

The HPV Vaccination Partnership Project: Tasmanian Study and Workshop Summary

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25th November 2024

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- Kerry Cleaver (former Nurse Manager Immunisation, Communicable Diseases Prevention Unit, Public Health Services, Tasmanian Department of Health)

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1. Executive Summary

Australia is yet to reach the World Health Organisation's (WHO) 90% human papillomavirus (HPV) vaccination rate for girls by the age of 15 (WHO, 2020). Since the introduction of the Australian developed HPV vaccine for girls (2007) and boys (2013) vaccination rates steadily increased until the global pandemic in 2020 (NCIRS, 2023). There is also variation in HPV vaccine coverage that occurs across and within states and territories. Research has demonstrated that lower school attendance rates, lower socioeconomic position and greater rurality are some of the factors associated with lower HPV vaccination rates (Sisnowski et al., 2021; Vujovich-Dunn et al., 2021). Understanding why and how these variations occur is important if Australia is to reach the WHO's target and eliminate cervical cancer.

In 2023 national HPV vaccination coverage remained lower than in 2021, with coverage defined as a minimum of one dose received by a young person's 15th birthday (NCIRS 2023; NCIRS 2024). The National Centre for Immunisation Research and Surveillance (NCIRS) recorded the national vaccination coverage at 84.2% for females, 81.8% for males, 80.9% for Aboriginal and Torres Strait Islander females and 75.0% for Aboriginal and/or Torres Strait Islander males (NCIRS, 2024). In Tasmania, HPV vaccination coverage estimates at 15 years of age were slightly lower than nationally with 83.5% for all females and 80.7% for all males receiving at least one dose. For Aboriginal and/or Torres Strait Islander adolescents in Tasmania HPV vaccination rates were higher than national coverage rates - 81.2% for females and 82.2% for males (NCIRS, 2024). In 2023, the recommendation for HPV vaccination was changed from a two-dose to a single-dose vaccine schedule; while this may provide some improvement in HPV vaccination coverage, this was hypothetical at the time this report was prepared (NCIRS, 2023).

It is vital for health departments to understand the facilitators and barriers contributing to vaccine uptake in school-based immunisation programs. In Australia, HPV vaccination is administered free to eligible adolescents at school through the National Immunisation Program (Davies, Marshall, et al., 2021). Adolescents are primarily vaccinated en masse on school grounds after parental/guardian consent is obtained (Davies et al., 2017). This qualitative study aimed to identify and explore parental and school factors that affect adolescent vaccination, to understand barriers perceived by school and council staff and approaches that may improve uptake, and to identify and understand the specific processes used by council staff to carry out HPV vaccination. We developed five key themes from analyses of interview data with council and school personnel and parents whose adolescents did not commence or complete HPV vaccination in the school-based program:

1. Established practices and processes
2. Knowledge, shared information, and decision-making
3. Environment and setting
4. Relationships, communication and leadership
5. Parent and adolescent experiences

To inform future practice and policy, we used the principles of knowledge mobilisation and engaged key stakeholders in facilitated discussions to develop future strategies and recommendations. This process yielded contextual and organisationally insightful recommendations to address barriers to the uptake of HPV vaccination in Tasmanian schools including:

1. Revise consent form processes and information.
2. Promote strategies to share health and vaccination information with parents and adolescents.
3. Provide vaccination education in school health classes.
4. Use diversional resources to reduce anxiety and improve students' experiences when receiving their vaccinations.
5. Develop resources to support new staff (school and council) to deliver the vaccination program.

This document summarises the final Tasmanian component of the HPV Vaccination Partnership Project (HPV-VPP) and the workshop recommendations proposed by key stakeholders. This summary aims to support the development of strategies and priorities to optimise HPV vaccination uptake in Tasmanian schools and contribute to reducing the incidence of cervical cancer and other HPV-related cancers.



2.1 National overarching project

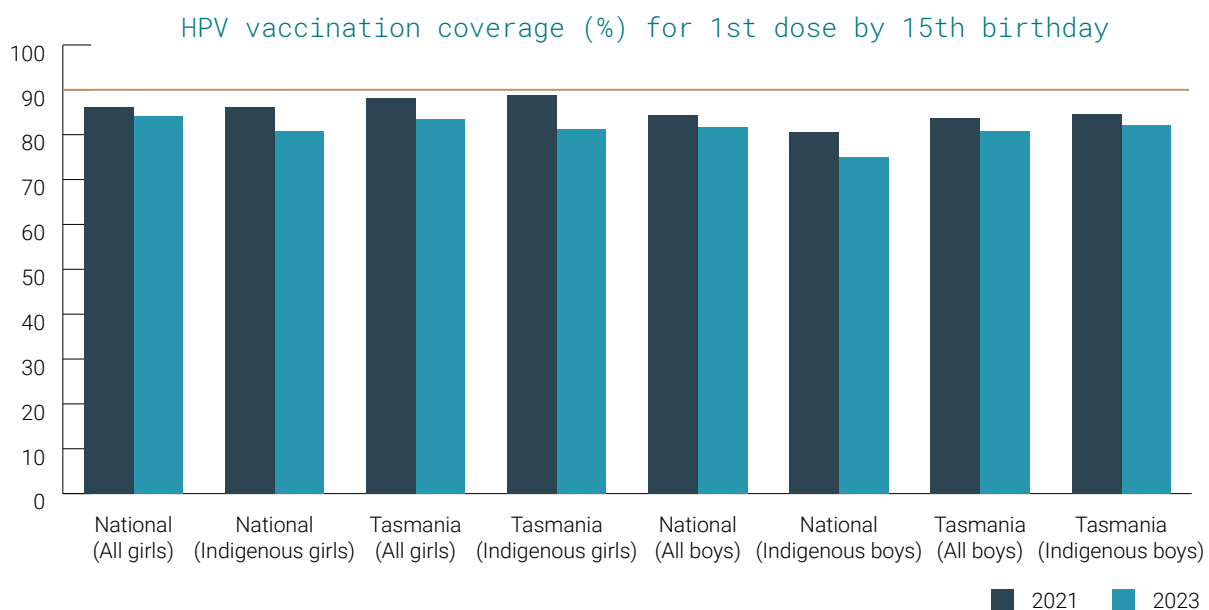
The first stage of the project was to conduct an analysis of school-level coverage in the initiation (first dose) and completion (third dose) of the HPV vaccine and to determine whether there was a difference in the uptake between diphtheria-tetanus-pertussis (dTpa) vaccine booster and HPV vaccines. At the time, analyses of school-level data were not readily available, in particular, an understanding of school-level initiation and completion coverage across schools and jurisdictions, and factors driving these differences. Findings from earlier research within the national HPV-VPP found that up to a quarter of schools had higher dTpa coverage than first dose HPV vaccination uptake (Vujovich-Dunn et al., 2021) and that there were strong correlations with lower uptake in schools (Sisnowski et al., 2021):

- with lower rates of attendance
- with higher Aboriginal and/or Torres Strait Islander enrolments
- in more remote locations
- in areas of greater socioeconomic disadvantage, and
- that were smaller in size

The researchers also found that one in four schools had higher uptake of the dTpa booster vaccine than HPV dose 1 and reported that this may indicate some hesitancy towards HPV vaccination (Vujovich-Dunn et al., 2021). This finding was more likely to be observed in schools in socioeconomically advantaged areas (Vujovich-Dunn et al., 2021). The national and state-level data related to the findings above were provided back to each jurisdiction to inform policy, practice, and the planning of new research.

From 2017 to 2020, there were small improvements in HPV vaccination completion rates. However, since 2020 coverage has declined. Figure 1 shows HPV vaccination coverage of first dose received by 15th birthday in 2021 and 2023 and compares national and Tasmanian coverage for all and for Aboriginal and/or Torres Strait Islander adolescents (NCIRS, 2023; NCIRS, 2024). The gold line indicates the WHO target for HPV vaccination coverage for females, in 2023 national coverage remained below the target. In February 2023, Australia moved to a single-dose recommendation for the HPV vaccine; it is not yet known how this will influence coverage rates.

Figure 1. HPV vaccination coverage, comparison between Tasmanian and Australian proportions (NCIRS, 2023; NCIRS, 2024).





2.2 Tasmanian project

The school-based vaccination program was implemented as a vaccination strategy for Tasmanian children in the 1930s as part of the national diphtheria-tetanus toxoid vaccine (Ward et al., 2013). Since then, the school-based program has had many revisions based on new vaccine developments and updated recommendations. Today the school-based program in Tasmania is provided by local government councils in schools settings with the support of the Tasmanian Department of Health (Tas-DoH). The current vaccination program is the result of long-established relationships between the Tas-DoH, councils and schools.

Findings from the initial analyses of school-level data in the HPV-VPP were used to plan this Tasmanian study, which aimed to understand the factors contributing to students' initiation and completion of HPV vaccination in Tasmanian schools. To achieve this, the Tasmanian partners and research team set the following objectives:

1. Identify and explore parental and school factors affecting adolescent vaccination (facilitators and barriers)
2. Identify from school and council staff perceived barriers and approaches that may improve participation.
3. Identify and understand the specific processes council staff use to organise and carry out HPV vaccination and explore perceived facilitators and barriers.

Provisions in the Tasmanian *Public Health Act of 1997* enabled the sharing of information between schools, local councils and the Tas-DoH for the purposes of conducting and evaluating participation in the school-based vaccination program (Tasmanian-Government, 2022). This provided an important and unique opportunity to better understand barriers to initiation as distinct from completion, as no research in the past has specifically explored barriers to initiation, information which is now critical with the shift to a one-dose only vaccination program.

Following some delays due to COVID-19, the HPV-VPP (Tasmania) commenced in September 2021 and was led by:

- Dr Mark Veitch – Department of Health
- Kerry Cleaver – Department of Health
- Emeritus Prof Alison Venn – Menzies Institute for Medical Research, University of Tasmania
- Assoc Prof Nicola Stephens – Tasmanian School of Medicine, University of Tasmania
- Dr Maria Unwin – Menzies Institute for Medical Research, University of Tasmania
- Dr Cristyn Davies - University of Sydney
- Dr Cassandra Vujovich-Dunn – Kirby Institute, University of New South Wales
- Prof Rebecca Guy – Kirby Institute, University of New South Wales

This document provides a summary of the final component of the HPV-VPP (Tasmania) including outcomes of a key stakeholder workshop aiming to translate into future strategies and recommendations to optimise HPV vaccination uptake.

3. Method

The first step was for the Tas-DoH to select school communities to be invited to participate in the HPV-VPP (Tasmania) study. These included schools with high and low vaccination coverage, and public, Catholic and independent schools from geographically diverse locations, aiming for a cross-section of Tasmanian school communities. This study used qualitative methods to gather views from multiple stakeholders involved on the delivery and receipt of HPV vaccination in schools: vaccination providers from local councils from across Tasmania, school staff, and parents. The focus was school rather than general practice, as the HPV vaccination program primarily focuses on delivery in schools, with general practice as a secondary option for parents/adolescents.

Key stakeholders were invited to participate to enable the research team to build an understanding of the organisational factors, processes and interactions affecting HPV vaccine delivery in Tasmanian schools. The identified schools' locations determined which local councils would be invited to participate. Parents of students who had not commenced or completed their HPV vaccination within the school-based vaccination program were eligible to participate. Figure 2 outlines the process taken to conduct this study.

Figure 2. Summary of methods (including participant recruitment) for Human Papillomavirus Vaccination Partnership Project – Tasmania



We conducted semi-structured, in-depth interviews, and participants were offered face-to-face or phone options at a time and location suitable for them. Interviews with council and school participants explored:

- HPV vaccination processes
- Staff roles and responsibilities
- Relationships and communication between council and school personnel
- Facilitators and barriers to the effectiveness of vaccination day
- Interaction with parents/carers and students regarding HPV vaccination

Interviews with parent participants explored:

- Parent/carer knowledge of and attitudes towards HPV vaccination
- Adolescent involvement in decision-making
- School factors (e.g., communication) and consent processes
- Facilitators and barriers to initiation and completion of vaccination in school program

All interviews were audio recorded, transcribed verbatim and analysed using a six-step thematic analysis approach (Braun & Clarke, 2013):

1. Data familiarisation by reading and re-reading transcripts.
2. Code generation, informed by previous research conducted by a member of the research team (Davies et al., 2023; Davies, Marshall, et al., 2021; C. Davies et al., 2017; Davies, Stoney, et al., 2021)
3. Generating themes and discussions at regular team meetings
4. Reviewing and refining themes
5. Naming and defining themes
6. Dissemination of findings

3.1 National HPV Vaccination Partnership Project (HPV-VPP)

The National HPV-VPP is a collaboration between key stakeholders across three jurisdictions (Tasmania, New South Wales and Western Australia) and was funded by the National Health and Medical Research Council (NHMRC) Partnership Grant. Stakeholders included researchers, clinicians, and policymakers representing several institutions. These experts provided advice and guidance throughout the project.

3.2 Ethics and governance

Ethics approval was obtained from the Tasmanian HREC (H0018502) with letters of support provided by the Tasmanian DoE and Catholic Education Tasmania. All participants were provided with information regarding the project's aims and objectives and provided written consent prior to interviews.

4. Results

The schools identified by the Tasmanian DoH partners and researcher team were in ten local government council areas across Tasmania, including the south, north and north-west. A total of 18 council personnel, 15 school personnel and 14 parents were interviewed between October 2021 and March 2023. Tables 1 and 2 summarise school communities and parents participating according to regional classification based on the Modified Monash Model (MMM) (DoHA, 2018) and socioeconomic index for areas, relative socioeconomic disadvantage (SEIFA-IRSD) (ABS, 2018). With the MMM (scale 1-7), the higher the number the more remote the region (DoHA, 2018). The SEIFA-IRSD quintiles (scale 1-5), were used to report socioeconomic disadvantage (quintile 1 experiencing the highest and quintile 5 the lowest levels of disadvantage). Participant quotes are included in the below section. Interview participants were allocated a code prior to data analysis (P1 - P47) and are referred to accordingly with a subsequent descriptor of their role.

Table 1. Demographic summary of the participating school communities.

Regional location classification (MMM)		SEIFA (IRSD) quintiles	
Regional centres	5	First quintile	4
Large rural towns	3	Second & third quintiles	4
Small rural towns	2	Fourth quintile	0
		Fifth quintile	2

Table 2. Demographic summary of parent participants.

Regional location classification (MMM)		SEIFA (IRSD) quintiles	
Regional centres	3	First quintile	8
Large rural towns	7	Second & third quintiles	4
Small rural towns	4	Fourth quintile	0
		Fifth quintile	2

Of the 18 council participants, eight were environmental health officers and six were technical officers, immunisation coordinators or nurse immunisers. Four school participants were teaching staff and 11 had administration or management roles. All parent/carer participants were mothers. The vaccination status of participants' adolescents included:

- 1, no adolescent vaccinations
- 2, first dose school, second dose missed
- 1, first dose hospital, second dose general practitioner (GP)
- 3, first dose school, second dose GP
- 7, both doses GP

Analysis led to the development of 5 key themes. These were:

1. **Established practices and processes** – the practical steps developed over time to build school vaccination programs.
2. **Knowledge, shared information, and decision-making**: Parents' or guardians' perceptions and understandings of HPV vaccination and how understanding/knowledge affect decision-making.
3. **Environment and setting** – the context in which vaccination occurs and the influence these factors play in the school-based program.
4. **Relationships, communication & leadership** – the relationships between the vaccination team, education staff, students and parents that influence vaccination.
5. **Parent and adolescent experiences** – the experiences of parents and/or their adolescent that contribute to decision-making processes regarding vaccination.

4.1 Facilitators and Barriers to uptake and completion of HPV vaccination in Tasmanian schools

Facilitators and barriers to the school-based vaccination program were identified within each theme and are summarised below and outlined in Appendix 1.

4.1.1 Established practices and processes

As an established program, the school-based vaccination program consists of practical steps developed over time.

Facilitators:

- Familiarity and previous experience leading the program (council & school staff)
- Clearly defined roles and responsibilities (council and school staff)
- Ability to be flexible and adapt to changing circumstances (council and school staff)
- School includes reminders for students and parents
- Convenience of school-based program for parents

Preparation of the [immunisation] team is important.

P20, School personnel

... it can be a bit more of a cookie-cutter kind of set up where everyone knows what to expect

P3, Council personnel

The biggest challenge is the lack of consent forms coming back.

(P4, Council personnel)

It's the first year I'm doing this. So, I can't actually tell you what my role is because I don't know.

(P27, School personnel)

Barriers:

- Consent form process (figure 3), each link within the diagram demonstrates a potential opportunity for a breakdown in the return of consent forms.
- Council or school personnel who were 'new' or unfamiliar with their roles or responsibilities within the program.
- Needs of parents and students from priority population groups not addressed in overall program design (low SES, low English reading literacy or health literacy)
- Class lists not being available to council staff (council staff unable to determine the proportion of returned forms)

Figure 3. Consent form process



4.1.2 Knowledge, shared information and decision making

Parent or carer perceptions and understandings of HPV vaccination influenced their decision-making for the school-based program. Key facilitators included:

Facilitators:

- Clear information sharing between council staff, school staff and parents. For example, some parent participants described information on the consent form as appropriate. Some councils also provided information for schools to share with families via the school newsletter and/or social media platforms.
- Some parents knew how and where to access additional information if required.
- Parents who discussed HPV infection and HPV vaccine with their adolescent before vaccination was also found to be beneficial.
- Parents who trusted government recommendations on public health issues.

It wasn't really something that I would understand ... it was more like one of those pharmaceutical sheets ... it [wasn't] really in plain English.

P46, Parent

We don't have anything in place [to provide parents with literacy support].

P27, School personnel

We also do newsletter items to go into the newsletters so the parents understand what the vaccines are.

P14, Council personnel

We definitely do discuss [HPV vaccination] with [my daughters] just to let them know what it is they are being vaccinated against.

P29, Parent

Barriers:

- Adolescents who were unaware that vaccinations would occur on a pre-determined day and what the HPV vaccine was for, contributed to an increase in anxiety among students.
- Parental belief that the HPV vaccine is for females and/or consider it a new vaccine.
- Parents who experienced difficulty understanding vaccination information provided on the consent form. The consent form was described by one mother as a 'pharmaceutical sheet'.
- Negative media about HPV vaccination, either by mainstream media or social media.
- Lack of trust in government advice.

4.1.3 Environment and setting

Schools provide the space for council teams to deliver the vaccination program to students, but the design and layout of these spaces vary from school to school. The settings in which vaccinations occur can influence the success of the program.

Facilitators:

- Strategies adopted by council and school personnel to support students (e.g. smaller student groups waiting for vaccination, vaccination of anxious students first, use of diversion strategies)
- Vaccination space that provides privacy for students
- Vaccination is a priority of families and schools

Also we find they razz each other up ... [one school] has been quite difficult to immunise. It does take a lot of talking around for some of the students to get that anxiety down to be able to immunise.

P5, Council personnel

I was fine for her to have it at school. It was just that she was a clingy kid at the time. ... she was just getting into high school and it was awkward for her, and so she didn't want to do that at school.

P34, Parent

I am super conscious of giving the students privacy. I will always insist that there's privacy screens up and it is a separate room ... with – two exits is great.

P4, Council personnel

One thing that I think is great, some of their prefects support students. ... it's excellent, it's really good for anxious students or any with disabilities, it's having an older student there with them.

P7, Council personnel

Barriers:

- Escalation of student anxiety contributed to heightened mood and influences the mood of other students
- Vaccination space is unprepared for the council team when they arrive
- Space not conducive to providing privacy or pre and post-vaccination areas in the same room
- Other requirements or needs of parents/guardians takes priority over vaccination (hierarchy of needs)

4.1.4 Relationships, communication and leadership

Successful delivery of school-based vaccination programs relies on relationships and communication between stakeholders, including the vaccination team, education staff, students, and parents.

Facilitators:

- Clear communication between council-school-parents-adolescents
- Well-established relationships between school and vaccination staff
- Council and school staff promote the program (and consent form return)
- Council and school personnel have a clear understanding of their roles

We've missed that [key school contact] this year. And we've had random teachers. And I think the calmer the students are while they're waiting, the easier the program runs, and I think just having people coming that haven't done it before, um, ... the atmosphere's different.

P3, Council personnel

It was a lack of communication this time around because of the changing in roles.

P42, School personnel

Barriers:

- Breakdown in communication at any point between council-school-parents-adolescents
- Lack of communication with students about vaccination
- Council or school personnel who do not foster relationships supportive of vaccination (e.g. a teacher jokes with the students about the size of the needle, or council staff not being welcoming to students)
- Limitations in the support provided by school personnel to council staff on vaccination day

But we try and help them out as much as we can, because at the end of the day, the council don't want to be bombarded with calls.

P19, School personnel

I think some of the teachers are just amazing because they can identify anxious kids; they get them through.

P16, Council personnel

4.1.5 Parent and adolescent experiences

Past experiences of parents and/or their adolescent were also identified to contribute to decision-making processes regarding school-based vaccination.

Facilitators:

- Predetermined decisions by parents to receive all recommended vaccinations for their adolescent
- Increased media around vaccination during COVID-19 did not alter parents' decision-making around HPV vaccination
- Positive past experiences with vaccination
- Culturally and linguistically diverse families perceived by study participants to be more accepting of vaccinations

He had appendicitis and had to have injections and blood taken and things like that ... They found it quite hard to get his blood and it was a bit of a traumatic experience for him. We gave him the option ... he wanted to get it done through the doctors.

P38, Parent

My own personal bad experience with a dentist at my school. So, I don't trust that sort of medical stuff being done at a school.

P30, Parent

Oh mum had this issue, and so that poor [adolescent] was up all night having to look after his mum ... the forms are the last thing [on their mind].

P6, Council personnel

Barriers:

- Poor past experiences of parents in school-based vaccination programs and/or adolescents who have had poor past experiences with healthcare services
- Parents responsible for organising out-of-school catch-up vaccination (particularly during COVID-19 lockdowns and rollout of COVID-19 vaccination)
- Families from lower socio-economic backgrounds and/or families (from any background) who experience poor health literacy and challenges with hierarchy of needs.

They [daughters] were actually happy down the track [that they received the HPV vaccine]. I actually had cervical cancer and I told them it was from HPV.

P30, Parent

I'm immunocompromised so all my family members had their vaccinations to help protect me as well as themselves.

P37, Parent

5. Workshop

A workshop organised by the Tasmanian HPV-VPP team aimed to use the principles of knowledge mobilisation together with contextual and organisational insight from key stakeholders to identify future strategies, recommendations, and priorities to optimise the uptake of HPV vaccination in Tasmanian schools.

Knowledge mobilisation is "... the overarching process of moving knowledge to create and enhance research impact into policy and practice" (APCC, 2022). The objectives of the workshop were:

- To share the HPV-VPP (Tasmania) study findings with key stakeholders.
- Co-design strategies, recommendations, and priorities to optimise uptake of HPV vaccination in schools.

5.1 Workshop structure

Potential key stakeholders were identified by the Department of Health partners and the research team, and invitations were distributed to:

- Immunisation practitioners and teams
- Council personnel and nurse immunisers involved in vaccination delivery;
- School personnel involved in delivering the school-based program;
- Other representatives from the DECYP and Catholic Education Tasmania (CET).

The workshop was hosted using a hybrid model with three face-to-face locations linked via Zoom. Participants unable to travel to a face-to-face venue were provided a link to enable virtual participation. A total of 30 participants and four facilitators attended the workshop; only three selected the virtual mode. The remainder of this document summarises the workshop discussion and the recommendations identified by key stakeholders.

The five key themes, facilitators, and barriers were presented to workshop participants. Participants were divided into four small groups to discuss and identify future strategies to optimise HPV vaccination in Tasmanian schools. To prompt this discussion and the formation of recommendations, five questions were asked:

1. How could the school-based HPV immunisation program leverage the facilitators/strengths identified?
2. What methods or strategies could be developed to address the identified barriers?
3. What resources would be required to implement this strategy/method/solution?
4. Does this require a change in policy, practice, guidelines?
5. Which key stakeholders could work together to achieve this outcome?



6. Recommendations suggested by workshop participants.

Several recommendations were put forward by participants. The five most frequently discussed recommendations are summarised below with additional detail provided in appendix 1.

6.1 Revise consent form processes and information. This includes:

- a. Collaboratively revise the consent form with input from all stakeholders - vaccination providers, school staff, parents, adolescents, DoH and DECYP
- b. Develop online consent processes (collaboration with the NSW team and lessons so far from online consent form development)
- c. Review literacy level required to read consent form and work with health literacy experts to ensure form is readable and is provided in languages other than English.
- d. Include on consent form links/QR codes providing additional information for parents and adolescents wanting to know more about HPV vaccination.

6.2 Promote strategies to share information with parents and adolescents:

- a. QR code links to resources for parents and adolescents (e.g., videos, use of social media/TikTok).
- b. Access to resources for school staff to share information with parents and adolescents.
- c. Media promoting HPV vaccination for all adolescents, regardless of gender.
- d. Council contact details for further information if required.





6.3 Provide vaccination education in school health classes (pre-vaccination, in grade 6 or 7).

This was deemed important considering child and adolescent safety and psychosocial health and adolescents' right to choose on issues that affect their health.

6.4 Provide diversion resources.

These are useful in all schools and are particularly useful for students with special needs. Suggestions include:

- a. Fidget toys
- b. "Where's Wally" type activities
- c. Headphones and music or schoolwork pre vaccination
- d. Diversional conversations during vaccination
- e. A calming video in post vaccination space
- f. Therapy dogs and/or school support person

6.5 Develop resources to support new staff transitioning to vaccination programs (school and council). This includes:

- a. Develop a formal handover process between outgoing and incoming staff (council and school) with 'cheat-sheets', flow diagram, frequently asked questions.
- b. Make opportunities for mentoring by another experienced immunisation provider or school staff member (may be in another council area or school).



7. Conclusion

This project explored and identified parental and school factors that affect adolescent HPV vaccination in Tasmania, to understand school and council perceived barriers and approaches that may improve vaccination uptake, and to identify and understand the specific processes used by council staff to carry out HPV vaccination. Vaccination in Tasmanian schools is a well-established practice. Many of the processes and practices have been refined over time; however, we also identified aspects of these processes that could be improved, particularly in relation to consent form processes, with recommendations to move towards electronic consent forms and to review how information is shared with school staff, parents/guardians, and students. This study highlights the importance of information that is provided in a way that is easily understood and can support informed decision-making by parents/guardians and adolescents. These key stakeholders may benefit from resources to support HPV vaccination decision-making.

Factors relating to the vaccination 'space' preparation were identified as important in reducing adolescents' anxiety, and recommendations included ensuring privacy and access to diversional resources. Collaborative relationships, communication and leadership facilitate the success of school-based vaccination programs, particularly in relation to relationships and communication between council and school staff and school staff and adolescents. Parents/guardians also play an important role in preparing an adolescent for vaccination and may benefit from new approaches to receiving vaccination information. Parents who had a negative experience as an adolescent in school-based program described their reluctance to have their adolescent vaccinated in school and some were confused about HPV vaccines being given to males. It is likely to be valuable to carefully consider the findings and recommendations in this document and how they may support the optimisation of school-based programs and improve the knowledge and experiences of adolescents who will be the parents of future generations.

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Appendix 1.

HPV vaccination uptake and completion in Tasmanian schools: facilitators, barriers and recommendations.

Theme 1. Established practices and processes

Facilitators

1. Familiarity and previous experience leading the program (council & school staff)
2. Clearly defined roles and responsibilities (council and school staff).
3. Ability to be flexible and adapt to changing circumstances (council and school staff)
4. School includes reminders for students and parents.
5. Convenience of school-based program for parents

Theme 1. Barriers	Theme 1. Recommendations by participants
<ol style="list-style-type: none"> 1. Breakdown in consent form processes 2. Council or school staff new to program and unaware of role and/or responsibilities 3. Class lists not being available to council staff (council staff unable to determine the proportion of returned forms) 	<ol style="list-style-type: none"> 1. Important that all stakeholders work together to refine consent form processes. 2. Move towards online consent forms with option for form to be completed by hand if needed. Suggestions for online form included: <ol style="list-style-type: none"> a. Mandatory fields in forms to ensure all sections are completed. b. Review of consent form, including word-count and literacy level. c. Availability of form in languages other than English. d. Possibility to be built into the Oracle Health Immunisation Management Cloud Service (OHIMCS) or uploaded directly to OHIMCS to reduce handling of forms on a state level. e. Consider learnings from NSW Health who are exploring use of electronic consent form. 3. Consider bypassing students and send forms directly to parents/guardians (post/email). 4. Identify strategies to address common errors in completion of consent forms. 5. Develop resources to provide information and support parents/guardians with low English literacy, including a function with an audio version of the consent form. 6. School newsletters could include the QR code with a link to educational videos about HPV and HPV vaccination. 7. Encourage schools to use existing lines of communication to set reminders regarding consent form return (e.g. email and social media platforms) <ol style="list-style-type: none"> 1. Mentors for new school / council staff to help them understand their role. 2. Flow chart provided to school outlining school-based immunisation processes, highlighting the school's role. Ensure immunisation guidelines are clear to each stakeholder group (council, school and DoH) regarding expectations and requirements (e.g. have sections within guidelines specifically relating to each stakeholder group). 3. Ensure open lines of communication and positive working relationships. <ol style="list-style-type: none"> 1. Ensure government and private/Independent school communities are aware of the provisions in the <i>Tasmanian Public Health Act 1997</i> to enable sharing of information between schools, local councils and the Tas-DoH for the purposes conducting and evaluating participation in school-based vaccination programs. (Tasmanian-Government, 2022) 2. As per recommendation for Theme 1: 2.1

4. Needs of parents and students from priority population groups not addressed in overall program design (low SES, low English reading literacy or health literacy)

1. Connect with and encourage use of existing resources: e.g. Tasmanian Libraries with literacy and translation support and the Tasmanian literacy and numeracy network (26TEN).
2. Clearly state and define who is eligible to sign the consent.
3. Consider involvement from Centrelink with reminder of vaccination with impact to social payments.
4. As per recommendations for Theme 1: 1.2.b, c, e; 1.5, & 1.6, and Theme 2: 2.1 to 2.3

Theme 2. Knowledge, shared information, and decision-making

Facilitators

1. Information is shared clearly between council-school-parents (e.g., information on the consent form for parents; informative items shared by council for schools to include newsletter)
2. Parents are aware of how to contact the council if they require additional information.
3. Parents who have discussed the HPV vaccine and its importance with their adolescent
4. Ease of understanding vaccination information provided on the consent form
5. Parents who trust government recommendations

Theme 2. Barriers

1. Adolescents being unaware that vaccines will occur that day and unaware of what the HPV vaccine is for (contributes to anxiety).
2. Parents/guardians who still believe the HPV vaccine is for females and/or consider it a new vaccine.
3. Difficulty understanding vaccination information provided on the consent form.
4. Negative media about HPV vaccination (mainstream or social).
5. Lack of trust in government advice.

Theme 2. Recommendations by participants

1. Promote access to information through:
 - a. Provision of information in Grade 6 and 7 health and/or science classes to cover vaccination preventable diseases.
 - b. Provision of information/links to resources for school administrative staff more to share with students, parents/guardians as required.
 - c. Sharing council contact details for further advice.
1. Provide parents/guardians with links to additional evidence-based resources, particularly in relation to HPV vaccine for males and females:
 - a. Videos, emails, online apps.
 - b. Available in multiple languages.
2. Leveraging information via parents and friends' associations (public and private).
3. Provide health and education staff with key discussion points for conversations regarding why HPV vaccination is important for males too.
4. As per recommendations for Theme 1: 1.2 & 1.6 and Theme 2: 1.1
1. Develop resources to support parents/guardians to discuss HPV vaccination with adolescents in an 'easy to understand' manner.
2. Vaccination information to have clear focus on:
 - a. What the vaccine is.
 - b. What the vaccine is for.
 - c. What it can do for you.
 - d. Keep information to a 'short and sharp' message.
 - e. DoH to consider television advertisement.
3. As per recommendations for Theme 1: 1.2.b, c; and Theme 2: 1.1a
1. Share link to frequently asked questions on the National Centre for Immunisation Research and Surveillance (NCIRS)
2. Develop strategies to increase primary healthcare providers (e.g. general practitioners) encouragement of HPV vaccination.
3. Provide parent forums.
4. As per recommendations for Theme 2: 1.1.a
1. Explanation of why vaccination matters, e.g. people with lived experiences of HPV related cancers.
2. Provide information using neutral language (i.e. not from the presumption that the consent will be automatically affirmative).
3. Consider seeking HPV vaccination statement of support from organisations not associated with National Immunisation Program (e.g. the Cancer Council).

Theme 3. Environment and setting

Facilitators

1. Strategies adopted by council and school personnel to support students (e.g. smaller student groups waiting for vaccination, vaccination anxious students first, diversion strategies)
2. Vaccination space that provides privacy for students
3. Vaccination is a priority of families and schools

Theme 3. Barriers	Theme 3. Recommendations by participants
<ol style="list-style-type: none"> 1. Escalation of adolescent anxiety contributes to heightened mood & influences mood of other students 2. Vaccination space is unprepared for council team when they arrive 3. Space not conducive to providing privacy or pre & post vaccination areas in the same space 4. Hierarchy of needs – other requirements or needs of parents/guardians taking priority over vaccination. 	<ol style="list-style-type: none"> 1. Provision of fidget toys. 2. Teaching assistants being available to support anxious students. 3. Provide parents/guardians with option on consent form to identify potential anxiety and strategies to assist adolescent. 4. Flag choice/option to receive vaccination elsewhere for anxious adolescents. 5. Phone the parent during the vaccination process to allow the adolescent to speak with them while being vaccinated. 6. Ensure adequate privacy during vaccination process in schools. 7. As per recommendations for Theme 2: 1.1.a 1. Highlight specifications as per program guidelines (links to recommendation 1.2.2). 2. Ensure vaccination 'flow', 2 doors (entry and exit) with separate pre- and post-vaccination waiting spaces. 3. School libraries can be a useful option, quieter than other areas within the school. 4. Onsite visits prior to vaccination day for schools and councils to select a suitable space. 5. Clear line-of-sight post vaccination. 1. As per recommendations for Theme 3: 2.1 and 2.2 2. 'Scout out' venue prior to vaccination day and confirm the day before. Points to consider for the vaccination space: <ol style="list-style-type: none"> a. Pre-vaccination area is the most critical to how well it goes: where it is in relation to the post-vaccination area. b. Separate room/space for students waiting for vaccinations (not hallway). c. School staff assisting with vaccination day programs would ideally be experienced and able to direct students. d. Adolescents who may become disruptive identified by the school with option to vaccinate first and/or separately. e. Potential conversations with anxious students: 3. Distractions – Identify strategies for pre-vaccination 'distractions' to avoid escalation. For example: <ol style="list-style-type: none"> a. Questions like: 'how many parts of the body can you think of that have three letters?' 'What class are you missing?' b. Therapy dogs help a lot of the kids or school support volunteer (e.g. school grandma). c. Use of a calming video in the post-vaccination area. 4. Availability of school staff member with good rapport with students who provides support and keeps the 'mood light'. 5. Delay the dose so it is later in school year so there is more rapport between adolescents and school staff. 1. Getting the word out regarding the time of year for target vaccinations. <ol style="list-style-type: none"> a. Attempt to avoid events such as NAPLAN and big school sporting events. b. Earlier in the year tends to be better (as the year goes on students have fatigue) c. Avoid flu season (July/August) 2. As per recommendations for Theme 2: 2.1, 3.1 and 3.2

Theme 4. Relationships, communication, and leadership

Facilitators

1. Clear communication between council-school-parents-adolescents
2. Well-established relationships between school and vaccination staff
3. Council and school staff are proactive in promoting the program (and consent form return)
4. Council and school personnel have a clear understanding of their roles

Theme 4. Barriers	Theme 4. Recommendations by participants
<p>1. Breakdown in communication at any point between council-school-parents-adolescents</p>	<ol style="list-style-type: none"> 1. Clear lines of communication are prioritised when sharing information between councils-schools-families. 2. Development of processes to improve communication between councils, schools, the DECYP, independent school governing bodies, and the Tas-DoH, including building greater understanding of information-sharing to support school-based vaccination programs. 3. Allocation of a vaccination leader (champion) at each school who has a key role in communication between providers, schools, and families. 4. Identify key contact within the DECYP for communication regarding school-based vaccination programs if/when required.
<p>2. Lack of communication with students about vaccination</p>	<ol style="list-style-type: none"> 1. As per recommendations for Theme 2: 1.1.a, 3.1 and 3.2 2. Potential for DoH and DECYP to work together to develop educational resources. 3. Engage providers and adolescents in the design of educational communications (possible approach older adolescents and ask what they would have liked to know in year 7).
<p>3. Council or school personnel who do not foster relationships supportive of vaccination (e.g., a teacher jokes with the students about the size of the needle, or council staff not being welcoming to students)</p>	<ol style="list-style-type: none"> 1. School-level understanding of the importance of vaccination. 2. Education for teachers on appropriate conversations for adolescents regarding vaccination (including, why jokes about the size of the needle are unhelpful) 3. Provide students with an opportunity to ask questions about vaccination - in consideration of child safety and psychosocial health it is not appropriate to 'just jab' students. 4. Ensure vaccination staff have breaks to relieve stress (especially important in schools where adolescents present with challenging behaviour towards vaccination staff).
<p>4. Limitations in the support provided by school personnel to council staff on vaccination day</p>	<ol style="list-style-type: none"> 1. As per recommendations for Theme 4: 1.3 2. School and council staff prioritise the role of the school's vaccination day support staff who assist with managing waiting processes. The school's vaccination support person should be first aid certified and able to recognise expected and unexpected reactions to vaccines. 3. Develop a clear understanding of the school nurse in relation to providing vaccination education and support to students on vaccination day. 4. Ensuring all teachers know that it is vaccine day so they don't plan something.

Theme 5. Parents' and adolescents' experiences

Facilitators

1. Predetermined decisions by parents to receive all recommended vaccinations for their adolescent
2. Increased media around vaccination during COVID-19 did not alter parents' decision-making around HPV vaccination
3. Positive past experiences with vaccination
4. Culturally diverse families more accepting of vaccinations (perceived)

Theme 5 Barriers

1. Poor past experiences of parents in school-based vaccination programs and/or adolescents who have had poor past experiences with healthcare services
2. Parents responsible for organising out-of-school catch-up vaccination (particularly during COVID-19 lockdowns and rollout of COVID-19 vaccination)
3. Families from lower socio-economic backgrounds who experience poor health literacy and challenges with hierarchy of needs.

Theme 5 Recommendations

It is anticipated that by addressing the above recommendations for themes 1 to 4 that the experiences of parents and adolescents will be improved and will work towards mitigating the identified barriers.