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| **Subject:** **PERINATAL**  | **Page** **1 of 11**  | Policy #:   |
| **Title:** **CARE OF THE PREGNANT AND POSTPARTUM PERSON LIVING** **WITH HIV AND THEIR NEWBORN**  | Revision of:  | Effective Date:  |
| Removal Date:   |

1. **PURPOSE:**
	1. To provide guidelines for care of the hospitalized pregnant and postpartum person living with HIV and their newborn.
	2. To provide guidelines to ensure safe, effective and timely administration of antiretroviral medications to the patient living with HIV and their newborn with HIV exposure.
	3. To establish guidelines for the determination of risk status and antiretroviral prophylaxis for infants with perinatal exposure to HIV.

1. **POLICY STATEMENT:**
	1. Pregnant people presenting to the Emergency Room, OB Triage, Antepartum or L&D should have documentation of two HIV tests in the current pregnancy. The repeat HIV test must have occurred at 27 weeks of pregnancy or later.
	2. If HIV status is undocumented after 27 weeks of pregnancy, a rapid HIV test must be performed upon admission.

**Of note, if pregnant patient refuses a rapid HIV, they should be informed that Illinois State Law mandates the infant be immediately tested. If pregnant patient still refuses, a rapid HIV should be sent on the infant.**

* 1. Confidentiality must be maintained for all people living with HIV and newborns with HIV exposure.
		1. Do not presume that any accompanying individuals or family members are aware of the patient’s HIV status or the newborn’s HIV exposure.
		2. Accompanying individuals should always be asked to leave the patient room before obtaining patient consent for a rapid test or discussing any HIV related issues.
	2. To ensure communication between obstetrics, neonatology and the pediatric services, the delivering physician/hospitalist will be informed by the admitting L&D RN, whenever a pregnant patient with HIV presents to L&D in active labor. The pediatrician/neonatologist shall be called upon delivery of the infant. The hospitalist will order the appropriate HIV order set (low-risk vs. high-risk) for the infant. The hospitalist will communicate with the attending pediatrician regarding the delivery. In addition, the pediatric service will be notified of the birth per the usual process. These infants do not need to be admitted to the NICU if otherwise well.
	3. Antiretroviral medications may have drug interactions with commonly used obstetric medications. See Appendix C1 and C2.
	4. Standard precautions are utilized.

G. In the event of an occupational exposure, the healthcare worker must follow hospital policy.

1. **PERSONS AFFECTED**: Pregnant patients and their newborn, all healthcare providers

1. **RESPONSIBILITIES:** Women’s Health Leadership Team

1. **POLICY UPDATE SCHEDULE:** Every three years

1. **RELEVANT REFERENCES:**

AAP, ACOG Guidelines for Perinatal Care, 6th ed. 2008

Federal Perinatal Guidelines: <http://www.aidsinfo.nih.gov/contentfiles/PerinatalGL.pdf>

24/7 Illinois Perinatal HIV Hotline (1-800-439-4079): <http://www.hivpregnancyhotline.org/>

1. **APPENDICES:**
	* 1. Care of the Pregnant Person Living with HIV
		2. Care of the Newborn Exposed to HIV
		3. Drug Interaction Charts:
2. Potential Drug-Drug Interactions between Antiretroviral (ARV) medications and commonly used obstetric medications
3. Potential Drug-Drug Interactions between Intravenous Zidovudine (ZDV) and commonly used obstetric medications

**Appendix A: Care of the Pregnant Person Living with HIV**

1. **Antepartum**
	1. Weigh patient upon admission. Some antiretroviral medications

(including Zidovudine/ZDV) are based on the patient’s current weight.

* 1. See Appendix C1 and C2 for potential drug interactions.
	2. It is critical that all antiretroviral medications are administered at scheduled times.
	3. If there are any questions/problems with medication administration, contact the physician immediately.
	4. Patients admitted for directly observed therapy (D.O.T.) will have the nurse remain at the bedside and watch the patient take the medication to ensure medications are taken and ingested. This is necessary to assure compliance with therapy. Each incident of D.O.T. must be documented.
1. **Labor and Delivery/ OB Triage**
	1. When the patient is admitted to L&D for delivery, the pharmacy must be notified of the imminent need of ZDV syrup for the newborn following birth.
	2. Weigh patient upon admission (if possible). Dosing of maternal ZDV is based on the patient’s current weight.
	3. IV administration of ZDV
		1. When IV ZDV is started, the oral dose of ZDV is discontinued (if applicable).
		2. Refer to Appendix C1 and C2 to screen for any potential drug incompatibility with antiretroviral therapy or ZDV. A separate IV line is usually not necessary for administration of ZDV.
		3. Dosing
			1. A loading dose of 2 mg/kg is administered over one hour.
			2. A maintenance dose of 1mg/kg/hour is administered until cord clamping.
			3. If the maintenance IV ZDV is stopped for more than 3 hours, the patient should be reloaded with 2 mg/kg over one hour, followed by the maintenance infusion stated above.
			4. If significant cirrhosis, hepatic dysfunction or renal dysfunction (creatinine clearance < 10 ml/minute) is present, the maintenance dose must be decreased to 0.5 mg/kg/hour.

4. Parenteral ZDV should not be given if the patient:

* + - 1. Is known to have a life threatening or anaphylactic reaction to oral or parenteral ZDV.
			2. Has severe anemia, Hgb < 7 gm/dl, (consult with hospital perinatal HIV service or 24/7 Illinois Perinatal HIV Hotline)
			3. Has an ANC <700 cells/mm3. ANC = (segmented neutrophils + bands) x WBC.
			4. Fetal anemia or anomalies incompatible with life are present.
	1. Patients admitted with preterm labor with a significant chance of delivery should be started on IV ZDV as well as tocolytic agents, if appropriate.
	2. Invasive procedures should be avoided if possible (e.g., scalp electrodes, IUPC placement).
	3. The decision to perform an amniotomy should be individualized based on clinical context, taking into account patient’s viral load as well as the labor course.
	4. Route of delivery is determined by the patient’s HIV status (viral load).

1. Cesarean delivery

* + - 1. Recommended to patients with clinically significant viral load (generally > 1000 copies/mL) but should be performed prior to rupture of membranes and onset of labor.

Consultation with the 24/7 Illinois Perinatal HIV Hotline is encouraged for clinical decision-making regarding route of delivery in the setting of high HIV viremia

* + - 1. Patients who are scheduled for cesarean section will begin dosing of IV ZDV 3 hours prior to surgery.

2. Vaginal delivery: Intravenous ZDV will be started as soon as possible after the patient presents in labor.

H. Post delivery

* + 1. Intravenous ZDV is discontinued following delivery.
		2. Oral antiretroviral therapy is continued per MD order.

1. **Postpartum**
	1. Formula feeding is the only way to eliminate the risk of breastmilk transmission of HIV. However, if a patient expresses interest in breast/chestfeeding, shared decision making and non-judgmental counseling should be provided as outlined in the DHHS Perinatal Guidelines [Infant Feeding for Individuals with HIV in the United States | NIH](https://clinicalinfo.hiv.gov/en/guidelines/perinatal/infant-feeding-individuals-hiv-united-states?view=full) **Clinicians should consult experts in pediatric HIV if a patient chooses to breast/chestfeed.**
	2. Engaging Child Protective Services or similar agencies is not an appropriate response if a patient chooses to breast/chestfeed.
	3. When lactation suppression is desired, patients should be instructed in measures to suppress lactation such as supportive/tight bras, ice, or cold compresses and ibuprofen to reduce discomfort.
	4. Instruct patient on how to draw up and administer ZDV syrup and any other oral ARV prescribed for the newborn exposed to HIV. Nurses should observe and document that the patient can draw the correct dosage and administer the medication to the newborn successfully prior to discharge.
	5. Contraceptive and STD counseling should be performed prior to the patient’s discharge.
	6. Follow-up appointments for the infant and birth parent must be scheduled prior to discharge. The appointment information will be transcribed onto the patient discharge instruction sheet.
	7. Discharging RN will be responsible for educating the parent / primary caregiver and observing and documenting in the newborn medical record the following:
		1. Parent of the newborn is able to draw up from the take home bottle the correct ZDV dose and any other ARV medications prescribed.
		2. The parent is able to correctly demonstrate giving ZDV and any other prescribed ARV medication to the newborn.
		3. Parent is able to verbalize appropriate times of administration of ZDV and any other ARV medications prescribed for the newborn.

**Appendix B: Care of the Newborn Exposed to HIV**

**I. Determination of Infant Risk Status**

A. Infants at High-Risk for acquisition of HIV infection are born to people with HIV who meet AT LEAST ONE of the following criteria:

1. did not receive antenatal care
2. did not receive antepartum antiretroviral therapy
3. only received intrapartum antiretroviral therapy
4. had acute or primary HIV infection diagnosed during pregnancy
5. diagnosed with HIV during labor or postpartum, or have unknown (or pending) HIV status
6. received antepartum antiretroviral drugs but did not have viral suppression (defined as at least two consecutive tests with HIV RNA level <50 copies/mL obtained at least 4 weeks apart) within 4 weeks prior to delivery
7. Low-Risk for HIV infection is all other infants.
8. Immediately after birth for **low-risk infants**:
	* 1. The pediatrician/neonatologist attending the birth will order a CBC, neonatal ZDV and any other labs necessary, as per the facility’s “Low-Risk Infant” protocol.
		2. Newborn must be suctioned and bathed as soon as possible to remove maternal blood contamination.
		3. Weigh the infant and notify pharmacy immediately.
		4. Prior to vitamin K administration or if naloxone is required, cleanse the injection site with alcohol followed by Betadine prior to injection.
9. Immediately after birth for **high-risk infants**:
10. A pediatrician/neonatologist will be called for delivery.
11. The pediatrician/neonatologist attending the birth will order a CBC, HIV DNA or HIV RNA PCR, triple combination antiretroviral therapy (neonatal ZDV, Nevirapine/Viramune and Lamivudine/Epivir) and any other labs necessary, as per the facility’s “High-Risk Infant” protocol.
12. Newborn must be suctioned and bathed as soon as possible to remove maternal blood contamination.
13. Weigh the infant and notify pharmacy immediately.
14. Prior to vitamin K administration or if naloxone is required, cleanse the injection site with alcohol followed by Betadine prior to injection.
15. Discussion with the Infectious Disease Specialist or with the 24/7 Illinois Perinatal HIV Hotline any questions regarding treatment of high-risk infants is encouraged.

**II. Pharmacological Therapy & Testing and Follow Up for the Newborn**

1. *See* [*Best Practices: Labor & Delivery Care for Pregnant People with HIV and Care of Infants with Perinatal Exposure to HIV –* ***SECTION IV CONSIDERATIONS FOR NEWBORNS WITH HIV EXPOSURE***](https://www.hivpregnancyhotline.org/content/resource/hotline-best-practices-labor-delivery-care-pregnant-people-hiv-and-care-infants)

B. The newborn should be bathed immediately after delivery, once stable from cardio-respiratory standpoint. The first dose of all medications should be administered to the newborn in the labor and delivery room after delivery with the goal of within one hour*.*

C**.** For High-Risk Infant:Perform at birth

1. **HIV DNA PCR or RNA PCR or Total Nucleic Acid (TNA)\*\*\* on admission to the Mother Baby Unit or equivalent**. The order for the labs will be placed by the pediatrician/neonatologist in Labor and Delivery prior to admission to the Mother Baby Unit.
	* + - Send STAT HIV DNA PCR or RNA PCR or TNA at birth; goal is to have results available within 1 week
			- **Contact 24/7 Illinois Perinatal HIV Hotline for assistance with expedited testing or if unable to receive results within 1 week**

D. Discharge of the newborn

1. The newborn exposed to HIV should be evaluated by a pediatric HIV specialist physician within one week of discharge.
2. Social Work will schedule a follow-up appointment at a Pediatric Infectious Disease Center.
3. The newborn will be discharged with a 2-week supply of all antiretroviral syrups due to potential difficulty obtaining the syrup from community pharmacies.

**III. Dosing Tables for Antiretroviral Drugs**

1. *See* [*Best Practices: Labor & Delivery Care for Pregnant People with HIV and Care of Infants with Perinatal Exposure to HIV –* ***SECTION V DOSING TABLES FOR NEWBORN ANTIRETROVIRAL DRUGS***](https://www.hivpregnancyhotline.org/content/resource/hotline-best-practices-labor-delivery-care-pregnant-people-hiv-and-care-infants)

**Appendix C1: Potential Drug-Drug Interactions between Antiretroviral (ARV) medications and commonly used obstetric medications**

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| ARV  | Concurrent agent  | Effect on ARV and/or concurrent agent | Clinical Relevance  |
| ***Protease Inhibitor*** ***(PI)\**** Lopinavir/ritonavir (Kaletra™)  Darunavir/ritonavir (Prezista™/Norvir™)  | dexamethasone  |  possible ↑ dexamethasone  possible ↓ PI  | * may not be clinically relevant with single

 doses of dexamethasone * if dosing more frequently, may consider decreasing dexamethasone dose and titrated to desired effect as tolerated
 |
| erythromycin  | possible ↑ erythromycin  possible ↑ PI  | * may not be clinically relevant with single

 doses of erythromycin  * if dosing more frequently: monitor for increased adverse effects: N/V, diarrhea,

 abdominal pain, LFTs   |
| fentanyl  | ↑ fentanyl  | * close monitoring for respiratory depression and/or prolonged sedation and dosage adjustment should be considered
 |
| methylergonovine  | ↑ methylergonovine  | * ***contraindicated***, potential for acute ergot toxicity characterized by peripheral vasospasm and ischemia of the extremities and/or other tissues
 |
| Midazolam (Versed)  | ↑ midazolam  | * oral, ***contraindicated***
* parenteral, close monitoring for respiratory depression and/or prolonged sedation and dosage adjustment should be considered (1)
 |
| nifedipine (dihydropyridine calcium channel blockers (CCB)  | ↑ nifedipine  | * use with caution: start with lowest dose and monitor vital signs closely; titrate dose to desired range as tolerated
 |
| ***Non-nucleoside Reverse*** ***Transcriptase Inhibtor*** ***(NNRTI™)\*\**** Nevirapine (Viramune™)  | fentanyl  | possible ↓ fentanyl  | * titrate dose to clinical response
 |
| nifedipine (dihydropyridine calcium channel blockers (CCB)  | possible ↓ nifedipine  | * titrate dose based on clinical response
 |

\* List not inclusive of *ALL* protease inhibitors but rather those commonly used in pregnancy

\*\* List not inclusive of *ALL* non-nucleoside reverse transcriptase but rather those commonly used in pregnancy

1. Consider alternative benzodiazepine if pt requires multiple doses (such as lorazepam).

**Appendix C2: Potential Drug-Drug Interactions between Intravenous Zidovudine and commonly used obstetric medications**

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| Ampicillin  | ND  |
| Betamethasone  | ND  |
| Calcium Gluconate  | ND  |
| Cefazolin  | ND  |
| Clindamycin  | C  |
| Dexamethasone  | C  |
| Ephedrine  | ND  |
| Erythromycin  | C  |
| Fentanyl  | ND  |
| Gentamycin  | C  |
| Hydralazine  | ND  |
| Hydromorphone  | C  |
| Indomethacin  | ND  |
| Insulin  | I  |
| Ketoralac  | ND  |
| Labetolol  | ND  |
| Magnesium sulfate  | ND  |
| Methergine  | ND  |
| Oxytocin  | C  |
| Penicillin  | ND  |
| Terbutaline  | ND  |
| Vancomycin  | C  |

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| **Key:** **C: compatible** **ND: no data** **I: incompatible**   |

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Reference:

1. Trissel, Lawrence A. Handbook on Injectable Drugs, 15th edition.

Websites for HIV drug-drug interactions:

1. <http://aidsinfo.nih.gov/contentfiles/AdultandAdolescentGL.pdf> (pages 129-142)
2. <http://www.hiv-druginteractions.org/>
3. **APPROVAL:**

Responsible Parties:

Reviewers:

Committees:

Approval Parties: