2022 WIRF Channel 7 Telethon funded projects

For more than 40 years the Channel 7 Telethon Trust has been our avid supporter of the Women & Infants Research Foundation (WIRF) and our critical research into priority areas of women's and infants' health.

WIRF is honoured to receive funding support for several critical research projects from the Channel 7 Telethon Trust. These studies focussed on improving the health and outcomes of WA neonates and infants from pregnancy to childhood.

Identification of women at high risk of preterm birth in early pregnancy: further steps towards lowering the rate of preterm birth

Being born too early, known medically as preterm birth, is the single greatest cause of death in young children and a major cause of lifetime disability. Early identification of pregnant women likely to benefit from current treatment strategies to avoid preterm birth may reduce the preterm birth burden in Western Australia.

This project aims to identify the factors predisposing women to increased risk of PTB, and to develop PTB risk prediction tools based on this modelling. Our research objectives are to:

- Develop risk prediction models based on maternal characteristics known before the first antenatal visit at an obstetric hospital to identify women at high risk of a preterm birth.

- Evaluate and modify these preterm birth risk prediction models for the population of pregnant Aboriginal and Torres Strait Islander women in Western Australia.

- Develop easy to use "preterm birth prevention risk prediction" tools, evaluate their performance on the PTB outcomes achieved by the Western Australian PTB Initiative, and develop recommendations for their best clinical use at the tertiary maternity hospital in WA.

Mother nature's probiotics – mining the milk microbiome for mastitis therapies.

Early-life nutrition is the foundation for long-term health and breast milk is optimal, however, many mothers wean early due to breast pain. Many of these women experience infections called mastitis. Given the bioactive nature of milk we aim to mine the milk microbiome for targeted therapies for mastitis including bacteriophages.

By addressing this major barrier to breastfeeding and understanding the key organisms involved in mastitis, we can develop new approaches for early detection and targeted therapeutic options to treat mastitis, such as phage therapy. This will result in increased breastfeeding duration leading to better infant and childhood health outcomes.

Prevention of preterm birth using a mid-pregnancy microbial diagnostic test and antibiotic/probiotic treatment regime

Bacterial infections are a leading cause of preterm birth. Recently, we developed a vaginal bacterial DNA assay, the GLU test, capable of predicting 45% of spontaneous preterm birth (sPTB) cases. This study will use this test to identify women at high risk and offer antimicrobial/probiotic treatments to prevent sPTB.

Bacterial infection accounts for at least 25% of all cases of PTB, especially spontaneous PTBs, with the vast majority of these originating in the vagina. This randomised clinical trial is employing a new diagnostic test to predict women at high risk of PTB based on their vaginal microbial DNA profile.

Those randomised to the intervention arm of the trial will receive a new antibiotic/probiotic treatment regimen to try and prevent this birth outcome. The study is powered to detect a reduction in PTB of up to 30%; based on WA Health data from 2019, this research has the potential to significantly reduce the number of preterm infants born in WA each year.

Development of a diagnostic test for fetal lung maturation to personalise antenatal steroid therapy

This project aims to improve the health of babies at risk of preterm delivery in Western Australia by developing a new, rapid diagnostic test for fetal lung maturation status that can be used to inform clinical decision making around antenatal steroid administration.

Antenatal steroids are given to >90% of women at risk of preterm delivery to mature the preterm lung. Steroids are potent drugs that modify development of the fetal lung, but also have a wide range of off-target effects.

Antenatal treatment efficacy is highly variable, and as many as 50% of all fetuses exposed to antenatal steroids do not derive any benefit - but do have an increased risk of harms including growth restriction abnormal brain development associated with childhood learning difficulties.

This study aims to optimise the application of antenatal steroid therapy. It will allow us to target this important treatment to those in need (i.e. with immature lungs) but spare the significant percentage of babies that would otherwise be needlessly exposed to potential harm. In doing so we will significantly improve the health outcomes for a significant percentage of WA children.