Public Health England

Protecting and improving the nation's health

Primary care immunisation update webinar series 2020

February 2020: Changes to the infant immunisation schedule: focus on PCV

Health Protection Team, PHE London

Learning outcomes

- Describe the changes to the PCV programme for infants in 2020
- Implement changes confidently in practice
- Identify PHE resources to support practitioners and parents/carers

Session overview

- Why change to immunisation programmes is good
- Key programme resources
- Overview of pneumococcal disease and immunisation programme
- Changes for infants born on/after 1st January 2020
- Guidance for infants in clinical risk groups
- Legal and practical aspects
- Other resources recently updated

Why change in immunisation programmes is good

- Immunisation programmes support population health through the reduction of vaccine preventable diseases
- Once implemented programmes remain under continued surveillance including how much disease is reported, carriage rates and vaccine uptake
- In the UK the JCVI lead this work and make recommendations to introduce, change or cease programmes based on the best available evidence

Working with schedule changes can be challenging but confident immunisers who are resilient to working with change, support the delivery of an effective and quality immunisation programme

Resources

Vaccine programmes

Joint letters from the Department of Health, Public Health England and NHS England announce changes to vaccine programmes. Training slide sets and other resources to accompany these new programmes are also available:

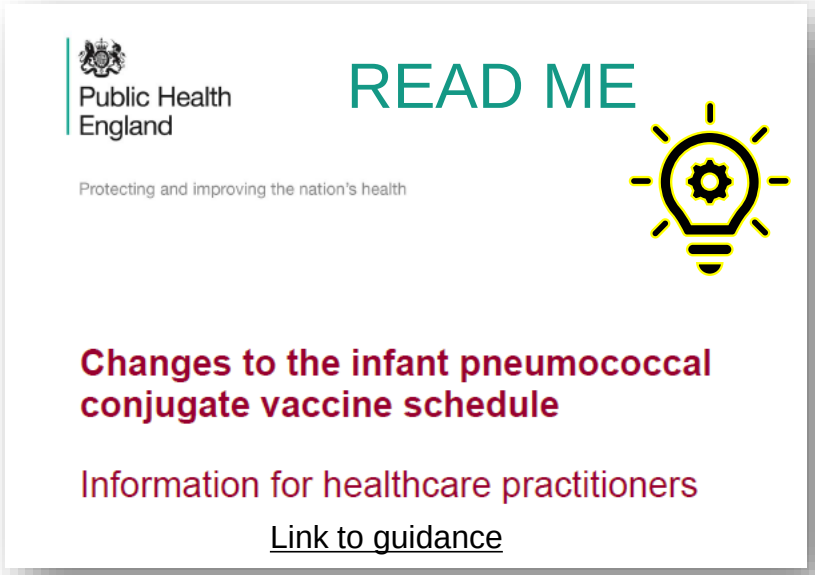
- Annual flu programme
- Human papillomavirus (HPV) universal vaccination programme
- Human papillomavirus (HPV) vaccination for men who have sex with men (MSM) programme
- Measles catch-up
- Meningococcal ACWY (MenACWY)
- Meningococcal B (MenB)
- Meningococcal C (MenC)
- Pneumococcal infant vaccination programme
- Rotavirus
- Shingles vaccination

At this link:

- Guidance
- Training slides
- Leaflets
- Programme documents

https://www.gov.uk/government/collections/immunisation

Guidance

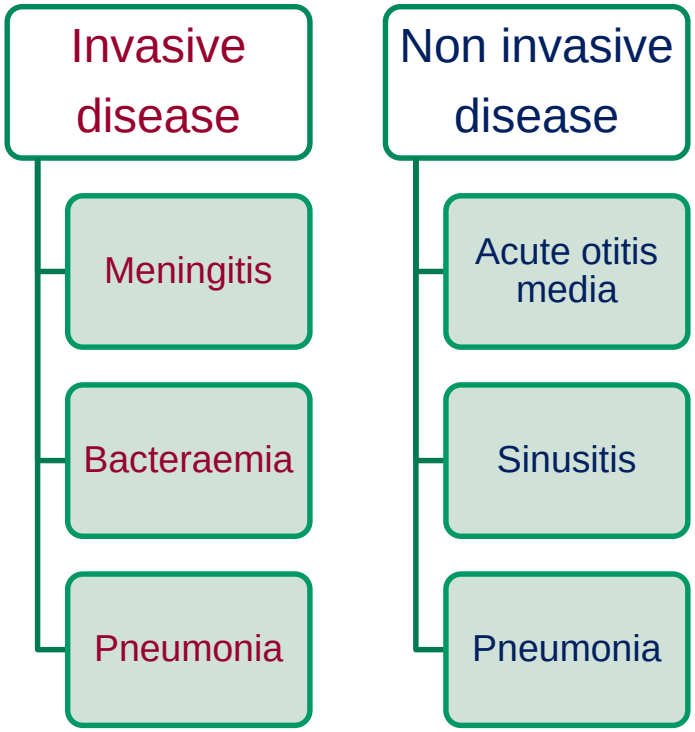


Includes:

- background to vaccine programme
- scheduling for birth cohorts
- infants given the incorrect schedule
- infants vaccinated abroad
- infants & children in clinical risk groups
- intervals between doses
- prophylactic paracetamol
- other potential errors
- resources: training slides, leaflets, Green Book chapters, PGDs

Pneumococcal disease

- causative agent – *Streptococcus pneumoniae*
- 90 capsular types – a small subset cause most disease
- commonly colonises the nasopharynx of young children



- can spread locally causing sinusitis & otitis media
- invasive pneumococcal disease (IPD) is rare and includes: meningitis, septicaemia and bacteraemic pneumonia, which are associated with significant morbidity and mortality

Pneumococcal vaccination programme

2003 to 2005	PPV introduced for older adults
2006	PCV7 introduced into infant schedule
2010	PCV7 replaced with PCV13

- The introduction of both PCV7 and PCV13 has been associated with a large and sustained decline in pneumococcal disease due to the vaccine serotypes
- A small increase in pneumococcal disease due to non-vaccine serotypes (serotype replacement disease) has occurred, mainly in older adults
- The PCV programme has been successful in achieving high levels of population immunity – risk of disease due to the 13 serotypes in the vaccine is very low

https://www.gov.uk/government/collections/pneumococcal-disease-guidance-data-and-analysis#epidemiology

Routine schedule change

Eligibility for the new schedule is based on the BIRTH DATE of the infant

All infants born on/before 31st December 2019	All infants born on/after 1st January 2020
2 + 1 PCV13 schedule	**1 + 1 PCV13 schedule**
8,16 weeks & 12 months of age	12 weeks and 12 months of age

1 + 1 PCV13 schedule

Dose 1 at 12 weeks of age:

- provides some individual protection from pneumococcal infection
- primes the immune system (enhances immune response to the 12 month booster)

Dose 2 at 12 months of age:

- provides individual protection from pneumococcal infection
- prevents nasopharyngeal carriage – which prevents spread – **very important part of programme as sustains population immunity**

Eligibility for PCV under routine programme remains up to second birthday

Summary of Evidence to Support 1+1 schedule

1. IPD incidence in England has remained stable since 2013/14 with no further declines in PCV13-serotype disease (Ladhani et al., 2018)
2. Pneumococcal carriage study performed after PCV13 implementation showed very little carriage of PCV13 serotypes in children (Southern et al., 2018)
3. A randomised controlled trial showed that post-booster serotype-specific antibody responses were similar following a 1+1 and 2+1 PCV13 schedule in infants (Goldblatt et al., 2018)
4. Modelling of IPD trends predicted that any increase in IPD cases following a move to a 1+1 schedule was likely to be very small, if any (Choi et al., 2019)
5. Impact on non-invasive pneumococcal disease is predicted to follow trends in invasive disease (Choi et al., 2019)

Slide 11 courtesy of PHE national training slides

1+1 PCV 13 schedule

First dose of PCV 13 must not be given before 12 weeks of age

Doses given before 12 weeks of age must be:

- discounted
- another dose given once infant is 12 weeks old allowing a minimum 4 week interval between doses of PCV13

If an infant has received their first primary immunisation early, for example at 6 weeks of age, the second primary immunisations should be scheduled for 12 weeks of age

If the second primary immunisations need to be given early the PCV must be only administered when infant has reached 12 weeks of age

Infants in clinical risk groups

Infants in defined clinical risk groups require additional doses of PCV13 due to increased risk of infection

Patients age (when presenting or first diagnosed)	Asplenia, splenic dysfunction, complement disorder or severe immunocompromise[1]
Infants from birth to one year of age	• **Two PCV13 doses at least 8 weeks apart** (commencing no earlier than 6 weeks of age) • **PCV13 booster at one year** (on or after the first birthday) • **Additional PCV13 dose at least 8 weeks later**
One year to two years of age	• **Routine PCV13 booster at one year** (on or after first birthday) • **Additional PCV13 dose at least 8 weeks later**

1. Examples of severe immunocompromise include bone marrow transplant patients, patients with acute and chronic leukaemia, multiple myeloma or genetic disorders affecting the immune system (such as IRAK-4,NEMO)

Adapted from table 25.3 page 8 pneumococcal chapter Green Book

Children 2 to under 10 years in clinical risk groups

Patients age (when presenting or first diagnosed)	**All clinical risk groups** (except severe immunocompromise)	**Severe immunocompromise**[1]
Two years to under 10 years	• no further PCV13 required (**if unimmunised or partially immunised, give one PCV13 dose**) • **PPV23 at 2 years**, at least 8 weeks after last PCV dose	• **one PCV13 dose** (even if unimmunised or partially immunised) • **PPV23 at 2 years**, at least 8 weeks after last PCV dose

1. Examples of severe immunocompromise include bone marrow transplant patients, patients with acute and chronic leukaemia, multiple myeloma or genetic disorders affecting the immune system (such as IRAK-4,NEMO)

Adapted from table 25.3 page 8 pneumococcal chapter Green Book

Patient group directions

- updated to support schedule change
- ensure you know which PGD supports which part of the programme

Routine programme: Pneumococcal polysaccharide conjugate vaccine (13-valent, adsorbed) Patient Group Direction (PGD)

- v03 valid from 26th February 2020
- v02 valid until 27th March for infants born on/before 31st December

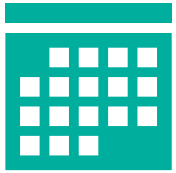
Clinical risk groups: Pneumococcal polysaccharide conjugate vaccine (13-valent, adsorbed) Risk Groups Patient Group Direction (PGD)

- v04 valid from 26th February 2020

https://www.england.nhs.uk/london/our-work/immunis-team/

Immunisation practice

When will the changes take effect in practice?



- Infants born on 1st January 2020 will become 8 weeks of age on 26th February and 12 weeks of age on 25th March

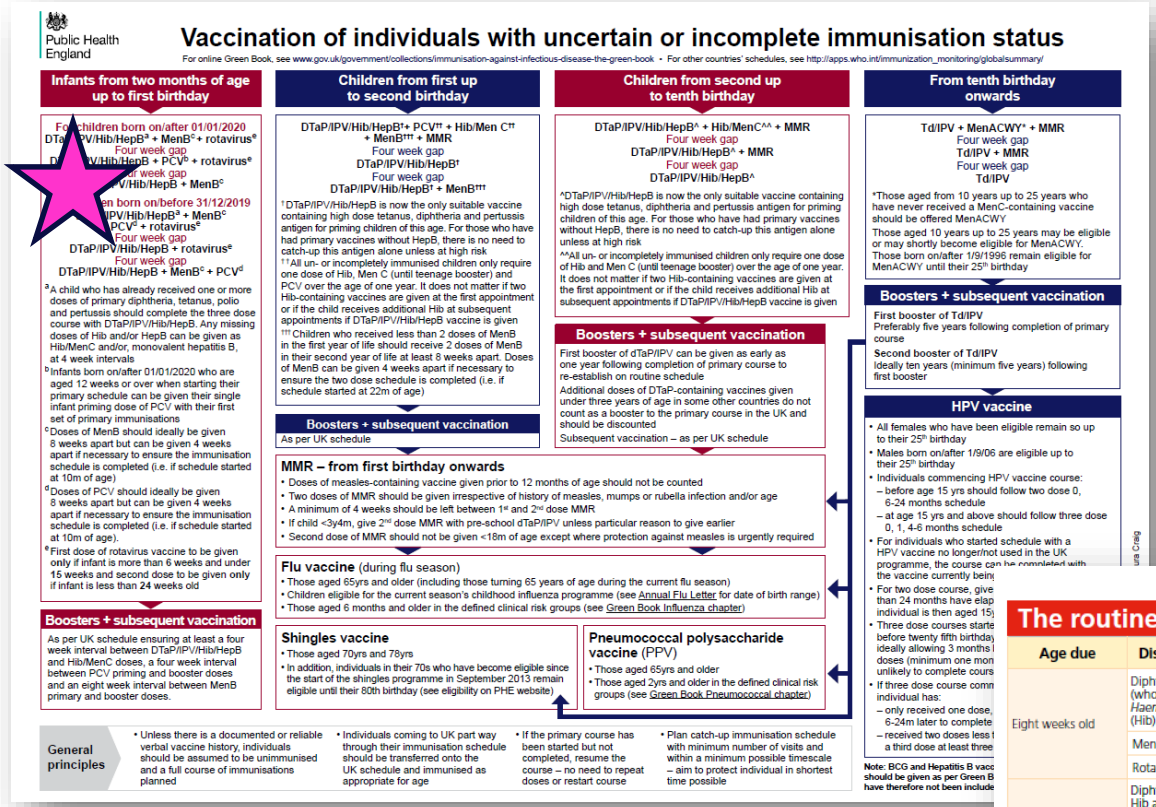
Is prophylactic paracetamol recommended at the 12 week imms?

- Prophylactic paracetamol will not be recommended for PCV at 12 weeks but remains recommended for when Men B is being administered with primary immunisations

Can the PCV13 supplied via Movianto be used for all eligible patients?

- No – centrally supplied vaccines cannot be used for additional doses of PCV13 needed over 1 year of age for risk groups

Other updated resources



Public Health England

Vaccination of individuals with uncertain or incomplete immunisation status

For online Green Book, see www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book · For other countries' schedules, see http://apps.who.int/immunization_monitoring/globalsummary/

Infants from two months of age up to first birthday

For children born on/after 01/01/2020
DTaP/IPV/Hib/HepB[a] + MenB[c] + rotavirus[e]
Four week gap
DTaP/IPV/Hib/HepB + PCV[b] + rotavirus[e]
Four week gap
DTaP/IPV/Hib/HepB + MenB[c]

For children born on/before 31/12/2019
DTaP/IPV/Hib/HepB[a] + MenB[c]
Four week gap
DTaP/IPV/Hib/HepB + PCV[d] + rotavirus[e]
Four week gap
DTaP/IPV/Hib/HepB + rotavirus[e]
Four week gap
DTaP/IPV/Hib/HepB + MenB[c] + PCV[d]

[a] A child who has already received one or more doses of primary diphtheria, tetanus, polio and pertussis should complete the three dose course with DTaP/IPV/Hib/HepB. Any missing doses of Hib and/or HepB can be given as Hib/MenC and/or, monovalent hepatitis B, at 4 week intervals

[b] Infants born on/after 01/01/2020 who are aged 12 weeks or over when starting their primary schedule can be given their single infant priming dose of PCV with their first set of primary immunisations

[c] Doses of MenB should ideally be given 8 weeks apart but can be given 4 weeks apart if necessary to ensure the immunisation schedule is completed (i.e. if schedule started at 10m of age)

[d] Doses of PCV should ideally be given 8 weeks apart but can be given 4 weeks apart if necessary to ensure the immunisation schedule is completed (i.e. if schedule started at 10m of age).

[e] First dose of rotavirus vaccine to be given only if infant is more than 6 weeks and under 15 weeks and second dose to be given only if infant is less than 24 weeks old

Boosters + subsequent vaccination

As per UK schedule ensuring at least a four week interval between DTaP/IPV/Hib/HepB and Hib/MenC doses, a four week interval between PCV priming and booster doses and an eight week interval between MenB primary and booster doses.

Children from first up to second birthday

DTaP/IPV/Hib/HepB[†+] PCV[††] + Hib/Men C[††] + MenB[†††] + MMR
Four week gap
DTaP/IPV/Hib/HepB[†] + MMR
Four week gap
DTaP/IPV/Hib/HepB[†] + MenB[†††]

[†] DTaP/IPV/Hib/HepB is now the only suitable vaccine containing high dose tetanus, diphtheria and pertussis antigen for priming children of this age. For those who have had primary vaccines without HepB, there is no need to catch-up this antigen alone unless at high risk

[††] All un- or incompletely immunised children only require one dose of Hib, Men C (until teenage booster) and PCV over the age of one year. It does not matter if two Hib-containing vaccines are given at the first appointment or if the child receives additional Hib at subsequent appointments if DTaP/IPV/Hib/HepB vaccine is given

[†††] Children who received less than 2 doses of MenB in the first year of life should receive 2 doses of MenB in their second year of life at least 8 weeks apart. Doses of MenB can be given 4 weeks apart if necessary to ensure the two dose schedule is completed (i.e. if schedule started at 22m of age)

Boosters + subsequent vaccination

As per UK schedule

MMR – from first birthday onwards

- Doses of measles-containing vaccine given prior to 12 months of age should not be counted
- Two doses of MMR should be given irrespective of history of measles, mumps or rubella infection and/or age
- A minimum of 4 weeks should be left between 1st and 2nd dose MMR
- If child <3y4m, give 2nd dose MMR with pre-school dTaP/IPV unless particular reason to give earlier
- Second dose of MMR should not be given <18m of age except where protection against measles is urgently required

Flu vaccine (during flu season)

- Those aged 65yrs and older (including those turning 65 years of age during the current flu season)
- Children eligible for the current season's childhood influenza programme (see Annual Flu Letter for date of birth range)
- Those aged 6 months and older in the defined clinical risk groups (see Green Book Influenza chapter)

Shingles vaccine

- Those aged 70yrs and 78yrs
- In addition, individuals in their 70s who have become eligible since the start of the shingles programme in September 2013 remain eligible until their 80th birthday (see eligibility on PHE website)

Pneumococcal polysaccharide vaccine (PPV)

- Those aged 65yrs and older
- Those aged 2yrs and older in the defined clinical risk groups (see Green Book Pneumococcal chapter)

Children from second up to tenth birthday

DTaP/IPV/Hib/HepB^ + Hib/MenC^^ + MMR
Four week gap
DTaP/IPV/Hib/HepB^ + MMR
Four week gap
DTaP/IPV/Hib/HepB^

^ DTaP/IPV/Hib/HepB is now the only suitable vaccine containing high dose tetanus, diphtheria and pertussis antigen for priming children of this age. For those who have had primary vaccines without HepB, there is no need to catch-up this antigen alone unless at high risk

^^ All un- or incompletely immunised children only require one dose of Hib and Men C (until teenage booster) over the age of one year. It does not matter if two Hib-containing vaccines are given at the first appointment or if the child receives additional Hib at subsequent appointments if DTaP/IPV/Hib/HepB vaccine is given

Boosters + subsequent vaccination

First booster of dTaP/IPV can be given as early as one year following completion of primary course to re-establish on routine schedule

Additional doses of DTaP-containing vaccines given under three years of age in some other countries do not count as a booster to the primary course in the UK and should be discounted

Subsequent vaccination – as per UK schedule

From tenth birthday onwards

Td/IPV + MenACWY* + MMR
Four week gap
Td/IPV + MMR
Four week gap
Td/IPV

*Those aged from 10 years up to 25 years who have never received a MenC-containing vaccine should be offered MenACWY

Those aged 10 years up to 25 years may be eligible or may shortly become eligible for MenACWY. Those born on/after 1/9/1996 remain eligible for MenACWY until their 25th birthday

Boosters + subsequent vaccination

First booster of Td/IPV
Preferably five years following completion of primary course

Second booster of Td/IPV
Ideally ten years (minimum five years) following first booster

HPV vaccine

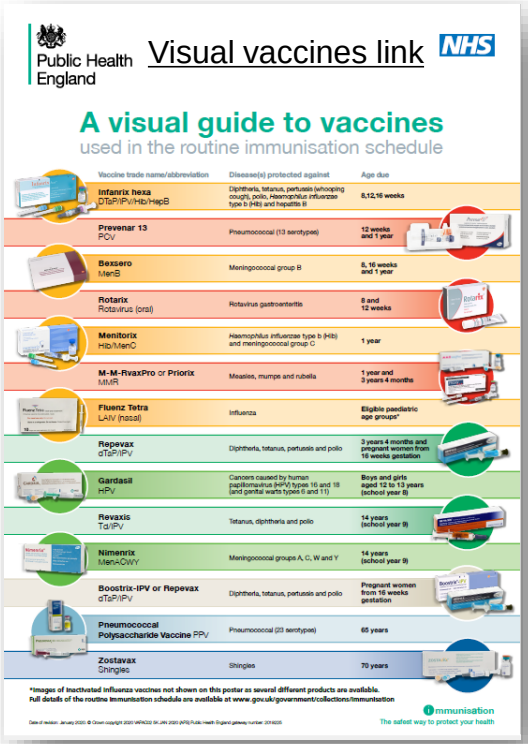
- All females who have been eligible remain so up to their 25th birthday
- Males born on/after 1/9/06 are eligible up to their 25th birthday
- Individuals commencing HPV vaccine course:
  - before age 15 yrs should follow two dose 0, 6-24 months schedule
  - at age 15 yrs and above should follow three dose 0, 1, 4-6 months schedule
- For individuals who started schedule with a HPV vaccine no longer/not used in the UK programme, the course can be completed with the vaccine currently being
- For two dose course, give than 24 months have elap individual is then aged 15
- Three dose courses starte before twenty fifth birthday ideally allowing 3 months doses (minimum one mon unlikely to complete cours
- If three dose course comm individual has:
  - only received one dose, 6-24m later to complete
  - received two doses less t a third dose at least three

Note: BCG and Hepatitis B vacc should be given as per Green B have therefore not been include

General principles

- Unless there is a documented or reliable verbal vaccine history, individuals should be assumed to be unimmunised and a full course of immunisations planned
- Individuals coming to UK part way through their immunisation schedule should be transferred onto the UK schedule and immunised as appropriate for age
- If the primary course has been started but not completed, resume the course – no need to repeat doses or restart course
- Plan catch-up immunisation schedule with minimum number of visits and within a minimum possible timescale – aim to protect individual in shortest time possible

Link to algorithm



Public Health England

Visual vaccines link

NHS

A visual guide to vaccines

used in the routine immunisation schedule

Vaccine trade name/abbreviation	Disease(s) protected against	Age due
Infanrix hexa DTaP/IPV/Hib/HepB	Diphtheria, tetanus, pertussis (whooping cough), polio, Haemophilus influenzae type b (Hib) and hepatitis B	8,12,16 weeks
Prevenar 13 PCV	Pneumococcal (13 serotypes)	12 weeks and 1 year
Bexsero MenB	Meningococcal group B	8, 16 weeks and 1 year
Rotarix Rotavirus (oral)	Rotavirus gastroenteritis	8 and 12 weeks
Menitorix Hib/MenC	Haemophilus influenzae type b (Hib) and meningococcal group C	1 year
M-M-RvaxPro or Priorix MMR	Measles, mumps and rubella	1 year and 3 years 4 months
Fluenz Tetra LAIV (nasal)	Influenza	Eligible paediatric age groups*
Repevax dTaP/IPV	Diphtheria, tetanus, pertussis and polio	3 years 4 months and pregnant women from 16 weeks gestation
Gardasil HPV	Cancers caused by human papillomavirus (HPV) types 16 and 18 (and genital warts types 6 and 11)	Boys and girls aged 12 to 13 years (school year 8)
Revaxis Td/IPV	Tetanus, diphtheria and polio	14 years (school year 9)
Nimenrix MenACWY	Meningococcal groups A, C, W and Y	14 years (school year 9)
Boostrix-IPV or Repevax dTaP/IPV	Diphtheria, tetanus, pertussis and polio	Pregnant women from 16 weeks gestation
Pneumococcal Polysaccharide Vaccine PPV	Pneumococcal (23 serotypes)	65 years
Zostavax Shingles	Shingles	70 years

*Images of inactivated influenza vaccines not shown on this poster as several different products are available. Full details of the routine immunisation schedule are available at www.gov.uk/government/collections/immunisation

immunisation
The safest way to protect your health

Schedule link

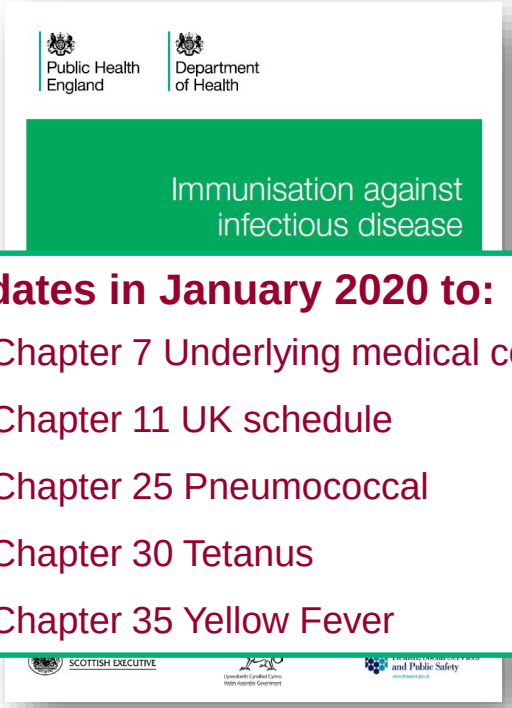
The routine immunisation schedule from January 2020

Age due	Diseases protected against	Vaccine given and trade name		Usual site
Eight weeks old	Diphtheria, tetanus, pertussis (whooping cough), polio, *Haemophilus influenzae* type b (Hib) and hepatitis B	DTaP/IPV/Hib/HepB	Infanrix hexa	Thigh
	Meningococcal group B (MenB)	MenB	Bexsero	Left thigh
	Rotavirus gastroenteritis	Rotavirus	Rotarix	By mouth
Twelve weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB	Infanrix hexa	Thigh
	Pneumococcal (13 serotypes)	Pneumococcal conjugate vaccine (PCV)	Prevenar 13	Thigh
	Rotavirus	Rotavirus	Rotarix	By mouth
Sixteen weeks old	Diphtheria, tetanus, pertussis, polio, Hib and hepatitis B	DTaP/IPV/Hib/HepB	Infanrix hexa	Thigh
	MenB	MenB	Bexsero	Left thigh
One year old (on or after the child's first birthday)	Hib and MenC	Hib/MenC	Menitorix	Upper arm/thigh
	Pneumococcal	PCV booster	Prevenar 13	Upper arm/thigh
	Measles, mumps and rubella (German measles)	MMR	MMR VaxPRO[2] or Priorix	Upper arm/thigh
	MenB	MenB booster	Bexsero	Left thigh

Keeping up to date

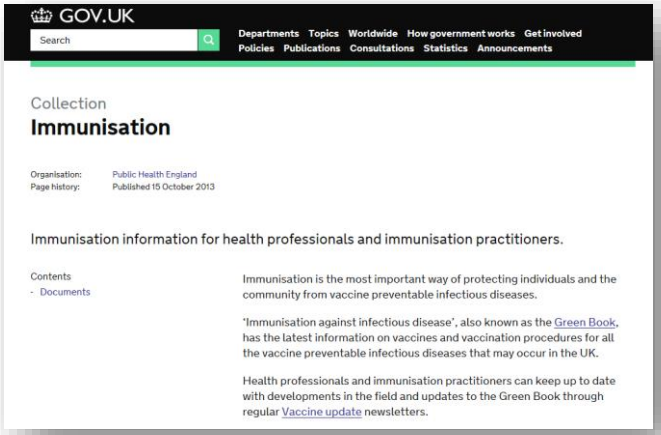
Have access to and be familiar with:

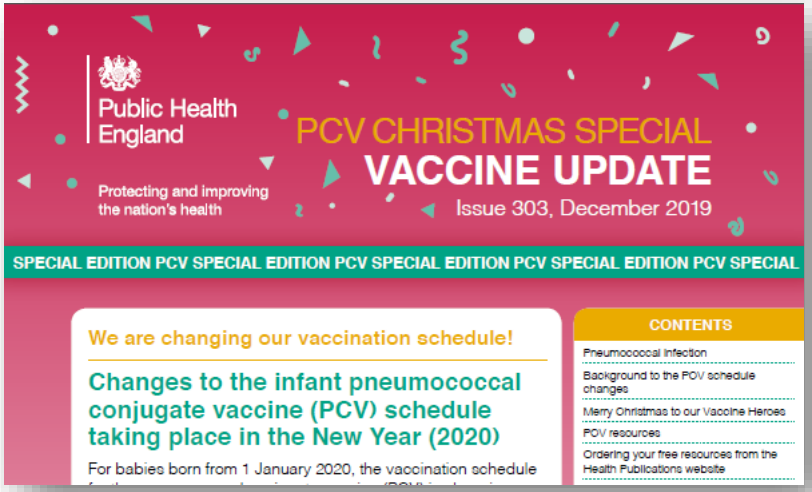
- Online Green Book
- Vaccine update
- PHE immunisation webpages



Updates in January 2020 to:

- Chapter 7 Underlying medical conditions
- Chapter 11 UK schedule
- Chapter 25 Pneumococcal
- Chapter 30 Tetanus
- Chapter 35 Yellow Fever





Primary care immunisation update webinar series 2020

February to July

- Infant schedule changes: focus on PCV
- Incomplete immunisation schedules
- Vaccine ordering, storage & handling
- Addressing concerns around vaccines
- Child and adolescent schedule update
- Individuals with underlying medical conditions

September to December

- Influenza programme 2020/21
- Shingles and pneumococcal (adult) vaccines
- Vaccine administration: best practice
- Adverse events following immunisation