

# THEART OF RESEARCH



## Ensuring safer treatments for HIV-exposed infants

A better understanding of antiretroviral therapy regimens aims to improve treatment guidelines and enhance health outcomes for infants born to mothers living with HIV.

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**P**regnant mothers living with HIV share a common hope: to have a healthy, virus-free baby. They diligently follow their antiretroviral therapy (ART) regimens, understanding that this adherence significantly reduces the risk of HIV transmission. However, concerns persist about the potential long-term effects of ART on their baby's health. Even if their infants are HIV-exposed but uninfected, there are worries about possible neurodevelopmental challenges.

Emerging research indicates that alterations in gut microbiota and systemic inflammation could significantly impact neurodevelopmental outcomes of infants exposed to HIV. While traditional protease inhibitor-based therapies are effective, they might disrupt microbial balance and not sufficiently reduce systemic inflammation. Integrase strand transfer inhibitor (INSTI)-based therapies are gaining popularity, but their long-term effects on infant health remain unclear. Protease inhibitor-based regimens stop HIV maturation by blocking its enzymes, while INSTI-based regimens prevent the virus from integrating into human DNA.

To address this critical issue, Valencia Chauke, in collaboration with the Paediatric HIV/AIDS Cohort Study (PHACS) team, is conducting a comparative analysis of protease inhibitor-based and



*A mother nurses her child, highlighting the importance of safe treatments for infants exposed to HIV.*

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INSTI-based regimens. Their goal is to assess how these therapies affect the gut microbiome, systemic inflammation and neurodevelopment in infants. This research is essential for guiding mothers and healthcare providers toward the safest and most effective treatment options.

Ultimately, the success of this research could enable children exposed to ART to lead healthier, happier lives, allowing them to grow, play and thrive. Conversely, failing to address these challenges may leave these vulnerable children with uncertain and potentially adverse futures.

