

## INTRODUCTION OF *GARDASIL*<sup>®</sup>9 IN A 2-DOSE SCHEDULE UNDER THE SCHOOL-BASED NATIONAL IMMUNISATION PROGRAM (NIP)

### Overview of the key changes to the NIP-funded school-based human papillomavirus (HPV) vaccination program

- From January 2018, individuals aged approximately 12 to 14 years will be offered the 9-valent HPV vaccine (*Gardasil*<sup>®</sup>9) in a 2-dose schedule through school based programs.
  - *Gardasil*<sup>®</sup>9 replaces the 4-valent HPV vaccine (*Gardasil*<sup>®</sup>), for which a 3-dose schedule has been used.
- *Gardasil*<sup>®</sup>9 includes the HPV types covered by *Gardasil*<sup>®</sup> (6, 11, 16 and 18) plus an additional five oncogenic HPV types (31, 33, 45, 52 and 58).
  - *Gardasil*<sup>®</sup>9 therefore extends the protection against disease caused by HPV.
- The two doses of *Gardasil*<sup>®</sup>9 should be administered 6 to 12 months apart.
  - If the second dose is inadvertently received at less than 5 months after the first dose, a third dose is required.
- Immunocompromised individuals (with select major medical conditions) require three doses of *Gardasil*<sup>®</sup>9 to attain adequate protection.
  - Immunocompromised individuals aged approximately 12 to 14 years are able to receive 3 doses of the vaccine through the NIP, which should be administered at 0, 2 and 6 months.
  - Given scheduling of school programs, immunocompromised individuals may require referral to their treating GP or primary care provider to ensure the completion of all 3 doses of *Gardasil*<sup>®</sup>9 vaccination.

### ATAGI recommendations for use of *Gardasil*<sup>®</sup>9 in NIP-school based vaccination programs

#### Background

The National HPV Vaccination Program, which commenced in 2007, has been credited with dramatically reducing the incidence of the HPV infection and disease in Australia. From 2007 to the end of 2015, there has been a more than 90 per cent reduction in genital warts among Australian-born women and heterosexual men aged 21 years or younger attending sexual health clinics. In 2015, the proportion of people diagnosed with genital warts in both these groups was less than 1 per cent.

High grade cervical abnormalities have also declined, with detection rates declining between 2006 and 2014 by 62 per cent in women aged 20 years or younger, and 35 per cent in women aged 20–24 years.

*Gardasil*<sup>®</sup>9 has been registered in Australia for use in a two dose schedule since 11 July 2017. Two doses of *Gardasil*<sup>®</sup>9 spaced at least six months apart have been proven to have equivalent immunogenicity and clinical protection in individuals aged 9–14 years compared to a 3-dose schedule.

*Gardasil*<sup>®</sup>9 will continue to provide similar protection to *Gardasil*<sup>®</sup> against infection and associated disease caused by HPV types 6, 11, 16 and 18, and will further protect against five oncogenic HPV types unique to *Gardasil*<sup>®</sup>9 (HPV types 31, 33, 45, 52 and 58).

Among Australian women, these five HPV types cause an additional 15% of all cervical cancers, above those due to HPV 16 and 18. Moving to a HPV vaccine that covers extra oncogenic HPV types in a schedule with one less dose is anticipated to improve HPV vaccination coverage and disease prevention.

The following evidence-based clinical guidance is to assist NIP school based programs in the move from *Gardasil*<sup>®</sup> to *Gardasil*<sup>®</sup>9. A separate document will become available prior to the commencement of the NIP school based programs and will provide further guidance for immunisation providers on additional scenarios relating to HPV vaccination.

## General Recommendations

- Vaccination providers administering *Gardasil*<sup>®</sup>9 through school based programs to young individuals aged 12 to 14 years should ensure an interval of 6 to 12 months between the two doses.
  - *While there is no upper time interval or age (although not exceeding the maximum age registered for use of Gardasil<sup>®</sup>9) for administration of their second dose for those individuals who receive their first dose before turning 15 years, it is important to ensure timely completion of the schedule, and preferably before sexual debut, to maximise protection.*
  - *If the second dose is inadvertently received at <6 months but ≥5 months after the first dose, a third dose is not required, as clinical trial data support this interval still being sufficiently immunogenic. However, if the second dose is received less than 5 months after the first dose, a third dose is required, to be given at least 12 weeks after the second dose and at least 5 months after the first dose, whichever is later.*
- Select immunocompromised individuals require three doses of *Gardasil*<sup>®</sup>9, delivered at 0, 2, and 6 months.
  - *Includes individuals with the following major medical conditions: primary or secondary immunodeficiencies (B lymphocyte antibody and T lymphocyte complete or partial deficiencies); HIV infection; malignancy; organ transplantation; or significant immunosuppressive therapy (excluding asplenia or hyposplenia)<sup>1</sup>.*
  - *Given the service model of school based programs, please consider referral of these immunocompromised individuals to their General Practitioner or primary care provider to ensure they receive vaccines as recommended.*
- *Gardasil*<sup>®</sup>9 can be safely and effectively used to complete a schedule started with *Gardasil*<sup>®</sup> or *Cervarix*<sup>®</sup> (the 2 valent HPV vaccine).
  - *Individuals who commenced a Gardasil<sup>®</sup> schedule and complete it with Gardasil<sup>®</sup>9 will be adequately protected against the 4 HPV types covered by Gardasil<sup>®</sup>.*
- Re-vaccination with *Gardasil*<sup>®</sup>9 is not routinely recommended for individuals who have already completed a full schedule with either *Gardasil*<sup>®</sup> or *Cervarix*<sup>®</sup> vaccine.

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<sup>1</sup> The recommendation for a 3-dose schedule does not apply to children aged ≤14 years with asplenia, asthma, chronic granulomatous disease, chronic heart/liver/lung/renal disease, CNS anatomic barrier defects (e.g., cochlear implant), complement deficiency, diabetes, or sickle cell disease, in the absence of any of the above conditions.

- Individuals who have already received a completed schedule of Gardasil® through the NIP are not eligible for free Gardasil®9 vaccination.
- Refer to the *Australian Immunisation Handbook* if the individual:
  - is aged 15 years or more when the first dose of Gardasil®9 was received, as 3 doses of Gardasil®9 would then be required. Note: only 2 doses of Gardasil®9 are funded through the NIP for each of these individuals.

## Specific recommendations for using Gardasil®9 to complete an HPV vaccine schedule commenced with another HPV vaccine

Individuals who have commenced but not completed a vaccine course with Gardasil® or Cervarix® can complete their schedule with Gardasil®9 as shown in Table 1 below.

Table 1. Recommendations regarding doses of Gardasil®9 vaccine required for those who have already received one or more doses of another HPV vaccine (Gardasil® or Cervarix®) at age ≤14 years\*

Number of HPV vaccine doses (any type) received previously at age ≤14 years †‡	Further Gardasil®9 vaccine doses recommended‡
<b>1 dose</b>	1 dose at least 6 months after the previous dose.
<b>2 doses with &lt;6 months between doses</b>	<p>If the second dose is inadvertently received at &lt;6 months but ≥5 months after the first dose, a third dose is not required.</p> <p>If the second dose is received less than 5 months after the first dose, a third dose is required, to be given at least 12 weeks after the second dose and at least 5 months after the first dose, whichever is later.</p> <p>Reference to your state or territory health department and/or the <i>Australian Immunisation Handbook</i> 2018 update may also be required.</p>
<b>2 doses with ≥6 months between doses</b>	None β.
<b>≥3 doses</b>	None β, if minimum intervals for a 3-dose schedule are met#

\*Individuals who are aged ≥15 years (i.e. on or passed their 15th birthday) at the time of their first HPV vaccine dose require a 3-dose HPV vaccine schedule. More detailed advice is provided in the *Australian Immunisation Handbook* 2018 update.

†Recommendations for 2 dose schedule and minimum acceptable intervals for 3 dose schedule are the same regardless of the type of HPV vaccine already received (i.e. all Cervarix®, all Gardasil® or combination of both)

‡For select immunocompromised individuals, a 3-dose schedule (at 0, 2 and 6 months) is required for adequate protection against vaccine-type HPV. Refer to the *Australian Immunisation Handbook* 2018 update.

β Gardasil®9 vaccine doses for protection against the extra HPV types, in individuals who have previously completed either a Cervarix® or Gardasil® vaccine course is neither routinely recommended nor funded under the NIP.

# All of the following recommended minimum intervals for a 3-dose schedule have to be satisfied: at least 4 weeks between dose 1 and dose 2; at least 12 weeks between dose 2 and dose 3; and at least 5 months between dose 1 and dose 3.