



Can Women Living With HIV Have a Healthy Baby?

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INTRODUCTION

The goal of our research is to look at the development and efficacy of medications to help HIV-positive women have healthy, HIV-free babies, as well as the awareness of these medications. We plan to use statistics and prior studies to deepen our understanding of perinatal transmission and its prevention.

BACKGROUND AND SIGNIFICANCE

The Virus:

Increasingly, HIV has come to affect young children, often transmitted during childbirth. By the end of 2013, over 9,000 people ages 13 and older were living with HIV acquired through perinatal transmission. In 2014, 73% of the estimated 174 children in diagnosed with HIV in the US received it through perinatal transmission .

Treatment:

Luckily, with a regular regimen of antiretroviral drugs, viral load can be drastically reduced, often to nearly undetectable levels . While there are over 25 medications approved to treat HIV, these drugs mostly work to prevent the virus from multiplying. This also works to reduce the risk of transmission to others .

In order to prevent this perinatal transmission of HIV, Zidovudine is a common antiretroviral drug that is taken by the mother while pregnant and for six weeks after birth . Additionally, Zidovudine can be used as a treatment for infected newborns 4 weeks old and up . Zidovudine stops the transmission and treats HIV infections by stopping the reverse transcription of viral DNA . Zidovudine is a nucleoside reverse transcriptase inhibitor (NRTI) which means it is a molecule that sits on the nucleotides to block reverse transcriptase of the HIV RNA.

Another type of therapy are protease inhibitors. After the virus leaves a host cell, proteases make final cuts to the DNA to make the virus function. This therapy prevents the protease from making cuts, or makes the protease make cuts that make the DNA nonfunctional.

In WITS, multi-ART is a combination of 2 antiretroviral drugs. Highly-active ART is a combination of 3+ antiretroviral drugs.

RESEARCH METHODOLOGIES

Women and Infants Transmission Study:

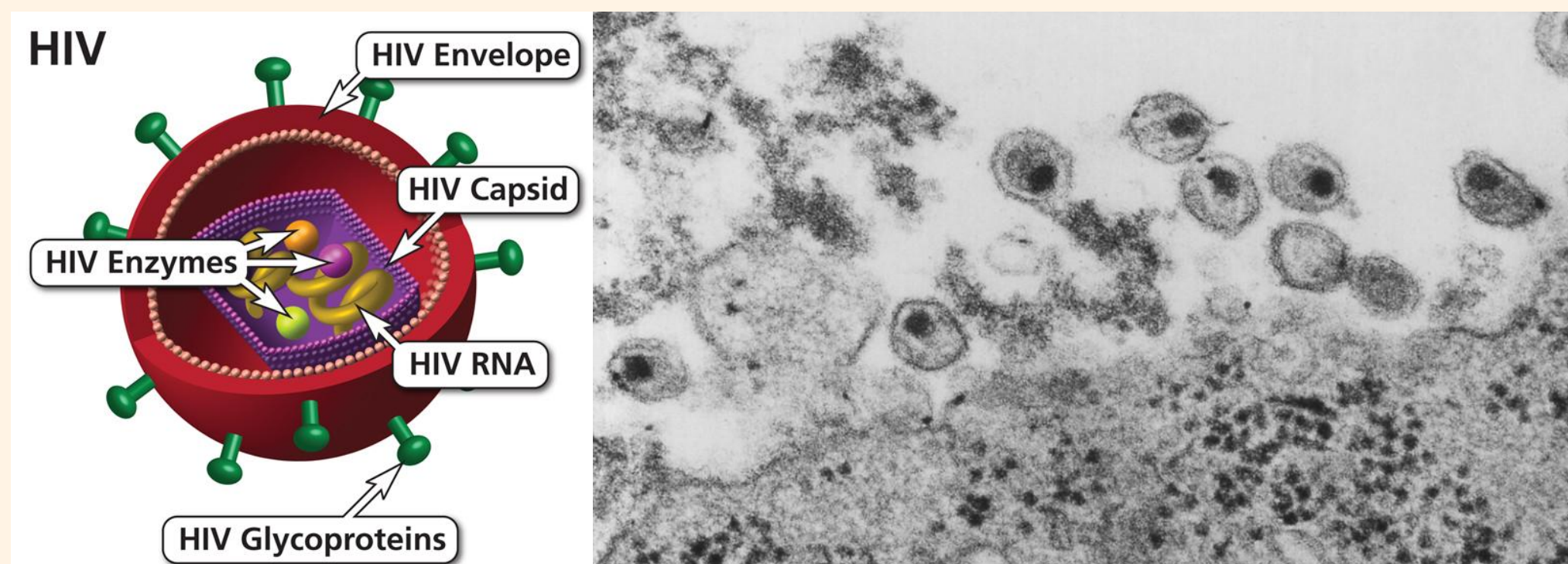
The Women and Infants Transmission Study (WITS) is a previous study that tested perinatal transmission rates of HIV. Any HIV positive, pregnant women who enrolled between 1990-2000 and consented, was included in the study.

Women who enrolled in WITS were required to have four medical checkups: at less than 18 weeks pregnant, 25 weeks, 34 weeks, and during birth. Each women was prescribed one of the following regimens of antiretroviral drugs: no ARV, zidovudine, multi-ART, or HAART. At each visit, CD4+ count was analyzed as well as HIV-1 RNA levels. In order to analyze transmission rate, blood was taken from the newborn 48 hours, 1, 2, 4, 6, 9, 12, and 18 months old for HIV blood tests. Subsequent tests were held every 6 months. Mothers were not permitted to breastfeed.

We will analyze our data by looking through trends and analyzing the information in the context of our research question. Since we are pulling data from a previous study, its significance has already been proven through statistical measures.

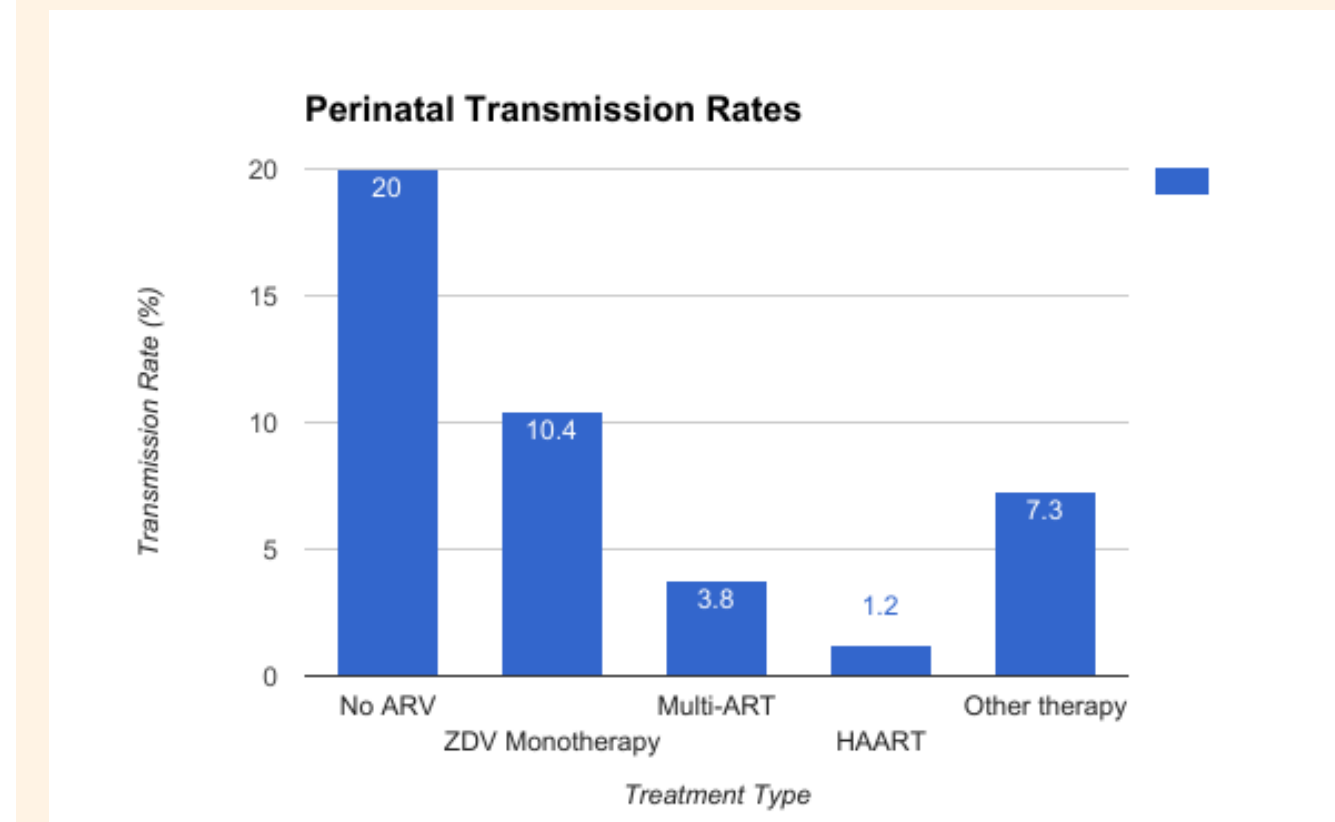
Secondly, we read first-hand accounts of the experience of living with HIV on UCSF's HIVE blogs to garner an understanding of how prevalent knowledge about this treatment was.

In addition to this, we will put out a survey via Google Form to collect qualitative data on HIV stigma and education in our own community. It will be a voluntary study, and the survey responders will be students from Gunn High School. This data will supplement the quantitative data by HIV medication is perceived by the greater public. This is the link to our study: <https://goo.gl/forms/SpJHXUEgxJpAxILX2>. We publicized the study at the end of February 2017 and collected responses until early March 2017.

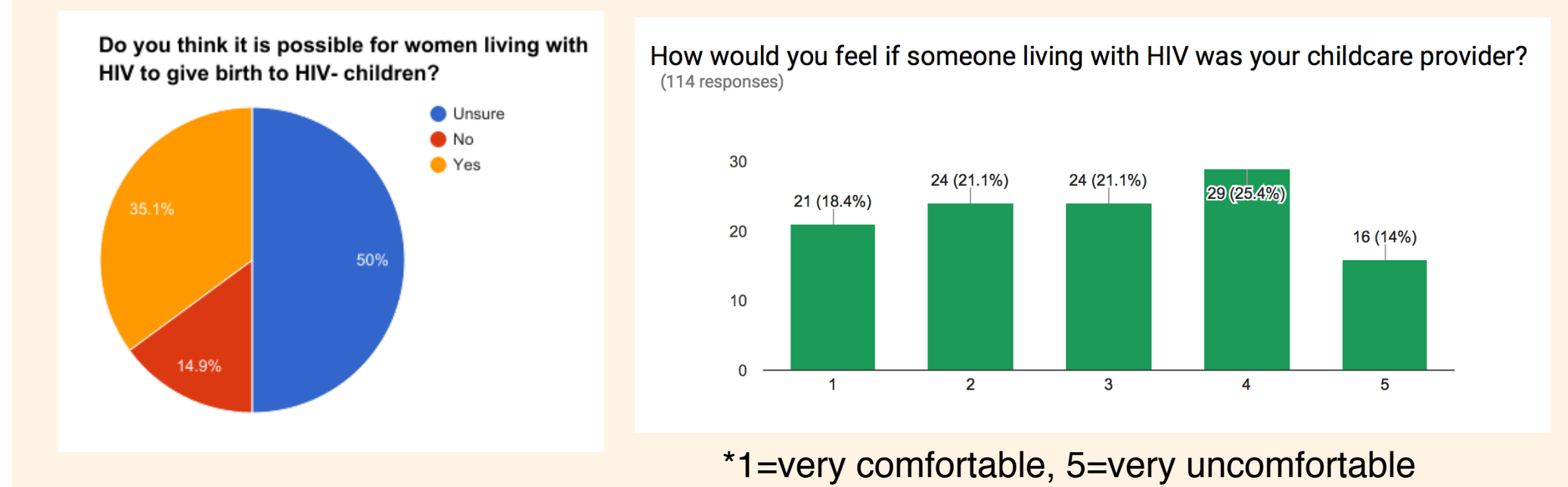


DATA ANALYSIS AND RESULTS

HIV & Pregnancy Data



Student Survey Results



SUMMARY/CONCLUSION

By analyzing the data from the WITS, we found that the more complex the cocktail, the more effective the medication was in preventing perinatal transmission. Their results revealed that it is completely medically safe and possible for women living with HIV to give birth to a HIV negative child as long as they adhere to a strict drug regimen. Reading through the HIVE blogs, we came to understand that many HIV positive women never thought it was possible to give birth to an HIV negative baby. Our own survey results mirrored this, as many students had limited knowledge of the resources for women living with HIV while pregnant. Thus, we find it imperative that HIV education be increased, so women are able to fully understand the resources available to them.

ACKNOWLEDGEMENTS / REFERENCES

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