National Neonatal Network Guideline: Blood Borne Virus during pregnancy

Management of Infants exposed to HIV in pregnancy

Document Control Sheet

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Disclaimer

The recommendations in this guideline represent the view of the National Neonatal Network Guideline Development Group, arrived at after careful consideration of the evidence available. When exercising their clinical judgement, healthcare professionals are expected to take this guidance fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to follow the guideline recommendations and it remains the responsibility of the healthcare professional to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Contents

1. Introduction

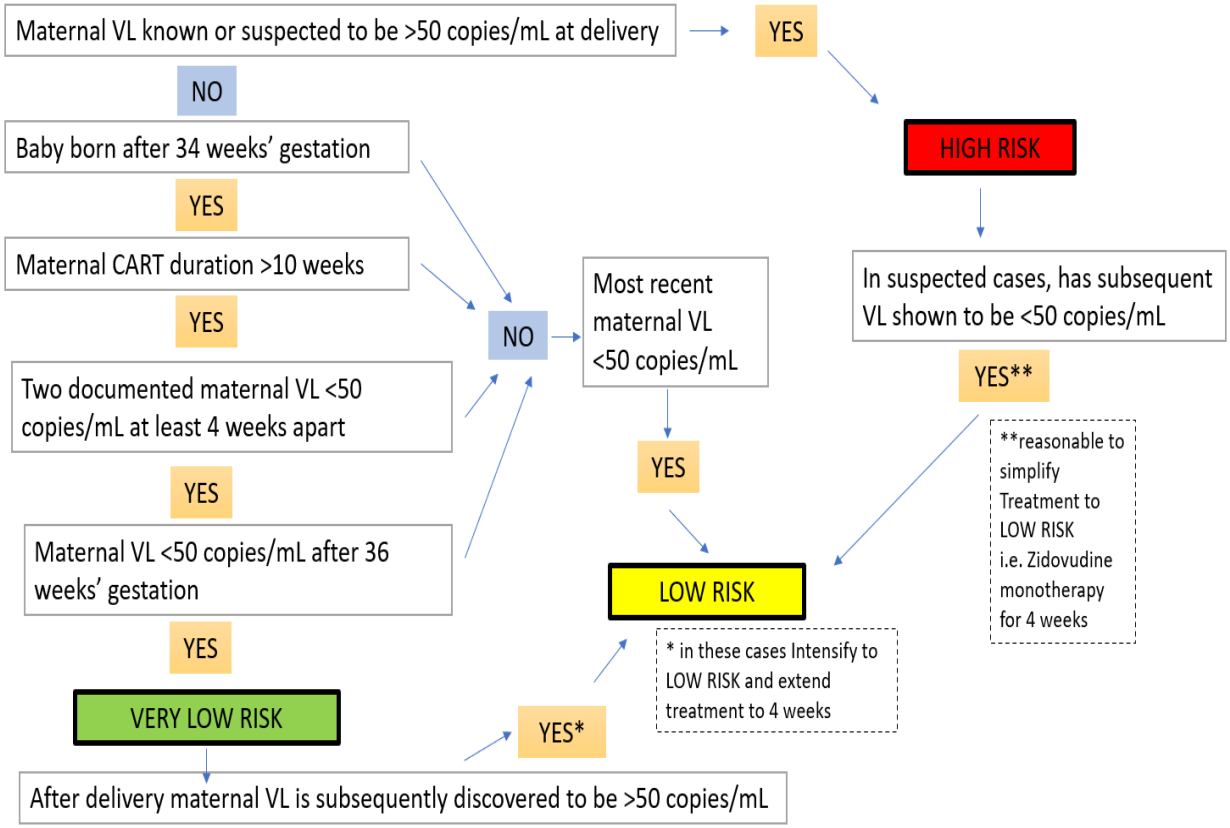
This guideline has been created as an evidence-based, unified document to streamline local neonatal guidance from across Scotland and the BHIVA (British HIV association) guidelines for the management of HIV in pregnancy and postpartum 2018 (2020 third interim update)1. It aims to ensure equality and safety for the management of all infants in Scotland exposed to HIV in pregnancy.

There is good uptake of antenatal screening. With subsequent appropriate antiretroviral treatment of mothers during pregnancy and labour, careful delivery planning, post-exposure prophylaxis (PEP) for babies and avoidance of breast feeding, the risk of vertical transmission of HIV from mother to baby in the UK is declining. Note: women who wish to breastfeed should be supported in their choice and careful monitoring completed.

Most recent overall transmission rate is 0.27% and 0.1% for women on combination antiretroviral treatment (cART) with an undetectable viral load.

2. Risk Stratification

Diagram 2.1 Algorithm for Risk Stratification and treatment of HIV exposed infants



Infants should be categorised according to the following algorithm adapted from the BHIVA (British HIV Association) flowchart1. Information including Maternal Viral Load at delivery, during pregnancy, gestation at delivery and duration of maternal cART is required.

*VL – Viral Load

*cART – Combination Antiretroviral therapy

Infants are deemed **VERY LOW RISK**, **LOW RISK** or **HIGH RISK.** These categories determine duration of treatment and schedule for follow up monitoring. Good communication is required between the maternal and neonatal management teams to ensure the most up to date information is available and considered when managing the infant.

VERY LOW RISK

as **VERY LOW RISK** if they fulfil the following criteria:

o Baby is born after 34 weeks completed gestation

AND

o Mother has been on combination antiretroviral therapy (cART) for longer than 10 weeks

AND

o Has had two documented maternal HIV viral loads <50 HIV RNA copies/mL during pregnancy at least 4 weeks apart

AND

o Maternal HIV viral load is <50 HIV RNA copies/mL at or after 36 weeks (or viral load at delivery if born 34-36 weeks' gestation)

Zidovudine Monotherapy prophylaxis is given for 2 weeks for VERY LOW RISK infants as outlined in section 4.

LOW RISK

Infants can be classified as **LOW RISK** if they do not fulfil ALL the criteria listed in **VERY LOW RISK** category as above, BUT maternal viral load is <50 copies/mL at or after 36 weeks

Note: If infant has met criteria for **VERY LOW RISK** and commenced on 2 weeks Zidovudine treatment, but post-delivery maternal viral load is found to be >50 copies/mL then they will move to **LOW RISK**

Zidovudine monotherapy prophylaxis is extended to 4 weeks for LOW RISK infants as outlined in section 4.

HIGH RISK

o If maternal viral load is known or suspected to be >50 copies/mL

o If there is uncertainty about maternal adherence with cART

o If the viral load is unknown at delivery

HIGH RISK infants should be given combination post exposure prophylaxis as outline in section 4.

3.1 Management at Birth

- Delayed cord clamping should be offered to all women in line with WHO recommendations2
- The baby's face and eyes should be cleaned at delivery and the baby bathed as soon as is practical while taking care to avoid hypothermia
- If not already done, review individualised plan for management and ensure circumstances have not changed
- Ensure maternal blood has been sent for peri - partum viral load check
- **Baseline bloods should be taken as outlined below**
- **Antiretroviral treatment for baby should be commenced within the first 4 hours after delivery**
- **Please see section 3.5 if there is any uncertainty regarding maternal HIV status at time of delivery**

3.2 Diagnosis (Blood Sampling)

Infants acquiring HIV intrapartum may have low peripheral blood HIV levels, therefore a positive HIV DNA/RNA result within 72 hours of birth is taken as presumptive evidence of intrauterine transmission.

Within the first few weeks of life the sensitivity of the viral diagnostic tests increases dramatically and by 3 months of age 100% of non-breastfed infants with HIV are likely to be detected.

- Do not take cord blood (as contamination from maternal blood may occur)
- Do not delay prophylaxis whilst waiting to perform blood samples or receive results
- Take 1.5-3mls of blood for HIV RNA PCR (HIV RNA viral load) in to EDTA tube after birth (within 48 hours) and always before discharge
- If maternal antibody status is unknown, check infant antibody status with 1st sample (1-2mls EDTA sample, HIV screen)
- If infant is unwell at any stage, take bloods for FBC, UE, LFT, amylase, lactate and blood gas (antiretroviral drugs may cause metabolic disturbance or bone marrow suppression)

Please refer to local laboratory guidance for sample size, labelling and sample processing

3.3 Interpreting viral load results

A viral load of <50 copies/mL is a negative test.

If the sample was of too little volume a 1:10 dilution will be performed **and reported**, and the result may show as <200 copies/mL. This also indicates a negative result.

***Please ensure you are familiar with local laboratory cutoffs as these may vary, particularly when a dilution is used. If results are unclear discuss with local laboratory urgently.**

3.4 Mothers without HIV screening results

If HIV screening results are unavailable due to late booking/out of region unexpected delivery/other, an emergency maternal viral load must be obtained and discussed with the duty virologist for urgent processing. This service should be made available 24 hours a day/7day a week however may not be possible in some areas of the country.

In the case of maternal sampling refusal escalate to consultant level to ensure appropriate communication and subsequent management of the at-risk infant.

In circumstances as above, consideration must be given to treating an infant as **HIGH RISK** until results are available, and if the decision is made to treat with combination PEP ideally this should be commenced within 4 hours of birth.

4.1 Infant Antiretroviral Prophylaxis (>34 weeks)

Antiretroviral prophylaxis for baby should be commenced within the first 4 hours after delivery

See Appendix 2 for further information regarding medications if required

Note: doses should be rounded up to nearest 0.5mg

VERY LOW RISK (>34 weeks):

2 weeks of Zidovudine monotherapy (4mg/kg bd oral)

LOW RISK (>34 weeks):

4 weeks of Zidovudine monotherapy (4mg/kg bd oral)

HIGH RISK (>34 weeks)

TRIPLE THERAPY

4 weeks of Zidovudine (4mg/kg bd oral) **and**
4 weeks of Lamivudine (2mg/kg bd oral) **and**
2 weeks of Nevirapine (2mg/kg od oral for **1st week then** 4mg/kg od oral for **2nd week**)*

* If the mother has been taking Nevirapine antenatally for >3 days before delivery give Infant Nevirapine 4mg/kg od for full 2 weeks

** If the mother has HIV-2 Oral Raltegravir is required (see appendix 2 as is dependent on gestation and birthweight)

4.2 Infant Antiretroviral Prophylaxis in PRETERM INFANTS (<34 weeks)

LOW RISK

Well infant 30-33+6 weeks gestation tolerating oral medication

Oral Zidovudine 2mg/kg bd for 2 weeks then 2mg/kg tds for further 2 weeks

Well infant <30 weeks gestation tolerating oral medication

Oral Zidovudine 2mg/kg bd for 4 weeks

HIGH RISK

Well Infant 30-33+6 gestation tolerating oral medication

TRIPLE THERAPY

Oral Zidovudine 2mg/kg bd for 2 weeks then 2mg/kg tds for further 2 weeks **and**
4 weeks of Lamivudine (2mg/kg bd oral) **and**
2 weeks of Nevirapine (2mg/kg od oral for **1st week then** 4mg/kg od oral for **2nd week**)*

Well infant <30 weeks gestation tolerating oral medication

TRIPLE THERAPY

Oral Zidovudine 2mg/kg bd for 4 weeks
and
4 weeks of Lamivudine (2mg/kg bd oral) **and**
2 weeks of Nevirapine (2mg/kg od oral for **1st week then** 4mg/kg od oral for **2nd week**)*

* If the mother has been taking Nevirapine antenatally for >3 days before delivery give Infant Nevirapine 4mg/kg od for full 2 weeks

** If the mother has HIV-2 Oral Raltegravir is required (see appendix 2 as is dependent on gestation and birthweight)

4.3 Unwell Infants/Intolerant to Oral Medication

UNABLE TO TOLERATE ORAL MEDICATION

>34 weeks gestation

IV Zidovudine 1.5mg/kg every 6 hours

<34 weeks gestation

IV Zidovudine 1.5mg/kg every 12 hours (increase to 6hrly when CGA 34 weeks)

Have a low threshold for admitting and starting parenteral therapy if there are any concerns that an infant is unwell or not tolerating oral feeds/medication

The aim is to revert to the appropriate oral medication pathway as soon as an infant may tolerate. If extended period of NBM is required discuss ongoing therapy with local infectious disease team and pharmacy.

5. Follow up

5.1 VERY LOW RISK and LOW RISK:

- *HIV RNA PCR at **6 weeks*** (or at least 2 weeks post cessation of infant prophylaxis)
- *HIV RNA PCR at **12 weeks*** (or at least 8 weeks post cessation of infant prophylaxis)
- *HIV antibody (HIV screen) at **22-24 months*** (1-2 mls EDTA)

5.3 BREASTFED INFANTS:

- *HIV RNA PCR at **2 weeks***
- *HIV RNA PCR at **6 weeks*** (or at least 2 weeks post cessation of infant prophylaxis)
- *HIV RNA PCR **monthly until 2 months after cessation of breastfeeding***
- *HIV antibody (HIV screen) at **22-24 months*** (1-2 mls EDTA)

5.2 HIGH RISK:

- *HIV RNA PCR at **2 weeks***
- *HIV RNA PCR at **6 weeks*** (or at least 2 weeks post cessation of infant prophylaxis)
- *HIV RNA PCR at **12 weeks*** (or at least 8 weeks post cessation of infant prophylaxis)
- *HIV antibody (HIV screen) at **22-24 months*** (1-2 mls EDTA)

It is also recommended that ALL infants are offered a general follow up appointment at 9 months of age and a formal neurodevelopmental review at 22-24 months of age.

6. Breastfeeding

Breast feeding is an important route of transmission of HIV. In the UK, where safe infant feeding alternatives are available, HIV infected women are advised to formula feed, and there are arrangements for free provision of infant formula to HIV positive women.

However, there is now evidence from developing countries that breastfeeding while mum's viral load is fully suppressed is safe, and BHIVA/CHIVA no longer regard a decision to breast feed as grounds for referral to child protection services. Breastfeeding advice in the UK is guided by BHIVA and therefore differs from the advice given by the WHO.

For HIV positive women who choose to breast feed, maternal (highly active antiretroviral therapy) HAART (highly active antiretroviral treatment) should be carefully monitored and continued until one week after all breastfeeding has ceased. The mother's viral load should be tested monthly to ensure that HIV virus remains undetectable; this testing will be undertaken by the obstetric/ID team.

It is recommended that breastfeeding be exclusive (i.e. mixed feeding with other milk formulas and early weaning are not recommended during breastfeeding) and completed by the end of 6 months at which time weaning can commence. Giving solid foods/cereals to infants less than 6 months whilst breastfeeding at least doubles the risk of HIV transmission. This is thought to be due to gut inflammation which may occur with early weaning.

Early weaning in combination may cause inflammatory changes in the gut, and evidence shows that when combined with breast milk from an HIV infected mother, the risk of transmission may more than double.

Research from Africa is ongoing with regards to combination feeding (combining breast milk and formula) has not shown an increase in HIV transmission, however in the UKcurrently we are led by current BHIVA guidance which recommends exclusivewould advise that where possible breastfeeding. However, formula milk may should be necessary for short periods whilst establishing breastfeeding or supporting growth.

Formula milk may be required for short periods to support growth during the initiation and establishment of breastfeeding.

Prolonged infant prophylaxis during the breastfeeding period is not recommended - the baby should receive 2 or 4 weeks of oral zidovudine as per standard guidelines.

Follow up includes increased surveillance of infants with monthly HIV RNA PCR as detailed above.

If the mother develops a cracked nipple or mastitis, breast feeding from that side should be temporarily suspended, and urgent lactation support sought. Lactation may be maintained by expressed/pumping of milk, but milk from the affected breast should be discarded until 48 hours after resolution of mastitis symptoms. The usual advice to 'feed through' an episode of mastitis is contraindicated.

Breastfeeding mothers should be encouraged to have a plan for transitioning on to formula feeding, which may include expressed breast milk and bottle feeding to ensure an infant will accept this method of feeding.

All breastfeeding mothers should be provided with the written BHIVA information sheet 'HIV and feeding your newborn baby'.

Other health care workers involved in the care of a family who chose to breastfeed should also be provided with written information so that the appropriate advice is given.

PowerPoint Presentation (bhiva.org)

The NSHPC is now collecting enhanced surveillance data on women with HIV who breastfeed and their infants. This will contribute to epidemiological data for the future (www.ucl.ac.uk/nshpc).

7. Management of HIV positive Infants*

- Infants with a positive test for HIV should be started on **Cotrimoxazole** prophylaxis from 4 weeks of age
- Refer **urgently** to specialist centre for management of HIV
- Feedback (local risk reporting tool) to obstetric unit for investigation

8. Immunisations

- **Immunisations** should be given as per the national schedule outlined in the Green Book unless there is maternal co-infection with Hepatitis B
- **Rotavirus vaccine** is not contraindicated (unless HIV diagnosis has been confirmed and infant is severely immunosuppressed)
- If infant is VERY LOW or LOW RISK **BCG vaccination** may be offered at birth if indicated
- If infant is HIGHER RISK **BCG vaccination** should be delayed until infant has negative HIV PCR at 3 months

If there are any uncertainties at any time during the management of an infant exposed to HIV in pregnancy, contact the on call Neonatal Consultant or local Paediatric Infectious Disease Consultant as appropriate.

9. Contributors

9.1 Key contributor

Dr Sarah Sparrow, Consultant Neonatologist, NHS Greater Glasgow & Clyde

9.2 Short life working group

National Neonatal Network Blood Borne Virus SLWG

9.3 Stakeholder group

National Neonatal Network Guideline Oversight Group

10. References

1. Gilleece Y, Tariq S, Bamford A et al. British HIV Association guidelines for the management of HIV in pregnancy and postpartum 2018. HIV Med 2019; 20 Suppl 3: s2-s85

2. WHO, 2012. WHO Recommendations for the Prevention and Treatment of Postpartum Haemorrhage. WHO: Geneva

11. Appendices

1. BHIVA Patient Information on 'HIV and feeding your newborn baby'
2. BHIVA Drug Dosing for Infants
3. Interim BHIVA position statement on HIV and mixed infant feeding