

# Patient safety and Infection Control

- the needs and challenges of regional networking

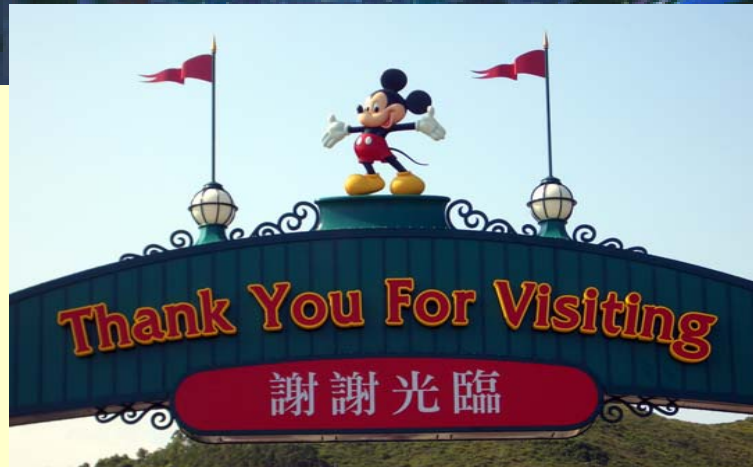


WHO





# Welcome...



# First Avian Flu case in Hong Kong, 2005





## *Hand Hygiene*

**A single act that can make a difference**

“Effective reduction of adverse outcomes for patients calls for a concerted international effort in which WHO would play a proactive leadership role,”

WHO A55/13 2002

May/2002, World Health Assembly passed resolution WHA55.18, urged countries to pay the greatest possible attention to patient safety and requested the Director-General of WHO to carry out a series of actions to promote patient safety, including:

- development of global norms and standards;
- promotion of evidenced-based policies;
- promotion of mechanisms to recognize excellence in patient safety..;
- encouragement of research;
- provision of assistance to countries in several key areas.



In November 2003,  
at a WHO meeting of international  
experts.....

Sir Liam Donaldson proposed the  
establishment of a world alliance  
to develop patient safety policy.

The proposal was unanimously  
supported

**World Alliance for Patient Safety**



# World Alliance for Patient Safety



WHO



# World Alliance for Patient Safety



## Improving the safety of global health care

### Six action areas:

- **A Global Patient Safety Challenge**
- **Patients advancing patient safety**
- **Developing an international taxonomy**
- **Promoting and coordinating research**
- **Developing solutions**
- **Reporting and learning**

*Primum non nocere "First do no harm..."* Attributed to Hippocrates circa 470-360 BC



# Global Patient Safety Challenge for 2005-2006



# World Alliance for Patient Safety



## Health Care-associated Infections.

- Affect millions worldwide every year
- Increase severity of illness with excess deaths
- Prolong hospital stay
- Long-term disability
- Endanger health care workers
- massive additional financial burden
- high costs on patients and their families
- Increase antibiotics resistance



1.4 million hospital patients  
worldwide acquire HAI  
(at any given time)



# Health care-associated infections

*US\$17 to US\$29 billion / year*

In UK, nosocomial infections may be responsible for > 5'000 deaths/year

*at least £ 1 billion / year*

**World Alliance for Patient Safety**  
*Global Patient Safety Challenge 2005-2006*

***Clean Care is Safer Care***

To develop solutions to improve safety and reduce risk by focusing on 5 action areas:

- Clean hands
- Clean practices
- Clean products
- Clean environment
- Clean equipment

*WHO material,  
procedures,  
guidelines,  
and  
experience available*



Blood safety



Injection practices  
& Immunization

Practices

Products



Water, sanitation  
and waste  
management



Safe surgical and  
clinical procedures

Equipments

Environment

**World Alliance for Patient Safety**  
*Global Patient Safety Challenge 2005-2006*

***Clean Care is Safer Care***

To develop solutions to improve safety and reduce risk by focusing on 5 action areas:

- Clean hands
- Clean practices
- Clean products
- Clean environment
- Clean equipment

*Develop WHO  
general guidelines  
for hand hygiene  
in healthcare settings*



# World Alliance for Patient Safety



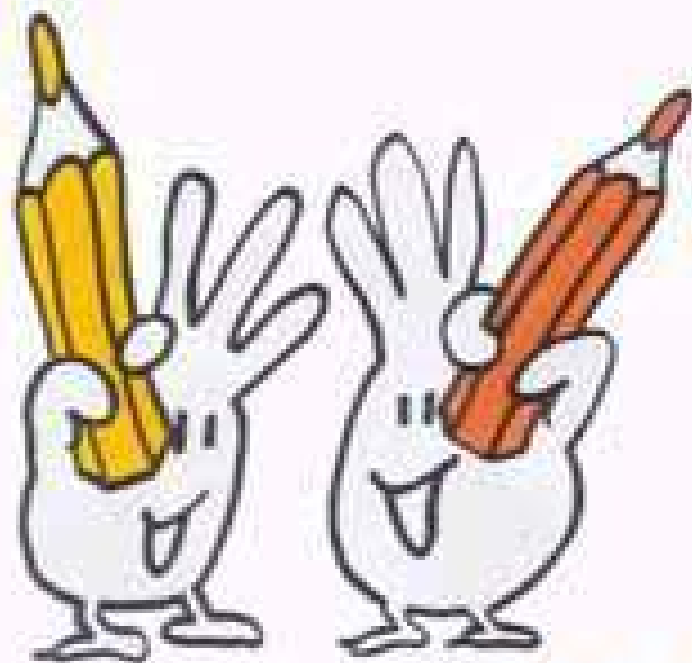
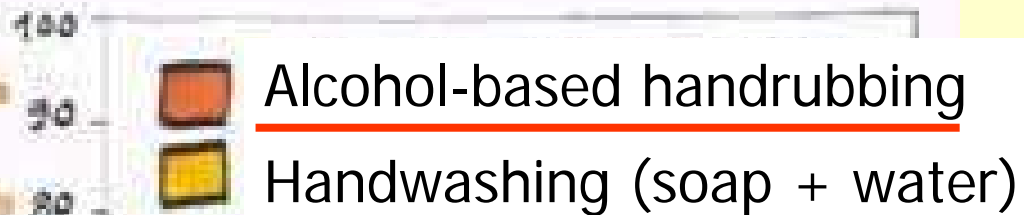
## Hand Hygiene

### Hand Hygiene

- Single most important practice to prevent the transmission of infection
- Single most effective way to prevent Healthcare Associated Infections (HAI)

# Results

COMPLIANCE WITH  
HAND HYGIENE (%)

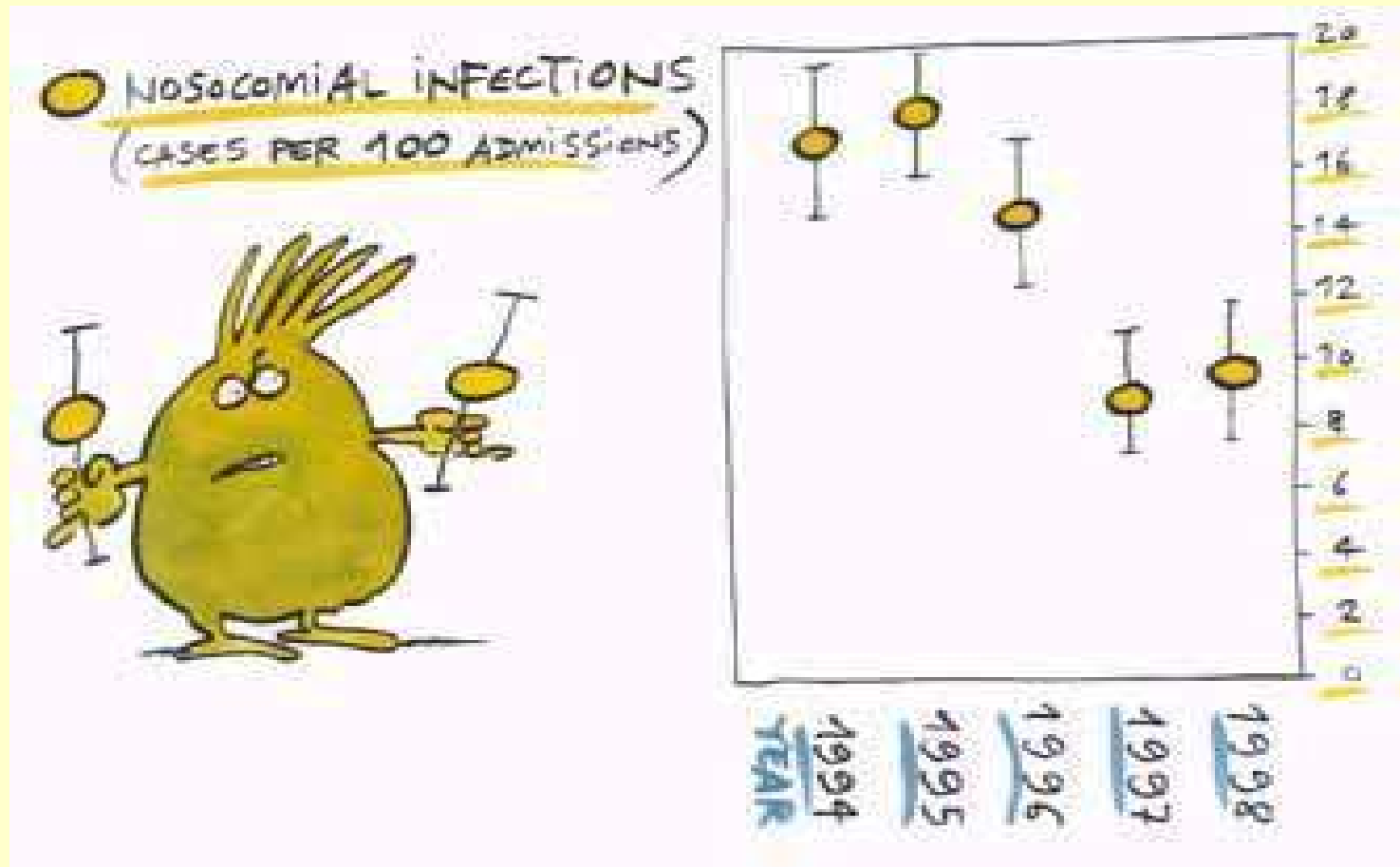


PERIODS 12/94 12/95 12/96 12/97

[www.hopisafe.ch](http://www.hopisafe.ch)

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

# Hospital-wide nosocomial infections; trends 1994-1998



[www.hopisafe.ch](http://www.hopisafe.ch)

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

# Impact of hand hygiene education in the community in a developing country

Luby et al. *Lancet* 2005; 366: 225-233

- Cluster-randomized study (villages)
- Rural community in Pakistan
- Intervention: education with focus on hand hygiene and distribution of soap

# Impact of hand hygiene education in the community in a developing country

Luby et al. *Lancet* 2005; 366: 225-233

- Results
  - ↓ diarrhoea
  - ↓ skin infections
  - ↓ respiratory infections
  - ↓ mortality among children



# Introduction

Part 1: Review of scientific data

Part 2: Consensus recommendations

Part 3: Outcome measurements

Part 4: Promoting hand hygiene on a large scale

Part 5: Information to the public



**751 references**

Health-care workers' compliance with hand hygiene practices is less than 40 % on average



# Time constraint = major obstacle for hand hygiene



handwashing  
soap + water

*1 to 1.5 min*

alcohol-based  
hand rub

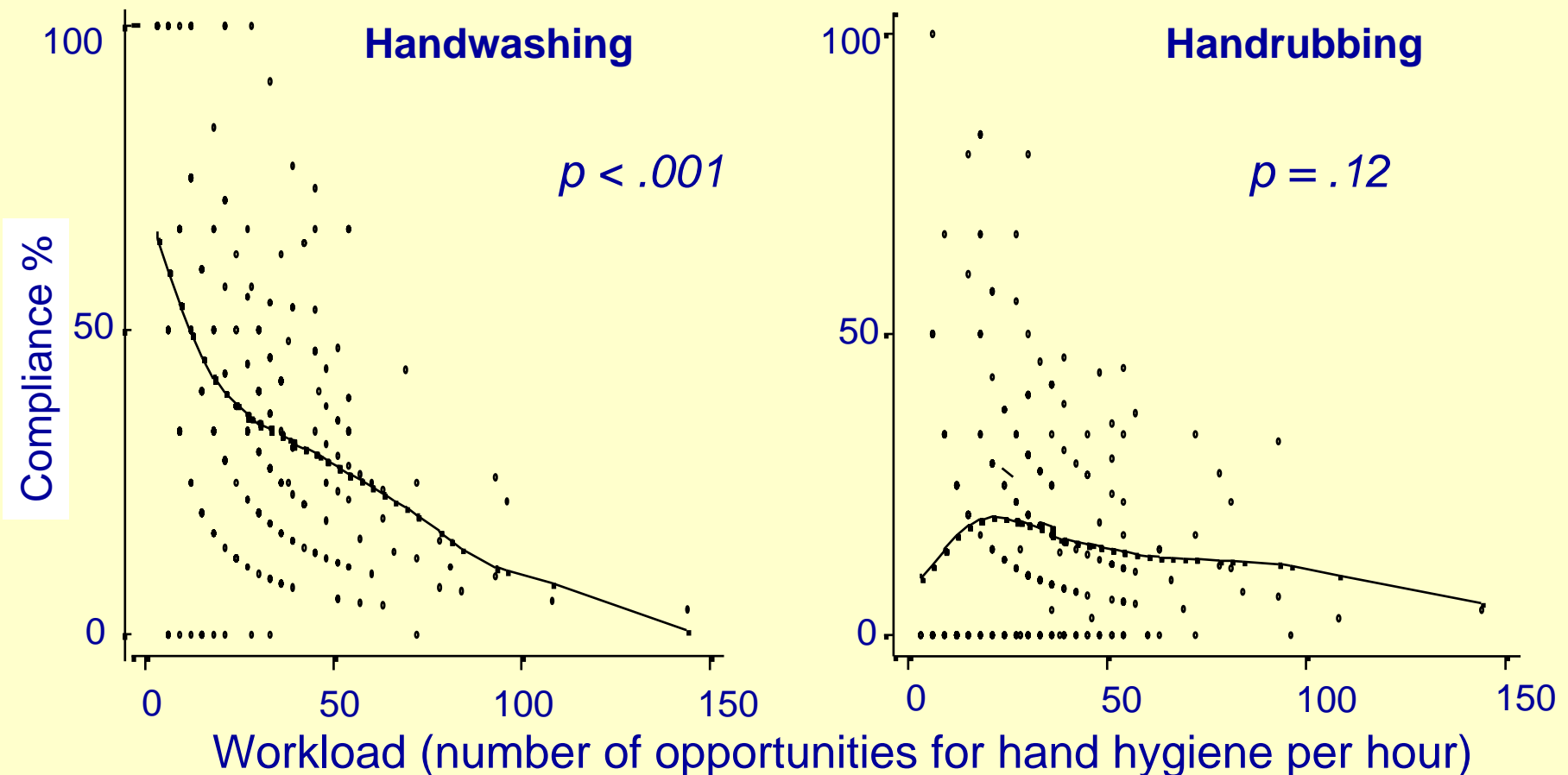
*15 to 20 sec*



by-passing  
the time  
constraint

# Relationship between workload and compliance with handwashing vs. handrubbing in ICUs

Adapted from Pittet D et al, *Lancet* 2000; 356: 1307-1312  
Hugonnet S et al, *Arch Internal Med* 2002; 162:1037-1043



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



**Alcohol-based  
hand rub  
is standard of care**

- Handwashing with soap and water when hands are visibly dirty



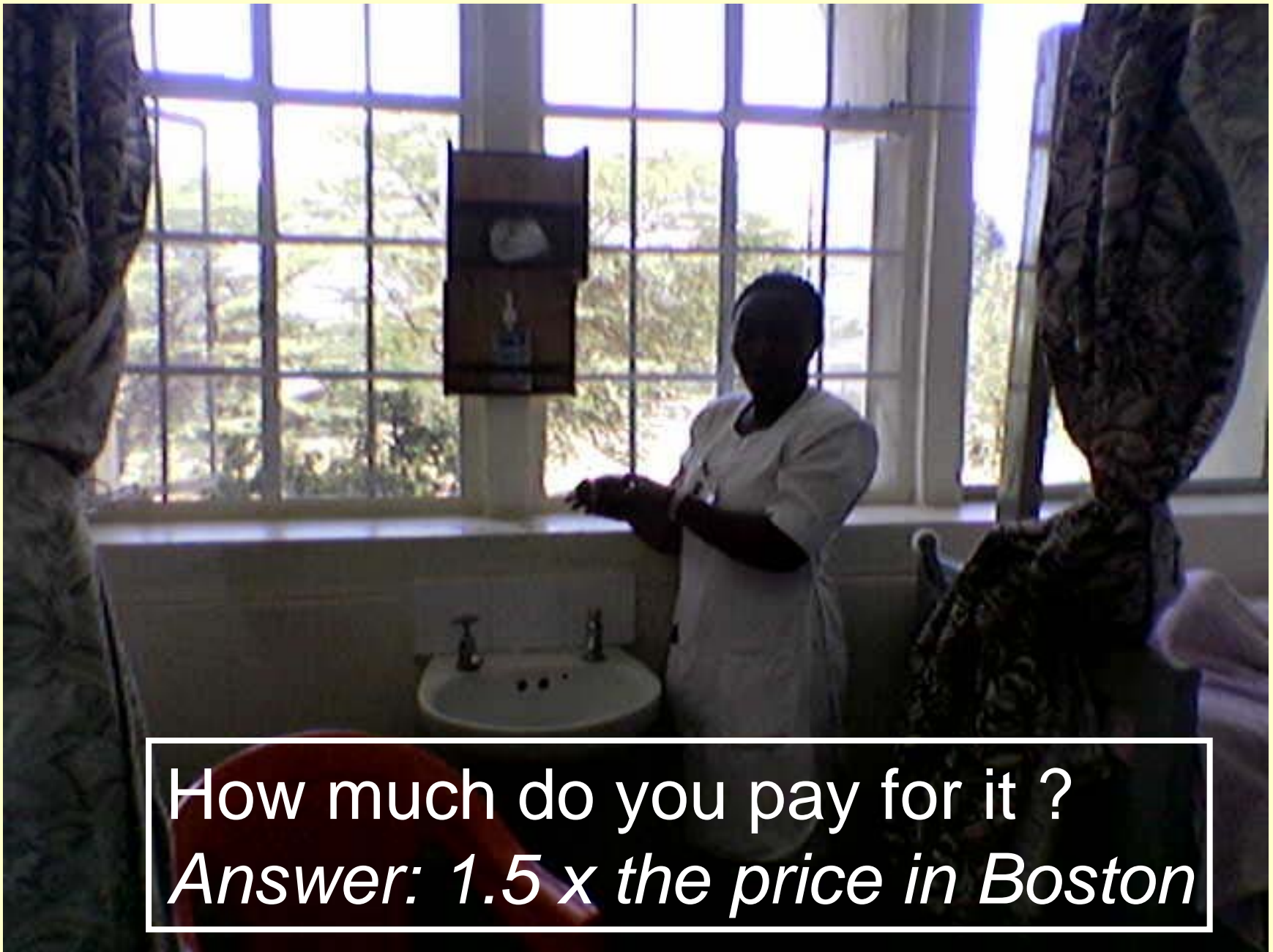
- Adoption of alcohol-based hand rub is the gold standard in all other clinical situations, whenever possible



## Hand hygiene agents



*Durban, South-Africa, January 2005*



How much do you pay for it ?  
*Answer: 1.5 x the price in Boston*

*Nairobi, Kenya, Africa, January 2005*

# WHO formulation

## *Formulation I*

To produce final concentrations of ethanol 80% (V/V), glycerol 1.45%, hydrogen peroxide 0.125%:

Pour in a 1000 ml + 1.0 ml graduated flask:

- Ethanol 95% V/V 842.0 ml
- Humectant-like substance: glycerol 14.5 ml
- Hydrogen peroxide 3% 41.7 ml

Top up to 1000.0 ml with distilled or boiled water.

## *Formulation II*

To produce final concentrations of isopropyl alcohol 75% (V/V), glycerol 1.45%, hydrogen peroxide 0.125%:

Pour in a 1000 ml + 1.0 ml graduated flask:

- Isopropyl alcohol (with a purity of 99,8%) 751.5 ml
- Humectant-like substance: glycerol 14.5 ml
- Hydrogen peroxide 3% 41.7 ml

Top up to 1000.0 ml with distilled or boiled water.



Jan-Sept. 2005...  
More than 200 hospitals  
with alcohol-based  
handrub at the bedside



*Kingdom  
of  
Saudi  
Arabia  
June, 2005*



*Lancet 2006; 367:1025*



# *Clean Care is Safer Care*

*Launch  
October 13, 2005*



# Launch of World Health Organization GLOBAL PATIENT SAFETY CHALLENGE: Clean Care is Safer Care



The Government of the Hong Kong Special Administrative Region  
of the People's Republic of China



Hong Kong connected with Geneva

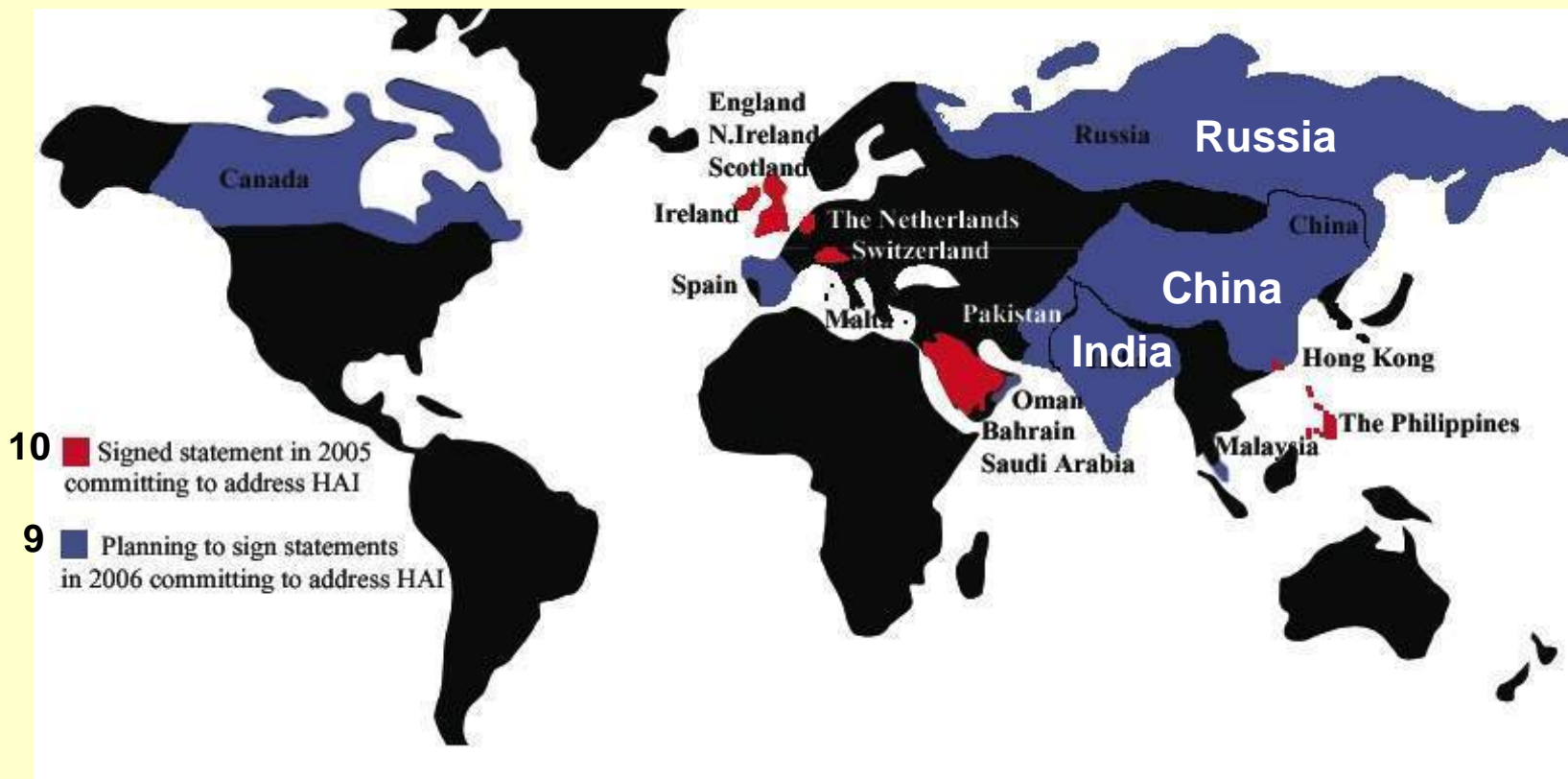
Hong Kong  
linked to WHO Headquarter,  
Geneva





# National commitment worldwide: No. of countries

## COUNTRIES PLEDGING TO ADDRESS HEALTH CARE-ASSOCIATED INFECTION





# The Hong Kong Experience



在你手  
hands for  
or health

健康在你手  
Wash hands for  
better health

Hand  
for  
health



傳染病控制培訓中心  
Infectious Disease  
Control Training Centre

感染控制處  
Infection Control Branch

HP

*Hong Kong, April 2006 - Government Panel*

# Medical and Health Services in Hong Kong

## 1. Hong Kong Healthcare workers

>9000 doctors and 30,000 nurses

>8000 Chinese medicine practitioners.



## 2. Public sector is managed by Department of Health (DH) and Hospital Authority (HA) with

>41 public hospitals ( )

>70 government clinics

120 general and specialist clinics.

## 3. Private sector: 12 hospitals



## Essential issues in Hong Kong for programme implementation

1. Broad provision of WHO alcohol hand rub formula
2. Changing practice from hand wash to hand rub as standard practice
3. Proper practice to minimize harm to the skin
  - No mixing of hand wash and hand rub at the same time
  - No mixing of disinfectant detergent with hand rub
4. Proper use of gloves with hand hygiene
5. The proper use of WHO evaluation tools
6. Planning the optimal multifaceted behavioral change programme

## Key Changes Needed in Hong Kong

1. Using Alcohol rub most of the time
2. Broad Provision of WHO formula
3. Proper use of gloves for soil procedures
4. No mixing of hand washing and alcohol rub
5. Discontinuation of disinfectant detergent
6. Implement guideline using WHO tools

## Summary of Hong Kong's implementation programme

1. Signing of pledge and formation of **task force** – Oct 05
2. Defining local issues and formulation of plans – Nov 05 to Mar 06
3. Meeting and review of plans with Prof Pettit – Apr 06
4. Finalization of WHO measurement tools – Apr 06
5. Pilot testing in 4 hospitals initiated in May 06
6. Pilot testing in Chest Clinic initiated in May 06
7. Planning of launching programme for 41 public hospitals - Oct 06

will need 18,150 gallons of alcohol rub per month  
**which is >5 million 100ml bottles annually.**

8. Tendering in progress to make alcohol rubs available by Jan 07
9. Major programme planned for city wide launch in 1Q 07
10. Prevalence survey for Hospital Acquired Infection in 2Q 07



About \$4 HK a  
bottle  
<40 cents US



## Initial pilot results for Hand hygiene with patient contact:

Outpatient Chest Clinic: ↑ 24% to 55%

Hospital – Test Wards: ↑ 26% to 43%

Control Wards: ↓ 30% to 19%

Acceptability of WHO formula: 63%

# WHO Recommended Formulation

世界衛生組織建議成份

Isopropyl alcohol 75% v/v

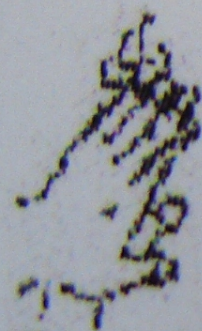
Glycerol 1.45%

Hydrogen peroxide 0.125%

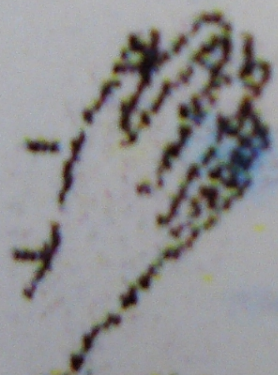


**Rub hands for at least 20 seconds.**

至少二十秒的搓手步驟



手掌  
Palms



手背  
Back of Hand



指隙  
Between Fingers



指背  
Backs of Fingers



Let us Introduce it to the world





**Even  
making  
it in  
style**

**Bond....James Bond**





## *Hand Hygiene*

**A single act that can make a difference**

**Even for Pandemic Preparation**

# **For Pandemic Preparation.....**

We must and can do more.....

# Characterization of the Reconstructed 1918 Spanish Influenza Pandemic Virus

Terrence M. Tumpey,<sup>1\*</sup> Christopher F. Basler,<sup>2</sup>  
Patricia V. Aguilar,<sup>2</sup> Hui Zeng,<sup>1</sup> Alicia Solórzano,<sup>2</sup>  
David E. Swayne,<sup>4</sup> Nancy J. Cox,<sup>1</sup> Jacqueline M. Katz,<sup>1</sup>  
Jeffery K. Taubenberger,<sup>3</sup> Peter Palese,<sup>2</sup> Adolfo García-Sastre<sup>2</sup>

Virus

N. Cal/99

Tx/91

Tx/91 HA:1918

1918 HA/NA:Tx/91

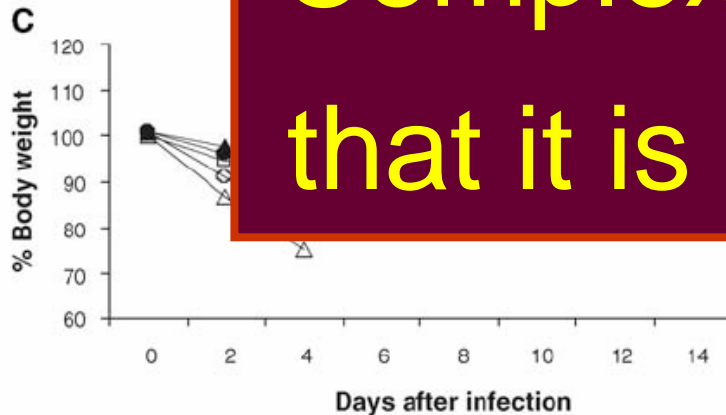
1918 HA/NA/M/NP/NS:Tx/91

1918 (1)

1918 (2)

ta/35/76

Complexity indicates  
that it is a rare event



...the 1918 virus  
...t viruses  
expressing 1918 genes....all  
eight genes makes an  
exceptionally virulent viruses”

“125 and 39,000 times....”

The pandemic strain requires very complex mutation

HPAI has been around for a Long period ....

**Table 3. Summary of Influenza A Viruses Isolated From Domestic Poultry Originating From Hong Kong and Southern China Over 5 Years' Continuous Surveillance at a Hong Kong Poultry Dressing Plant, November 1975 to October 1980**

Virus Subtype Combinations	No. of Isolates	Virus Subtype Combinations	No. of Isolates
Duck		Duck (con'td)	
H1N1	1	H10N1	4
H1N2	2	H10N2	4
H1N3	1	H10N3	23
H2N2	5	H10N4	4
H2N3	1	H10N5	26
H2N9	1	H10N8	2
H3N1	1	H10N9	4
H3N2	23	H11N2	3
H3N3	3	H11N3	2
H3N4	9	H11N9	8
H3N6	26	H12N5	2
H3N8	81		(total = 564)
H4N1	3		
H4N2	20	Goose	
H4N3	1	H1N1	1
H4N4	4	H3N2	1
H4N5	4	H3N8	1
H4N6	119	H4N2	1
H4N7	1	H4N5	1
H4N8	9	H4N6	2
H4N9	2	H5N3	1
H5N2	1	H6N1	2
H5N3	21	H6N2	3
H6N1	34	H6N4	1
H6N2	39	H6N9	1
H6N3	8		(total = 15)
H6N4	6		
H6N5	10	Chicken	
H6N6	4	H1N1	1
H6N8	20	H3N2	3
H6N9	4	H3N6	1
H7N2*	1	H3N9	1
H9N2*	16	H6N4	1
H9N6	1		(total = 7)

KS Shortridge Seminars  
in Resp Infect, Vol 7: 1:  
1992: 11-25

**Table 7. Serological Evidence for Human Exposure to Avian Influenza Viruses in the Hypothetical Influenza Epicenter and Occurrence of these Viruses in Domestic Ducks There**

HA Subtype	Percent Seropositivity of Human Sera From:				Percent Isolation Rate From Domestic Ducks
	Pearl River Delta (n = 400)*	Jiangsu Province (n = 300)	Taichung Taiwan (n = 150)	Urban Hong Kong (n = 100)	
H1	NT	19	NT	NT	< 1
H2	NT	58	NT	NT	1
H3	47	46	48	45	25
H4	11	4	10	2	29
H5	2	7	2	0	4
H6	12	1	13	1	22
H7	5	38	4	0	< 1
H8	4	3	5	2	0†
H9	3	6	4	0	3
H10	6	17	4	1	12
H11	15	15	4	0	2
H12	3	2	4	1	< 1
H13	3	1	1	2	0

# H5N1

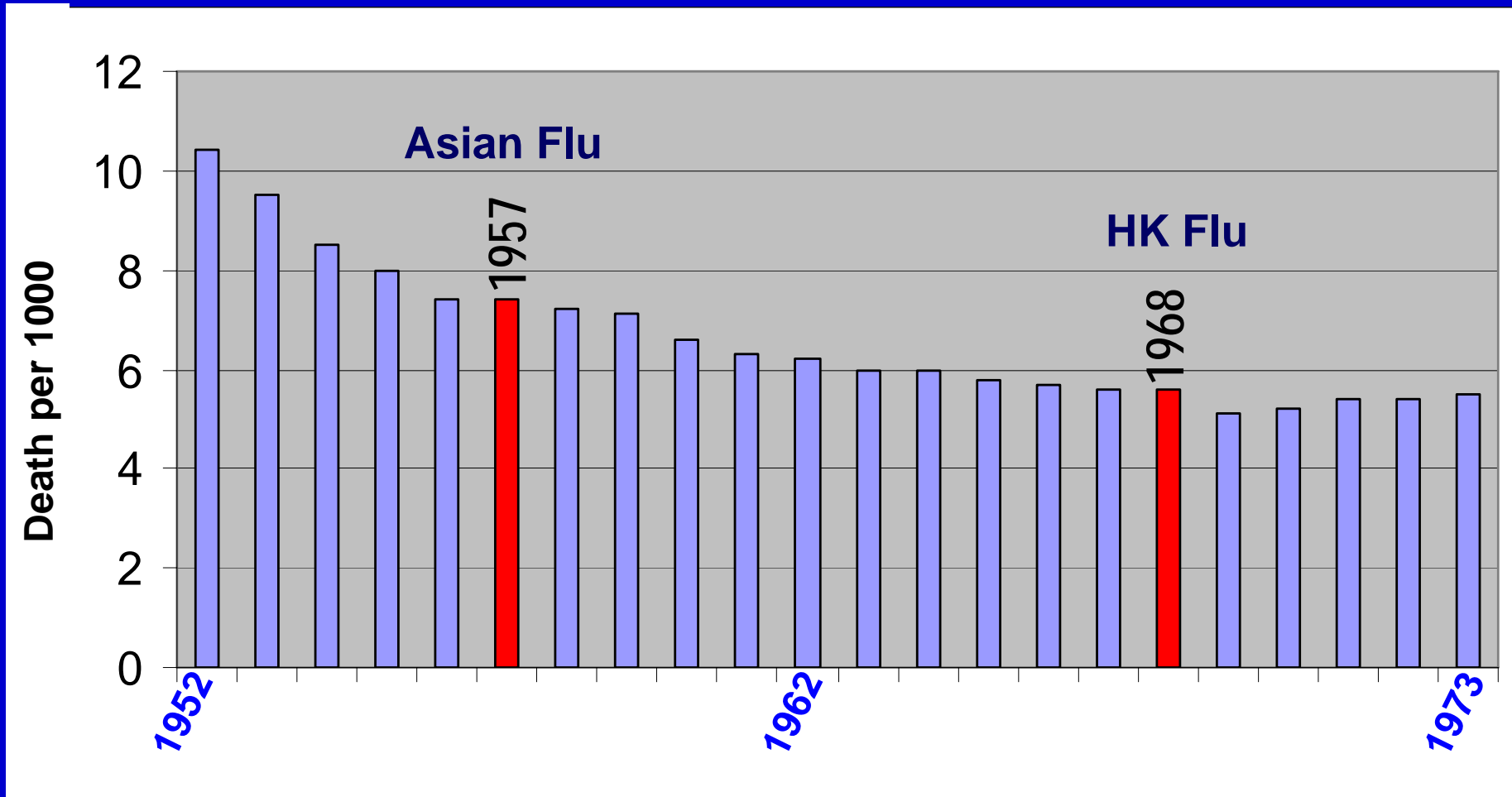
Be Prepared and Vigilant

We may have to wait for many  
years.....

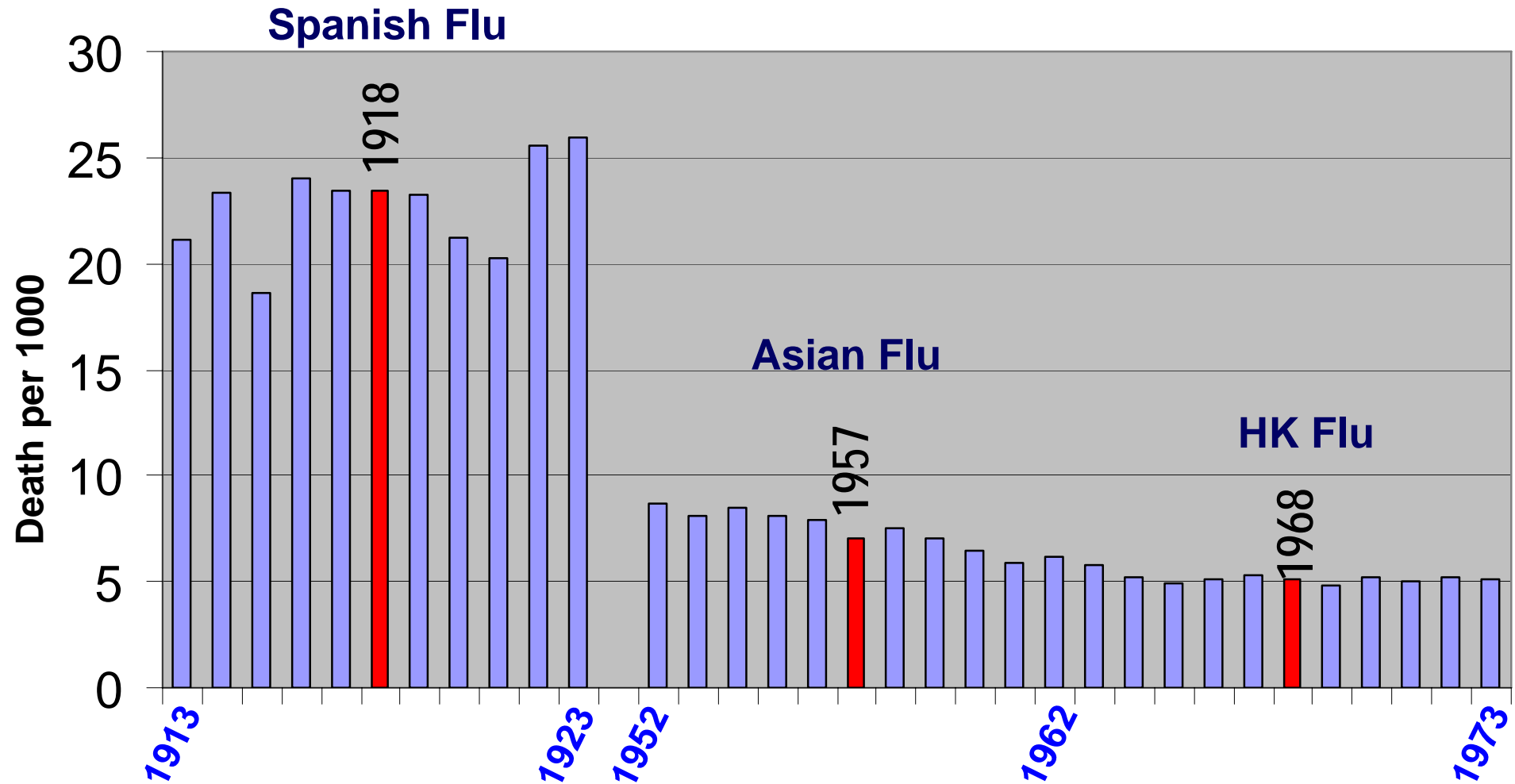
and we can get tired



# The crude mortality of pandemics in Singapore



# The crude mortality of pandemics in Hong Kong



- 1. Give priority to building strong Infection Control Infrastructure**

## SHEA Position Paper

# Requirements for Infrastructure and Essential Activities of Infection Control and Epidemiology in Hospitals: A Consensus Panel Report

William E. Scheckler, MD; Dennis Brimhall; Alfred S. Buck, MD; Barry M. Farr, MD; Candace Friedman, MPH, CIC; Richard A. Garibaldi, MD; Peter A. Gross, MD; Jo-Ann Harris, MD; Walter J. Hierholzer, Jr, MD; William J. Martone, MD; Linda L. McDonald, RN, MSPH, CIC; Steven L. Solomon, MD

### ABSTRACT

The scientific basis for claims of efficacy of nosocomial infection surveillance and control programs was established by the Study on the Efficacy of Nosocomial Infection Control project. Subsequent analyses have demonstrated nosocomial infection prevention and control programs to be not only clinically effective but also cost-effective. Although governmental and professional organizations have developed a wide variety of useful recommendations and guidelines for infection control, and apart from general guidance provided by the Joint Commission on Accreditation of Healthcare Organizations, there are surprisingly few recommendations on infrastructure and essential activities for infection control and epidemiology programs. In April 1996, the Society for Healthcare Epidemiology of America established a consensus panel to develop recommendations for optimal infrastructure and essential activities of infection control and epidemiology programs

in hospitals. The following report represents the consensus panel's best assessment of needs for a healthy and effective hospital-based infection control and epidemiology program. The recommendations fall into eight categories: managing critical data and information; setting and recommending policies and procedures; compliance with regulations, guidelines, and accreditation requirements; employee health; direct intervention to prevent transmission of infectious diseases; education and training of healthcare workers; personnel resources; and nonpersonnel resources. The consensus panel used an evidence-based approach and categorized recommendations according to modifications of the scheme developed by the Clinical Affairs Committee of the Infectious Diseases Society of America and the Centers for Disease Control and Prevention's Hospital Infection Control Practices Advisory Committee (*Infect Control Hosp Epidemiol* 1998;19:114-124).

Over the past 30 years, nosocomial infection surveillance, prevention, and control programs have been integrated into hospitals and other healthcare institutions to ensure the well being of patients, staff, visitors, and others in the healthcare environment. In 1958, responding to nationwide epidemics of nosocomial *Staphylococcus aureus* infections

and recognizing the need for hospitals to identify problems in a timely fashion, the American Hospital Association's Advisory Committee on Infections Within Hospitals recommended that nosocomial infection surveillance become a regular hospital routine.<sup>1</sup> In 1970, the Centers for Disease Control and Prevention recommended that hospitals estab-

*From the Society for Healthcare Epidemiology of America (SHEA) Consensus Panel. William E. Scheckler, MD, Panel Chair, SHEA; Dennis Brimhall, President, University of Colorado Hospital, Association for Professionals in Infection Control and Epidemiology, Inc (APIC); Alfred S. Buck, MD, Joint Commission on Accreditation of Healthcare Organizations (JCAHO); Barry M. Farr, MD (SHEA); Candace Friedman, MPH, CIC (APIC); Richard A. Garibaldi, MD, American Hospital Association (AHA); Peter A. Gross, MD, Infectious Diseases Society of America (IDSA); Jo-Ann Harris, MD, Pediatric Infectious Diseases Society (PIDS); Walter J. Hierholzer, Jr, MD, Hospital Infection Control Practices Advisory Committee (HICPAC); William J. Martone, MD, National Foundation of Infectious Diseases (NFID); Linda L. McDonald, RN, MSPH, CIC (APIC); Steven L. Solomon, MD, Hospital Infections Program, Centers for Disease Control and Prevention (HIP-CDC).*

*The Panel was initiated by the Board of SHEA in April 1996 and first convened in July 1996. This report and the recommendations in it were approved formally by the SHEA and APIC boards in 1997 and endorsed by the organizations represented by the panel members: JCAHO, AHA, HIP-CDC, PIDS, IDSA, and NFID.*

## 4. Personnel Resources

- **Hospital Epidemiologist**
  - **doctor with special training**

“formal training is helpful .. and increasing(ly) essential”

- **Infection Control Nurse - 1/250 beds**
  - **special certification**

“encouraged to obtain Certification in IC”

# Does Infection Control works?

To answer this question:-

**SENIC STUDY** : Study on the Efficacy of  
Nosocomial Infection Control

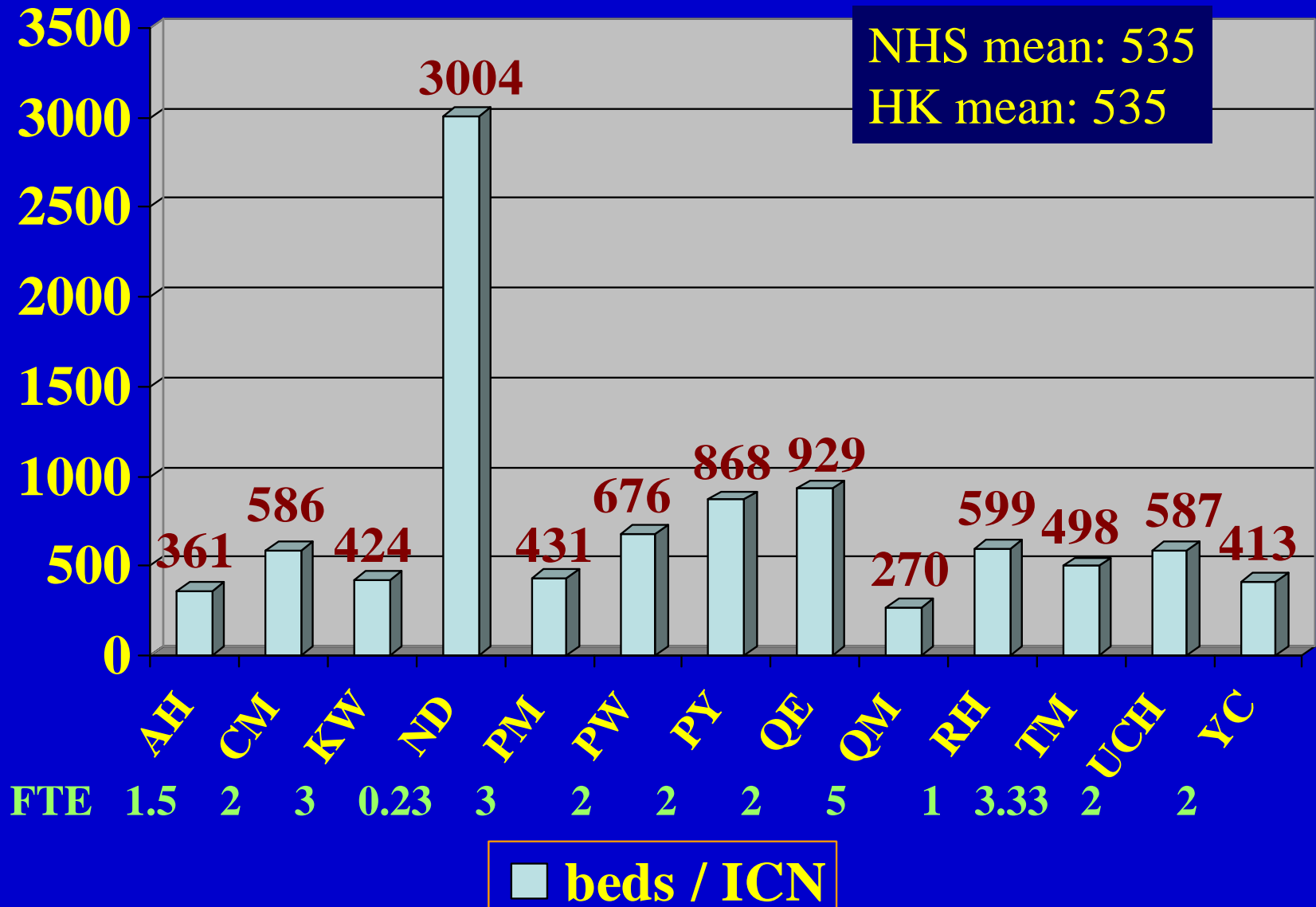
Involving > 6500 hospitals  
> 12000 interviews

Started in 1975

## Major findings:-

- 1) Prevent 50% more with an effective programme.
- 2) Cost effective - reduction of infection by 6% would offset the cost.
- 3) One ICN per 250 beds was important component.
- 4) An ICO has substantial contribution.

# HK Acute Hospitals: beds per 1 FTE ICN – 2001 Audit.





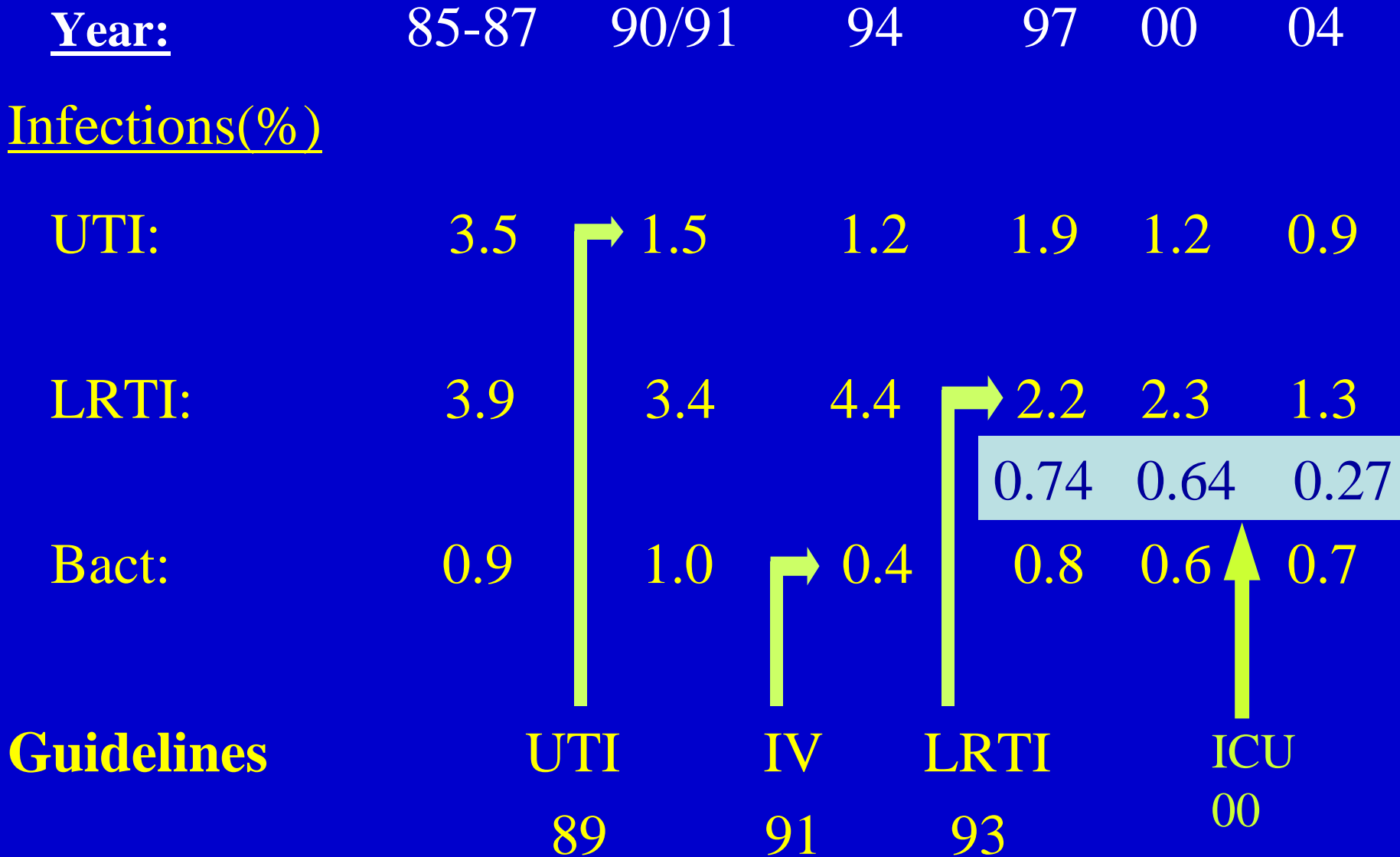
# Prevalence Survey in QMH

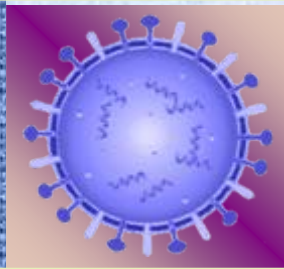
<u>Year</u>	<u>n</u>	<u>% infected</u>	<u>CAI</u>
85	1075	11.4	15.3 (85–87)
86	996	14.2	
87	1046	9.1	
90/91	898	8.0	11.9
94	1052	7.7	16
97	1079	7.4	15.7
00	1087	6.2	14.3
04	1085	5.1	14.6

$p < 0.00001$ ;  $X^2 = 41$

$p = 0.08$

# Infection rates with UTI, LRTI and Bacteremia





HA Contingency Plan for Avian Influenza Pandemic

Final Issue: 20 March 2007



HA Contingency Plan  
for  
Avian Influenza Pandemic

Available:  
internet & intranet!

***HK contingency plan for Avian Influenza Pandemic***  
**Available on intranet and internet**



衛生防護中心  
Centre for Health Protection



醫院管理局  
HOSPITAL  
AUTHORITY



**Hong Kong  
Pandemic Plan 1995**

***HK Pandemic Plan 1995***

## SARS : Cumulative Number of Reported Probable\* Cases

Total number of cases: 3293 as of 16 Apr 2003, 12:00 GMT+2

Total No  
of cases

8096

No of  
deaths(%)

774 (9.6)

Number of HCW  
affected (%)

1706 (21)

Date onset  
last case

July 03



Country/  
Province

Hong  
Kong

No of  
cases

1755

No of  
deaths(%)

302 (17)

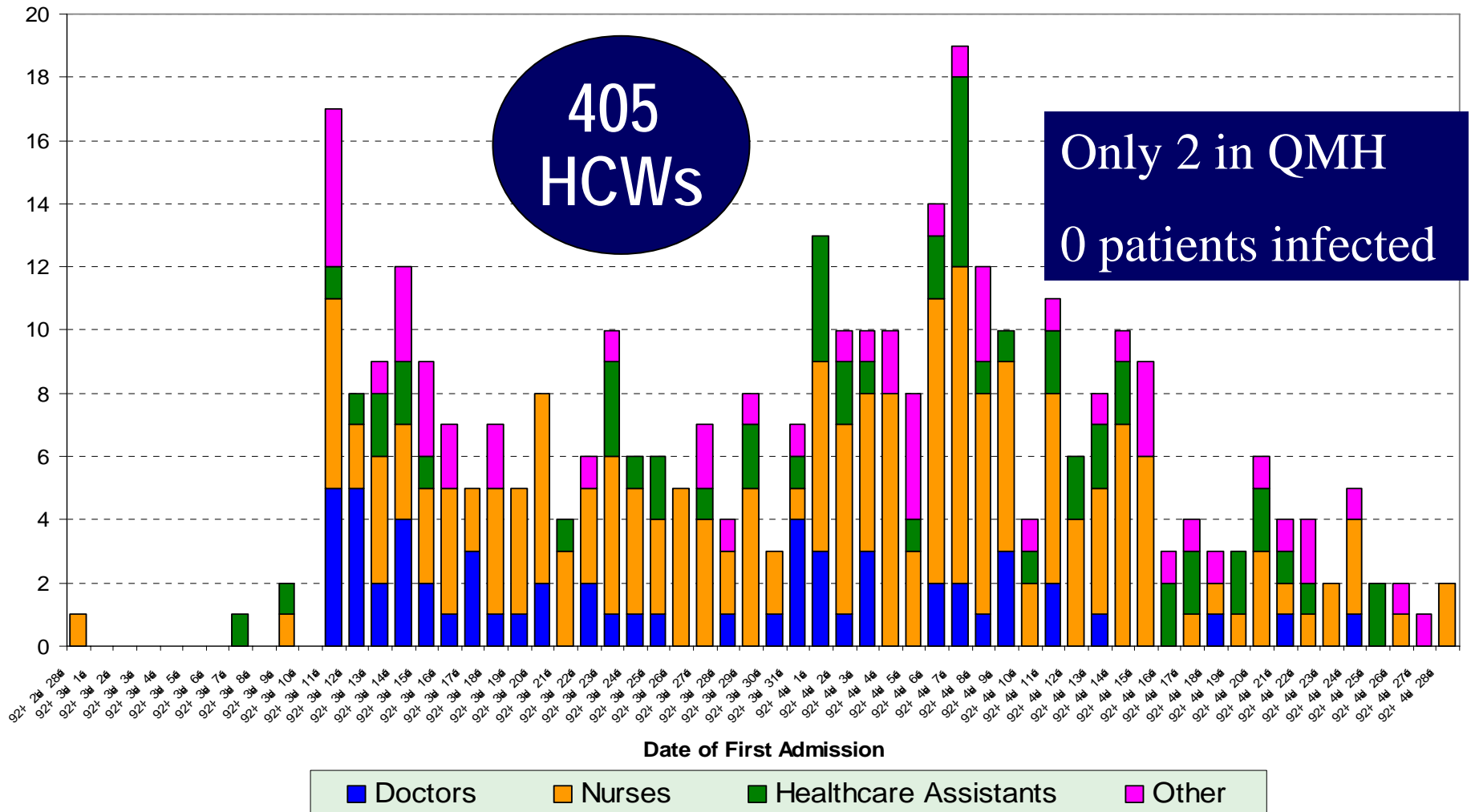
Number of HCW  
affected(%)

405 (23)

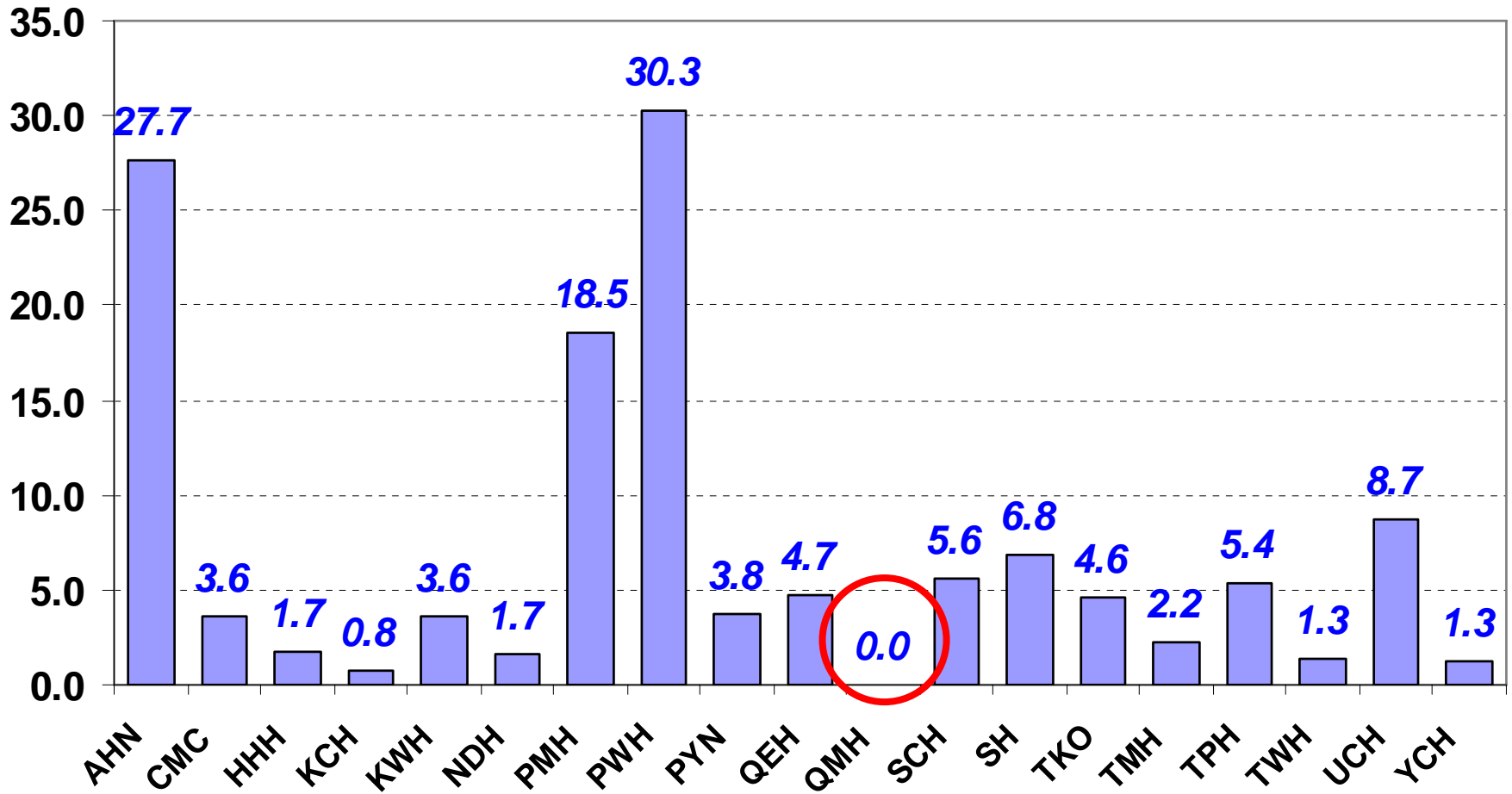
Date onset  
last case

31 May 03

# Daily No. of SARS Cases among Healthcare Workers analyzed by Date of First Admission



# Infected Staff per 1,000 FTE Staff Strength by Hospital\*



\* excluding KH

No. of infected staff (up to 18 April 2003)

FTE staff strength (as at end March 2003)

# Preventing SARS

## **Back to the Basics in Infection Control**

Seto Wing Hong, Hong Kong, China



**Research letters****Effectiveness of precautions against droplets and contact in prevention of nosocomial transmission of severe acute respiratory syndrome (SARS)**

W H Seto, D Tsang, R W H Yung, T Y Ching, T K Ng, M Ho, L M Ho, J S M Peiris, and Advisors of Expert SARS group of Hospital Authority\*

\*Members listed at end of report

We did a case-control study in five Hong Kong hospitals, with 241 non-infected and 13 infected staff with documented exposures to 11 index patients with severe acute respiratory syndrome (SARS) during patient care. All participants were surveyed about use of mask, gloves, gowns, and hand-washing, as recommended under droplets and contact precautions when caring for index patients with SARS. 69 staff who reported use of all four measures were not infected, whereas all infected staff had omitted at least one measure ( $p=0.0224$ ). Fewer staff who wore masks ( $p=0.0001$ ), gowns ( $p=0.006$ ), and washed their hands ( $p=0.047$ ) became infected compared with those who didn't, but stepwise logistic regression was significant only for masks ( $p=0.011$ ). Practice of droplets precaution and contact precaution is adequate in significantly reducing the risk of infection after exposures to patients with SARS. The protective role of the mask suggests that in hospitals, infection is transmitted by droplets.

SARS 2–7 days after exposure, with no exposure to cases outside the hospital.

For this study, index patients were selected only when there was documented clustering, indicating recent spread of infection. We could identify infected staff because since early February, notification of staff with SARS was mandatory in hospital-authority hospitals. We tested sera taken from index patients and infected hospital staff during the acute phase of the infection and during convalescence for antibodies to the corona-like virus<sup>4</sup> associated with SARS using an indirect immunofluorescence test.<sup>4</sup>

We excluded one hospital that had a large nosocomial outbreak because a drug nebuliser was used on an index patient with SARS for longer than 10 days. Droplets precautions have never been recognised as an effective infection control measure for such aerosol-generating procedures, and assessment of its effectiveness seems inappropriate.

# The virus that stole across the globe

## HOW THE INFECTION CHECKED OUT OF THE METROPOLE

Hong Kong's Patient Zero, Guangdong Professor Liu Jianlun, warned of the virulence of the disease he was carrying as soon as he was admitted to Kwong Wah Hospital on February 22. Between that time and March 10, when the outbreak was made public, it has been carried across Hong Kong and the globe

### KWONG WAH HOSPITAL, HONG KONG

**PATIENT ZERO** is admitted to hospital on February 22. Four staff are subsequently infected, plus family members who visit Patient Zero.



### PRINCE OF WALES HOSPITAL, HONG KONG

**PATIENT ONE**, a local man who visited the Metropole on February 21 and 22, is admitted to the Prince of Wales on March 5. Seventy hospital staff, eight of their children, 17 medical students and possibly Hospital Authority chief executive William Ho (below right) are infected as a result.



### ST PAUL'S HOSPITAL, HONG KONG

**PATIENT TWO**, a tourist from Vancouver, falls ill and infects three hospital workers



### PATIENT ZERO

Liu Jianlun

February 21

He stays at the Metropole Hotel and infects seven other guests

### HANOI

**PATIENT SEVEN**, a Chinese-American businessman, flies to Hanoi and dies on March 13. Fifty hospital workers at two hospitals are infected. Two die.



### SINGAPORE

**PATIENTS FOUR, FIVE AND SIX** are Singaporean tourists. They infect 17 people when they return home



### CANADA

**PATIENT THREE**, a Metropole guest from Toronto returns home and infects five relatives. He dies on March 5. His son dies on March 13.



A group of strangers who share a lift in Mongkok unwittingly trigger a chain of events that spread death, disease and fe

### Heike Phillips

The date is Friday, February 21. A group of strangers gather in the lift lobby on the ninth floor of a Mongkok hotel, one of them coughing and sneezing. The elevator arrives and they share a brief journey to the ground floor before the doors slide open and they part company.

None could have expected this encounter would set in motion a chain of events that would claim the lives of three in their group and spread disease and fear among hundreds of people worldwide.

The man who sneezes is a 64-year-old who has arrived by bus from Guangdong a day ago to attend a wedding. Feeling too sick to attend, however, he is taken to hospital on February 22.

His name is Liu Jianlun, and on being admitted to Kwong Wah Hospital, he warns medical staff they should not touch him as he fears he has contracted a "very virulent disease".

He tells staff he is a professor in respiratory medicine at Zhongshan University in Guangzhou and has been treating patients with atypical pneumonia at the university's no. 2 hospital. His colleagues in the intensive care unit have fallen ill one by one.

Health authorities in Hong Kong discover that the professor showed symptoms of the disease on February 15, at which point in time he would still have been on the mainland.

According to the World Health Organisation, the incubation period for the virus is between two and seven days.

As Liu motivated to come to Hong Kong to see his wife, who was ill, he decided to go to seek medical help across the border, away from the hospital where the disease struck his colleagues?

On March 13, the incubation period. Over the next two days, and weeks, 70 medical staff at the hospital are struck down, as well as 17 medical students.

loses his fight against the disease eight days after his mother.

Another hotel guest, an American-Chinese businessman from Shanghai, checks out of the Metropole. He catches a plane to Hanoi, where, two days later, he is admitted to hospital.

He spreads the virus to staff at the French Hanoi Hospital before being flown to Hong Kong on March 6. He is treated at Prince Margaret Hospital, where he dies on March 13. A Vietnamese nurse who cared for him dies, along with three other people, and the virus spreads to 50 workers at two Hanoi hospitals.

The date is February 22. A 26-year-old man who has visited friends at the hotel where the man sneezed on February 21 begins to feel unwell. He thinks nothing of it, but by March 5 he is admitted to Ward 8A in the Prince of Wales Hospital.

Days later, his sister falls ill and is taken to Princess Margaret Hospital, having already infected at least three of her colleagues. She joins her at Princess Margaret Hospital, while the others are admitted to the Pamela Youde Nether Eastern Hospital on March 14.

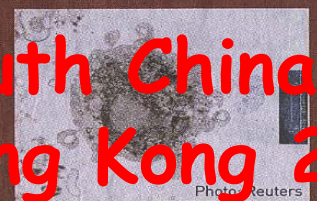
A female hospital worker returns home from treating the patient at Eastern Hospital. She passes the virus to her 15-year-old

### THE TOLL

WORLDWIDE*	18 deaths
	516 infected
HONG KONG	10 deaths
	316 infected

\*These figures include Hong Kong but not the mainland. Many secondary infections are not recorded on this graphic.

A microscope image of a cell infected with one of the viruses linked to atypical pneumonia



South China Morning Post  
Hong Kong 27th March 2003

### TALKBACK

Is Hong Kong handling the pneumonia outbreak properly?

Send your comments to talkback@scmp.com

Please include name, address and phone number

is a student at St Joan of Arc Secondary School in Braemar which later suspends classes.

On March 25, the young Singaporean tourists then go to a lift at the hotel where the man in the lift sneezed.

They return to Singapore, are later taken to hospital.

**3 SARS patients**  
including Hotel M patient  
admitted to General Wards  
first week of SARS to QMH,

**No staff got infected**

<b>RANK</b>	<b>Exposed</b>	<b>(%)</b>
<b>Nurses</b>	<b>23</b>	<b>46</b>
<b>HCA/WA</b>	<b>12</b>	<b>24</b>
<b>Doctor</b>	<b>11</b>	<b>22</b>
<b>Others</b>	<b>4</b>	<b>8</b>
<b>Total</b>	<b>50</b>	<b>100</b>

<b>Precautions</b>	<b>n</b>	<b>(%)</b>	<b>Rank non-conform</b>
<b>Mask (46 surgical, 4N95)</b>	<b>50</b>	<b>100</b>	
<b>Gown</b>	<b>13</b>	<b>26</b>	
<b>Glove</b>	<b>14</b>	<b>28</b>	
<b>handwashing</b>	<b>45</b>	<b>92</b>	<b>2 RN + 2 HCA, 1 not sure</b>

Good infrastructure for  
Infection Control do not  
exist in many countries in  
East Asia

Government policy cannot guarantee  
that Infection Control Infrastructure  
is in place

**A stated government policy is not enough.....**

**Example: Brazil**

**1976: Ministry of Health recommended IC in all hospitals**

**1980: Survey of 3,225 hospitals - only 13 has a nurse involve in infection control**

**1995: Report that of 214 hospitals in Sao Paulo, only a few has IC team**

**Pannuti et al ICHE, 1995, 16:170**

What you must please do .....

Deploy adequate Infection Control personnel

# Personnel Resources

- **Hospital Epidemiologist**
  - **doctor with special training**

“formal training is helpful .. and increasing(ly) essential”

- **Infection Control Nurse - 1/250 beds**
  - **special certification**

“encouraged to obtain Certification in IC”



Where we can help.....

Develop self-sustaining educational  
programme for Infection Control personnel

What we can do as a regional network.....

Certification and continuing education

## An appeal for us in WPRO.....

1. Adequate Infection Control personnel
2. Self-sustaining educational programme  
for Infection Control personnel
3. Certification and continuing education



**“Above all .....**

**Hospitals should do the patients  
no harm”**

**Florence Nightingale**

*Thank you*



***The Difference Between Women & Men***

**Meeting the challenges ahead: seeing oneself accurately and improve**