Women living with HIV and Breastfeeding in High-Income Countries

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Faculty Disclosure Information

I have no relevant financial relationships or other conflicts of interest to disclose.

Objectives

- To differentiate current guidance for infant feeding in high versus low- and middle-income countries.
- To synthesize current data and research on breastfeeding among women living with HIV
- To compare best practices and guidance for counseling, managing, and monitoring mothers and infants who chose breastfeeding in a high-income setting.

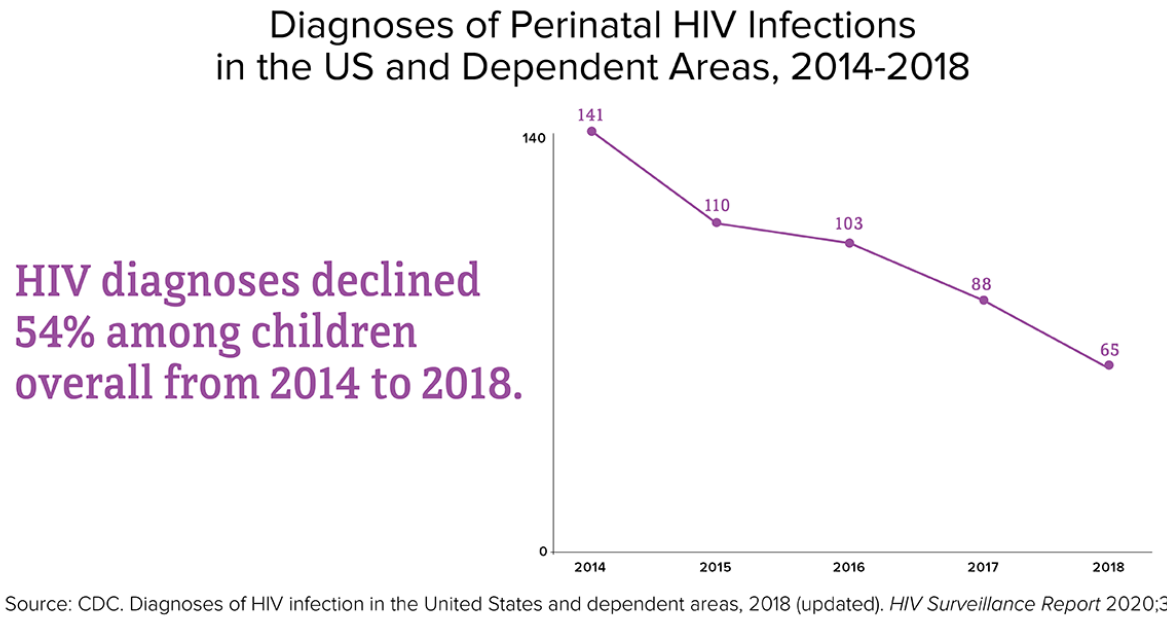
Global Summary 2021

Children (<15yr) living with HIV	1.7 million
New infections in children	160 000
AIDS-related death in children	98 000

Over 1 million women living with or newly diagnosed with HIV become pregnant every year

www.unaids.org

MTCT in the US



Source: CDC. Diagnoses of HIV infection in the United States and dependent areas, 2018 (updated). *HIV Surveillance Report* 2020;3

The number of women with HIV giving birth in US is estimated to be < 5000 per year (CDC)

In 2018, 65 children < 13 years were diagnosed with perinatally acquired HIV in the US (CDC)

Racial disparities exist with most (65%) perinatal HIV diagnoses in Black/African American children. (CDC)

CDC. Diagnoses of HIV infection in the United States and dependent areas, 2018 (updated). *HIV Surveillance Report* 2020;31.

Evolution of WHO Infant Feeding Guidance

World Health Organization

1997

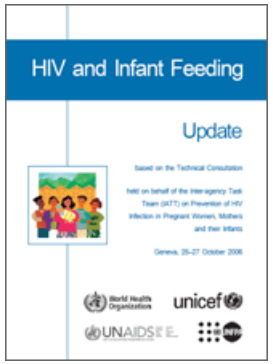
Replacement feeding

2003

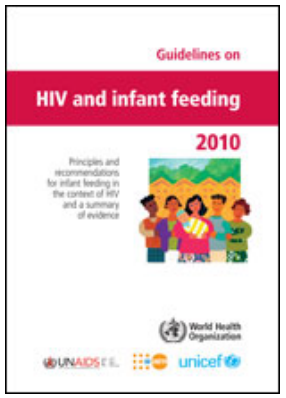
Rapid weaning

2006

Exclusive breastfeeding and gradual weaning



2010



EBF 6-12 months with prophylaxis OR ART

2016

EBF for 12-24 months

Mixed feeding better than no BF

with ART

Current Infant Feeding Guidance for women with HIV

World Health Organization 2019

- National health authorities should decide whether to counsel mothers with HIV to either breastfeed and take antiretrovirals or avoid all breastfeeding.
- Encourage EBF for 6 months in settings of high morbidity/mortality due to diarrhea, pneumonia and malnutrition

British HIV Association (BHIVA) 2021

- formula-feeding remains the first recommendation
- If a mother with HIV on antiretroviral therapy (ART) with an undetectable viral load and good adherence wishes to breastfeed, then she should be supported to do so but advised of low risk of transmission

https://www.who.int/elena/titles/hiv_infant_feeding/en/
https://www.bhiva.org/file/5f1aab1ab9aba/BHIVA-Pregnancy-guidelines-2020-3rd-interim-update.pdf
https://pediatrics.aappublications.org/content/131/2/391

US-based Guidance on Infant Feeding

- Categorical: No → Recommend not breastfeeding, but….

In the United States, to prevent HIV transmission, HIV-infected mothers should not breastfeed their infants.

Last reviewed: August 10, 2021

The current recommendation in the U.S. is that mothers with HIV should not breastfeed or pre-chew food for their babies. Keeping an undetectable viral load substantially reduces, but does not eliminate, the risk of transmitting HIV through breastfeeding. Individuals who have questions about breastfeeding or who desire to breastfeed should receive patient-centered, evidence-based counseling on infant feeding options.

Last reviewed: June 28, 2022

https://www.cdc.gov/breastfeeding/breastfeeding-special-circumstances/maternal-or-infant-illnesses/hiv.html

CDC Updated Infant Feeding Guidance

- The recommendation from 1985 that individuals in the U.S. with HIV should be advised not to breastfeed remains consistent with the most up-to-date scientific literature and is considered best practice for preventing HIV transmission.
- When resources exist that provide supplemental information related to this topic of the archived guideline, CDC may refer readers to other organizations. For example, the HHS Panel on Treatment of HIV During Pregnancy and Prevention of Perinatal Transmission and the American Academy of Pediatrics have each more recently published recommendations on perinatal HIV prevention that are consistent with CDC's recommendation, but offer additional information for care providers of individuals with HIV who wish to breastfeed.

https://www.cdc.gov/hiv/group/gender/pregnantwomen/index.html

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

AAP 2013 (reaffirmed 2016; revision planned 2022)

- Recommend against breastfeeding- "…complete avoidance of breastfeeding [is] the best and safest infant feeding option… "
- Acknowledgement that in *rare* circumstances a woman may choose to BF
- Revised recommendations (*pending*):
  - The only infant feeding option that completely eliminates the risk of HIV transmission from breastmilk is formula feeding
  - Mothers are adherent to ART and achieve/sustain an undetectable viral load who desire to breastfeed should be supported
  - Specific recommendations on management of mother and infant including ARV, VL monitoring, and infant testing

https://pediatrics.aappublications.org/content/131/2/391

U.S. Health and Human Services Panel on Treatment of Pregnant Women

Panel's Recommendations: Counseling and Managing Women with HIV in the United States Who Desire to Breastfeed

Panel's Recommendations
• In the Uni … resents an ongoir … uces but does not … for women w… • Women w… ce-based cou… • When wo… sk of HIV transmiss…
Rating of Recommendations: A = Strong; B = Moderate; C = Optional

Upcoming updates 2022/2023

-Specific recommendations on antiretroviral prophylaxis for infants who breastfeed

-Revised infant feeding counseling guidance

https://clinicalinfo.hiv.gov/en/guidelines/perinatal/counseling-and-managing-women-living-hiv-united-states-who-desire-breastfeed

Important to note….

No infant feeding recommendations support referral to Child Protective Services for women living with HIV who chose to breastfeed

Arguments for and against breastfeeding (BF) in women in high-income settings

Against

- Maternal ART reduces but does not eliminate the risk of HIV transmission via breast milk
- Safe and affordable infant feeding alternatives are *readily accessible*
- Impact of ARV exposure during breastfeeding
- Adherence to ART often wanes postpartum

For

- Breast is best
- Cultural norms
- Unwanted HIV disclosure
- BF with support and close monitoring is better than hiding
- Patient informed choice
- Harmonization of global recommendations

Additional viewpoints

Health Inequities

In high-income settings, people living with HIV are more likely to be:

- Disadvantaged SES
- Have higher morbidity and mortality related to conditions for which BF is protective (obesity, asthma, diabetes, short interpregnancy intervals)

Maternal Mental Health

Emerging reports of MH outcomes associated with not BF:

- Sadness/Depressive symptoms
- Shame
- Grief
- Lack of empowerment

Mareuil, et.al. Does the lack of breastfeeding decision-making and experience affect mental health of women living with HIV during the postpartum period? Pediatric HIV Workshop 2022. Montreal, Canada. July 2022.

Provider and Patient Perspectives

Provider Perspectives

- 94 providers of WLHIV in the U.S. in 2019
- 88% Female; 45% OB/GYN, 39% adult ID or primary care, 16% Peds ID or primary care
- Over 75% providers reported having a WLHIV ask if she could breastfeed
- 29% reported caring for a patient who BF despite recommendations

JIAS
JOURNAL OF THE INTERNATIONAL AIDS SOCIETY

RESEARCH ARTICLE

"In the United States, we say, 'No breastfeeding,' but that is no longer realistic": provider perspectives towards infant feeding among women living with HIV in the United States

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*All authors contributed equally to the work.

Tuthill, et.al. JIAS 2019

Harm Reduction Approach

Harm Reduction

"In the face of changing guidelines and global immigration patterns, simply telling women that breastfeeding is contraindicated may no longer be good enough."

Shared decision making, validate desire to BF, Understand Motivation, Explore alternatives

Risk reduction approach- hierarchical messaging (e.g. formula is preferred, strict adherence with maternal & infant ARVs, surrogate or flash heating)

Practical Perspective

Guidelines and in some cases, laws, are prohibitive and discrepant

Ethical commitment to both mother and child is complicated

Lack of clarity of risk in setting of ART in high income settings

Levison et.al. CID 2019

Kennedy et.al. CID 2019

Perspectives of women living with HIV

Not able to fulfill their role as a mother

Shame, guilt, and stigma

Practical difficulties procuring formula

Disclosure of HIV status if not breast feeding

Women's Perspectives

UK

- The Positive Attitudes Concerning Infant feeding (PACIFY) study group
- 94 women from 12 UK clinics from June 2017–June 2018
- 38% of pregnant WLHIV surveyed would like to BF
- 62% (58/94) had friends, family or community members question why they were not breast feeding,
- 66% (62/94) had to lie about why they were not intending to BF

Perspectives of African women living in the U.K.

“It pains me because as a woman you have to breastfeed your baby”

- 23 African women with HIV who were pregnant or had recently given birth
- Semistructured interviews 2010 from three HIV antenatal clinics in London
- 1 participant BF without disclosing to her HCP
  - Undisclosed, no legal status, dependent on family
- The decision to abstain from breastfeeding was often fraught and characterized by feelings of guilt, sorrow and fear.
  - Participants described themselves as ‘sad’, ‘unhappy’ and ‘devastated’
  - Describe work involved in replacement feeding
  - Insecure immigration status

Tariq, et.al. STI 2016

Research and Data on infant feeding and women with HIV

Data is somewhat limited

- Data exploring risk of HIV transmission during BF in women on ART is limited
- Studies on breastfeeding in women with HIV often do not have follow up through the entire breastfeeding period
- Undetectable=Untransmitable is for sexual transmission of HIV and may not apply in breastfeeding transmission
  - Consistent adherence is required
  - Time on ART matters
- Viral suppression is a prerequisite but not complete reassurance

Note,

- There are unlikely to be prospective clinical studies of BF vs no-BF in high-income settings due to the low incidence of HIV transmission to infants and multiple ethical and logistical challenges associated with such a trial.

What we know

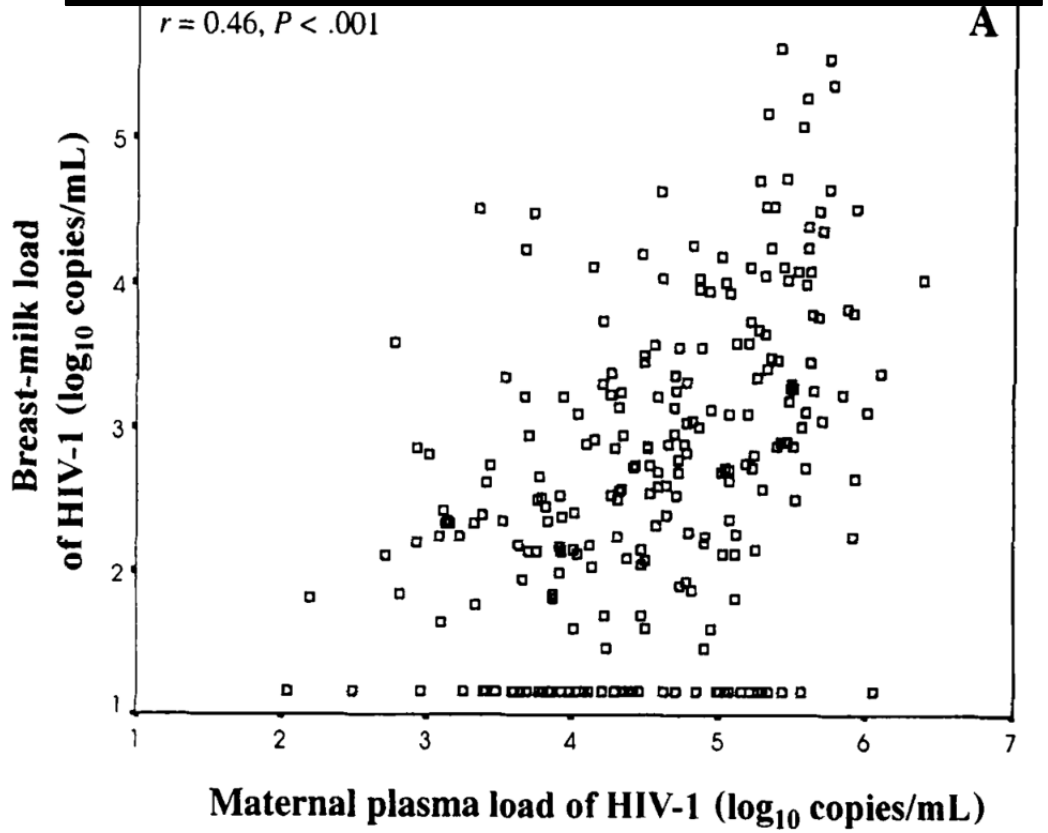
- Timing of breastfeeding (in the absence of ART)
  - Higher risk of transmission in first 1-2 months after birth (up to 6%)
  - Steady risk of transmission throughout breastfeeding (0.6-0.9% risk per month)
- Duration on ART matters
  - viral suppression is not immediate
- Impact of ART on HIV virus in breast milk
  - ART reduces HIV cell-free RNA but not HIV cell-associated DNA
  - HIV cell-associated DNA is higher in early breast milk

Nduati, et al,. JAMA 2000
Moodley, et al. JID. 2003
Ndirangu et al., PLosOne 2012
Shapiro et al. JID 2005

Maternal HIV Viral Load and BM Viral Load

- Maternal HIV viral load (plasma RNA) is related to viral load in breast milk but not perfectly correlated
  - For every 1 log increase in plasma VL, 0.6 log increase in breast milk VL
  - Women who have detectable plasma VL more likely to transmit via breastfeeding
- A very small proportion (<1%) of women with undetectable plasma VL may have low levels of virus in their breast milk (BAN Study)

Correlation between BM VL and plasma VL in 275 BF women with HIV without ART in Kenya 1992-98



Roussea et al, J Inf Dis, 2003;187:741-7

Davis, et al. JAIDS 2016

Meta-analysis of perinatal transmission and ART

Bispo, et al. 2017 meta-analysis of 11 studies

- Maternal ART during pregnancy and through at least 6 months postpartum
  - **Postnatal transmission pooled estimates:**
  - **6 months 1.08% (**95% CI: 0.32–1.85)
  - **2.93% at 12 months (**95% CI: 0.68–5.18) ***(note ART stopped at 6 months in most)***

Bispo, et al. JIAS 2017

Recent studies in BF women with HIV on ART

- **PROMISE**, multi-country
  - 7 country study comparing postpartum ART for mother's vs infant Nevirapine (NVP) prophylaxis (N=2431)
  - 7 infant infections occurred in each arm
  - Overall transmission risk 0.3% at 6months and 0.6% at 12 months (both arms)
  - 2/7 transmissions occurred in women with VL<40cpm immediately prior to detecting infant infection
- **DolPHIN-2 Study**, Uganda and South Africa (N=268)
  - comparing dolutegravir- vs. efavirenz-based ART started in the third trimester
  - One infant transmission in the efavirenz group at 72 weeks of life after negative testing previously, maternal VL undetectable all time points, BF stopped at 48 weeks
- **Tshilo Dikotla study,** Botswana (N=247)
  - Frequent VL monitoring guiding infant feeding decisions
  - Women with detectable VL during BF had shared decision making regarding BF continuation
  - 19 had detectable VL during breastfeeding, 12 stopped breastfeeding and 7 continued
  - No infant transmissions

Flynn et al, JAIDS, 2018;77:383-92, Malaba et al, Lancet HIV, 2022, Volpe et al, JAIDS 2022

Case Series reports of breastfeeding in women living with HIV in high income settings

Canada

- Two women with sustained virologic suppression
- Reasons for BF- bonding and avoiding HIV disclosure
- Three infants breastfed
- Infants received triple drug prophylaxis throughout BF
- Infants negative for HIV

US

- 14 women of African descent with 15 pregnancies and 16 infants expressed interest in BF
- Ultimately, 10 infants breastfed (median 4.4 months)
- Reasons for BF- infant health, disclosure, cultural expectations religious beliefs
- All women on ART at conception
  - 70% virally suppressed at 1st ANC visit
  - All sustained viral suppression postpartum
- Infants received triple therapy AZT/3TC/NVP for 4-6 weeks, then NVP thru 6 weeks post-cessation of BF
- HIV RNA testing negative for all infants

Yusef, et al. JPIDS 2022

Nashid, et al. JPIDS 2019

Additional reports

- Italy
  - 13 women with HIV
  - All women virally suppressed throughout
  - Infant prophylaxis 4 weeks AZT
  - No HIV transmissions
- Germany
  - Report from 15 clinics
  - 2009-2016 0-2 women per year breastfed
  - 2016-2020: 30 women breastfed, 5 not optimally suppressed
  - Infant prophylaxis 2-6 weeks AZT, 5 women opted for no infant prophylaxis
  - No HIV transmissions

Haberl, et.al. AIDS Patient Care STDS. 2021
Prestileo, et.al, Infect Dis Rep. 2022

Practical Advice

Steps in counseling women with HIV who are considering BF

- Discuss infant feeding plans early in pregnancy or as part of pre-conception counseling
- Have open, patient-centered discussion
- Share current U.S. recommendations
- Explore reasons for wanting to breastfeed
- If patient remains interested in breastfeeding,
  a) Review ART, adherence, and VL history
  b) Discuss how your clinic can support and what ART, clinic visits, and lab schedule would be recommended for mother and infant

The risk of HIV transmission to a breastfeeding infant from a mother living with HIV on ART is <1%

Additional Considerations

Know	Know your clinic/hospital's approach and resources available.
Explore	Exploring how the parents will cope/manage if the infant acquires HIV.
Consider	Consider other barriers to post-partum adherence to medication and visit schedule for mother and infant (post-partum Medicaid, ART access, transportation, financial, health literacy, language).
Ensure	Ensure clear communication among care team members. Document discussions and plan in medical record.

Management and monitoring for mothers

Antiretrovirals for Mom

Mother

- Must continue effective ART throughout pregnancy and breastfeeding
- Maintain undetectable viral load
- Postpartum adherence is a known challenge
- Adverse events are rare in infants whose mothers are on ART

Maternal ARVs and breast milk

- Breastmilk levels of maternal ARV differ.
- Most BM concentrations are lower than plasma
- Globally, over 1 million infants are exposed to maternal ARV through breastfeeding annually
- No known association with adverse effects

Maternal Monitoring during Breastfeeding

- Mother should demonstrate viral suppression (<50cpm) throughout breastfeeding, delivery, and breastfeeding
- Check VL every 1-2 months throughout breastfeeding and when adherence concerns arise
- Assess adherence regularly with VL testing (phone, telehealth in-person)
- Reinforce exclusive BF for first 6 months of life (medications ok)
- Discuss weaning plan and introduce bottle feeds early
- Weaning should **not be** abrupt

Antiretrovirals for Baby

Infant ARV options

- Daily Nevirapine (NVP) or Zidovudine (AZT) for 6 weeks (HHS)
- Daily NVP through breastfeeding and 1-4 weeks after weaning
- Empiric therapy (triple therapy)
- *Note: No evidence of added benefit of extended infant prophylaxis in mothers on suppressive ART*

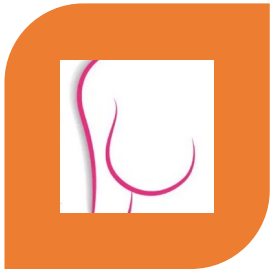
Concerns for HIV transmission

- If mother has elevated VL (>100cpm)
  - Consult pediatric HIV expert
  - Consider empiric ART while waiting test results for infant
- If infant acquires HIV while breastfeeding, start ART as treatment
- Drug resistance testing needed

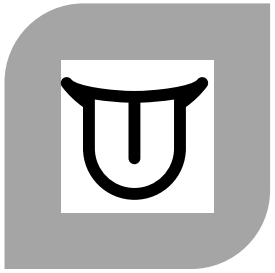
Infant Monitoring during Breastfeeding

- Infant HIV testing as per HHS Guidelines AND
  - At least every 3 months during BF
  - 4-6 weeks, 3 months and 6 months after BF ends
- Weight-based dose adjustments of infant prophylaxis
- Discuss early notification to care team for infant thrush or illness (especially vomiting and diarrhea)
- Consider monitoring for ARV toxicity
  - CBC at birth, 4 weeks of age and then as needed
  - Aspartate transaminase (AST)/Aspartate transaminase (ALT) 4 weeks of age and as needed

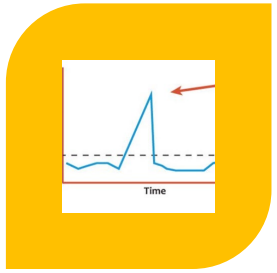
Complications during breastfeeding



MASTITIS



THRUSH



VIRAL BLIPS

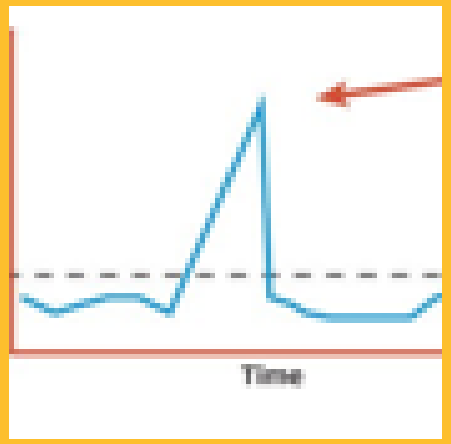
INFANT COMPLICATIONS

MASTITIS

- Mastitis is associated with increased HIV in breast milk (*in women not on ART*)
- Stored breast milk available
  - Feed with stored breast milk
  - mother should “pump and dump” until the mastitis is resolved
- None or insufficient stored breast milk,
  - advise to either feed from the unaffected breast only, OR
  - stop breastfeeding, OR
  - feed though the mastitis
- Replacement feeding is not recommended unless the mother stops breastfeeding

THRUSH

- Mother and infant should be evaluated rapidly
- Treat infant and mother as needed
- Stop breastfeeding if severe with cracked, bleeding tongue or nipples



VIRAL BLIPS

- If maternal viral load <100 cp/mL, repeat viral load ASAP.
- If maternal viral load >100 cp/mL, mother will be advised to stop breastfeeding.
  - Test infant for HIV
  - Start empiric 3-drug HIV treatment for infant
  - Mother to receive weaning/replacement feeding support

INFANT COMPLICATIONS

- Prematurity (<36 weeks)
- Gut integrity
- ARV Toxicity
  - Neutropenia
  - Thrombocytopenia
  - Anemia

Institutional Experience

- Having an internal standard operating procedure is beneficial
- Discussions with multidisciplinary team members in advance
- Training of participating staff
- Lactation support is helpful
- Education hand outs
- Documentation is important (? Risk reduction agreement)
- Some providers express distress about managing women who BF

Unanswered questions

- What if mom’s milk doesn’t come in?
- Is supplementing with formula early on ok?
- What is actual risk of mixed or complimentary feeding in mother on suppressive ART?
- What type and duration of postnatal prophylaxis is needed?

Summary

- All U.S. guidelines still recommend formula feeding as the only infant feeding approach with 0% risk of HIV transmission to infants
- BUT, acknowledge some woman may choose to do BF and increasingly recommend support for virally suppressed and adherent women
- Infant feeding discussions are part of pregnancy planning and newborn care
- Patient-centered, risk-reduction approach
- Just like birth plans, infant feeding plans don’t always go as planned

For more information

- 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/counseling-and-managing-women-living-hiv-united-states-who-desire-breastfeed?view=full
- Is U=U applicable in Breastfeeding, Lynn Mofenson, Elizabeth Glazer Pediatric AIDS Foundation
  - https://academicmedicaleducation.com/meeting/international-workshop-hiv-pediatrics-2020/video/session-4-undetectable-untransmittable
- Institutional Experience, Toronto, Canada
  - http://blog.catie.ca/2019/03/11/a-step-by-step-process-on-how-we-can-support-mothers-living-with-hiv/
- The Well Project Expert Statement and Resources on BF and HIV in U.S. and Canada
  - https://www.thewellproject.org/hiv-information/expert-consensus-statement-breastfeeding-and-hiv-united-states-and-canada
  - https://docs.google.com/spreadsheets/d/1fq1O3lHKwYdboyWaMCYhJ4QuR9RLpAgnH4fUm-H8w08/edit#gid=0

Questions?

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