

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.

[RCPCH position statement on injection technique March 2002](#)

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 Schedule – from 4th September 2006

When to immunise	What is given	Vaccine and how it is given
Two months old	Diphtheria, tetanus, pertussis, polio and <i>Haemophilus influenzae</i> type b (DTaP/IPV/Hib)	One injection (Pediacef)
	Pneumococcal (PCV)	One injection (Prevenar)
Three months old	Diphtheria, tetanus, pertussis, polio and <i>Haemophilus influenzae</i> type b (DTaP/IPV/Hib)	One injection (Pediacef)
	Meningitis C (MenC)	One injection (Menjugate, Neisvac C or Meningitec)
Four months old	Diphtheria, tetanus, pertussis, polio and <i>Haemophilus influenzae</i> type b (DTaP/IPV/Hib)	One injection (Pediacef)
	Pneumococcal (PCV)	One injection (Prevenar)
	Meningitis C (MenC)	One injection (Menjugate, Neisvac C or Meningitec)
Around 12 months	<i>Haemophilus influenzae</i> type b, Meningitis C (Hib/MenC)	One injection (Menitorix)
Around 13 months	Measles, mumps and rubella (MMR)	One injection (Priorix or MMR II)
	Pneumococcal (PCV)	One injection (Prevenar)
Three years four months to five years old	Diphtheria, tetanus, pertussis and polio (dTaP/IPV or DTaP/IPV)	One injection (Infanrix-IPV or Repevax)
	Measles, mumps and rubella (MMR)	One injection (Priorix or MMR II)
Thirteen to 18 years old	Tetanus, diphtheria and polio (Td/IPV)	One injection (Revaxis)

Primary immunisation

- **DTaP / inactivated Polio /Hib vaccine (Pediaceal ®)**
- **Meningitis C vaccine (Meningitec ®, Neisvac C ® or Menjugate ®)**
- **Pneumococcal conjugate vaccine (Prevenar ®)**

Schedule

- Three doses of DTaP/IPV/Hib vaccine at 2, 3 and 4 months of age
- Two doses of Pneumococcal vaccine* at 2 and 4 months of age
- Two doses of Meningitis C vaccine at 3 and 4 months of age

Preterm babies follow the same protocol with no correction for their prematurity. The vaccines are given simultaneously but into different limbs (or at least 2.5cm apart if the same limb **must** be used).

* Only the conjugate vaccine **Prevenar** ® should be used as the pneumococcal polysaccharide vaccines are unsuitable 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*)

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) using the '*unscheduled attendance form*' (see *appendix*). Supplies of these forms are available from Child Health by phoning 0141 211 0664

Patient information

[A guide to immunisation for babies up to 15 months of age](#)

[Vaccination consent form](#)

Hepatitis B vaccine (Engerix B ®)

Indications for 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.
- All babies born to mothers with past or present history of IV drug misuse irrespective of their mother's HBV status.
- All babies who will be a close household contact of any other person with a history of Hepatitis B infection or who has a past or current history of IV drug use.

Schedule - Three doses, the first to be given as soon as possible after birth and within 24 hrs of delivery. 2nd + 3rd doses will be given at 1 + 2 months of age. A booster will be given at 1yr of age coincident with the Hib /MenC booster vaccination.

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.

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

Only Engerix B (0.5ml) to be used.

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 faxed to the Community Screening Department and the original stored in the baby's notes. Following completion of the forms this will be arranged by the ward 71 clerkess (tel. 25267) at PRM and by the PD ward Clerkess at QMH

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) showing previous exposure to the virus. 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. This is 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 perinatal infection, i.e. vertical transmission. However, 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)

Additional Documents

NHS GG&C Hepatitis B immunisation programme for "at-risk" neonates – flow chart
Hepatitis B Parent information leaflet

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.

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) Mothers who are HbsAg positive and the baby's birth weight is 1500g or less regardless of e-antigen status of mother.

Summary of indications for Hepatitis B Immunisation & Immunoglobulin

Hepatitis B status of mother	Baby should receive	
	Hepatitis B vaccine	HBIG
HBsAg positive, HBeAg positive	yes	yes
HBsAg positive, HBeAg negative and anti-HBe negative	yes	yes
HBsAg positive, where e-markers have not been determined	yes	yes
Acute hepatitis B during pregnancy	yes	yes
HbsAg positive and Baby birthweight of 1500g or less, regardless of e-antigen status of the mother	yes	yes
HBsAg positive and anti-HBe positive	yes	no
HBsAg negative, Anti HBcore positive but risk of environmental transmission	yes	no
HBsAg negative, Anti HBcore negative but risk of environmental transmission	yes	no
HBsAg negative, Anti HBcore negative and no risk of environmental transmission	no	no

Local arrangements for supply

PRM - Hepatitis B Immunoglobulin is available via the blood bank at GRI between 8 am and 6.30 pm Mon - Fri. Outwith these hours it may be obtained via the GRI on-call haematology registrar. Contact via switch.

QMH – Hepatitis B immunoglobulin is available via the Blood Bank at RHSC between 8am and 5pm Mon – Fri. Outwith these hours it may be obtained via the RHSC on-call Haematology registrar.

SGH - Hepatitis B immunoglobulin is available via the on-call haematology staff

RAH - Hepatitis B immunoglobulin is available via the on-call haematology staff

References

[Guidance on the use of Hepatitis B immunoglobulin](#) - Health Protection Agency

Varicella Zoster immunoglobulin

Schedule

A single dose given as soon as possible after birth (or after contact) to babies at risk although 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 from 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). In addition, 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. The baby should be cared for only by members of staff who are immune to chicken pox.

Local arrangements for supply

PRM – Varicella Zoster Immunoglobulin (VZIG) is available via the blood bank at GRI between 8 am and 6.30 pm Mon - Fri. Outwith these hours it may be obtained via the GRI on-call haematology registrar. Contact via switch.

QMH – Varicella Zoster Immunoglobulin (VZIG) is available via the Blood Bank at RHSC between 8am and 5pm Mon – Fri. Outwith these hours it may be obtained via the RHSC on-call Haematology registrar. Contact via Switch

SGH – Varicella Zoster Immunoglobulin (VZIG) is available via the on-call haematology staff

RAH - Varicella Zoster Immunoglobulin (VZIG) is available via the on-call haematology staff

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

[BCG information leaflet \(English\)](#) - from NHS immunisation information site

[Foreign languages](#)

Schedule

1. A single dose, administered in the neonatal period or at the time of the first vaccinations at 2 months, 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](#) (N.B list derived from [Health Protection Agency website](#) data on prevalence by country).
- Any child likely to spend more than 1 month 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 - '[high risk' districts in UK](#)

N.B. 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

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 is held 4 weekly on a Tuesday afternoon - consult the BCG diary in the discharge clinic. The indication for BCG should be discussed with the mother at the time of routine baby check (using an interpreter as necessary) and signed consent for vaccination should be sought at this time. The baby's details should be recorded in the diary. The mother should be given a hand written appointment for the next clinic. If the mother indicates that she will not be able to attend the BCG clinic the baby should be immunised before discharge.

QMH - BCG Immunisations in the QMH should be administered in the PNW or SCBU prior to discharge. Please see the local BCG immunisation protocol on the intranet site and the resource folder in North Wing.

SGH – A BCG clinic is held on the last Monday of each month run by a TB Nurse specialist. Medical staff will enter babies name, address, telephone number and GP details by placing two stickers (baby details and GP details) in the BCG diary kept at desk on SCBU. In addition if an interpreter will be required at the BCG clinic this should be indicated in the diary and which language is required. Details of the next BCG clinic list will also be kept in the diary so it will be possible to give the mother date and time of clinic appointment on form (See attached) before she leaves the hospital.

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

[NICE TB Guidelines](#)

"High Risk" countries for tuberculosis – from HPA website

Countries with TB incidence greater than 40 cases / 100,000				
Afghanistan	China, Macao SAR	India	Myanmar	Solomon Islands
Algeria	Colombia	Indonesia	Namibia	Somalia
Angola	Comoros	Iraq	Nauru	South Africa
Armenia	Congo	Ivory Coast	Nepal	Sri Lanka
Azerbaijan	Côte d'Ivoire	Kazakhstan	Nicaragua	Sudan
Bahrain	Croatia	Kenya	Niger	Suriname
Bangladesh	Djibouti	Kiribati	Nigeria	Swaziland
Belarus	Dominican Republic	Korea N&S	Niue	Tajikistan
Belize	DPR Korea	Kyrgyzstan	Northern Mariana Is.	Tanzania
Benin	DR Congo	Lao PDR	Pakistan	Thailand
Bhutan	Ecuador	Laos	Palau	Timor-Leste
Bolivia	El Salvador	Latvia	Panama	Togo
Bosnia & Herzegovina	Equatorial Guinea	Lesotho	Papua New Guinea	Tokelau
Botswana	Eritrea	Liberia	Paraguay	Turkmenistan
Brazil	Ethiopia	Lithuania	Peru	Tuvalu
Brunei Darussalam	Gabon	Madagascar	Philippines	Uganda
Bulgaria	Gambia	Malawi	Qatar	Ukraine
Burkina Faso	Georgia	Malaysia	Rep. of Korea	UR Tanzania
Burma	Ghana	Maldives	Republic of Moldova	Uzbekistan
Burundi	Guatemala	Mali	Romania	Vanuatu
Cambodia	Guinea	Marshall Islands	Russian Federation	Venezuela
Cameroon	Guinea-Bissau	Mauritania	Rwanda	Viet Nam
Cape Verde	Guyana	Micronesia	Sao Tome & Principe	Wallis & Futuna
Central African Republic	Haiti	Moldova	Saudi Arabia	Yemen
Chad	Honduras	Mongolia	Senegal	Zambia
China	Hong Kong	Morocco	Sierra Leone	Zimbabwe
China, Hong Kong SAR		Mozambique		

High Risk Areas in the UK

A number of health boards in the UK routinely offer BCG to babies born in their area due to the local incidence of TB reaching 40 cases per 100,000 or more. These trusts are in London, Luton, Birmingham and Leicester. The list of these areas can be found at the following address.

[Incidence of TB by Primary Care Trust](#)

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

Influenza A vaccine

[Protecting children at increased risk of Flu](#) - leaflet 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

Palivizumab - Synagis ®

The Prescription of Palivizumab is restricted to neonatologists and consultants in paediatric infectious disease and cardiology for the prevention of Respiratory Syncytial Viral Bronchiolitis in high risk neonates in their first RSV season only. The following categories of babies are considered high-risk.

- Children with chronic lung disease on home O2
- Children with a congenital lung abnormality on home O2
- Ex-prems <30 weeks without CLD but with other risk factors¹, aged < 6 months
- Children with congenital heart disease with additional risk factors²
- Children with complex diseases³ considered to be high risk
- Children treated with ECMO for neonatal respiratory failure, aged < 6 months
- Children with severe immunodeficiency⁴

Notes

1. Severe hyaline membrane disease (prolonged ventilation, air leaks etc)
Persisting O2 requirement post term
Associated severe failure to thrive
2. See published cardiology guidelines - JCVI
Prematurity
Prolonged ventilation pre or post operation
Early open heart procedure planned (Complex cases, TGA, A-V canal)
Associated airway abnormality
Associated severe failure to thrive e.g. VSD
3. Significant neuromuscular disease
Musculo-skeletal disease affecting thorax
Tracheostomy
Significant airway abnormality
4. Severe combined immunodeficiency
Other significant T-cell immune deficiency
CF children with associated FTT

Children will be treated in cohorts to reduce wastage
Treatment will start after RSV starts to emerge in the community
The 2nd dose shall be given after 3 weeks

The above are examples only and are not prescriptive or exclusive. For advice regarding an individual child's suitability contact Dr Coutts Lead Clinician Neonatology or Dr Hague Consultant in Paediatric Infectious Diseases.

**GREATER GLASGOW NHS BOARD - PRIMARY CARE DIVISION
CHILD HEALTH DEPARTMENT**

**Trust Headquarters
Gartnavel Royal Hospital
1055 Great Western Road
Glasgow
G12 0XH**

VACCINATION & IMMUNISATION APPOINTMENTS - UNSCHEDULED ATTENDANCES

(Used to notify treatments where no appointment has been scheduled)

Please enter surgery details in box below

Treatment
Centre

GP Practice:
Address:

C.H.I. No.

D.O.B						PERS No.				SE

Forename..... Surname

Present Address

(If full C.H.I. No. not known)

.....

Please complete in **block capitals** for **every** antigen given:

Antigen	Dose No.	Batch Number	Expiry Date
DTP, Pol, HIB (comb.)			/ /
MenC			/ /
MMR			/ /
DTP, Pol (comb.)			/ /
Other (Specify)			/ /

Date Given / / Treatment Centre No.

Prevention of hepatitis B transmission in newborn babies



To be completed for every baby when given 1st hepatitis B injection in hospital

Baby's detail

First Name(s):	Surname:
Baby to be registered as:	CHI:
Date of Birth:	Sex:
Address (where baby will reside):	
Mother's Name:	Mother's Date of Birth or CHI:
Is Mother the carer? Yes <input type="checkbox"/> No <input type="checkbox"/>	
<small>(If not, please complete name of carer and relationship to child)</small>	
Name of carer:	Relationship to child:
GP's Name:	HV's Name: (if known)
GP's Address:	

Record of Vaccination and Immunoglobulin

Drug	Date	Batch Number
Immunoglobulin (if applicable)		
1 st Dose hepatitis B		
2 nd Dose hepatitis B		
3 rd Dose hepatitis B		

Why was Hepatitis B immunisation course commenced for this baby?

	Please tick box
Mother is hepatitis B carrier	<input type="checkbox"/>
Mother hepatitis B negative but baby at risk of infection for other reasons	<input type="checkbox"/>

Name of hospital:	
Signature:	
Print Full Name:	Date:

**Please fax within 24 hours of vaccine or immunoglobulin administration to: Fiona Gilchrist,
Manager, Screening Department (Tel no. 0141 232 2109)
FAX NO: 0141 211 3791**

GREATER GLASGOW HEALTH BOARD

B C G VACCINATION CARD

CLINIC

CONTACT/IMMIGRANT/SCHOOL/OTHER

SURNAME DATE of BIRTH.....

FORENAMES M/F

ADDRESS

MANTOUX TEST

DATE	RESULTS	DATE	NAME OF M.O.
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B.C.G. VACCINATION

DATE	BATCH NO.	NAME OF M.O.
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NOTE HERE IF REFERRED TO CHEST CLINIC:

FAMILY DOCTOR'S NAME

ADDRESS

FURTHER DETAILS (IF ANY) ON BACK

DATE

Useful Links

[NHS Immunisation information](http://www.immunisation.nhs.uk) (www.immunisation.nhs.uk)
[Health Scotland - Immunisation](http://www.healthscotland.com/immunisation) (www.healthscotland.com/immunisation)
[The 'Green Book' online](#)
[Health Protection Agency guidelines for the use of immunoglobulins](#)
[NICE TB Guidelines](#)
[Answers to common questions about the new 5-in-1 vaccine](#)
[Vaccination information leaflets in foreign languages](#)

Literature review

Cochrane Database 2nd quarter 2006, Medline 1996 – July 2006.
Search terms - Immunisation - limited to Birth to 23 months

References

- Swingler G, Fransman D, Hussey G. Conjugate vaccines for preventing Haemophilus influenzae type b infections. *Cochrane Database of Systematic Reviews* 2003, Issue 4. Art. No.: CD001729. DOI: 10.1002/14651858.CD001729.
- Lee C, Gong Y, Brok J, Boxall EH, Gluud C. Hepatitis B immunisation for newborn infants of hepatitis B surface antigen-positive mothers. *Cochrane Database of Systematic Reviews* 2006, Issue 2. Art. No.: CD004790. DOI: 10.1002/14651858.CD004790.pub2.
- Smith S, Demicheli V, Di Pietrantonj C, Harnden AR, Jefferson T, Matheson NJ, Rivetti A. Vaccines for preventing influenza in healthy children. *Cochrane Database of Systematic Reviews* 2006, Issue 1. Art. No.: CD004879. DOI: 10.1002/14651858.CD004879.pub2.
- S S S Teo, D V Shingadia. Does BCG have a role in tuberculosis control and prevention in the United Kingdom? *Arch Dis Child* 2006;91:529–531
- Thomas, Michael Watson, Keith Cartwright and Elizabeth Miller Nicholas Kitchin, Joanna Southern, Rhonwen Morris, Fabienne Hemme, Stephane. Evaluation of a diphtheria-tetanus-acellular vaccine at 2, 3 and 4 months of age concurrently with meningococcal group C conjugate pertussis- inactivated poliovirus-Hib vaccine *Arch. Dis. Child.*, May 2006
- M H Slack, S Cade, D Schapira, R J Thwaites, A Crowley-Luke, J Southern, R Borrow, and E Miller DT5aP-Hib-IPV and MCC vaccines: preterm infants' response to accelerated immunisation *Arch. Dis. Child.*, Apr 2005; 90: 338 - 341.
- Slack HD, Schapira D. Severe apnoeas following immunisation in premature infants. *Arch Dis Child Fetal Neonatal Ed* 1999;81:F67–8.

Authors

Dr Andrew Powls – Neonatal Consultant PRM.

Other specialists consulted

Mrs. June Grant - Pharmacist PRM

Dr Syed Ahmed – Consultant, Public Health

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