Researchers develop app to determine risk of preterm birth

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An improved mobile phone app will help identify women who need special treatments at the right time and reduce emotional and financial burden on families and the NHS.

A team of researchers from the Department of Women & Children's Health, King's College London, supported by Guy's and St Thomas' Charity, the National Institute for Health Research and Tommy's have created a user-friendly mobile phone application, QUiPP v2, that will allow doctors to quickly calculate a woman's individual risk of preterm birth. This will help them to make sure women who need special treatments get them at the right time, but it also helps them to reassure women when their risk is low.

When babies are born early, before 37 weeks of pregnancy, they are more likely to die, or have physical, developmental and emotional problems. This can result in a huge emotional and financial burden for families and substantial cost for the NHS and care services.

Some women are known to be more likely to have their babies early, and some have symptoms of labour too early in pregnancy. If identified, these women can be given extra monitoring and/or special treatments that aim to prevent early delivery and ensure the infants have the best chance of surviving without long-term problems.

QUiPP v2 calculates the risk based on a woman's individual risk factors, such as previous preterm birth, late miscarriage or symptoms, along with clinical test results that help to predict preterm birth (i.e. fetal fibronectin tests and cervical length measurements). The app then produces a simple individual % risk score.

In two papers, published in *Ultrasound in Obstetrics and Gynecology*, the authors show how they developed and tested the complicated algorithms (mathematical calculations) incorporated in the app which calculate the simple % risk.

"We are delighted to be able to share the findings of our work which shows that the QUiPP app is very reliable in predicting preterm birth in

women at risk. This should mean that women who need treatments are offered them appropriately, and also that doctors and women can be reassured when these treatments are not needed, which reduces the possibility of negative effects and unnecessary costs for the NHS," said lead author Dr. Jenny Carter, Senior Research Midwife, Department of Women & Children's Health at King's College London.

The authors have recently completed the EQUIPTT trial, where they evaluated whether QUiPP improves appropriate targeting of care. Results of this trial are expected later on this year.

Patient Safety Minister, Nadine Dorries said: "The joy a newborn brings can be cruelly contrasted alongside the fear when a baby is born too soon. Being able to identify mothers at risk of a pre-term birth as early as possible can help clinicians to intervene sooner, improve safety and ultimately save lives.

"We want the NHS to be the safest place in the world to give birth and the harnessing of promising digital innovations such as this is another stepping stone on this shared journey."

The team will continue to collect data (which will be used to update the algorithms in the future) through the ongoing UK wide PETRA study, and through the Preterm Clinical Network Database which is a global clinical registry of care given to women at risk of preterm birth.

Provided by King's College London