Pre-pregnancy and pregnancy related vaccinations

This statement has been developed and reviewed by the Women’s Health Committee and approved by the RANZCOG Board and Council.

A list of Women’s Health Committee Members can be found in Appendix A.

Disclosure statements have been received from all members of this committee.

Disclaimer: This information is intended to provide general advice to practitioners. This information should not be relied on as a substitute for proper assessment with respect to the particular circumstances of each case and the needs of any patient. This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The document has been prepared having regard to general circumstances.

Background: This statement was first developed by Women’s Health Committee in March 2011 and most recently reviewed in July 2019.

Target audience: Health care professionals providing maternity care.

Funding: The development and review of this statement was funded by RANZCOG.

First endorsed by RANZCOG: March 2011
Current: July 2019
Review due: July 2022
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1. **Introduction**

This statement aims to provide guidance in relation to:

- The safety of vaccinations \(^1\) and which ones should be avoided during pregnancy
- Vaccinations recommended for partners and family members
- Influenza vaccine during pregnancy \(^1\)
- Administration of Pertussis vaccination in the third trimester \(^2\)

2. **Summary of recommendations**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>Pre-conceptually, a review and boosting of immunisations is recommended. If chickenpox (Varicella zoster virus or VZV) exposure or immunisation is uncertain, immune status can be checked by quantifying VZV immunoglobulin G (VZV IgG) and offering vaccination to non-immune women. If previous rubella exposure or immunisation is in doubt, Rubella IgG can be measured, and booster immunisation (usually as Mumps, Measles, Rubella or MMR) offered to non-immune women and those with low immunity.</td>
<td>Consensus-based recommendation</td>
</tr>
<tr>
<td>VZV and MMR are live immunisations. Women should be advised to avoid conception for 28 days after live immunisations and these should not be administered in pregnancy.</td>
<td>Consensus-based recommendation</td>
</tr>
<tr>
<td>During pregnancy pertussis and influenza immunisation is recommended.</td>
<td>Consensus-based recommendation</td>
</tr>
<tr>
<td>Pertussis (whooping cough) booster immunisation is recommended as a single dose in each pregnancy. The ideal timing of the booster is between mid 2nd trimester and early 3rd trimester (between 20 to 32 weeks gestation).</td>
<td>Consensus-based recommendation</td>
</tr>
<tr>
<td>Healthcare workers and close family should ensure that their pertussis vaccination is up-to-date. All healthcare workers are recommended to receive dTpa vaccine every 10 years because of the significant risk of transmitting pertussis to vulnerable patients.</td>
<td>Consensus-based recommendation</td>
</tr>
<tr>
<td>Influenza vaccination is considered safe (^1) and is strongly recommended every time a woman is pregnant during the influenza season given the association of influenza with severe maternal illness and perinatal complications (^3) without a recognised teratogenic syndrome.</td>
<td>Consensus-based recommendation</td>
</tr>
</tbody>
</table>
3. Discussion and recommendations

3.1 Pre-conception

All women considering pregnancy or pregnant, should be aware of their vaccination status and, if uncertain, liaise with their general practitioner or lead maternity carer.

Pre-conceptually, a review and boosting of immunisations is recommended.

If chickenpox (Varicella zoster virus or VZV) exposure or immunisation is uncertain, immune status can be checked by quantifying VZV immunoglobulin G (VZV IgG) and offering vaccination to non-immune women.

Similarly, if previous rubella exposure or immunisation is in doubt, Rubella IgG can be measured, and booster immunisation (usually as Mumps, Measles, Rubella or MMR) offered to non-immune women and those with low immunity.

Note that currently available VZV and MMR are live immunisations. Women should be advised to avoid conception for 28 days after live immunisations.

Pre-pregnancy may be a good time for adults to catch up if they have a sub-optimal immunisation history. This is common among immigrants from low income countries, including refugee women. The Australian Immunisation Handbook provides further guidance. Immunisation practitioners, particularly general practitioners and infectious diseases physicians can tailor an immunisation program to the woman’s needs, taking into account pregnancy planning.

Pre-pregnancy is also an optimal time to complete other vaccination programs, such as Human papilloma virus and/or Hepatitis B. Hepatitis C and HIV are not currently prevented by immunisation. Diagnosis and optimising lifelong care of women with one or both of these viral conditions is ideally done before pregnancy but can be commenced in pregnancy. Several diseases of perinatal significance are not currently preventable by immunisation, including Listeriosis, Salmonella, Toxoplasmosis and Cytomegalovirus (CMV). Perinatal infection can be minimised by hygiene measures. Respiratory and other body fluid hygiene measures which reduce congenital CMV are described in:


Food hygiene measure which reduce congenital Listeria are described in


3.2 During pregnancy

During pregnancy pertussis and influenza immunisation is recommended.

Pertussis immunisation

Vaccination during pregnancy reduces the risk of pertussis in pregnant women and their young infants, particularly before the age of first infant immunisation (usually 6 to 8 weeks of age). This is due to direct passive protection by transplacental transfer of high levels of pertussis antibodies from the vaccinated mother to the fetus during pregnancy.

Pertussis booster immunisation is recommended with each pregnancy, including pregnancies that are closely spaced, to provide maximal protection to every infant. This is because vaccine-induced pertussis antibody levels wane over time and the antibody level needed in mothers to pass on immunity to newborn infants is unknown.
As pertussis antibody levels do not peak until approximately 2 weeks after vaccination and active transport of maternal antibody to the fetus occurs predominantly from 30 weeks gestation, the optimal timing for vaccination is between mid 2nd trimester and early 3rd trimester (between 20 to 32 weeks gestation). However, the vaccine can be given at any time during the third trimester up to delivery. If given within 2 weeks of delivery, the newborn may not be adequately protected.

Women vaccinated prior to 20 weeks gestation do not need repeat vaccination in the same pregnancy. Evidence shows transfer of pertussis antibodies to the infant in women who received dTpa vaccine as early as 13 weeks gestation.

An alternative strategy of vaccinating new mothers is probably ineffective unless other household contacts are immunised in a timely fashion, known as "cocooning". This is still not as effective as antenatal immunisation.

**Influenza immunisation**

Influenza vaccination is considered safe and is strongly recommended every time a woman is pregnant given the association of influenza with severe maternal illness and perinatal complications without a recognised teratogenic syndrome. Influenza immunisation protects the mother, and reduces the risk of stillbirth, young infant influenza infection, hospitalisation and death. Vaccination in the 2nd or 3rd trimester elevates newborn antibody levels. Vaccination in 1st trimester is not proven to be dangerous but possible waning vaccine effectiveness over 3 to 6 months may make midtrimester timing more effective.

The timing of vaccination should be considered in relation to the influenza season and vaccine availability. Women who received the previous year’s seasonal influenza vaccine early in their pregnancy should receive the current seasonal influenza vaccine (when it becomes available) later in the same pregnancy.

Inactivated bacterial or viral vaccinations have not been proven harmful to the fetus but information about rare events such as anaphylaxis during pregnancy is not completely known. The risks of immunisation compared with contracting a vaccine-preventable disease need to be assessed by the pregnant woman in conjunction with expert clinicians who understand her biopsychosocial needs. The American College of Obstetricians and Gynecologists lists immunisation against meningococcus, pneumococcus, hepatitis B and hepatitis A as example vaccines which “may be given during pregnancy in certain populations”.

RANZCOG encourages all women, their families and health care providers to review the current and regularly updated vaccination recommendations published by Australian and New Zealand Health departments and government / state bodies. The future of maternal vaccination is likely to change and may broaden to include diseases additional to the current focus of influenza and pertussis.

Health care workers should be aware that specific recommendations may change with seasonal or pandemic risks so regular review of vaccination advice is warranted.
4. References


5. Useful Links

The Australian Immunisation Handbook

New Zealand Immunisation Handbook
https://www.health.govt.nz/your-health/healthy-living/immunisation/immunisation-pregnant-women

Patient Information brochure

6. Links to other College statements

Evidence-based Medicine, Obstetrics and Gynaecology (C-Gen 15)

Influenza vaccination during pregnancy (and in women planning pregnancy) (C-Obs 45)

Pre Pregnancy Counselling (C-Obs 3a)

Management of Hepatitis C in Pregnancy (C-Obs 51)

Guidelines for HPV Vaccine (C-Gyn 18)

Prevention of congenital cytomegalovirus (CMV) infection (C-Obs 64)

7. Patient information

A range of RANZCOG Patient Information Pamphlets can be ordered via:
https://www.ranzcog.edu.au/Womens-Health/Patient-Information-Guides/Patient-Information-Pamphlets
Appendices

Appendix A Women’s Health Committee Membership

<table>
<thead>
<tr>
<th>Name</th>
<th>Position on Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor Yee Leung</td>
<td>Chair and Board Member</td>
</tr>
<tr>
<td>Dr Gillian Gibson</td>
<td>Deputy Chair, Gynaecology</td>
</tr>
<tr>
<td>Dr Scott White</td>
<td>Deputy Chair, Obstetrics and Subspecialties Representative</td>
</tr>
<tr>
<td>Associate Professor Ian Pettigrew</td>
<td>Member and EAC Representative</td>
</tr>
<tr>
<td>Dr Kristy Milward</td>
<td>Member and Councillor</td>
</tr>
<tr>
<td>Dr Will Milford</td>
<td>Member and Councillor</td>
</tr>
<tr>
<td>Dr Frank O’Keefe</td>
<td>Member and Councillor</td>
</tr>
<tr>
<td>Professor Sue Walker</td>
<td>Member</td>
</tr>
<tr>
<td>Dr Ray Watson</td>
<td>Member and Councillor</td>
</tr>
<tr>
<td>Dr Susan Fleming</td>
<td>Member and Councillor</td>
</tr>
<tr>
<td>Dr Sue Belgrave</td>
<td>Member and Councillor</td>
</tr>
<tr>
<td>Dr Marilyn Clarke</td>
<td>ATSI Representative</td>
</tr>
<tr>
<td>Associate Professor Kirsten Black</td>
<td>Member</td>
</tr>
<tr>
<td>Dr Thangeswaran Rudra</td>
<td>Member</td>
</tr>
<tr>
<td>Dr Nisha Khot</td>
<td>Member and SIMG Representative</td>
</tr>
<tr>
<td>Dr Judith Gardiner</td>
<td>Diplomate Representative</td>
</tr>
<tr>
<td>Dr Angela Brown</td>
<td>Midwifery Representative</td>
</tr>
<tr>
<td>Ms Ann Jorgensen</td>
<td>Community Representative</td>
</tr>
<tr>
<td>Dr Rebecca Mackenzie-Proctor</td>
<td>Trainee Representative</td>
</tr>
<tr>
<td>Prof Caroline De Costa</td>
<td>Co-opted member (ANZJOG member)</td>
</tr>
</tbody>
</table>

Appendix B Overview of the development and review process for this statement

i. **Steps in developing and updating this statement**

This statement was originally developed in July 1992 and was most recently reviewed in July 2019. The Women’s Health Committee carried out the following steps in reviewing this statement:

- Declarations of interest were sought from all members prior to reviewing this statement.
- Structured clinical questions were developed and agreed upon.
- An updated literature search to answer the clinical questions was undertaken.
- At the May teleconference, the existing consensus-based recommendations were reviewed and updated (where appropriate) based on the available body of evidence and clinical expertise. Recommendations were graded as set out below in Appendix B part iii)

ii. **Declaration of interest process and management**

Declaring interests is essential in order to prevent any potential conflict between the private interests of members, and their duties as part of the Women’s Health Committee.

A declaration of interest form specific to guidelines and statements was developed by RANZCOG and approved by the RANZCOG Board in September 2012. The Women’s Health Committee members were required to declare their relevant interests in writing on this form prior to participating in the review of this statement.
Members were required to update their information as soon as they became aware of any changes to their interests and there was also a standing agenda item at each meeting where declarations of interest were called for and recorded as part of the meeting minutes.

There were no significant real or perceived conflicts of interest that required management during the process of updating this statement.

### iii. Grading of recommendations

Each recommendation in this College statement is given an overall grade as per the table below, based on the National Health and Medical Research Council (NH&MRC) Levels of Evidence and Grades of Recommendations for Developers of Guidelines (2009). Where no robust evidence was available but there was sufficient consensus within the Women’s Health Committee, consensus-based recommendations were developed or existing ones updated and are identifiable as such. Consensus-based recommendations were agreed to by the entire committee. Good Practice Notes are highlighted throughout and provide practical guidance to facilitate implementation. These were also developed through consensus of the entire committee.

<table>
<thead>
<tr>
<th>Recommendation category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence-based</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Body of evidence can be trusted to guide practice</td>
</tr>
<tr>
<td>B</td>
<td>Body of evidence can be trusted to guide practice in most situations</td>
</tr>
<tr>
<td>C</td>
<td>Body of evidence provides some support for recommendation(s) but care should be taken in its application</td>
</tr>
<tr>
<td>D</td>
<td>The body of evidence is weak and the recommendation must be applied with caution</td>
</tr>
<tr>
<td>Consensus-based</td>
<td>Recommendation based on clinical opinion and expertise as insufficient evidence available</td>
</tr>
<tr>
<td>Good Practice Note</td>
<td>Practical advice and information based on clinical opinion and expertise</td>
</tr>
</tbody>
</table>
Appendix C Full Disclaimer

This information is intended to provide general advice to practitioners, and should not be relied on as a substitute for proper assessment with respect to the particular circumstances of each case and the needs of any patient.

This information has been prepared having regard to general circumstances. It is the responsibility of each practitioner to have regard to the particular circumstances of each case. Clinical management should be responsive to the needs of the individual patient and the particular circumstances of each case.

This information has been prepared having regard to the information available at the time of its preparation, and each practitioner should have regard to relevant information, research or material which may have been published or become available subsequently.

Whilst the College endeavours to ensure that information is accurate and current at the time of preparation, it takes no responsibility for matters arising from changed circumstances or information or material that may have become subsequently available.