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Closing date for applications - **Monday 31st August 2009**

Medical students of Australian medical schools eligible to apply

More than swine flu: a workshop on pandemics and pandemic preparedness

Dr Douglas Shaw
Public Health Physician
22 August 2009

Early swine flu case in Adelaide!



Learning Objectives

- **Understand definitions for:**
 - Endemic
 - Epidemic
 - Pandemic
- **Describe key issues in planning a pandemic response**

Workshop Outline

- **Definitions**
- **Pandemic preparation small group work**
- **Australian Health Management Plan for Pandemic Influenza 2008**
- **Pandemic (H1N1) 2009 influenza**
- **Reflections**

Definitions

- Sporadic case**
 - occasional appearance of cases apparently unrelated in time and space
- Endemic**
 - persistent occurrence of disease over a long period (years)
- Epidemic**
 - sharp significant rise in incidence: more than the usual number of cases in a given community over a stated period of time
- Pandemic**
 - world-wide epidemic

More epidemiology

- Case definition
- CFR (Case Fatality Ratio)
- Attack rates
- Reproduction number (R_0)
- Serial interval

A Brief History of Pandemics

- Bubonic plague 1300-1400 +
- Smallpox
- Cholera
- Poliomyelitis
- HIV
- Tuberculosis
- Typhus
- Malaria
- ? Cardiovascular disease
- ? Obesity

Influenza Pandemics 20th Century

- **1918-19:** Spanish flu, 3 waves, 50 million deaths, 25% world's population infected
- **1957-58:** Asian flu, milder illness, 2 million deaths
- **1968-70:** Hong Kong flu, relatively mild, 1 million deaths.

Small Group Work Scenario

- Increasing cases (& deaths) in Mexico caused by a novel influenza A virus, with spread to USA and Canada ...
- WHO raises influenza pandemic alert from 3 to 4 ...
- Expert Groups (you!) formed to identify key issues in responding to this outbreak.

Roles

1. General Practitioners
2. Emergency Physicians & Intensive Care Physicians
3. Department of Education
4. Business leaders
5. Disease Surveillance/ Epidemiologists
6. Hospital Management
7. Australian Quarantine Inspection Service
8. Animal health experts?
9. More....?

Actions

- List 5 to 10 key issues most relevant for your group's response to this scenario
- Prioritise the top 3 issues
- For one issue, list resources required to address the issue
- Present your findings to the whole group (2 minutes)

AHMPPI 2008: Australian Health Management Plan for Pandemic Influenza 2008

- Overall Aim:** protect Australians and reduce impact of pandemic on social and economic functioning
- Why plan for an influenza pandemic?
 - Overview & history of pandemic influenza
 - Strategies & Phases
 - Key actions
 - How individuals can help control spread
 - More information - Assumptions

AHMPPI: worst-case scenario (1918-type pandemic)

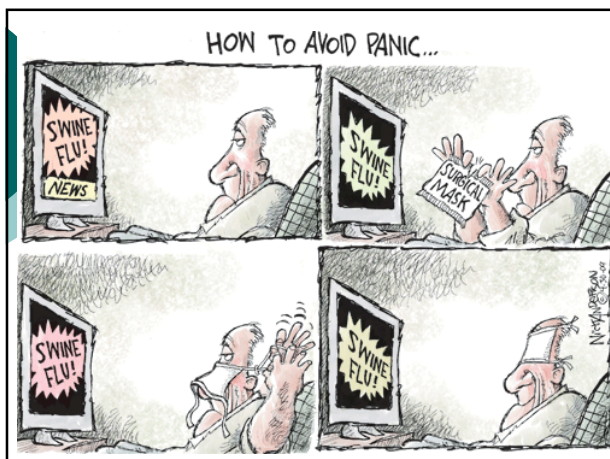
- 40% population with clinical illness
- 2.4% mortality = 200,000 deaths in Australia
- 50% off work at peak
- Several waves each up to 12 weeks
- Disruption to services up to 2 years

AHMPPI 2008 Phases

- ALERT – prepare for pandemic
- DELAY – keep virus out of Australia
- CONTAIN – limit early spread
- SUSTAIN – wait for vaccine
- CONTROL – by use of vaccine
- RECOVER – return to normal, but alert

AHMPPI Operational Objectives

1. Communicate best available information to decision makers, health professionals and public
2. Minimise transmission
3. Optimise health system to reduce mortality and morbidity
4. Work in partnership across all sectors of government



AHMPPI Assumptions 1

- **Incubation period:** up to 7 days
- **Attack Rate:** 40-60%, higher in children, health care/household settings & some population groups
- **Modes of transmission:** droplet & contact, aerosol (health settings), exclude oro-faecal transmission
- **Period of communicability:** 24 hours before to 5 days after onset (longer in children, shorter if on antivirals)
- **Respiratory protection zone:** 1m for droplets, whole room for aerosol generating procedures.
- **Survival of virus:** hard surfaces 48 hrs, hands 30 mins, disinfection (household detergents) and hand washing (soap & water for 15-20 seconds) effective.

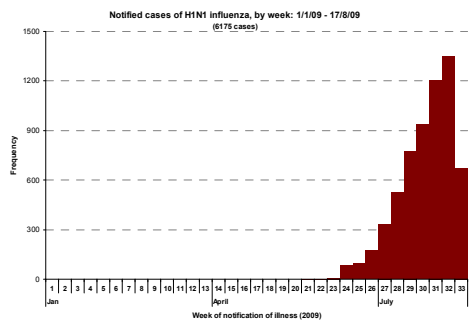
AHMPPI Assumptions 2

- **Serial interval:** 2 to 4 days
- **Presenting symptoms:** respiratory with fever
- **Health impact:** CFR 2.4%, ↓ to 1.2% with treatment; peaks < 5yrs, > 65 yrs and 20-35 years; maternal mortality & foetal loss significant
- **Treatment:** Antiviral treatment & prophylaxis effective
- **Immunity:** following natural infection
- **Immunity:** following vaccination
- **Absenteeism:** 30-50% at peak
- **Duration of disruption:** 7-10 months, then 6-12 months recovery

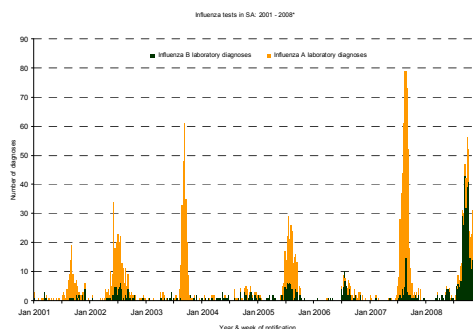
Pandemic (H1N1) 2009 timeline

24 April	WHO announces outbreaks of a novel strain of influenza
8 May	First confirmed case in Australia, overseas acquired
22 May	First confirmed case in SA
11 June	WHO announces Phase 6 of Global level of influenza pandemic alert: PANDEMIC

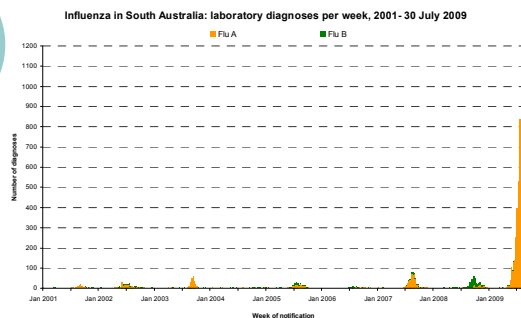
Epidemic (Pandemic) Curve SA



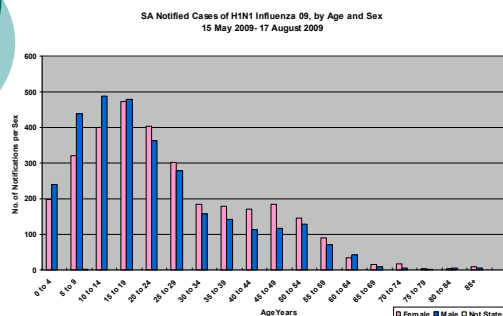
Influenza in SA 2001-2008



Influenza in SA 2001-2009



Age & Sex distribution (SA)



AHMPPI Phases

- Alert
- Delay
- Contain
- Protect: new phase 17 June 2009
 - Identify vulnerable
 - Focus on early treatment
 - Voluntary home isolation (no quarantine for contacts)
 - Re-focus testing: moderate-severe illness, vulnerable groups & high risk settings
 - End border control measures
 - Continue DELAY or CONTAIN in some settings (eg. remote indigenous communities)

Lessons learned (...still learning)

- Planning needs to consider different scenarios – not just “worst case”
- Address workforce “surge” capacity
- Improve timely & accurate communication
- Develop more efficient decision making process

Reflection

- Share key learnings
- Informal evaluation: learning objectives met?