

UM SOM RECEIVES \$2 MILLION GRANT FOR HIV RESEARCH IN MALAWI

UM School of Medicine Researchers Will Study Impact of HIV Exposure Between Pregnant Women and Infants

The University of Maryland School of Medicine has been awarded a \$2 million five-year grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development to study the impact exposure to HIV has on the immune systems of infants *in utero*.

The research will be conducted in Malawi and will follow pregnant women prior to 36 weeks of gestation until delivery. The study is targeted to include 210 infants that will then be followed from birth to nine months of age. Research will be conducted at the Blantyre Malaria Project (BMP) Research Clinic in the Ndirande Health Centre, which is an affiliate of the University of Malawi College of Medicine. UM SOM researchers have been conducting clinical studies among pregnant women and others living with HIV at this location since 1998.

The Principal Investigators for the project are **Cristiana Cairo, PhD**, Assistant Professor of Medicine in the Institute for Human Virology and **Miriam K. Laufer, MD, MPH**, Associate Professor of Pediatrics.

“Our long-term goal of the research is to identify an approach for preventing mother-to-child transmission of HIV that also minimizes the impact of maternal infection on the immune development of infants exposed to HIV but not infected,” said Drs. Cairo and Laufer.

The research comes as nearly 30 percent of all infants born in sub-Saharan Africa are exposed to HIV *in utero* but are uninfected at birth. It is estimated that in sub-Saharan Africa alone, more than 13.8 million women of childbearing age are living with HIV infection and more than 1.5 million HIV-positive women give birth each year.

Women in sub-Saharan Africa are routinely screened for HIV infection at their first pre-natal visit, which typically takes place at 20 weeks of gestation. They are then administered antiretroviral treatment (ART) if diagnosed with HIV infection. While most infants prenatally exposed to HIV do not become infected as a result ART, these infants still have higher morbidity and mortality in the first two years of life due to common infections and several immunologic alterations have been reported in this vulnerable population.

Adaptive Immune Responses of Infants

UM SOM researchers will analyze and compare the adaptive immune responses of infants with different HIV exposure *in utero*. They will analyze if infants born to mothers with suppressed HIV infection since conception will have adaptive immune responses similar to unexposed. The research will also study whether infants exposed to a high level of HIV infection throughout most of the mother’s pregnancy will have abnormal immune responses.

It is anticipated that infants born to mothers with suppressed HIV infection since conception will have immune responses similar to unexposed infants, while infants exposed to a high level of HIV infection through most of the pregnancy will have abnormal immune responses.

The study could ultimately lead to earlier HIV testing and related pre-natal care. “Early HIV testing in all women of child bearing age may have a significant impact on infant health and survival,” said Dr. Laufer, who is also Director of the Division of Malaria Research and Associate Director of Institute of Global Health.

“It is of critical importance to clearly identify the impact of maternal HIV infection on exposed uninfected infant immunity, and examine the effectiveness of maternal lifelong ART on mitigating these effects,” said Dr. Cairo.