

Update on Paediatric Influenza

ISG Annual Scientific Meeting
3 & 4 February 2018

Dr Margie Danchin

Paediatrician, Department of General Medicine, RCH
Senior Research Fellow, Vaccine and Immunisation Research
Group, MCRI
Senior Fellow, Department of Paediatrics, The University of
Melbourne

Melbourne
Children's

Excellence in
clinical care,
research and
education



Outline

§ The 2017 Influenza season

- § Notified Flu cases: Victoria

- § ICU, Hospital admissions, co-morbidities

- § Estimated vaccine coverage and vaccine effectiveness

§ Influenza in children

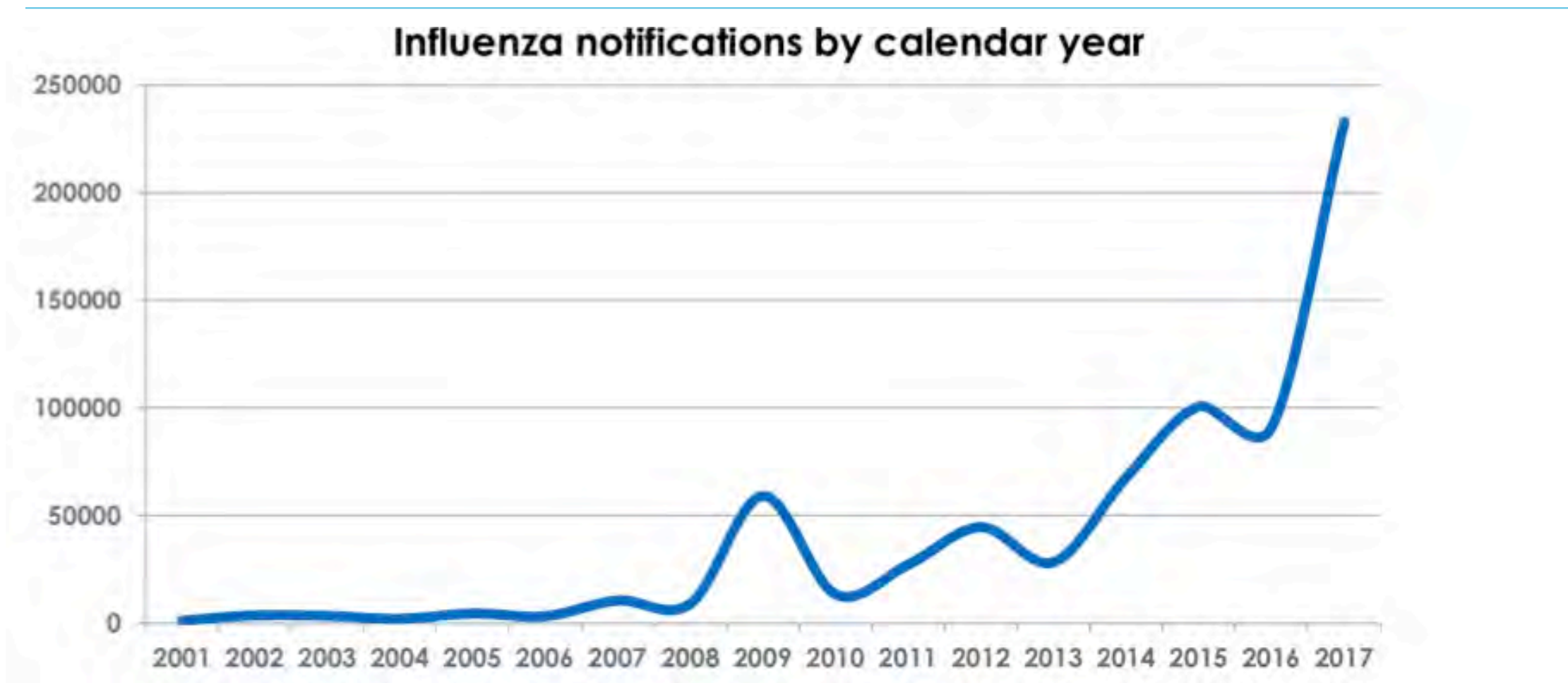
- § Impact

- § Vaccines and recommendations

- § Vaccine safety

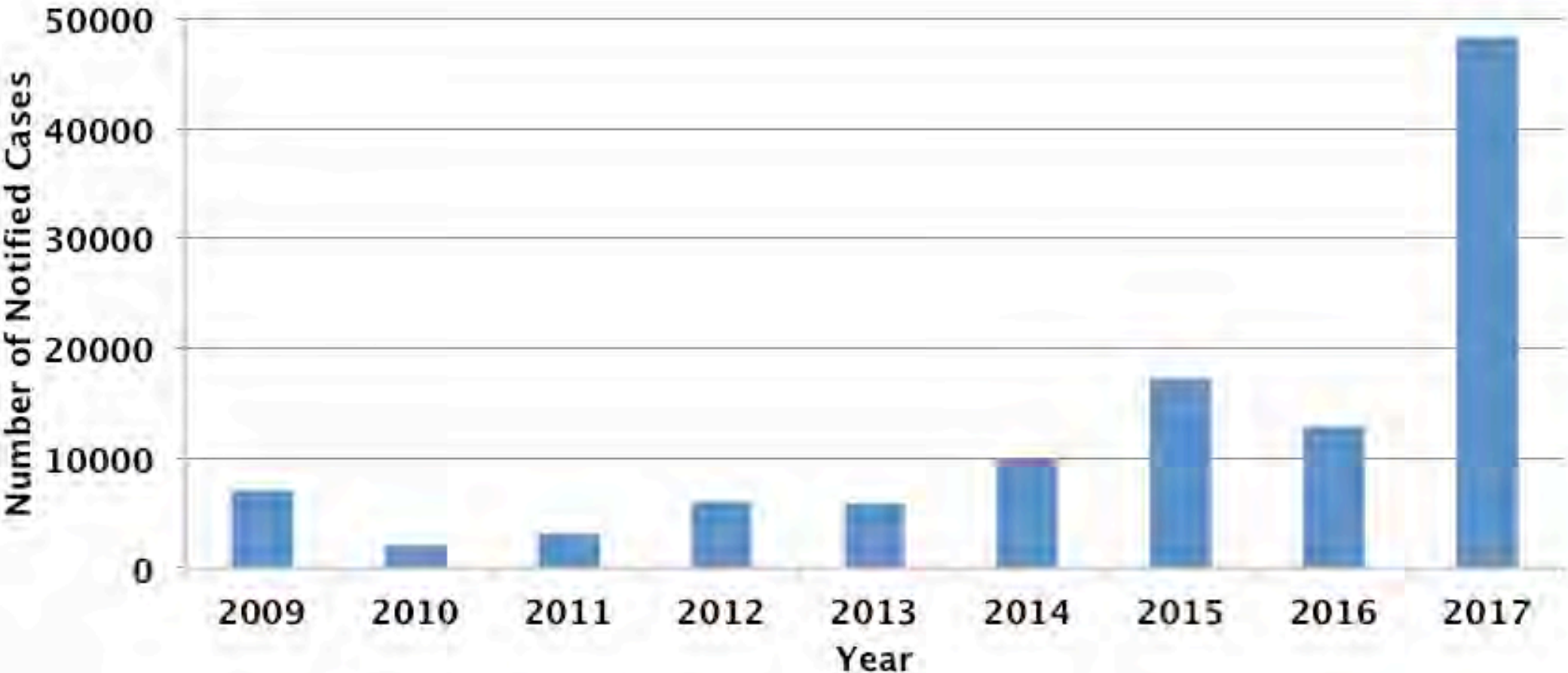
2017 Flu season

Highest levels of activity since 2009 pandemic year, even with geographic variation

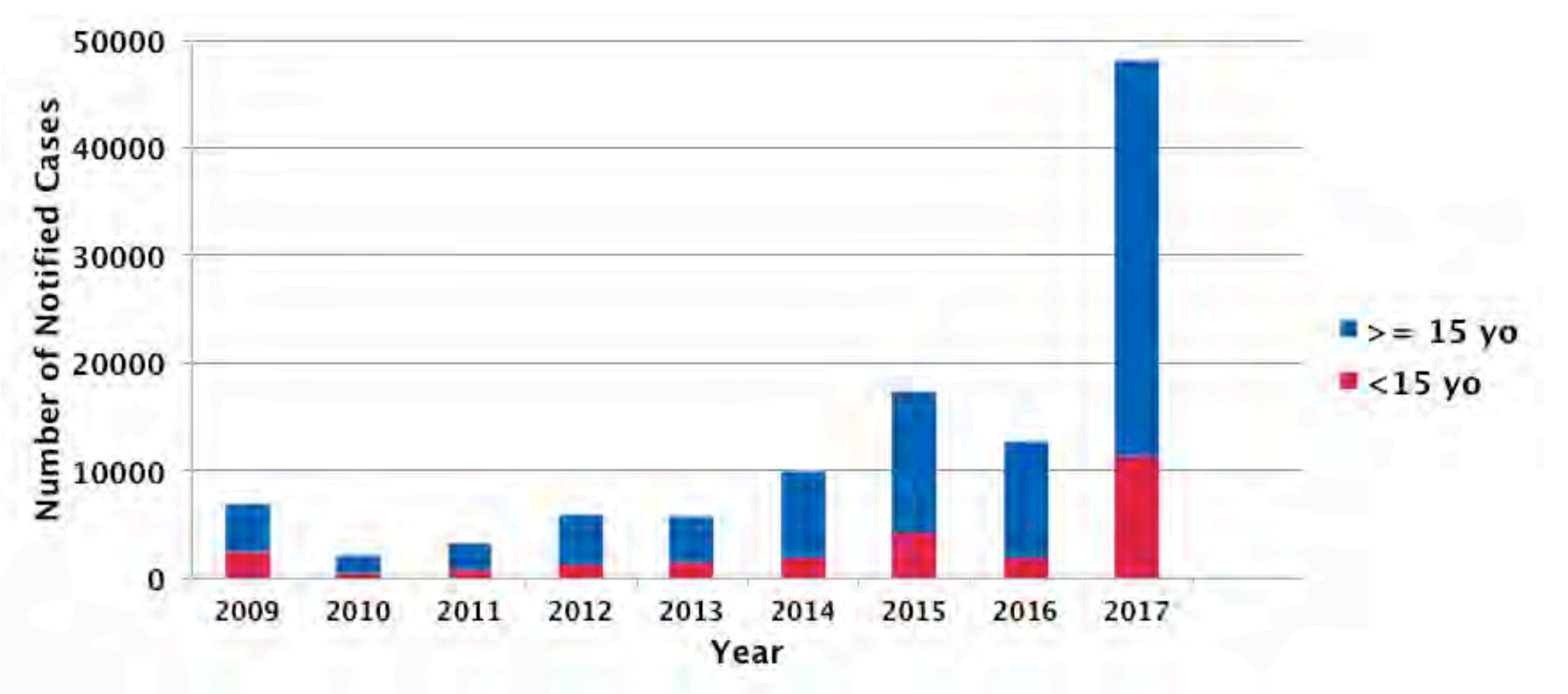


Data source: 2017 Influenza Season in Australia A summary from the National Influenza Surveillance Committee, November 2017, January 2018

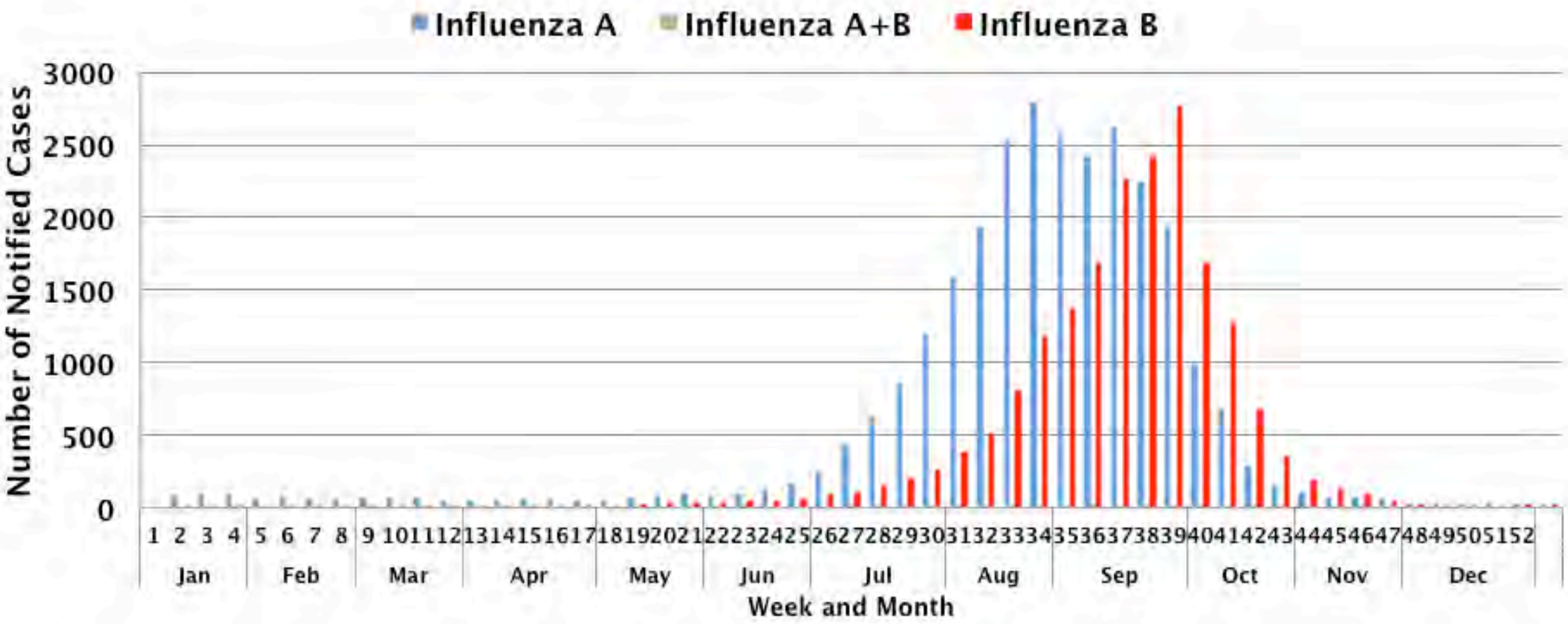
Notified Influenza Cases DHHS Victoria



Notified Influenza Cases DHHS Victoria Children and Adults



Notified Influenza Cases DHHS Victoria 2017 – Week / Month of Onset and Type



FLuCAN (The Influenza Complications Alert Network)

Paediatric sites in FluCAN

- § 20 Hospitals in total
- § 6 specialist paediatric hospitals
- § 4 Paediatric Active Enhanced Disease Surveillance (PAEDS) sites funded by DoH-NHMRC partnership grant
- § 4 additional community hospitals collect paediatric data



FLuCAN Paediatric Hospital Surveillance Network

Summary 2017 Flu Season for children < 16 years

§ 1694 children admitted with confirmed influenza

§ 54% male

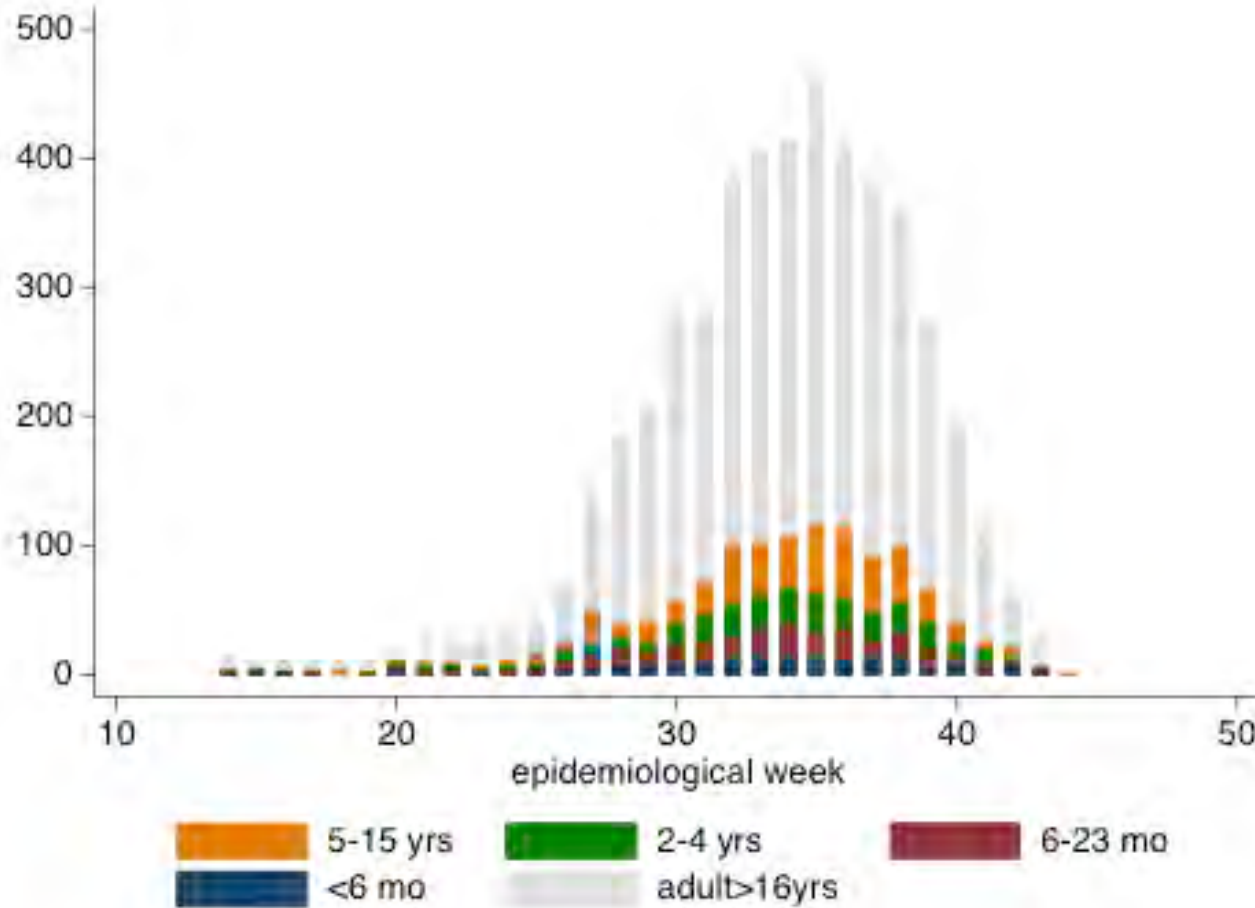
§ 7.6% Indigenous

§ 44% with comorbidities

§ 34% influenza B

§ 5 deaths reported

Paediatric cases per week, by age group



Slide: Courtesy Prof Allen Cheng

Melbourne Children's
Excellence in clinical care, research and education

murdoch children's research institute

Proportion with co-morbidities, by age group

<6 mo 6-23 mo 2-4 years 5-15 years Adult



■ No co-morbidities ■ Co-morbidities

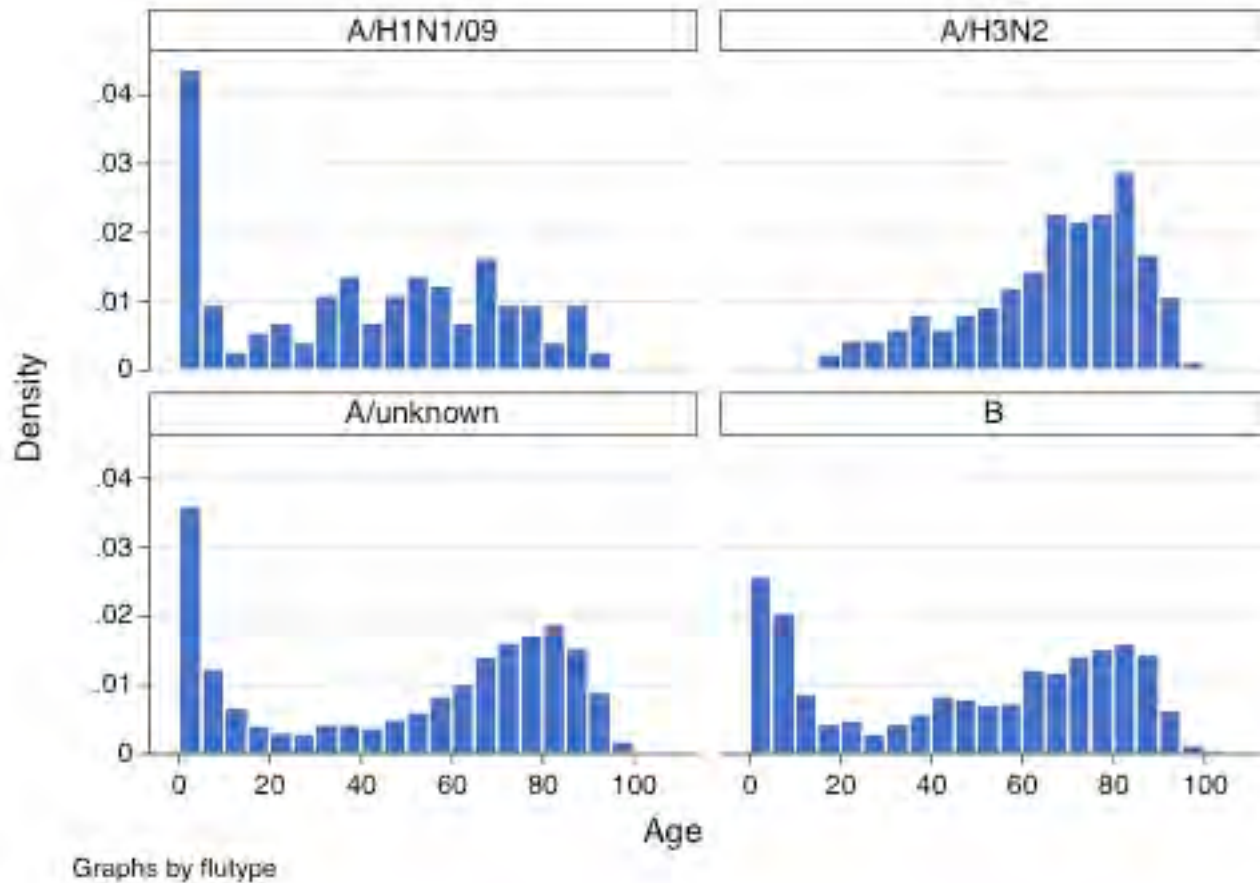
Graphs by pagegroup

Key points

In children and adults hospitalised with Flu

- § Co-morbidities increase with increasing age
- § More than 50% children < 5 years are previously healthy children
- § In adults, co-morbidities between 85-90%

Age distribution, by subtype



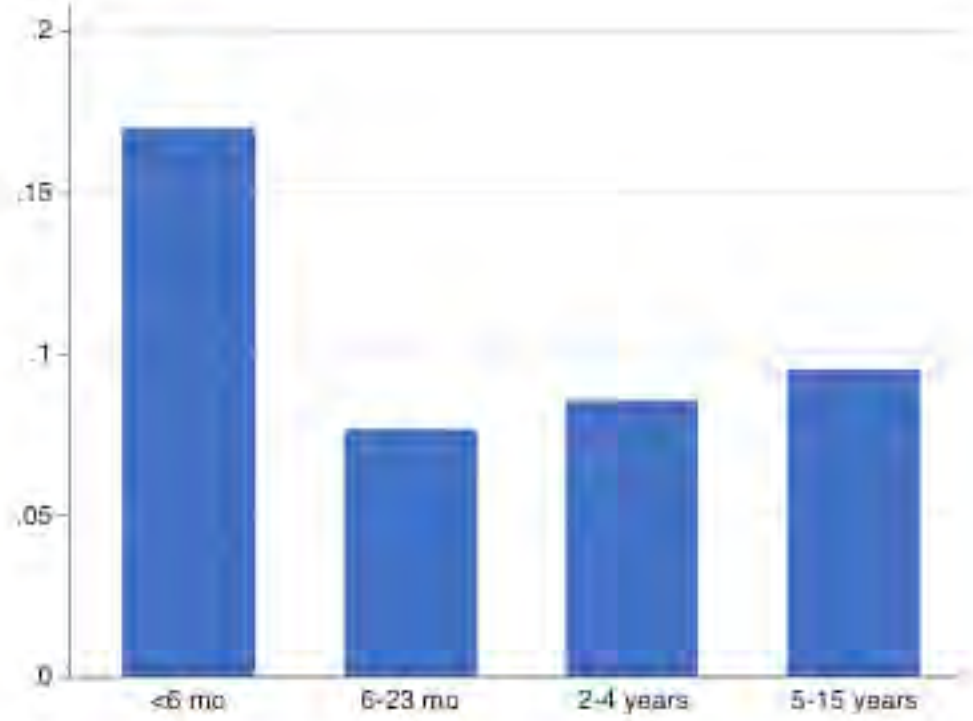
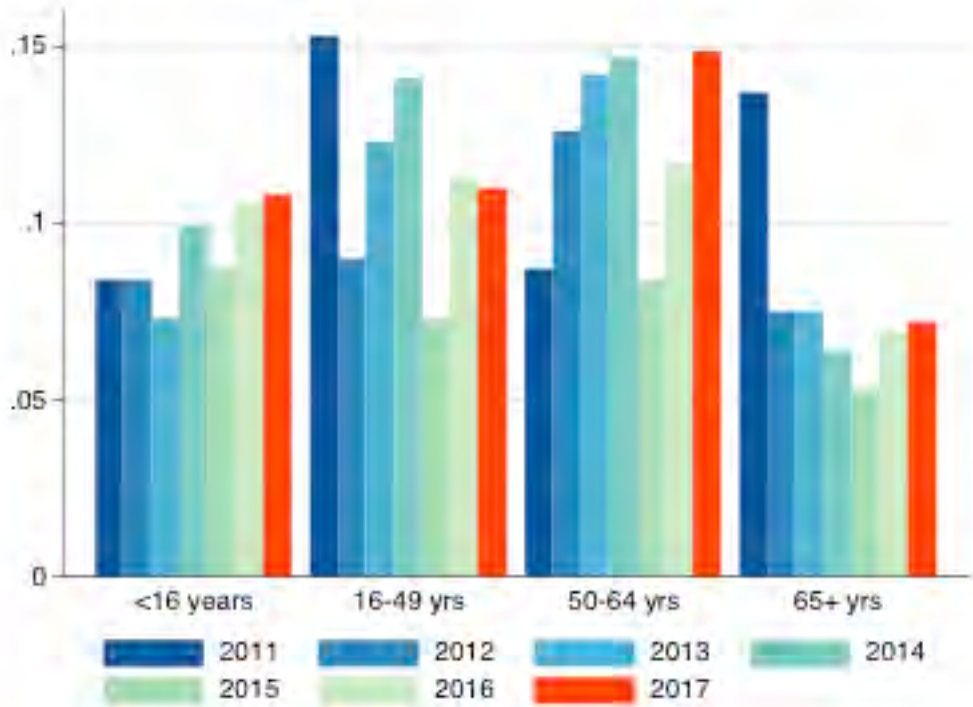
Key points

- § Most influenza A not subtyped
- § Children < 5 years: predominantly A – H1NI/ unknown
- § B more common in children than adults, especially the younger age groups

Proportion admitted to ICU, by age group

§ Between 2011-2017

§ 2017 only



Slide: Courtesy Prof Allen Cheng

Melbourne Children's
Excellence in clinical care, research and education



The Royal Children's Hospital Melbourne

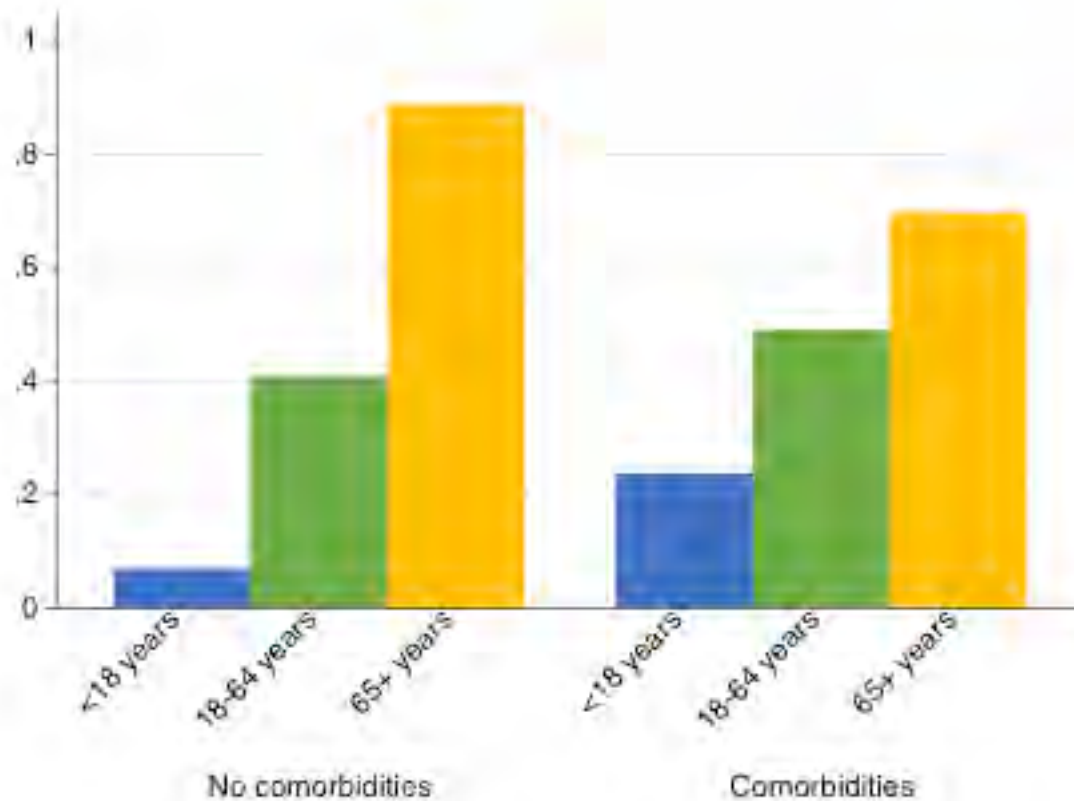


murdoch children's research institute



THE UNIVERSITY OF MELBOURNE

Estimated vaccine coverage



Key points

Approx 5% in healthy children

20–25% in children with co-morbidities

Highest uptake in healthy adults > 65 years

Paediatric Influenza

- § Amongst other vaccine-preventable diseases, Flu is the leading cause for hospitalisation in children <5 years: approx 1500 hospitalisations per year
- § Annual vaccination – important to prevent influenza and its complications, especially in previously healthy children < 5 years
- § Flu protection may start to decrease from 3–4 months following vaccination – in 2017 WA recommendation early May
 - § ? Optimal time to commence vaccination – mid to late April

Risk of influenza in previously healthy children

Neurological complications

- § 9.7% of all children admitted with influenza had a neurological complication (1)
- § **45% of these were previously healthy children with no medical risk factors**
- § 50% cases in children <5 years
- § Only 60% presented with the triad of cough, coryza and fever and 12% had no respiratory symptoms: think of Flu!
- § Only 14% children with pre-existing medical conditions had had the flu vaccine and 10.9% overall
- § Early diagnosis and antiviral medication should be considered in hospitalised children and children at high risk of complications

QIV strains and vaccines

2018 strains for Quadrivalent influenza vaccines (QIV):

- § A H1N1 pandemic09 (A/Michigan/2015)
- § A (H3N2) (A/Singapore/2016) *++strain change from A/Hong Kong/2014*
- § B / Brisbane/ 2008
- § B /Phuket/2013

4 age-specific quadrivalent influenza vaccines (QIVs) available free to eligible people through the NIP

- § FluQuadri Junior® (Sanofi Pasteur) – 6 months to < 3 years
- § FluQuadri® (Sanofi Pasteur) – >3 years
- § Fluarix® Tetra (GSK) – >3 years
- § Afluria Quad® (Seqirus) – >18 years

QIV recommendations

§ Annual influenza vaccination recommended: all children ≥ 6 months of age

QIVs funded for:

- § Aboriginal and/or Torres Strait Islander children aged 6 months to < 5 years and aged ≥ 15 years
- § All persons aged ≥ 65 years
- § All persons aged ≥ 6 months with high risk medical conditions eg severe asthma, lung or heart disease, low immunity or diabetes
- § Pregnant women (during any stage of pregnancy)
- § Children ≥ 6 months and < 5 years in WA, QLD and NSW ? other states to follow

Two doses of the QIV (1-month apart) are recommended for two groups:

- § Children 6-months to 8 years, the very 1st year they receive the QIV
- § Immunosuppressed patients, the 1st year they receive the QIV (at any age)

Dosing guidelines by age

Age	Dose	Number of doses in the 1st year the vaccine is received	Number of doses in subsequent years
<6 months	Not recommended (poor immune response)	-	-
> 6 months to < 3 years	0.25ml	2 4-weeks apart	1
> 3 years to 9 years	0.5ml	2 4-weeks apart	1
> 10 years	0.5ml	1	1

TIV and PCV13 in children < 6 years

§ In 2011:

USA – an increase of febrile convulsions in children 12–24 months having **Prevenar13® and Trivalent Influenza Vaccine (TIV)** at the same time

§ ATAGI recommendation is to *consider* separating these vaccines by 3 days

§ **RCH:** previously recommended children < 6 years have these two vaccines separated by a minimum of 3 days but **current recommendation is co-administration of influenza and pneumococcal vaccines at any age** (i.e. both vaccines can be administered on the same day).

Flu vaccine in pregnancy

What pregnant women need to know



Flu Vaccination and Pregnancy – Vaccinate against flu. Protect your baby

Pregnant women are more at risk of serious illness and hospitalisation due to influenza compared to non-pregnant women.

Serious illnesses include pneumonia, miscarriage or premature labour

QIV for all pregnant women at ANY stage of pregnancy

It is free!!

Influenza vaccine and egg allergy

Recommendations

Egg allergy

- § All patients with egg allergy sensitisation (i.e. positive skin prick or RAST testing, but have not eaten egg) can receive QIV as a single dose without prior vaccine skin testing
- § Patients with mild to moderate egg allergy (not anaphylaxis) can receive QIV in primary care (e.g. at the immunisation centre, or other medical facility) as a single dose with observation for 30 minutes after immunisation
- § **Patients with history of anaphylaxis to egg should be referred to an Allergist to receive a single dose of QIV under supervision in hospital, with observation for 30 minutes after immunisation**

INFLUENZA VACCINE SAFETY DATA

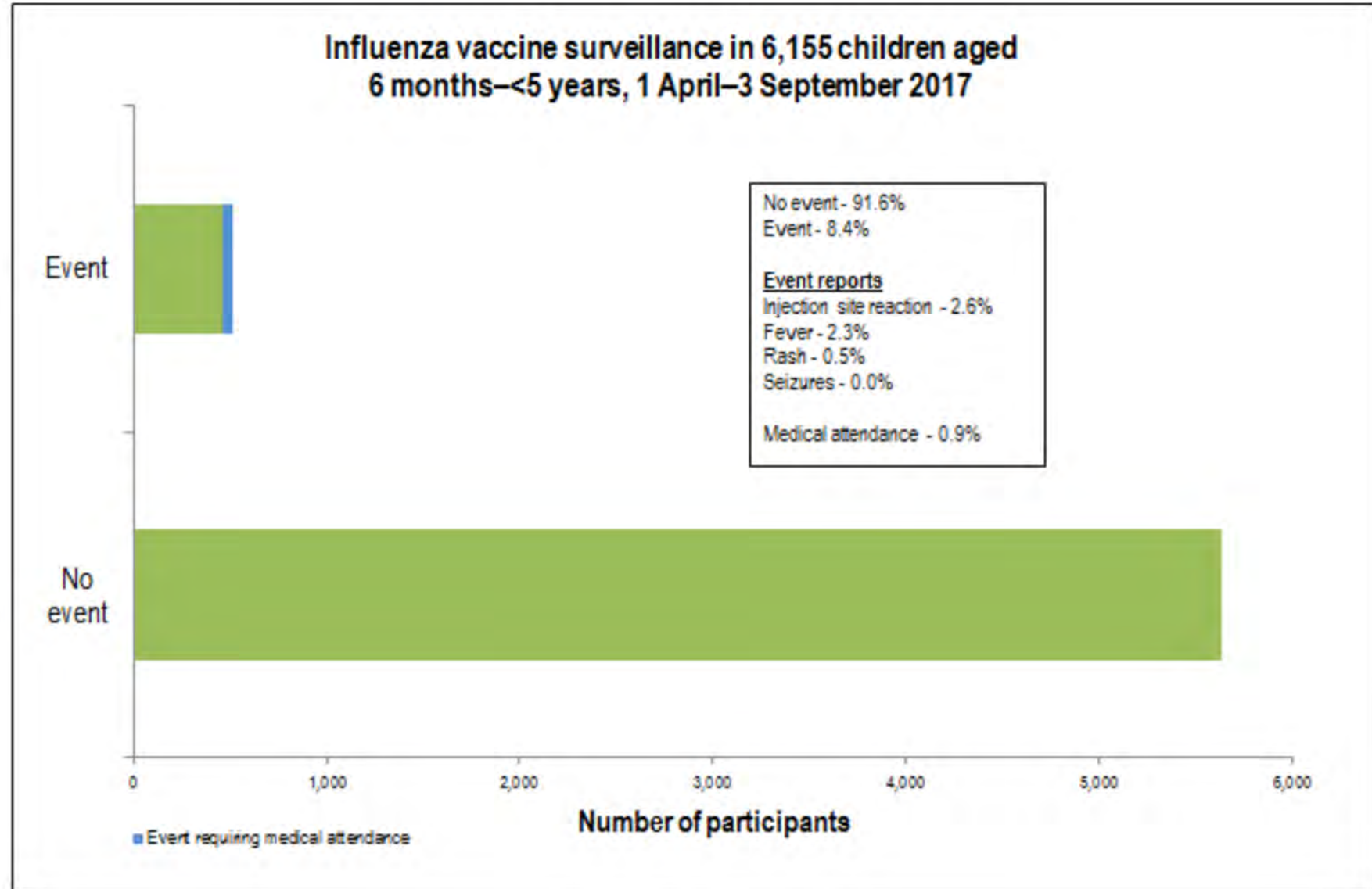
In 2017, four age-specific quadrivalent influenza vaccines were available under the National Immunisation Program (NIP). The safety profile of the 2017 vaccines was reassuring and consistent with expectations. Surveillance will recommence at the beginning of the influenza season, in April 2018.

Current AusVaxSafety surveillance data

Last updated 19
January 2018

Includes data
from SmartVax,
Vaxtracker and
STARSS

156 sentinel
surveillance sites
nationwide



Conclusion



Young children are at high risk of contracting and being hospitalised from influenza, especially younger than 5 years

Influenza can have serious consequences and be fatal in previously well children

Universal annual influenza vaccination should be supported for all children < 5 years in Australia

Acknowledgements

- § Prof Allen Cheng, Director, Infection Prevention and Healthcare Epidemiology Unit, Alfred Health
- § FLuCAN Group: Kristine Macartney, Jim Buttery, Helen Marshall, Julia Clark, Chris Blyth, Josh Francis
- § FluCAN funded by Dept of Health and FluCAN–PAEDS funded by Dept of Health and NHMRC Partnership

- § Janet Strachan, Epidemiologist Communicable Disease Epidemiology and Surveillance, Health Protection Branch, Department of Health and Human Services, Victoria

Thank you

