

Vertical transmission

Vertical transmission refers to the transmission of a virus or infection from a mother to her baby during pregnancy, childbirth, or breastfeeding. In the context of HIV, vertical transmission is also known as mother-to-child transmission (MTCT). Without proper interventions, HIV can be passed from an HIV-positive mother to her child during these stages, making vertical transmission one of the most common ways that infants and young children acquire HIV.



How it occurs:

- **During Pregnancy:** HIV can cross the placenta and infect the fetus while the baby is still developing in the womb.
- **During Childbirth:** HIV can be transmitted when the baby comes into contact with the mother's blood or other fluids during delivery.
- **Through Breastfeeding:** HIV can be passed through breast milk from an HIV-positive mother to her baby.

Prevention of Vertical Transmission:

With proper medical interventions, the risk of mother-to-child transmission of HIV can be significantly reduced, to less than 1-2% in many cases. These interventions include:

- **Antiretroviral therapy (ART) for the mother** during pregnancy and childbirth to suppress the virus, reducing the viral load to undetectable levels.
- **Antiretroviral drugs for the newborn** during the first few weeks of life to further reduce the risk of infection.
- **Safe delivery methods**, such as cesarean section (in some cases), to minimize the baby's exposure to the mother's blood.
- **Avoiding breastfeeding** if safe alternatives like formula feeding are available, as breastfeeding can still transmit the virus. In settings where alternatives are not safe or accessible, ART can be continued for both the mother and baby during breastfeeding to lower the transmission risk.
- **Pre-exposure prophylaxis (PrEP)** can be a critical tool for preventing vertical transmission of HIV during pregnancy, childbirth, and breastfeeding, especially for HIV-negative women at high risk of HIV exposure. Using PrEP during

pregnancy helps protect both the mother and the baby from HIV infection and has been shown to be safe for use during pregnancy.

- **Triple elimination programmes** of MTCT for HIV, syphilis, and hepatitis B aim to address the interconnected health challenges posed by these infections, which share similar routes MTCT, by implementing measures like antenatal screening, treating pregnant women who are infected, ensuring proper follow-up care, and vaccinating newborns exposed to these infections.

Efforts to prevent vertical transmission have been highly successful, particularly in countries with widespread access to ART MTCT prevention programmes.

In South Africa, for example, vertical transmission rates have dropped from 30% in the early 2000s to less than 2% today due to comprehensive interventions.

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