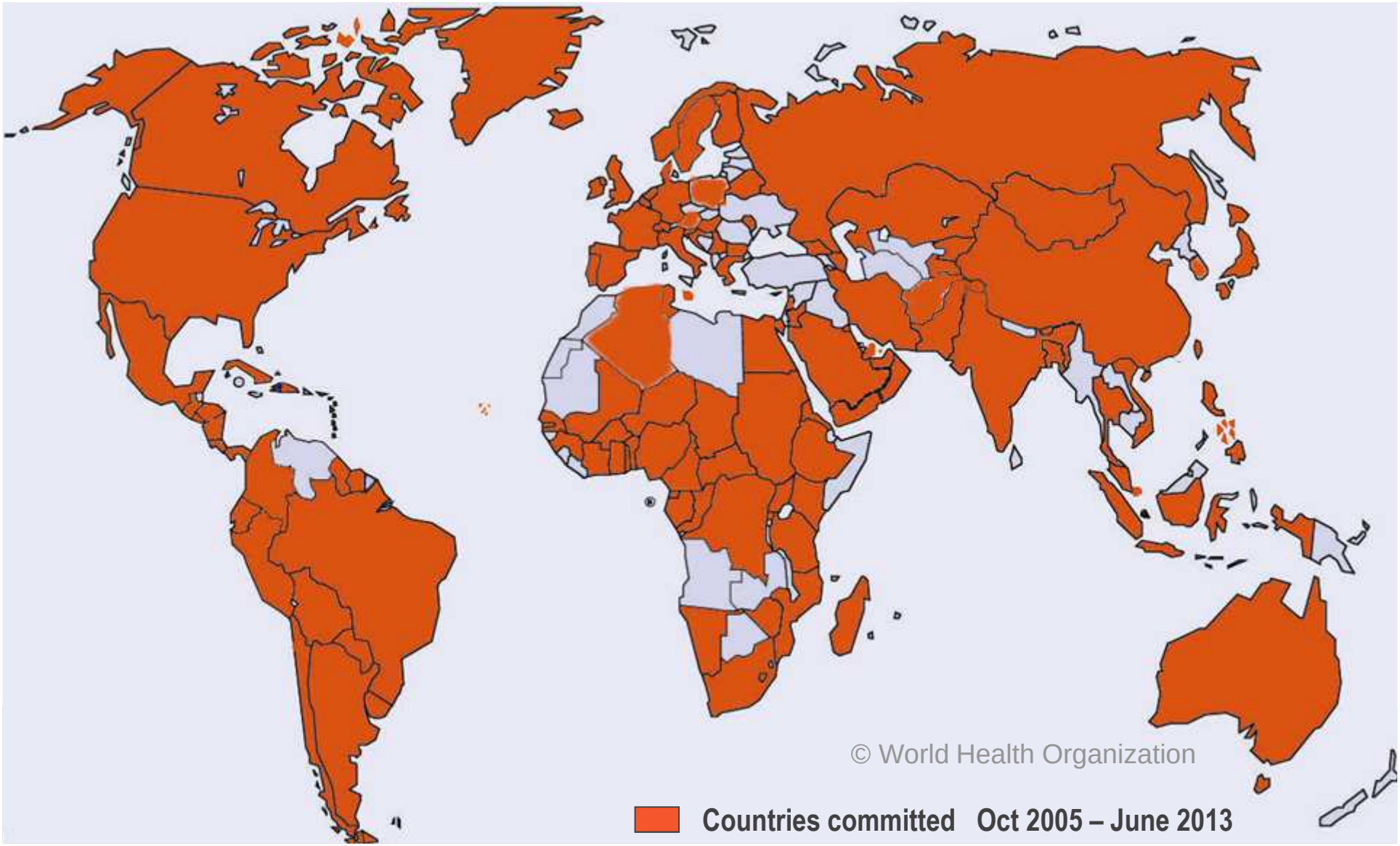
SAVE LIVES

Clean Your Hands


Kabul, Afghanistan - April 2012

133 countries committed to address health care-associated infection

World population coverage : 94.5 %

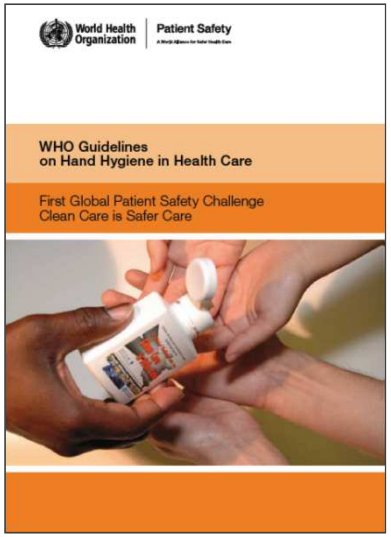


Objectives of the Challenge

Burden of HCAI Stakeholders' engagement	1. Awareness
Country pledges National campaigns	2. Mobilising nations
Implementation strategies	3. Technical guidelines and tools

Implementation strategy and toolkit for the WHO Guidelines on Hand Hygiene in Health Care

Knowledge & evidence



Action

What is the WHO Multimodal Hand Hygiene Improvement Strategy?

Based on the evidence and recommendations from the WHO Guidelines on Hand Hygiene in Health Care (2009),

made up of

5 core components, to improve hand hygiene in health-care settings

ONE System change
Alcohol-based handrubs at point of care
and access to safe continuous water supply, soap and towels

+

TWO Training and education
Providing regular training to all health-care workers

+

THREE Evaluation and feedback
Monitoring hand hygiene practices, infrastructure, perceptions, & knowledge, while providing results feedback to health-care workers

+

FOUR Reminders in the workplace
Prompting and reminding health-care workers

+

FIVE Institutional safety climate
Individual active participation, institutional support, patient participation

The My Five Moments approach

Making it easier to

- **understand**
- **remember**
- **practice**

  the hand hygiene indications at the point of care

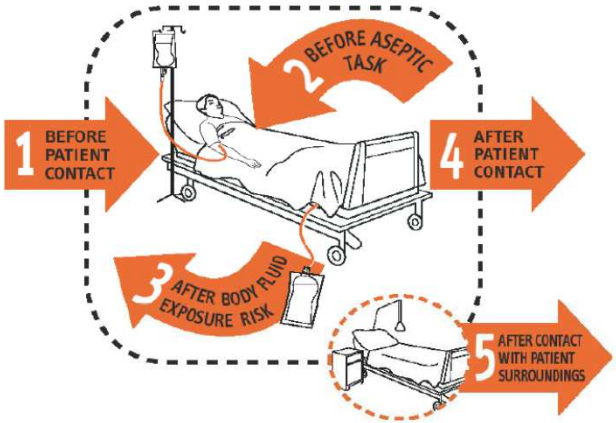
Sax H, Allegranzi B, Uçkay I, Larson E, Boyce J, Pittet D. *J Hosp Infect* 2007;67:9-21

World Health Organization
منظمة الصحة العالمية

وزارة الصحة
Ministry of Health
المملكة العربية السعودية

حملة غسل الأيدي ٢٠٠٨

Your 5 moments for HAND HYGIENE



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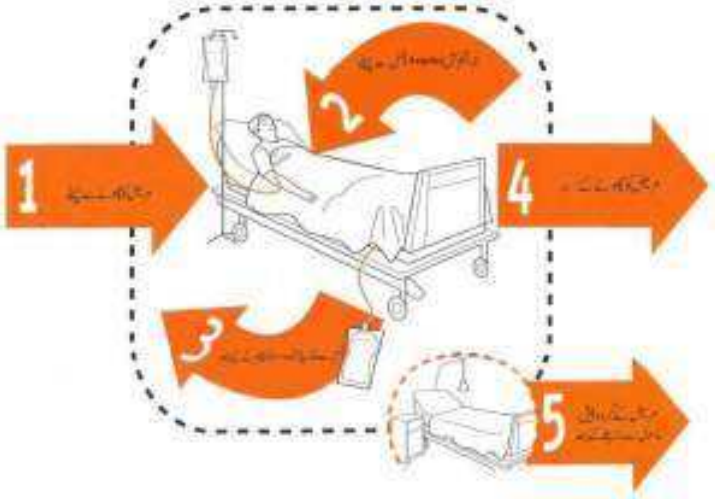
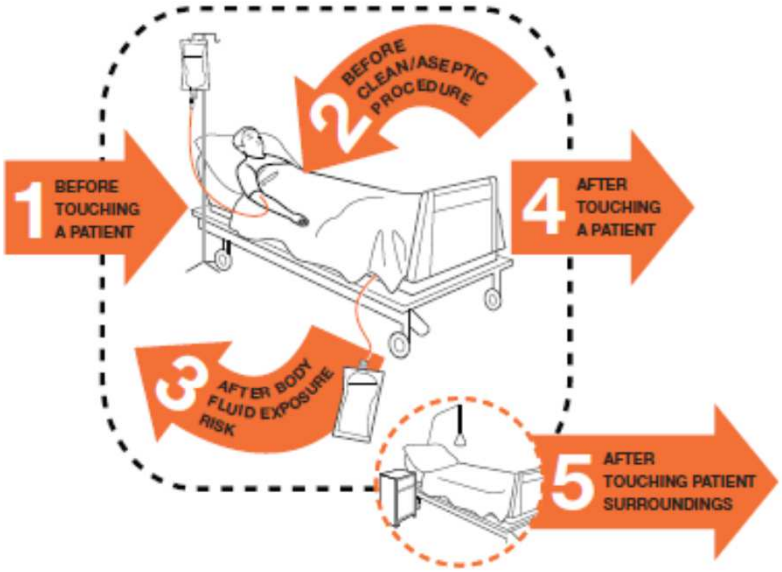


Your 5 Moments for Hand Hygiene



1	BEFORE TOUCHING A PATIENT	WHEN?	Clean your hands before touching a patient when approaching him/her.
		WHY?	To protect the patient against harmful germs carried on your hands.
2	BEFORE CLEAN/ ASEPTIC PROCEDURE	WHEN?	Clean your hands immediately before performing a clean/aseptic procedure.
		WHY?	To protect the patient against harmful germs, including the patient's own, from entering his/her body.
3	AFTER BODY FLUID EXPOSURE RISK	WHEN?	Clean your hands immediately after an exposure risk to body fluids (and after glove removal).
		WHY?	To protect yourself and the health-care environment from harmful patient germs.
4	AFTER TOUCHING A PATIENT	WHEN?	Clean your hands after touching a patient and her/his immediate surroundings, when leaving the patient's side.
		WHY?	To protect yourself and the health-care environment from harmful patient germs.
5	AFTER TOUCHING PATIENT SURROUNDINGS	WHEN?	Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving – even if the patient has not been touched.
		WHY?	To protect yourself and the health-care environment from harmful patient germs.

World Health Organization | Patient Safety | SAVE LIVES Clean Your Hands

May 2009

How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

Duration of the entire procedure: 20-30 seconds

Apply a palmful of the product in a cupped hand, covering all surfaces;

Rub hands palm to palm;

Right palm over left dorsum with interlaced fingers and vice versa;

Palm to palm with fingers interlaced;

Backs of fingers to opposing palms with fingers interlocked;

Rotational rubbing of left thumb clasped in right palm and vice versa;

Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

Once dry, your hands are safe.

World Health Organization | Patient Safety | SAVE LIVES Clean Your Hands

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May 2009