Future challenges - immunisation in a changing world: Adolescent vaccination

Australian Vaccinology Course

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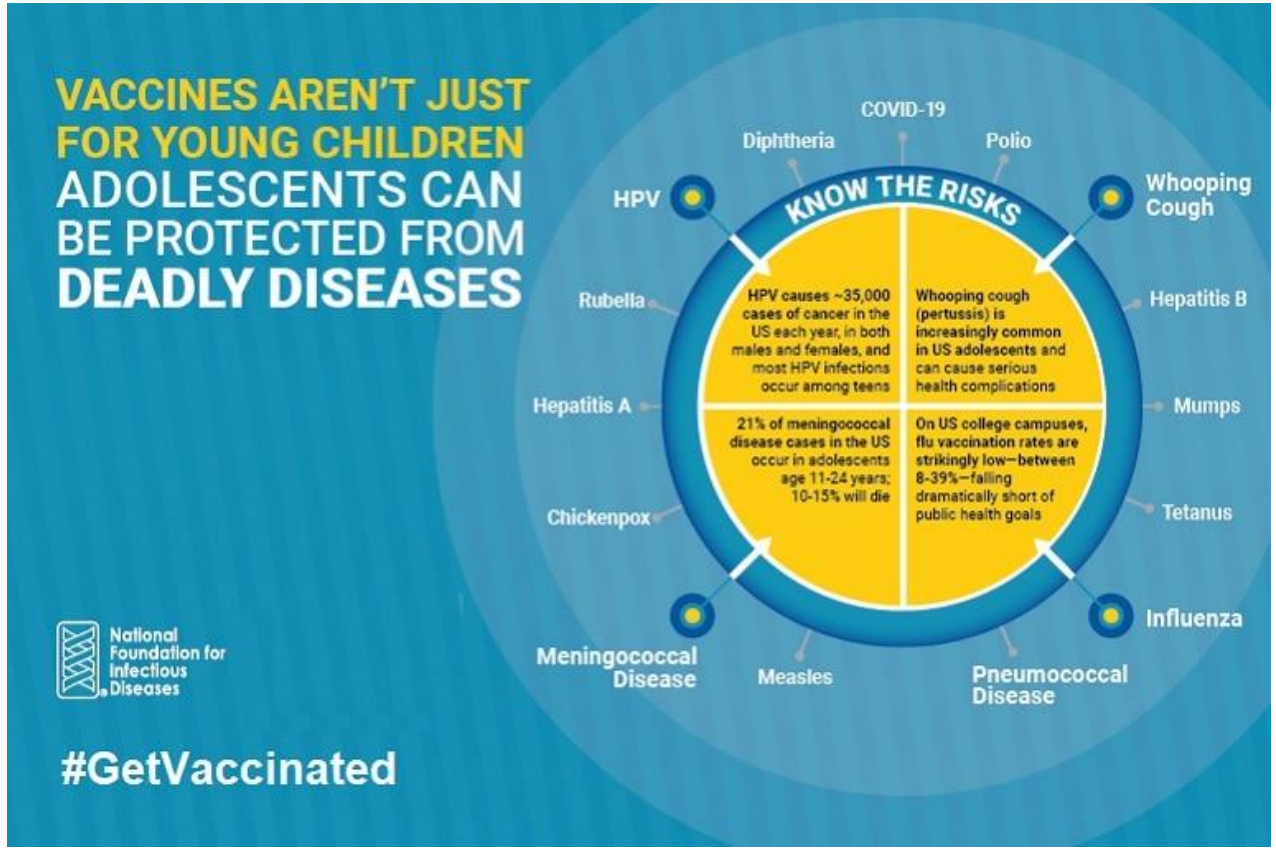
Adolescents and vaccination

- Adolescents 10-19 yrs are 1/6th of global population = 1.3 billion people
- Adolescence “is a period marked by intensified social interactions and social behaviours that elevate the risk of disease carriage and transmission” (WHO)
- Three key vaccine objectives:
  - Childhood catch up
  - Boosting for waning protection (eg dTpa)
  - Address new exposures (eg HPV, Mening)
- Rarely achieve equivalent vaccine coverage to infant/childhood vaccines



Adolescents and vaccination

Azzari C et al.. Experts' opinion for improving global adolescent vaccination rates: a call to action. Eur J Pediatr. 2020 Apr;179(4):547-553.

Reasons for low vaccine uptake among adolescents

- Lack of knowledge and poor communication among providers, parents, and adolescents
- Structural barriers in the health system
- Lack of clarity regarding ownership of vaccination
- Lack of primary healthcare visits
- Missed opportunities for vaccination

- Australia has a long history of successful school-based immunisation, including adolescents
- Supported by primary care systems and community vaccination services for catch up of doses missed at school

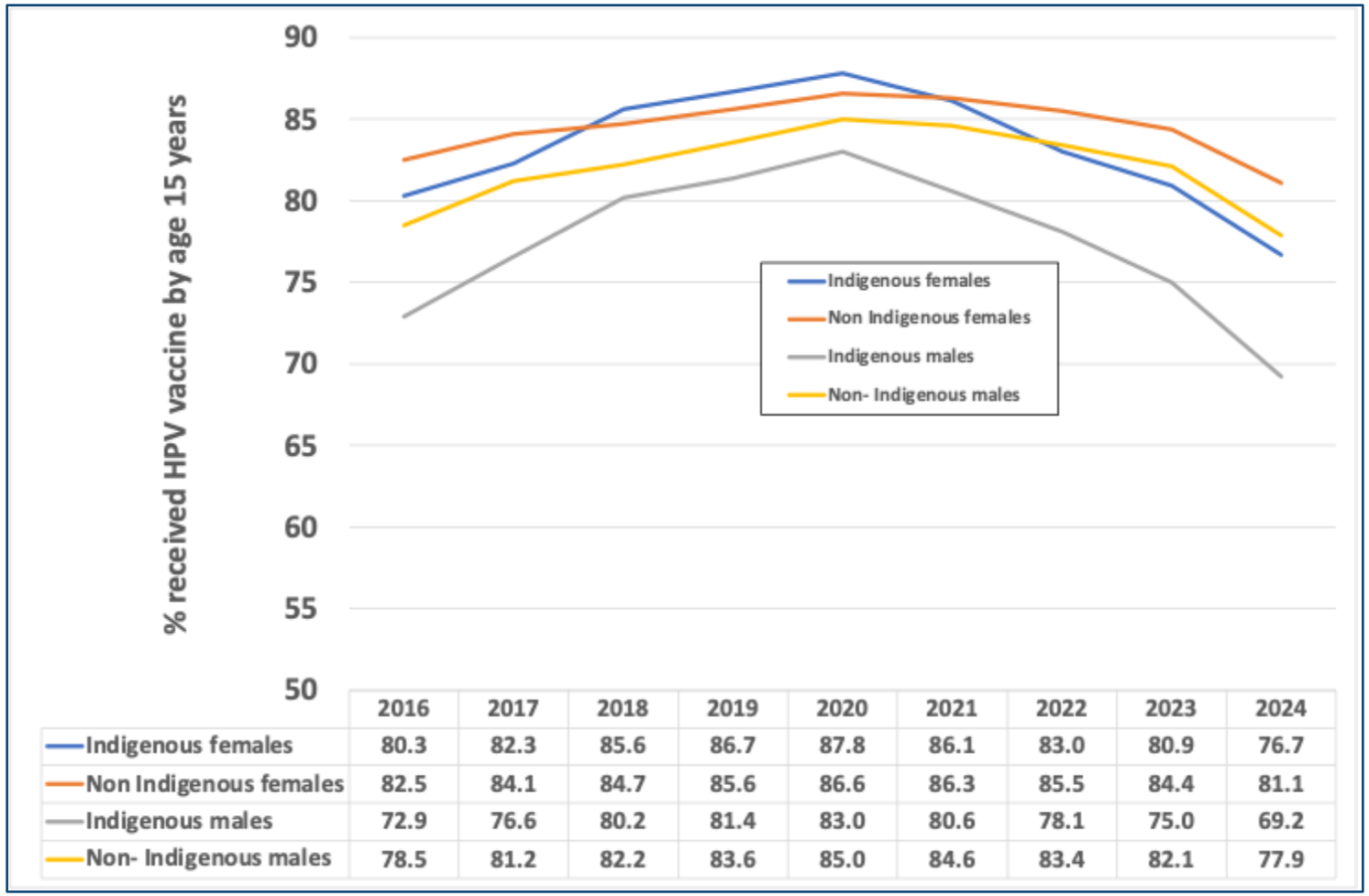
PRACTICE POINTS FOR GPS ON ADOLESCENT VACCINATION

- GPs have an important partnership role in supporting school-based vaccination of adolescents and, more recently, adolescent COVID-19 vaccination
- Catch-up vaccination should be opportunistically undertaken when adolescents present for any routine health issue
- Catch-up vaccination should also be achieved through auditing patient records and issuing reminders, as is routine practice for childhood vaccination
- A tailored approach is required when vaccinating adolescents in primary care
- Parental vaccine decision-making for adolescents is most strongly influenced by doctor recommendation

Source: Davies C, Skinner R. Adolescent vaccination. The importance of GPs. Medicine Today 2022;23(3):14-24

In Australia, adolescent vaccine rates are trending down

- HPV vaccine coverage peaked in Australia in 2020
- Meningoccal ACWY by age 17 yrs
  - 76.1% in 2021 - > 71.3% in 2024
- Ongoing small declines across childhood and adolescent vaccine schedule
- Also seen in similar countries post pandemic – USA, Canada, UK



	2016	2017	2018	2019	2020	2021	2022	2023	2024
Indigenous females	80.3	82.3	85.6	86.7	87.8	86.1	83.0	80.9	76.7
Non Indigenous females	82.5	84.1	84.7	85.6	86.6	86.3	85.5	84.4	81.1
Indigenous males	72.9	76.6	80.2	81.4	83.0	80.6	78.1	75.0	69.2
Non- Indigenous males	78.5	81.2	82.2	83.6	85.0	84.6	83.4	82.1	77.9

Data from Brotherton J, Machalek D, Smith M et al., 2024 Cervical Cancer Elimination Progress Report: Australia's progress towards the elimination of cervical cancer as a public health problem. Published online 14/03/2025, Melbourne, Australia, at https://www.cervicalcancercontrol.org.au. Updated with NCIRS interim report data for 2024

NHMRC Centre of Research Excellence in Cervical Cancer Control

Why?…it's complicated

- Kids at school less, more anxious
- Consent processes are challenging (mix of electronic and paper)
- Education/schools overwhelmed – staffing challenges and hands full. Limited resources/engagement
- Loss of/difficulty maintaining second visit in Year 7. Immunisation staffing challenges

"If anyone said well, is it access or acceptability? It's definitely access, by far"

- Parents ?hesitancy – overwhelmed, disengaged from vaccination, antigovernment

> *"I think the whole change in schedule wasn't the cause of our rates going down. ..you know, I really think that there's such a bigger problem……*
>
> *We have to start thinking outside the square. I think we're just doing the same thing, but we've got a different cohort coming through that have different needs."*
>
> *- Jurisdictional immunisation coordinator Sept 2024*

Source: ACARA data; Steffens et al, manuscript in preparation; McIndoe L, et al. Exploring communication barriers and facilitators in school vaccination: a case study in South Eastern Sydney, Australia. Vaccines (Basel). 2024 Oct 31;12(11):1243.

Challenges in our region…

HPV vaccine

Country level introductions…

- **9/11 (82%) of SE Asia region** (all but India and N Korea)
- **24/27 (89%) of Western Pacific** (all but China, Papua New Guinea (2027), Vietnam (2027), Philippines (scale up 2026))

BUT the two countries with highest burden of cervical cancer globally are yet to introduce

- India (imminent) and China

Challenges remain in achieving and maintaining high coverage

- Mean coverage HPVD1 SEARO 78%
- Mean coverage HPVD1 WPRO 68%

Source: WHO HPV dashboard

Meningococcal disease

- Burden of IMD largely unknown, serogroup B predominating in several regions.
- Globally meningitis 9th leading cause of death in adolescents in 2019 –n= 22,000. (70% in young adolescents). 70% in African LMICs – recurring large epidemics in meningitis belt. *Most of rest in SE Asia, West Pacific* and East Mediterranean LMICs.
- Most Asia Pacific countries currently have no meningococcal vaccine programs
- *"Where epidemiological data suggests there is a risk, vaccination efforts for MenB should extend to adolescents and young adults, especially those in densely populated settings, to mitigate the risk of transmission."*

Gang Liu, et al (2025) Joint consensus on reducing the burden of invasive meningococcal disease in the Asia-Pacific region, Human Vaccines & Immunotherapeutics, 21:1, 2477965.
WHO 2023. Global Accelerated Action for the Health of Adolescents (AA-HA!)

Challenges globally

Wide range of vaccines offered to adolescents

Include/have included

- HPV vaccine, tetanus, diphtheria, pertussis, seasonal influenza, cholera, dengue, rabies, typhoid, COVID-19, Meningitis, Polio, Yellow fever
- Likely future vaccines relevant in adolescence eg Chlamydia, malaria, TB

Eg Review of programs in Latin America/Caribbean

- 47 countries include 1+ adolescent vaccine
- (HPV n=45, dip/tet+/-pertussis n=43, polio 18, meninge 10, catchup hepB 17, yellow fever 13)
- *Availability, quality and consistency of coverage data highly variable. Coverage suboptimal for all vaccines.*

WHO Immunisation agenda 2030 strategic priority 4

Life course and integration of vaccines

"Implementation and social and behavioural research will be conducted to generate evidence for effective delivery of integrated, coordinated packages of vaccination services and to identify new contact points for vaccination throughout the life course."

- 2025 review found limited evidence on HPV vaccine integration with adolescent services so far…

Rojas M et al. Characterizing adolescent vaccination in publicly funded national immunization programs in Latin America and the Caribbean : A review of the literature. Hum Vaccin Immunother. 2025 Dec;21(1):2528403.

Jennings MC, et al. Realist review of low- to upper-middle-income country experiences on integration of HPV vaccination with other adolescent health services. Vaccine 2025;50: 126833.

What does an adolescent centred immunization service look like?