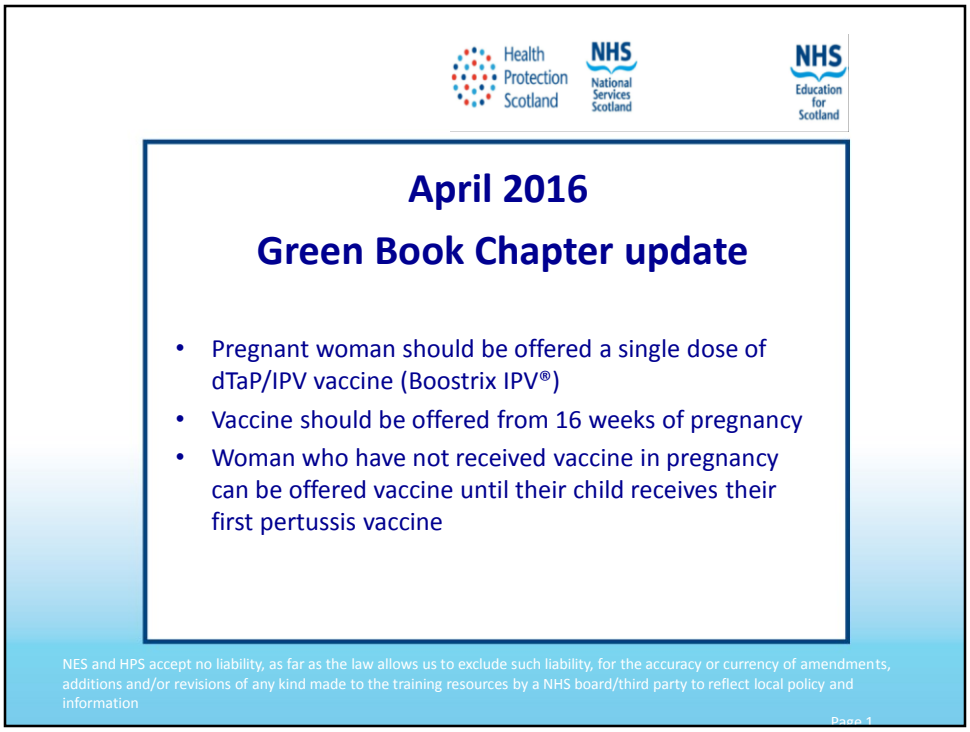
Vaccination against pertussis(Whooping cough)

Vaccination now recommended from 16 weeks of pregnancy

An update for registered healthcare practitioners – February 2018



In February 2016 JCVI advised that maternal pertussis immunisation can take place from week 16 of pregnancy (Eberhardt et al., 2016; JCVI February 2016 minute).

Pregnant women should be offered a single 0.5 ml dose of dTaP/IPV vaccine.

Vaccine should be offered to women in every pregnancy.

Vaccination should be offered between gestational weeks 16 and 32 to maximise the levels of pertussis antibodies transferred across the placenta, thereby providing passive immunity to the unborn child.

Women may still be immunised after week 32 of pregnancy but this may not offer as high a level of passive protection to the baby. Vaccination late in pregnancy may, however, directly protect the mother against disease and thereby just reduce the risk of exposure to her infant. Pertussis vaccine can be offered to pregnant women up until they go into labour. This is not the optimal time for immunisation however since antibody levels in adults peak about two weeks after a pertussis booster.

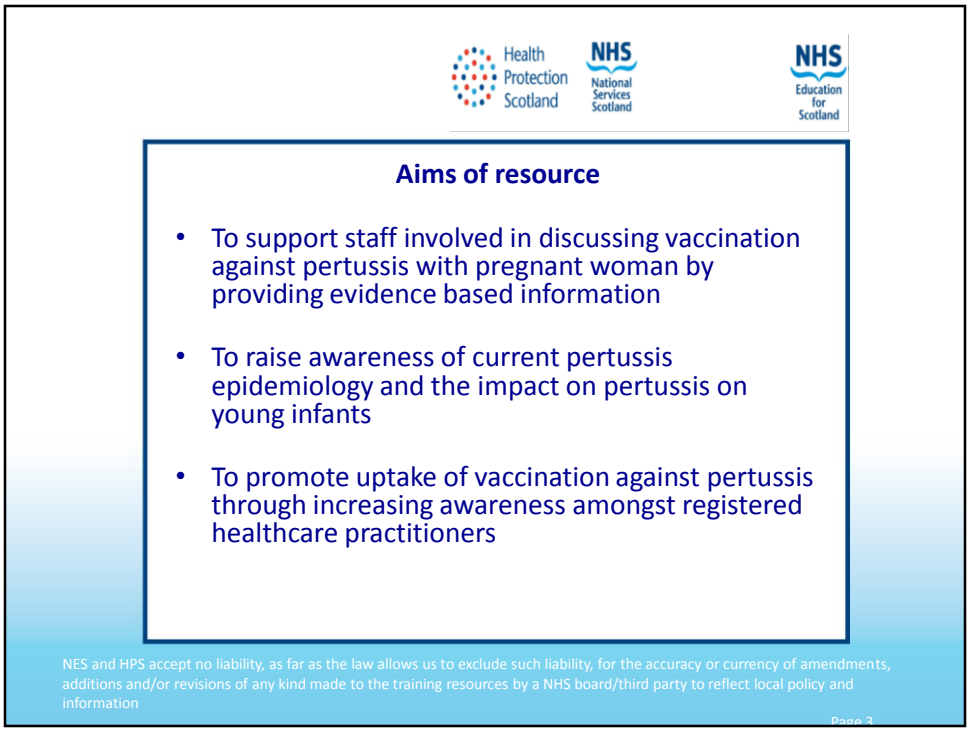
Immunisation after week 38 is unlikely to provide passive protection to the infant but

would potentially protect the mother from pertussis infection and thereby reduce the risk of exposure to her infant.

For women who have not received the vaccine in pregnancy, pertussis-containing vaccine can be offered in the two months following birth i.e. up until their child receives their first dose of pertussis-containing vaccine.

Key Messages

- There is a lot of pertussis around at the moment and babies who are too young to start their vaccinations are at greater risk
- The incidence of pertussis increased dramatically as part of a national outbreak in 2012 and 2013 and still remains well above pre outbreak levels
- During 2014 there were 504 laboratory confirmed cases of pertussis, and remains well above the historic levels
- In 2011 and 2010 there had been 119 and 82 confirmed cases respectively



Key roles of registered healthcare practitioners in relation to vaccination against pertussis of pregnant women:

• Advise pregnant women (from 16 weeks gestation onwards) that it is strongly recommended that they are vaccinated against pertussis by their General Practice or as per local arrangements.

• Explain the risks of pertussis in young infants and how the vaccination given during pregnancy may provide protection to young infants against pertussis.

• Explain which vaccine will be used, the contraindications and possible side effects to vaccination and the evidence for this new vaccination programme.

• Advise women how they can arrange for vaccination and, where appropriate, the healthcare professional could facilitate the arrangements for the vaccination appointment.

• Follow up at later antenatal appointments to establish whether the woman has had her vaccination against pertussis.

• Encourage women to ensure their babies start their primary immunisations at 8 weeks in order to achieve longer protection against pertussis and other vaccine preventable diseases.

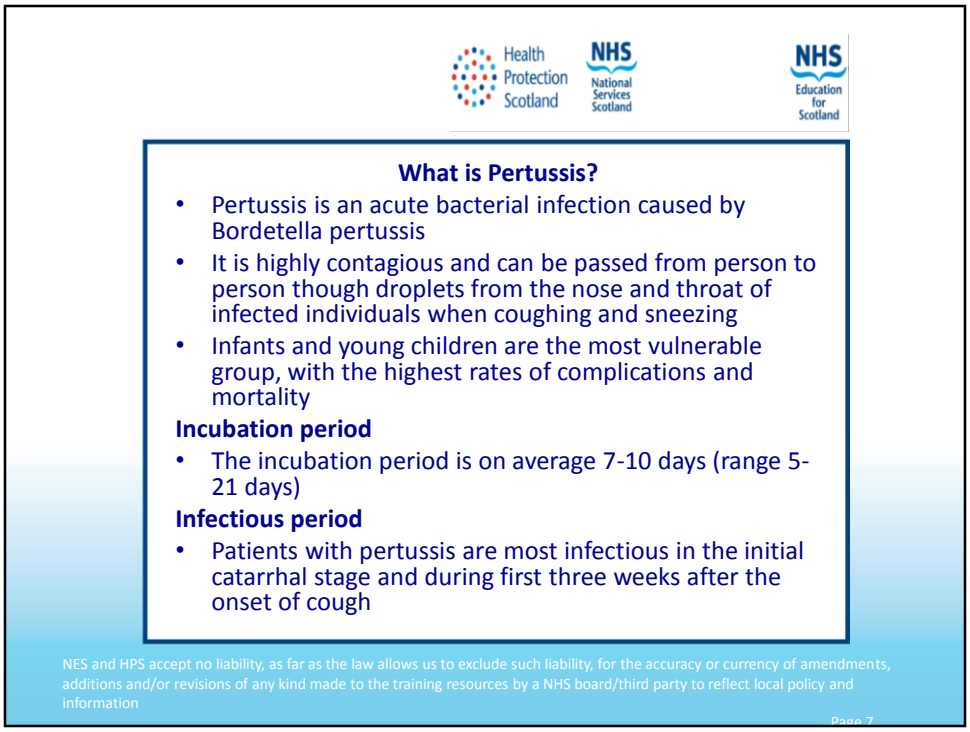
Learning Outcomes

After completing this resource registered healthcare practitioners will be able to:

- Understand their role in raising the issue of vaccination against pertussis with all women in the antenatal period and providing woman with evidence based information about this vaccination
- Describe the aetiology and epidemiology of pertussis
- Have an understanding of how pertussis is transmitted and the severity of it in young infants
- Discuss the important role of vaccination against pertussis during pregnancy for young infants
- Be aware of sources of additional information

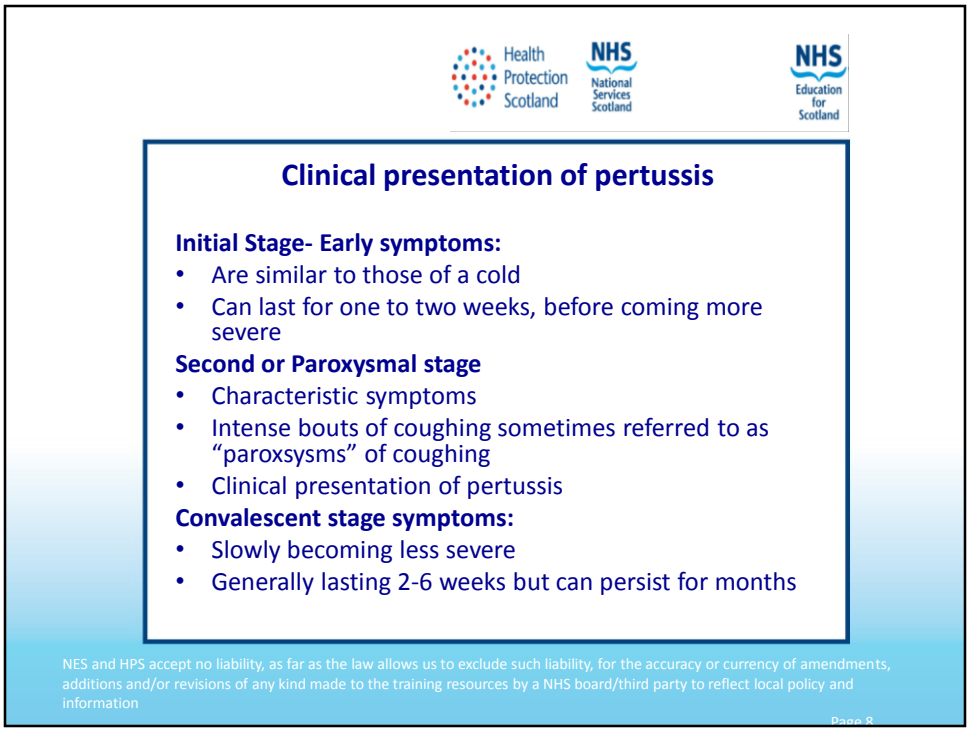
Contents

What is pertussis?

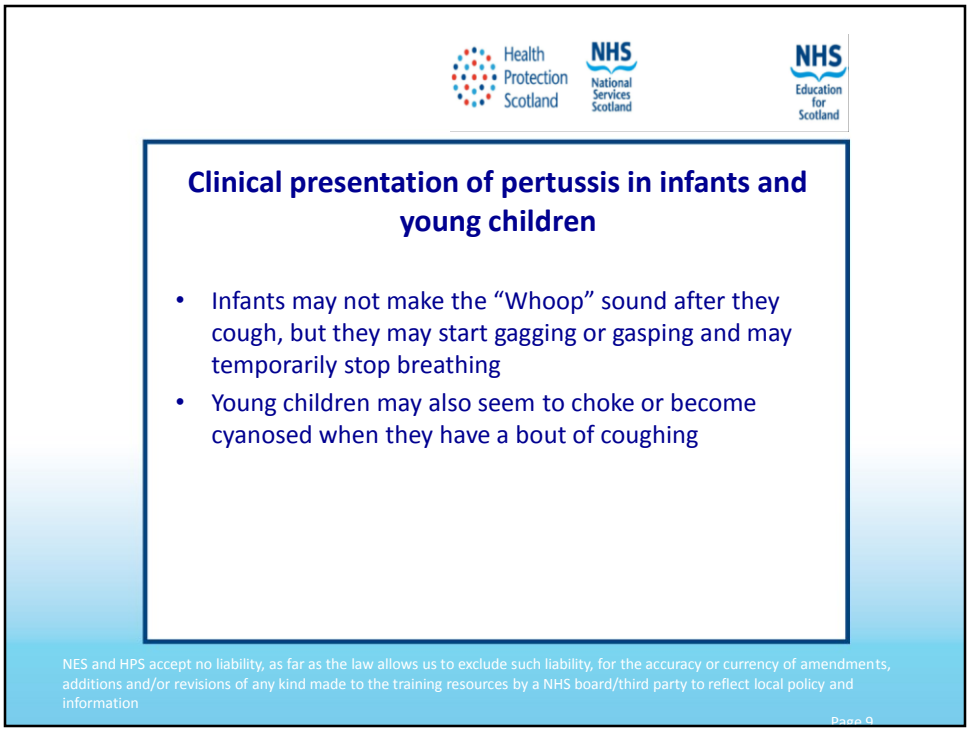


Bordetella pertussis is an exclusively human pathogen that can affect people of all ages, however infants and young children are the most vulnerable group with the highest rates of severe complications, hospitalisations and mortality. Adults and older children are often the source of infection for younger siblings at home. Pertussis is a very infectious disease that is passed from one person to another. The bacteria are present in the back of the throat of an infected person and maybe spread by coughing or sneezing.

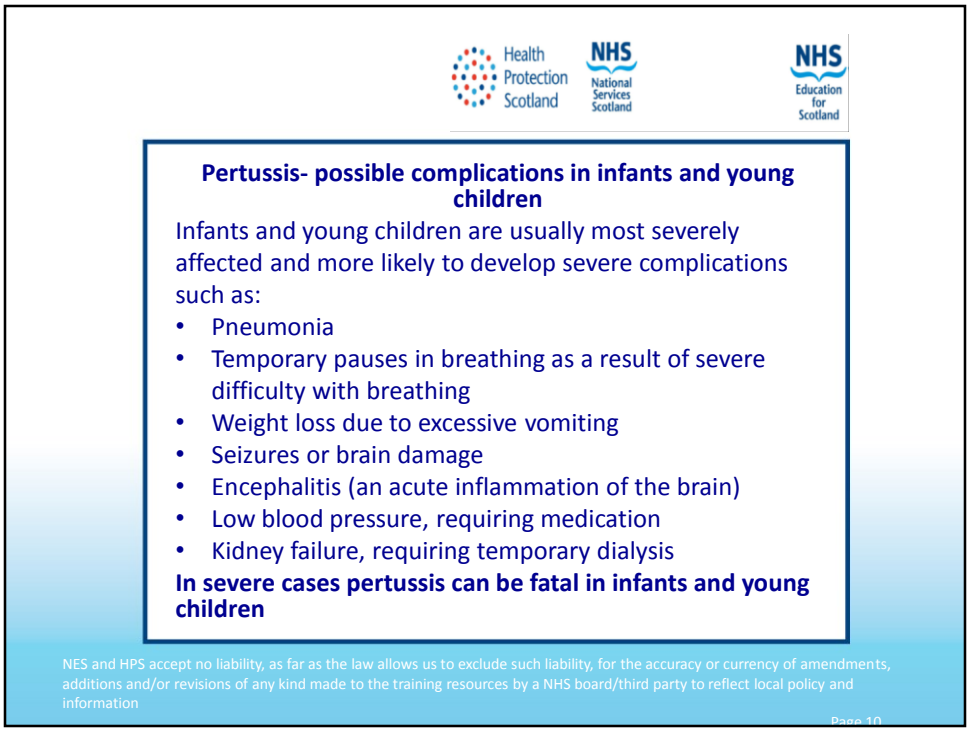
A person can infect other people from 2-4 days before they start to cough to around 21 days after coughing starts. Symptoms of pertussis usually develop 7 to 10 days after contracting the infection



Symptoms caused by pertussis infection tend to develop in stages, with mild symptoms occurring first, followed by a period of more severe symptoms, before improvement begins. The initial stage /early symptoms of pertussis are often similar to those of a common cold and may include: runny or blocked nose, sneezing, watering eyes, dry irritating cough, sore throat, slightly raised temperature and feeling generally unwell. These early symptoms can last for one to two weeks before becoming more severe. The second stage is sometimes called the paroxysmal stage and is characterised by fits of coughing which maybe followed by choking and/or vomiting. The cough often comes in short bursts (paroxysms) followed by a desperate gasp for air – when the characteristic whooping noise may be made. Pertussis doesn't always cause the typical symptoms of the whoop sound or vomiting after coughing, particularly in older children and adults. Each bout of coughing usually lasts between one and two minutes, but several bouts may occur in quick succession. These bouts of coughing may last for weeks or months. Over time the episodes of coughing become less frequent and full recovery is gradual.



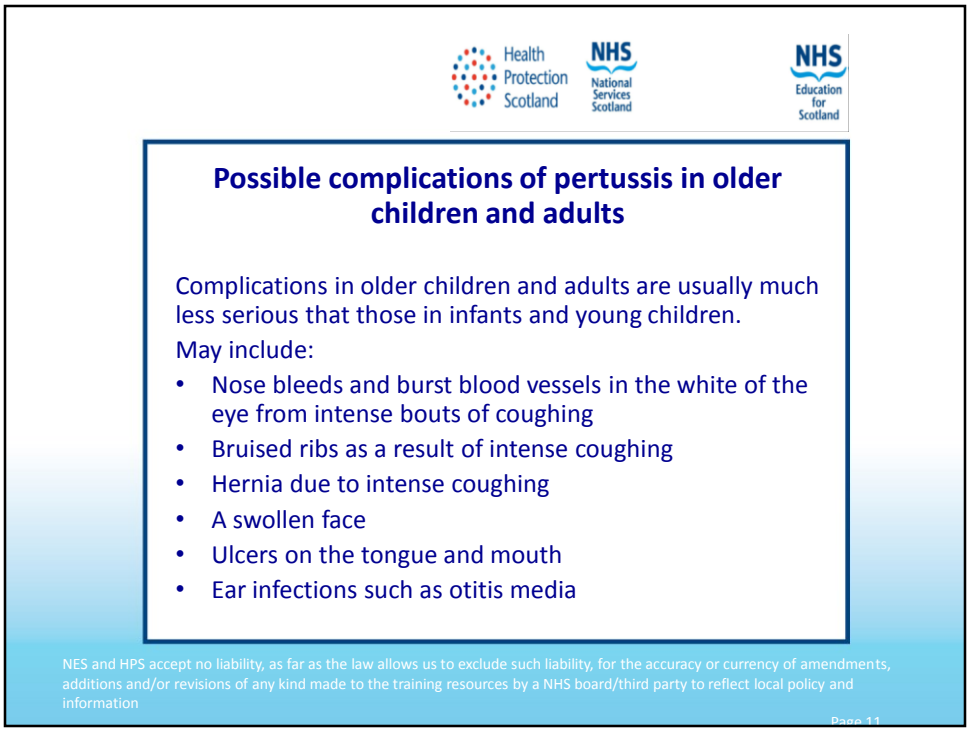
In young infants the typical 'whoop' may never develop and coughing spasms can be followed by difficulty breathing (apnoea) Young children may also seem to choke or become blue in the face (cyanosis) when they have a bout of coughing. The rate of hospitalisation and complications for pertussis is much higher in young infants than it is for older children and adults.



Infants and young children are usually the most severely affected by pertussis and most likely to develop severe potentially life threatening complications. Young infants are much more likely to be admitted to hospital with pertussis than other age groups. Unfortunately some young infants have died in the UK during this outbreak.

References

• http://www.hpa.org.uk/NewsCentreNationalPressReleases/2012PressReleases/120928whoopvaccforpregwomenwelcome/.
• http://www.hpa.org.uk/hpr/archives/2014/hpr05-0614.pdf.
• http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20414.



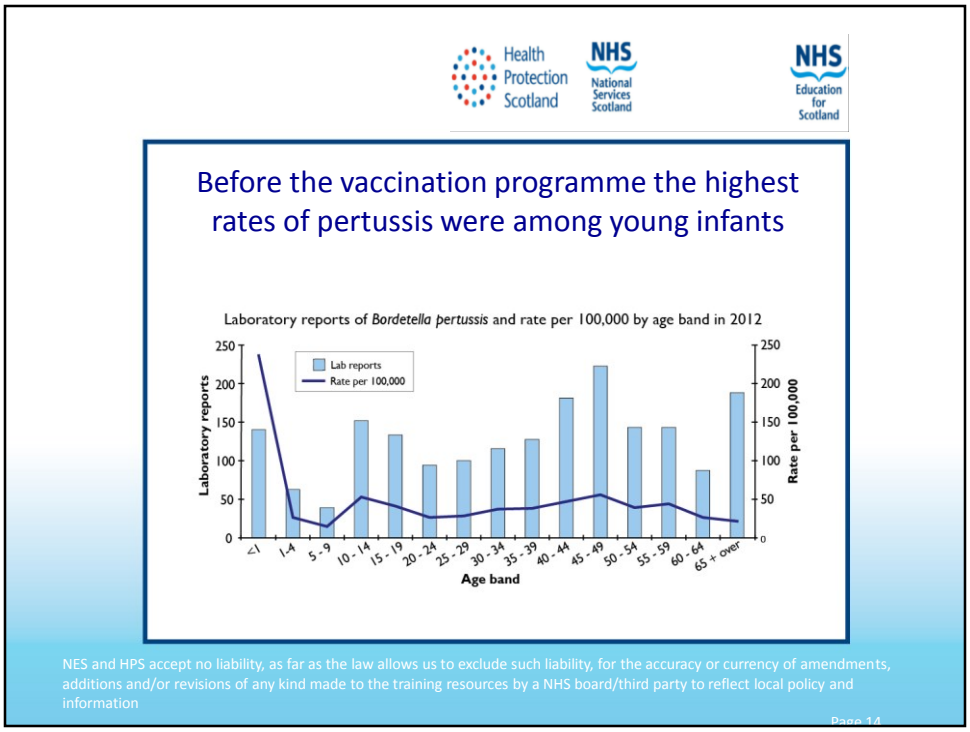
Serious complications, such as pneumonia and convulsions, are uncommon in older age groups but can, very occasionally occur. Sometimes the cough is severe enough to cause other problems such as fainting, muscle pain in the ribs (and occasionally fractured ribs), a hernia, or bleeding in the eye (conjunctival haemorrhage).

Why vaccinate pregnant woman against pertussis?

Why vaccinate pregnant woman against pertussis?

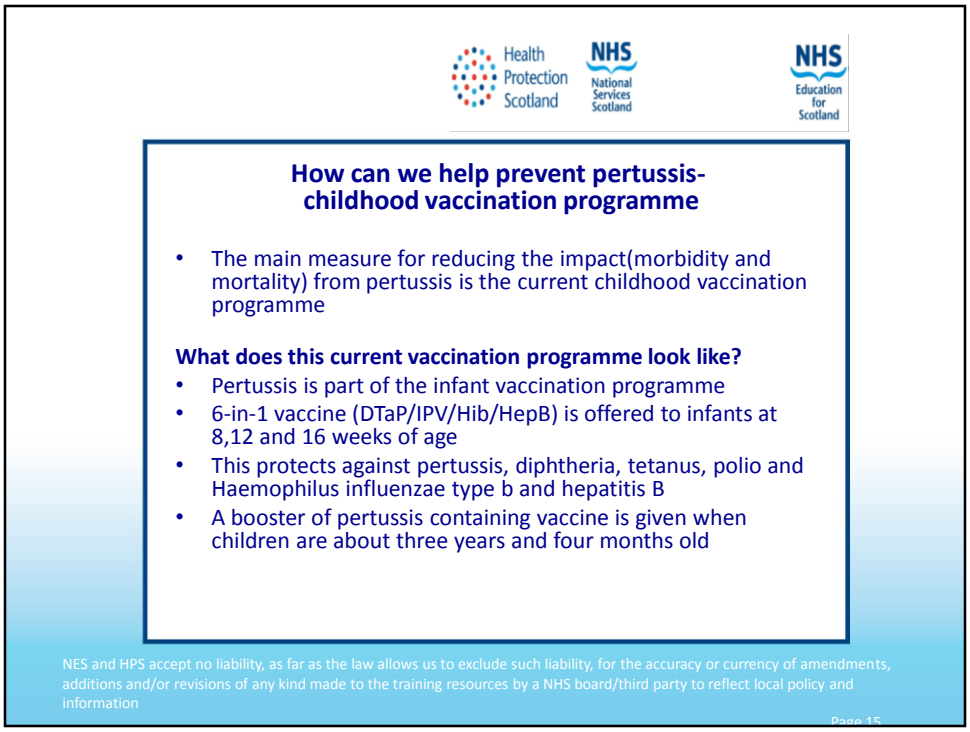
Latest data on the impact of vaccination is available from Health Protection Scotland at:

http://www.hps.scot.nhs.uk/immvax/Pertussis-data.aspx



In 2012 there were 140 laboratory confirmed cases of pertussis in infants under one year of age. This gave a rate of 235 per 100,000 compared to a rate across all age groups of 36.8 per 100,000. Young infants are the group who are most at risk of severe illness and complications from pertussis. No pertussis related deaths have been reported in Scotland in 2012, 2013 or 2014, however deaths have been reported in young infants in England and Wales.

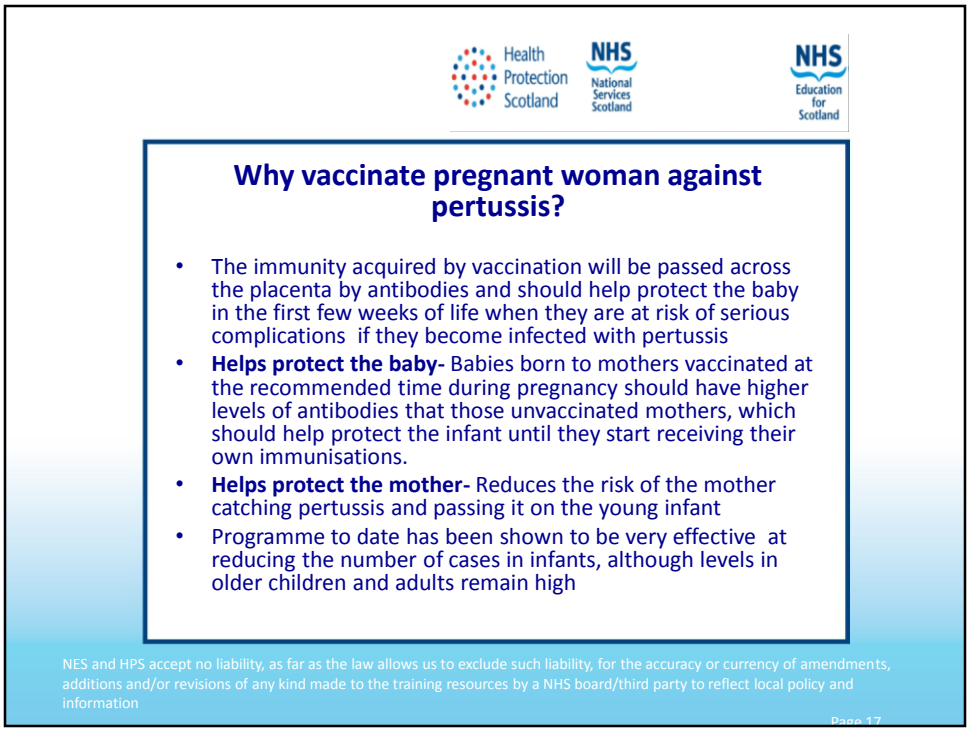
Reference http://www.hpa.org.uk/NewsCentre/NationalPressReleases/2012PressReleases/120928whoopvaccforpregwomenwelcome/



The main measure for reducing the impact (morbidity and mortality) from pertussis is the current childhood vaccination programme Uptake rates for the completed primary course (x3 doses) of childhood pertussis vaccination in Scotland are very high (97.7% and 98.2% for children aged 12 and 24 months respectively). Protection from vaccination against serious pertussis infection is very high for the first few years of life, when the risk of complications is greatest. Protection is extended further by the booster dose given before children go to school (usually given when children are aged about 3 years and 4 months).

Immunity against pertussis

- Vaccination against pertussis does not give life-long immunity
- Individuals who have had pertussis can become re-infected and spread infection to others
- This spread of infection is important particularly in children too young to be vaccinated



As discussed previously, although many women will have had pertussis vaccination themselves when they were children or have had pertussis infection in the past, the immunity from this will now have worn off and there's little or no protection left to pass onto the unborn infant. By offering a pertussis containing vaccine from week 16 will boost the mother's levels of antibodies and increase the amount of antibodies that can be passed onto the infant.

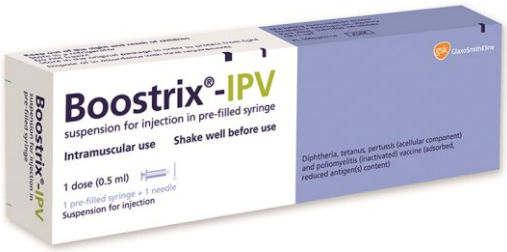
Neither protection from natural infection nor from vaccination is life long. Individuals who have had pertussis can get re-infected and spread infection to others. The same is true after pertussis vaccination, although infection in fully vaccinated individuals is normally mild. However, as vaccinated individuals can get a mild infection, particularly as immunity wanes in adolescence and adulthood, these people may spread infection to those children who are too young to be vaccinated.

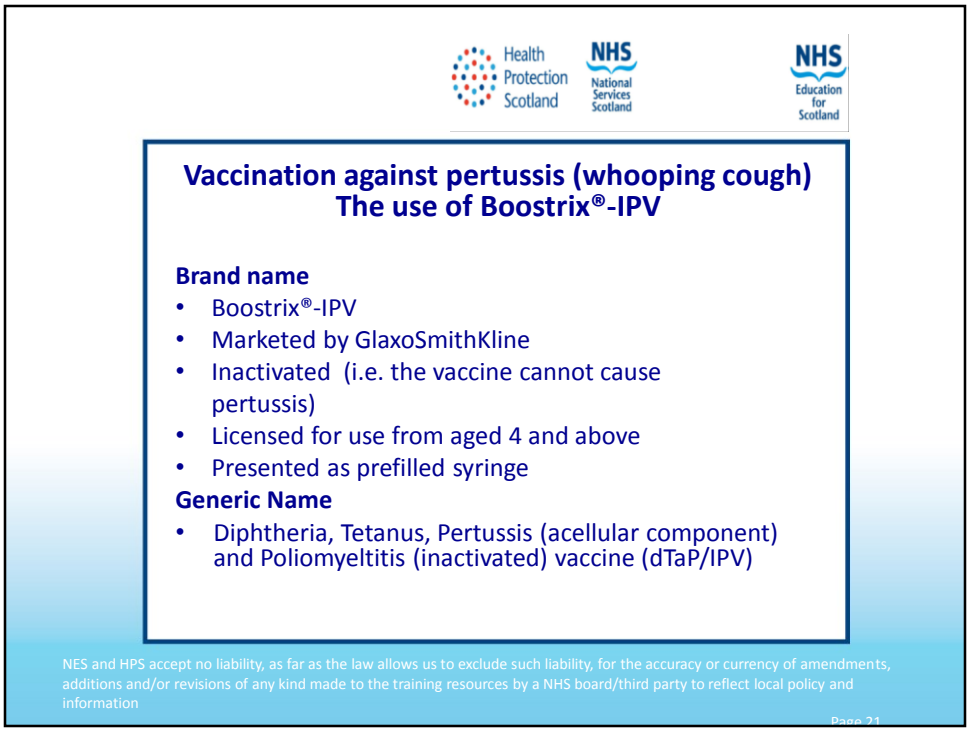
Impact of the vaccination programme

Latest data on the impact of vaccination is available from Health Protection Scotland at:

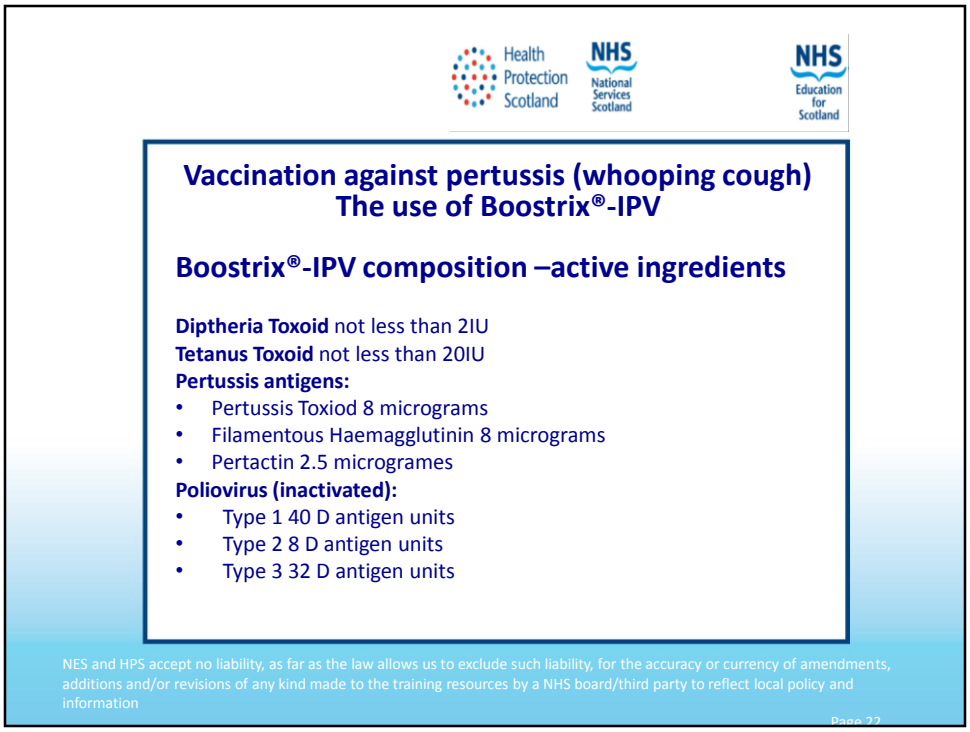
http://www.hps.scot.nhs.uk/immvax/Pertussis-data.aspx

Vaccination against pertussis (whooping cough)
The use of Boostrix® IPV

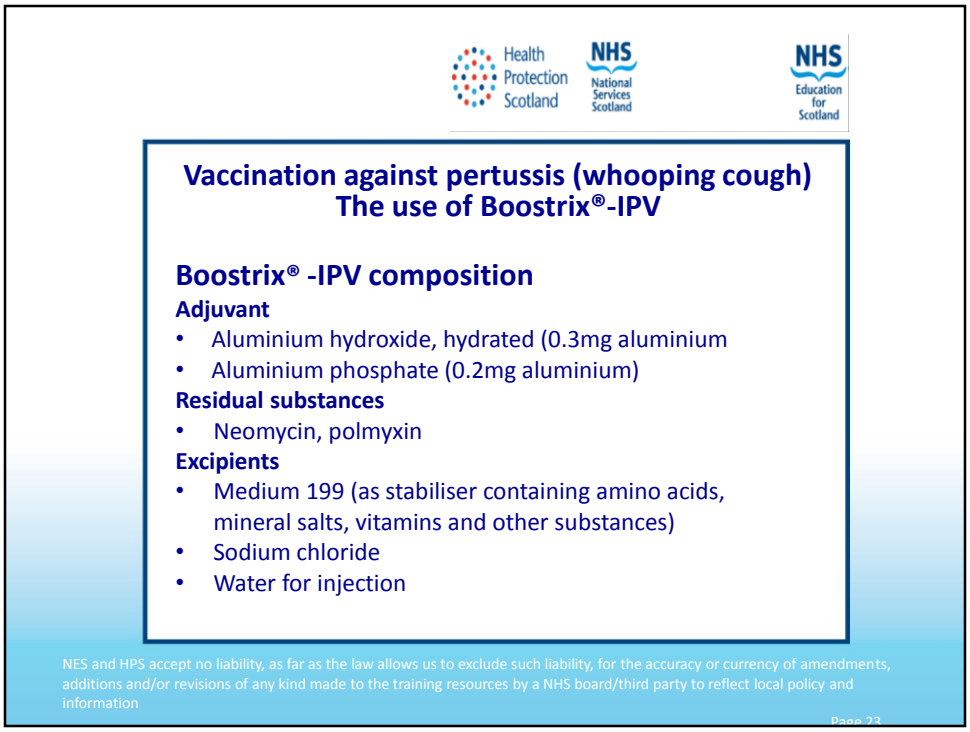




There is no single agent (monovalent) pertussis vaccines licensed in the UK. Pertussis containing vaccines are only available as combined products. Boostrix®-IPV protects against 4 infections Diphtheria, Tetanus, Poliomyelitis and Pertussis Boostrix®-IPV is an inactivated vaccine. It contains chemically inactivated and purified antigens – it does not contain live organisms and cannot cause the diseases against which they protect. Note: At the present time fridges may contain a number of vaccines. Colleagues are reminded that care should be taken when selecting a vaccine to ensure the correct immunisation is administered.



If a woman has previously had an anaphylaxic reaction to latex the manufacturer of the vaccine (GSK on 0800 221 4411) should be contacted to determine the latex content of the batch of vaccine to be used. Boostrix®-IPV is thiomersal free. Egg allergy is not a contraindication.



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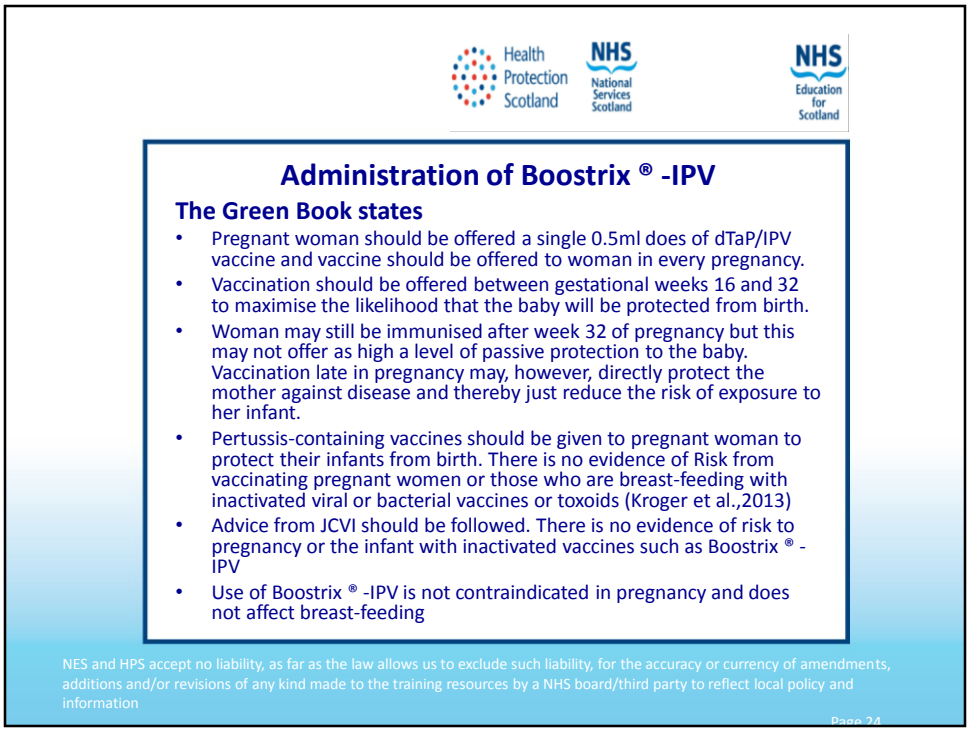
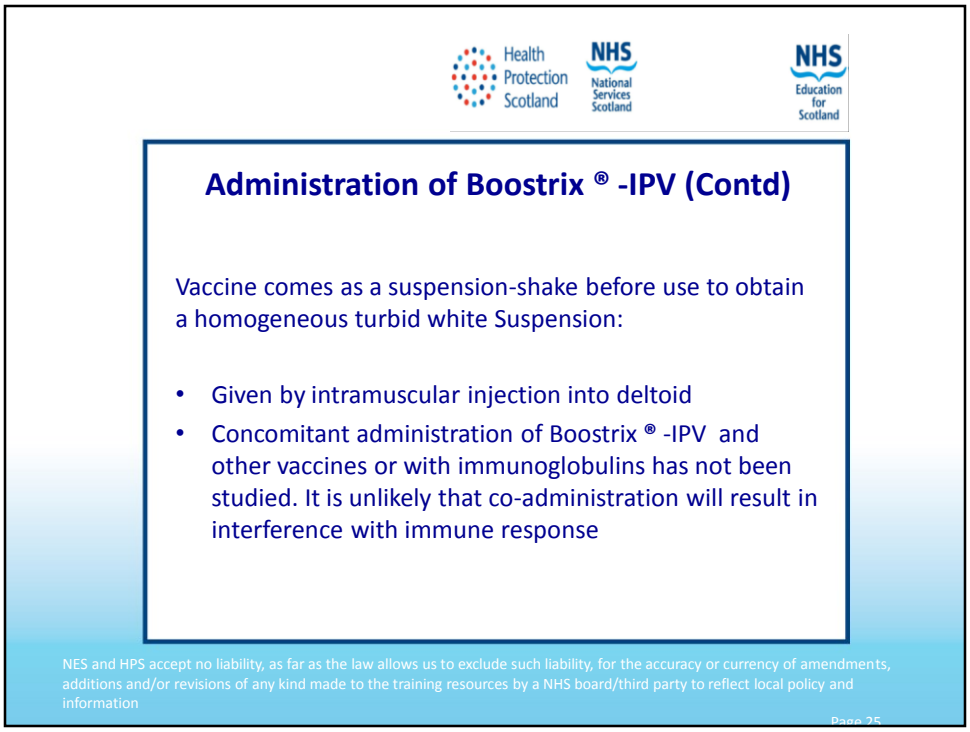


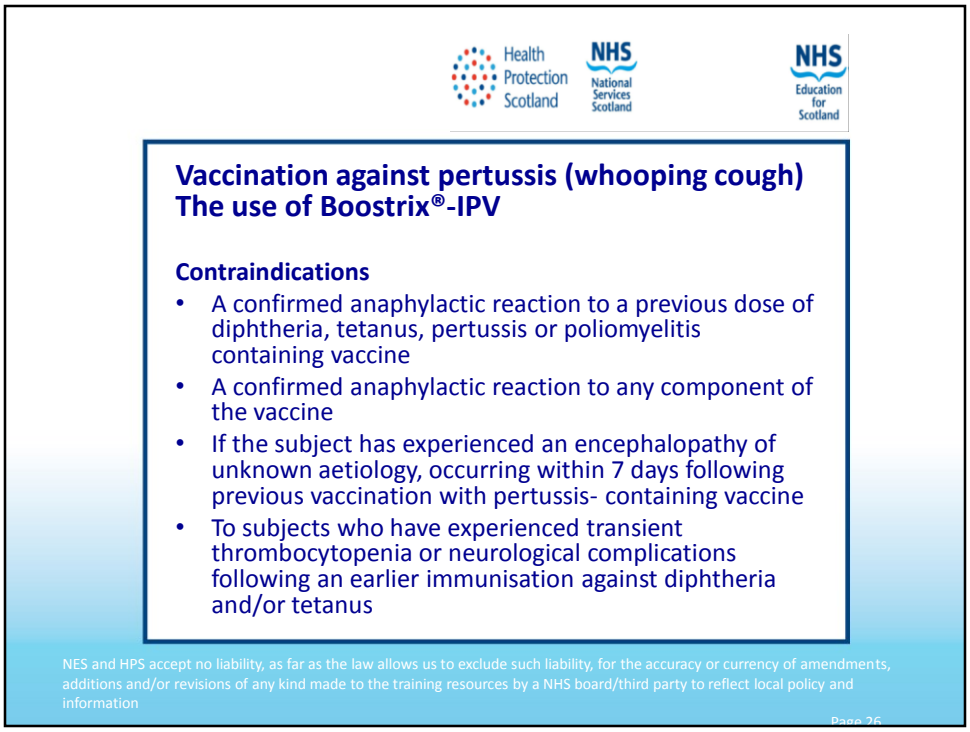
Reference Kroger AT, Atkinson WL and Pickering LK (2013) General immunization practices. In: Plotkin SA, Orenstein WA and Offit PA (eds). Vaccines, 6th edition. Philadelphia: Saunders Elsevier, p 88.

The Green Book states that due to the success of the maternal vaccination programme in protecting infants and evidence of the safe use of acellular pertussis vaccine in the maternal programme (Donegan et al., 2014), in June 2014 the Joint Committee on Vaccination and Immunisation (JCVI) advised that this temporary programme should continue for at least a further five years. https://www.gov.uk/government/publications/vaccine-update-issue-217- july-toaugust-2014

Since the introduction of the maternal pertussis programme in October 2012, the Medicines and Healthcare products Regulatory Agency (MHRA) has used the Yellow Card Scheme and the Clinical Practice Research Datalink to follow pregnancy outcomes following vaccination. The study based on a cohort of 18,000 vaccinated women showed that they had similar rates of normal, healthy births as unvaccinated women. The study also found no evidence of an increased risk of stillbirth and no evidence of an increased risk of any of an extensive list of adverse events related to pregnancy in vaccinated mothers (Donegan et al., 2014).



Boostrix®-IPV may be administered concomitantly with human papilloma virus vaccine with no clinically relevant interference with antibody response to any of the components of either vaccine. Concomitant administration of Boostrix®-IPV and other vaccines or with immunoglobulins has not been studied. It is unlikely that coadministration will result in interference with the immune response. The vaccines should be given at a separate site, preferably in a different limb. If more than one vaccine is given in the same limb, they should be given at least 2.5cm apart. The sites at which each vaccine is given should be noted in the individual's records. More information on immunisation by nurses and other registered health practitioners is available in chapter 5 of Green Book (Immunisation against infectious disease).



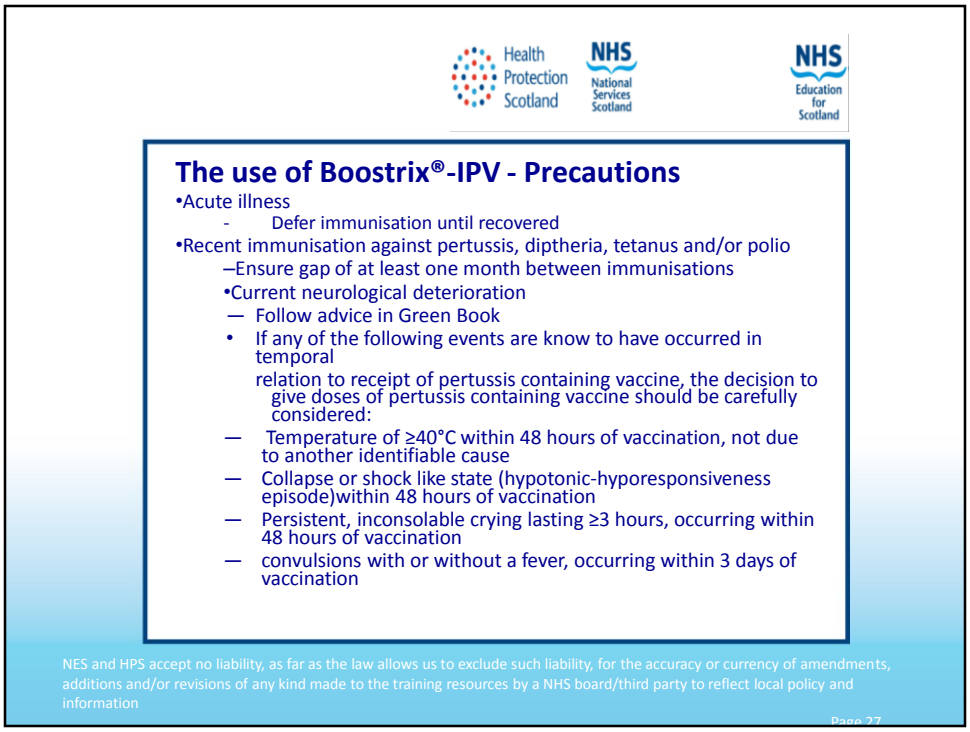
There are very few individuals who cannot receive pertussis containing vaccines. When there is doubt specialist advice should be sought on the vaccine and the circumstances under which it could be given. There are very few medical reasons why Boostrix®-IPV should not be given. Boostrix®- IPV should not be given to pregnant women who have had:

• a confirmed anaphylactic reaction to a previous dose of pertussis, diphtheria, tetanus or polio vaccines;

• a confirmed anaphylactic reaction to any component of the vaccine or to any substances carried over from manufacture (neomycin, polymyxin B);

• If the subject has experienced an encephalopathy of unknown aetiology, occurring within 7 days following previous vaccination with pertussis-containing vaccine;

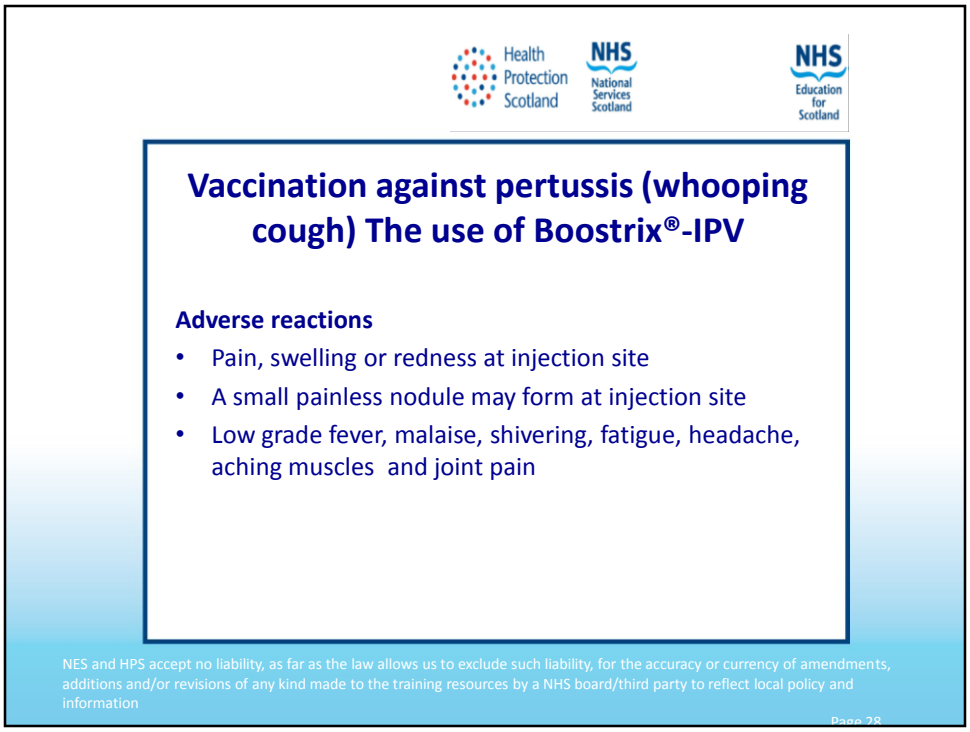
• To subjects who have experienced transient thrombocytopenia or neurological complications following an earlier immunisation against diphtheria and/or tetanus



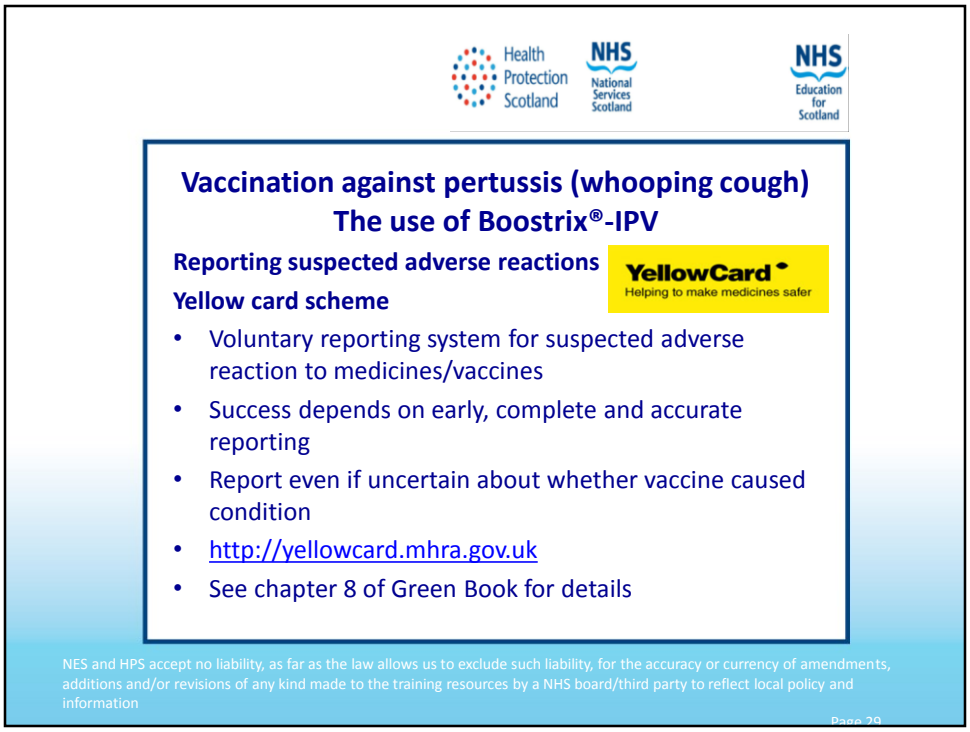
Pregnant women who have recently received immunisation against pertussis, diphtheria, tetanus and /or polio should also be offered immunisation, but with a gap of at least one month between immunisations. Although cumulative doses may increase the likelihood of injection site reactions or fever, this is outweighed by the expected benefit to the infant. In cases of pregnant women with evidence of current neurological deterioration including poorly controlled epilepsy, immunisation should be deferred and the advice in the Green Book followed.

If the pregnant women is acutely unwell and has a fever, immunisation should be postponed until the patient has recovered. This is to avoid wrongly associating any cause of fever, or its progression, with the vaccine and to avoid increasing any preexisting fever. Having a minor illness without a fever (e.g. a cold) is not a reason to delay immunisation.

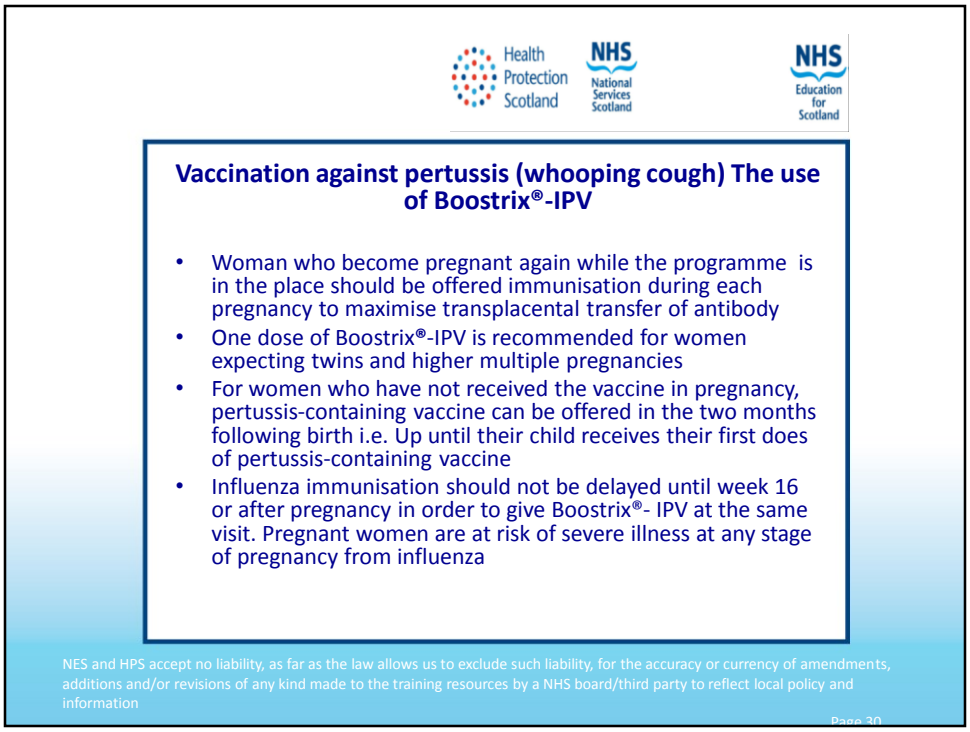
A personal or family history of seizures is not a contraindication to immunisation. There is no contraindication to breastfeeding after receiving Boostrix®-IPV. Insignificant antibodies are passed in breast milk to protect the baby.



The full list of adverse reactions associated with Boostrix®-IPV is available in the marketing authorisation holder's Summary of Product Characteristics' Anaphylaxis is a very rare side effect of most vaccines and facilities for its recognition and management must be available.



As with all vaccines and other medicines healthcare professionals and patients are encouraged to report suspected adverse reactions to the Medicines and Healthcare products Regulatory Agency (MHRA) using the yellow card reporting scheme



Concomitant administration of Boostrix®-IPV and other vaccines or with immunoglobulins has not been studied. It is unlikely that co-administration will result in interference with the immune response.However,influenza immunisation should not be delayed until week 16 or after pregnancy in order to give Boostrix®-IPV at the same visit. Pregnant women are at risk of severe illness at any stage of pregnancy from influenza.

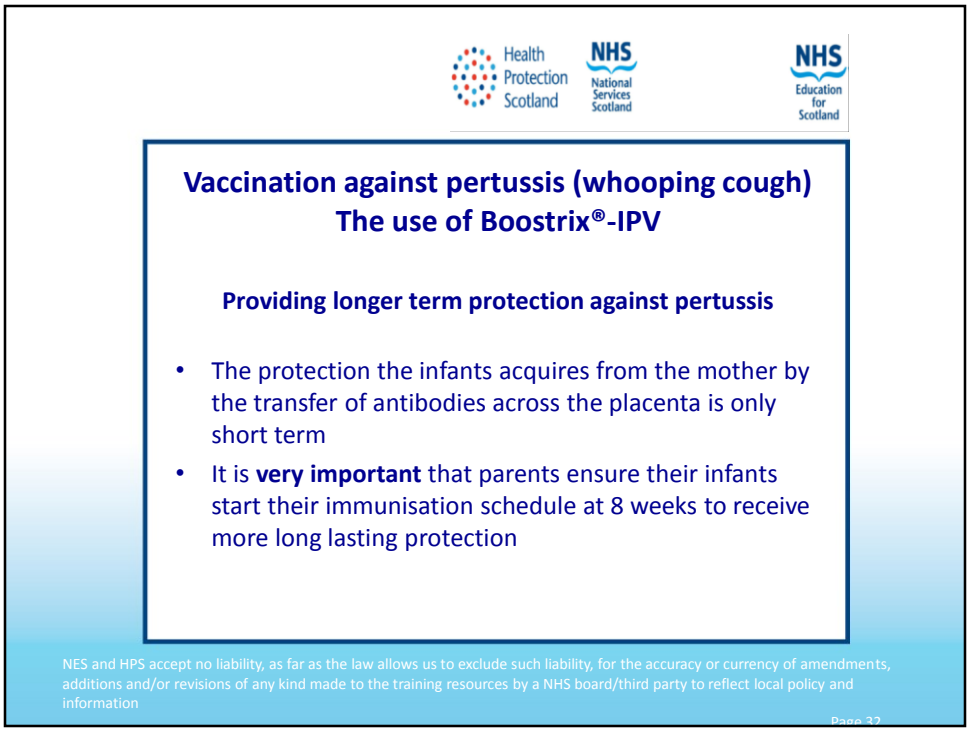
There are no reasons why Boostrix®-IPV cannot be administered at the same time as anti-D treatment.

For women who have not received the vaccine in pregnancy, pertussis-containing vaccine can be offered in the two months following birth i.e. up to their child receives their first dose of pertussis-containing vaccine. This would potentially protect the mother from pertussis infection and thereby reduce the risk of exposure to her infant, however the infant would receive no passive protection.

Vaccination against pertussis (whooping cough)
The use of Boostrix®-IPV

Data Management

- Vaccination against pertussis will be recorded in the women's GP records and maternity records as per local arrangements
- Standard data set will be collected as per other vaccination programmes



Parents should be encouraged to ensure their baby starts its immunisations on time. Parents should ensure older brothers and sisters are up to date with their immunisations, in order to reduce the chance of them passing infection onto the young infant in the household.

Key role of Registered Healthcare practitioners

- To provide clear and concise information to every pregnant woman regarding vaccination against pertussis

Resources

- Green Book chapter 24 Pertussis
  https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/514363/Pertussis_Green_Book_Chapter_24_Ap2016.pdf
- SG patient leaflet
  http://www.immunisationscotland.org.uk/vaccines-and-diseases/whooping-cough.aspx
- Patient group direction
  http://www.hps.scot.nhs.uk/immvax/publicationsdetail.aspx?id=58191
- NHS Education for Scotland – Health Protection training resources (Training slides and QA)
  http://www.nes.scot.nhs.uk/education-and-training/by-theme-initiative/public-health/health-protection/immunisation/vaccination-against-pertussis-(whooping-cough).aspx
- CMO Letter (2012)-http://www.sehd.scot.nhs.uk/cmo/CMO(2012)09.pdf
- CMO Letter (2013)- http://www.sehd.scot.nhs.uk/cmo/CMO(2013)03.pdf
- CMO Letter (2016)- http://www.sehd.scot.nhs.uk/cmo/CMO(2016)08.pdf

Key Messages

- There is a lot of pertussis around at the moment and babies who are too young to start their vaccinations are at greatest risk
- Vaccination against pertussis for pregnant woman is considered the best way of providing protection to infants in the first weeks of life before old enough to start their own primary immunisation

April 2016 Green book chapter updates

- Pregnant woman should be offered a single dose of dTaP/IPV vaccine (Boostrix IPV®)
- Vaccine should be offered from 16 weeks of pregnancy
- Woman who have not received vaccine in pregnancy can be offered vaccine until their child receives their first pertussis vaccine