

**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. High Risk for HIV infection is defined as AT LEAST ONE of the following:
- Infants born < 33 weeks gestation
  - Infants born to women whose HIV viral load was detectable (anything greater than 20 copies/mL) after 28 0/7 weeks gestation
  - Infants born to women who did not receive antepartum antiretroviral therapy
  - Infants born to women who started antiretroviral therapy after 13 0/7 weeks gestation
  - Infants born to women who became infected with HIV or seroconverted during pregnancy
  - Infants born to women diagnosed with HIV during labor or postpartum
- B. Low Risk for HIV infection
- All other infants

**II. ANTIRETROVIRAL REGIMEN 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
<ul style="list-style-type: none"> <li>• ZDV</li> </ul>	<ul style="list-style-type: none"> <li>• ZDV administered for 4 weeks<sup>a</sup></li> </ul>
Newborns at High Risk of Perinatal HIV Transmission	
Illinois Hotline Recommended Regimen	Recommended Duration <sup>a,b</sup>
<ul style="list-style-type: none"> <li>• Empiric HIV therapy with ZDV/3TC/NVP</li> </ul>	<ul style="list-style-type: none"> <li>• If birth PCR is negative, administer ZDV, 3TC and NVP for 2 weeks, then continue ZDV alone through 6 weeks of age</li> <li>• If birth PCR is positive, continue ZDV, 3TC and NVP beyond 2 weeks and consult a Pediatric HIV specialist</li> </ul>
Alternate Regimen	Recommended Duration <sup>a,b</sup>
<ul style="list-style-type: none"> <li>• Empiric HIV therapy with ZDV/3TC/RAL</li> </ul>	<ul style="list-style-type: none"> <li>• If birth PCR is negative, administer ZDV, 3TC and RAL for 2 weeks, then continue ZDV alone through 6 weeks of age</li> <li>• If birth PCR is positive, continue ZDV, 3TC and RAL beyond 2 weeks and consult a Pediatric HIV specialist</li> </ul>

<sup>a</sup> **Initiate ARV prophylaxis as soon as possible after delivery**

<sup>b</sup> *The optimal duration of empiric 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

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

Indication																		
Drug	Low Risk Prophylaxis	High Risk Prophylaxis: Empiric and HIV Therapy																
<b>ZDV</b>  <b>Note:</b> For newborns unable to tolerate oral agents, the IV dose is 75% of the oral dose while maintaining the same dosing interval.	<u>Simplified Weight-Band Dosing for Newborns ≥35 Weeks Gestation at Birth:</u> <table border="1"> <thead> <tr> <th>Weight Band (kg)</th> <th>Volume (mL) ZDV 10 mg/mL Oral Syrup Twice Daily</th> </tr> </thead> <tbody> <tr> <td>2 to &lt;3 kg</td> <td>1 mL</td> </tr> <tr> <td>3 to &lt;4 kg</td> <td>1.5 mL</td> </tr> <tr> <td>4 to &lt;5 kg</td> <td>2 mL</td> </tr> </tbody> </table>	Weight Band (kg)	Volume (mL) ZDV 10 mg/mL Oral Syrup Twice Daily	2 to <3 kg	1 mL	3 to <4 kg	1.5 mL	4 to <5 kg	2 mL	<u>Simplified Weight-Band Dosing for Newborns Aged ≥35 Weeks Gestation from Birth to 4 Weeks:</u> <table border="1"> <thead> <tr> <th>Weight Band (kg)</th> <th>Volume (mL) ZDV 10 mg/mL Oral Syrup Twice Daily</th> </tr> </thead> <tbody> <tr> <td>2 to &lt;3 kg</td> <td>1 mL</td> </tr> <tr> <td>3 to &lt;4 kg</td> <td>1.5 mL</td> </tr> <tr> <td>4 to &lt;5 kg</td> <td>2 mL</td> </tr> </tbody> </table> <p>Age &gt;4 Weeks:</p> <ul style="list-style-type: none"> <li>ZDV 12 mg/kg/dose orally twice daily</li> </ul>	Weight Band (kg)	Volume (mL) ZDV 10 mg/mL Oral Syrup Twice Daily	2 to <3 kg	1 mL	3 to <4 kg	1.5 mL	4 to <5 kg	2 mL
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<b>3TC</b>	N/A	<u>≥32 Weeks Gestation at Birth</u> Birth to Age 4 Weeks: <ul style="list-style-type: none"> <li>3TC 2 mg/kg/dose orally twice daily</li> </ul> Age >4 Weeks: <ul style="list-style-type: none"> <li>3TC 4 mg/kg/dose orally twice daily</li> </ul> <u>&lt;32 Weeks Gestation at Birth</u> Consult IL Perinatal HIV Hotline																

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NVP	N/A	<p><u>≥37 Weeks Gestation at Birth</u>  <i>Birth to Age 4 Weeks:</i></p> <ul style="list-style-type: none"> <li>NVP 6 mg/kg/dose orally twice daily<sup>a</sup></li> </ul> <p><i>Age &gt;4 Weeks:</i></p> <ul style="list-style-type: none"> <li>NVP 200 mg/m<sup>2</sup> of BSA/dose orally twice daily</li> </ul> <p><u>34 to &lt;37 Weeks Gestation at Birth</u>  <i>Birth to Age 1 Week:</i></p> <ul style="list-style-type: none"> <li>NVP 4 mg/kg/dose orally twice daily</li> </ul> <p><i>Age 1 to 4 Weeks:</i></p> <ul style="list-style-type: none"> <li>NVP 6 mg/kg/dose orally twice daily</li> </ul> <p><i>Age &gt;4 Weeks:</i></p> <ul style="list-style-type: none"> <li>NVP 200 mg/m<sup>2</sup> of BSA/dose orally twice daily</li> </ul> <p><u>&lt;34 Weeks Gestation at Birth</u>                      Consult IL Perinatal HIV Hotline</p>																														
<p><b>RAL<sup>c</sup></b></p> <p><b>Note:</b> 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.</p>	N/A	<p><u>≥37 Weeks Gestation at Birth and Weighing ≥2 kg<sup>b</sup></u>  <i>Birth to Age 6 Weeks:</i></p> <table border="1"> <thead> <tr> <th>Body Weight (kg)</th> <th>Volume (Dose) of Suspension, RAL 10 mg/mL, to be Administered</th> </tr> </thead> <tbody> <tr> <td colspan="2"><b>Birth to 1 Week: Once Daily Dosing</b></td> </tr> <tr> <td colspan="2">Approximately 1.5 mg/kg/dose</td> </tr> <tr> <td>2 to &lt;3 kg</td> <td>0.4 mL (4 mg) once daily</td> </tr> <tr> <td>3 to &lt;4 kg</td> <td>0.5 mL (5 mg) once daily</td> </tr> <tr> <td>4 to &lt;5 kg</td> <td>0.7 mL (7 mg) once daily</td> </tr> <tr> <td colspan="2"><b>1 to 4 Weeks: Twice Daily Dosing</b></td> </tr> <tr> <td colspan="2">Approximately 3 mg/kg/dose</td> </tr> <tr> <td>2 to &lt;3 kg</td> <td>0.8 mL (8 mg) twice daily</td> </tr> <tr> <td>3 to &lt;4 kg</td> <td>1 mL (10 mg) twice daily</td> </tr> <tr> <td>4 to &lt;5 kg</td> <td>1.5 mL (15 mg) twice daily</td> </tr> <tr> <td colspan="2"><b>4 to 6 Weeks: Twice Daily Dosing</b></td> </tr> <tr> <td colspan="2">Approximately 6 mg/kg/dose</td> </tr> <tr> <td>3 to &lt;4 kg</td> <td>2.5 mL (25 mg) twice daily</td> </tr> <tr> <td>4 to &lt;6 kg</td> <td>3 mL (30 mg) twice daily</td> </tr> </tbody> </table>	Body Weight (kg)	Volume (Dose) of Suspension, RAL 10 mg/mL, to be Administered	<b>Birth to 1 Week: Once Daily Dosing</b>		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	<b>1 to 4 Weeks: Twice Daily Dosing</b>		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	<b>4 to 6 Weeks: Twice Daily Dosing</b>		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
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<sup>a</sup> 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.

<sup>b</sup> 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.**

<sup>c</sup> **In cases where RAL is being considered as part of infant ARV prophylaxis (e.g. mother has known viral resistance to NVP or efavirenz, 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:
  - $\geq 2$  weeks of age
  - $\geq 6$  weeks of age
  - $\geq 4$  months of age
2. **Any infant with a positive PCR or TNA should be immediately referred to a pediatric HIV specialist**
3. Obtain CBC at birth (consider HBsAg, HCV Ab, RPR based on maternal history)
4. Obtain HIV antibody test at 12 months of age (repeat every 6 months until negative)

**B. High Risk Infant**

1. **At Birth, perform HIV DNA PCR or RNA PCR or Total Nucleic Acid (TNA)\*\*\***
2. Perform HIV DNA PCR or RNA PCR or TNA at:
  - $\geq 2$  weeks of age
  - $\geq 8$  weeks of age (at least 2 weeks after completing antiretrovirals)
  - $\geq 4$  months of age
3. **Consultation with a pediatric HIV specialist is strongly recommended in cases where women did not receive ART during pregnancy.**
4. **Any infant with a positive PCR or TNA should be immediately referred to a pediatric HIV specialist**
5. Obtain CBC at birth (consider HBsAg, HCV Ab, RPR based on maternal history)
6. Obtain urine for CMV PCR before 3 weeks of age
7. Obtain HIV antibody test at 12 months of age (repeat every 6 months until 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. 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 pediatric HIV specialist**
- B. PCP prophylaxis is NO LONGER recommended if the DNA PCR or RNA PCR or TNA performed at  $\geq 2$  weeks and  $\geq 6-8$  weeks of age are negative

Approved: 8/16/2019

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 in Pregnant Women with HIV Infection and Interventions to Reduce Perinatal HIV Transmission in the United States available at [hivinfo.nih.gov](http://hivinfo.nih.gov). They were developed in conjunction with Dr. Ellen Chadwick and Dr. Jennifer Jao, Directors, Section of Pediatric and Maternal HIV Infection at Ann & Robert H. Lurie Children's Hospital of Chicago and Dr. Julia Rosebush, Director of Pediatric/Adolescent HIV, at Comer Children's Hospital of Chicago.

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**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](https://www.merck.com/product/usa/pi_circulars/i/isentress/isentress_ifu.pdf)