

## Article Review: Congenital Cytomegalovirus and HIV Perinatal Transmissions

**Overview:**

Congenital cytomegalovirus infection (cCMV) has huge public health implications as a pregnant woman can pass CMV to her unborn baby. The virus in the woman's blood can cross the placenta and infect the baby and can lead to long-term impact such as, hearing loss and cognitive impairment. HIV-exposed children are at higher risk of acquiring CMV, especially if born to mothers to who did not receive antiretrovirals during pregnancy.

## Comments to the Author(s):

**Introduction:**

The introduction does summarize the article well and the purpose of this continued study, but for the individuals who didn't read their previous research papers, it would be imperative to give some background on cCMV, such as modes of transmissions and risk factors, especially during pregnancy.

**Methods:**

- Study Design
  - o Clearly stated that the dataset is from NIH (NICHD), so data collection is quite reputable and possibly high in accuracy
  - o Strong epidemiological study design – Phase 3 study design used compare the safety and effectiveness of the new treatment against the current standard treatment.
  - o Question: “Maternal plasma ... obtained at the time of labor and delivery” – stated as if it was taken twice?
- HIV Diagnosis / Specimen Collection and CMV Testing
  - o Both methods used were scientifically sound, urine is the preferred specimen to test
- Statistical Analysis
  - o The statistical analyses are sound and justified
    - $X^2$  test is designed to analyze categorical data – used to categorize comparable differences in proportions between cCMV and CMV-uninfected infants
    - Univariate and multivariable logistic regression analysis

**Results:**

- Were presented clearly, but I feel like it wasn't necessary in the paragraph to include the Odds Ratio and Confidence Interval after each stated outcome and that data is more representative in the graph.
  - o Table 1: In the methods section stated that enrollment process occurred in Brazil, South Africa, Argentina and the US but the outcome of Argentina wasn't found in Table 1. Why was it excluded in the study?
  - o Type of delivery: Cesarean after rupture/timing unknown, shouldn't be grouped together no? In all the other outcomes, if it was unknown, it was its own category.

- Table 1 and 2: The unknown modes of HIV transmission are significant, but yet, it's unknown?

**Limitations:**

- Even though strong study, it is limited to HIV-infected participants, which is a vulnerable population and probably not well studied among that population. cCMV affects <1% of the population, those who are HIV-infected are a fraction of the general population, without a comparable group, it affects the strength of their introduction.

**Conclusions:**

The conclusion was summarized appropriately but it lacked strength. In the introduction, they mentioned the lack true representation of data regarding the rates of cCMV. They could've concluded with facts regarding the burden and impact/importance of a study of this nature, such as:

- It is not recommended that doctors routinely test pregnant women for CMV infection. But in laboratory tests cannot predict which developing babies will become infected with CMV or have long-term health problems. Presently in the US, there is no standard of care or routine protocols regarding screening newborns at birth, especially if the child is asymptomatic.