INTERNATIONAL MULTIDISCIPLINARY JOURNAL FOR RESEARCH & DEVELOPMENT
SJIF 2019: 5.222 2020: 5.552 2021: 5.637 2022:5.479 2023:6.563 2024: 7,805
eISSN :2394-6334 https://www.ijmrd.in/index.php/imjrd Volume 12, issue 06 (2025)

PREVENTING MOTHER-TO-CHILD TRANSMISSION OF HIV THROUGH ARTIFICIAL FEEDING: A LEGAL-ETHICAL ANALYSIS

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ABSTRACT: The prevention of mother-to-child transmission (PMTCT) of HIV is a global public health priority. For decades, infant feeding has been a central and complex component of PMTCT strategies. While breastfeeding is the optimal source of infant nutrition, it also poses a significant risk of HIV transmission from an infected mother to her child in the absence of effective interventions. Consequently, artificial feeding with infant formula was widely promoted as a key strategy to eliminate this risk. This article provides a comprehensive legal and ethical analysis of using artificial feeding for PMTCT. Using a systematic review of international guidelines, bioethical literature, and human rights frameworks, this paper examines the evolution of recommendations and the profound dilemmas they create. The analysis highlights the inherent conflict between the biomedical goal of preventing HIV transmission and the fundamental principles of maternal autonomy, infant rights, and health equity. We explore the ethical tensions surrounding informed consent, the challenges of ensuring that artificial feeding is "Acceptable, Feasible, Affordable, Sustainable, and Safe" (AFASS), and the significant issues of stigma and discrimination faced by women who do not breastfeed. The impact of increasingly effective antiretroviral therapy (ART) in radically altering the risk-benefit calculus is also discussed. This paper argues that while artificial feeding remains a critical option in specific circumstances, a shift from a prescriptive, one-size-fits-all approach to a rights-based, woman-centered, and context-specific counseling model is essential for ethically sound and effective PMTCT programs.
Keywords: HIV, Mother-to-Child Transmission (MTCT), PMTCT, Artificial Feeding, Infant Formula, Bioethics, Human Rights, Informed Consent, Stigma

INTRODUCTION

The human immunodeficiency virus (HIV) pandemic remains one of the most significant global health challenges of our time. A particularly tragic aspect of the epidemic is mother-to-child transmission (MTCT), where the virus passes from a mother to her infant during pregnancy, childbirth, or through breastfeeding [1]. Without any intervention, the risk of MTCT ranges from 15% to 45%. Breastfeeding alone accounts for one-third to one-half of these transmissions, making infant feeding a critical focal point for prevention strategies [2].

For millennia, breastfeeding has been the biological and cultural norm, providing unparalleled nutritional, immunological, and developmental benefits to infants, while also benefiting maternal health [3]. It is a practice universally recommended by global health bodies like the World Health Organization (WHO) and UNICEF as the gold standard for infant feeding [4]. This creates a profound and painful dilemma for mothers living with HIV: the very act intended to nourish and protect their child could be the vehicle for transmitting a life-threatening virus.

This dilemma led to the development of prevention of mother-to-child transmission (PMTCT) programs, in which infant feeding choices became a cornerstone of medical intervention. For many years, the primary recommendation for mothers living with HIV in resource-rich settings was to avoid breastfeeding entirely and use infant formula instead. This practice, known as replacement feeding or artificial feeding, effectively eliminates the risk of postnatal HIV transmission [5]. This biomedical solution, however, is not a simple one. The relevance

("dolzarbligi") and complexity of this issue stem from the fact that this recommendation, when applied globally, intersects with a web of profound legal, ethical, and social challenges.

In many resource-limited settings, where the burden of HIV is highest, promoting artificial feeding is fraught with peril. Lack of access to clean water, poor sanitation, the high cost of formula, and inadequate health literacy can make artificial feeding more dangerous than breastfeeding, exposing infants to a high risk of life-threatening diarrhea, malnutrition, and other infections [6, 7]. Furthermore, in cultures where breastfeeding is universal, a mother's decision to use formula can act as a de facto disclosure of her HIV status, leading to severe stigma, discrimination, abandonment, and even violence [8].

The legal and ethical dimensions of this issue are complex. They touch upon the fundamental rights of women to make autonomous, informed decisions about their bodies and their children's health (maternal autonomy). They involve the infant's right to the highest attainable standard of health, which includes both the right to be protected from HIV and the right to the benefits of breastfeeding. And they engage principles of medical ethics, including beneficence (doing good), non-maleficence (doing no harm), and justice (fair distribution of benefits and risks) [9].

The landscape of PMTCT has been revolutionized by the increasing efficacy and accessibility of antiretroviral therapy (ART). When a mother living with HIV adheres to effective ART, the risk of transmitting HIV through breastfeeding can be reduced to less than 1% [10]. This has prompted a significant shift in global guidelines, moving away from a blanket recommendation for artificial feeding towards supporting breastfeeding for mothers on ART. However, the legacy of previous policies and the persistent ethical challenges remain. This article provides a critical analysis of the legal and ethical facets of using artificial feeding as a PMTCT strategy, charting the evolution of guidelines and exploring the enduring dilemmas for mothers, infants, and healthcare systems.

MATERIALS AND METHODS

This article is based on a systematic analysis of the existing body of literature and international policy documents concerning infant feeding in the context of HIV. The methodology was designed to synthesize information from three distinct but overlapping domains: global health policy, bioethics, and international human rights law.

Data Sources and Search Strategy - A comprehensive search was conducted using major academic and policy databases, including PubMed, Scopus, Google Scholar, the WHO Global Index Medicus, and the UNAIDS publications database. The search strategy employed a combination of keywords: ("HIV" OR "AIDS") AND ("mother-to-child transmission" OR "MTCT" OR "PMTCT") AND ("infant feeding" OR "breastfeeding" OR "artificial feeding" OR "replacement feeding" OR "infant formula") AND ("ethics" OR "bioethics" OR "human rights" OR "legal" OR "informed consent" OR "stigma"). The review included documents published between January 2000 and June 2025 to capture the significant evolution of guidelines during this period.

Selection Criteria - The inclusion criteria for selected sources were:

Policy Documents: Official guidelines, recommendations, and strategy papers from international bodies such as WHO, UNICEF, and UNAIDS.

Academic Literature: Peer-reviewed original research, systematic reviews, and scholarly articles focusing on the legal, ethical, or social aspects of infant feeding decisions for women living with HIV.

Human Rights Instruments: Relevant conventions and declarations, along with commentaries from human rights bodies, that pertain to the rights to health, non-discrimination, and information.

Sources were excluded if their primary focus was purely clinical or virological without substantial discussion of the legal or ethical implications.

Data Synthesis and Analysis - A thematic analysis approach was used to synthesize the collected data. Information was extracted and categorized according to predefined themes: (1) the evolution of global PMTCT feeding guidelines, (2) core bioethical principles and their application, and (3) relevant human rights frameworks. This thematic synthesis allowed for a structured analysis of the key legal and ethical dilemmas. The information was used to construct three tables to systematically present the results. Table 1 charts the changes in WHO guidelines over time. Table 2 provides an analysis of the core ethical principles in conflict. Table 3 examines the application of human rights frameworks to the issue. This structured approach facilitates a comprehensive exploration of the topic and provides a foundation for the subsequent discussion and recommendations. All citations are numbered and correspond to the APA 7th edition formatted reference list.

RESULTS

The analysis of the literature reveals a dynamic and often contentious landscape regarding infant feeding for HIV-exposed infants. The results are presented thematically, incorporating three tables that summarize the key findings from policy documents, ethical analyses, and legal frameworks.

The Evolution of Global PMTCT Infant Feeding Guidelines - Global recommendations have undergone significant transformation over the past two decades, largely driven by accumulating evidence on the efficacy of ART and the risks associated with artificial feeding in different contexts. Table 1 summarizes this evolution.

Table 1: Evolution of WHO Infant Feeding Guidelines for HIV-Exposed Infants

Era	Key Recommendation	Rationale and Context
Early PMTCT Era (c. 2001-2006)	When replacement feeding is Acceptable, Feasible, Affordable, Sustainable, and Safe (AFASS), HIV-infected mothers are recommended to avoid all breastfeeding. Otherwise, exclusive breastfeeding is recommended.	Acknowledged the high risk of HIV transmission via breastfeeding. The AFASS criteria were introduced to mitigate the risks of formula feeding in resource-limited settings. Led to difficult, often confusing, choices.
Early ART Era (c. 2007-2009)	Mothers living with HIV should either breastfeed and receive ART interventions or avoid breastfeeding. National authorities should decide which single practice to promote.	Growing evidence that maternal or infant ART prophylaxis could reduce transmission risk during breastfeeding. The "one national recommendation" policy was intended to reduce confusion but was criticized for limiting individual choice.
Option A/B & B+ Era (c. 2010-Present)	Mothers living with HIV should breastfeed for at least 12 months and may continue breastfeeding for up to 24 months or longer (similar to the general population) while being fully supported for adherence to lifelong	Landmark studies showed that maternal ART dramatically reduces transmission risk to <1%. This shifted the paradigm, framing ART as the primary intervention and breastfeeding as safe and beneficial under these conditions.

	ART.	Acknowledges maternal choice.

This evolution reflects a move away from a primary focus on the feeding method as the intervention, towards recognizing maternal ART as the critical enabler of safe infant feeding choices.

Analysis of Conflicting Bioethical Principles - The infant feeding decision for a mother living with HIV places fundamental bioethical principles in direct tension with one another. Healthcare providers and mothers must navigate these conflicts, which are summarized in Table 2.

Table 2: Analysis of Core Ethical Principles in PMTCT Infant Feeding Decisions

Ethical Principle	Application to the Mother	Application to the Infant	Inherent Conflict and Dilemma
Autonomy	The mother's right to make an informed, uncoerced decision about her body and her child's care based on her values and circumstances.	The infant's future autonomy is dependent on surviving and thriving. The infant cannot consent.	Maternal autonomy may conflict with what is perceived as the infant's "best interest" by healthcare providers. A prescriptive recommendation can violate maternal autonomy.
Beneficence (Doing Good)	Promoting maternal health and well-being; supporting her psychosocially.	Providing optimal nutrition and immunological protection (favoring breastfeeding); preventing HIV infection (favoring formula in the absence of ART).	The action that confers one benefit (e.g., preventing HIV with formula) may undermine another (e.g., losing the immunological benefits of breast milk).
Non-Maleficence (Doing No Harm)	Avoiding stigma, discrimination, or coercion. Not causing psychological distress.	Avoiding harm from HIV transmission; avoiding harm from diarrhea, malnutrition, or other risks of unsafe formula feeding.	The intervention to prevent one harm (HIV) can directly expose the infant to other, potentially greater harms (infectious disease from unsafe formula).
Justice	Ensuring equitable access to all necessary resources: ART, clean water, affordable formula, and unbiased counseling, regardless of socioeconomic status.	Ensuring every infant has an equal opportunity for a healthy life.	In resource-poor settings, a recommendation for formula feeding may be unjust if the necessary conditions (AFASS) are not met, placing an undue burden on the most vulnerable.

This analysis highlights that there is no single "correct" ethical choice. The "best" decision is highly dependent on individual and contextual factors, underscoring the inadequacy of a one-size-fits-all policy.

Application of Legal and Human Rights Frameworks - The infant feeding dilemma is not just a medical or ethical issue; it is also a human rights issue. International law provides a framework for protecting the rights of both mother and child in this context.

Table 3: Application of Human Rights Frameworks to Infant Feeding in the Context of HIV

Human Right	Relevance to PMTCT and Feeding	Challenges in Implementation
Right to the Highest Attainable Standard of Health (ICESCR, Art. 12)	Applies to both mother and child. Includes the right to access PMTCT services, including ART, and the right to the health benefits of breastfeeding.	Balancing the child's right to be protected from HIV with their right to the benefits of breastfeeding. Often depends on the availability of ART, which is a resource issue.
Right to Non-Discrimination (UDHR, Art. 2; CEDAW)	Women living with HIV have the right to be free from discrimination. Stigma associated with not breastfeeding can be a form of discrimination.	Pervasive social and cultural stigma against people living with HIV. Lack of privacy in health clinics can lead to coerced choices or unwanted status disclosure.
Right to Information (ICCPR, Art. 19)	Mothers have the right to receive comprehensive, accurate, and unbiased information about all infant feeding options, including their risks and benefits, to facilitate informed consent.	Healthcare providers may be poorly trained, biased towards one option, or lack the time for proper counseling. Commercial marketing of formula can provide misleading information.
Rights of the Child (CRC, Art. 24)	States must ensure children's right to survival and development and access to healthcare. This includes "the advantages of breastfeeding."	A state's failure to provide the conditions for safe breastfeeding (e.g., access to ART for the mother) or safe artificial feeding (e.g., clean water) can be seen as a rights violation.

These frameworks establish that states have an obligation not only to provide medical services but also to create a supportive, non-discriminatory environment where women can make the best possible decisions for themselves and their children.

DISCUSSION

The results of this analysis reveal a profound shift in the approach to infant feeding for mothers living with HIV, moving from a prescriptive biomedical model to a more nuanced, rights-based framework. The evolution of WHO guidelines is a testament to this change, reflecting a growing understanding that the "solution" to PMTCT is not as simple as replacing breast milk with formula.

The initial promotion of artificial feeding, while well-intentioned, was rooted in a disease-centric perspective that often failed to account for the holistic realities of women's lives. The introduction of the AFASS criteria was an important, albeit flawed, attempt to address this. In practice, assessing whether artificial feeding was truly "Acceptable, Feasible, Affordable,

Sustainable, and Safe" proved incredibly difficult for both healthcare providers and mothers [11]. This placed an immense decisional burden on women, forcing them to weigh complex risks in often dire circumstances. This situation created a clear conflict with the ethical principle of justice, as the risks of either choice were disproportionately borne by the most impoverished and marginalized women [9, 12].

The core ethical tension identified in Table 2—between maternal autonomy and the infant's best interest—is central to the discussion. For years, PMTCT programs often prioritized the prevention of HIV transmission above all else, leading to policies that were coercive and undermined maternal autonomy [8]. The recommendation for one national feeding policy, for example, while aimed at simplifying public health messaging, effectively removed individual choice. The human rights framework presented in Table 3 reinforces that such an approach is untenable. The right to information and the principle of informed consent demand that women receive comprehensive counseling on *all* options, empowering them to make a choice that aligns with their health, values, and socioeconomic reality [13].

The most significant game-changer in this entire ethical landscape has been the success of ART. With effective maternal ART, breastfeeding is no longer a high-stakes gamble but a safe, recommended, and rights-affirming practice [10, 14]. This technological advance has helped to resolve many of the ethical conflicts. It allows for the simultaneous fulfillment of the infant's right to be protected from HIV and their right to the nutritional and immunological benefits of breastfeeding. It upholds maternal autonomy by providing a safe path to a culturally and biologically normative practice. However, this is only true if access to ART is universal and adherence is adequately supported.

Despite this progress, challenges remain. The legacy of "formula-first" messaging persists in some areas. Stigma has not disappeared; in communities where the link between formula feeding and HIV is deeply ingrained, women on ART who choose to breastfeed may face suspicion, while those who must use formula for other medical reasons may be automatically assumed to be living with HIV [8]. Therefore, the focus of PMTCT programs must continue to evolve, shifting from a narrow focus on feeding methods to a broader, integrated approach that includes universal ART access, robust psychosocial support, and community-wide efforts to combat stigma.

CONCLUSION

The use of artificial feeding as a strategy to prevent the mother-to-child transmission of HIV represents a critical chapter in the history of the global AIDS response. While it has saved countless lives by eliminating the risk of postnatal transmission, its promotion has been fraught with profound legal and ethical challenges. An analysis through the lenses of bioethics and human rights reveals a deep conflict between the goals of disease prevention and the fundamental rights and well-being of mothers and infants. The prescriptive application of this biomedical intervention has often failed to respect maternal autonomy, created significant risks of morbidity and mortality from unsafe feeding practices in resource-limited settings, and fueled stigma and discrimination.

The advent of highly effective antiretroviral therapy has fundamentally reshaped this landscape, transforming the risk-benefit analysis and enabling breastfeeding to be a safe and recommended option for women on treatment. This marks a paradigm shift towards a more holistic, woman-centered approach. The central conclusion of this analysis is that there can be no single, universal recommendation for infant feeding in the context of HIV. The ethically and legally sound approach is one that prioritizes universal access to ART, ensures comprehensive and

non-biased counseling, respects the informed choice of the mother, and actively works to create a social environment free from stigma.

RECOMMENDATIONS

Based on this legal-ethical analysis, the following recommendations are proposed:

Prioritize Universal ART Access and Adherence: Governments and global health partners must redouble efforts to ensure that all pregnant and breastfeeding women living with HIV have uninterrupted access to effective ART and receive robust support to maintain adherence. This is the cornerstone of ethical PMTCT.

Adopt a Rights-Based Counseling Model: Healthcare systems must train providers to deliver patient-centered, non-coercive counseling. This counseling should cover all infant feeding options, their context-specific risks and benefits, and empower mothers to make an informed decision without judgment.

Combat Stigma and Discrimination: Public health campaigns and community engagement are needed to dismantle the stigma associated with both HIV and infant feeding choices. Messaging should clarify that with ART, breastfeeding is safe, and that formula use is not an automatic indicator of HIV status.

Strengthen Health and Social Systems: For women who, after informed counseling, choose or must use artificial feeding, states have an obligation to ensure the AFASS criteria can be met. This includes investing in infrastructure for clean water and sanitation and ensuring a regulated, affordable supply of infant formula.

Integrate Legal and Ethical Training: The training curricula for healthcare professionals working in PMTCT must include mandatory modules on medical ethics, human rights, and the psychosocial dimensions of living with HIV.

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