

## CHILDHOOD IMMUNISATION: what have I missed?

Tom Snelling

**TELETHON  
KIDS  
INSTITUTE**  
Discover. Prevent. Cure.

**WESFARMERS  
CENTRE OF  
VACCINES  
& INFECTIOUS  
DISEASES**

7<sup>th</sup> June  
2018

Proudly supported by the  
people of Western Australia  
through Channel 7's Telethon

**TELETHON  
KIDS  
INSTITUTE**  
Discover. Prevent. Cure.



[http://commons.wikimedia.org/wiki/File:Charles\\_Hill\\_-\\_The\\_Proclamation\\_of\\_South\\_Australia\\_1836\\_-\\_Google\\_Art\\_Project.jpg](http://commons.wikimedia.org/wiki/File:Charles_Hill_-_The_Proclamation_of_South_Australia_1836_-_Google_Art_Project.jpg)



## Disclosure

- Permanent member of the PBAC
- Occasional member of ESC
- Very occasional supporter of the AFC

**TELETHON  
KIDS  
INSTITUTE**  
Discover. Prevent. Cure.

"It was this epidemic of which the natives (sic)  
of South Australia speak:  
they say it came down the Murray from the  
country far to the eastward..."

*George Augustus Robinson,  
Protector of Aborigines, 1847*

**TELETHON  
KIDS  
INSTITUTE**  
Discover. Prevent. Cure.

"Ngyua ... pustule; the disease of smallpox...they universally  
assert ...came from the east, or the Murray tribes...  
about [10 years] ago it was... universal; when it diminished  
their numbers considerably,  
and on many left the marks of its ravages, to be seen at this  
day.

They have no remedy against it, except the ngyupalti...small  
pox song, which they learnt from the eastern tribes ..."

*C.G. Teichmann and C.W. Schurmann  
"The Aboriginal Language of South Australia", 1840*

**TELETHON  
KIDS  
INSTITUTE**  
Discover. Prevent. Cure.



## HPV

### Context:

- Near elimination of genital warts and cancer precursors with 4vHPV for boys and girls
- ~30% of HPV-cancers not targeted by 4 valent vaccine
- Evidence of excellent antibody responses after 2 doses in young adolescents

### What's new?

- Introduction of 9vHPV in 2 doses (0m, 12m) as of Jan 2018
- Expected 15% increase in cancer type coverage

### What's next?

- Strategies to optimize uptake
- ?frequency and impact of partial vaccination
- ?duration of protection of 2 doses vs 3 doses



## Influenza

### Context:

- Children have high burden and might drive disease in other groups
- Low coverage in young children, esp since 2010
- Variable effectiveness: difficulties matching and drift of virus in egg culture
- UK school-based program: no live (intra-nasal) vaccine for SH and uncertain effectiveness

### What's new?

- Most jurisdictions funding vaccination of children <5yo
- Higher than anticipated coverage, vaccine shortages

### What's next?

- More effective vaccines
- Strategies to drive influenza vaccination
- ?NIP funding
- ?vaccination of school-aged children



## Meningococcus

### Context:

- Near elimination of MenC; ↓ rates of MenB, except in SA
- ↑ rates of MenW, esp in remote Australia
- ↑ rates on MenY
- A number of jurisdictions funding late adolescent MenACWY
- SA: evaluation of adolescent menB

### What's new?

- MenACWY to replace Hib-MenC at 12m from next month
- Positive recommendation for late adol. MenACWY on NIP
- SA to fund infant MenB program (on top of adolescent MenB evaluation)

### What's next?

- Burden of MenW and MenY in older age groups (and in v young)
- ?herd effects of infant/ adolescent programs
- ?waning protection from MenC and MenACWY vaccines ?need for booster



## Pertussis

### Context:

- ↑ rates over past 2 decades (↑ and better testing; ?bacteria ?vaccine)
- Severe disease and almost all deaths in babies with no doses
- Focus on mitigation rather than elimination

### What's new?

- Move from 5 dose to 7 dose schedule with re-intro of 18m booster and antenatal vaccination
- Control is precarious, even removal of adolescent booster could impact on disease in young infants.

### What's next?

- On-going risk to babies born to unvaccinated mothers
- On-going burden in other age groups
- Better new (or old) vaccines; recombinant acellular vaccines



## Pneumococcus

### Context:

- Near elimination of 7v serotypes among both children and adults
- Marked reduction in 13v serotypes, but some (3, 19A and 19F) persist
- Partial offset by increase in non-vax serotypes (22F)
- Unique 3+0 schedule

### What's new?

- Move from 3+0 schedule to 2+1 schedule (2, 4, 12m) from next month
- Except for high risk and Aboriginal children (3+1)

### What's next?

- ?Vaccine catch-up of older Aboriginal children/ adolescents
- ?1+1 schedule
- Platforms to evaluate VE and serotype replacement



## Rotavirus

### Context:

- Near elimination of disease for most Australian children
- Large but less frequent epidemics of RV in remote Australia
- States and territories divided in use of 2-dose RV1 and 3-dose RV5
- No evidence of different effectiveness for RV1 and RV5
- Low frequency of IS when first dose is given early

### What's new:

- All jurisdictions moved to 2-dose RV1 in 2017 under national procurement

### What's next?

- Strategies to eliminate severe RV for remote Aboriginal children
- Improve timely vaccination
- ?Relax upper age limit of vaccination
- ?3 dose RV1 strategy; ?mixed RV1/RV5
- ?RV3-BB



## Vaccine coverage

### Context:

- Year-by-year baseline increases in vaccine coverage
- Bipartisan political support
- High rates of support for vaccination, but some concerns
- Pockets of low vaccine coverage, especially urban Aboriginal and alt. lifestyle enclaves
- Commonwealth 'no-jab-no-pay' and jurisdictional 'no-jab-no-play' rolled out

### What's new:

- Continued increases in overall vaccine coverage
- Good uptake of MMR2 catch-up
- Impact of policy in areas with lowest coverage unclear

### What's next?

- Continue to measure impact of policy on coverage and infection rates, esp in low coverage areas
- Measure off-target effects: on school readiness, attendance



## Vaccine safety

### Context:

- Occasional safety disasters (Cutter Incident) in era of poor regulation
- Rare but serious events not feasible to exclude in pre-licensure trials
- Vaccines for seasonal flu and epidemics especially problematic (2010)
- Spontaneous AEFI systems are insensitive
- Australia lacking large scale linked digital health infrastructure
- Slow and piecemeal linkage of admin datasets with immunisation register

### What's new?

- Linkage of ACIR with WA and NSW hospitalisation data for VE evaluation
- AusVaxSafety (SmartVax) platform for solicited adverse events from primary care and community clinics: seasonal influenza, 18m pertussis, HPV, all NIP vaccines
- Pilot use of data from GP information systems to screen for AEs following zoster vaccination

### What's next?

- Development of reporting platform to arm providers and parents with safety data
- Methodological development to achieve a system which is both sensitive to true safety events, but with small risk of false flags
- Use of eMR data – data federation and common data models, collaboration with Europe and North America



## How do we stack up?

