Australian Government

Department of Health and Ageing

Australian Technical Advisory Group on Immunisation (ATAGI)

Use of pandemic and seasonal influenza vaccines in children <10 years of age

Recommendations

1. Children aged ≥6 months to <10 years planning to receive seasonal influenza vaccine in 2010:[1, 2]

    a. Previously received two doses of seasonal vaccine
        i. one dose of Panvax® as soon as practicable
        ii. one dose of seasonal influenza vaccine ≥28 days after Panvax®

    b. No previous seasonal vaccine or one dose only
        i. one dose of Panvax® as soon as practicable
        ii. two doses of seasonal influenza vaccine, separated by at least one month, ≥28 days after Panvax®

2. Children aged ≥6 months to <10 years either not planning to receive seasonal influenza vaccine in 2010[1] or travelling to the northern hemisphere before the availability of the 2010 seasonal influenza vaccine:

    a. two doses of Panvax®, ≥28 days apart

Administration: Panvax® is administered intramuscularly.

1. Seasonal influenza vaccine is funded under the National Immunisation Program (NIP) **only** for children at increased risk of complications from influenza infection as set out in *The Immunisation Handbook* (9th Edition) pages 190 –191. In Western Australia, all children aged <5 years are eligible to get the vaccine free via the WA jurisdictional influenza program. Seasonal influenza vaccine is recommended for all other children aged ≥6 months who wish to reduce the risk of contracting influenza and is available via private prescription.
2. Pandemic H1N1 influenza vaccine is funded for all children and adults through the Pandemic H1N1 (2009) Vaccination Program.

a. Background

Panvax® was registered for use in persons aged ≥10 years in September 2009. Initial rollout of the vaccine was targeted at all persons aged ≥10 years, with priority for those at increased risk of complications from pandemic H1N1 influenza. Registration for use in children aged <10 years required specific trial data on immunogenicity and safety of different antigenic concentrations. From 2010, all children with specified medical conditions are eligible for seasonal influenza vaccine under the NIP. These

children are also the highest priority for pandemic H1N1 influenza vaccine. Children aged <3 years, with and without specific risk factors, have the highest incidence of hospitalisation from both seasonal and pandemic H1N1 influenza. The dosage schedule below considers children who are and who are not planning to receive seasonal influenza vaccine in 2010 separately.

b. Dosage schedule of pandemic H1N1 influenza vaccine by age group

On 3 December 2009, Panvax® was registered for use by the Therapeutic Goods Administration (TGA) in children ≥6 months to <10 years of age (Table 1).
For children aged ≥6 months but <3 years, two doses of 7.5 µg (0.25 mL) are recommended, and for children aged ≥3 years to <10 years, two doses of 15 µg (0.5 mL) are recommended.

- Single pre-filled syringes are currently only available as 7.5 µg (0.25 mL).
- From a multi-dose vial, the same volumes apply: 0.25 mL for children aged ≥6 months to <3 years and 0.5 mL for those aged ≥3 years to <10 years.

Panvax® is administered **intramuscularly**.

Table 1: Dosage schedule for pandemic H1N1 influenza vaccine and 2010 seasonal influenza vaccine (pandemic H1N1, H3N2, B)

Age	Pandemic H1N1 influenza vaccine	2010 Seasonal influenza vaccine
≥6 months to <3 years	**0.25 mL (7.5 µg)**, 1 or 2* doses Panvax® Junior H1N1 pre-filled syringe *or* Panvax® H1N1 multi-dose vial	0.25 mL, 1 or 2 doses†‡
≥3 years to <10 years	**0.5 mL (15 µg)** 1 or 2* doses (only available as Panvax® H1N1 multi-dose vial)	0.5 mL, 1 or 2 doses† ‡
≥10 years	0.5 mL (15 µg), 1 dose	0.5 mL, 1 dose

*The same vaccine vial should not be re-used for the 2 doses.
† Two doses of seasonal influenza vaccine at least 1 month apart are recommended for children aged <10 years who receive influenza vaccine for the first time. Irrespective of the number of doses of pandemic H1N1 influenza vaccine received, two doses are required to achieve an adequate immune response to the other influenza A (H3N2) strain and the influenza B component of the seasonal influenza vaccine.
‡If a child ≥6 months to <10 years of age receiving seasonal influenza vaccine for the first time does not receive the second dose in the same year, two doses are needed the following year.

c. Rationale for one dose of pandemic H1N1 influenza vaccine in children planning to receive the 2010 seasonal influenza vaccine

The recommendation to administer one dose of Panvax® if subsequent vaccination with the 2010 seasonal influenza vaccine is planned is based on the following factors:

- Unpublished immunogenicity data shows good responses to one dose of pandemic H1N1 influenza vaccine in children of all ages.
- The 2010 southern hemisphere seasonal influenza vaccine formulation contains the pandemic H1N1 influenza strain in addition to H3N2 and B influenza strains, so responses to a single dose of Panvax® will be "boosted" following administration of the seasonal influenza vaccine.
- Australia currently has very low pandemic H1N1 influenza activity, unlike the northern hemisphere where pandemic H1N1 influenza notifications remained high during the northern hemisphere spring and summer.
- Seasonal influenza vaccine is expected to be available from March-April 2010.
- For children who have had no prior influenza vaccination, it is likely there would be problems with acceptance and delivery of four doses of influenza vaccine (pandemic H1N1 followed by seasonal).

Children aged ≥6 months to <10 years travelling to the northern hemisphere before March 2010 are substantially more likely to be exposed to and develop infection from pandemic H1N1 influenza. ATAGI recommends that such children receive two doses of Panvax®, administered ≥28 days apart.

d. Questions & answers

1. If a child aged between ≥6 months and <10 years has received two age-appropriate, valid doses of seasonal influenza vaccine during the 2009 winter or two doses of seasonal influenza vaccine in previous years, and is planning to receive the 2010 seasonal influenza vaccine, do they still need two doses of Panvax®?

No – such children require:

- one dose of Panvax® as soon as practicable.
- one dose of seasonal influenza vaccine as soon as practicable but ≥28 days after Panvax®. The 2010 southern hemisphere seasonal influenza vaccine formulation contains pandemic H1N1 influenza strain in addition to H3N2 and B influenza strains, so responses to a single dose of Panvax® will be "boosted" following administration of the seasonal influenza vaccine.

2. If a child aged between ≥6 months and <10 years has received two age-appropriate, valid doses of seasonal influenza vaccine in the past, but is not planning to receive seasonal influenza vaccine during the 2010 season, do they still need two doses of Panvax®?

Yes – two doses of Panvax® should be administered ≥28 days apart. Adequate short term protection is expected following only one dose of Panvax® but two doses will provide longer term protection.

3. If a previously unvaccinated child aged between ≥6 months and <10 years has received two age-appropriate, valid doses of Panvax®, how many doses of seasonal influenza vaccine do they need?

If the child has never had any seasonal influenza vaccine administered previously, they require two doses of seasonal influenza vaccine. This is important because the seasonal influenza vaccine contains three influenza virus strains, two type A (pandemic H1N1 and H3N2) and one type B. Two doses are required for effective protection of naïve children against H3N2 and B strains.

4. If a previously unvaccinated child aged between ≥6 months and <10 years has received one age-appropriate, valid dose of Panvax® and is not planning to receive seasonal influenza vaccine during the 2010 season:

- **Do they require a second dose of Panvax®?**

Yes – a second dose of Panvax® should be administered ≥28 days later. Adequate short-term protection is expected following only one dose of Panvax® but two doses will provide longer term protection.

5. If a previously unvaccinated child aged between ≥6 months and <10 years has received one age-appropriate, valid dose of Panvax® and is planning to receive seasonal influenza vaccine:

- **Do they require a second dose of Panvax®?**

No – unless travelling to the northern hemisphere before receiving seasonal influenza vaccine.

- **How many doses of seasonal influenza vaccine do these children need?**

Two doses of seasonal influenza vaccine are required irrespective of the number of doses of Panvax® administered. The seasonal influenza vaccine contains three strains, two type A (pandemic H1N1 and H3N2) and one type B. Two doses are required for the child to be protected against the H3N2 and B strains. However, if a child had received one dose of Panvax® and then two doses of seasonal influenza vaccine, this child would be considered fully vaccinated against pandemic H1N1 influenza.

6. If a child aged between ≥6 months and <10 years is travelling to the northern hemisphere, how many doses of Panvax® should they receive?

Children aged ≥6 months to <10 years travelling to the northern hemisphere before the availability of the 2010 seasonal influenza vaccine require:

- two doses of Panvax®, administered ≥28 days apart. Adequate short - term protection is expected following only one dose of Panvax® but two doses will provide longer term protection.

7. If a previously unvaccinated child aged between ≥6 months and <10 years has one dose of Panvax® now and one dose of seasonal influenza vaccine (containing pandemic 2009 H1N1 influenza antigen) this autumn (e.g. March 2010) would they be considered adequately vaccinated against the pandemic H1N1 virus?

Yes – this child would be considered adequately vaccinated against pandemic H1N1 influenza, as long as there was a minimum interval of 28 days between these two vaccines.

- **Would this child be adequately vaccinated against the H3N2 and/or B strains contained in the 2010 seasonal influenza vaccine?**

No – if the child has received one dose of 2010 seasonal influenza vaccine previously, they require a second dose of seasonal influenza vaccine with a minimum interval of 28 days between these two doses for effective protection of naïve children against the H3N2 and B strains.

8. What about co-administration of Panvax® concurrently with other vaccines?

ATAGI recommends that Panvax® can be administered at the same time (but at a different site, via separate syringes) as other vaccines, including all vaccines on the NIP schedule. Immunisation providers should take advantage of scheduled visits for NIP funded vaccines to offer Panvax® to young children.

9. What about the interval required between Panvax® and NIP scheduled vaccines not given on the same day?

Panvax® is an inactivated vaccine and therefore can be administered at anytime before or after other inactivated and/or live vaccines.
