



# Translating evidence into policy

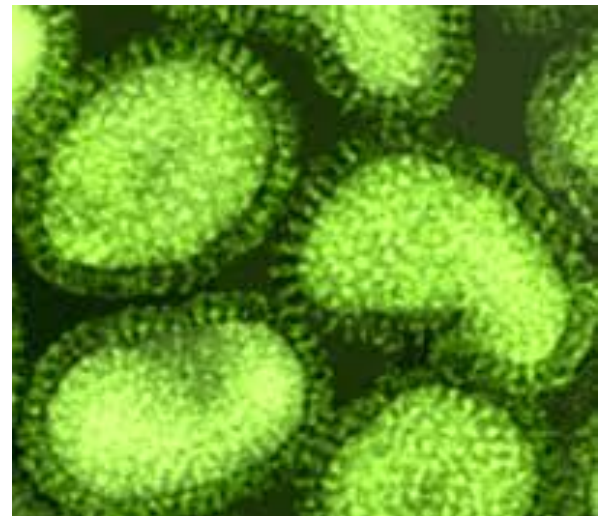
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Influenza is bad



# What we know

- Influenza makes people ill, puts them in hospital and kills people every year
- Influenza vaccination significantly reduces this risk every year, even if it isn't perfect
- Side effects of vaccination are mild and self-limiting, and severe adverse reactions are rare. There is a clear advantageous risk-benefit
- Antiviral treatment reduces illness and prevents progression to more disease

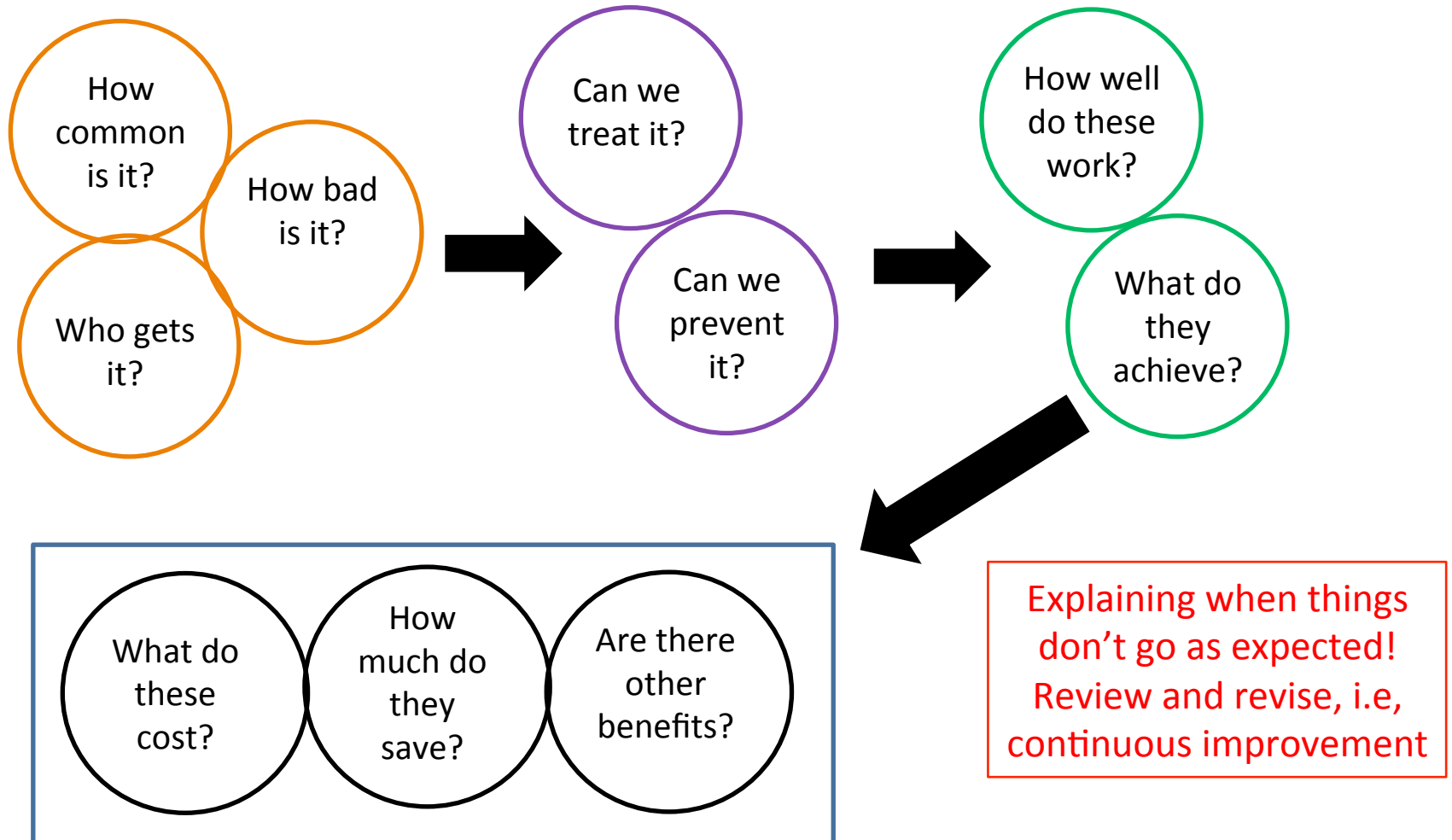
So why doesn't everyone get themselves and their children vaccinated each year?

# Some factors affecting influenza vaccine delivery

- Health care provider recommendations
- Cost
- Availability
- Lack of awareness of seriousness of influenza among the public and health care practitioners
- Lack of awareness of vaccination benefits
- Disproportionate concern about safety

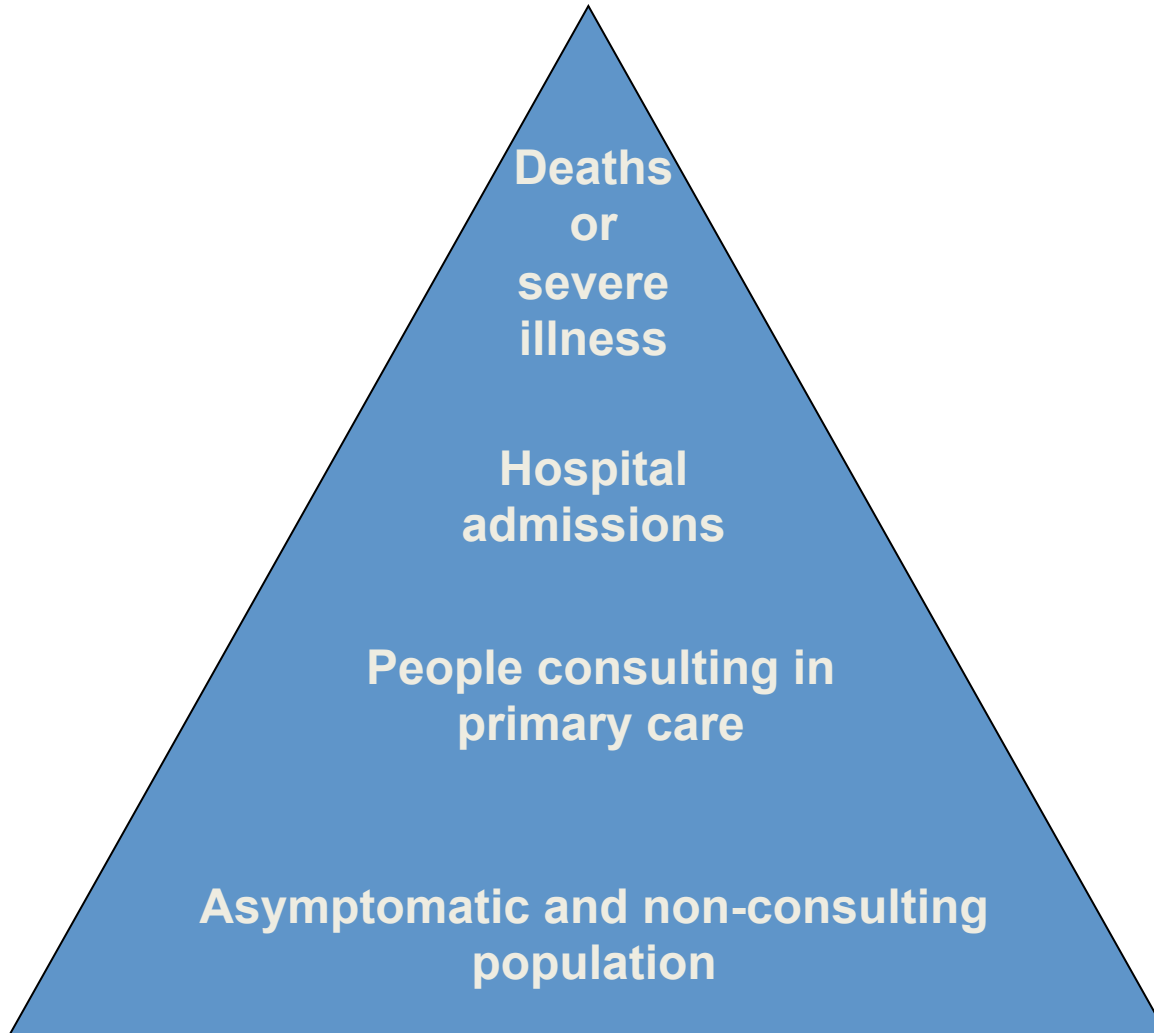
So how do we ensure that vaccination is recommended, available, affordable and used?

# The questions we can help answer



Gathering the data on influenza  
activity and impact

# The impact of influenza



- The numbers for each level and the relationship between levels will vary from country to country

# Influenza surveillance: Fulfilling a public health role

- Indicates the onset, size and duration of influenza activity, including the demographics of the population affected
- Identify the influenza strains for predicting vaccine efficacy and planning future vaccines
- To understand the impact on the health of individuals and on the health system as a whole
- To estimate the burden of disease to inform policy and research on
  - Where to target interventions – prevention and treatment
  - The likely benefits from effective interventions
- To act as a marker for measuring the effectiveness of interventions

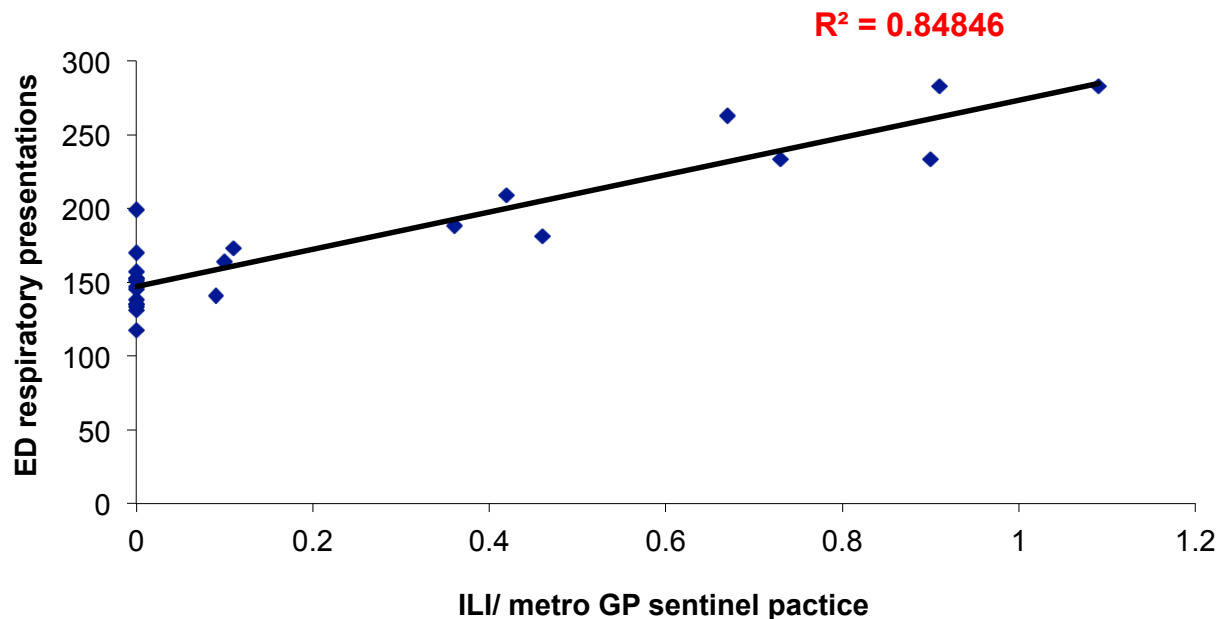


# Influenza surveillance data

- Syndromic surveillance
  - Community influenza-like illness collected by sentinel practitioner networks, call centres
  - Emergency department and outpatient presentations
  - Hospital admissions for respiratory illness and pneumonia, including need for respiratory support and/or ICU admission
  - Mortality data
- Laboratory data
  - Syndromic surveillance alone is not sufficient to accurately identify influenza activity and its impact, resulting in unreliable data on impact and vaccine effectiveness
  - Testing of an adequate sample of patients in the syndromic surveillance groups
  - Routine influenza detections
- Collect age, comorbidities, vaccination status and influenza type/subtype

# Sentinel surveillance and Emergency Departments attendances in Western Australia

Influenza/metro sentinel GP practice and ED respiratory presentations 5/5/03 to 26/6/03



- Influenza activity in the community as measured by sentinel GPs, was directly correlated with respiratory illness requiring attendance at a hospital

- The slope will vary depending on the circulating strains, age of the patient population, comorbidities within the population, background susceptibility (natural infection and vaccination)

# Using available data to build the case

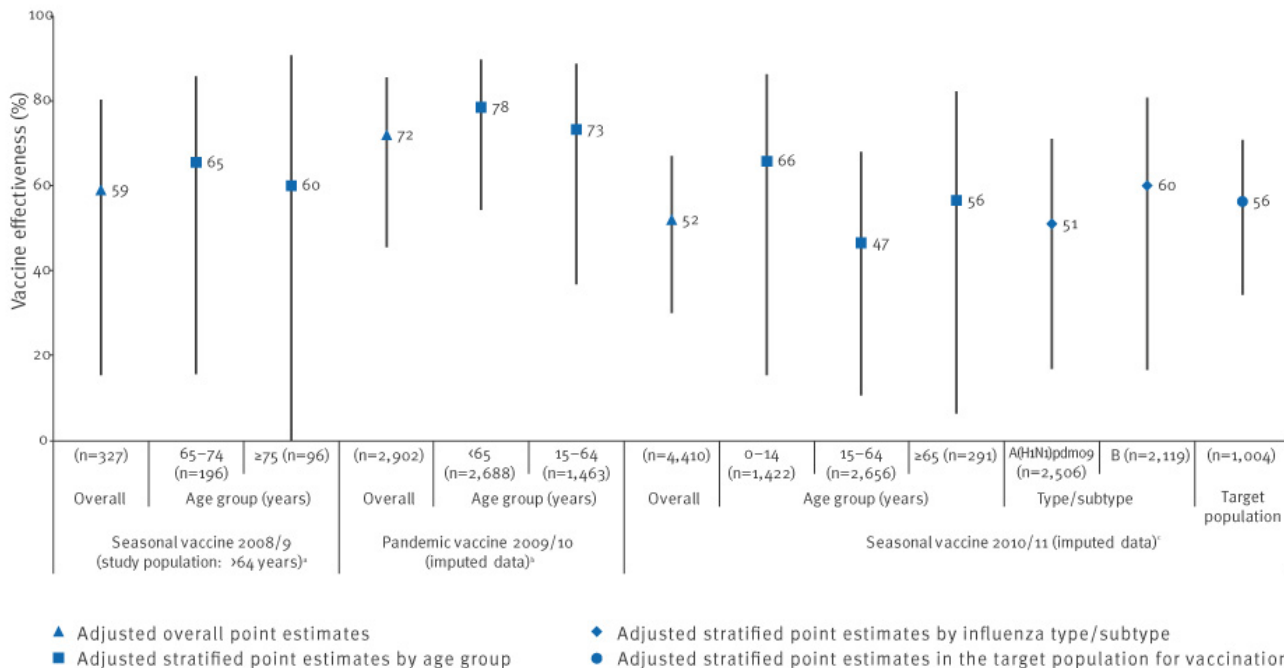
- Australia
  - Newall AT et al. Influenza-related hospitalisation and death in Australians aged 50 years and older. *Vaccine*, 2008;26(17):2135-2141
  - “We conclude that influenza is responsible for a substantial amount of mortality and morbidity, over and above that which is directly diagnosed as influenza in Australians aged  $>$  or  $=50$  years.”
- Similar findings when data is analysed from Asia – Singapore, Hong Kong, Thailand, China

# Measuring the effectiveness of interventions

# Monitoring vaccine effectiveness against laboratory-confirmed influenza using community-based surveillance

**FIGURE 2**

Adjusted overall and stratified influenza vaccine effectiveness against medically attended laboratory-confirmed influenza, I-MOVE multicentre case-control study, 2008/09 (5 study sites), 2009/10 (7 study sites), 2010/11 (8 study sites)



# Vaccine effectiveness against laboratory-confirmed influenza

Children aged 6–59 months presenting for emergency care (2008 to 2014) with an influenza-like illness.<sup>1</sup>

- Overall VE (2008 and 2010 to 2014) was 70.0% (95% confidence interval: 47.7 to 82.9);
  - VE for children with medical comorbidities, children born preterm and children <2 years were 82.5% (14.6 to 96.4), 79.2% (10.9 to 95.1) and 84.7% (49.6 to 95.3), respectively

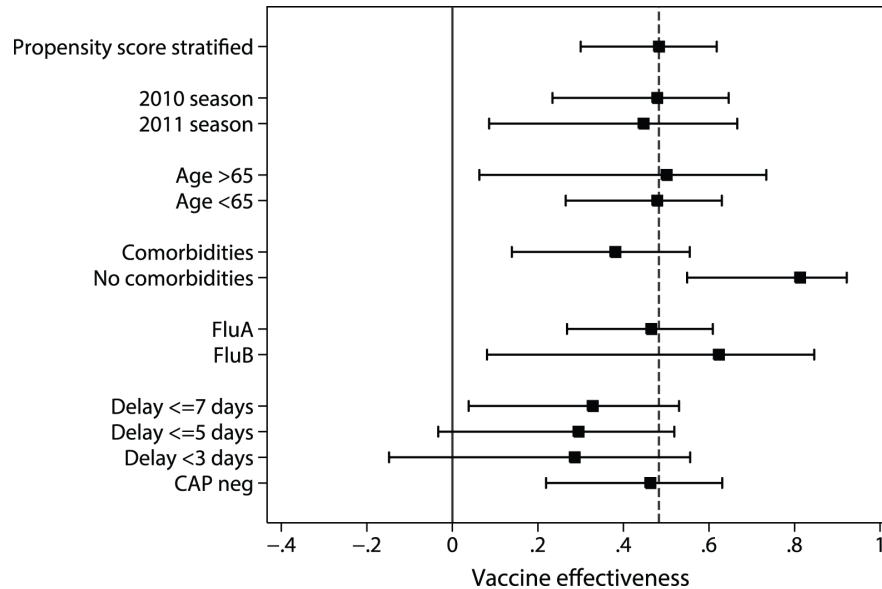
## All ages presenting to GP with ILI

	2012	2013	2014
All	38% (24-49)	60% (45-70)	44% (31-55)
A/ H1N1p dm	54 (-28-83)	59 (33-74)	55 (39-67)
A/H3N2	30% (14-44)	67% (39-82)	26% (1-45)
B	56% (37-70)	57% (30-73)	54% (21-73)

1. Blyth CC, Jacoby P, Effler PV, Kelly H, Smith DW, Borland ML, Willis GA, Levy A, Keil AD, Richmond PC on behalf of the WAIVE Study Team. Influenza vaccine effectiveness and uptake in children at risk of severe disease. *Pediatr Infect Dis J* 2016;35(3):309-15.

2. Sullivan SG et al. Pooled influenza vaccine effectiveness estimates for Australia, 2012-2014. *Epidemiol Infect* 2016;144(11):2317-28

# Vaccine effectiveness against hospitalisation



Cheng AC et al. (2013) Influenza vaccine effectiveness against hospitalisation with confirmed influenza in the 2010–11 seasons: a test-negative observational study. PLoS ONE 8(7): e68760.

Qin Y, Zhang Y, Wu P, Feng S, Zheng J, Yang P, Pan Y, Wang Q, Feng L, Pang X, Puig-Barberà J, Yu H, Cowling BJ. Influenza vaccine effectiveness in preventing hospitalization among Beijing residents in China, 2013-15. *Vaccine*. 2016;34(20):2329-33.

The overall estimate of influenza VE was 46.9% (95% CI: -20.4%, 76.6%) for the 2013-14 season and 5.0% (95% CI: -53.0%, 41.0%) for the 2014-15 season.

# Facing up to the controversies

- Overall effectiveness of current influenza vaccines
- Duration of protection following vaccination
- Cost-effectiveness of quadrivalent versus trivalent influenza vaccines
- Poor effectiveness of inactivated influenza vaccines against A/H3N2 in recent seasons
- Poor effectiveness of quadrivalent live-attenuated vaccines against A/H1N1 2009 in US
- Effect of repeated vaccinations on long term immunity and vaccine responses



# Determining the health and economic benefits of influenza prevention

- Costs of influenza
  - Deaths, hospitalisations, hospital attendances, outpatient and community health care practitioner attendances
  - Long term health consequences
  - Absenteeism – direct (patient), indirect (parent or carer)
  - Social costs, e.g. holidays, sports, exams, etc
- Costs of prevention
  - Vaccine, vaccine delivery
  - Diagnostics

# Easier said than done

- De Francisco (Shapalova) N et al. A systematic review of the social and economic burden of influenza in low- and middle-income countries. *Vaccine* 2015;33(48):6537-44.
- There is a strong need for standardizing research, data collection and evaluation methods for both direct and indirect cost components.

# Communicating with policy-makers

- This is a two-way process
- Policy-makers may not understand the true impact or benefits of interventions
  - Build credibility and trust, and/or link to people and groups that already have this
  - Understand that the government may have other priorities both within an outside health
  - Why should they make influenza a priority?
- We may not understand the best ways delivering messages to policy makers
  - Work with the effective communicators
- Look for opportunities that give your messages more impact
- Persistence

Policies are only effective if they  
are implemented