

Study will test new technique to prevent viral infections during pregnancy

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Pregnant women might not show symptoms of an infection that could endanger their pregnancies. Credit: Yale University

Dr. Michelle Silasi, Assistant Professor of Obstetrics, Gynecology, and Reproductive Sciences, will test the effectiveness of a new technique to screen for viral exposure during pregnancy that can identify women at risk for serious complications and allow for interventions to improve pregnancy outcomes.



"As we've seen with the recent outbreak of the Zika virus, <u>viral</u> <u>infections</u> during pregnancy pose serious threats to both the mother and the developing fetus, which can quickly become a major public health crisis," Silasi said. "But there is currently no effective, noninvasive, affordable method to test for such exposures."

Inflammation signals an infection and can be measured by an increase of a type of protein called interferon-gamma induced protein of 10kDa, or IP-10. Silasi's team will compare levels of IP- 10 in stored samples of blood serum and swabbed vaginal secretions that had been collected during a prenatal visit early in the second trimester of black <u>women</u> who went on to deliver uncomplicated full-term pregnancies. Black women are an understudied and therefore underserved population.

If the researchers discover that the levels are the same in the serum and vaginal secretions, <u>health care providers</u> could eliminate the need to draw blood from patients to test for exposure, Silasi said. Instead, patients could simply swab their own secretions for screening at each prenatal visit, increasing the probability of screening while decreasing cost.

A second goal of the study will involve comparing the levels of IP-10 in vaginal secretions collected in the early second trimester from both women who went on to deliver at full term (between 39 weeks and 40 weeks and 6 days) and from women who delivered prematurely before 35 weeks.

Elevated IP-10 levels in amniotic fluid during mid-trimester have been associated with preterm birth, but measurements require amniocentesis, an invasive procedure that carries a risk of miscarriage. High IP-10 levels in the serum of <u>pregnant women</u> also have been associated with premature birth, but testing requires some suspicion of infection, and women might not show symptoms.



"In other cases, women might show symptoms, but collecting samples can be time-consuming and costly, while not revealing disease-specific results," Silasi said. "We are hopeful that by demonstrating the value of more easily obtained vaginal secretions in detecting exposure to viruses, our study can lead to the adoption of a rapid, effective, specific, inexpensive, and noninvasive tool so we can better care for mothers and their fetuses."

Women's Health Research at Yale's Pilot Project Program

The recipients of this year's Pilot Project Program grants seek answers to such questions as:

- Can a better understanding of the colon's digestive chemistry uncover early signs and sex-specific causes of colon cancer to aid in prevention and treatment of this disease?
- Can an affordable, rapid, noninvasive, and potentially selfadministered test available to pregnant women prevent the spread of viral infections and preterm births?
- Can a mobile phone app featuring an interactive character-based story help break the transgenerational cycle of intimate partner violence?

"When it comes to biology and behavior, women and men are not identical," said Dr. Carolyn M. Mazure, Director of WHRY. "For the 20th year, WHRY is sparking innovation with studies designed to develop the best practices for detecting and treating diseases and conditions that may affect women and men differently."

Provided by Yale University



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