Tdap booster vaccine for Health Care Workers
Frequently Asked Questions for Health Professionals

NEW items in 2013 Immunisation Guidelines for Ireland are in **RED**

**What is Tdap booster vaccine?**
Tdap is a **low dose** tetanus (T), diphtheria (d) and acellular pertussis (p) booster vaccine which protects against tetanus, diphtheria and pertussis.

**What are the childhood recommendations for pertussis vaccine?**
- Primary immunisation course of 3 doses of DTP containing vaccines as a 6 in 1 vaccine (DTaP/IPV/Hib/Hep B) at 2, 4, and 6 months of age (given by GPs).
- A booster dose at 4-5 years as DTaP/IPV (given by HSE vaccination teams in school or by GPs in some areas).
- A second booster between 11 and 14 years as Tdap (given to 1st year students in school).

**What are the changes to the recommendations for pertussis vaccine?**
The changes to the recommendations for pertussis vaccination as per the Immunisation Guidelines for Ireland from the National Immunisation Advisory Committee (NIAC) are:

<table>
<thead>
<tr>
<th>Health care workers (HCWs)</th>
<th>August 2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Additional booster doses of Tdap are recommended every 10 years for HCWs in contact with infants, pregnant women and the immunocompromised.</td>
<td>All HCWs in contact with infants, pregnant women and the immunocompromised should receive a booster dose of Tdap. Boosters every 10 years may be considered.</td>
</tr>
<tr>
<td>Pregnant and post partum women</td>
<td>Pregnant women who have not received a pertussis containing vaccine within the previous 10 years may receive Tdap after 20 weeks gestation</td>
<td>Pregnant women should be offered Tdap during 27 -36 weeks gestation in each pregnancy, to protect themselves and their infant. Tdap can be given at any stage in pregnancy although this may be less effective in providing passive protection. Tdap should be offered in the week after delivery to those women who were not vaccinated.</td>
</tr>
</tbody>
</table>

HSE National Immunisation Office
September 2013
### How common is pertussis?
There has been a recent increase in the number of pertussis cases in Ireland and in many developed countries (Australia, UK and USA).

In Ireland so far there have been 135 cases in 2013 and there were 458 cases in 2012, compared to 229 in 2011 and 114 in 2010.

Most of the cases are in young children particularly those under 6 months who are most likely to be hospitalised and are too young to be fully vaccinated.

### Why is there an increase in pertussis cases?
The increase in cases is thought to be due to the fact that the immunity produced from acellular pertussis vaccines is not as long lasting and the immune response may not be as good. There is also some evidence of genetic changes in the pathogen towards vaccine resistant strains although whether this leads to increased disease susceptibility and outbreaks remains unclear.

Pertussis vaccination or previous infection does not confer lifelong immunity. Immunity wanes over time so people can be reinfected and spread the infection to others. Current pertussis vaccines provide good short term immunity but require boosting.

### Why is pertussis vaccine recommended for specific health care workers?
Pertussis is difficult to recognise and diagnose in adults – up to 30% of adults with a cough lasting more than two weeks may have pertussis.

There has been documented pertussis transmission from HCWs to patients and HCWs are exposed to pertussis much more frequently than the number of diagnosed cases suggests.
Pertussis vaccine is recommended for HCWs to prevent nosocomial transmission and is in place for HCWs in USA since 2005 and also in Australia, the UK and New Zealand.

Infants, pregnant women and the immunocompromised are the most vulnerable to pertussis infection. Boosters every 10 years may be considered.

**Which hospital health care workers should be a priority for pertussis vaccination?**
The priority HCW groups are those working in
- Neonatal/paediatrics/ delivery units
- Antenatal and postnatal units
- Oncology and haematology units
- Renal dialysis units
- Intensive care units

**Why is pertussis vaccine recommended for pregnant women?**
Pertussis vaccine is recommended for pregnant women to reduce the risk of infection in the mother and to reduce the morbidity and mortality in infants too young to be vaccinated. Circulating maternal antibodies in the newborn are likely to protect them in the early weeks after birth.

**When should pregnant women be vaccinated?**
Pregnant women should be offered Tdap vaccine between 27 -36 weeks gestation in each pregnancy.

**Tdap may be administered any time during pregnancy**, but vaccination during the third trimester at 27-36 weeks gestation is to enable protection of the very young infant at the time when there is the maximum transfer of maternal antibodies. This is in line with new recommendations from the US.

**Why is Tdap recommended on each pregnancy?**
This is because of new data showing maternal antibodies to pertussis wane and so will not provide protection in subsequent pregnancies. In addition available data does not suggest any increased incidence of adverse events in pregnant women who received Tdap.

**What about post partum women?**
**Tdap should be offered in the week after delivery to those women who were not vaccinated during their pregnancy** although this may be less effective in providing passive protection.

**How long does Tdap take to work?**
It takes about two weeks for the maximum antibodies to be produced.

**Are there any reasons why Tdap should not be given?**
• Tdap should not be given if there is a history of anaphylaxis to a previous dose of the vaccine or one of its constituents.

Are there any reasons why Tdap should be deferred?
• Tetanus containing vaccination should be deferred for 10 years if there has been an Arthus-type reaction to a previous dose. (Arthus reactions are rarely reported after vaccination and can occur after tetanus or diphtheria toxoid containing vaccines. They typically develop 2-8 hours after vaccination and involve swelling and erythema of most of the diameter of the upper arm from the shoulder to elbow. They are more common in adults and resolve without sequelae.
• In the event of acute severe febrile illness defer until recovery.

Note; The following are no longer regarded either as contraindications or precautions. They have not been shown to cause permanent harm and are significantly less common after acellular than after whole-cell pertussis vaccines
• Temperature of more than 40.5°C within 48 hours of a previous dose of a pertussis-containing vaccine
• Hypotonic-hyporesponse episode within 48 hours of a previous dose of a pertussis-containing vaccine
• Seizures within 72 hours of a previous dose of a pertussis containing vaccine
• Persistent, inconsolable crying lasting more than 3 hrs within 48 hours of a previous dose of a pertussis-containing vaccine
• Active or progressive neurological disease

What interval should there be between Tdap and a previous dose of a tetanus or diphtheria containing vaccine?
NIAC recommends that no interval is required between Tdap and any previous tetanus or diphtheria toxoid containing vaccine.

This is because accumulated data shows no increased risk of severe local reactions or serious adverse events for adults who are given Tdap at short intervals after tetanus or diphtheria containing vaccines.

Can other vaccines be given at the same time as Tdap?
Yes. Tdap is an inactivated vaccine so this can be administered at the same time as any other live (e.g. MMR) or inactivated (e.g. seasonal influenza) vaccine. They should be administered in separate limbs or else in the same limb separated by at least 2.5cm (1 inch)

Does Tdap vaccine contain thiomersal?
No, Tdap does not contain thiomersal.
How safe is Tdap vaccine?
Tdap vaccine is safe and well tolerated. Reported adverse events are:
Very common (≥1 in 10): Local injection site reactions (pain, redness and swelling).
Common (≥1 in 100 to <1 in 10): Pyrexia, malaise, fatigue

Safety of Tdap in pregnancy
Data and studies on the safety of administering Tdap to pregnant women have been reviewed by the Advisory Committee on Immunization Practices (ACIP) in the US. ACIP concluded that there was no suggestion of any elevated frequency or unusual pattern of adverse events in pregnant women who received Tdap.

How can Tdap vaccine be sourced?
Tdap vaccine is available from the HSE National Cold Chain Service for vaccination of
- students in 1st year of second level schools
- health care workers in contact with infants, pregnant women and the immunocompromised.
- pregnant women between 27-36 weeks gestation in each pregnancy.
- women at any stage of pregnancy or to unvaccinated women in the week after delivery although this may be less effective.
- close family contacts of infants born before 32 weeks gestation as they may not have received protection via maternal immunisation. This includes
  - siblings in the household who should have all age appropriate vaccinations including Tdap in 1st year of second level school
  - unvaccinated older adolescents and adults
Tdap should be given ideally two weeks before beginning close contact with the infant.

<table>
<thead>
<tr>
<th>Pertussis containing vaccines and indications</th>
<th>Provided by</th>
<th>Vaccine</th>
<th>Product name</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2, 4, 6 months</td>
<td>GP</td>
<td>6 in 1</td>
<td>Infanrix Hexa</td>
<td></td>
</tr>
<tr>
<td>4-5 years</td>
<td>HSE/GP</td>
<td>4 in 1</td>
<td>Infanrix IPV</td>
<td></td>
</tr>
<tr>
<td>11-14 years</td>
<td>HSE</td>
<td>Tdap</td>
<td>Boostrix</td>
<td></td>
</tr>
<tr>
<td>Health care workers (in contact with infants, pregnant women and the immunocompromised)</td>
<td>HSE/GP</td>
<td>Tdap</td>
<td>Boostrix</td>
<td>From HSE National Cold Chain Service</td>
</tr>
<tr>
<td>Pregnant women (ideally between 27-36 weeks gestation)</td>
<td>GP</td>
<td>Tdap</td>
<td>Boostrix</td>
<td></td>
</tr>
<tr>
<td>Post partum women (1st week after delivery)</td>
<td>GP</td>
<td>Tdap</td>
<td>Boostrix</td>
<td></td>
</tr>
<tr>
<td>Close family contacts of preterm babies (born before 32 weeks gestation)</td>
<td>GP</td>
<td>Tdap</td>
<td>Boostrix</td>
<td></td>
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<tr>
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<td></td>
</tr>
<tr>
<td>Adults</td>
<td>GP</td>
<td>Tdap</td>
<td>Boostrix</td>
<td><strong>Must be sourced privately</strong></td>
</tr>
</tbody>
</table>

6 in 1  Diphtheria, Tetanus, acellular Pertussis, Inactivated polio, Haemophilus influenzae type b, Hepatitis B vaccine  
4 in 1  Diphtheria, Tetanus, acellular Pertussis, Inactivated polio vaccine  
**Tdap**  Low dose tetanus, diphtheria and acellular pertussis booster vaccine

## References

6. Joint Committee on Vaccination and Immunisation UK. Minutes of meeting on pertussis vaccination , August 2012  
7. Joint Committee on Vaccination and Immunisation UK. Minutes of meeting of 6 February 2013  
   http://www.medicines.ie/medicine/13394/SPC/Boostrix+-
   +Suspension+for+injection/
10. Zheteyeva YA, Moro PL, Tepper NK, et al. Adverse event reports after
tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccines