MANAGEMENT OF INFANTS BORN TO HIV POSITIVE MOTHERS

Introduction
- Perinatal management of infants born to HIV-infected mothers requires a coordinated multidisciplinary team approach.
- The consultant leads responsible for antenatal medical care and counselling are:
  o HIV-Medicine, yvonne.gilleece@bsuh.nhs.uk
  o Obstetrics (rob.bradley@bsuh.nhs.uk)
  o Neonatology (rob.bomont@bsuh.nhs.uk)

Antenatal Neonatal Appointment
- Discussion of Neonatal Management Protocol – immediate newborn period (incl. Hepatitis B Vaccination) and subsequent management.
- Infant Feeding - exclusive formula feeding remains the recommended method for infant feeding in the UK. HIV positive mothers can breastfeed if they have an undetectable viral load and are compliant with treatment, not using additional iv drugs and there are no other contraindications. Some mothers may request for breast milk from the milk bank for the first three days. This will have been arranged antenatally. There is a charitable fund available to purchase formula milk for those mothers not entitled to Benefits.

Birth Plan
- Formulated towards the end of the third trimester detailing a management plan for both the mother and the infant. This is available in the maternal notes and in the antenatal file on TMBU.
- Occasionally mothers may refuse HIV testing during pregnancy. It may be necessary to seek consent for postnatal testing of the infant.

Immediate Newborn Period
- Please refer to the Birth Plan which is available in both the Maternal Notes and in the pre-prepared Baby Notes.
- If there are any difficulties with management or planning of treatment for these babies, please discuss with Dr Rob Bomont, Dr Neil Aiton and/or the HIV Medicine Team.

Diagnosis of HIV Infection in non-breast fed infants
- Full neonatal clinical examination.
- Maternal antibodies pass through the placenta to the fetus and persist for up 18 months. Diagnosis is therefore by DNA/RNA PCR of the virus.
- Newborn infants should have a test on day 1, at least 0.5 ml EDTA, and not cord blood (this can be contaminated with maternal blood)
- Maternal sample should be sent with this (4 ml whole blood EDTA, purple top, unspun). This ensures that the correct primers are used by the reference laboratory.
Please send both samples together, but on different forms highlighting that they are linked.

Blood should also be taken from the infant for full blood count, urea & electrolytes, liver function tests to check for in utero antiretroviral toxicity.

Blood test forms (Path. and Virology) should be labelled NOPD in the consultant/code section.

Occasionally mothers may refuse HIV testing during pregnancy. It may be necessary to seek consent for postnatal testing of the infant (see separate guideline)

Antiretroviral Medication

Monotherapy:

Most infants require this. Start the baby on AZT (Zidovudine) within 4 hours of delivery. The dose is 4 mg/kg twice daily p. o. continued for a period of 4 weeks.

An appointment is to be made for the registrar clinic at 6-8 weeks for this group of infants.

Combination Therapy:

Triple therapy usually consists of AZT (Zidovudine), 3TC (Lamivudine) and NVP (Nevirapine), but please seek advice from the HIV Team. The treatment is continued for 4 weeks.

Post delivery prophylaxis - where the mother is only found to be HIV infected after delivery.

Unplanned delivery - e.g. prematurely prior to starting ART; or after a late presentation when details of maternal HIV parameters may not be available.

Mother naive to ART or persistent maternal viraemia on HAART.

Following cessation of combination therapy, these infants require cotrimoxazole prophylaxis.

Before commencement a baseline FBC should be taken to monitor for bone marrow depression.

An appointment is to be made for the registrar clinic at 4 weeks for this particular group of infants who are at higher risk of viral transmission.

Premature/Sick Neonates unable to feed orally:

Only intravenous ART available is AZT. The dose is gestation dependent.

If emergency combination ART is required please seek advice. If the mother is loaded with a dose of nevirapine, which has a very long half-life, at least 2 hours before delivery, it will remain in the infant’s circulation for up to 7 days.

If oral intake can be tolerated within 48-72 hours then oral AZT, 3TC and NVP should be started. If not, then the infant should be continued on AZT monotherapy i.v.

Please refer to the TMBU Formulary for Drug Doses.
**Hepatitis B Vaccination**
- First dose (0.5 ml IM) to be given while in the hospital. In Hep. B positive mothers this should be given within the first 24 hours (see HBV guideline).
- The person administering the vaccine should make sure the Hepatitis B Notification Form has been filled out and the relevant pages sent off. This ensures the vaccination course is completed in the community (see HBV guideline).
- The Hep. B consent form should be given to the mother to place in the red child health record book.

**Liaison with GP/HV**
- Complete blue neonatal referral form (and send a copy of this protocol if this has not already been done). Request outpatient appointment in neonatal registrar clinic (to the nearest Tuesday).

**Measles and Chickenpox**
- Clarify with parents about the risks of exposure to measles, chickenpox or shingles and the course of action that may need to be taken.
- Chickenpox exposure: varicella zoster immunoglobulin is recommended following exposure to chickenpox (8-21 days following outbreak) or those with varicella zoster (shingles).
- Measles: human normal immunoglobulin is recommended after exposure to measles.

**Subsequent Outpatient Management**

**General – at any time**
- If the infant looks clinically unwell at any stage (even without a positive HIV PCR) consider measuring CD4 lymphocyte count and percentage (normal in 1st year of life 3000, 35%). Seek advice from HIV/ID consultant. With respiratory distress, PCP pneumonia should be considered (also Chlamydia, CMV).
- If there is doubt about interpretation of results, again seek advice from an HIV/ID consultant. It is thought that a positive PCR within 48 hours of life (not cord blood) represents in utero infection (the minority). By one month the PCR should detect >90% of infant infections.

**4 weeks:**
- Only infants who have received combination ART require an appointment at 4 weeks.
- Full clinical examination monitoring for growth and development.
- FBC.
- HIV PCR (0.5 ml EDTA Bottle).
- Prescribe co-trimoxazole suspension (240 mg/5 ml) 5 ml three times weekly p.o. for PCP prophylaxis (dose is 150 mg/m² of trimethoprim) to be started after stopping triple therapy. As a simple guideline, infants > 2000 g will receive 5 ml daily MWF, and those below that 2.5 ml MWF.
This dose is given once daily to improve adherence, although it can be split into twice daily dosing.

6-8 weeks:
- This will be the first outpatient appointment for most infants.
- Full clinical examination monitoring for growth and development.
- FBC to monitor for bone marrow depression.
- Continue cotrimoxazole if the infant had received combination therapy.
- HIV PCR (0.5 ml in EDTA Bottle).
- Ensure Hepatitis B Vaccine has been given and that immunisation schedule is being followed.

12 weeks:
- Full clinical examination monitoring for growth and development.
- HIV PCR (0.5 ml in EDTA Bottle). If this PCR is negative then the infant is very unlikely to be infected and cotrimoxazole if previously commenced may be discontinued.
- FBC.
- Ensure Hepatitis B Vaccine has been given and that immunisation schedule is being followed.
- If the third PCR is negative then the infant should routinely be offered BCG vaccination. This will have been discussed antenatally. Please complete the specific referral form within the infant notes entitled Request for BCG Vaccination.

12 months:
- General clinic review.

18 months:
- General clinic review.
- HIV PCR (0.5 ml in EDTA Bottle), HIV antibody (0.5 ml clotted, Red Top Bottle, not EDTA). If both negative and the infant is well then discharge from clinic.

Suggested Contact Numbers
- Specialist midwife: Jane Canning via switchboard jane.canning@bsuh.nhs.uk
- Adult HIV Consultant: Yvonne Gilleece via switchboard yvonne.gilleece@bsuh.nhs.uk
- Obstetrician RSCH: Rob Bradley via switchboard rob.bradley@bsuh.nhs.uk
- Obstetrician PRH: Gregory Kalu via switchboard gregory.kalu@bsuh.nhs.uk X8069
- Women’s Health Advisor: Trisha Keith via switchboard trisha.keith@bsuh.nhs.uk 07919627603/ X4712/4726
- Neonatal Consultant RSCH, PRH: R. Bomont via switchboard X4195 rob.bomont@bsuh.nhs.uk
- HIV Pharmacist: Venita Hardweir via switchboard venita.hardweir@bsuh.nhs.uk 01273 664877
- Paediatric Pharmacist: Naomi Raeburn  
  naomi.raeburn@bsuh.nhs.uk
- Virologist: Dennis or Gary  
  X4627
- The on-call HIV Registrar may be contacted through switchboard at any time.
- The Paediatric Infectious Diseases Team at St Mary’s, Paddington is always very helpful and have a vast amount of experience to draw upon.