HIV/AIDS—Prenatal Care for HIV+ Mothers

Developed by:
Beth Saltonstall, MD x2907

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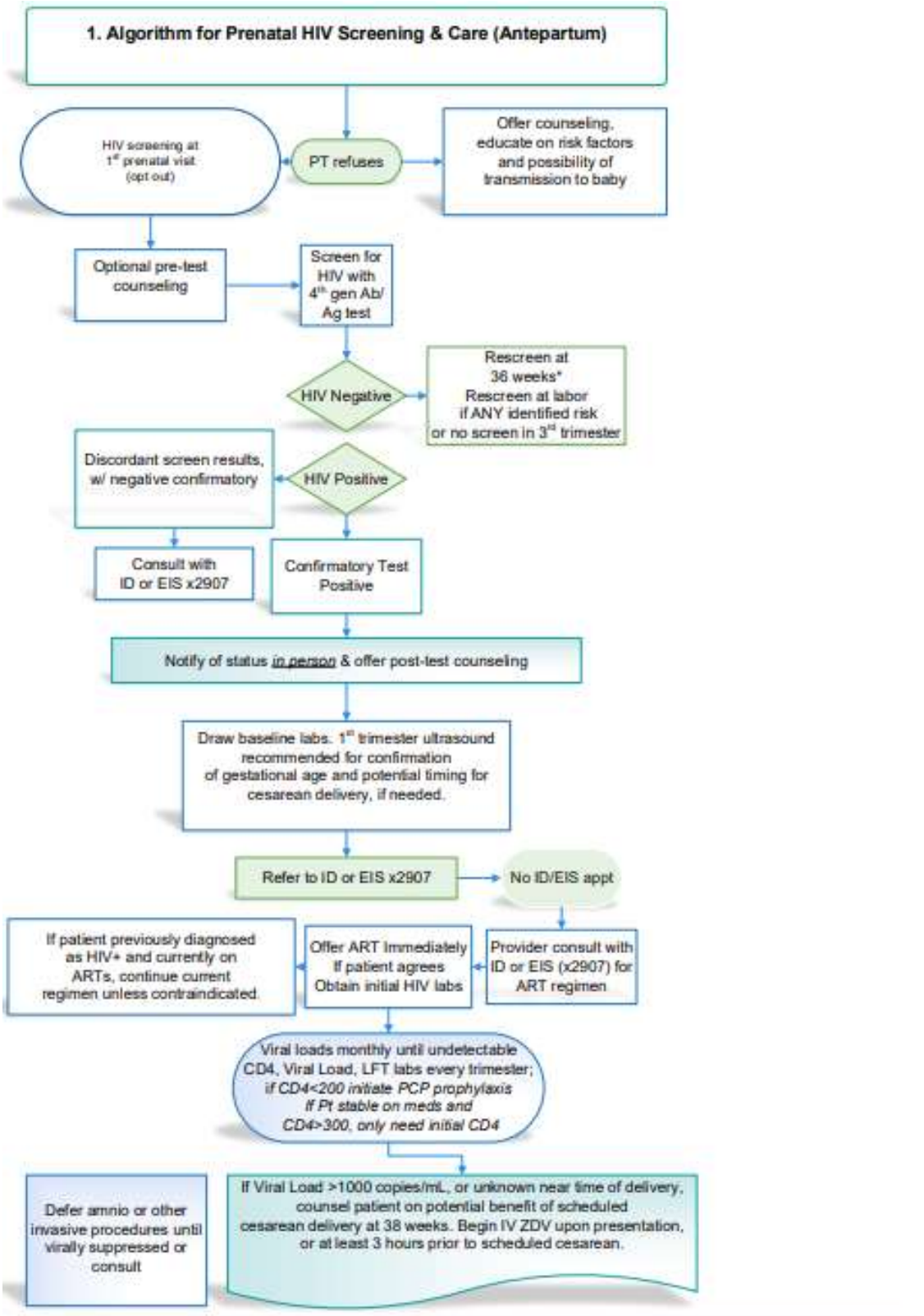
This guideline is designed for general use for most adult patients, but may need to be adapted to meet the special needs of a specific patient as determined by the patient's provider.


1. Algorithm for Prenatal HIV Screening & Care (Antepartum)
HIV screening at 1st prenatal visit (opt out)
PT refuses
Offer counseling, educate on risk factors and possibility of transmission to baby
Optional pre-test counseling
Screen for HIV with 4th gen Ab/ Ag test
HIV Negative
Rescreen at 36 weeks* Rescreen at labor if ANY identified risk or no screen in 3rd trimester
Discordant screen results, w/ negative confirmatory
HIV Positive
Consult with ID or EIS x2907
Confirmatory Test Positive
Notify of status in person & offer post-test counseling
Draw baseline labs. 1st trimester ultrasound recommended for confirmation of gestational age and potential timing for cesarean delivery, if needed.
Refer to ID or EIS x2907
No ID/EIS appt
If patient previously diagnosed as HIV+ and currently on ARTs, continue current regimen unless contraindicated.
Offer ART Immediately If patient agrees Obtain initial HIV labs
Provider consult with ID or EIS (x2907) for ART regimen
Viral loads monthly until undetectable CD4, Viral Load, LFT labs every trimester; if CD4<200 initiate PCP prophylaxis If Pt stable on meds and CD4>300, only need initial CD4
Defer amnio or other invasive procedures until virally suppressed or consult
If Viral Load >1000 copies/mL, or unknown near time of delivery, counsel patient on potential benefit of scheduled cesarean delivery at 38 weeks. Begin IV ZDV upon presentation, or at least 3 hours prior to scheduled cesarean.
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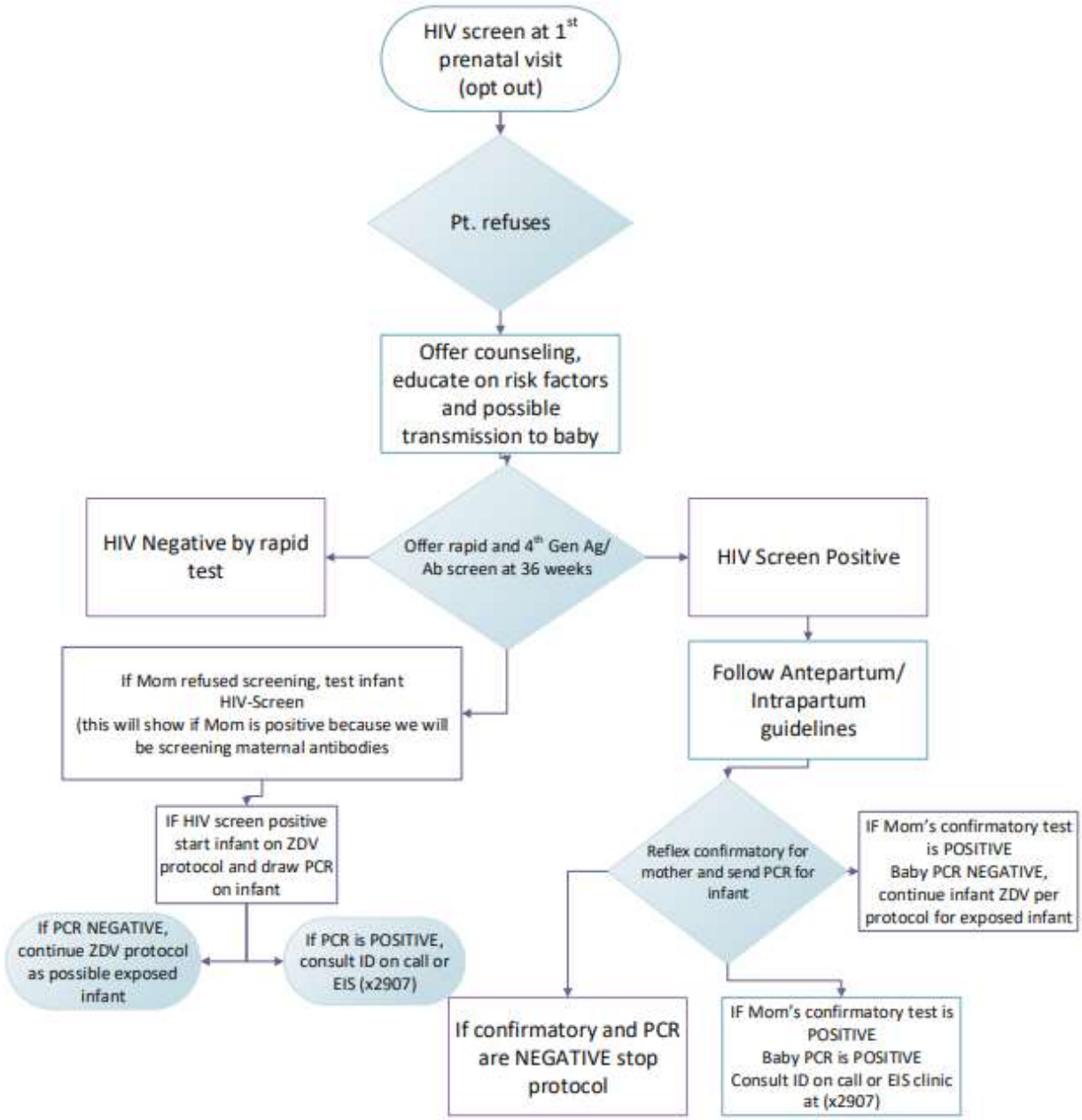
*ANMC has decided to rescreen all pregnant women at 36 weeks for HIV, Gonorrhea, Syphilis, and Chlamydia

2. Algorithm for Prenatal HIV Screening and Care (Mother refuses screen)



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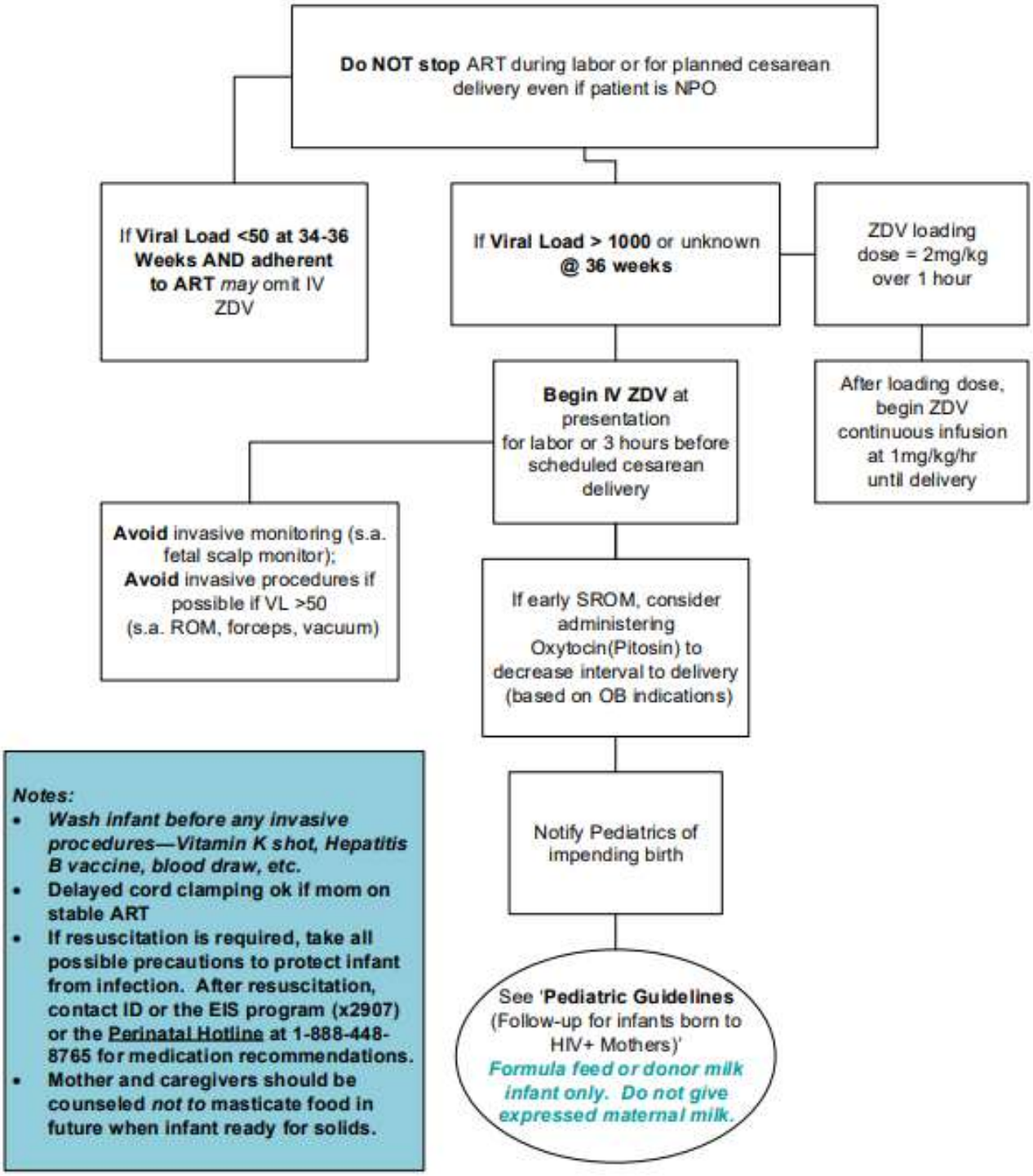
3. Algorithm for Intrapartum Care



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4. Prenatal Care for HIV+ Mothers

Refer to: http://clinicalinfo.hiv.gov/en/guidelines, then select *Perinatal HIV Clinical Guidelines* for continuously updated guidelines

The National Perinatal HIV Hotline is a federally funded service providing free clinical consultation to providers caring for HIV-infected women and their infants. ***The National Perinatal HIV Hotline (1-888-448-8765)***

a. Background

Heterosexual contact is responsible for 85% of HIV transmission in the United States for women. Management of HIV infection during pregnancy centers on maintaining the health of the mother and preventing transmission to her child. The American College of Obstetricians and Gynecologists (ACOG) recommends that OB/GYN providers routinely screen all women between the ages of 19 and 64 for HIV, regardless of their pregnancy status or risk factors. They also recommend targeted screening for women outside this age range who are at high risk. High risk is defined as injection drug users, sexual partners with a drug user or someone infected with HIV, exchanging sex for money, diagnosis of another STI in the past year and having more than one sex partner since their last HIV screening test among others.[2]

ACOG also encourages “opt out” testing, in which patients are told that HIV tests will be given as part of routine care unless they decline. Neither written informed consent nor prevention counseling is required in Alaska with opt-out testing. It is important that the woman be aware that HIV and AIDS are both name based reportable diseases in Alaska.

b. Testing and Referral:

1. All women should be screened for HIV as early as possible in their pregnancy.[3] The HIV test is administered as ‘opt out’. All clients are tested unless they specifically choose not to be tested. If the HIV test is preliminary positive, the lab automatically confirms the test. ANMC and the Alaska State Lab are using the 4th generation Ab/Ag HIV screening test which has an automatic confirmation algorithm for preliminary positive results.

2. After review of the CDC 2021 Sexually Transmitted Infections Treatment Guidelines and OB/GYN departmental discussion, the ANMC STD Guidelines includes third trimester screening for chlamydia, gonorrhea, syphilis and HIV. Consider extra genital testing as indicated.

3. Repeat HIV screening at delivery is recommended by ACOG for women:
   a. who present in labor with unknown HIV status or new risk, or a high-risk woman who presents with no 3rd trimester test, should be screened with a rapid HIV test and screen in Labor and Delivery.

c. <u>Newly Diagnosed HIV in pregnancy:</u>

1. As soon as a patient is confirmed positive, they should be referred to the Infectious Disease or Early Intervention Services (EIS) clinic by Cerner referral or contacting an EIS Case Manager at 729-2907. Call 729-2907 to schedule an appointment with EIS/ ID.

2. <u>Baseline labs</u>: Please obtain directly after diagnosis confirmed.
   a. CD4 count (lymphocyte CD4/CD8 Ratio Profile)
   b. viral load (HIV 1 PCR, Quant)
   c. HIV genotyping (HIV-1 GENOTYPE with Reflex Quant RNA, Resistance)
   d. Lipids
   e. CMP
   f. CBC with differential
   g. Syphilis screen
   h. Quantiferon TB Plus (if no history of prior tuberculosis infection)
   i. HLA B5701
   j. chronic hepatitis screening for A, B and C (Hepatitis A antibody (not IgM), Hepatitis B surface antigen, hepatitis B core antibody, hepatitis B surface antibody, hepatitis C antibody)
   k. Aptima for GC/CT/Trich at vaginal site Aptimas for GC/CT at other exposed sites

3. <u>Antiretroviral Pregnancy Registry</u>:
   All women who are seen in the EIS/HIV clinic will have anonymous entry into the Antiretroviral Pregnancy Registry as recommended by the Perinatal Guidelines.[1] This international registry is designed to follow the pregnancies and infants born of these pregnancies to determine if there are detrimental effects of antiretroviral therapy on the health and well-being of the pregnancies or the infants born.

   Each patient will be given an anonymous registry number through the 1-800-258-4263 Antiretroviral Pregnancy Registry. EIS will be responsible for the birth outcome follow-up sent to the Registry.

4. <u>Invasive antenatal procedures</u>
   If chorionic villus sampling, cordocentesis or amniocentesis is necessary, it should be performed only after the HIV positive woman

has been on combination antiretroviral therapy and ideally when the viral load has been determined to be <50 (undetected). If >50 (detected), consult with an expert.

a. Of note, no transmission of HIV to a fetus from these procedures have been recorded in patients on ART, but a small risk of transmission cannot be ruled out. Some experts view chorionic villus sampling and cordocentesis as too risky and suggest limiting procedures to amniocentesis. In those women without the benefit of ART, there is a clear increased risk of transmission from mother to fetus. [1]

d. Antiretroviral Therapy Guidelines for Obstetric Management of HIV

1. Use of ART in prevention of perinatal HIV transmission: Combination drug therapy, Anti-Retroviral Therapy (ART) is the current standard of care for both the treatment of HIV infection and the prevention of perinatal HIV transmission. ART reduces perinatal transmission by several mechanisms including lowering maternal antepartum viral load, and pre- and post-exposure prophylaxis of the infant. Through the use of ART, in addition to the intrapartum Zidovudine (Retrovir or ZDV) regimen (if indicated) and infant ZDV protocol, the possibility of mother to infant transmission is reduced from approximately 25% to less than 1%. Using this strategy, there are less than 200 HIV infected infants born in the United States each year. These infected infants are generally born to mothers who had primary HIV infection during the pregnancy, women who breastfed their infants, had poor adherence to ART, delayed or no prenatal care and lack of universal prenatal HIV counseling and testing. Therefore, for prevention of perinatal HIV transmission, in addition to screening, combined antepartum, intrapartum and infant antiretroviral prophylaxis is recommended.[1]

   Known benefits and potential risks of antiretroviral use during pregnancy should be discussed with all HIV positive pregnant women. Review the pros and cons of antiretroviral therapy in treatment naïve patients in the *Initiating Antiretroviral Therapy in Treatment –Naïve Patients* section of the US DHHS Antiretroviral Guidelines for Adults and Adolescents.[1]

2. Discussions with women about initiation of ART should include information about[1]:
   a. maternal risk of disease progression and the benefits and risks of initiation of therapy for maternal health;
   b. benefit of ART regimens for preventing perinatal transmission of HIV;

c. benefits of therapy for reducing sexual transmission to discordant partners when viral suppression is maintained;
d. potential adverse effects of ART drugs for mothers, fetuses, and infants, including potential interactions with other medications the women may already be receiving;
e. the limited long-term outcome data for both women who temporarily use ART drugs during pregnancy for prophylaxis of transmission and infants with *in utero* drug exposure; and
f. the need for strict adherence to the prescribed drug regimen to avoid resistance.

e. <u>Antepartum: (see algorithm 1)</u>

Obstetric: No change in antenatal care unless co-morbidities, e.g., no antenatal testing necessary due to HIV diagnosis.

Medication: Since a suppressed viral load has been shown to be the most important factor in decreased transmission of HIV to a fetus/neonate, the focus of the guidelines is to promote adherence and tolerability of an HIV ART regimen.

1. ART should be discussed and initiated ASAP during the first trimester <u>for all HIV positive pregnant patients</u> regardless of their clinical, immunologic, or virologic status.
2. Preferred regimens are outlined in Table 4 from the Perinatal Guidelines. https://clinicalinfo.hiv.gov/en/guidelines/perinatal/table-4-what-start-initial-combination-regimens-antiretroviral-naive-pregnant?view=full
3. **<u>Clients not on ART</u>**: If the HIV RNA (viral load) is >500 copies/mL, HIV resistance/genotypic testing is recommended for all pregnant women. Start recommended ART regimen ASAP, prior to receiving genotype results.
4. If HIV is diagnosed later in pregnancy, ART therapy should be initiated promptly without waiting for results of resistance testing.[1]
5. **<u>Clients already on ART</u>**: If HIV is controlled with an undetectable or <50 viral load using HIV RNA PCR and the regimen is well tolerated, women who are already taking ART should be continued on their current regimen unless contraindicated.
6. Resistance testing should be done in women who are on ART but do not have full viral suppression (HIV RNA levels >500 copies/mL) to select a new regimen with a greater likelihood of suppressing viral replication to undetectable levels. It should also be considered when HIV RNA levels <500 copies/mL though it may be unsuccessful.[1] In pregnant women a combination ART with at least three agents is recommended.

7. **Labs after ART initiation[1]**:
    a. Two weeks after ART initiation or regimen change: CBC, CMP, urinalysis
    b. One month after initiation: CD4, viral load, CBC and CMP should be completed to determine efficacy of meds and possible side effects
    c. Viral load: monthly until undetectable and then every 3 months during pregnancy to determine need for alterations in current regimen, and at 34-36 weeks gestation to inform decisions about delivery.
    d. CD4: If ART stable for > 2 yrs with a suppressed viral load and CD4 is consistently > 300 a CD4 count does not need to be further monitored during pregnancy. If patients have been on ART < 2 yrs, and/or CD4 count is <300, and/or patients are inconsistent with ART/not virally suppressed the CD4 should be monitored every 3 months during pregnancy.
    e. Labs should be done more frequently if viral suppression is not achieved or there are ART compliance concerns. If viral suppression is not achieved within 12 weeks of ART initiation, consult EIS/ID (x2907).

5. Intrapartum: (see algorithm 3)

a. Intrapartum intravenous ZDV is recommended for HIV infected pregnant women with:
    1. Viral Load >1000 copies/mL at 34-36 weeks or 4-6 weeks before delivery regardless of their antepartum regimen.
    2. Viral load result is unknown
    3. Clinician suspects lack of ART adherence since last viral load result
    4. Mother tests positive for HIV with Ag/Ab test

    If women did *not* receive antepartum ARV medications, intrapartum ZDV combined with infant ZDV prophylaxis should be given to reduce the risk of perinatal transmission from 20-30% to 9%. If ZDV was discontinued secondary to anemia, it can still be safely administered during the intrapartum period.
b. ART should not be stopped during labor or for planned cesarean delivery even if the patient is NPO. Give oral dosing of prescribed ART regimen except ZDV if patient is receiving IV ZDV.
c. Begin intravenous ZDV at presentation of labor or 3 hours before scheduled cesarean delivery. Loading dose is 2mg/kg over 1 hour. After loading dose, begin continuous infusion of 1mg/kg/hr until delivery.[1]
d. If rapid HIV test is done in L&D and result is positive, initiate intravenous ZDV without waiting for results of confirmatory test. Also, initiate infant prophylactic ZDV regimen per the neonatal protocol below. If postpartum

confirmatory test is positive, continue infant ZDV per guidelines below, *and consult EIS/ID (ext. 2907)*. If negative, stop infant ZDV.

6. Route of Delivery:

a. Cesarean Delivery: Women infected with HIV who have viral loads >1,000 copies/mL should have a scheduled cesarean delivery at 38 weeks' gestation to minimize perinatal transmission of HIV. For women with viral loads <1,000 copies/mL, cesarean delivery performed for standard obstetrical indications should be scheduled at standard time for obstetrical indications. Data are insufficient to demonstrate a benefit for cesarean delivery of neonates in women with viral loads <1,000 copies/mL and show no reduction in the transmission rate if cesarean delivery is performed after the onset of labor or rupture of membranes. The patient's autonomy in making the final decision regarding route of delivery must be respected. Prophylactic antibiotics are appropriate for cesarean delivery because of the increased risk of infectious morbidity.[1]

b. Vaginal Delivery:
    1. In women not receiving ART, the longer the duration of membrane rupture before delivery, the greater the risk of transmission.
    2. In women receiving ART and are virally suppressed, duration of ruptured membranes is NOT associated with an increased risk of perinatal transmission and vaginal delivery is recommended.

c. Obstetric procedures increasing the risk for fetal exposure to maternal blood such as amniocentesis, invasive fetal monitoring (fetal scalp monitoring) and other invasive procedures (i.e. use of forceps or vacuum) have been implicated in increasing vertical transmission rates by some investigators.[1]
    1. Artificial rupture of membranes (ROM) performed in the setting of antiretroviral therapy (ART) and virologic suppression is not associated with increased risk of perinatal transmission and can be performed for standard obstetric indications
    2. The following should generally be avoided because of a potential increased risk of transmission, unless there are clear obstetric indications:
        a. Artificial ROM in setting of HIV viral load >50
        b. Routine use of fetal scalp electrodes for fetal monitoring
        c. Operative delivery with forceps or a vacuum extractor in setting of viral load >50

d. Postpartum Hemorrhage Contraindication: In women receiving a cytochrome P (CYP) 3A4 enzyme inhibitor such as a protease inhibitor (such as Atazanavir (ATV, reyataz) or darunavir/ritonavir), methergine should be used only if no alternative treatments for postpartum hemorrhage are available and the need for pharmacologic treatment

outweighs the risks. If methergine is used, it should be administered in the lowest effective dose for the shortest possible duration.[4]

e. In women who are receiving a CYP3A4 enzyme inducer such as nevirapine, efavirenz, or etravirine, additional uterotonic agents may be needed because of the potential for decreased methergine levels and inadequate treatment effect
f. Postpartum: *Formula feed or donor milk only*[1]. Breastfeeding is not recommended for HIV-infected women, including those receiving ART. Do not give infant expressed maternal milk.
g. Health care providers should routinely inquire about premastication of foods fed to infants, instruct HIV-infected caregivers to avoid this practice, and advise on safer feeding option[1].

7. Neonatal HIV prophylaxis for infants born to HIV-positive mothers or infants born to mothers with an unconfirmed preliminary positive HIV test:

Recommended Neonatal Dosing for Prevention of Mother-to-Child Transmission of HIV (ARV Management of Newborns with Perinatal Exposure)[1]

All HIV-Exposed Infants (initiated as soon after delivery as possible)		
Zidovudine (ZDV)	**Dosing**	**Duration**
ZDV	**≥35 weeks' gestation at birth**: 4 mg/kg/dose PO (or 3 mg/kg/dose IV) every 12 hours, started as soon after birth as possible and preferably within 6–12 hours of delivery	Birth through 4 weeks
ZDV	**≥30 to <35 weeks' gestation at birth**: 2 mg/kg/dose PO (or 1.5 mg/kg/dose IV), started as soon after birth as possible, preferably within 6–12 hours of delivery, then every 12 hours, advanced to 3 mg/kg/dose PO (or 2.3 mg/kg/dose IV) every 12 hours at age 15 days	Birth through 4 weeks
ZDV	**<30 weeks' gestation at birth**: 2 mg/kg/dose PO (or 1.5 mg/kg/dose IV) started as soon after birth as possible, preferably within 6–12 hours of delivery, then every 12 hours, advanced to 3 mg/kg/dose PO (or 2.3 mg/kg/dose IV) every 12 hours after age 4 weeks	Birth through 4 weeks
Additional Antiretroviral Prophylaxis Agents for HIV-Exposed *Infants of Women who Received No Antepartum Antiretroviral Prophylaxis: three drug ART. Please consult Pediatric ID/EIS/National Perinatal HIV Hotline 1-888-448-8765* (initiated as soon after delivery as possible)		

Key to Abbreviations: IV = intravenously; PO = orally; ZDV = zidovudine

Newborn Antiretroviral Management According to Risk of HIV Infection in the Newborn (See attached ANMC HIV Perinatal Guideline)		
Category	**Description**	**Neonatal ARV Management**
Low Risk of Perinatal HIV Transmission	Mothers received standard ART during pregnancy with sustained viral suppression near delivery and no concerns related to adherence	4 weeks of ZDV
Higher Risk of Perinatal HIV Transmission[a,b]	• Mothers who received neither antepartum nor intrapartum ARV drugs • Mothers who received only intrapartum ARV drugs • Mothers who received antepartum and intrapartum ARV drugs but who have detectable viral load near delivery, particularly if delivery was vaginal • Mothers with acute or primary HIV infection during pregnancy or breastfeeding[c]	Combination ARV prophylaxis with 6 weeks ZDV, 3TC and either NVP or Raltegravir
Presumed Newborn HIV Exposure	Mothers with unknown HIV status who test positive at delivery or postpartum or whose newborns have a positive HIV antibody test	ARV management as above (for higher risk of perinatal HIV transmission). ARV management should be discontinued immediately if supplemental testing confirms that mother does not have HIV.
Newborn with Confirmed HIV[e]	Confirmed positive newborn HIV virologic test/NAT	3 drug combination ARV regimen at treatment dosage

[a] See text for evidence supporting combination ARV prophylaxis and empiric HIV therapy.
[b] See the Intrapartum Care section for guidance on indications for scheduled cesarean delivery and intrapartum IV ZDV to reduce the risk of perinatal HIV transmission for mothers with elevated viral load at delivery.
[c] Most experts would opt to administer empiric HIV therapy to infants with acute HIV during pregnancy because of the high risk for in utero infection. If acute HIV is diagnosed during breastfeeding, mother should stop breastfeeding.
[d] The optimal duration of empiric HIV therapy in newborns at higher risk of perinatal HIV transmission is unknown. Many experts administer 6 weeks of combination therapy; others opt to discontinue NVP and/or 3TC after the return of negative newborn testing. ZDV should be continued for 6 weeks.
[e] Most experts do not recommend delaying the initiation of ART while waiting for the results of the confirmatory HIV NAT, given low likelihood of false-positive HIV NAT testing.

Note: ARV drugs should be initiated as close to the time of birth as possible, preferably within 6 to 12 hours of delivery. See Table 8 for dosing specifics.

Key to Acronyms: 3TC = lamivudine; ART = antiretroviral therapy; ARV =antiretroviral; IV = intravenous; NAT = nucleic acid test; NVP = nevirapine; ZDV = zidovudine

Newborn Antiretroviral Dosing Recommendations	
Drug	**Dosing**
ZDV Treatment and Prophylaxis Dosage **Note:** For newborns unable to tolerate oral agents, the IV dose is 75% of the oral dose while maintaining the same dosing interval.	≥35 Weeks' Gestation at Birth *Birth to Age 4–6 Weeks*: • 4 mg/kg/dose orally twice daily
	≥30 to <35 Weeks' Gestation at Birth *Birth–Age 2 Weeks*: • 2 mg/kg/dose orally twice daily *Age 2 Weeks to 4–6 Weeks*: • 3 mg/kg/dose orally twice daily
	<30 weeks' Gestation at Birth *Birth–Age 4 Weeks*: • 2 mg/kg/dose orally twice daily *Age 4–6 Weeks*: • 3 mg/kg/dose orally twice daily
3TC Treatment and Prophylaxis Dosage	≥32 Weeks' Gestation at Birth: *Birth–Age 4 Weeks*: • 2 mg/kg/dose orally twice daily *Age 4–6 Weeks*: • 4 mg/kg/dose orally twice daily
NVP Prophylaxis Dosage	>=34 to <37 weeks gestation at birth Birth to Age 4 weeks 4-mg/kg dose orally once daily
	≥37 Weeks' Gestation at Birth *Birth–Age 4 Weeks*: • 6 mg/kg/dose orally twice daily >=34 to <37 Weeks' Gestation at Birth *Birth–Age 1 Week*: • 4 mg/kg/dose orally twice daily *Age 1–4 Weeks*: • 6 mg/kg/dose orally twice daily
Key to Abbreviations: 3TC=lamivudine; IV= intravenous; NVP = nevirapine; ZDV = zidovudine	

a. Laboratory testing for infants[4]:
   - **i.** High risk infants, those born to mothers newly HIV infected during pregnancy, **those with antenatal complications or with CD4 counts <200 copies/ml should have an HIV PCR drawn at birth.**
   - ii. For all infants, draw a CBC with differential at birth for baseline evaluation.
   - iii. HIV PCR should be obtained at 14-21 days
   - iv. CBC and HIV PCR at 4-8 weeks (see below on diagnosis of HIV infection in infants and children).
   - v. HIV PCR at 4-6 months.

8. <u>Labor & Delivery Orders for HIV Infected Women</u>
Name: _____ MR#: _____ Date: _____

1. Admit to L&D
2. Vital signs and FHT routine
3. May have clear liquid diet
4. Activity ad lib
5. IV: LR at 150 mL/hr
6. External monitors *only*
7. Zidovudine (ZDV) 2 mg/kg over 1 hour on admission if mother has HIV RNA (viral load) >1000 copies/mL or unknown viral load (VL) at 36 weeks*
    a. weight in pounds ___ /2.2 = ___ kg;
    b. loading dose ZDV (2mg x _____kg = ____ mg ZDV over 1 hour).
8. ZDV 1 mg/kg/hour thereafter until delivered (maintenance dose = ___ mg/hr)
9. If patient is taking other anti-retroviral medications, continue them as per patient's schedule (except d4T—stop during labor while ZDV is administered, and ZDV—give per IV route in #9 and 10 above and stop PO dosing during labor). Do NOT stop such therapy for planned surgery; patient may take with sips of water.
10. Notify Pediatrics and ID of impending birth.

Signed: _____Date: _____

* if VL <1000 copies/mL at 36 weeks, ZDV is not required but may still be recommended

Zidovudine Dosing for HIV in Pregnancy

Current pregnancy weight in Pounds (Lbs)	Current pregnancy weight in Kilograms (Kg)	Loading Dose in mg (=2mg/kg over 1 hr)	Add loading dose (in mg) to 100ml D5W or NS, infuse mixture over 60 minutes	For Continuous Infusion: Withdraw 100ml from a 250 ml bag of D5W or NS, add 100 ml of 10mg/ml ZDV to bag (1 vial ZDV = 20ml). Yield = 1000mg in 250 ml solution Concentration = 4mg/ml. Dose *(in ml)* = pts. wt. in kg x 1mg/kg/hr divided by 4mg/ml	Rate of infusion
125	56.70	113.4	add 113 mg to 100ml D5W or NS	14.2	Run infusion at 14 ml/hr
130	58.97	117.9	add 118 mg to 100ml D5W or NS	14.7	Run infusion at 15 ml/hr
135	61.24	122.5	add 123 mg to 100 ml D5W or NS	15.3	Run infusion at 15 ml/hr
140	63.50	127.0	add 127 mg to 100 ml D5W or NS	15.9	Run infusion at 16 ml/hr
145	65.77	131.5	add 132 mg to 100 ml D5W or NS	16.4	Run infusion at 16 ml/hr
150	68.04	136.1	add 136 mg to 100 ml D5W or NS	17.0	Run infusion at 17 ml/hr
155	70.31	140.6	add 141 mg to 100 ml D5W or NS	17.6	Run infusion at 18 ml/hr
160	72.58	145.2	add 145 mg to 100 ml D5W or NS	18.1	Run infusion at 18 ml/hr
165	74.84	149.7	add 150 mg to 100 ml D5W or NS	18.7	Run infusion at 19 ml/hr
170	77.11	154.2	add 154 mg to 100 ml D5W or NS	19.3	Run infusion at 19 ml/hr
175	79.38	158.8	add 159 mg to 100 ml D5W or NS	19.8	Run infusion at 20 ml/hr
180	81.65	163.3	add 163 mg to 100 ml D5W or NS	20.4	Run infusion at 20 ml/hr
185	83.92	167.8	add 168 mg to 100 ml D5W or NS	21.0	Run infusion at 21 ml/hr
190	86.18	172.4	add 172 mg to 100 ml D5W or NS	21.5	Run infusion at 22 ml/hr
195	88.45	176.9	add 177 mg to 100 ml D5W or NS	22.1	Run infusion at 22 ml/hr
200	90.72	181.4	add 181 mg to 100 ml D5W or NS	22.7	Run infusion at 23 ml/hr
205	92.99	186.0	add 186 mg to 100 ml D5W or NS	23.2	Run infusion at 23 ml/hr
210	95.26	190.5	add 191 mg to 100 ml D5W or NS	23.8	Run infusion at 24 ml/hr
215	97.52	195.0	add 195 mg to 100 ml D5W or NS	24.4	Run infusion at 24 ml/hr
220	99.79	199.6	add 200 mg to 100 ml D5W or NS	24.9	Run infusion at 25 ml/hr
225	102.06	204.1	add 204 mg to 100 ml D5W or NS	25.5	Run infusion at 26 ml/hr
230	104.33	208.7	add 209 mg to 100 ml D5W or NS	26.1	Run infusion at 26 ml/hr
235	106.60	213.2	add 213 mg to 100 ml D5W or NS	26.6	Run infusion at 27 ml/hr
240	108.86	217.7	add 218 mg to 100 ml D5W or NS	27.2	Run infusion at 27 ml/hr
245	111.13	222.3	add 222 mg to 100 ml D5W or NS	27.8	Run infusion at 28 ml/hr
250	113.40	226.8	add 227 mg to 100 ml D5W or NS	28.3	Run infusion at 28 ml/hr
255	115.67	231.3	add 231 mg to 100 ml D5W or NS	28.9	Run infusion at 29 ml/hr
260	117.94	235.9	add 236 mg to 100 ml D5W or NS	29.5	Run infusion at 30 ml/hr
265	120.20	240.4	add 240 mg to 100 ml D5W or NS	30.1	Run infusion at 30 ml/hr
270	122.47	244.9	add 245 mg to 100 ml D5W or NS	30.6	Run infusion at 31 ml/hr
275	124.74	249.5	add 250 mg to 100 ml D5W or NS	31.2	Run infusion at 31 ml/hr

*__Notes:__ Zidovudine (ZDV) is compatible with Normal Saline (NS) and D5W. When ZDV is mixed with NS or D5W, it is stable for 24 hours at room temperature and 48 hours when refrigerated. For IV use ONLY.

10. References

1. Recommendations for the Use of Antiretroviral Drugs in Pregnant Women with HIV Infection and Interventions to Reduce Perinatal HIV Transmission in the United States https://clinicalinfo.hiv.gov/en/guidelines/perinatal-hiv/whats-new-guidelines (Updated 3/17/2022). (Accessed 5/23/2022).

2. Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection https://clinicalinfo.hiv.gov/en/guidelines/pediatric-arv/whats-new-guidelines (Updated 4/7/2021). (Accessed 5/23/2022).

3. 2006 Revised Recommendations for HIV testing of Adults, Adolescents and Pregnant Women in Health Care Settings. Available at https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5514a1.htm (Reviewed 9/2021). (Accessed 5/23/2022).

4. Labor and delivery management of women with human immunodeficiency virus infection. ACOG Committee Opinion No. 751. American College of Obstetricians and Gynecologists. Obstet Gynecol 2018; 132:e131-37. (Accessed 5/23/2022).

ANMC HIV Perinatal DRAFT

Screening Recommendations	HIV Positive	HIV Positive Labs
• 1st perinatal visit (opt out option) • If negative, repeat at 36 weeks • If status is unknown at time of delivery, rapid test should be performed • If new STI diagnosis made or signs/symptoms consistent with acute HIV, repeat testing should be performed	• ART should be initiated as early as possible ○ Resistance testing should be performed but should not delay therapy initiation. Adjust therapy as needed once results return. • ART should be continued throughout pregnancy • Neonates should receive appropriate therapy. See guideline • Counseling on risk/benefit and potential effects should be done at initiation and follow-up visits • Coordination between OB/GYN, EIS/ID and Pediatrics should be done when close to delivery. ID pediatric consult ≤ 36wks	• CD4, HIV RNA levels • Hep A, B, C • TB • STI • CMP, CBC • HIV Resistance testing • HLA-B*5701 (abacavir)

Peri-Postpartum Counseling	Delivery Counseling
• Mode of delivery • Breastfeeding should be discouraged • Infant prophylaxis • Infant follow-up testing • Mother lifelong therapy • Premastication of food should be avoided	• Cesarean delivery should be schedule at 38 weeks' gestation in women who have HIV viral loads >1000 copies/mL to minimize risk of transmission • Duration of ruptured membranes is not associated with increased risk of perinatal transmission in women receiving ART. If not receiving ART, the longer the duration of membrane rupture, the greater the risk of transmission. • Routine use of fetal scalp electrodes for fetal monitoring and operative delivery with forceps or a vacuum extractor should be avoided. • Artificial rupture of membranes can be performed if mother is virologically suppressed.

Maintenance ART Selection

HIV Longevity	Medication
HIV-naïve	3 drug regimen to be started by EIS/ID providers *If abacavir containing regimen, HLA-B*5701 should be resulted prior to initiation
On ART therapy for known HIV	Continue current ART regimen
Restarting therapy after lapse	Therapy should be based on prior resistance testing, prior ART regimen, and virologic efficacy

ART During Active Labor

HIV RNA Viral Load	Medication
> 1000 copies/mL or Unknown HIV RNA	• Intrapartum IV Zidovudine (ZDV) 2mg/kg/hr (total body weight) over 1 hour, followed by 1mg/kg/hr (total body weight) IV infusion started when presenting in labor or at least 3 hours prior to scheduled cesarean delivery and continued until umbilical cord clamping • Continue ART (if regimen contains oral ZDV, discontinue while on IV ZDV)
≤ 1000 copies/mL if (all must be true): • Receiving ART • HIV RNA <50 copies/mL at ≥34-36 weeks gestation or 4-6 weeks before delivery • AND adherent to their ARV regimen	• IV ZDV is not required, continue ART through delivery and post-partum
≥ 50 copies/mL and ≤ 1000 copies/mL	• Case-by-case based on adherence and patient preferences with risk/benefit discussion

Considerations

- The National Perinatal HIV Hotline (1-888-448-8765) provides free clinical consultation on all aspects of perinatal HIV care
- The ARV regimen a woman is receiving should be taken into consideration when using methergine to treat excessive postpartum bleeding caused by uterine atony.
  - In women who are receiving a cytochrome P450 (CYP) 3A4 enzyme inhibitor (e.g., a protease inhibitor or cobicistat), methergine should be used only if no alternative treatments for postpartum hemorrhage are available and the need for pharmacologic treatment outweighs the risks. If methergine is used, it should be administered at the lowest effective dose for the shortest possible duration.
  - In women who are receiving a CYP3A4 enzyme inducer—such as nevirapine, efavirenz, or etravirine—additional uterotonic agents may be needed because of the potential for decreased methergine levels and inadequate treatment effect.

ANMC HIV Perinatal Infant Prophylaxis DRAFT

Screening Recommendations	HIV Positive	Delivery/Postpartum Counseling
• At birth- CBC with diff • 2 weeks- HIV qualitative PCR • 4 weeks- HIV qualitative PCR, CBC • 4 months- HIV qualitative PCR	• ART should be initiated as early as possible ○ Resistance testing should be performed but should not delay therapy initiation. Adjust therapy as needed once results return.	• Breastfeeding should be discouraged • Infant prophylaxis • Infant follow-up testing • Duration of therapy • Premastication of food should be avoided

Prophylaxis ART Selection

	Medication	
All HIV-exposed infants (initiated as soon after delivery as possible)	Zidovudine PO	**<30 weeks' gestation at birth:** 0-27 days: 2mg/kg/dose every 12 hours 28+ days: 3mg/kg/dose every 12 hours **≥30 to <35 weeks' gestation at birth:** 0-14 days: 2mg/kg/dose every 12 hours 15+ days: 3mg/kg/dose every 12 hours **≥35 weeks' gestation at birth:** 4mg/kg/dose every 12 hours
All HIV-exposed infants (initiated as soon after delivery as possible) and not able to tolerate oral zidovudine	Zidovudine IV	**<30 weeks' gestation at birth:** 0-27 days: 1.5mg/kg/dose every 12 hours 28+ days: 2.3mg/kg/dose every 12 hours **≥30 to <35 weeks' gestation at birth:** 0-14 days: 1.5mg/kg/dose every 12 hours 15+ days: 2.3mg/kg/dose every 12 hours **≥35 weeks' gestation at birth:** 3mg/kg/dose every 12 hours
In addition to Zidovudine for HIV-exposed infants of women who received no antepartum antiretroviral prophylaxis (initiated as soon after delivery as possible)	Discuss with ID/EIS or National Perinatal HIV Hotline	3 drug regimen likely to be recommended by ID/EIS

Considerations

• The National Perinatal HIV Hotline (1-888-448-8765) provides free clinical consultation on all aspects of perinatal HIV care

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