



**CPARG**

Canadian Pediatric & Perinatal HIV/AIDS Research Group  
*Groupe canadien de recherche pédiatrique et périnatale  
sur le VIH/SIDA*

# Breastfeeding by Women Living with HIV in a Resource-Rich Setting: A Multicenter Retrospective Review of Maternal and Infant Management and Outcomes

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## Introduction

- Exclusive formula feeding remains the preferred infant feeding recommendation for women living with HIV (WLWH) in resource-rich settings because vertical transmission (VT) can still occur despite an undetectable viral load (VL)<sup>1-3</sup>
- However, in recent years, some Canadian WLWH have elected to breastfeed their infants while on combination antiretroviral therapy (cART)
- The **objective of this study** was to describe demographic characteristics, management and outcomes of breast-fed infants born to WLWH in Canada

## Methods

- A multicenter retrospective chart review of all known breastfed infants born to mothers living with HIV across Canada was performed
- Cases were identified through the Canadian Pediatric & Perinatal HIV/AIDS Research Group (CPARG)
- Cases were considered eligible if they were born in Canada to a mother with confirmed HIV infection between January 1, 2015 and October 30, 2019 and breastfed for any duration
- Demographic characteristics, management and outcomes were reviewed

1. Can J Infect Dis Med Microbiol 2014;25:75–7.
2. J Acquir Immune Defic Syndr 2018;77:383–92.
3. <http://aidsinfo.nih.gov/contentfiles/lvguidelines/PerinatalGL.pdf>. Accessed April 19, 2020.

Table 1. Maternal characteristics

Case	Maternal age range <sup>a</sup>	Maternal region of birth	Maternal cART	Maternal VL suppression, full pregnancy	Maternal VL prior to delivery	Maternal VL suppression while breastfeeding	Reason(s) for breastfeeding
1 <sup>b</sup>	36-40	Canada	FTC/RPV/TDF	Yes	TND	Yes	Maternal-infant bonding
2 <sup>b</sup>	36-40	Canada	FTC/RPV/TDF	Yes	TND	Yes	Maternal-infant bonding
3	19-25	Africa	FTC/TDF+RAL	Yes	TND	Yes	Fear of inadvertent disclosure of HIV
4	19-25	Canada	ABC/DTG/3TC	Yes	TND	Yes	Maternal-infant bonding
5	41-45	Africa	EVG/COBI/FTC/TAF	Yes	TND	Yes	Maternal-infant bonding, infant health
6	26-30	Canada	FTC/TAF+DTG	Yes	TND	No <sup>c</sup>	Maternal-infant bonding
7	31-35	Africa	FTC/TDF+ATV/r	No <sup>d</sup>	TND	Yes	Maternal-infant bonding
8	31-35	Europe	FTC/RPV/TDF	Yes	TND	Yes	Maternal-infant bonding, infant health
9	31-35	Africa	EFV/FTC/TDF	Yes	TND	Yes	Maternal-infant bonding
10	26-30	Africa	EFV/FTC/TDF	Yes	TND	Yes	Maternal-infant bonding
11	26-30	Africa	ABC/DTG/3TC	No <sup>d</sup>	TND	Yes	Fear of inadvertent disclosure of HIV
12	31-35	Canada	ABC/DTG/3TC	Yes	TND	Yes	Maternal-infant bonding, infant health

**Abbreviations:** ABC, abacavir; ATV/r, atazanavir/ritonavir; cART, combination antiretroviral therapy; COBI, cobistat; DTG, dolutegravir; EFV, efavirenz; EVG, elvitegravir; FTC, emtricitabine; 3TC, lamivudine; RAL, raltegravir; RPV, rilpivirine; TAF, tenofovir alafenamide; TDF, tenofovir disoproxil fumarate; TND, target not detected; VL, viral load

<sup>a</sup>Ranges were used for confidentiality reasons

<sup>b</sup>Dichorionic diamniotic twins

<sup>c</sup>Low level viremia (<100 copies/mL) detected when infant was 3-4 months of age, VL suppressed afterwards

<sup>d</sup>Both mothers were suppressed by 2<sup>nd</sup> trimester onwards

# Results

**Table 2. Infant characteristics and outcomes**

Case	GA (weeks)	Delivery method	Biologic sex	Category of BF	Duration of BF (weeks)	Infant cART	Duration of infant cART (weeks)	Age of last HIV PCR (months)	HIV PCR result	ART-related adverse effects <sup>a</sup>
1 <sup>b</sup>	31+3	SVD	Male	Mixed feeding	12	AZT,3TC,NVP	15	5	Negative	None
2 <sup>b</sup>	31+3	SVD	Male	Mixed feeding	12	AZT,3TC,NVP	15	5	Negative	None
3	41+1	SVD	Male	Exclusive	6	AZT,3TC,NVP	9	3	Negative	Neutropenia
4	40+4	SVD	Male	Mixed feeding	2	AZT,3TC,NVP	6	3	Negative	None
5	37+0	IVD	Female	Exclusive	24	NVP	8	6	Negative	Neutropenia
6	39+0	SVD	Female	Exclusive	28	AZT,3TC,NVP	32	9	Negative	Neutropenia
7	41+2	SVD	Female	Exclusive	8	AZT,3TC,NVP	12	3	Negative	Neutropenia
8	39+5	SVD	Male	Exclusive	24	AZT	32	6	Negative	Neutropenia
9	41+2	C/S	Female	Mixed feeding	26	AZT,3TC,NVP	30	8	Negative	None
10	40+3	SVD	Female	Mixed feeding	24	AZT,3TC,NVP then NVP	25 <sup>c</sup>	7	Negative	Neutropenia
11	40+2	SVD	Female	Mixed feeding <sup>d</sup>	28	AZT	28	7	Negative	None
12	37+4	C/S	Female	Exclusive	10	AZT,3TC,NVP	12	7	Negative	None

**Abbreviations:** BF, breastfeeding; cART, combination antiretroviral therapy; C/S, caesarian section; IVD, instrumental vaginal delivery; 3TC, lamivudine; NVP, nevirapine; PCR, polymerase chain reaction; SVD, spontaneous vaginal delivery; AZT, zidovudine

<sup>a</sup>All infants with neutropenia were considered mild ( $0.5-1 \times 10^9/L$ ) and resolved after ART

<sup>b</sup>Dichorionic diamniotic twins

<sup>c</sup>4 weeks of AZT/3TC/NVP, followed by 24 weeks of NVP monotherapy due to neutropenia ( $0.8 \times 10^9/L$ )

<sup>d</sup>Exclusive breastfeeding for 1 week initially followed by mixed feeding

## Discussion

- There is an increasing trend among WLWH on effective cART in Canada to breastfeed their infants
- No cases of vertical transmission were documented
- 11/12 infants remained on ART prophylaxis for the duration of breastfeeding and all 12 had close clinical follow up and frequent bloodwork to monitor for adverse effects
- ART was generally well tolerated by the infants
- **Conclusion:** Multidisciplinary preconception and throughout pregnancy counseling of WLWH on infant feeding, and close clinical follow-up of breastfeeding mothers and their infants is needed to optimize outcome