

Vaccination for influenza and whooping cough during pregnancy

The New Zealand College of Midwives regularly receives enquiries from members about the safety and efficacy of vaccination during pregnancy for two relatively common but potentially serious illnesses – ‘flu and whooping cough. The College asked the Immunisation Advisory Centre from the University of Auckland to provide a Q and A guide to assist midwives in answering questions from women about ‘flu and whooping cough vaccinations. The guide was written by Dr Nikki Turner, Director and Karin Batty, Registered Nurse Immunisation Advisor at the Centre.

KEY POINTS

Vaccination during pregnancy offers protection for the woman, her growing baby, and her newborn.

Influenza vaccination is recommended for pregnant women in every season they are pregnant.

Whooping cough vaccination is recommended between 28–38 weeks of every pregnancy.

Vaccination during pregnancy has an excellent safety record, and the potential complications of influenza and whooping cough pose greater threats for her and her baby.

Influenza and whooping cough (pertussis) vaccinations are recommended for pregnant women. They are funded for women who are eligible for publicly funded health and disability services in New Zealand.

Why are influenza and whooping cough vaccinations recommended for pregnant women?

Vaccinations against influenza and whooping cough are recommended during pregnancy because of the disease risks for the woman, growing baby and the new baby for their early few months of life.

Pregnant women, unborn babies and young babies are all at greater risk

from complications associated with influenza. A range of physical changes during pregnancy increase a pregnant woman's risk of serious influenza complications, for example pneumonia. New Zealand research shows that when pregnant women contract influenza they are nearly five times more likely to be hospitalised than women who are not pregnant.

Depending on the stage of pregnancy the woman's immune response to influenza infection can affect their baby's development in the womb and may, in rare cases, lead to miscarriage or premature birth.

Based on our own New Zealand data, babies less than 12 months of age, particularly those less than six months of age, have higher rates of influenza complications and hospitalisation than any other age group.

Babies less than 12 months of age, particularly those less than six months of age, also have the highest risk of hospitalisation and death from whooping cough. Although they receive vaccinations against whooping cough at six weeks, three months and five months of age, they don't develop the best protection until after they have completed the third dose.

How does immunising a pregnant woman protect her and her baby?

Maternal antibodies, stimulated through vaccination circulate in the woman's blood stream (thus offering her active protection). These antibodies also cross the placenta into her baby's blood stream thus offering passive protection for her baby. As these antibodies remain in the baby's bloodstream for some time babies have protection against influenza and pertussis for several months after birth.

To maintain longer term whooping cough protection, the infant vaccinations are recommended from six weeks of age, so babies begin to develop their own active protection. Babies do not have full active protection against whooping cough until after they receive their third vaccinations at five months

of age. Hence the importance of passive protection via maternal vaccination for younger infants.

When is the best time to give the influenza and whooping cough vaccinations?

Influenza vaccination is recommended at any time during pregnancy, at any time of the year. Influenza from overseas is just a 'plane ride away in spring, summer, autumn and winter. The funded vaccine, for eligible pregnant women, is usually available from early March, before winter (when the highest number of influenza cases are seen in New Zealand) to 31 December.

The whooping cough vaccination is so important for protection of young babies that pregnant women are recommended to have one every pregnancy between 28–38 weeks gestation irrespective of the time interval since the previous dose. This is because the circulating maternal antibodies lessen over time, and are not at sufficiently high levels in subsequent pregnancies to guarantee protection for the baby. It is important to boost the woman's antibodies against whooping cough in each pregnancy to maximise the amount that cross the placenta into her baby's blood stream and maximise the protection her growing baby is born with.

Vaccination earlier in the third trimester, rather than later, allows more time for maternal antibodies to peak and maximal transplacental antibody transfer to occur before the baby is born.

If both vaccinations are due at the same time, they can be given during the same visit to the woman's family doctor or antenatal clinic.

How safe is vaccination during pregnancy?

Influenza and whooping cough vaccines are inactive, i.e. they are not live vaccines. The vaccine to protect against whooping cough is always combined with tetanus and diphtheria (Tdap), these components are also inactive. Inactive vaccines have been given to pregnant women since the 1960s. The oldest example is widespread

international use in low income countries to prevent neonatal tetanus.

Influenza and whooping cough vaccinations can be given irrespective of when the previous influenza, tetanus/diphtheria, or tetanus/diphtheria/whooping cough vaccination was given.

In some cases a woman will be pregnant across two influenza seasons. Influenza vaccination is recommended in both of the seasons. Vaccination for the current season is important because protection from the previous vaccination lessens over time, and because the circulating influenza viruses can change and the strains in the vaccine usually change in response. A pregnant woman's risk from the effects of influenza also increases with increasing gestation.

The safety profiles of these vaccines are well established internationally and there are no reported new safety concerns and no reported extra increased risks of vaccine reactions or harm for a pregnant woman or her growing baby. Because antibody levels wane fairly rapidly after receiving maternal pertussis-containing vaccine it is recommended to have a vaccination in every pregnancy. A slight increase in local injection site symptoms including redness and swelling is seen in adolescents and adults given multiple doses, however no other safety concerns have been identified with short intervals and repeated doses.

Does vaccination during pregnancy affect the baby's response to its own vaccinations?

After maternal whooping cough vaccination, the laboratory measured immune responses to the tetanus, diphtheria and whooping cough vaccine components in young babies and children was slightly lower compared with those whose mothers did not have the vaccination. However, there is no evidence at this time that slightly lower immune system responses cause the babies and children to be less protected against disease. The babies of mothers who have received pertussis vaccine in pregnancy are proven to be less at risk of severe whooping cough in infancy,

so the beneficial effects of maternal vaccination outweigh any theoretical reduced immune response in the baby.

After maternal influenza vaccination, babies who have their own vaccinations against pneumococcal disease at six weeks, threemonths and five months of age, are better protected against acute ear and breathing infections severe enough to need a visit to the doctor.

What if a woman in my care is reluctant to have both influenza and whooping cough vaccinations, which one is most important?

Both vaccinations are important. It is impossible to predict whether a pregnant woman will come into contact with an influenza virus and need the protection an influenza vaccination could have provided. It is also impossible to predict if a young baby is going to be exposed to whooping cough and need the protection their mother gave them before they were born.

How can midwives, lead maternity carers, and other health professionals help pregnant women and their families make informed choices about vaccination during pregnancy?

The most significant barrier to vaccination during pregnancy is a lack of knowledge about influenza and whooping cough diseases, the disease risks for a pregnant woman and her new baby, and the safety and effectiveness of influenza and whooping cough vaccines. Many women are also unaware that maternal vaccination provides "two for one" protection, reducing disease risks for them and their baby.

Pregnant women and their families need to receive accurate and consistent information about influenza and whooping cough disease risks, the safety and effectiveness of vaccination during pregnancy, and the "two for one" benefit of vaccination. They also need to receive clear information about the recommendation for vaccination from their midwife, lead maternity carer, and

other health professionals involved in their care.

Resources for midwives, lead maternity carers, pregnant women and their families

- Everything you need to know about flu 2017.
- Avoid FLU during pregnancy (brochure).
- Avoid FLU during pregnancy (poster).
- Pregnancy and influenza – Frequently asked questions (leaflet). Available from www.influenza.org.nz (in the Resources section)
- Recommended and funded vaccines during pregnancy (fact sheet). Available from www.immune.org.nz (in the Resources/Written resources section)
- Ministry of Health information available from <http://www.health.govt.nz/your-health/healthy-living/immunisation/immunisation-pregnant-women>

There is an extensive list of references for this article available on request from communications@nzcom.org.nz

Pharmacists who have completed vaccinator training are now able to offer free influenza vaccine to pregnant women (in many cases without the need for a prior appointment). The flu season has also been extended to the 31st of December each year for at risk groups (including pregnant women). About a quarter of pharmacists provide can provide this. Talk to your local pharmacies to find out if they are offering flu vaccines. Your local DHB immunisation co-ordinator should also be able to provide an up to date list of the pharmacists that are able to offer this service to women in your area.

In Waikato, community pharmacies are also offering pertussis vaccination for pregnant women for free (weeks 28-38). This is a long term trial for pharmacist funded pertussis. Again, women should usually be able to get it at their convenience without needing an appointment.