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Immunisation & Vaccination

Frequently Asked Questions 2020/2021

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Immunisation Basics and Education/Training

Q. Where can I find up-to-date information on vaccines?

A. The key documents for immunisers are: - Immunisation against Infectious Diseases, Green Book* and NHSGGC PGDs. Other useful online resources are listed below:

NHSGGC Immunisation Website

NHSGGC Immunisation and Best Practice Guidelines 2018

PHPU Newsletter

Routine immunisation schedule 2019 includes additional vaccines for individuals with underlying medical conditions

Childhood Seasonal Flu Vaccination Programme Resources for Registered Practitioners

** The Green Book is now online only. It was last printed in 2006, and paper copies are very out of date. Paper copies of the Green Book should be recycled. Immunisers should also be able to get advice from their line-manager, team leader, senior nurse or midwife or GP*

Q. What advisory service is provided by the Public Health Protection Unit (PHPU)?

A. PHPU can provide immunisation advice if the answer is not available from the sources above. The service standards for responding to immunisation enquiries are within 24 hours for emails and within 48 hours for telephone enquiries. However, most responses are provided more quickly than this, as are enquiries relating to vaccine incident/error, post-exposure prophylaxis or other immediate clinical need.

E-mail: phpu@ggc.scot.nhs.uk Tel: 0141 201 4917 option 3

Q. How are BCG appointment requests made to PHPU?

A. There is a dedicated generic inbox to which referrals should be sent. The BCG referral form is available on-line on the PHPU website and on completion should be emailed to Bcg.Phpu@ggc.scot.nhs.uk

NB *Staff are asked to check if the child has resided in a high-risk country for 3 months or more, in which case a Mantoux test will be required. Please note that this is only carried out at the Woodside clinic so it's important that children are appointed to the appropriate clinic. The situation where a parent has taken leave from work, undertaken a long, and sometimes expensive, journey to a BCG clinic only to be informed that the child needs to be appointed to another clinic for Mantoux has to be avoided. Health visitors will be notified of the new referral process on the TASK message sent from Child Health with the list of unvaccinated BCG-eligible children.*

Q. What training resources are available for staff?

A. NHS Education for Scotland (NES) is an education and training body and a special health board within NHS Scotland, with responsibility of developing and delivering education and training for the healthcare workforce in Scotland. The NES website has educational films and accompanying slides which aim to update knowledge on various vaccination programmes such as Flu, rotavirus, Men B, shingles as well as clinical and staff governance issues.

Training slides from the annual PHPU staff immunisation seminar presentation are on the PHPU website

Promoting Effective Immunisation Practice is an online education resource that has been developed by NHS Education Scotland and Health Protection Scotland and can be accessed via Turas Learn

Q. How can I test my immunisation knowledge?

A. Public Health England has devised multiple choice questions to help test knowledge and understanding of each of the chapters of the Green Book. To make best use of the MCQs as a learning and revision tool it is recommend that you read a chapter in detail before attempting the relevant questions. For answers to PHE MCQs click here

Q. How do I obtain a child's immunisation history?

A. This information is not held by the PHPU. For details of immunisation histories of children and young people contact Child Health Department 0141 277 7616. This number should be used by HCW in primary care and not distributed to patients requesting vaccine history. Email can also be used:
school.screening@ggc.scot.nhs.uk if you require the vaccine history for a school age child
childhealth.screeing@ggc.scot.nhs.uk if you require the vaccine history for a pre-school child

Q. There is a difference between the manufacturer's guidance/SPC and the Green Book/PGD, which should I follow?

A. Always follow the Green Book in preference to the SPC/manufacturer's own guidance, if there is a discrepancy between them. The recommendations in the Green book are based on current expert advice received from the Joint Committee on Vaccination and Immunisation (JCVI). The PGD will always indicate if use is outside the SPC.

Ref Green Book Chapter 4

Immunisation by nurses and other health professionals

Q. What is a Patient Specific Direction (PSD)?

A. A Patient Specific Direction (PSD) is a written instruction, signed by a doctor, dentist, or non-medical prescriber for medicines to be supplied and/or administered to a named patient after the prescriber has assessed the patient on an individual basis and where the recommendation is outside the criteria specified in the PGD.

Q. What about consent when vaccinating children and young people?

A. For infants and young children not able/competent to give or withhold consent, consent can be given by a person with parental responsibility, provided that person is capable of consenting to the immunisation in question and is able to communicate their decision. Where this person brings the child in response to an invitation for immunisation and, following an appropriate consultation, presents the child for that immunisation, these actions may be considered evidence of consent.

Young people aged 16 and 17 are presumed, in law, to be able to consent to their own medical treatment. Younger children who understand fully what is involved in the proposed procedure (referred to as 'Gillick competent') can also give consent, although ideally their parents will be involved.

If a person aged 16 or 17 or a Gillick-competent child consents to treatment, a parent cannot override that consent. If the health professional giving the immunisation felt a child was not Gillick competent then the consent of someone with parental responsibility would be sought.

If a person aged 16 or 17 or a Gillick-competent child refuses treatment that refusal should be accepted. It is unlikely that a person with parental responsibility could overrule such a refusal. It is possible that the court might overrule a young person's refusal if an application to court is made under section 8 of the Children Act 1989 or the inherent jurisdiction of the High Court. There is no requirement for consent to be in writing.

Ref Green Book Chapter 2

Timing of immunisations

Q. Can I give vaccines earlier than the age stated on the routine schedule?

A. Yes. Vaccines do not need to be given on the precise data calculated from the schedule. Generally vaccines can be given a few days prior to the scheduled date. The routine schedule for the primary immunisation is 8, 12 and 16 weeks. There are some specific examples which differ from this general rule and the Green Book should always be checked. Details for primary immunisations and MMR are covered in the relevant sections below.

The first dose of primary immunisations can be given from six weeks of age if required in certain circumstances e.g. travel to an endemic country. Although Men B vaccine is licensed for use from 2 months of age it can, in exceptional circumstances, be given from six weeks of age under the PGD.

A four week interval is recommended between each of the three doses of DTaP-containing vaccine in the primary schedule although if one of these doses is given up to a week early, either inadvertently or deliberately e.g. for travel reasons, then this can be counted as a valid dose and does not need to be repeated. However, no more than one dose should be given early in the three dose schedule.

MMR vaccine can be given from six months of age, for example during a local outbreak or when travelling to endemic countries. Any dose of MMR given below the age of one year should be discounted, and two further doses will be required at the appropriate ages.

Please note that children are scheduled by Child Health to receive their vaccines when they are ≥56 days (8 weeks) old with their day of birth being day 1.

Ref Green Book Chap 11

Q. What are the recommended time intervals when giving more than one live attenuated vaccine?

A. The Green book Chapter 11, August 2019 published the table below.

Vaccine combinations	Recommendations
Yellow Fever and MMR	A four week minimum interval period should be observed between the administration of these two vaccines. Yellow Fever and MMR should not be administered on the same day
Varicella (and zoster) vaccine and MMR	If these vaccines are not administered on the same day, then a four week minimum interval should be observed between vaccines.
Tuberculin skin testing (Mantoux) and MMR	MMR vaccination and tuberculin skin testing can be performed on the same day. However, if a tuberculin skin test has already been initiated, then MMR should be delayed until the skin test has been read unless protection against measles is required urgently. If a child has had a recent MMR, and requires a tuberculin test, then a four week interval should be observed
All currently used live vaccines (BCG, rotavirus, live attenuated influenza vaccine (LAIV), oral typhoid vaccine, yellow fever, varicella, zoster and MMR).	Apart from those combinations listed above, these vaccines can be administered at any time before or after each other. This includes tuberculin (Mantoux) skin testing.

Q. Is it safe for babies and children to receive several vaccines at once?

A. Some parents may worry that a child's immune system will not be able to cope with several vaccines at once. It is estimated that the human body contains enough white blood cells to cope with thousands of vaccines at any one time. It is not recommended to delay vaccinations because it leaves the child unprotected against serious diseases for longer. Vaccines also challenge the immune system less than a disease does.

Q. Why are so many doses needed for each vaccine?

A. Receiving all the recommended doses of each vaccine provides the best protection possible. Depending on the vaccine, children will need more than one dose to build high enough immunity to prevent disease or to boost immunity that fades over time. The child may also receive more than one dose to make sure they are protected if they did not get immunity from a first dose, or to protect them against germs that change over time, like flu. Every dose is important because each protects against infectious diseases that can be especially serious for infants and very young children.

Q. What is the minimum gap between different vaccines?

A. There is no minimum gap required between different INACTIVATED vaccines. Advice on intervals between different live vaccines is based on existing specific evidence of interference between vaccines. The current advice is detailed in Table 11.2, Green Book chapter 11. Recommended time intervals when giving more than one live attenuated vaccine

Q. A child was born prematurely – what age should they receive their vaccines?

A. Premature children should receive vaccines at the chronological age according to the schedule. Due to the benefit of vaccines in this group, they should not be withheld or delayed. Very premature babies (born <28 weeks gestation) who are in hospital at time of 1st immunisation should receive respiratory monitoring for 48-72 hrs when given the first dose, particularly those with a previous history of respiratory immaturity. If a child has apnoea, bradycardia, reduced SaO2 after their 1st immunisation, the 2nd immunisations should also be given in hospital with respiratory monitoring following vaccination. Ref Green Book Chapter 7

Q. Should routine immunisations be deferred in babies who have not yet had their 6-8 week checks?

A. No, none of the conditions that are screened for would constitute a contraindication to immunisation. The 6 to 8 week check forms part of the newborn and infant physical examination screening programme. The newborn element aims to identify and refer all children born with congenital abnormalities of the eyes, heart, hips, and testes, within 72 hours of birth. The second examination is designed to identify abnormalities that may become detectable in older infants - that is, at 6-8 weeks of age. Therefore there is no indication for the checks to take place before the first immunisations are given.

There is a PHE Algorithm which outlines how to manage the screening of children with uncertain or incomplete screening status and covers the 3 newborn screening programmes. There is an opportunity, at the same time of assessing a child's vaccination status, to offer newborn screening tests at different ages if missed at birth. The algorithm explains which screening tests can be offered at different ages.

Q. What is the number of doses of diphtheria/ tetanus and polio vaccines required to give long-term protection throughout adulthood?

A. The objective of the immunisation programme is to provide a minimum of five doses of tetanus-containing vaccine.

Incomplete and unscheduled immunisations

Q. A child has come from overseas/ was not brought for vaccines when younger, what vaccinations should I give now?

A. The aim is to devise a schedule that provides the necessary protection, and brings the child in line with the UK routine schedule as quickly as possible with the minimum number of visits. If there is no reliable history of vaccination, the PHE flow chart should be followed.
Children coming from developing countries will probably have received a measles-containing vaccine in their country of origin but may not have received mumps or rubella vaccines.

The PHE incomplete/unscheduled immunisations flow chart October 2019 provides the details of how to achieve this, depending on the age of the child.

Q. Do I need to repeat vaccine doses given previously?

A. If there is clear evidence that a vaccine dose has been given, there is no need to repeat that dose

Q. Do I need to restart a course if doses were delayed/not given?

A. No, generally there is no need to restart a course, just start from the point the previous course had been interrupted. There are a small number of exceptions to this, notably oral typhoid and cholera vaccines.

Q. Where do I find the routine immunisation schedules for other countries?

A. Routine schedules for most countries can be found on the WHO website

(To identify the routine vaccines in a specific **country** select it from the Drop down list, **select all vaccines** and press **ok**). However, just because a vaccine is listed on the schedule, it cannot be assumed that this was the schedule in force at the time an individual was vaccinated, nor that any individual received any particular vaccine without clear documentation of vaccination.

Q. Where do I find the tuberculosis incidence by country?

A. These can be found on the PHE website TB incidence by country

- check which countries have a high incidence of tuberculosis (TB)
- can help decide whether to give a BCG vaccination to children who have arrived in the UK from those countries

General Contra-indications

Q. Are there any contraindications which apply to all vaccines?

A. There are only two absolute contraindications that apply to all vaccines

- Confirmed anaphylactic reaction to a previous dose of a vaccine containing the same antigens
- Confirmed anaphylactic reaction to another component of the vaccine.

There may be further contraindications for specific groups so the relevant Green Book Chapter/PGD should always be checked.

Q. What are the additional contraindications that apply to live vaccines?

A. Live vaccines may be contraindicated in those who are:

- Immunosuppressed
- Pregnant

Q. There are many misconceptions around contraindications – what situations are NOT contraindications?

A. The following are not considered contraindications:

- family history of any adverse reactions following immunisation
- previous history of the disease (with the exception of BCG for people who have evidence of past exposure to tuberculosis)
- contact with an infectious disease
- premature birth
- stable neurological conditions such as cerebral palsy and Down's syndrome
- asthma, eczema or hay fever
- mild self-limiting illness without fever, e.g. runny nose
- treatment with antibiotics or locally acting (e.g. topical or inhaled) steroids
- child's mother or someone in the household being pregnant
- currently breast-feeding or being breast-fed
- history of jaundice after birth
- under a certain weight
- being over the age recommended in the routine childhood immunisation schedule
- personal history of febrile convulsions or epilepsy
- close family history (parent or sibling) of febrile convulsions or epilepsy
- being a sibling or close contact of an immunosuppressed individual
- recent or imminent elective surgery
- imminent general anaesthesia
- unknown or inadequately documented immunisation history

(Whilst these are not contraindications, there may be precautions for specific vaccines. Check the appropriate Green Book chapter/PGD)

Q. Some vaccines are contraindicated in specific groups – which vaccines and in which groups?

A. Influenza and yellow fever vaccines are the only vaccines that are contraindicated for people who have a history of a severe (anaphylactic) allergy to eggs.

Individuals who have egg allergy may be at increased risk of reaction to some influenza vaccines.

Green Book Chapter 19 contains detailed information on administration of influenza vaccine in these patients.

Q. Is there a risk of potential exposure during administration of the live influenza vaccine (LAIV) to children and health care workers?

A. The PHE document, Information for head teachers and health care workers about the nasal flu vaccine and viral shedding (2015) outlines specific information on potential exposure during administration of the live flu vaccine and viral shedding post vaccination, to children with a weakened immune system and health care workers.

Excluding immunocompromised children from school during the period when LAIV is being offered is not necessary. The only exception to this would be a small number of children who are extremely immunocompromised (e.g. those who have just had a bone marrow transplant). These children are normally advised not to attend school anyway because of the higher risk of being in contact with other childhood infections that spread in schools.

Health care workers who are immunocompromised and those who are pregnant can safely administer the vaccine. As a precautionary measure, however, very severely immunocompromised healthcare workers should not administer LAIV.

Q. Are there any considerations to be given to a person's religious beliefs when offering Fluenz® nasal spray vaccine?

A. The nasal vaccine contains a highly processed form of pork gelatine as one of its additives. It is used in many essential medicines. The gelatine helps keep the vaccine virus stable to provide the best protection against flu. Many faith groups, including Muslim and Jewish communities, have approved the use of gelatine-containing vaccines. The nasal spray is much more effective for children than the vaccine injection, however, those who choose not to have it for religious reasons can ask for the injection see NHS Inform site

Q. How do I report an adverse reaction to a vaccine?

A. All medicines can cause side effects. The Yellow Card Scheme is vital in helping the MHRA monitor the safety of all healthcare products in the UK including vaccines, blood factors and immunoglobulin. Suspected adverse reactions (ADRs) to vaccines should be reported via the Yellow Card Scheme

Chapter 9 of the Green Book gives detailed guidance on which ADRs to report and how to do so.

Green Book Chapter 8 of the Green Book provides detailed advice on managing ADRs following vaccination

Pregnancy and post-natal period

Q. Which vaccines should be offered to pregnant women?

A. All pregnant women should be offered the seasonal flu vaccine (any stage during pregnancy), and pertussis-containing vaccine (ideally between weeks 16 and 32, but can be given up to two months after delivery if missed during pregnancy).

Q. Where will the vaccines be delivered to pregnant women?

A. Maternity Services in NHSGGC will commence vaccination of pregnant women on Monday 18th November 2019.Immunisation for flu and pertussis will be offered prospectively, to all women who book with NHSGGC maternity services from this date.

- Flu will be offered at the 12 week scan. Women attending the IRH Community Maternity Unit will be offered it at the booking visit.
- Whooping Cough (Pertussis) will be offered at the 20 week scan. Women attending the Vale of Leven Community Maternity Unit will be offered it at the 16 week antenatal appointment. Flu will also be offered at this visit to anyone who has not already received it. However, there remains a cohort of women who are eligible for vaccination, but who will already be beyond the 20 week scan on the 18th November. Maternity services are, in this pilot year of implementation, unable to offer ad hoc appointments outwith these agreed set touchpoints.

Therefore, for this group of women we require on-going support from General Practitioners. GPs should continue to provide vaccination of both flu and pertussis on request to ensure that all eligible women have the opportunity to be vaccinated in pregnancy.

Q. A woman had pertussis-containing vaccine during her last pregnancy, does she require to have it in a subsequent pregnancy?

A. Yes. The principle aim of the vaccination programme is to provide passive immunity to the unborn child, by inducing maternal antibodies which cross the placenta. The recommended vaccination period is chosen to maximise the amount of antibody that crosses the placenta.

From 1st April 2016, pertussis-containing vaccine should be offered to pregnant women from 16 weeks gestation, ideally after their foetal anomaly scan (usually at around 20 weeks). It is recommended that women should be offered the vaccine between gestational weeks 16 and 32 to maximise the likelihood that the baby will be protected from birth.

Women may still be immunised after week 32 of pregnancy until delivery but this may not offer as high a level of passive protection to the baby however, if not vaccinated earlier in pregnancy, vaccinating the mother between 38 weeks and two months **after** delivery will provide some extra protection by reducing the risk of the mother contracting pertussis.

Q. Are there any vaccines which should not be given to pregnant women?

A. There is a theoretical concern that vaccinating pregnant women with live vaccines may infect the foetus. There is no evidence that any live vaccine (including rubella and MMR) causes birth defects. However, since the theoretical possibility of foetal infection exists, live vaccines should generally be delayed until after delivery.

Since inactivated vaccines cannot replicate they cannot cause infection in either the mother or the foetus. However, inactivated vaccines should be administered to pregnant women only if protection is required without delay.

Q. Ante-natal rubella testing shows the patient is rubella non-immune – what action needs to be taken?

A. Since 2016, the routine antenatal testing of women for rubella susceptibility ceased. Pregnant women should have their vaccine status checked during or after pregnancy, for example at the post-natal check, and be offered any outstanding doses of MMR soon after delivery. Satisfactory evidence of protection would include documentation of having received two doses of rubella-containing vaccine.

Q. The mother of a baby, presenting for their primary immunisations, was receiving immunosuppressive treatment while pregnant. Should rotavirus, a live vaccine, be administered?

A. Immunisation with live vaccines should be delayed until 6 months of age in children born to mothers who received immunosuppressive biological therapy *(e.g. Anti-TNF therapy such as alemtuzumab, ofatumumab, rituximab)* during pregnancy. In practice, this means that children born to mothers who were on immunosuppressive biological therapy during pregnancy will not be eligible to receive rotavirus vaccine (and will need to defer BCG, if indicated, for 6 months). Specialist advice should be sought if there is any doubt as to whether an infant due to receive a live attenuated vaccine may be immunosuppressed due to the mother's therapy.

Breast-fed babies whose mothers are receiving immunosuppressive biological therapy
Specialist advice should be sought for breast-fed babies who require a live vaccine, including MMR, and whose mothers are receiving immunosuppressive biological therapy.

See the relevant sections in the Rotavirus PGD **and the** BCG PGD

Live vaccines currently available in the UK are:

- live influenza vaccine (Fluenz Tetra)
- Measles, Mumps and Rubella vaccine (Priorix, MMRVaxPro)
- Rotavirus vaccine (Rotarix)
- Shingles vaccine (Zostavax)
- BCG vaccine
- Oral typhoid vaccine (Ty21a)
- Varicella vaccine (Varilrix, Varilvax)
- Yellow Fever vaccine

Live vaccines should not be administered to individuals on immunosuppressive therapy including:

- those who are receiving, or have received in the past 6 months, immunosuppressive chemotherapy or radiotherapy for malignant disease or non-malignant disorders
- those who are receiving, or have received in the past 6 months, immunosuppressive therapy for a solid organ transplant (with exceptions, depending upon the type of transplant and the immune status of the patient)
- those who are receiving or have received in the past 12 months immunosuppressive biological therapy (e.g. anti-TNF therapy such as alemtuzumab, ofatumumab and rituximab) unless otherwise directed by a specialist
- those who are receiving or have received in the past 3 months immunosuppressive therapy including:-
    - adults and children on high-dose corticosteroids (>40mg prednisolone per day or 2mg/kg/day in children under 20kg) for more than 1 week
    - adults and children on lower dose corticosteroids (>20mg prednisolone per day or 1mg/kg/day in children under 20kg) for more than 14 days
    - adults on non-biological oral immune modulating drugs e.g. methotrexate >25mg per week, azathioprine 3.0mg/kg/day or 6-mercaptopurine >1.5mg/kg/day
    - for children on non-biological oral immune modulating drugs (except those on low doses) specialist advice should be sought prior to vaccination.

MMR and pneumococcal vaccines

Q. Can I give MMR to someone with an egg allergy?

A. Yes. Recent data has shown that adverse incidents relating to MMR are not due to egg proteins, and current recommendation is that MMR is given in primary care to those with reported egg allergy. This is a change to previous guidance. Ref Green Book Chapter 21

Q. Is MMR safe? Does it cause autism? Does it contain mercury?

A. Whilst, as with all medicines, there can be serious adverse effects, these are very rare. Detailed epidemiological studies of children have demonstrated that there is no link between MMR and autism. There is no thiomersal or other mercury containing compound used in the MMR vaccine used in the UK.

Q. Is MMR safe for children with chronic conditions?

A. Children with chronic conditions such as cystic fibrosis, congenital heart or kidney disease, failure to thrive or Down's syndrome are at particular risk from measles infection and should be immunised with MMR vaccine.

Q. What is the correct timing between doses of MMR?

A. The routine schedule is for the first dose between 12 and 13 months, with booster dose from 3 years and 4 months. This schedule is designed to give the best immunological response. MMR can be given at shorter intervals. The first dose can be given after child turns 1 year old, and the booster given 1 month later (3 months later if child is under 18 months old). This is the timing used for those with uncertain or incomplete immunisation histories.

Q. Can the MMR be given earlier as a travel vaccine?

A. Yes. MMR can be given as a travel vaccine from 6 months of age to provide protection if child is travelling to an area with high level of circulating measles. As the vaccine will have been given under the age of 1 year, the child should receive immunisation with two further doses of MMR at the recommended ages to ensure long-lasting protection.

Q. When should pneumococcal vaccine be repeated?

A. People aged 65yrs and over only need a single pneumococcal vaccination. This vaccine is not given annually like the flu vaccine. Those with a long-term health condition may need just a single one-off pneumococcal vaccination or vaccination every 5 years, depending on their underlying health problem.

As advised in the Green Book, one of the clinical risk groups which should receive pneumococcal immunisation is the group with Asplenia/Dysfunction of the spleen (includes coeliac syndrome which may lead to splenic dysfunction). Antibody levels are likely to decline rapidly in individuals with no spleen, splenic dysfunction or chronic renal disease and therefore re immunisation with PPV23 is recommended every five years in these groups.

Ref Green Book Chapter 25

Vaccine incidents, errors, and supplies

Q. There has been an error in vaccine administration, what should I do?

A. In the vast majority of vaccine incidents there is no harm caused, beyond perhaps needing to give an additional vaccine and increased risk of localised reaction at the injection site. It is important to be open and honest with patients/parents. When an incident occurs, inform your line manager and call PHPU for further information and advice, including guidance on future vaccine schedule. When calling PHPU be sure to state that it relates to a vaccine error, as this will allow us to provide you with the required assistance as quickly as possible.

The incident should also be reported through local clinical governance mechanisms and reviewed and reflected upon to ensure any lessons identified are put into practice to help minimise future errors.

NHS Vaccine Incident Guidance 2019 advises on the actions to take in response to vaccine errors and considerations and general principles for revaccination

Q. Parents are asking for single vaccines for measles/mumps/rubella/polio/diphtheria/tetanus etc, are these available?

A. Combination vaccines are safe and effective, and provide the best way of ensuring a child is fully protected, and as such Public Health cannot advocate the use of single vaccines. In addition for many of these infections the single vaccine is not available, including where the single vaccine is no longer manufactured (such as for measles, mumps and rubella.) Single measles, mumps and rubella vaccines are not available in the NHS, and GPs do not have access to them through the normal channels of licensed drugs.

Cold Chain

Q. Our fridge has broken/vaccines were left out of the fridge/temperature readings have not been recorded, what are the next steps?

A. Cold chain incidents or fridge failures should be reported to Public Health Pharmacy who can provide information and advice on next steps.

Medicines Information main enquiry line: 0141 211 4407

The Storage, distribution and disposal of vaccines is comprehensively outlined in the Green Book Chapter 3

A 30-minute e-learning package covering the important points is available on http://nhs.learnprouk.com

Once registered, click on 'more learning' and go to 'pharmacy' tab.

Clinical risk groups

Q. What are the specific indications for immunisation in clinical risk groups?

A. Particular medical conditions or treatments may increase the risk of complications from certain infectious diseases. Individuals who have such conditions or receive such treatments may require additional protection, as outlined and recommended in the following links:

Green Book Chapter 7
Additional vaccines for individuals with underlying medical conditions (page 2) Autumn 2019

Q. What are the recommendations for vaccination and Systemic Anti-Cancer Therapy (SACT)

A. The NHSGGC Guidance, developed by NHSGGC Specialist Oncology and Haemato-oncology services, governs vaccination in patients receiving Systemic Anti-Cancer Therapy (SACT), which includes chemotherapy and the newer immunotherapies.

- **Seasonal influenza vaccine**

  There are a few patient groups in whom seasonal influenza vaccination cannot be given - see links to tables below:-

  Seasonal Influenza Vaccination for patients receiving heamopoetic SACT

  Seasonal Influenza vaccination for patients receiving non-haemopoetic SACT

- **Zoster vaccine**

  National guidance has been issued for Shingles vaccination in those aged > 70yrs. Generally speaking, this vaccine is contraindicated in immunocompromised patients. See NES Guidance (page 6).

  Zostavax® is contraindicated in lymphoma, acute and chronic leukaemia, all patients receiving immune suppressive chemotherapy, biological therapies and radiotherapy, including high dose steroids (equivalent of 40 mg Prednisolone per day for more than 1 week) for at least 3 months. Such patients should be **at least 6 months after the end of treatment** and documented to be in remission before receiving this vaccine. (See SPC for more details).

  The Zoster Screening Tool should be used for ***all*** patients prior to vaccination.

- **Pneumococcal Polysaccharide Vaccine**

  The PPV SPC advises the following under the section **4.2 Posology and method of administration; Special Dosing**:

  It is recommended that pneumococcal vaccine should preferably be given at least two weeks before elective splenectomy or the initiation of chemotherapy or other immunosuppressive treatment. **Vaccination during chemotherapy or radiation therapy should be avoided.**

  Following completion of chemotherapy and/or radiation therapy for neoplastic disease, immune responses to vaccination may remain diminished. **The vaccine should not be administered any sooner than three months after completion of such therapy.** A longer delay may be appropriate for patients who have received intensive or prolonged treatment.

Q. Can Pneumococcal vaccine and Shingles vaccine be administered at the same time?

A. Zostavax® can be given at the same time as 23-valent pneumococcal polysaccharide vaccine for those who are eligible for both vaccines. Although a single manufacturer-conducted trial showed inferior VZV antibody responses in those receiving zoster vaccine and PPV-23 concomitantly compared with those receiving the vaccines four weeks apart, there is no established correlation between antibody titres to VZV and protection from herpes zoster.
Green Book Chapter 28a v3

HPV vaccination programme

Q. What is the HPV programme for boys?

A. In the academic year (2019/20) the HPV vaccine will be offered to boys in S1, in addition to girls, as part of the routine school based programme. This follows the Scottish Government announcement in July 2018 to include HPV vaccination of boys in the national vaccination programme based on the advice of the Joint Committee of Vaccination and Immunisation (JCVI). Please see the JCVI statement setting out the recommendation to vaccinate boys against HPV. The CMO Letter 2019 is available on the link

Q. Where can I find more information on the HPV immunisation programme in Scotland 2019 – 2020?

A. Q&A document '**HPV Immunisation Programme FAQs for NHS Boards for School Academic Year 2019/20**' available on the link:

HPS factsheet for registered practitioners of which the aim is to ensure that all practitioners involved with the national human papillomavirus (HPV) vaccination programme are aware of the vaccination schedule for 2019-20 in Scotland. This document will describe the vaccination schedule for 2019-20 including the extension of the programme to include boys and will cover the key messages for the HPV vaccination programme for 2019-20 in Scotland.

Q. Where is the MSM HPV vaccine programme being delivered?

A. The MSM HPV programme will be delivered opportunistically at Sexual Health Clinics. The human papillomavirus (HPV) vaccine is offered to all eligible men who have sex with men (MSM) attending sexual health clinics across Scotland. Clinics began offering the HPV vaccine at the beginning of July 2017. This is in line with advice from the Joint Committee on Vaccination and Immunisation (JCVI), which recommends a targeted vaccination programme for MSM aged up to 45 who attend sexual health clinics.

Studies have shown that MSM aged up to 45 years who attend GUM or HIV clinics are at greater risk of HPV-associated cancers and genital warts. The HPV vaccine helps prevent infection that can cause genital warts and HPV-associated cancers. Vaccination is especially important for MSM who have multiple sexual partners.

Q. What is the cohort age in Scotland for offering HPV vaccine?

A. Males and females in cohorts eligible for vaccination in the national programme remain so until their 25th birthday. Females and males in those cohorts who were eligible for the routine programme coming to the UK from overseas and registered with a GP practice may not have been offered protection against HPV in their country of origin and should be offered vaccination if they are aged under 25 years. Those aged 15 years of age or above should start a three-dose schedule i.e. first dose of 0.5ml of HPV vaccine; second dose of 0.5ml at least one month after the first dose; a third dose of 0.5ml at least three months after the second dose.

Immunisation of healthcare staff

Q. What are the recommendations for occupational immunisation of healthcare staff?

A. The objective of occupational immunisation of healthcare and laboratory staff is to protect workers at high risk of exposure and their families, to protect patients and other staff from exposure to infected workers, and to sustain the workforce. All staff should be up to date with their routine immunisations, e.g. tetanus, diphtheria, polio and MMR.

BCG vaccine is recommended for healthcare workers who have close contact with infectious patients. People in the following occupational groups, with direct TB patient contact or contact with infectious materials, should be vaccinated with BCG.

1. Healthcare worker (HCW) or laboratory worker, who has either direct contact with TB patients or with potentially infectious clinical materials or derived isolates.
2. Veterinary and staff such as abattoir workers who handle animals or animal materials, which could be infected with TB.

BCG is recommended for unvaccinated, tuberculin-negative individuals in these occupations. BCG efficacy data in adults over the age of 35 years is scarce. Nevertheless, because these groups have a high exposure risk, and given the absence of safety concerns, it is likely that benefits outweigh risks for vaccinating individuals over the age of 35 years with BCG. In addition, there are a number of occupational groups who are working with persons at higher risk of acquiring TB. These include staff working with prisoners, homeless persons, persons with drug and alcohol misuse and those who work with refugees and asylum seekers. BCG vaccination may also be considered for these groups.

It should be noted that the risk of exposure of HCWs other than those listed in the category above is unlikely to exceed the background risk of TB the general population and therefore vaccination is not routinely required.
Ref : Green Book Chapter 32

Hepatitis B vaccination is recommended for workers who are at risk of injury from blood-contaminated sharp instruments, or of being deliberately injured or bitten by patients. Antibody titres for hepatitis B should be checked one to four months after the completion of a primary course of vaccine.

Q. Are HCWs who are in close contacts with high risk infants and pregnant women to be vaccinated with pertussis vaccine?

A. PHE has published updated guidance for pertussis vaccination of HCWs: Occupational vaccination of HCWs However, please note that neither the Green Book chapter 12 (Immunisation of healthcare and laboratory staff) nor chapter 24 (Pertussis) has been updated at this point. The Scottish CMO letter, 22nd October 2019: *Pertussis: Occupational Vaccination of Healthcare Workers and Healthcare workers (HCW) living with a blood borne virus* can be found on the link

General vaccination principles

Q. How long do childhood immunisations last?

A. In general, the live childhood vaccines (i.e. MMR) are expected to give life-long immunity. The degree of protection from other vaccines (e.g. DTaP/IPV/Hib and Men C) declines with time unless the immunity is boosted. The immunity can be boosted by re-immunisation, in which case protection is gained quickly instead of being delayed by 2-3 weeks as would happen if the person had not been previously immunised. This is why re-immunisation is offered to someone who has the type of injury which could cause tetanus. If the natural infection continues to be common in a community, children's immunity gets boosted by exposure to the natural infection. Once a disease comes under control, booster immunisations will extend immunity.

Q. Why do we need to immunise children if the diseases that we immunise against are on the decline?

A. Immunisations have played a major part in reducing infectious diseases. However, until an infectious disease has been eradicated globally, there is a risk that the infection can be brought into a high-immunised community from abroad. When immunisation levels fall, the disease can recur. Immunisation levels need to be maintained at a high level to prevent outbreaks of such diseases.

Q. Are all vaccines 100% effective?

A. No vaccine offers 100% protection and a small proportion of individuals get infected despite vaccination. Vaccines are designed to generate an immune response that will protect the vaccinated individual during future exposures to the disease. Individual immune systems, however, are different enough that in some cases, a person's immune system will not generate an adequate response. As a result, he or she will not be effectively protected after immunisation. Vaccines can fail in two main ways:

Primary failure occurs when an individual fails to make an initial immunological response to the vaccine.

Secondary failure occurs when an individual responds initially but then protection wanes over time. The incidence of secondary vaccine failure therefore increases with time. Individuals who acquire infection despite vaccination may have a modified, milder form of disease and are less likely to suffer serious complications than those who have never been vaccinated.

Q. Is there mercury in vaccines?

A. Thiomersal, a compound containing ethyl mercury, is a preservative to prevent bacterial and fungal contamination. It was used in the DTP ("triple") vaccine until recently. The amount of ethyl mercury was 50 micrograms per dose, which was within the safety limits advised for babies by the World Health Organisation. However, manufacturers have stopped using thiomersal, and the new DTaP/IPV/Hib/HepB vaccine does not contain thiomersal or any mercury compound. MMR vaccines do not and never have contained mercury. None of the vaccines used in the routine childhood immunisation programme in the UK contain thiomersal or other form of mercury.

Q. Is a child with lactose intolerance at any risk of a reaction from immunisations?

A. No. Lactose intolerance affects the bowel, when foods containing lactose are eaten. Most current childhood vaccines are given by injection. Rotarix®, oral vaccine, is contraindicated in infants with rare hereditary problems of fructose intolerance, glucose-galactose malabsorption or sucrase-isomaltase insufficiency.

Q. How important is it to have the routine immunisations at two, three and four months old?

A. The greatest risk of serious illness with whooping cough and Hib is in the first few months of life, and it is recommended to start immunisations at 2 months of age, when the baby's immune system is able to respond. This includes babies who are born prematurely who should start their immunisations when they are two months old. The second and third immunisations should be given at intervals of a month because immunisations repeated at less than a month do not give the best long-term protection.

Q. Should you administer vaccine to a person who is taking antibiotics?

A. Treatment with antibiotics is not a valid reason to defer vaccination. If the child or adult is otherwise well, or has only a minor illness, vaccines should be administered. But if the person has a moderate or severe acute illness (regardless of antibiotic use) vaccination should be deferred until the person's condition has improved.

A "moderate or severe acute illness" is a precaution for administering any vaccine. A mild acute illness (e.g., diarrhoea or mild upper-respiratory tract infection) with or without fever is not. The concern in vaccinating someone with moderate or severe illness is that a fever following the vaccine could complicate management of the concurrent illness (that is, it could be difficult to determine if the fever was from the vaccine or due to the concurrent illness). In deciding whether to vaccinate a patient with moderate or severe illness, the clinician needs to determine if forgoing vaccination will increase the patient's risk to vaccine-preventable diseases, as is the case if the patient is unlikely to return for vaccination or to seek vaccination elsewhere. It is important to ensure vaccination soon after the person recovers.

Q. Should vaccines be withheld in people on steroids?

A. Steroid therapies that are short term (less than 2 weeks); alternate day; physiologic replacement; topical (skin or eyes); aerosol; or given by intra-articular, bursal, or tendon injection are not generally considered contraindications to the use of live virus vaccines. The immunosuppressive effects of corticosteroid treatment vary, however patients receiving systemic high-dose steroids, until at least three months after treatment has stopped are considered as sufficiently immunosuppressive to raise concern about the safety of vaccination with live virus vaccines (e.g., MMR, varicella, LAIV, yellow fever). This would include children who receive prednisolone, orally or rectally, at a daily dose (or its equivalent) of 2mg/ kg/day for at least one week, or 1mg/kg/day for one month. For adults, an equivalent dose is harder to define but immunosuppression should be considered in those who receive at least 40mg of prednisolone per day for more than one week.

Inactivated vaccines and toxoids can be administered to all immunocompromised patients in usual doses and according to schedules, although the response to these vaccines may be suboptimal.

Q. Should family members of immunosuppressed individuals be vaccinated?

A. The family members and other direct contacts of the immunosuppressed person should be considered for vaccination to reduce the risk of vulnerable individuals being exposed to vaccine preventable conditions. All household and close contacts of immunosuppressed individuals should be fully vaccinated according to the national schedule. Most live vaccines can be safely given to close contacts of immunosuppressed individuals; although some additional precautions are advised

Close contacts of patients with severe immunosuppression (i.e. those who would normally be in isolation) should not be given live attenuated influenza vaccine but receive the inactivated vaccine instead

Ref Green Book Chapter 6

Q. What are the special recommendations for administering intramuscular injections in people with clotting disorders?

A. IM injections should be scheduled shortly after antihaemophilia therapy or prior to a dose of anticoagulant. For both IM and SC (subcutaneous) injections, a fine needle (23 gauge or smaller) should be used and firm pressure (subcutaneous) applied to the site, without rubbing, for at least 2 minutes. Providers should not administer a vaccine by a route that is not approved for that particular vaccine (e.g., administration of IM vaccines by the SC route).

Q. Where can I access more specific guidance on vaccination of immunocompromised individuals and specific diseases?

A. Refer to the Compendium of Organisational Outputs (Immunocompromised Individuals and specific disease) (2016). This compendium contains a list of organisational outputs in relation to Vaccination of Immunocompromised Individuals and specific diseases including, guidance, tools, education resources, literature reviews and research by specialist organisations and any additional documents that are applicable for use in NHSScotland for example, Department of Health and specialist advisory bodies.

It aims to provide NHSScotland staff with an overview of all materials available relating to immunisation of persons with underlying medical conditions and specific diseases.

Q. What is the Hepatitis B vaccine schedule for babies following the introduction of the hexavalent vaccine which contains Hep b into the routine schedule?

A. The hexavalent vaccine, containing Hep B vaccine, was introduced into the UK Routine Childhood Immunisation Schedule on 1st October 2017 for babies born after 1st August 2017. The vaccine is offered in the routine schedule at 8, 12 and 16 weeks of age. However, those babies at high risk of Hep B will continue to be immunised at birth and at one month of age with the monovalent HepB vaccine before commencing on the routine childhood schedule at 8 weeks. See NHS Scotland Patient Information Leaflet 2018 and the HPS, NHS Scotland, NES Guidance, for healthcare practitioners

Q. What are current recommendations for Hepatitis A vaccination in MSM?

A. Existing 'Green Book' recommendation states that all MSM reporting multiple sexual partners should be offered Hepatitis A vaccination. It is now recommended that all MSM attending HIV, GUM or Sexual Health clinics should be opportunistically offered vaccination against Hepatitis A

Q. What about vaccinations and arthritis?

A. Some types of arthritis and their treatments can affect the immune system and lead to an increased risk of infection. This can be due to the condition itself or its treatment, such as (DMARDs) or steroids. There are vaccinations routinely recommended such as influenza and pneumococcal vaccine. However, if an individual is immunosuppressed they should not have live vaccines.

If an individual is taking rituximab, a biological therapy used for treating rheumatoid arthritis and certain types of connective tissue disease, you should try to have the flu vaccination either before or six months after an infusion as rituximab affects the cells which produce antibodies for about six months after infusion. If the flu vaccine is given within six months of taking rituximab, you may respond less well to the vaccination and so you may not be fully protected against flu.

The small dose of a live organism in live vaccines may be enough to cause symptoms of the disease in people who are immunosuppressed. For this reason, live vaccines aren't recommended if individuals are on certain DMARDs or biologicaltherapies.

As biological therapies, cyclophosphamide and methotrexate aren't usually prescribed by the patient's GP, and, as such, the medication may not appear on the records you hold for these patients, it's always worth speaking with individuals about their drug treatments before you administer vaccination.

Normally a live vaccine would only be given if immunosuppressive drugs are stopped at least three months before the vaccination. Sometimes live vaccines will be given before immunosuppressive drugs are started. Immunosuppressive drugs shouldn't be started for at least two weeks, preferably four weeks, after administration of a live vaccine.

Travel vaccination and information resources

Q. Where can I get information on travel vaccines and information resources?

A. TRAVAX is funded by the Scottish Government Health Department and is provided free to those using the service for NHS purposes in Scotland. It is a very useful resource for up-to-date travel health information for health care professionals.

Fitfortravel is a public access website provided by the NHS (Scotland). It provides general travel health advice and disease prevention information for people travelling abroad from the UK.

For more info contact**: Travel Health General Enquiries: Health Protection Scotland. Tel:** 0141 300 1100
E-mail NSS.hpstravelteam@nhs.net

Q. Should travellers wishing to be immunised against pertussis (for example grandparents travelling to Australia to visit new grandchildren) be offered the vaccine?

A. Adult boosters of pertussis vaccine are not recommended for the UK. In the UK, a programme was introduced to vaccinate all pregnant women against pertussis; evidence shows that this is the best way to protect very young infants. Travellers wishing to be immunised against pertussis (for example grandparents travelling to visit new grandchildren) may wish to arrange having the vaccine at a private clinic or at their destination.