Media Release

Pioneering study investigates role of bacterial signature in predicting preterm birth

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A new study examining the link between a bacterial signature and preterm birth is set to benefit the millions of infants and families worldwide who will potentially suffer from this complication of pregnancy.

The Preterm Birth Prevention Study, a collaboration between the Women & Infants Research Foundation, the University of Western Australia, and the WA Department of Health, will look at the presence of specific bacteria in the vagina in mid pregnancy to identify women who are likely to deliver early.

Complications associated with preterm birth are the leading cause of death and disability among children under five years of age in the developed world. According to World Health Organization data, more than 15 million babies were born preterm in 2015. In WA alone, around 3000 babies are born preterm each year.

While bacterial infection of the womb is a well-known cause of preterm birth, previous attempts to identify women likely to deliver preterm because of infection have had limited success, in part because it is not possible to test for infection within the womb itself and tests from the vagina have been too unreliable.

Lead investigator, Chief Scientific Director of the Women and Infants Research Foundation, and Head of Division of Obstetrics and Gynaecology, University of Western Australia (UWA), Professor John Newnham said that after six years of research, the team has developed a new diagnostic test which is expected to identify women at risk of preterm birth and allow appropriate treatment.

“The GLU test looks for the presence of a number of specific bacteria in a self-collected vaginal swab sample,” Prof Newnham said.

“Each of the types of bacteria is common and is not indicative of an infection or abnormality in asymptomatic women, so ordinarily would not be treated with antibiotics.

“We have developed an algorithm based on the presence and/or absence of these bacteria, and in some cases, the amount of bacteria present, to attempt to predict a woman’s risk of preterm birth. If a woman is GLU positive, then she has an almost one in two chance of preterm birth.”

Director of WIRF’s Laboratories and Head of UWA’s School of Biomedical Sciences, Professor Jeff Keelan, said the clinical trial was being carried out in Perth to see if treating GLU positive women at 14-20 weeks’ gestation with antibiotics reduces the rate of spontaneous preterm birth.

“Antibiotics have been shown in other trials to be modestly effective in preventing preterm birth, but until now there has not been an effective way of identifying women who are truly at risk and would benefit from treatment.

“This study will help us confirm that the GLU test is a useful tool for predicting women who are at an increased risk of spontaneous preterm birth.”

Research Fellow, Dr Matt Payne said that although it has been clear for some time that approximately 25 per cent of preterm births are caused by bacterial infection, the diagnostic tests available to pregnant women to assess their level of risk were limited and generally showed poor specificity and/or sensitivity.

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“This study will allow us to see if we can reduce the risk of preterm birth in GLU positive women through a simple antibiotics and probiotics treatment program that could easily be implemented into standard antenatal obstetric practice,” Dr Payne said.

“If successful, this testing and treatment program would be a major breakthrough in pregnancy care and will likely be rolled out nationwide and potentially elsewhere in the world, benefiting thousands of women, their infants and their families.”

The NHMRC-funded Preterm Birth Prevention Study aims to enrol 6174 pregnant Western Australian women from Perth’s public maternity hospitals. The Study team includes: Professor John Newnham, Professor Jeff Keelan, Dr Matthew Payne and Professor Dorota Doherty.

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Media opportunity:

Professor John Newnham is available for interview and follow-up media comment. You can view his WIRF researcher profile here.

Professor Jeff Keelan is available for interview and follow-up media comment. You can view his WIRF researcher profile here.

Dr Matt Payne is available for interview and follow-up media comment. You can view his WIRF researcher profile here.

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Background:

The Women and Infants Research Foundation

The Women and Infants Research Foundation is one of Western Australia’s leading independent research institutions dedicated to improving the health of women, infants and reproductive health.

For more than 40 years our research and programs have directly contributed to a number of improved clinical practices and health outcomes in areas of critical need.