MCN for Neonatology
West of Scotland
Neonatal Guideline

Immunisation Guideline for Neonates

This document is applicable to all medical, midwifery and nursing staff caring for the newborn in hospital or community. The guideline should be used with reference to the relevant pharmacy monographs. For further guidance on Immunisation staff should refer to the online "Green Book". Further guidance on the use of immunoglobulin is available on the Health Protection Agency (HPA) website.

Notes

Consent: Signed consent should be sought at the start of the vaccination schedule and retained in the notes. It should be clear in the documentation of consent which immunisations are included in the schedule. If the infant remains in hospital when subsequent doses are due the parents should be informed that the dose is to be given however additional documentation of consent is unnecessary.

Injection technique With the exception of BCG, immunisations should be given in either the anterolateral thigh or the deltoid muscle using a 23G or 25G needle. It must be ensured that the injection is intramuscular i.e use a needle of sufficient length inserted to a sufficient depth to reach the muscle. Do **not** bunch the skin up at the injection site. The buttock should only be used for large volume injections such as Palivizumab (Synagis) or immunoglobulin. When the buttock is used the injection site must be in the upper, outer quadrant.

The Green Book – Chapter 4 – Immunisation techniques

Post immunisation apnoea Preterm babies with a history of apnoea or prolonged oxygen therapy should be monitored for apnoeas and desaturations for at least 24 hours after the first vaccine dose as there are reports of a recurrence of apnoeas after the initial dose.

Immunisation and surgery
Surgery is not, in itself, a contraindication to immunisation. If surgery is planned, it is prudent to avoid vaccination in the few days leading up to the procedure, as minor reactions to vaccination, such as fever, may lead to cancellation of the surgery. Vaccination may be given as soon as the patient has recovered from the immediate effects of anaesthesia and surgery. *NB – please see the section on Rotavirus immunisation for specific cautions following GI surgery.*

Routine Childhood Immunisation Schedule – to 13 months
N.B. This new schedule will apply to all infants receiving their 1st vaccinations from **6th April 2020**

When to immunise	What is given	Vaccine and how it is given
8 weeks old	Diphtheria, tetanus, pertussis, polio, *Haemophilus influenzae* type b, and Hepatitis B (DTaP/IPV/Hib/HepB)	One injection (Infanrix hexa ®)
	Meningitis B	One injection (Bexsero ®)
	Rotavirus	One oral dose (Rotarix ®)
12 weeks old	Diphtheria, tetanus, pertussis, polio, *Haemophilus influenzae* type b, and Hepatitis B (DTaP/IPV/Hib/HepB)	One injection (Infanrix hexa ®)
	Pneumococcal (PCV)*	One injection (Prevenar 13 ®)
	Rotavirus	One oral dose (Rotarix ®)
16 weeks old	Diphtheria, tetanus, pertussis, polio, *Haemophilus influenzae* type b, and Hepatitis B (DTaP/IPV/Hib/HepB)	One injection (Infanrix hexa ®)
	Meningitis B	One injection (Bexsero ®)
12 - 13 months (single visit)	*Haemophilus influenzae* type b, Meningitis C (Hib/MenC)	One injection (Menitorix ®)
	Measles, mumps and rubella (MMR)	One injection (Priorix ® or MMRVaxPRO ®)
	Pneumococcal (PCV)	One injection (Prevenar 13 ®)
	Meningitis B	One injection (Bexsero ®)

*babies with asplenia, splenic dysfunction, complement disorder or who are severely immunocompromised will require additional doses of Pneumococcal(PCV)-see Green book for full details

Primary immunisation

- **DTaP/IPV/Hib/HepB (Infanrix hexa ®)**
- **Pneumococcal conjugate vaccine (Prevenar 13 ®)**
- **Meningitis B vaccine (Bexsero ®)**

Schedule – New schedule for infants receiving their 1st vaccination **from 6/4/20**
- Three doses of DTaP/IPV/Hib/Hep B vaccine at 8, 12 and 16 weeks of age
- One dose of Pneumococcal vaccine* at 12 weeks of age
- Two doses of Meningitis B vaccine at 8 weeks and 16 weeks

Preterm babies follow the same protocol with no correction for their prematurity.
Meningitis B vaccine should be administered into the left thigh by preference. Other vaccines given at the same time should be administered into different limbs for optimal immune response (or at least 2.5cm apart if the same limb **must** be used).

* Only the conjugate vaccine **Prevenar 13 ®** should be used, as the pneumococcal polysaccharide vaccine (Pneumovax) is not suitable for the under twos. If the infant remains at high risk for pneumococcal disease beyond 2yrs of age they should receive the 23-valent polysaccharide pneumococcal vaccine (Pneumovax). Refer to the "Green Book" for at-risk conditions

Contraindications
Contraindications for preterm babies are as for term babies – refer to the "Green book".
Babies currently or recently treated with high dose systemic steroids or intravenous immunoglobulin (IVIG) may have impaired response to immunisation. There is no requirement to delay vaccination but consideration should be given to the need for a booster dose once immunity returns to normal. *(Immune responses return to normal by 3 months after the cessation of therapy)*

Caution in Very Premature Infants
Very premature infants (born ≤ 28 weeks of gestation) who are in hospital should have respiratory monitoring for 48-72 hrs following their first immunisation, particularly those with a previous history of respiratory immaturity. If the child has apnoea, bradycardia or desaturations after the first immunisation, the second immunisation should also be given in hospital, with respiratory monitoring for 48-72 hrs

Paracetamol for febrile reactions
Fever is a common reaction following vaccination, particularly following vaccination with Bexsero for Meningitis B. The JCVI recommends the administration of three doses of Paracetamol following vaccination. One dose should be given at the time of administration, and two further doses at 6 hly intervals (refer to the paracetamol monograph for doses).
Recent systematic review (Das et al 2014) has concluded that previous concerns regarding the effect of anti-pyretics on the immunogenicity of childhood vaccines are no longer felt to be clinically significant. In order to avoid confusion, this guideline will recommend prophylactic paracetemol is given with each of the routine vaccinations given to inpatients in the neonatal unit.

Documentation
A record of the vaccinations given along with the batch numbers and the site of each injection should be entered in the infant's notes. The same information should be reported to SIRS (Scottish Immunisation Recall System) either by using an 'unscheduled attendance form' or other local proforma

Local arrangements for reporting vaccination to SIRS – GG&C
A copy of the inpatient prescription form (Appendix) should be sent by email to public health

Patient information
"Protect Your Child Against Serious Diseases" Leaflet

Vaccination consent form – See Appendix

Rotavirus vaccine - (Rotarix ®)

Schedule

Two doses of Rotarix ® oral vaccine normally given at the time of the first and second primary vaccinations, at 4 and 12 weeks of age with no correction for prematurity.
If there are any contraindications to rotavirus vaccination at the normal vaccination age the doses may be given at a later date. However, due to a small risk of intussusception when the rotavirus vaccination is administered at later ages the vaccine doses must be given by the following **chronological** ages.

- The first dose should be given ideally by 12 weeks of age and **must not** be given if the baby is 15 weeks and 0 days of age or older (more than 14weeks and 6 days)
- The second dose should be given ideally by 16 weeks of age with a minimum interval of 4 weeks and **must not** be given if the baby is 24 weeks of age or older (more than 23 weeks and 6 days). If the course is interrupted, it should be resumed, **but not repeated,** in line with the restrictions on timings above.
- The vaccine can be given at the same time as any other vaccination including BCG

Administration

Rotarix is an oral vaccine and should be administered using the applicator provided. The full dose (1.5 ml) should be given into the mouth towards the cheek. If the dose is spat out or vomited an additional dose may be used immediately after the failed dose.

Contraindications

- Hypersensitivity to the active substance or to any of the excipients listed in SPC.
- Hypersensitivity after previous administration of rotavirus vaccines.
- Rotarix is a live vaccine and is contraindicated in babies with severe combined immune deficiency (SCID). In other immune deficient states it is advised that the benefits of protection outweigh the risks and the vaccine should be offered (*including babies born to HIV positive mothers, before the baby's HIV status is known*).
- Infants with a history of intussusception or who have a malformation of the GI tract which would predispose them to intussusceptions. (**See cautions below).**
- Infants with the following inherited disorders - fructose intolerance, glucose- galactose malabsorption or sucrase-isomaltase insufficiency.
- Infants who are 24weeks and 0 days or older
- Infants born to mothers treated with a TNFα antagonist (eg Infliximab, Adalimumab) during pregnancy

Cautions

- Vaccination should be delayed in following circumstances
    - infants with a febrile illness or who have vomiting or diarrhoea of any cause
    - Patients having undergone recent intestinal surgery should be discussed with the surgical team on an individual case basis
    - Infants who have a confirmed diagnosis of NEC in the preceding 2-3 weeks

NB - Where vaccination is delayed the schedule should be resumed within the timescales outlined above.

- Infants born at ≤28 weeks gestation should be monitored for apnoea for 48 - 72hours after administration of the first dose. If apnoea is noted after the first dose then the babies should be monitored similarly after the second dose
- Rotarix is a live vaccine, although highly attenuated. The vaccine virus is excreted in the faeces for 2-3 weeks after administration. If transmitted to an immuno-compromised contact the virus could result in minor gastrointestinal symptoms. Normal hygiene precautions should be used to prevent transmission
- Intussusception has been reported in 2:100,000 cases.

"Protect Your Child Against Serious Diseases" Leaflet

Hepatitis B vaccine (Engerix B ®, HBVaxPRO ®)

Indications for accelerated Hepatitis B vaccination

- All babies whose mothers have a history of past or present hepatitis B. Some will also require Hepatitis B immunoglobulin
  see next section for indications for Hepatitis B immunoglobulin.

  NB babies born to a mother who is negative for hepatitis B but who will subsequently be living with another individual who is positive for Hepatitis B should get a single dose of monovalent Hepatitis B vaccine at birth but should otherwise follow the routine childhood vaccination schedule

Monovalent Preparation - Only Engerix B (0.5ml) or HBVaxPRO (0.5ml) to be used.

Schedule – Two doses of monovalent Hepatitis B vaccine should be given, at birth and at 4 weeks of age. The first dose is to be given as soon as possible after birth (within 24 hrs of delivery at the latest). Subsequent to this, infants born on, or after, the 1st Aug 2017 should be offered Infanrix Hexa vaccine according to the normal childhood schedule outlined above. This will involve 3 doses of the Hexavalent vaccination at 8, 12 and 16 weeks of age.

A booster, using the monovalent vaccine, will be given at 1yr of age at the same time as the Hib /MenC booster vaccination.

Preterm babies follow the same schedules with no correction for their prematurity.

For infants born to mothers infected with Hepatitis B, serology is required at 1yr of age, on the day of the booster vaccinations, to determine whether vaccination has successfully prevented infection with Hepatitis B.

Hepatitis B in the Immunisation schedule for routine childhood and selective neonatal hepatitis B programmes following the introduction of the Infanrix hexa®

Age	**Routine Childhood**		**Babies born to Hepatitis B negative mothers but who will be living in a household with another infected person**		**Babies Born to mothers infected with Hepatitis B**	
Birth	No		Yes	Monovalent Hepatitis B vaccine	Yes	Monovalent Hepatitis B vaccine +/- Immunoglobulin
4 weeks	No		No		Yes	Monovalent Hepatitis B
8 weeks	Yes	Infanrix Hexa	Yes	Infanrix Hexa	Yes	Infanrix Hexa
12 weeks	Yes	Infanrix Hexa	Yes	Infanrix Hexa	Yes	Infanrix Hexa
16 weeks	Yes	Infanrix Hexa	Yes	Infanrix Hexa	Yes	Infanrix Hexa
1 Year	No		No		Yes	Monovalent Hepatitis B + Test for HBsAg

Local arrangements for serology – GG&C

This is arranged by the GP, with a reminder to them from public health **if the postnatal notification form** (see appendix) **has been completed and returned.**

Reporting - Women who are surface antigen positive on antenatal screening will have been reported to Public Health prior to delivery who will in turn inform the Obstetricians. All immunised infants, low or high risk, must be reported to the Community Screening Department to ensure adequate follow-up. Notification forms (*see appendix)* should be scanned and emailed to the Community Screening Department, and the original stored in the baby's notes, as soon as possible after vaccination/immunoglobulin administration. Please not that where there is uncertainty about a baby's final discharge address or carer (i.e. when there is consideration of foster care etc) at the time of vaccination then it is better to send the form with the current maternal details in place to Public Health. Delaying sending the form until such details are complete can cause delays and confusion- the CHI number allows effective tracking of the baby through public health systems.

Antenatal testing process.

Please refer to the obstetric guidelines page for full details.

In summary hepatitis B testing is offered as part of routine booking bloods to all pregnant women. In the event of a positive result the Regional Virus Laboratory will inform the patient's obstetrician and a named link obstetrician by letter. This letter will give recommendations for vaccination +/- immunoglobulin administration depending on the maternal serology (predominantly based on e antigen and antibody status at this point). The named obstetrician will also record these recommendations on the neonatal alert section of the maternal notes.

At 26 weeks gestation all of those that had tested positive on booking bloods will have further bloods taken by their obstetrician for HBV DNA levels. **Following this the recommendation for neonatal treatment of the baby may change** (if the HBV DNA level is ≥200,000 IU/mL (≥ log 5.3) but initial serology was anti-HBe positive). The named link obstetrician will amend the initial virology letter and the neonatal alert sheet with this information ensuring that up to date and accurate information is available to the neonatal team at delivery.

Notes - In viral infections the presence of virus indicates ongoing infection and the detection of specific antibody indicates previous infection. Following hepatitis B infection, 90% of individuals clear the virus, become immune and are not infectious to others. These patients do not have detectable circulating virus (hepatitis B surface antigen (HBsAg) negative) but have antibody against hepatitis B core antigen (anti HB core positive). Note that immunisation stimulates antibody against HBsAg (anti HBs) but not against HBcore antigen (anti HB core negative). A small minority of those infected by hepatitis B virus remain carriers of the virus and are HBsAg positive. If the hepatitis B e-antigen (HBe antigen) is positive, this means that the patient has viral protein associated with a high rate of transmission. Babies of women who are infectious carriers may be infected at delivery (or rarely during pregnancy). Perinatal infection has a much higher risk of carrier status, more common among people born in endemic areas such as South East Asia.
Hepatitis B virus can also be transmitted through intravenous drug use or sexual intercourse. These transmission routes are less likely to result in carrier status. Babies of non-infectious women are not at risk of vertical transmission but other members of the family may be carriers and the mother's immunity may indicate a high-risk environment in which the baby may be infected at a later date.

The risk of perinatal transmission can be reduced by administration of hepatitis B immunoglobulin (HBIg) at birth together with a course of active immunisation (HB vaccine). Environmental infection can be avoided by active immunisation commenced at birth, but in this situation, HBIg is not required. (See indications for Hep B Immunoglobulin – next section)

Hepatitis B immunoglobulin

Schedule
A single dose of 200 IU should be administered as soon as possible after birth to babies who are at high risk of perinatal transmission. The dose is variable dependent on the strength of each individual batch however the volume of this preparation will always be such that the dose must be split and injected into two separate sites.

Indications
Hepatitis B immunoglobulin is indicated in the following situations:-

a) Mothers who are persistent carriers of hepatitis B surface antigen (HBsAg), where hepatitis e antigen (HbeAg) is detectable or its antibody (Anti-Hbe) is not (see Notes).
b) Mothers who are HbsAg positive as a result of recent acute infection (see Notes).
c) HBsAg positive, where e-markers have not been determined (often late booking mothers)
d) Mothers who are HbsAg positive and the baby's birth weight is 1500g or less regardless of e-antigen status of mother.

e) Woman is HBsAg seropositive and known to have an HBV DNA level above 200,000 IU/mL (≥log 5.3)** in an antenatal sample (regardless of HBeAg and anti-HBe status)

Summary of indications for Hepatitis B Immunisation & Immunoglobulin

Hepatitis B status of mother	**Baby should receive:-**	
	Hepatitis B vaccine	**HBIG**
HBsAg positive and HBeAg positive	**yes**	**yes**
HBsAg positive, HBeAg negative and anti-HBe negative	**yes**	**yes**
Acute hepatitis B during pregnancy	**yes**	**yes**
HBsAg positive, anti-HBe positive	**yes**	**no**
HBsAg positive and a baby birthweight of 1500g or less	**yes**	**yes**
Woman is HBsAg seropositive and known to have an HBV DNA level above 200,000 IU/mL (≥log 5.3)** in an antenatal sample (regardless of HBeAg and anti-HBe status)	**yes**	**yes**

** Note, the 'Green Book' (Immunisation against Infectious Disease, Public Health England, 2013) states 'equal or above $1x10^6$IUs/ml'.

Local arrangements for supply – All immunoglobulin preparations are now supplied by Pharmacy. Local arrangements for availability out-of-hours are detailed below:-

- **PRM** – 2 vials of Hepatitis B Immunoglobulin are kept in the neonatal unit. 2 further vials are available in A&E and another 2 in the emergency drug cupboard in the GRI. The latter may be accessed by paging the hospital coordinator via switchboard.
- **RHC -** Hepatitis B immunoglobulin is available in the neonatal unit
- **RAH -** Hepatitis B immunoglobulin is available via the EDC pharmacist or from A&E

References

Guidance on the use of Hepatitis B immunoglobulin - Health Protection Agency

Varicella Zoster immunoglobulin

Schedule
A single dose of 250 mg, given as soon as possible after birth (or after contact), to babies at risk. Some protection may still be gained if administered up to 48hrs later.

Indications

- Infants whose mothers develop chickenpox (but not herpes zoster) in the period 7 days before to 7 days after delivery. VZIG can be given without antibody testing of the infant. VZIG should be given even if the mother received VZIG herself.
- Infants of VZ antibody-negative mothers*, exposed to chickenpox or herpes zoster (other than in the mother) in the first 7 days of life.
- Infants of VZ antibody-negative mothers*, of any age, exposed to chickenpox or herpes zoster while still requiring intensive or prolonged special care nursing.
- Infants born before 28 weeks gestation **or** weighing less than 1000g at birth **or** who are more than 60 days old but still requiring NICU/SCBU care **or** who have had repeated blood sampling with replacement by packed red cell infusion. In these infants maternal antibody may not be present despite a positive maternal history of chickenpox or positive maternal VZ antibody test.

  *Mothers who have a positive history of chickenpox may be assumed to be VZ antibody positive. In the absence of a definite history maternal antibody status can normally be established quickly by liaising with the virus lab.

Exposure to chicken pox can be said to have occurred where there has been direct, indoor contact with someone who has active chicken pox (or who develops vesicles within a few days of such exposure). Sufficient exposure to place a susceptible individual at risk may be brief if the exposure was face to face e.g. someone cuddling, feeding or changing the baby. If the contact is not face to face, sufficient exposure will only occur after a more prolonged period (> 15 mins). Where a contact has shared a hospital room with a case of chicken pox, but where there has been no direct contact, much longer periods are required to give sufficient exposure.

N.B. The baby should be isolated for 21 days and the contact excluded from the unit until all lesions have crusted over. If the contact is a parent they may attend the unit but remain in strict isolation with their baby for this period. (This is not necessary if the parent has shingles in an area of the body which is completely covered with clothing). The baby should be cared for only by members of staff who are immune to chicken pox.

Local arrangements for supply – All immunoglobulin preparations are now supplied by Pharmacy. Local arrangements for availability out-of-hours are detailed below:-

- **PRM** – Varicella Zoster Immunoglobulin (VZIG) is available via A&E (2x4 vials) or from the emergency cupboard in the GRI (2x4 vials). The latter may be obtained by paging the hospital coordinator via switchboard.
- **RHC –** Varicella Zoster Immunoglobulin (VZIG) is available via the Emergency Cupboard.
- **RAH -** Varicella Zoster Immunoglobulin (VZIG) is available via the EDC Pharmacist

References

Guidance on the use of Zoster Immunoglobulin - Health Protection Agency

Patient information

Chicken Pox in Pregnancy: What you need to know - RCOG

BCG vaccine

Vaccine - The only licensed BCG vaccine in the UK is BCG *Vaccine Statens Serum Institut* (SSI). Due to vaccine supply issues we are using Intervax BCG vaccine. Please carefully read the monograph if you are unfamiliar with the use of this preparation

Protect your baby against TB - Parental Leaflet - Immunisation Scotland

Schedule

1. A single dose, administered in the neonatal period or at the time of the first vaccinations at 8 weeks, should be offered to high risk groups as detailed below.
2. Infants born to mothers with sputum positive TB should be treated prophylactically for three months. Following this they should have a Mantoux test. See **"The Mantoux test: Administration, reading and interpretation"**. If the Mantoux test is negative they should receive their BCG vaccination. It is **not** necessary to use isoniazid resistant BCG. Prophylactic treatment will include Isoniazid with or without the addition of Rifampicin – the respiratory team at RHSC should be consulted. All babies should receive Pyridoxine whilst on Isoniazid prophylaxis.
3. Infants born to mothers who have completed a course of TB therapy during pregnancy and are considered cured, or where they have positive skin tests without evidence of disease may be given BCG at birth ***IF*** household screening has been carried out. If the rest of the household has not been screened, then the baby should receive prophylaxis as above until there is no chance of contact with potentially contagious individuals. The baby should then have a Mantoux test at 6 weeks and receive BCG vaccine at this time if negative.

Indications

- Infants from families where the parents or grandparents were born in a 'high risk' country – *i.e. a country with a TB incidence of more than 40 cases / 100,000 population*
  - **'High Risk' Country list** - derived from **Health Protection Agency** .
  OR – visit the WHO site **"Tuberculosis County Profiles"** for up to date information
- Any child likely to spend more than 3 months in the above countries in the next 5 years
- Where there is a current or past history (within previous 5 years) of TB in the household or in a frequent visitor e.g. grandparents

Infants born in, or moving to, an area of the UK where the incidence of TB is more than 40 cases /100,000 population - **TB in the UK 2014 report**

N.B. - No NHS boards in Scotland fall into this category

Contraindications

Babies born to mothers who are HIV +ve should not be given BCG vaccination until the baby has tested -ve for evidence of HIV particles at 3 months. All mothers of infants eligible for BCG should be informed that HIV is a contraindication to BCG vaccination. If they believe they may be at risk of HIV and have not been tested in pregnancy (HIV screening is now offered to all pregnant women) then they should be offered screening before their baby is immunised.

BCG should also be delayed if the infant has recently been treated with systemic corticosteroids

BCG vaccination should not be given until 6 months of age if the mother has had treatment with a TNF α antagonist (e.g. Infliximab, Adalimumab) during pregnancy

Administration
The dose must be given **intradermally.** It is given at the insertion of the Deltoid muscle in the Left upper arm. **Do not give if you are unfamiliar with the technique of intradermal injection. N.B post - administration skin testing is unnecessary**

Documentation
The administration of the vaccine should be recorded in the notes along with the batch number. A public health notification slip should be completed *(see appendix)* and all three parts returned to public health. N.B. please include the GP details and the name that the child will be known as after discharge.

Local arrangements for administration of the BCG vaccine

PRM - A BCG clinic run by the public health team is held 2 weekly on a Tuesday afternoon. If parents are happy for their child to be given BCG, a referral should be completed online and parents told to expect to receive an appointment by post within a couple of weeks. The online form is available in the Paeds share folder (in the BCG subfolder - please use the latest version), and should be emailed to the link provided in the form. Opportunities to vaccinate babies prior to discharge from hospital should be taken, particularly if a mother indicates that she will not be able to attend the BCG clinic. Please ask for help if required, and you may also take the opportunity to have a DOPs completed! If vaccination is given prior to discharge, to avoid the possibility of repeat immunisation, the baby's details must be recorded on the Spreadsheet in the Paeds folder ("babies given BCG") and a notification form sent to public health. Please give the form to the paediatric secretaries. Any existing BCG clinic appointment should be cancelled.

On BCG clinic days, it is the responsibility of the postnatal ward team to identify inpatients suitable for BCG, to seek consent and to administer the vaccine. Inpatients should not be sent downstairs to the BCG outpatient clinic.

RHC – Babies identified on the PNW or in SCBU/NICU prior to discharge as at increased risk of TB are referred to outpatient Public Health Medicine clinics for BCG immunisation. Patient details must be given to neonatal secretaries by the doctor, ANNP or midwife performing the neonatal examination. A standardised letter will be sent to Public Health, a copy of which will be filed in the patient's notes

RAH – BCG immunisation is given as an outpatient by referral – see local policy.

NICE TB Guidelines

Palivizumab - Synagis ®

JCVI recommendations for treatment with Synagis ® are as follows

1. **Preterm infants with CLD** (defined as oxygen dependency or respiratory support until at least 36 weeks corrected gestational age) at the chronological ages at the start of the RSV season and gestational ages at birth covered within the shaded area in Table 1.

Table 1	Gestational Age at birth						
Chronological age	≤24	24-26	26-28	28-30	30-32	32-34	≥35
1.0 to <1.5 months							
1.5-3 months							
3-6 months							
6-9 months							
>9 months							

NB – Infants of any gestation who have chronic respiratory disease requiring O2 therapy or long-term ventilation, at the start of the RSV season, are also eligible

2. **Pre-term infants with haemodynamically significant, acyanotic CHD OR - infants with cyanotic or acyanotic CHD plus significant comorbidities** at the chronological ages at the start of the RSV season and gestational ages covered within the shaded area in Table 2.

Table 2	Gestational Age at birth						
Chronological age	≤24	24-26	26-28	28-30	30-32	32-34	≥35
<1.5 months							
1.5-3 months							
3-6 months							
6-9 months							

3. **Infants with Severe Combined Immunodeficiency are also eligible.**

A Calculator to help identify eligible cases can be found here - **DoH Palivizumab Calculator**

Where clinical judgement of other individual patient circumstances strongly suggests that prophylaxis would prevent serious RSV infection in infants who are at particular risk of complications from RSV, use of Synagis® could be considered during the RSV season.

Dosage and administration

Synagis® should be given as a maximum of five doses (15mg/kg/dose) given one month apart from the beginning of the RSV season (beginning of calendar week 40 i.e. beginning of October). However, where the course of treatment begins later in the RSV season (e.g. where infants are born within the RSV season) up to five doses should be given one month apart until the end of calendar week 8 (i.e. the end of February). As the risk of acquiring RSV infection while in the neonatal unit is extremely low, infants in neonatal units who are in the appropriate risk groups should only begin Synagis® treatment 24 to 48 hours before being discharged from hospital. An exception is twins; where one twin is ready for discharge, but the other remains in the NNU, consideration should be given to immunising the hospitalised twin to ensure that follow up doses for both twins will be due simultaneously. Those infants that have begun a course of Synagis® treatment but are subsequently hospitalised should continue to receive Synagis® whilst they remain in hospital.

Local Arrangements for administration of Synagis – GG&C

PRM, RHC - In order to coordinate administration, and minimise costs (by sharing partially used vials between multiple patients), all patients in Glasgow receive Synagis at a joint clinic in the Children's hospital. Names should be forwarded from each unit to a local coordinator who will arrange appointments – this individual's details will be circulated ahead of the RSV season

RAH – In RAH the administration of Synagis is performed by the Community Children's Nurses at monthly clinics held in the PANDA centre,

Influenza A vaccine

Protecting children at increased risk of Flu - information from NHS immunisation information site

Schedule
Two doses of 0.25 ml at 4 weekly intervals, starting at 6 months. In subsequent seasons only a single dose will be required.

Indications
This vaccine should be recommended in their first winter season for all babies who received prolonged respiratory support or oxygen therapy. It may be recommended in subsequent winter seasons for those infants who had severe chronic lung disease. NB - If the patient is too young for influenza immunisation (< 6 months) then the GP may be asked to offer Influenza vaccination to any other members of the immediate family who do not otherwise qualify for vaccination.

Useful Links

NHS Inform Immunisation resource (www.immunisationscotland.org.uk/index aspx)
The 'Green Book' online

Guidance on the use of Immunoglobulins
NICE TB Guidelines
"Protect Your Child Against Serious Diseases" Leaflet

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Appendices follow for Local Documentation