

# Mode of Delivery for Pregnant Women Infected by the Human Immunodeficiency Virus

*This Clinical Guideline has been reviewed by the Infectious Diseases Committee and approved by Executive and Council of the Society of Obstetricians and Gynaecologists of Canada.*

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### Abstract

**Objective:** Recent publications on the role of elective Caesarean section as an independent factor to reduce mother-to-infant transmission of the human immunodeficiency virus (HIV) at delivery has triggered a large amount of concern and misunderstanding in the medical and patient communities. The primary goal of this guideline is to provide accurate and updated information on the proper way to apply this data to the Canadian population of HIV-positive women.

**Outcomes:** Implementation of these guidelines should facilitate the clinical decision process on the most appropriate mode of delivery for individual patients infected by HIV, taking into account the medication received and the level of viral suppression.

**Evidence:** The literature was searched using Medline and was reviewed by members of the SOGC Infectious Diseases Committee. The level of evidence was determined using the criteria described by the Canadian Task Force on Periodic Health Examination.

**Benefits, harms, costs:** Proper implementation of these guidelines should allow a significant proportion of HIV-positive women to avoid unnecessary surgical delivery (when surgical delivery is considered based only on their HIV status). The avoidance of unnecessary Caesarean section should minimize their risk of post-operative infections and hemorrhagic

complications. It should also decrease their length of hospital stay and the afferent cost.

**Recommendations:** The available evidence regarding the prophylactic role of Caesarean section applies only to women who have not received optimal antiretroviral therapy. Elective Caesarean section (38 weeks gestation) should be offered to HIV-positive women in these specific situations:

- Women who have not received antiretroviral therapy regardless of the antepartum viral load determination. These patients should be offered appropriate therapy as soon as HIV is recognized. (I)
- Women receiving antiretroviral monotherapy regardless of the viral load. Intensification of therapy should be undertaken if time permits. (II-2)
- Patients with detectable viral load regardless of the received therapy. (II-2) Until recently, the threshold of detection of HIV by viral load measurement was 500 RNA copies per ml. The presently available tests have pushed back that threshold to 40 to 50 RNA copies per ml. The actual evidence suggests that transmission is minimal when viral load determination is less than 500 RNA copies per ml.
- Women in whom the viral load determination is not available or has not been done. (II-2)
- Women with unknown prenatal care. (I)

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FOR INFORMATION ON THE SELF-DIRECTED LEARNING EXERCISE SEE PAGE 355.

## BACKGROUND

In North America it is now recognized that HIV-1 positive pregnant women have approximately a 25 percent risk of transmitting HIV to their newborn in the absence of full prophylactic measures. In 1994, the publication of the AIDS Clinical Trial Group 076 (ACTG-076) study results confirmed the major role played by the maternal administration of zidovudine (AZT or ZDV) during pregnancy, labour, and in the newborn period. Such a prophylactic regimen has reduced the transmission rate from 25 percent to nearly eight percent.<sup>1</sup> In many Canadian centres, the implementation of the same protocol with zidovudine has allowed a reduction of the transmission rate in the order of 90 percent.<sup>2-3</sup>

Since 1998, treatment of pregnant women infected with HIV-1 has been modified to offer the benefit of the combined multiple antiretroviral agent regimens, which usually include zidovudine. In the majority of instances, this more aggressive double or triple therapy has been observed to produce maternal-fetal transmission rates that are less than one percent.<sup>2-5</sup> Another contributing factor to combined regimen effectiveness is the capacity to measure HIV-1 viral load (viral RNA) in maternal circulation and consequently to allow a more precise fine tuning of maternal antiretroviral therapy.

At least four recent studies reported an independent additive role for elective scheduled Caesarean section in the prevention of transmission of HIV-1 from mother to infant (Table 1).<sup>6-9</sup> Essentially all women in these studies received either no antiretroviral therapy or zidovudine alone, and had no antepartum viral load determinations. There have been no large scale published studies regarding pregnant women infected with HIV-1

receiving multiple therapy that specifically considers mode of delivery. However, preliminary data from North American centres applying multiple antiretroviral therapy adjusted with viral load determination suggests vaginal delivery may be as safe as Caesarean section in selected cases with optimal viral suppression. Moreover, some clinical groups have found that decreasing viral load has a linear relationship to risk of transmission independent of mode of delivery.<sup>4-5</sup>

## RECOMMENDATIONS

Consequently, the SOGC Infectious Diseases Committee considers that the available evidence regarding the prophylactic role of Caesarean section applies only to women who have not received optimal antiretroviral therapy. It further underlines the obligation for physicians to ensure that their patients receive the best available antiretroviral therapy and to take the appropriate measures to assist with compliance. Notwithstanding, elective Caesarean section (38 weeks gestation) has a valuable role for pregnant women with HIV and should be offered in these specific situations:

1. Women who have not received antiretroviral therapy regardless of the antepartum viral load determination. These patients should be offered appropriate therapy as soon as HIV is recognized. (I)
2. Women receiving antiretroviral monotherapy regardless of the viral load. Intensification of therapy should be undertaken if time permits. (II-2)
3. Patients with detectable viral load regardless of the received therapy. Until recently, the threshold of detection of HIV by viral load measurement was 500 RNA copies per ml.

Period	Type of study	Antiretroviral therapy (ART) and number of patients	Mother-infant Transmission by Mode of Delivery n (%)		Multiple Therapy	Viral load
			Elective C/S	Excludes Elective C/S		
1985-96	Prospective cohort <sup>6</sup>	Zidovudine n = 902 No ART n = 1917	1/133 (0.8%) 17/97 (17.5%)	54/769 (7.0%) 310/1780 (17.4%)	30 (3.3%)	No
1986-96	Prospective cohort <sup>7</sup>	Zidovudine Any n = 76 3 phases n = 45 No ART n = 357	0/31 (0%) 7/86 (8.0%)	4/24 (17.0%) 55/271 (20.0%)	1 with 3TC	No
1993-98	Prospective RTC <sup>8</sup>	Zidovudine n = 259 No ART n = 147	3/141 (2.1%) 4/59 (6.8%)	3/92 (3.3%) (vaginal delivery) 14/74 (18.9%) (vaginal delivery)	No	No
1986-97	15 Cohort Metanalyses <sup>9</sup>	Zidovudine 3 phases n = 1424 No ART n = 5571	4/191 (2.1%) 56/537 (10.4%)	90/1233 (7.3%) 962/5034 (19.1%)	No	No

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The presently available tests have pushed back that threshold to 40 to 50 RNA copies per ml. The actual evidence suggests that transmission is minimal when viral load determination is less than 500 RNA copies per ml.<sup>2,3,4,5</sup> (II-2)

4. Women in whom the viral load determination is not available or has not been done. (II-2)
5. Women with unknown prenatal care. (I)

## **CONCLUSION**

The SOGC Infectious Diseases Committee concludes that there is not enough evidence available to recommend an elective scheduled Caesarean section for patients receiving adequate multiple therapy and with significant viral load reduction. If the patient requests an elective Caesarean section, this request should be honoured for HIV indication only. (III) In complex cases where concern exists in relation to a prolonged labour or an instrumental or traumatic delivery, Caesarean section might be considered appropriate. All the above considerations should be the object of frank and honest discussion, respecting the individual patient's right to choose her treatment plan.

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