Approved by Quality & Patient Safety Committee
21 March 2013

HUMAN IMMUNODEFICIENCY VIRUS (HIV) IN PREGNANCY, BIRTH AND POSTPARTUM PERIOD

This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP.

1. AIM

- Prevention of mother to child transmission (PMTCT) of Human Immunodeficiency Virus (HIV) infection and maintenance of maternal health

2. PATIENT

- Pregnant woman with HIV
- NB: HIV testing is recommended for ***all*** women at first antenatal visit

3. STAFF

- Registered midwives
- Student midwives
- Medical staff
- Registered nurses

4. EQUIPMENT

- Vacutainer set and (21 gauge) needle
- Personal protection equipment (PPE)

5. CLINICAL PRACTICE

Antenatal management and the use of anti-retroviral therapy in pregnancy

- Refer HIV positive woman to medical officer / midwife in department of Maternal Fetal Medicine for antenatal care
- Arrange tests / visits as per antenatal care schedule (Table 1) in addition to usual antenatal screening
- Discuss options for prenatal diagnosis/ screening: screening is a preferred method to invasive procedures such as amniocentesis or Chorionic Villus Sampling (CVS)
- Defer invasive prenatal diagnostic testing until after the HIV status of the mother is known; ideally defer until HIV viral load has been adequately suppressed
- Discuss recommendation for highly active antiretroviral therapy (HAART) during pregnancy, to commence no later than the start of the second trimester (as per Table 2). HAART treatment will be prescribed by the woman's HIV Physician. (For prevention mother to child transmission (PMTCT) the objective is to have the maternal viral load (VL) undetectable by the third trimester)
- Consult with woman's HIV physician: HIV physicians will usually arrange viral load testing: usually 2–4 weeks after commencing HAART, at least once every trimester and at 34-36 weeks
- Evaluate immunisation status with particular attention to Influenza, Hepatitis B, and pneumococcus. Influenza vaccination is recommended in the 'flu' season. Hepatitis B and pneumococcal vaccination are recommended for all women who are HIV positive
- Discuss mode of birth depending on obstetric history, HAART and viral load in late pregnancy:
  - Recommend vaginal delivery (spontaneous at term or induced for usual obstetric indications) for woman on HAART with a HIV viral load at 36/40 <50 HIV RNA copies/mL plasma at 36 weeks

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ROYAL HOSPITAL FOR WOMEN

LOCAL OPERATING PROCEDURE

CLINICAL POLICIES, PROCEDURES & GUIDELINES

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  - Consider planned caesarean section (CS) at 38 weeks for woman with a plasma viral load of 50-399 HIV RNA copies/mL at 36 weeks, taking into account the actual viral load, the trajectory of the viral load, length of time on treatment, adherence issues, obstetric factors and the woman's wishes
  - Recommend caesarean section at 38 weeks when the viral load is >400 HIV RNA copies/ml at 36 weeks, or if there is maternal co-infection with Hepatitis B or C, or if the mother is not on HAART
- Consider Zidovudine (AZT) intravenously (IV) either for labour or caesarean section. (Table 2) Consent for this at 24 weeks, using Special Access Scheme Category A form and RHW consent for exceptional use medication form (Appendix 2) and send forms to pharmacy who will arrange for medication to be available at 34 weeks on Delivery Suite. This medication is also available in the after-hours drug cupboard.
- Refer HIV positive woman to paediatric HIV Team at Sydney Children's Hospital for antenatal counselling on PMTCT risks, prevention strategies and postnatal follow-up which include HIV investigations, immunisations and clinical follow up. Contact CNC at SCH to arrange referral.
- Recommend against breast feeding
- Ensure patient confidentiality antenatally, intrapartum and postpartum, as family members may be unaware of the woman's HIV diagnosis
- Consider drug interactions prior to prescribing any medication in woman who is taking HAART. http://www.hiv-druginteractions.org/Interactions.aspx

Pre-labour rupture of the membranes (term)

- Expedite delivery in all cases of term pre-labour spontaneous rupture of the membranes
  - If maternal HIV viral load is <50 HIV RNA copies/mL immediate induction of labour is recommended, with a low threshold for treatment of intrapartum pyrexia
  - Consider immediate caesarean section for women with a last measured plasma viral load of 50–999 HIV RNA copies/mL, taking into account the actual viral load, the trajectory of the viral load, length of time on treatment, adherence issues, obstetric factors and the woman's wishes
  - Recommend immediate Caesarean section if maternal HIV viral load is ≥1000 RNA copies/mL plasma

Premature pre-labour rupture of membranes (PPROM)

- Recommend immediate delivery when PPROM occurs between 34 to 37 weeks gestation with either caesarean section or vaginal delivery. Consideration should be given to starting broad-spectrum intravenous antibiotics
- Administer steroids when PPROM occurs at <34 weeks gestation. Virological control should be optimised and there should be multidisciplinary discussion about the timing and mode of delivery

Intrapartum

- Prescribe IV zidovudine (AZT) as per Appendix 1, for vaginal birth or caesarean section if indicated (Table 2)
- Give routine medications at usual times on day of birth
- Avoid artificial rupture of the membranes unless necessary: if it is performed, care should be taken to avoid skin injury to the fetus. Amniotomy and Oxytocin augmentation may be considered for augmentation of labour
- Do not perform invasive procedures such as fetal scalp electrodes and fetal blood sampling

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- Perform episiotomy and instrumental delivery for clear obstetric indications only. Forceps should be used rather than vacuum for instrumental delivery
- Implement standard precautions for care of all women
- Consider using blunt needles at caesarean section or during perineal repair. Consider using skin staples rather than subcuticular sutures at time of caesarean section to reduce needle stick injuries
- **An untreated woman presenting in labour at term** should be given a stat dose of Nevirapine 200mg tablet orally and commence on fixed-dose Zidovudine with Lamivudine (Combivir 1 tablet twice per day (bd) orally) and Raltegravir (400mg twice a day) orally, (as well as Zidovudine IV, as per Table 2). (These recommendations are based on the current BHIVA guidelines) These medications are available in the after hours drug cupboard
  - If the woman is in preterm labour, if the infant is unlikely to be able to absorb oral medications, consider the addition of double dose Tenofovir to further load the baby
  - Arrange urgent adult and paediatric infectious disease (ID) physician consultations

Postnatal Mother

- Avoid Ergometrine to treat Postpartum Haemorrhage PPH in woman who is receiving protease inhibitors as a component of HAART. Use only if alternative treatments such as prostaglandin F 2 alpha, Misoprostol, or Oxytocin are unavailable. If no alternative medications are available and the need for pharmacologic treatment outweighs the risks, Ergometrine should be used in as low a dosage and for as short a period as possible
- Advise against breast feeding. Medical officer to discuss and prescribe Dostinex prior to patient leaving Delivery Suite if appropriate
- Arrange vaccinations prior to discharge for pertussis, and flu vaccine if flu season and not vaccinated. Prescribe Measles Mumps Rubella (MMR) vaccine if rubella non immune, or measles non immune, after discussion with ID team if severely immuno-compromised
- Discuss contraception, including barrier methods, prior to discharge
- Discuss sexual HIV transmission prevention (condom use and safe sex) prior to discharge
- Arrange postnatal follow up for mother with ID team

Infant

- Gently wipe the baby's eyes free of secretions on delivery of the head
- Avoid damage to mucous membranes: only use suction if absolutely necessary, and be gentle
- Clamp the cord as soon as possible, milking between the clamps in a direction away from the baby. Place a sponge over the cord before cutting to prevent spurting of blood
- Towel dry the baby. Cleanse the baby as soon as possible to remove all signs of visible blood
- Ensure the skin is thoroughly cleaned prior to any procedures on the neonate that will disrupt skin integrity. An example is the administration of Intramuscular Injection (IMI) Vitamin K.
- Administer antiretroviral therapy as per Sydney Children's Hospital infectious diseases team recommendations. This should start within 4 hours (Table 2)
- Arrange follow up as per the Sydney Children's Hospital management plan

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6. DOCUMENTATION

- Adult Medication Chart
- Neonatal Medication Chart
- Integrated clinical notes
- Personal Health Record
- Neonatal Care Plan
- Special Access Scheme (SAS) Category A form. The Therapeutic Goods Administration (TGA) form can be downloaded direct from the website. Link for Special Access Scheme (SAS) Category A form: http://www.tga.gov.au/pdf/forms/access-forms-sas-categorya.pdf
- Exceptional use medication form

7. EDUCATIONAL NOTES

- Recommend all pregnant women have HIV screening at booking
- All HIV positive pregnant women who require therapy for their own health should receive a combination antepartum antiretroviral (ARV) drug regimen containing at least three drugs for treatment, which will also reduce the risk of perinatal transmission
- Combination antepartum drug regimens are also recommended for prevention of perinatal transmission in women who do not yet require therapy for their own health
- ARV prophylaxis is more effective when given for a longer rather than a shorter duration. Therefore, ARV drugs should be started as soon as possible in women who require treatment for their own health. ARV drugs should be commenced after the first trimester in women who do not require immediate initiation of therapy for their own health, although earlier initiation can be considered in these women as well
- Current adult treatment guidelines strongly recommend ARV for all individuals with CD4 cell counts <350 cells/mm^3 based on randomized, controlled clinical trial data demonstrating a clear benefit in reduction of mortality and morbidity. Pregnant women with CD4 counts <350 cells/mm^3 should begin on combination ARV as soon as possible during pregnancy. Counselled about the need to continue therapy after delivery and the importance of adherence to the regimen. Some authorities recommend starting ARVs at a higher CD4 count threshold.[3]
- Published cohort data from the UK and other European countries have shown mother to child transmission (MTCT) rates of <0.5% in women with plasma viral load <50 HIV RNA copies/ml taking HAART, irrespective of mode of delivery. These studies support the practice of recommending planned vaginal delivery for women on HAART with plasma viral load <50 HIV RNA copies/mL
- Drug interactions are a significant risk. Consult website prior to prescribing, such as MIMs or http://www.hiv-druginteractions.org/Interactions.aspx
- Where planned CS is undertaken only for obstetric indications and plasma viral load is <50 copies/mL, the usual obstetric considerations apply and the timing will usually be between 39 and 40 weeks
- ECV can be offered to women with a viral load <50 copies/mL and a breech presentation at ≥36 weeks in the absence of obstetric contraindications
- Limited unpublished data suggest a possible trend towards greater transmission risk with ruptured membranes >4 hours for those with viral loads >50 HIV RNA copies/mL. Until further data are available it is the recommendation of the UK HIV guideline Writing Group that CS should be considered for women with a viral load of >50 HIV RNA copies/mL at term

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- **Contraception:**
  - Due to the induction of liver enzymes, the use of combined oral contraceptive pill, progesterone only pill and progesterone implants (Implanon) may be less effective in those on HAART. Nonetheless, there is a role for these methods in conjunction with an additional method
  - The efficacy of depot medroxyprogesterone acetate, levonorgestrel intrauterine system (Mirena) and copper-bearing intrauterine device are not known to be affected by liver enzyme inducers and offer very effective contraception for those on HAART
  - A copper-bearing intrauterine device is the recommended method of emergency contraception for women on HAART. If progestogen only emergency contraception is used, a doubling of the standard dose to 3mg stat is recommended

8. RELATED POLICIES / PROCEDURES / CLINICAL PRACTICE LOP

- Sexually transmitted infections / Blood borne viruses antenatal screening and treatment
- NSW Ministry of Health '*Screening for Sexually Transmissible Diseases (STDs) and Blood Borne Viruses (BBVs) in Pregnancy'* Doc No GL2005_024
- http://www.health.nsw.gov.au/policies/GL/2005/pdf/GL2005_024.pdf
- NSW Ministry of Health: '*HIV and pregnancy an overview for health care workers'* http://www.health.nsw.gov.au/pubs/2004/pdf/hivpregcare.pdf
- NSW Ministry of Health '*HIV testing in pregnancy: Information for Pregnant Women'*
- http://www.health.nsw.gov.au/pubs/2004/pdf/hivpregtest.pdf
- NSW Ministry of Health '*HIV Antibody Testing - Counselling – Guidelines*' Doc No.: PD2005_048. http://www.health.nsw.gov.au/policies/PD/2005/PD2005_048.html
- Sydney Children's Hospital: Clinical Manual: HIV infection in pregnancy and neonatal diagnosis: A guide to Management
- ASHM Guidelines
- British HIV Association guidelines

9. REFERENCES

1 Panel on Treatment of HIV-Infected Pregnant Women and Prevention of Perinatal Transmission. Recommendations for Use of Antiretroviral Drugs in Pregnant HIV-1-Infected Women for Maternal Health *and* Interventions to Reduce Perinatal HIV Transmission in the United States. Sep. 14, 2011; pp 1-207. Available at http://aidsinfo.nih.gov/contentfiles/PerinatalGL.pdf. Accessed (January 2012)

2 British HIV Association, BASHH and FSRH guidelines for the management of the sexual and reproductive health of people living with HIV infection 2008. HIV Medicine (2008); 9, 681–720

3 British HIV Association Guidelines for the management of HIV infection in pregnant women 2012. Available at http://www.bhiva.org/documents/Guidelines/Treatment/2012/120430PregnancyGuidelines.pdf Accessed (August 2012)

4 RCOG. Green-top Guideline no 39. 2010. Management of HIV in Pregnancy

REVISION & APPROVAL HISTORY

Obstetrics LOPs group March 2013

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APPENDIX 1

CALCULATION FOR MATERNAL intravenous AZT INFUSION

Dose required: First hour = 2 mg/kg
Second and subsequent hours until delivery = 1 mg/kg/hr

One amp AZT contains 200 mg AZT

Dilute content of one amp in 1000 ml of Normal Saline

= 200 mg AZT in 1000 ml Normal Saline

= 2 mg AZT in 10 ml Normal Saline

= 1 mg AZT in 5 ml Normal Saline

To calculate rate of first hour:

Patient's weight _____kg x 10 = _____ml per hour

To calculate rate for second and subsequent hours until delivery:

Patient's weight_____kg x 5 =_____ml per hour

Divide the above formula by 60 to give rate of infusion in ml per minute.

Examples

For 60 kg patient:
Rate for first hour = 60 kg x 10 = 600 ml per hour Divided by 60 = 10 ml per minute
Half of the above rate for the second and subsequent hours until delivery

For 84 kg patient:
Rate for first hour = 84 kg x 10 = 840 ml per hour Divided by 60 = 14 ml per minute
Half of the above rate for the second and subsequent hour until delivery

TABLE 1 : ANTENATAL CARE

WHEN	WHO	INVESTIGATIONS
Pregnancy confirmed	GP / HIV team	Standard pregnancy booking bloods, including Hepatitis B and Hepatitis C Iron studies Thyroid function tests if not done in last 1 year Varicella IgG if history not known Measles Toxoplasma, Cytomegalovirus IgG Urine PCR for Chlamydia and gonorrhoea if not previously done Vaginal swab for bacterial vaginosis Pap smear if not done in last year Refer for nuchal translucency ultrasound
12-14 weeks	Midwife booking visit Obstetrician visit Discuss immunisations and plan for pregnancy Doctor to write letter (de-identified) regarding care plan- distribute to HIV consultant, SCH team, bed manager, CNC infection control HIV status not to be recorded on yellow card, Medications will be recorded on yellow card	Check booking bloods/ investigations. Nuchal translucency ultrasound at 11-13+ weeks Refer for morphology ultrasound and give referral for 34 week ultrasound
19 weeks	Midwife visit	Review Morphology ultrasound
24 weeks	Midwife visit Obstetrician visit: discuss birth plan. Consent for and book caesarean section if planned. Consent for zidovudine (AZT) and do SSA forms-(patient consent and SSA form to be sent to pharmacy).	Give form for 26-27 week bloods Arrange AZT to be ready on delivery suite from 34 weeks.
26-27 weeks		Bloods for 75g GTT, FBC, antibody screen, +/- repeat Syphilis, Chlamydia, Hep B, Hep C if required. HIV team to order bloods including viral load and CD4 count
28 weeks	Midwife visit, review blood results Meet with SCH team	
30 weeks	Obstetrician visit - review results and plan	
32 weeks	Midwife visit - discuss formula, feeding, tour postnatal ward	
34 weeks	Obstetrician visit- review birth plan Midwife to email bed manager, postnatal manager, Infection control and NUM birthing services Check medication is in delivery suite	Ultrasound medical imaging HIV team to order viral load at 34-36 weeks gestation, if planning vaginal birth and FBC
36 weeks	Midwife visit	Low Vaginal Swab (GBS) if planning vaginal birth Check bloods including viral load
37 weeks	Anaesthetic consult if having caesarean section (unless being admitted day prior to surgery) Midwife visit	FBC and G and H day prior to CS (if planned)
38 weeks	Caesarean section (CS) if planned Otherwise weekly midwife visits and Obstetrician review at 40 weeks re postdates plan	CS last on list, unless being admitted day prior to surgery, in order to give time for zidovudine pre-op if required
Postnatal	Dostinex post birth for mother Maternal antiretroviral as per HIV physician – mother to self administer Notify Pharmacy of birth and baby birth weight – they will dispense oral AZT (ziduvodine), to be commenced within 4 hours of birth. (Out of hours AZT available via nursing supervisor from emergency drug cupboard) Paediatrician to prescribe AZT order on baby's medication chart. EDTA HIV PCR blood from baby to be taken before discharge. Delete any obstetrix reference to HIV status before printing discharge summaries.	
Postnatal visit	4-6 weeks with midwife or obstetrician 8 weeks with SCH team	

TABLE 2 : ANTE - RETROVIRAL PROPHYLAXIS

<table>
<tr><th>TIMING</th><th>MOTHER</th><th>BABY</th></tr>
<tr><td colspan="3">ANTENATAL</td></tr>
<tr><td>Should commence during 2nd trimester and no later than the beginning of the third trimester</td><td>HAART (with or without zidovudine AZT)</td><td>Not applicable (N/A)</td></tr>
<tr><td colspan="3">INTRAPARTUM
Intrapartum intravenous zidovudine (AZT) infusion is recommended in the following circumstances :
• For women with a viral load of ≥400 HIV RNA copies/mL plasma
• For untreated women presenting in labour or with ruptured membranes in whom the current viral load is not known
• In women on zidovudine (AZT) monotherapy undergoing a planned caesarean section, intravenous zidovudine (AZT) can be considered. Continued oral dosing is a reasonable alternative
• There is data to support the use of intrapartum IV zidovudine infusion in women with HIV viral load > 10 000 copies per ml. There is insufficient information when viral load is between 400 and 10 000 copies per ml, and therefore IV zidovudine is recommended in this group</td></tr>
<tr><td>ELECTIVE LSCS</td><td colspan="2">If AZT is indicated
Commence IV infusion of AZT 3 hours prior to elective Caesarean Section
Loading dose :
AZT 2 mg/kg IV over 1 hour (dilution = 2 mg/ ml) diluted in normal saline (refer to appendix 1)
Maintenance dose :
Continuous infusion AZT 1 mg/kg/hr until delivery.

NOTE : If the maternal HAART regimen contains D4T, then intrapartum AZT is contraindicated and should not be commenced</td></tr>
<tr><td>WITH ONSET OF LABOUR
This is applicable in the following scenarios: Either

a) The mode of delivery opted for after counselling is a normal vaginal delivery

b) Or spontaneous labour occurs before the date of elective LSCS. AZT should commence in the time interval during the preparation for a semi-urgent caesarean section (LSCS should not be delayed to complete the intravenous induction course of AZT)</td><td colspan="2">If AZT is indicated :
Commence IV infusion when admitted in labour
Loading dose:
AZT 2 mg/kg IV over 1 hour (dilution – 2 mg/ ml) (refer to appendix 1)

Maintenance dose :
Continuous infusion AZT 1 mg/kg/hr until delivery

NOTE : If the maternal HAART regimen contains D4T, then intrapartum AZT is contraindicated and should not be commenced
• An untreated woman presenting in labour at term should also have an urgent Infectious disease consultation regarding most appropriate regimen</td></tr>
<tr><td>POSTNATAL</td><td>MOTHER</td><td>BABY</td></tr>
<tr><td></td><td>Review</td><td>Zidovudine (AZT) Oral
(>34 weeks gestation)
☐ 4 mg/kg twice daily
(30-34 weeks gestation)
☐ 2 mg/kg twice daily for 2 weeks then 2 mg/k three times a day for 2 weeks
(<30 weeks gestation)
☐ 2 mg/kg twice daily for 4 weeks
Zidovudine (AZT) Intravenous
(>34 weeks gestation)
1.5 mg/kg four times a day
(<34 weeks gestation)
1.5 mg/kg twice daily

Refer to Sydney Children Hospital neonatal guidelines if another antiretroviral agent is needed</td></tr>
</table>

FOR MEDICAL RECORD USE ONLY

• MEDICAL RECORD COPY •

South Eastern Sydney Illawarra Area Health Service

CONSENT FOR EXCEPTIONAL USE OF MEDICINE

HOSP ID MRN
SURNAME
OTHER NAMES
DOB SEX AMO

MRN BAR CODE

AFFIX PATIENT IDENTIFICATION LABEL HERE

Exceptional use of medicine includes medication used under the Special Access Scheme (SAS) and some off-label use of a registered medication in an individual patient. See SESIH Area Drug Committee Decision Algorithm for Evaluation of Medicines for Individual Patient Use to confirm justification for exceptional use.

Advice to patient/s carers:

This drug is not registered in Australia for use in the condition listed below which means it has not been evaluated by the Therapeutic Goods Administration of the Australian Department of Health and Ageing, and it may only be considered for exceptional use if an individual patient has a serious underlying disease or condition and standard therapy has been unsuccessful or is inappropriate. There may be unknown side effects. You should discuss the known side effects with the treating doctor before the commencement of treatment. If you have not done this, please ask the treating doctor now to discuss this with you. In addition, should this treatment be ongoing, you should ask the treating doctor whether any new and significant information has become available.

Written informed consent is required prior to treatment with this drug.

Drug name and form: _____

The condition requiring treatment: _____

Alternative therapies that may be considered: _____

_____

Potential risks associated with this treatment: _____

_____

_____

_____

Expected benefits of treatment: _____

_____

_____

Details of additional written material provided: _____

STATEMENT OF CONSENT BY PATIENT

I have read the above information and statement of liability. I understand that by signing this form I am agreeing to accept this liability. I acknowledge that the nature, reason for use, and possible risks of the treatment have been explained to my satisfaction. Before signing this document I have been given the opportunity to ask questions relating to any possible harm I might suffer as a result of the treatment and I have received a satisfactory answer.

Signature of patient/carer: _____ **Date:** ____/____/____

By patient, if over 16 years. Otherwise please state relationship: _____
If adult patient unable to give consent, by guardian/spouse/de-facto/caregiver/Guardianship Board.
If patient between 14-16 years, patient plus parent to sign. If under 14 years, parent or guardian to sign.

I, Prof/Dr _____ ***(Dr name printed)*, have fully explained to the patient the nature, purpose and risks of the drug treatment to be employed.**

Signature of authorised prescriber: _____ **Date:** ____/____/____

Admitting Medical Officer (Only for Category A SAS may be AMO's Registrar)

Both signatures witnessed by: _____ ***(Please print name)***

Signature of witness: _____ **Date:** ____/____/____

Original to stay in patient file *Copy to pharmacy with drug order*

BINDING MARGIN – DO NOT WRITE

CONSENT FOR EXCEPTIONAL USE OF MEDICINE