
Preparing for an influenza pandemic in a sea of uncertainty

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- “...The most important objective (of the US government) is that every state, every indigenous group, every city, every school, every business, every church, and every family needs a plan that addresses the unique challenges they would face.... any community that fails to prepare — expecting that the national governments can or will offer a lifeline — will be tragically wrong....”

(Eric Hargen, US Deputy Secretary of Health and Human Services, 30 April 2007).

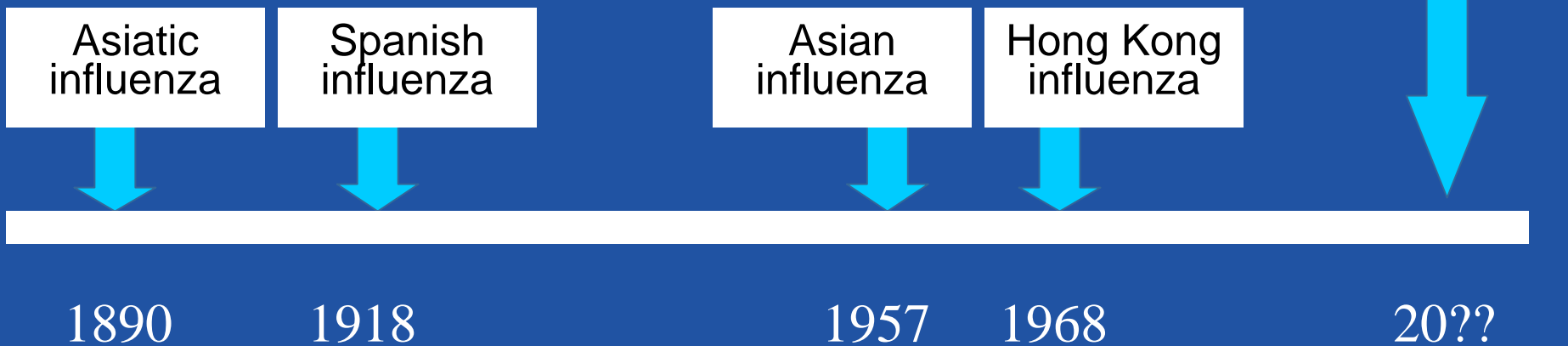
Outline

- What will the next influenza pandemic virus behave?
- Will our response strategies work?
- Will the health system cope?
- What will be the reaction of the public?
- Are we prepared?

What can we expect of the
next pandemic?

When will the next pandemic occur?

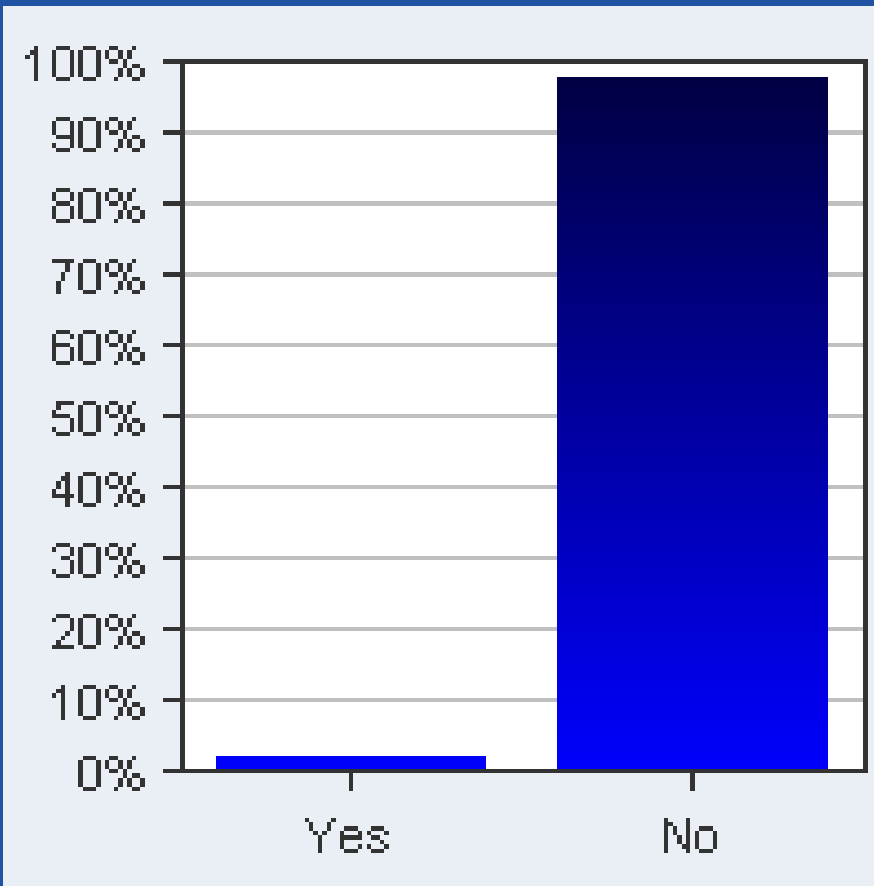
Over past 300 years, pandemics have occurred every 10 - 50 years



When will the next pandemic occur?

- Are we really “overdue” for a pandemic?
- Methods for predicting the timing of the next pandemic
 - bookmakers: typically 25/1 for a pandemic to occur in next 12 months
 - prediction markets

Prediction markets

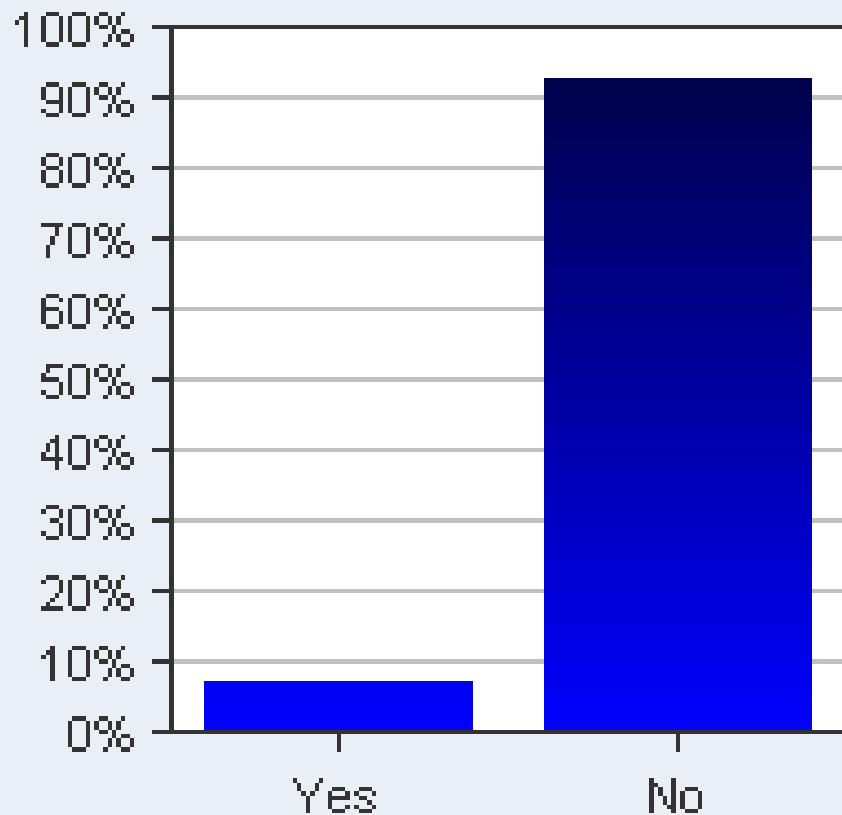


Prediction: WHO Phase 4 announcement will occur by January 1, 2008

Commencement date: 8/2/2007

Current Market Prices: Yes \$0.02
No \$0.98

Prediction markets



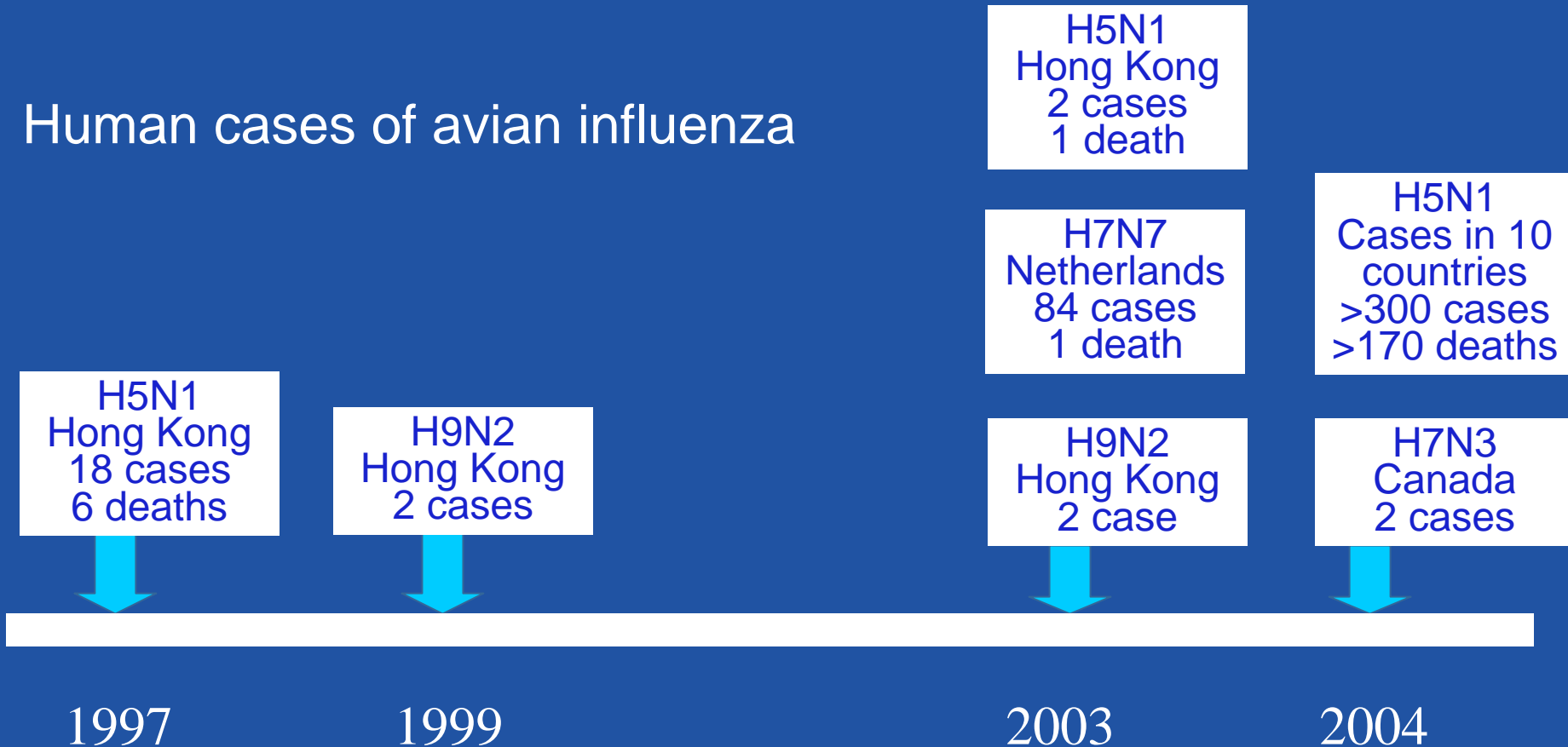
Prediction: WHO Phase 4 announcement will occur by June 1, 2008

Commencement date: 8/2/2007

Current Market Prices: Yes \$0.07
No \$0.93

What will be the next pandemic strain?

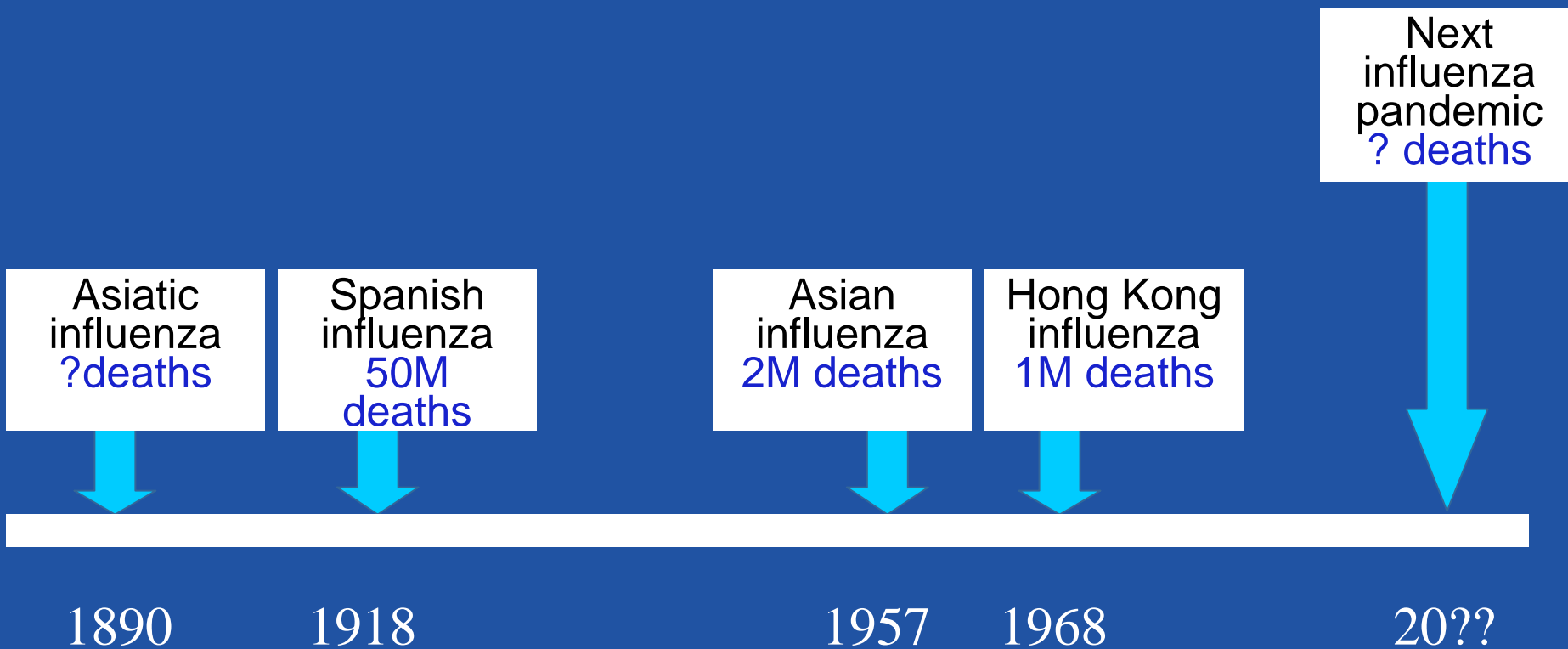
Human cases of avian influenza



How will the virus behave?

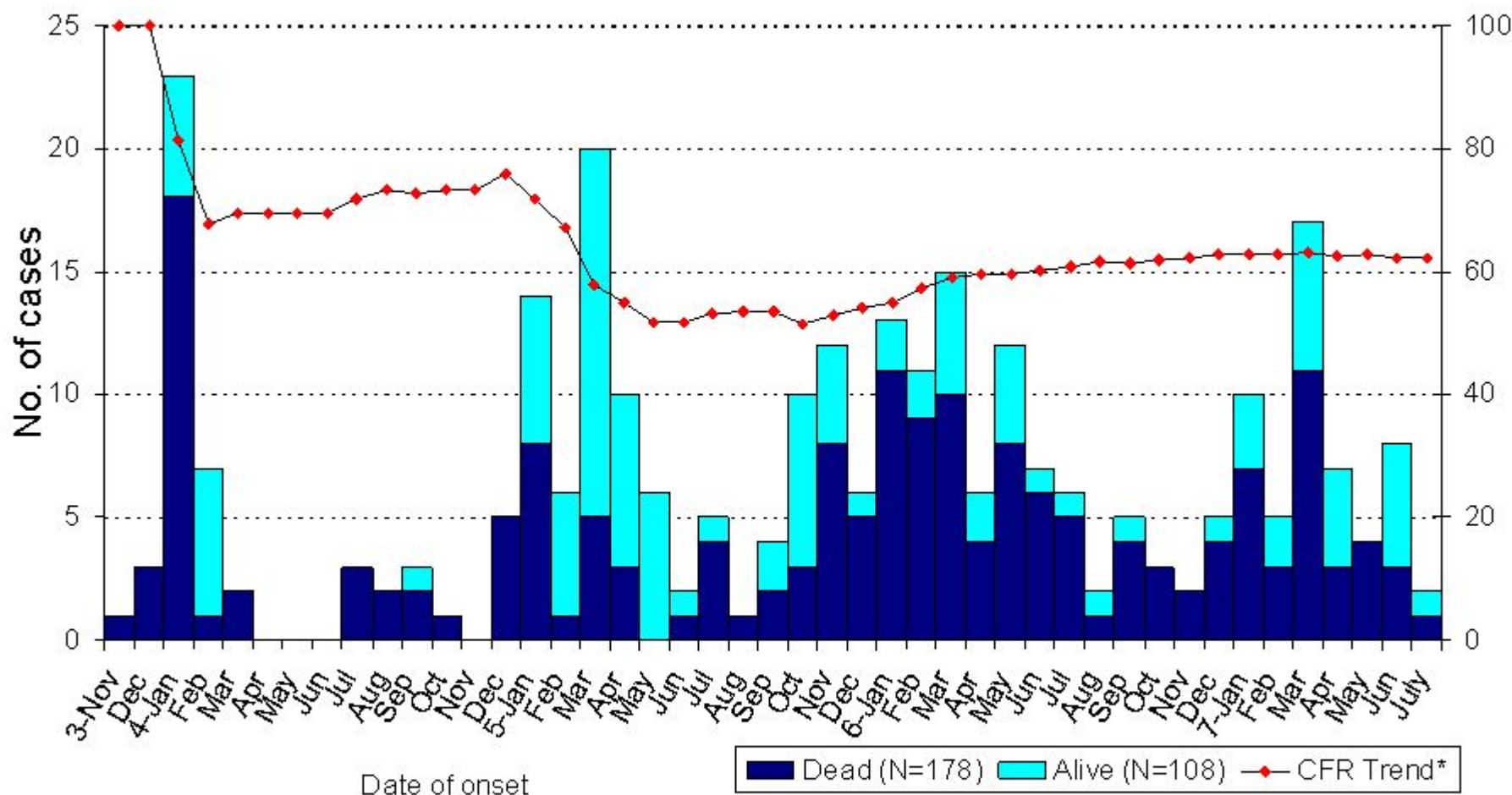
- Transmission dynamics
 - aerosol Vs. droplet Vs. direct
 - will people be infectious prior to symptom onset?
 - what will the R_0 value be?
- For how long will people be symptomatic?
- Will the virus be susceptible to antiviral agents?
- How virulent will it be?

How severe will the next pandemic be?



Human Avian Influenza A (H5N1) Cases by Onset Date and Outcome

(as of 25 July 2007)



As of 25 July 2007, total of 319 cases were reported officially to WHO.

2 asymptomatic cases in Viet Nam were excluded.

9 cases in Egypt, 8 cases in Indonesia, 1 case in Iraq and 1 case in Nigeria were excluded.

12 cases in Turkey were excluded.

* CFR Trend: computed based on cumulative dead & total

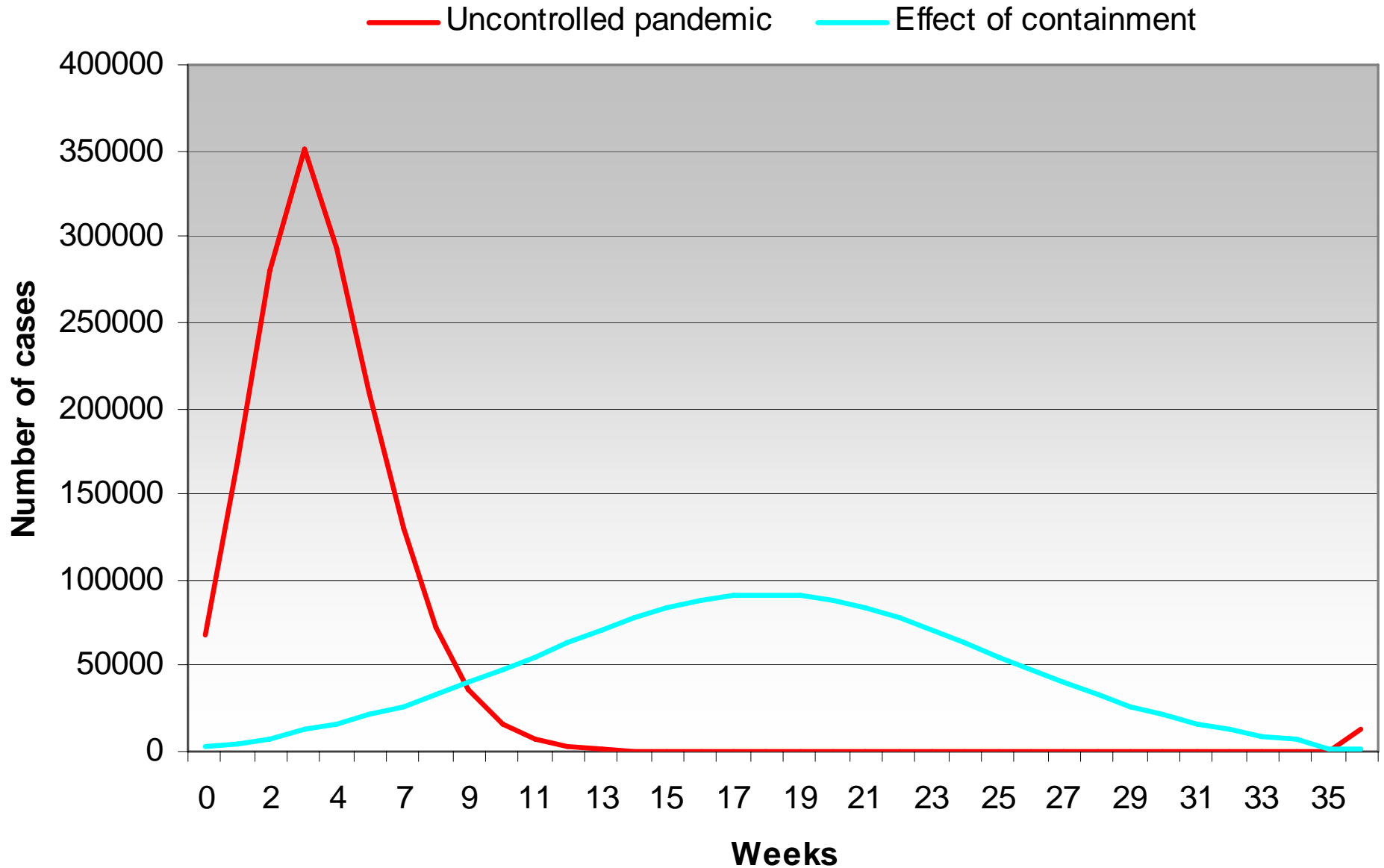


Will our response
strategies work?

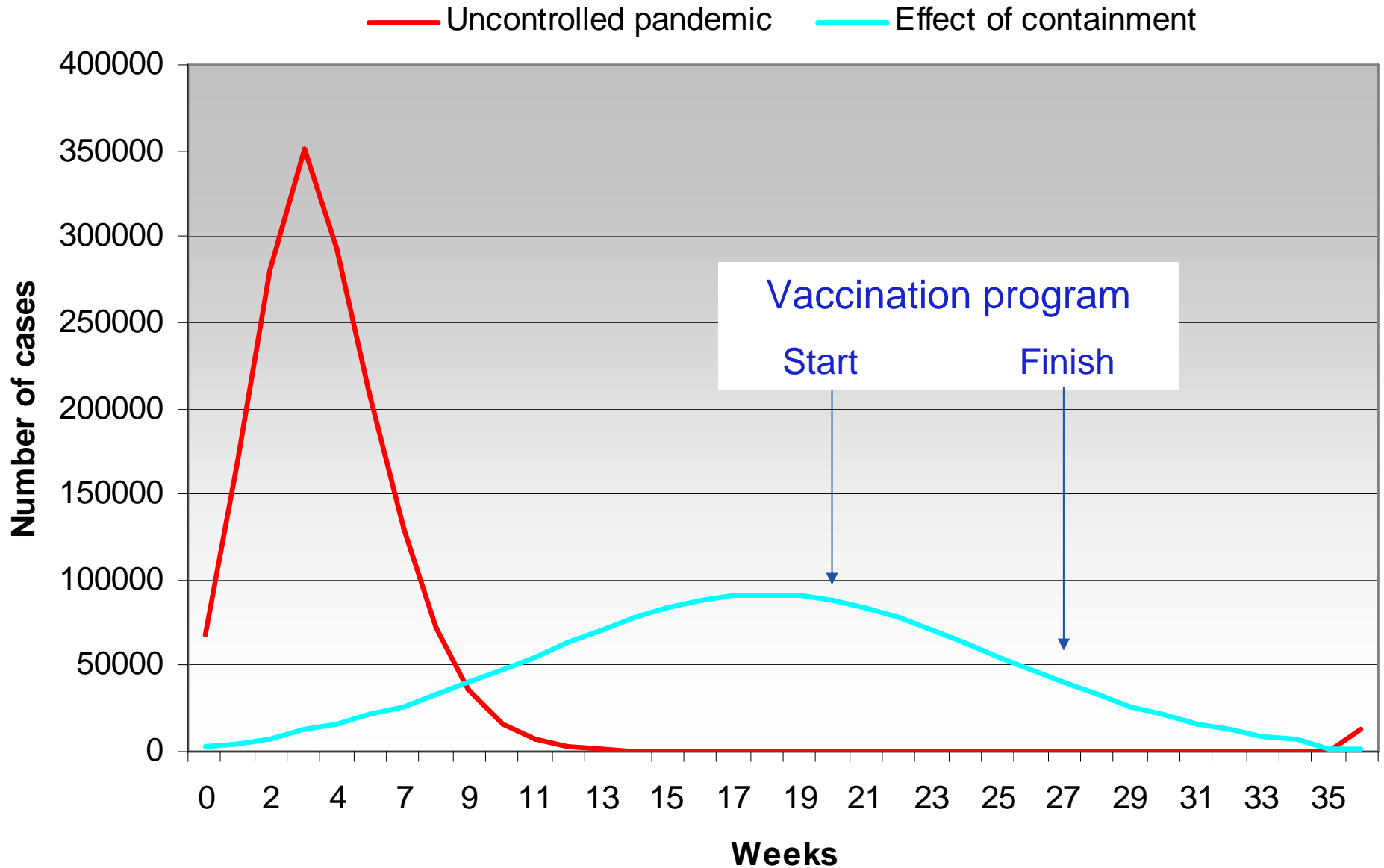
Will “containment” be successful?

- The prevention or minimisation of transmission by implementation of disease control measures, including:
 - border control measures
 - isolation/quarantine
 - social distancing
 - population infection control
 - anti-influenza agents for cases and contacts
 - school closure (?)
- Rationale:
 - attenuate the burden on the health system
 - “buy” time for a vaccine to be developed and distributed

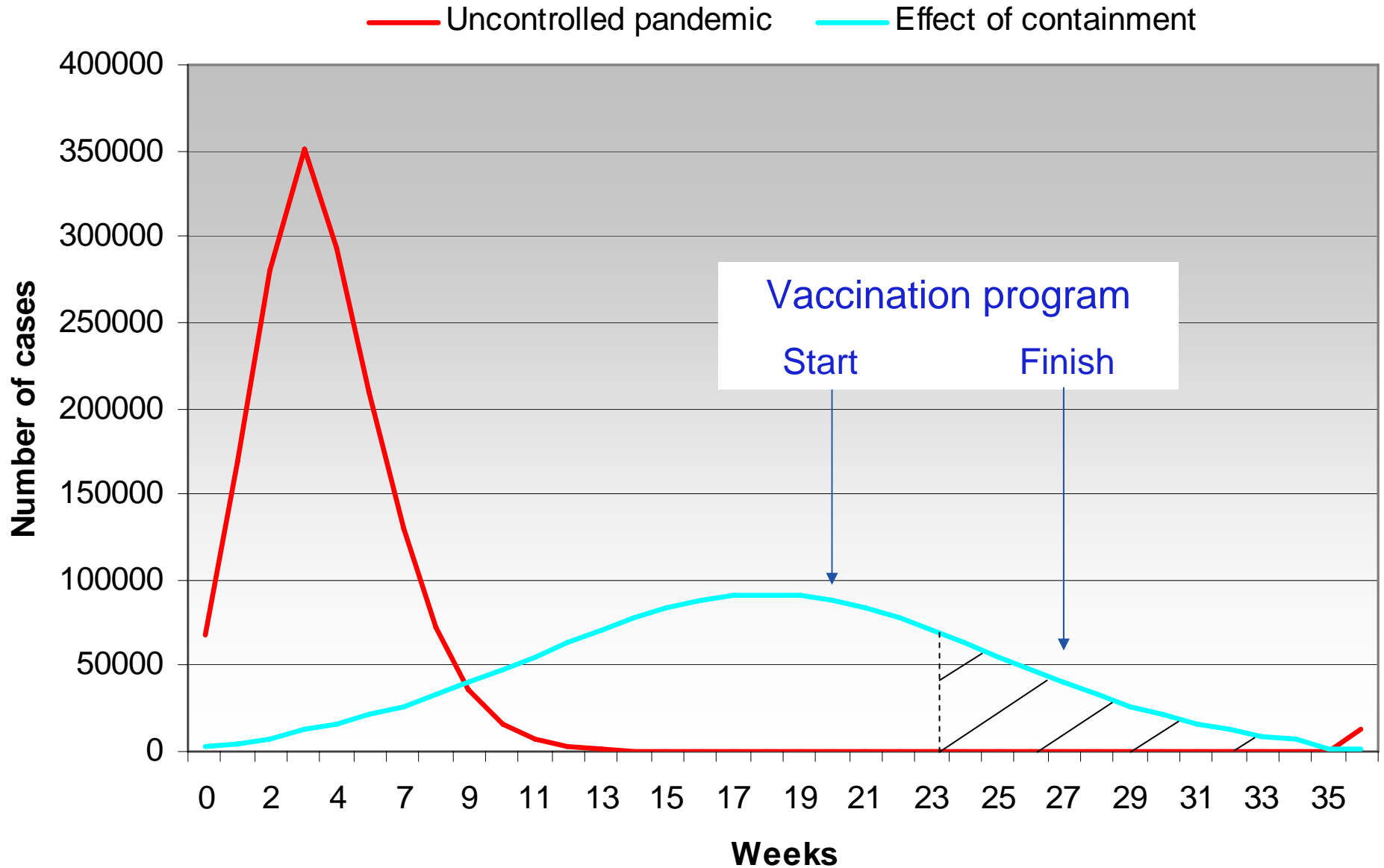
Effect of containment strategies on an influenza pandemic (assume 25% attack rate)



Effect of containment strategies on an influenza pandemic (assume 25% attack rate)



Effect of containment strategies on an influenza pandemic (assume 25% attack rate)



Border control

- Border closure
 - is it feasible?
- Screening for symptoms
 - “sieve effect” in screening for influenza
- Quarantining plane-loads of people
 - large resource implications
 - how sustainable?



Antiviral agents

- Antiviral policy:
 - in “containment” – treatment of cases; pre- and post-exposure prophylaxis
 - in “maintenance of social function” stage – pre-exposure prophylaxis

- Areas of uncertainty:
 - will they be efficacious?
 - will resistance develop?
 - logistics of distribution
 - how to achieve equity in distribution?
 - how will clinicians respond to not being able to provide treatment courses?

Vaccination

- Vaccination policy:
 - Federal Government: ensure contracts in place for vaccine manufacturers to produce 50M vaccines
 - administer vaccination to entire population (twice)

- Areas of uncertainty:
 - length of time to manufacture a vaccine
 - rate of production achievable
 - determining of list of priority groups
 - most efficient and equitable method of rolling out program.

Will our health system
cope?

Will our health system cope?

- ↑ demand for services, ↓ workforce, finite physical resources
- Many HCWs never returned to work in SARS-affected countries
- Clinical capacity challenges:
 - hospital beds (incl. critical care)
 - isolation rooms
 - overflow facilities
 - influenza clinics
 - keeping hospitals “clean”
- Workforce challenges:
 - mobilising supplementary workforce
 - infection control/PPE
 - OH&S obligations
 - quarantining of HCWs
 - industrial issues

- Mitigating strategies:
 - redistribution of resources (human and physical) and services
 - upskilling of workforce
 - careful planning (including for the recovery period)
 - simulation exercises

How will the public react?

- SARS experience showed the importance of getting public messaging right
- Small number of authoritative spokespeople supplying accurate messages in a timely fashion
- Should the public be pre-prepared?
 - an public informed ahead of time could lessen the psychological sequelae

- Risk communicators need to decide on right time to warn:
 - **too much** information → irrational fear
 - **too little** information → irrational complacency
 - give information **too early** → scepticism about warnings that bear no fruit
 - give information **too late** → accusations of keeping public in the dark

Getting ready for a flu pandemic

When a new flu virus infects many people around the world, it is called an influenza pandemic.

Health experts and governments around the world are worried that the flu virus H5N1 affecting birds (avian influenza or bird flu) could change into a virus that easily affects people. If this happens, and the new virus enters New Zealand, many of us could become very sick.

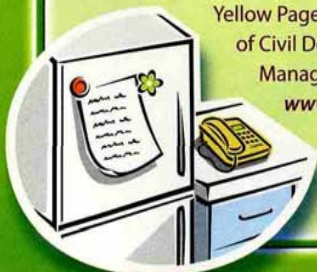
There are a few simple things you can do now to prepare

Have a plan

During a pandemic, you or your family may be so sick that you need to stay at home for several weeks. Make a plan with family and friends so it includes:

- ✓ who could help with food and supplies if you and your household are ill
- ✓ if you have prescription medicines (eg, for blood pressure), renewing your prescription well before you run out
- ✓ the telephone numbers of people who live near you, as well as your doctor's phone number. (Keep this in a place that is easy to see, eg, on the fridge door.)
- ✓ an emergency supplies kit – see the 'Emergency Survival Items' list on the inside back cover of the Yellow Pages. Or check the Ministry of Civil Defence and Emergency Management website on www.civildefence.govt.nz

– select 'Be Prepared', then select 'What to do'.



Build up your emergency supplies kit

- ✓ Have a supply of food and drinks to last for at least a week. Choose long-lasting foods in cans and packets, and dried foods.
- ✓ Paracetamol or ibuprofen are good for bringing down a fever and reducing aches and pains. Do not use anything else for children unless you talk to your doctor or pharmacist first.
- ✓ Masks worn by sick people can help stop the spread of germs. You can buy masks from a pharmacy (or from a hardware store). If there is a pandemic, people will be told how and when to use their masks. A mask can be worn only for a short time, and needs changing when wet from sneezing and coughing.
- ✓ Have tissues (or toilet paper) and plastic bags for used tissues.
- ✓ Think about things to do, if you and your family have to stay home for more than a week (eg, books, games and videos).



Flu jabs

- ✓ Ask your doctor for an influenza vaccination each year. The usual yearly flu jabs will not protect you against a new pandemic, but they will help stop you getting ill with other influenza viruses. Because these viruses change all the time, you need to get vaccinated every year.
- ✓ Vaccination is free for people aged 65 years and over, and adults and children with certain long-term (chronic) conditions.

- Will the public refuse the call for suspected cases to bypass GPs?
- What will be the effect of quarantine?
- How resilient will the public be?



Ithaca Workers, Influenza Epidemic.

So, are we prepared?

Preparations to date

- Commonwealth level (\$623M since 2003)
 - regional aid
 - National Medical Stockpile
 - National Incident Room established
 - Office for Health Protection established
 - *Exercise Eleusis* (2005), *Exercise Cumpston* (2006)
 - health sector and whole-of-government pandemic plans
 - Infrastructure for vaccine production

- State level
 - establishment of Biopreparedness Unit
 - NSW Pandemic Taskforce (23 govt. agencies)
 - health sector and whole-of-government pandemic plans
 - state medical stockpile (antivirals, PPE)
 - creation of operational guidelines
 - *Exercise Warning Shot (2004), Exercise Paton (2006)*

- Local level
 - establishment of network of biopreparedness personnel in AHSs
 - pandemic influenza plans
 - workforce training
 - local simulation exercises

- Australia's acknowledged as one of the better prepared countries
- Have concentrated on containment strategies to date
- Many policies still to bed down
- Australia-wide coordination of planning could be improved
- Lack of national consistency in some areas

- “...In the absence of a pandemic, almost any preparation will smack of alarmism. If a pandemic does break out, nothing that’s been done will be enough....”

(Health Minister Tony Abbott, Pandemic influenza conference, Ottawa, 25 September 2005)

