GUIDELINES FOR CARE OF INFANTS WITH PERINATAL EXPOSURE TO HIV

PURPOSE: To establish guidelines for the determination of risk status and antiretroviral prophylaxis for infants with perinatal exposure 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:

- did not receive prenatal care
- did not receive antepartum antiretroviral therapy
- only received intrapartum antiretroviral therapy
- had acute or primary HIV infection diagnosed during pregnancy
- diagnosed with HIV during labor or postpartum, or have unknown HIV status
- received antepartum antiretroviral drugs but who did not achieve sustained viral suppression (HIV RNA level <50 copies/mL) by 4 weeks prior to delivery

B. Low Risk for HIV infection

- All other infants

II. ANTIRETROVIRAL PROPHYLAXIS RECOMMENDATIONS BY RISK STATUS

(See dosing tables for individual drugs in Section III)

ZDV=Zidovudine or AZT; 3TC=Lamivudine; NVP=Nevirapine or Viramune; RAL=Raltegravir

Newborns at Low Risk of Perinatal HIV Transmission	
Recommended Regimen	**Recommended Duration**
• ZDV	• ZDV administered for 4 weeks[a]
Newborns at Higher Risk of Perinatal HIV Transmission	
Illinois Hotline Recommended Regimen	**Recommended Duration[a,b]**
• Presumptive HIV therapy with ZDV/3TC/NVP	• If birth PCR is negative, administer ZDV, 3TC and NVP for 2 weeks, then continue ZDV alone through 6 weeks of age • If birth PCR is positive, continue ZDV, 3TC and NVP and consult a Pediatric HIV specialist
Alternate Regimen	**Recommended Duration[a,b]**
• Presumptive HIV therapy with ZDV/3TC/RAL	• If birth PCR is negative, administer ZDV, 3TC and RAL for 2 weeks, then continue ZDV alone through 6 weeks of age • If birth PCR is positive, continue ZDV, 3TC and RAL and consult a Pediatric HIV specialist

[a] ***ARV drugs should be initiated as close to the time of birth as possible, preferably within 6 hours of delivery***

[b] *The optimal duration of presumptive HIV therapy in newborns at higher risk of perinatal HIV transmission is unknown. Some experts opt to continue NVP, RAL, and/or 3TC treatment doses for up to 6 weeks, even after birth NAT returns negative for infants at the highest risk of HIV acquisition. In all cases in which the newborn is at higher risk of HIV acquisition, ZDV should be continued for 6 weeks. Consultation with an expert in pediatric HIV to select a therapy duration based on case-specific risk factors and interim HIV NAT results is recommended.*

III. DOSING TABLES FOR ANTIRETROVIRAL DRUGS

<table>
<tr><th>Drug</th><th>ARV Dosing by Age and Weight</th></tr>
<tr><td>ZDV

Note: For newborns unable to tolerate oral agents, the IV dose is 75% of the oral dose while maintaining the same dosing interval.</td><td>
<u>Simplified Weight-Band Dosing for Newborns Aged ≥35 Weeks Gestation from Birth to 4 Weeks</u>:
<table>
<tr><th>Weight Band (kg)</th><th>Volume (mL) ZDV 10 mg/mL Oral Syrup Twice Daily</th></tr>
<tr><td>2 to <3 kg</td><td>1 mL</td></tr>
<tr><td>3 to <4 kg</td><td>1.5 mL</td></tr>
<tr><td>4 to <5 kg</td><td>2 mL</td></tr>
</table>
Age >4 Weeks:
• ZDV 12 mg/kg/dose orally twice daily; this dose adjustment is only for infants with confirmed HIV infection

<u>≥30 to <35 Weeks Gestation at Birth</u>
Birth to Age 2 Weeks:
• ZDV 2 mg/kg/dose orally twice daily
Age 2 Weeks to 6–8 Weeks:
• ZDV 3 mg/kg/dose orally twice daily
Age >6–8 Weeks:
ZDV 12 mg/kg/dose orally twice daily; this dose adjustment is only for infants with confirmed HIV infection

<u><30 Weeks Gestation at Birth</u>
Birth to Age 4 Weeks:
• ZDV 2 mg/kg/dose orally twice daily
Age 4 to 8–10 Weeks:
• ZDV 3 mg/kg/dose orally twice daily
Aged >8–10 Weeks:
• ZDV 12 mg/kg/dose orally twice daily; this dose adjustment is only for infants with confirmed HIV infection
</td></tr>
<tr><td>3TC</td><td>
<u>≥32 Weeks Gestation at Birth</u>
Birth to Age 4 Weeks:
• 3TC 2 mg/kg/dose orally twice daily
Age >4 Weeks:
• 3TC 4 mg/kg/dose orally twice daily

<u><32 Weeks Gestation at Birth</u>
Consult IL Perinatal HIV Hotline
</td></tr>
</table>

Drug	ARV Dosing by Age and Weight
NVP	≥37 Weeks Gestation at Birth *Birth to Age 4 Weeks*: • NVP 6 mg/kg/dose orally twice daily[a] *Age >4 Weeks:* • NVP 200 mg/m^2 of BSA/dose orally twice daily; only make this dose increase for infants with confirmed HIV infection. --- ≥34 to <37 Weeks Gestation at Birth *Birth to Age 1 Week*: • NVP 4 mg/kg/dose orally twice daily *Age 1 to 4 Weeks:* • NVP 6 mg/kg/dose orally twice daily *Age >4 Weeks:* • NVP 200 mg/m^2 of BSA/dose orally twice daily; only make this dose increase for infants with confirmed HIV infection. --- ≥32 to <34 Weeks' Gestation at Birth *Birth to Age 2 Weeks* • NVP 2 mg/kg per dose orally twice daily *Age 2 to 4 Weeks* • NVP 4 mg/kg per dose orally twice daily *Age 4 to 6 Weeks* • NVP 6 mg/kg per dose orally twice daily *Age >4 Weeks* • NVP 200 mg/m^2 BSA per dose orally twice daily; only make this dose increase for infants with confirmed HIV infection. Consult IL Perinatal Hotline for infants <32 weeks

Drug	ARV Dosing by Age and Weight
RAL[c] **Note**: If the mother has taken RAL 2–24 hours prior to delivery, the neonate's first dose of RAL should be delayed until 24–48 hours after birth; additional ARVs should be started as soon as possible.	≥37 Weeks Gestation at Birth and Weighing ≥2 kg[b]

Body Weight (kg)	Volume (Dose) of Suspension, RAL 10 mg/mL, to be Administered
Birth to 1 Week: Once Daily Dosing	**Approximately 1.5 mg/kg/dose**
2 to <3 kg	0.4 mL (4 mg) once daily
3 to <4 kg	0.5 mL (5 mg) once daily
4 to <5 kg	0.7 mL (7 mg) once daily
1 to 4 Weeks: Twice Daily Dosing	**Approximately 3 mg/kg/dose**
2 to <3 kg	0.8 mL (8 mg) twice daily
3 to <4 kg	1 mL (10 mg) twice daily
4 to <5 kg	1.5 mL (15 mg) twice daily

	4 to 6 Weeks: Twice Daily Dosing	**Approximately 6 mg/kg/dose**	
	3 to <4 kg	2.5 mL (25 mg) twice daily	
	4 to <6 kg	3 mL (30 mg) twice daily	
	6 to <8kg	4mL (40mg) twice daily	

[a] *Investigational NVP treatment dose recommended by the Department of Health and Human Services Perinatal HIV Transmission Panel; FDA has not approved a dose of NVP for infants <1 month of age.*

[b] *RAL dosing is increased at 1 and 4 weeks of age because metabolism by UGT1A1 is low at birth and increases rapidly during the next 4 to 6 weeks of life.* ***No dosing information is available for preterm or low birthweight infants.***

[c] *In cases where RAL is being considered as part of infant ARV prophylaxis (e.g. mother has known viral resistance to NVP, NVP is not available, etc.) clinicians should review proper instructions on RAL preparation and dosing (Appendix A) and weigh the complexity of RAL preparation/dosing with the benefits of RAL administration. Consultation with an expert in pediatric HIV is strongly recommended in cases where RAL will be used.*

IV. INFANT TESTING AND FOLLOW UP

A. Low Risk Infant

1. Perform HIV DNA PCR or RNA PCR or Total Nucleic Acid (TNA)*** at:
   - 2-3 weeks of age
   - 4-8 weeks of age
   - 4-6 months of age
2. **Any infant with a positive PCR or TNA should be immediately referred to a pediatric HIV specialist**
3. Patient may be discharged from HIV specialty care if all of the above PCR tests are negative.

B. High Risk Infant

1. Perform HIV DNA PCR or RNA PCR or Total Nucleic Acid (TNA)*** at:
   - **Birth**
   - 2 weeks of age
   - 4 weeks
   - 8 weeks of age (at least 2 weeks after completing antiretrovirals)
   - 4-6 months of age
2. **Consultation with a pediatric HIV specialist is strongly recommended in cases where women did not receive ART during pregnancy.**
3. **Any infant with a positive PCR or TNA should be immediately referred to a pediatric HIV specialist.**
4. Obtain CBC with differential at 4 weeks of age if still on three antiretrovirals.
5. Obtain urine or saliva for CMV PCR before 3 weeks of age.
6. Patient may be discharged from HIV specialty care if all of the above PCR tests are negative.

****** HIV RNA PCR or TNA is preferred for infants born to mothers who acquired HIV outside of the US or Europe who may be infected with non-clade B viral subtype***

V. *PNEUMOCYSTIS JIROVECII* PNEUMONIA (PCP) PROPHYLAXIS

A. PCP prophylaxis is recommended beginning at 6 weeks of age ONLY for infants with a **positive** DNA PCR or RNA PCR or TNA → **Consult with a pediatric HIV specialist to determine need.**

B. PCP prophylaxis is NOT recommended if the DNA PCR or RNA PCR or TNA performed at ≥ 2 weeks and ≥ 6-8 weeks of age are negative, and subsequent tests remain negative.

VI. INFANT FEEDING GUIDANCE

A. Providers should routinely discuss infant feeding plans. Formula-feeding is the only way to eliminate breastmilk transmission of HIV infection, however, if a mother expresses interest in breastfeeding, non-judgmental counseling should be provided as outlined in the DHHS HIV Perinatal Guidelines (https://clinicalinfo.hiv.gov/en/guidelines/perinatal/counseling-and-managing-individuals-with-hiv-united-states-who-desire-breastfeed?view=full).

B. Counseling against pre-mastication should be provided.

C. Clinicians should consult experts in pediatric HIV if a mother with HIV chooses to breastfeed.

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The 24/7 Illinois Perinatal HIV Hotline's GUIDELINES FOR CARE OF INFANTS WITH PERINATAL EXPOSURE TO HIV were adapted from the U.S. Department of Health and Human Services Recommendations for the Use of Antiretroviral Drugs During Pregnancy and Interventions to Reduce Perinatal HIV Transmission in the United States available at hivinfo.nih.gov. They were developed in conjunction with Dr. Ellen Chadwick, Director, Section of Pediatric and Maternal HIV Infection and Dr. Jennifer Jao, both at Ann & Robert H. Lurie Children's Hospital of Chicago and Dr. Julia Rosebush, Director of Pediatric/Adolescent HIV, Comer Children's Hospital at the University of Chicago.

APPENDIX A

In cases where raltegravir will be used, clinicians should carefully review the extensive instruction booklet (available at the link below) for proper raltegravir preparation and dosing and weigh the complexity of raltegravir preparation/dosing with the benefits of its administration. Consultation with an expert in pediatric HIV is **strongly** recommended.

RALTEGRAVIR (ISENTRESS) INSTRUCTIONS FOR USE FOR BABIES AND TODDLERS:

https://www.merck.com/product/usa/pi_circulars/i/isentress/isentress_ifu.pdf