# Aiming at… 10 000 registered health-care facilities by May 2010


**Register your facility at http://www.who.int/gpsc/5may**

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

# Infection control webinar series - next lectures

**Special hand hygiene focus** to celebrate

SAVE LIVES: Clean Your Hands, 5-7 May 2010

03 May 2010, 8 am and 3 pm (CET*)

D-2: 5 May, are you ready? (C. Kilpatrick, B. Allegranzi, Geneva, Switzerland)

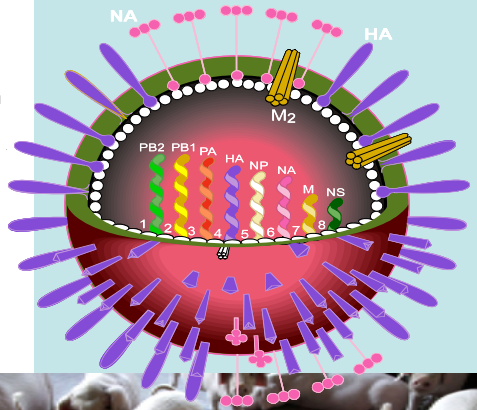
05 May 2010, 8 am and 3 pm (CET*)

Improving hand hygiene worldwide (D. Pittet, Geneva, Switzerland)

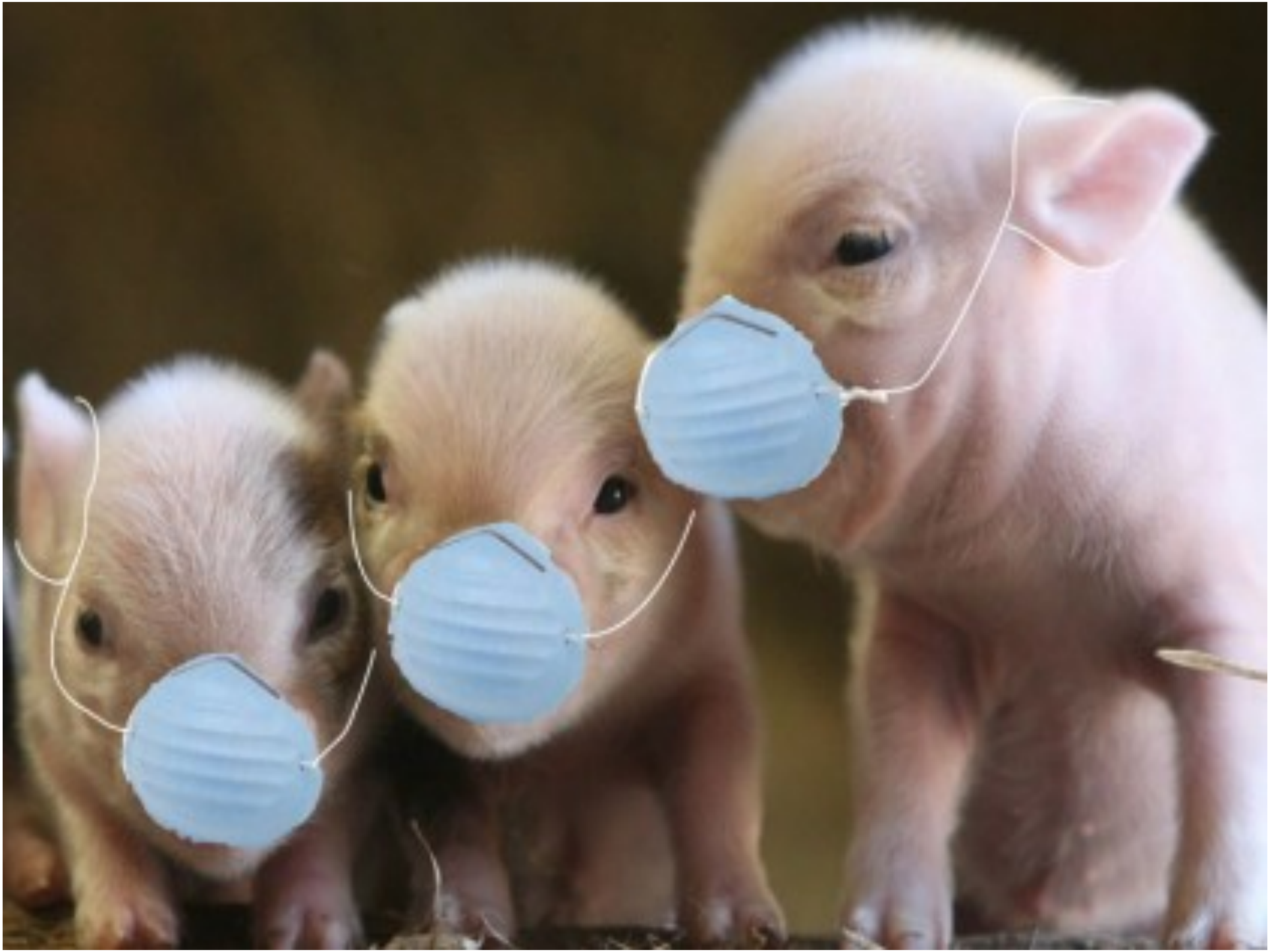
07 May 2010, 3 pm (CET*)

Impact of hand hygiene improvement on healthcare-associated infection (L. Grayson, Melbourne, Australia)

# Proven strategies to control influenza virus transmission, with special focus on H1N1




Wing Hong Seto, CICO, Hong Kong



# H1N1 – Swine Flu

Then the panic and confusion

# Key concepts for Influenza Prevention (1)

Transmission

## Is Influenza Airborne?

# Transmission of influenza A in human beings

Brankston et al. **Lancet ID 2007(7):257-65**

Search of 2012 citations

"We are able to conclude that transmission occurs at close range rather then over long distance, suggesting that airborne transmission, traditional defined, is unlikely to be of significance in most clinical setting."

## Artificial generated aerosol can infect man and animals

Artificial aerosols: <10% are larger 8 μm
Natural coughing: 99.9% are larger then 8 μm

"We question whether these studies are relevant to natural route of human transmission"

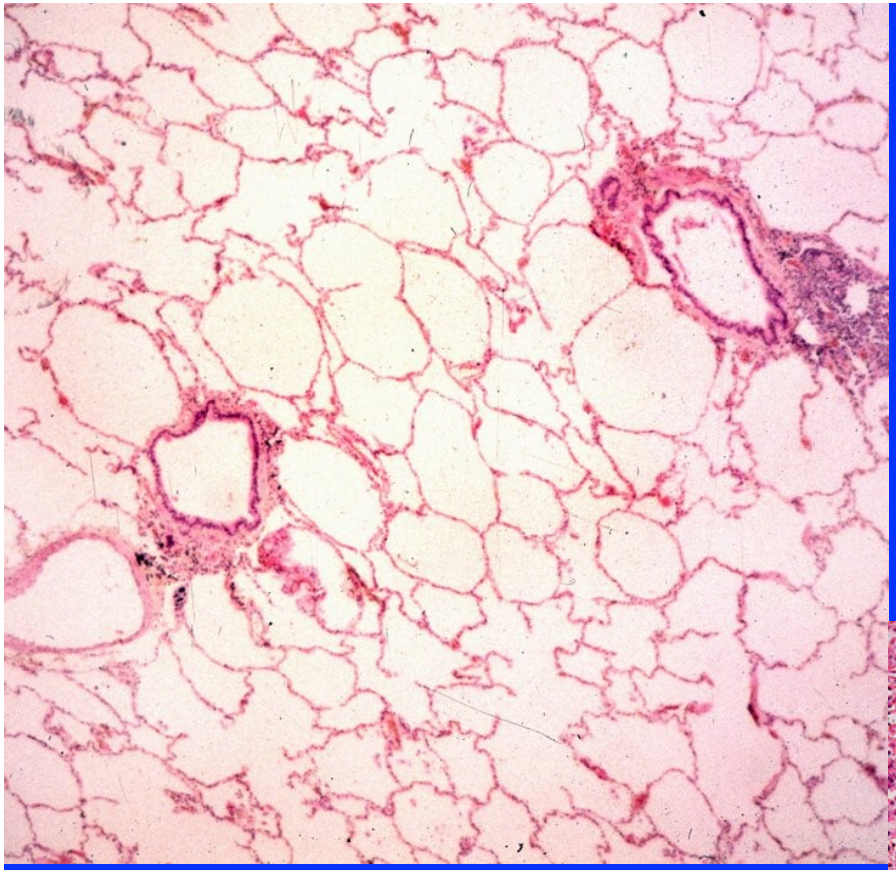
"No published evidence of human infection resulting from the ambient air"

Alaskan Airline: Non functional ventilation system 72% infected
**(Am J Epidemiol 1979:110:1-6)** Free movement of passengers

Naval base aircraft **(Am J Epidemiol 1989:129:341-48)**
Klontz reported outbreaks (56%) in functional ventilation planes

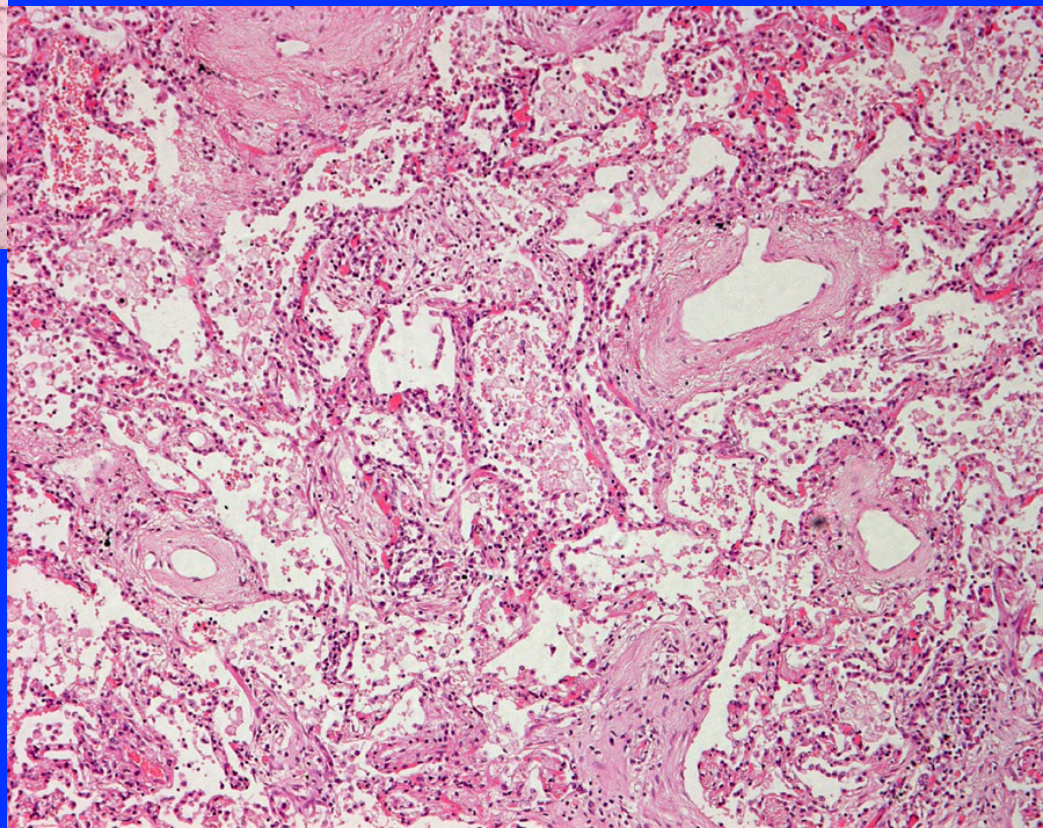
Influenza lower with UV lights (Am Rev Resp Dis 1961:83:36)
Infection related to ventilation systems in 4 buildings
(J Am Ger 1996:18:811)

- Many confounders not accounted:
  eg. number of index patients, bed layout, length of stay, hand hygiene, immunization status.
  One study even confirmed that lowest rate has more space allocated
- Air exchange rate is not reported
- 2nd study even reported equal rates in next season.



Normal alveolar

Pneumonia



Courtesy: Dr Gavin Chan, Department of Pathology
Queen Mary Hospital


aerosol

# Key concepts for Influenza Prevention (1)

## Transmission

WHO – 29th April 2009

"Human-to-human transmission of the pandemic (H1N1) 2009 virus appears to be primarily through droplets. "

WHO – 16 December 2009

"primarily….through unprotected contact with large respiratory droplets."

# *CDC's Transmission Based Precaution*

| | | |
|---|---|---|
| **Airborne** | **Nuclei of < 5µm** | **Pulm. TB**<br>**Varicella Zoster** |
| **Droplet** | **Nuclei of > 5µm** | **Influenza**<br>**Meningococcal**<br>**Pertussis** |
| **Contact** | **Transmission by direct or indirect** | **MR organisms**<br>**Enteric RSV** |
| **Blood** | **Exposure to blood inoculation** | **HIV, HBV** |

Key concepts for Influenza Prevention (2)

# What isolation precautions is needed for Influenza?

WHO/CDS/EPR/2007.6

whqlibdoc.who.int/hq/2007/WHO_CDS_EPR_2007.6_eng.pdf

# Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care

WHO Interim Guidelines

June 2007

EPIDEMIC AND PANDEMIC ALERT AND RESPONSE

World Health Organization

ARD guideline

Table 1. Infection control precautions for HCWs and caregivers providing care for patients with ARDs according to a sample of pathogens

| Precaution | | No pathogen identified, no risk factor for ARD of potential concern (e.g. influenza-like illness without risk factor for ARD of potential concern) | Pathogen | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Bacterial ARD[a] | Parainfluenza RSV & adenovirus | Influenza virus with sustained human-to-human transmission (e.g. seasonal influenza, pandemic influenza) | New influenza virus with no sustained human-to-human transmission (e.g. avian influenza) | SARS | Novel organisms causing ARD[b] |
| Hand hygiene[c] | | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Gloves | | Risk assessment[d] | Risk assessment[d] | Yes | Risk assessment[d] | Yes | Yes | Yes |
| Gown[e] | | Risk assessment[d] | Risk assessment[d] | Yes | Risk assessment[d] | Yes | Yes | Yes |
| Eye protection | | Risk assessment[f] | Risk assessment[f] | Risk assessment[f] | Risk assessment[f] | Yes | Yes | Yes |
| Medical mask on HCWs and caregivers | | Yes | Risk assessment[f] | Yes | Yes | Yes[g] | Yes[h] | Not routinely[b] |
| Particulate respirator on HCWs and caregivers | for room entry | No | No | No | No | Not routinely[g] | Not routinely[h] | Yes |
| | within 1m of patient | No | No | No | No | Not routinely[g] | Not routinely[h] | Yes |
| | for aerosol-generating procedures[i] | Yes | Not routinely[i] | Not routinely[i] | Yes | Yes | Yes | Yes |
| Medical mask on patient when outside isolation areas[k] | | Yes | Yes | Yes[l] | Yes | Yes | Yes | Yes |
| Single room | | Yes, if available[m] | No | Yes, if available[m] | Yes, if available[m] | Yes | Yes | Not routinely[b] |
| Airborne Precaution room[n] | | No | No | No | No | Not routinely[o] | Not routinely[o] | Yes |
| Summary of infection control precautions for routine patient care, excluding aerosol-generating procedures[i] | | Standard plus Droplet Precautions | Standard Precautions | Standard plus Droplet plus Contact Precautions | Standard plus Droplet Precautions | Standard plus Droplet plus Contact Precautions | Standard plus Droplet plus Contact Precautions | Standard plus Airborne plus Contact Precautions |

## Key concepts for Influenza Prevention (3)

Respiratory protection is needed for aerosol generating procedures.

Intubation and related procedures

Cardiopulmonary resuscitation

Bronchoscopy

Surgery and autopsy

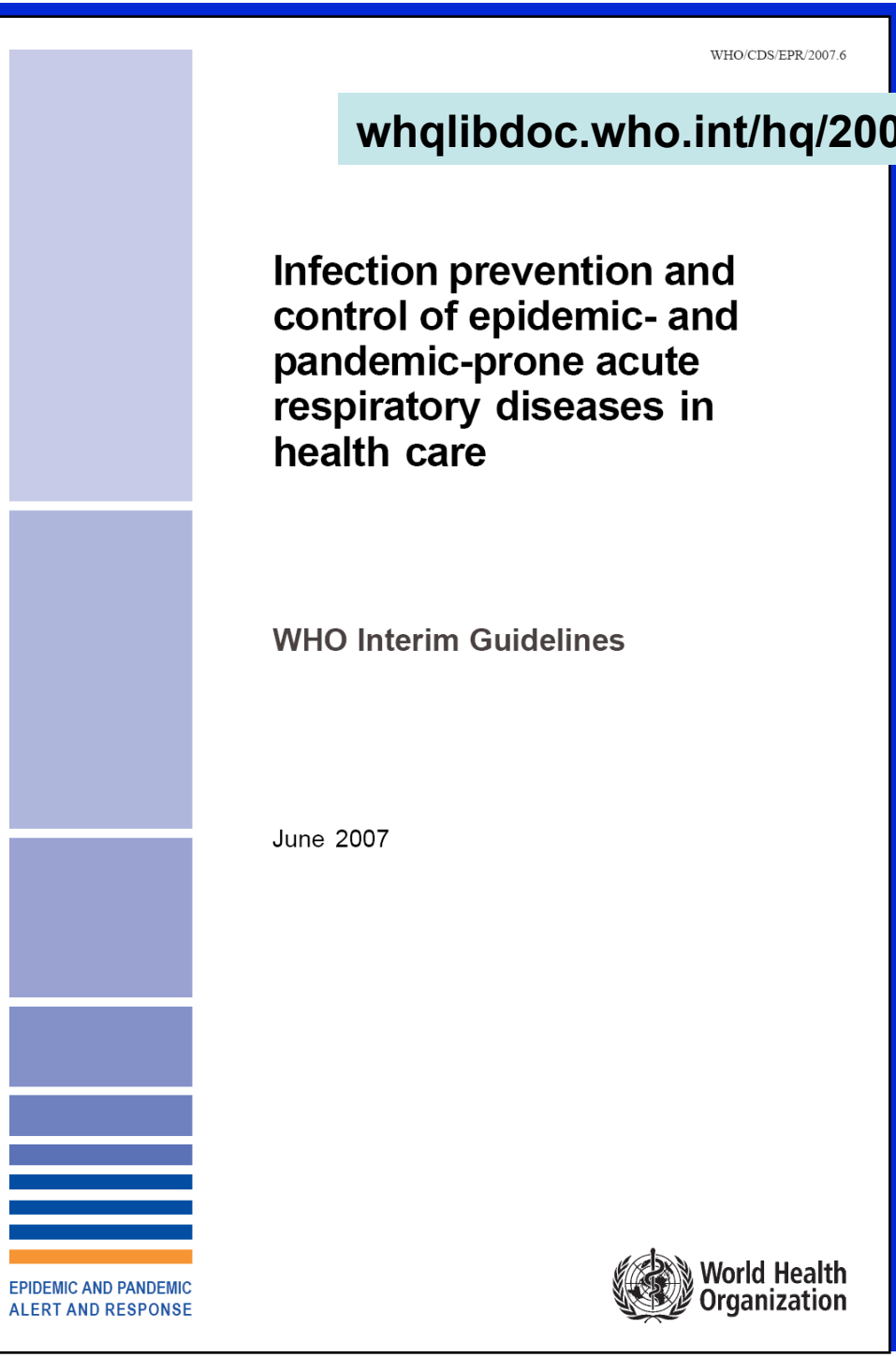
ARD, pp43

# Recent classification for airborne transmission

**Obligate airborne:** initiate solely through aerosols: TB

**Preferential airborne:** initiate through multiple routes but predominately by aerosols: Chicken pox and measles

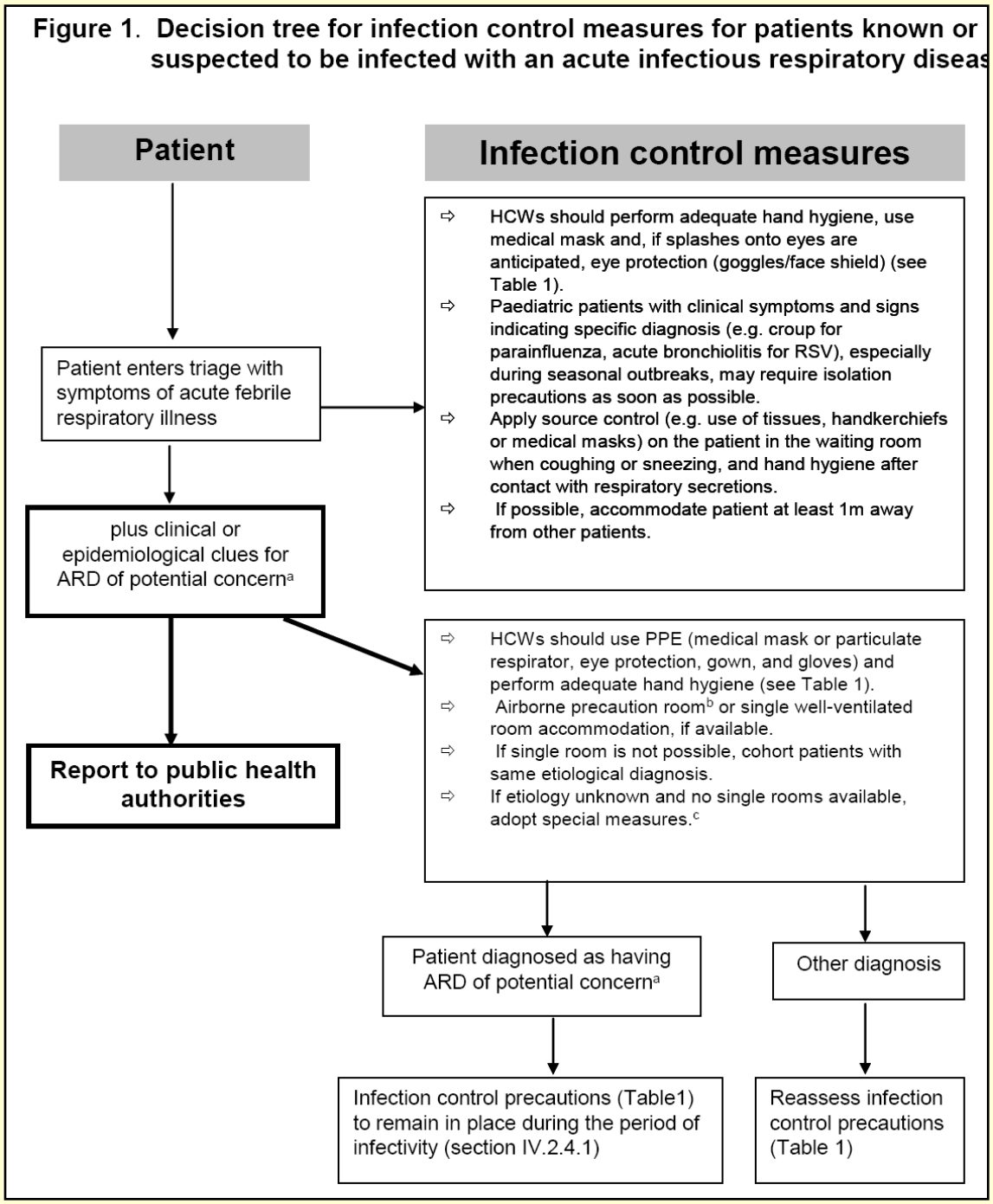
**Opportunistic airborne:** typically through other routes but by aerosols in favorable conditions (as high-risk procedures such as intubation): Influenza and SARS




whqlibdoc.who.int/hq/2007/WHO_CDS_EPR_2007.6_eng.pdf

# Importance of Administrative Controls

**Figure 1. Decision tree for infection control measures for patients known or suspected to be infected with an acute infectious respiratory diseas**



# A key controversy regarding H1N1 prevention

# The USA position

## SHEA recommendations

"At the start of the 2009 outbreak, there was uncertainty regarding the transmission dynamics of the novel H1N1 virus. While seasonal influenza is spread by large respiratory droplets, a concern at the onset of any potential influenza pandemic is whether the pathogen will have a different dynamics or methods of spread."

**13th May – CDC recommends N95 to be used in all situations**

# SHEA recommendations (10th June 2009)

Mode of transmission

"available data and clinical experiences suggest that H1N1 transmission occurs like seasonal influenza via droplets spread".

"SHEA endorses implementing the same practices recommended to prevent the transmission of seasonal influenza for the novel H1N1".

Isolation Measures:

"**Negative pressure rooms are not needed for the routine care of such patients." "The N95 is *not* recommended as part of standard precautions".** This applies even for "preventing seasonal influenza transmission."

# High risk aerosol-generating procedures:

Enhance respiratory protection including the N95 is recommended for such procedures. The procedures should include

> "**open suctioning of airway secretions, resuscitation involving emergency incubation or cardiac pulmonary resuscitation and endotracheal intubation".**

However the following should ***not*** be included:

> "collection of nasopharyngeal specimens, close suctioning of airway secretions and administration of nebulized medications".

| WHO/SHEA | Medical Masks | Gloves | Gowns | Eye Protection | N95 |
|---|---|---|---|---|---|
| Droplets all cases | Yes | - | - | - | - |
| Standard Precautions | Yes | Yes | Yes | Yes | - |
| Aerosol Generating | | Yes | Yes | Yes | Yes |
| Resp swabs | Yes | Yes | Yes | Yes | - |
| Collecting blood | Yes | Yes | - | - | - |

| CDC (13th May) | | | | | |
|---|---|---|---|---|---|
| Standard & Contact | - | Yes | Yes | Yes | Yes |
| Enter Isolation room - all HCWs | | | | | Yes |

# 23rd July 2009

(http://www.cdc.gov/ncidod/dhqp/hicpac_transcript-07-23.html).

**Healthcare Infection Control Practices Advisory Committee (HICPAC)**

"No studies to date have demonstrated human infection occurring from naturally aerosolized influenza or human infection occurring by inhalation of artificially aerosolized influenza in ambient rather then directed air."

**"confirm the presence of airborne influenza virus in various clinic locations"**

Blachere et al (CID 2009 48 (4):438)

Finally a recent study focused on air sampling in a busy hospital emergency room during influenza's seasonal activity ….. detected in the air fraction was in small particles 1 to 4 micrometers in size.

PCR detection, rather then viral culture and assessment of viability, was utilized in this study, so the significance of these findings needs further investigation.

## CDC website

## HICPIC advisory committee
## 23rd July to vote on the latest recommendation

(http://www.cdc.gov/ncidod/dhqp/hicpac_transcript-07-23.html).

**"endorse the use of surgical masks for the routine care of patients with confirmed or suspected, novel influenza A (H1N1)"**

**"it is appropriate at this time to recommend the use of N95 or higher respiratory protection for procedures that are likely to generate small particle aerosols."** The procedures are then listed to include "bronchoscopy, intubation under controlled or emergent situations, cardiopulmonary resuscitation, open airway suctioning and airway induction."

# Aerosol generating procedures

SHEA

"**open suctioning of airway secretions,**
**resuscitation involving emergency incubation**
**cardiac pulmonary resuscitation**
**endotracheal intubation**".

CDC \ HICPIC

bronchoscopy,
intubation under controlled or emergent situations,
cardiopulmonary resuscitation,
open airway suctioning and airway induction

WHO ARD

Intubation
Cardiopulmonary resuscitation + manual ventilation suction
Bronchoscopy
Autopsy/surgery

1st September 2009

## Institute of Medicine

- HCWs (including non-hospital settings) in close contact with individuals with nH1N1 or ILIs should use fit-tested N95 respirators.
- Endorse current CDC guidelines.

Page 17 : "confirm the presence of airborne influenza virus in various clinic locations"

Blachere et al (CID 2009 48 (4):438)

**Also based on the Macintyre study done in China**

Claims N95 statistically significant more protective then controls.

but surgical masks had no efficacy for any outcome

| WHO/SHEA | Medical Masks | Gloves | Gowns | Eye Protection | N95 |
|---|---|---|---|---|---|
| Droplets all cases | Yes | - | - | - | - |
| Standard Precautions | Yes | Yes | Yes | Yes | - |
| Aerosol Generating | | Yes | Yes | Yes | Yes |
| Resp swabs | Yes | Yes | Yes | Yes | - |
| Collecting blood | Yes | Yes | - | - | - |

| CDC (13th May) | | | | | |
|---|---|---|---|---|---|
| Standard & Contact | + IOM - | Yes | Yes | Yes | Yes |
| Enter Isolation room - all HCWs | | | | | Yes |

# But Macintyre group retracted their study



## CDC Flu Mask Decision Based on Flawed Study, Authors Say

Authors Retract Study CDC Used to Decide on Surgical Masks to Prevent Flu

By MICHAEL SMITH
PHILADELPHIA, Nov. 1, 2009



A worker inspects an N95 face mask in this file photo. Authors retracted findings of a study that found N95 respirators were better than surgical masks at preventing flu.
(Romeo Ranoco/Reuters)

After a re-analysis prompted by questions from reviewers, the findings were no longer significant, said Holly Seale of the University of New South Wales in Sydney, Australia.

The original study, presented earlier this year, formed the basis of several important policy decisions, including Centers for Disease Control and Prevention guidance on the use of masks in a health care setting.

The retraction -- near the end of a presentation at the annual meeting of the Infectious Diseases Society of America -- prompted a "rush to the microphones" by

Watch Video
WATCH: Have an Allergy-Free Halloween
WATCH: First Trimester Myths
WATCH: 6 Portion-Control Secrets



ABC News Swine Flu Coverage New
Panic: H1N1 Vaccine Shortag Roil Public
Health Secretary Kathleen Sebelius urges Americans to k patient.
• Panic: H1N1 Vaccine Shortages Roil Public
• Swine Flu Emergency: What Does It Mean?
• H1N1 Vaccine Delay Dogs Doctors, Patients

http://abcnews.go.com/Health/SwineFluNews/cdc-flu-mask-decision-based-flawed-study-authors/Story?id=8966585&page=1

But there is a study not considered by IOM showing that surgical masks is as effective as N95……

## Surgical Mask vs N95 Respirator for Preventing Influenza Among Health Care Workers: A Randomized Trail.

Mark Loeb et al, JAMA,, 2009;302(17), October 1 online

A randomized controlled trail of 446 nurses in 8 tertiary care hospitals – Ontario

| | Surgical masks | N95 |
|---|---|---|
| n | 225 | 221 |
| Influenza infected | 50 (23.6%) | 48 (22.9%) |

p = 0.086 (meet criteria for non-inferiority)

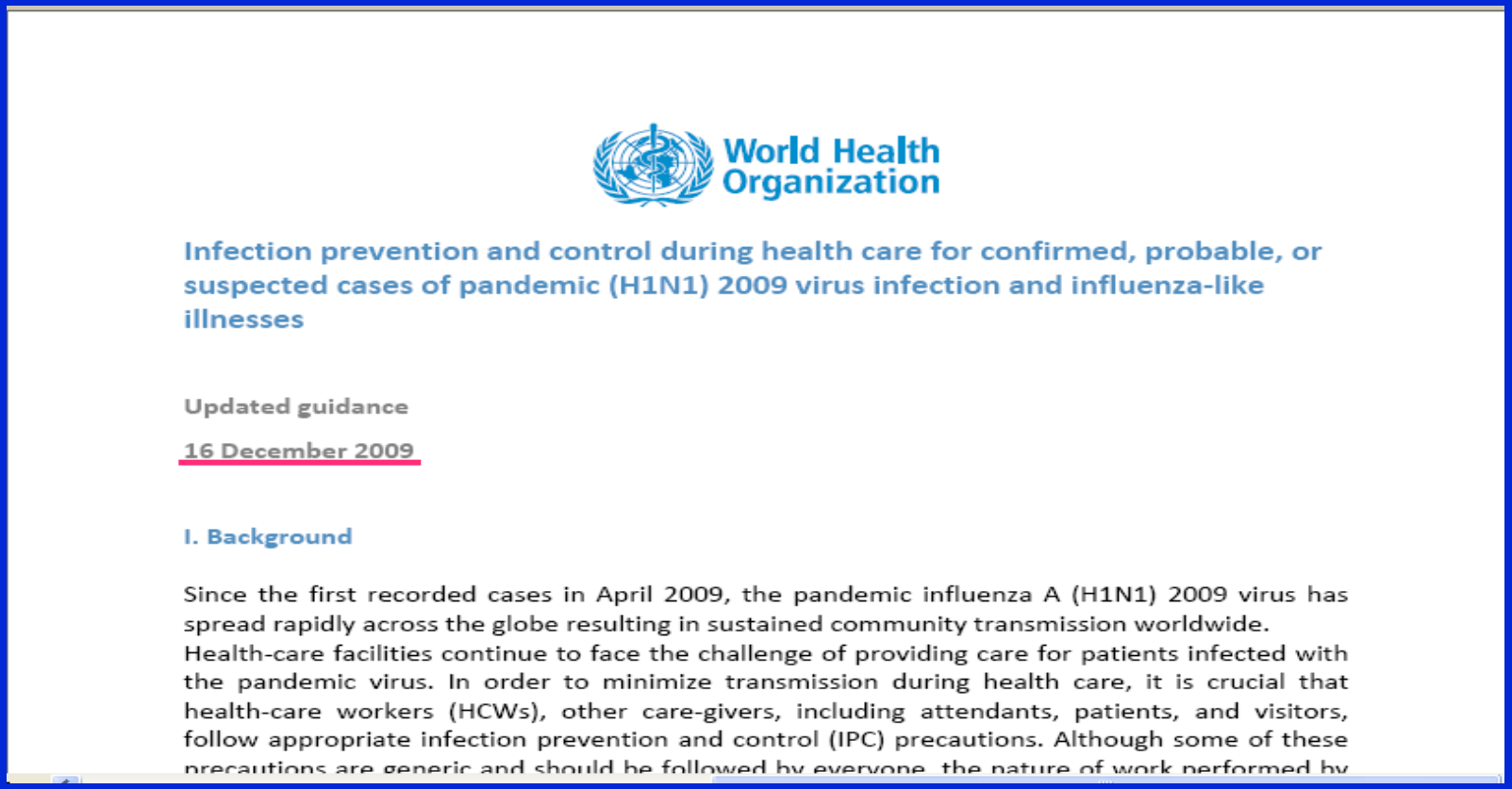
November 5, 2009

President Barack Obama
The White House
1600 Pennsylvania Avenue, NW
Washington D.C. 20500

Dear President Obama:

During this state of national emergency due to the 2009 H1N1 influenza pandemic, it is imperative that healthcare professionals and facilities receive clear, practical, and evidence-based federal guidance to ensure patient and healthcare worker safety. With this in mind, the Society for Healthcare Epidemiology of America (SHEA), Infectious Diseases Society of America (IDSA), and Association of Professionals in Infection Control and Epidemiology (APIC) write to express significant concern with the federal guidance, developed by your Administration in cooperation with several agencies and recently issued by the Centers for Disease Control and Prevention (CDC), and Occupational Safety and Health Administration (OSHA) requirements concerning the use of personal protective equipment (PPE) by healthcare workers in treating suspected or confirmed cases of H1N1 influenza.

http://www.who.int/csr/resources/publications/cp150_2009_1612_ipc_interim_guidance_h1n1.pdf



World Health Organization

Infection prevention and control during health care for confirmed, probable, or suspected cases of pandemic (H1N1) 2009 virus infection and influenza-like illnesses

Updated guidance

16 December 2009

I. Background

Since the first recorded cases in April 2009, the pandemic influenza A (H1N1) 2009 virus has spread rapidly across the globe resulting in sustained community transmission worldwide. Health-care facilities continue to face the challenge of providing care for patients infected with the pandemic virus. In order to minimize transmission during health care, it is crucial that health-care workers (HCWs), other care-givers, including attendants, patients, and visitors, follow appropriate infection prevention and control (IPC) precautions. Although some of these precautions are generic and should be followed by everyone, the nature of work performed by

This guidance replaces guidance documents issued on 29 April and 25 June 2009 and remains **valid until 30 June 2010,**

WHO guidance for infection prevention and control for H1N1

## III, 1.1 Standard & Droplet Precautions should always be applied

As per Standard Precautions

- Hand hygiene (HH)
- Use of PPE does not eliminate hand hygiene

when procedures include relevant risk:

- medical mask and PPE for eye protection
- a gown and clean gloves.

As per Droplet Precautions:

- medical mask if ≤ 1m of patient
- HH before and after patient contact and after removal of mask

III,1.2 performing aerosol-generating procedures

- wear a particulate respirator
- adequately ventilated room, min of 6-12 ACH
- limit only to those with patient care
- HH before & after patient contact and PPE removal

1.3 Special considerations (eg. BiPAP, Nebulization)

- above 1.2 measures also for open suctioning system

## III, 2. Duration of isolation precautions

- All patients on Droplet (DP) for seven days after s/s onset.
- DP maintained 24 hrs after resolution of s/s, especially fever
- DP in immunosuppressed maintained for full duration of ILI.

III, 4. Collection of laboratory specimens

Upper respiratory tract (above larynx)
Standard and Droplet Precaution
(III 1.1)

Lower respiratory tract specimens
Aerosol-generating procedures IPC measures
(iii, 1.2)

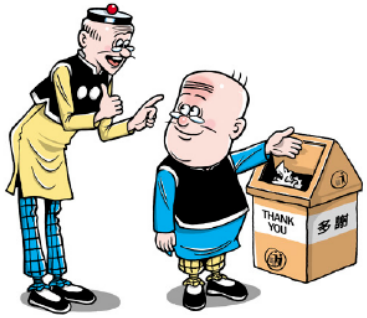
## 5. Key elements for IP in health-care settings

1. Health-care facility managerial activities
2. Basic IC recommendations for all health-care facilities
3. Respiratory hygiene/cough etiquette
4. Triage of febrile cases
5. Outpatient settings
6. Placement of patients with presumptive H1N1
7. Visitors and family members
8. Specimens transport
9. Pre-hospital care
10. Occupational Health
11. H1N1 vaccination
12. PPE when supplies are limited
13. Waste disposal
14. Dishes/eating utensils
15. Linen and laundry
16. Environmental cleaning
17. Patient care equipment
18. Patient discharge
19. Health facility engineering controls
20. Mortuary care
21. Health care in the community

# 咳嗽要講禮
# Maintain Cough Manners

## 遮掩口鼻有禮

打噴嚏或咳嗽時要掩着口和鼻
Cover nose and mouth while sneezing or coughing




## 正確棄置有禮

呼吸道分泌物應用紙巾包好，
並棄置於有蓋垃圾桶內
Dispose of soiled tissue paper properly in a lidded rubbish bin

## 潔淨雙手有禮

打噴嚏或咳嗽後應徹底洗手
Wash hands thoroughly after sneezing or coughing

## 佩戴口罩有禮

如有呼吸道感染，應佩戴口罩
Put on a surgical mask while having a respiratory infection

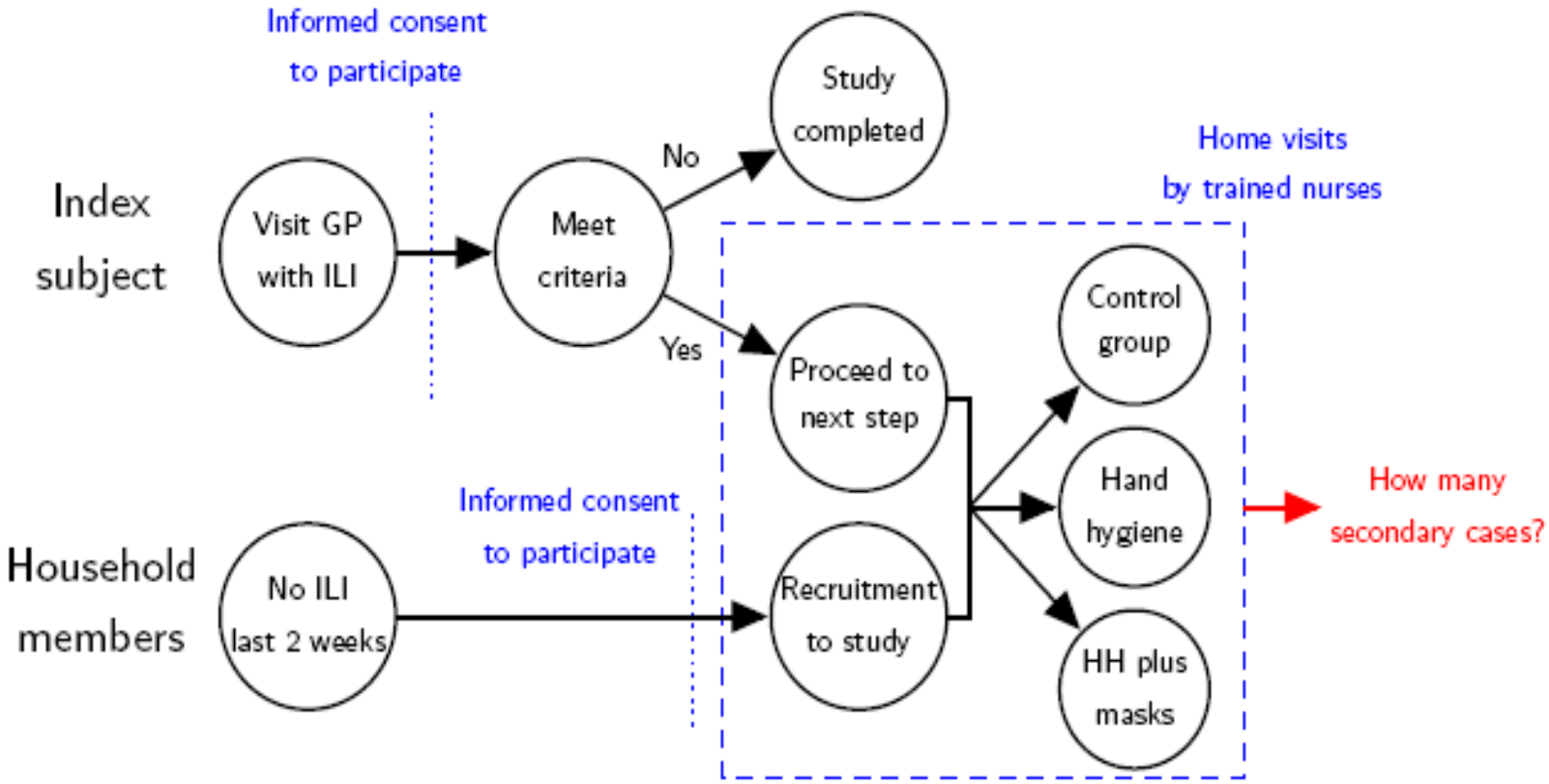
衞生署
Department of Health

www.chp.gov.hk

# Preventing Influenza in the community

**Can Hand Hygiene make a difference?**

# HK NPI study design




Index cases are recruited from outpatient clinics. Households are followed-up for 7 (10 in pilot study) days with symptom diaries including 3-4 home visits to collect nose and throat swabs from all household members.

- *58% reduction of transmission w HH*
- *Hands play a role in flu transmission*

# Key results of NPI study, 2008

Table: Secondary attack ratios in the contacts of 154 analyzed households where the intervention was applied within 36 hours of symptom onset in the index case.

| | Secondary attack ratio (95% CI)* | | | | | | *p*-value† |
|---|---|---|---|---|---|---|---|
| | Control *(n=183)* | | Hand hygiene *(n=130)* | | Mask+HH *(n=149)* | | |
| RT-PCR-confirmed influenza | 0.12 | (0.08, 0.18) | 0.05 | (0.02, 0.11) | 0.04 | (0.01, 0.09) | 0.04 |
| Clinical influenza(1) | 0.22 | (0.17, 0.29) | 0.11 | (0.06, 0.17) | 0.18 | (0.12, 0.25) | 0.03 |
| Clinical influenza(2) | 0.07 | (0.03, 0.11) | 0.04 | (0.01, 0.09) | 0.07 | (0.04, 0.13) | 0.52 |

* By the exact binomial method.

† By Pearson chi-square test adjusted for within-household correlation.

(1) is at least 2 of fever$\geq$37.8°C, cough, headache, sore throat, aches or pains in muscles or joints.

(2) is fever$\geq$37.8°C plus cough or sore throat.

*Cowling et al, Annuals of Internal Medicine – 2009 Vol.151 No.7 p.437-446*

*Table 3.* **Secondary Attack Ratios of RT-PCR–Confirmed Influenza Virus Infection and Clinical Influenza**

| Interval Between Symptom Onset and Intervention | Determination of Influenza* | Control Group ($n$ = 279) | | Hand Hygiene Group ($n$ = 257) | | Facemask Plus Hand Hygiene ($n$ = 258) | | *P* Value† |
|---|---|---|---|---|---|---|---|---|
| | | Cases, *n* | SAR (95% CI), %‡ | Cases, *n* | SAR (95% CI), %‡ | Cases, *n* | SAR (95% CI), %‡ | |
| Any | RT-PCR confirmed | 28 | 10 (6–14) | 14 | 5 (3–9) | 18 | 7 (4–11) | 0.22 |
| | Clinical definition 1 | 53 | 19 (14–24) | 42 | 16 (12–21) | 55 | 21 (16–27) | 0.40 |
| | Clinical definition 2 | 14 | 5 (2–8) | 9 | 4 (2–6) | 18 | 7 (4–11) | 0.28 |
| ≤36 h§ | RT-PCR confirmed | 22 | 12 (7–18) | 7 | 5 (1–11) | 6 | 4 (1–7) | 0.040 |
| | Clinical definition 1 | 42 | 23 (16–30) | 14 | 11 (5–17) | 27 | 18 (12–24) | 0.032 |
| | Clinical definition 2 | 12 | 7 (3–11) | 5 | 4 (1–7) | 11 | 7 (3–12) | 0.52 |

RT-PCR = reverse-transcription polymerase chain reaction; SAR = secondary attack ratio.

* "Clinical definition 1" is at least 2 of the following: temperature ≥37.8 °C, cough, headache, sore throat, and myalgia. "Clinical definition 2" is temperature ≥37.8 °C, plus cough or sore throat.

† For difference among the 3 groups by the Pearson chi-square test, adjusted for within-household correlations of 0.12 for the RT-PCR–confirmed secondary attack ratios and 0.04 and 0.07 for the clinical influenza secondary attack ratios.

‡ The secondary attack ratio at the individual level was defined as the proportion of household contacts of an index case that subsequently became infected with influenza. The CIs were calculated by using a cluster bootstrap method (20), not accounting for within-household correlation, and the resulting intervals may therefore slightly underestimate the uncertainty about the secondary attack ratios.

§ Based on 183 patients in the control group, 130 in the hand hygiene group, and 149 in the facemask plus hand hygiene group.

*Ann Intern Med.* 2009;151:* * * FILL THIS IN * * *. www.annals.org
For author affiliations, see end of text.
ClinicalTrials.gov registration number: NCT00425893.
This article was published at www.annals.org on 4 August 2009.

*Appendix Table 2.* **Secondary Attack Ratios for RT-PCR-Confirmed and Clinical Influenza When the Intervention Was Applied Within 48 Hours of Symptom Onset in the Index Patient***

| Interval Between Symptom Onset and Intervention | Determination of Influenza† | Secondary Attack Ratio (95% CI), %‡ | | | *P* Value§ |
|---|---|---|---|---|---|
| | | Control Group ($n$ = 214) | Hand Hygiene Group ($n$ = 167) | Facemask Plus Hand Hygiene Group ($n$ = 171) | |
| ≤48 h | RT-PCR confirmed | 11 (6–16) | 6 (2–10) | 4 (2–7) | 0.077 |
| | Clinical definition 1 | 20 (14–26) | 13 (7–18) | 19 (13–25) | 0.182 |
| | Clinical definition 2 | 6 (2–10) | 3 (1–6) | 8 (4–12) | 0.24 |

RT-PCR = reverse-transcription polymerase chain reaction.

* Based on 552 household contacts in 184 analyzed households.

† "Clinical definition 1" is at least 2 of the following: temperature ≥37.8 °C, cough, headache, sore throat, and myalgia. "Clinical definition 2" is temperature ≥37.8 °C, plus cough or sore throat.

‡ The CIs were calculated by using a cluster bootstrap method (20), not accounting for within-household correlation, and the resulting intervals may therefore slightly underestimate the uncertainty about the secondary attack ratios.

§ For the difference among the 3 groups by the Pearson chi-square test, adjusted for within-household correlation.

*Appendix Table 10.* **Summary Measures of Adherence to Interventions During the 7-Day Follow-up Period in Households in Which the Intervention Was Applied Within 36 Hours of Symptom Onset in the Index Patient**

| Characteristic | Control Group | | Hand Hygiene Group | | Facemask Plus Hand Hygiene Group | |
|---|---|---|---|---|---|---|
| | Index Patient | Contact | Index Patient | Contact | Index Patient | Contact |
| Using liquid soap, %* | 69 | 79 | 66 | 72 | 69 | 74 |
| Using alcohol hand rub, %* | 7 | 7 | 41 | 30 | 29 | 30 |
| Practicing good hand hygiene, %† | 42 | 48 | 68 | 60 | 63 | 55 |
| Median amount of liquid hand soap used by household (IQR), *g* | – | – | 77.6 (42.4–162.6) | | 78.9 (35.2–114.2) | |
| Median amount of alcohol hand rub used by individuals (IQR), *g* | – | – | 3.2 (1.1–9.7) | 1.5 (0.3–5.3) | 1.6 (0.7–5.1) | 1.5 (0.3–3.8) |
| Wearing surgical mask, %‡ | 19 | 8 | 32 | 8 | 47 | 27 |
| Median number of masks used (IQR) | – | – | – | – | 10 (2–16) | 3 (0–9) |

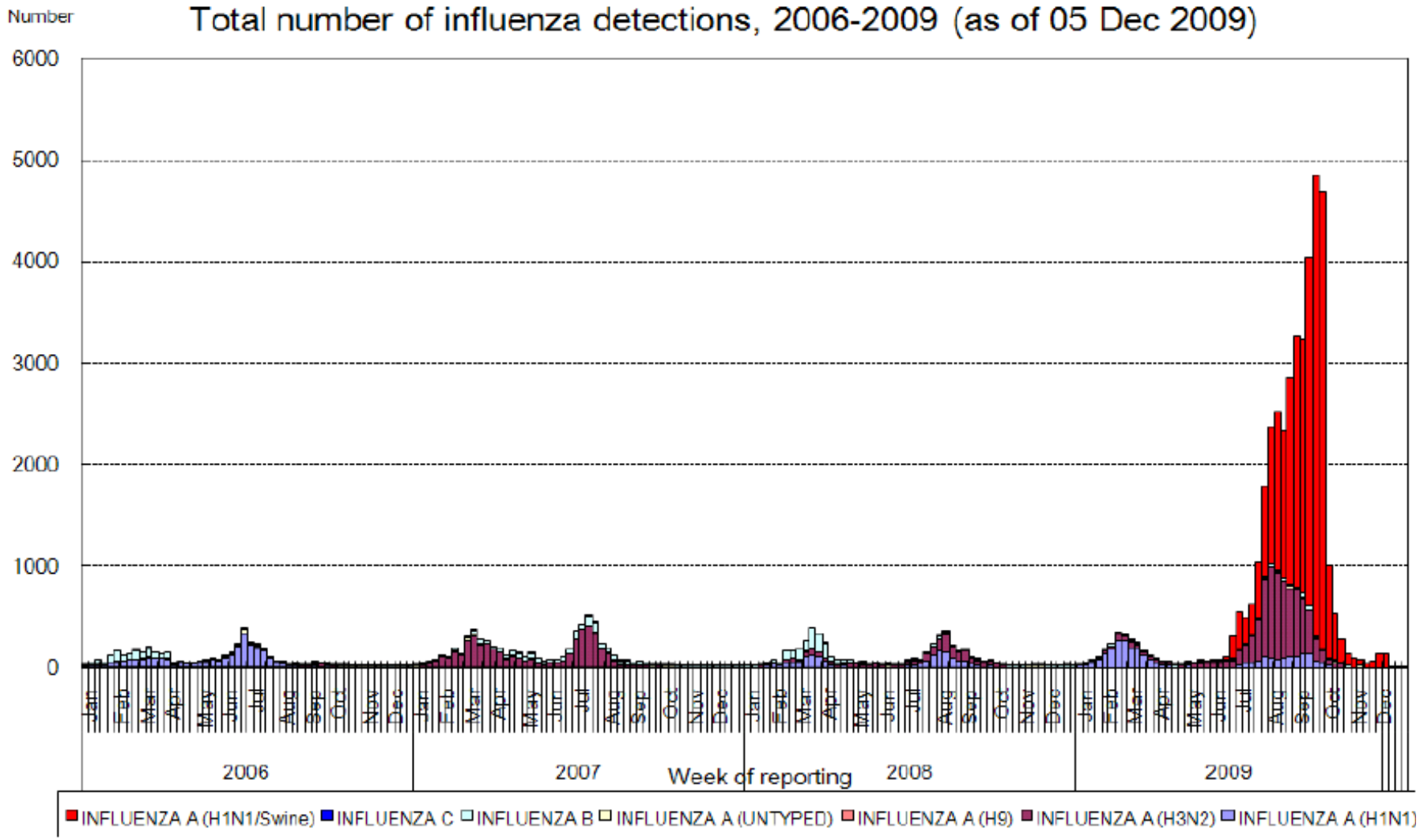
IQR = interquartile range.

* Proportion of individuals who reported washing their hands with liquid hand soap or using alcohol hand rub often or always (rather than sometimes or never).

† Proportion of individuals who reported washing their hands often or always (rather than sometimes or never) after sneezing, coughing or cleaning their hands during the follow-up period.

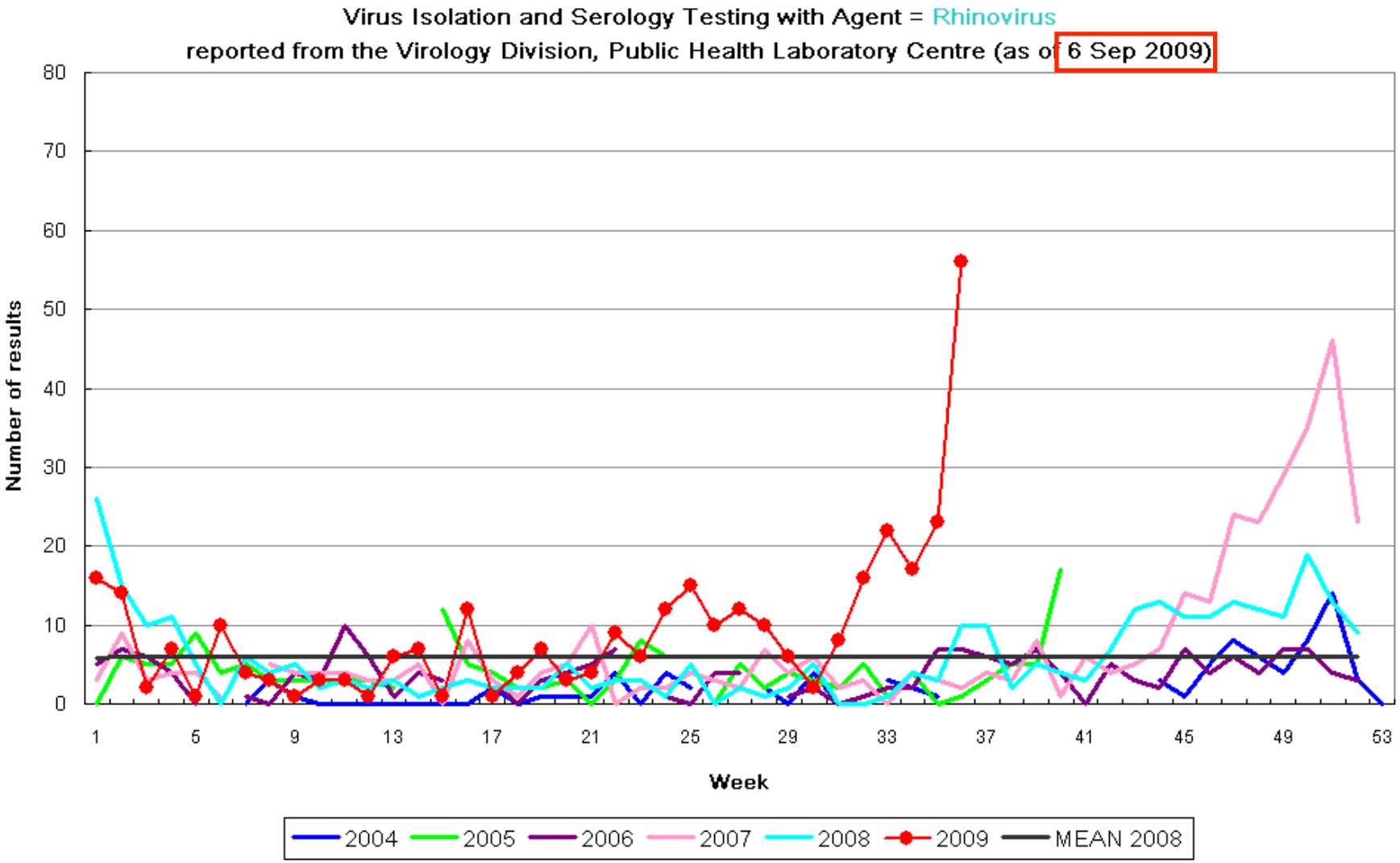
‡ Proportion of individuals who reported wearing a surgical facemask often or always (rather than sometimes or never) during the follow-up period.

# Total Number of Influenza Detections



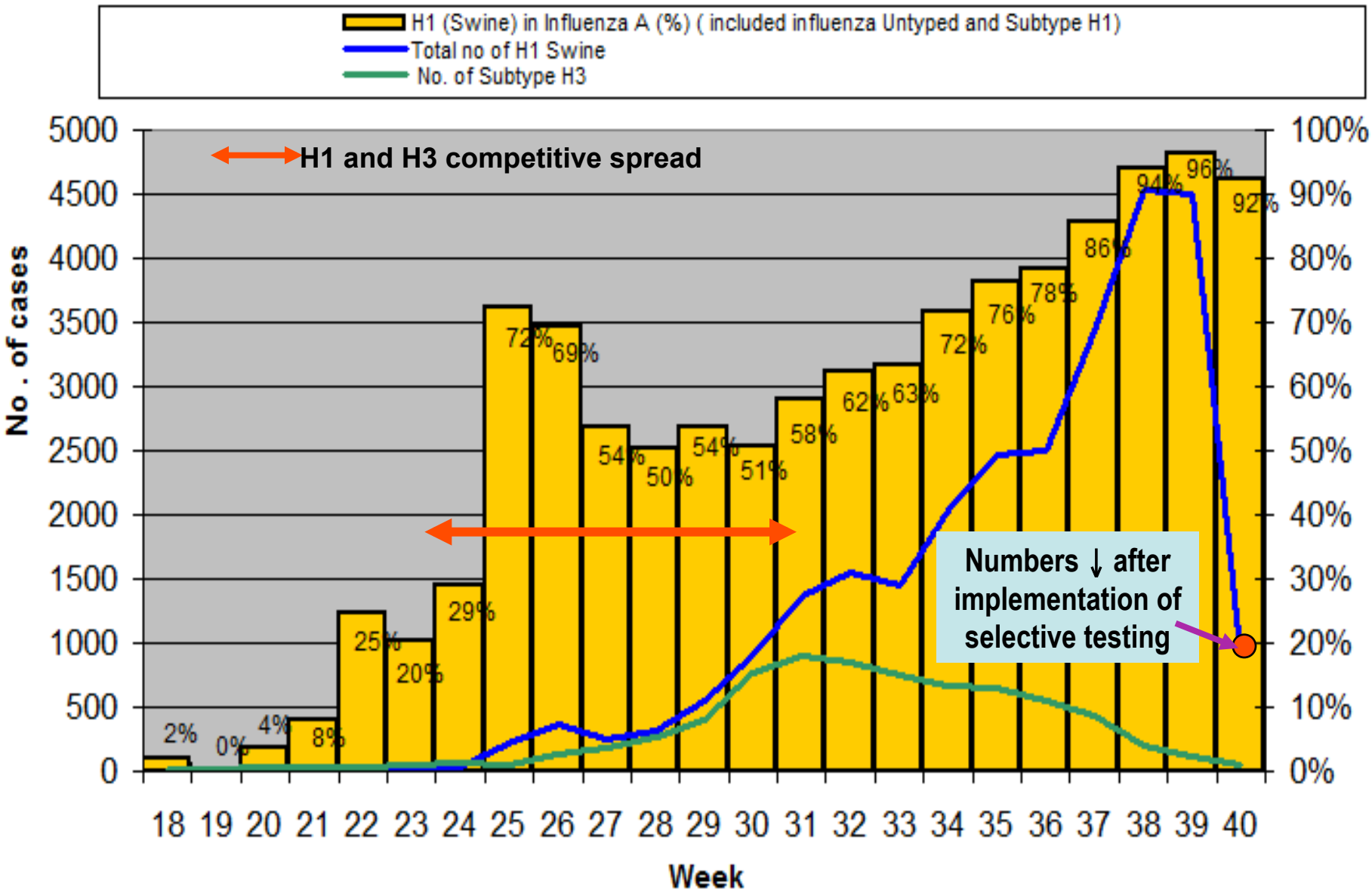

*Prepared by ICB/IDCTC*

# PHLC Data of Rhinovirus

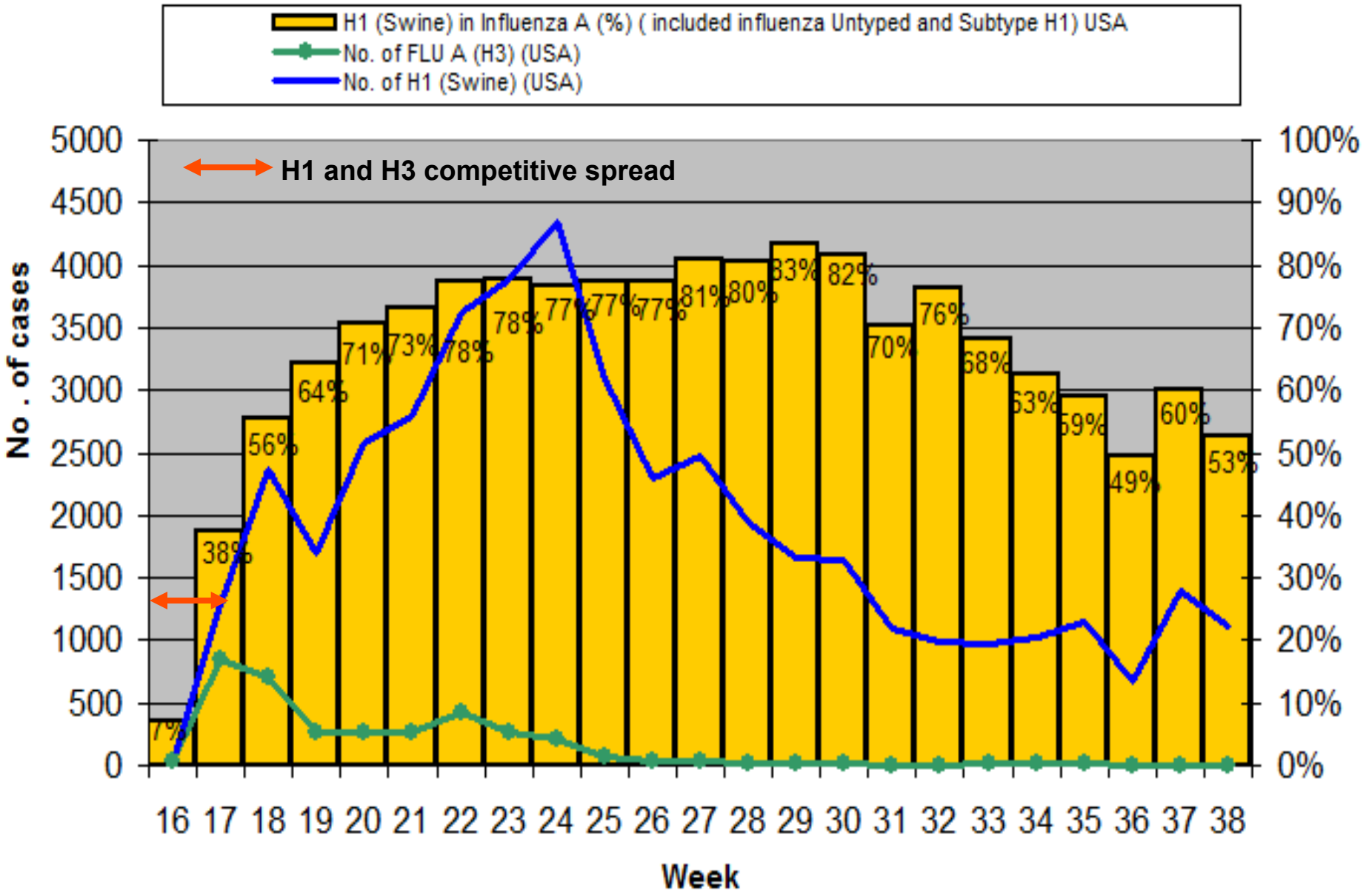



*Prepared by ICB/IDCTC*

# Weekly data of H1 (Swine) & H3 in HK



# Weekly data of H1 (Swine) & H3 in USA



## Mortality and severity of nH1N1 and H3N2 in Hong Kong - 9th September 2009 (from July)

| | Mortality | Severe/critical |
|---|---|---|
| nH1N1: n = 15,871 | 12 (0.08%) | 71 (0.45%) |
| H3N2 n = 5980<br>A/Hong Kong/1985/2009<br>A/Perth/16/2009 | 10 (0.16%) | 26 (0.43%) |

**The Key -**
**always be alert**

**Put on protective gear when needed**

*Thank you*