

Researchers gain insight into little-understood pregnancy complication

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University of Liverpool researchers, dedicated to improving the health of women and babies, have led one of the largest studies to understand the premature breaking of waters (PPROM) in pregnant women before 23 weeks' gestation. Their work provides significant insights to help support women, families, and health care professionals.

The study is [published](#) in the journal *BMJ Medicine*.

Babies develop inside a bag of fluid called the amniotic sac. PPRM (preterm prelabor rupture of membranes) is a [pregnancy](#) complication where the amniotic sac membranes break too early. Most women who have preterm prelabor rupture of membranes (PPROM) occurring after 24 weeks of pregnancy have a good outlook, with care underpinned by national guidelines.

However, for the one in 1,000 women who experience early PPRM between 16 and 23 weeks of pregnancy, the current initiatives to improve pregnancy outcomes must be improved. The outlook for babies after PPRM under 23 weeks' gestation is often judged to be so poor that termination is offered, and in many cases advised. However, very little evidence exists about the optimal management of early PPRM from which to formulate guidelines.

In 2010, during her first pregnancy, Ciara Curran experienced the uncertainty and distress that the lack of knowledge about this condition causes when her waters broke at 20 weeks of pregnancy. A week after losing her waters, Curran developed sepsis and went on to give birth to Sinead, who was stillborn.

Subsequently, Curran established Little Heartbeats, a support and advocacy group for women and families. Curran aims to provide women with accurate, evidence-based information to empower them by understanding PPRM and its risks, enabling them to ask informed questions about their care.

Curran approached Dr. Angharad Care and Dr. Laura Goodfellow, Department of Women's & Children's Health at the University of Liverpool to discuss ways to better understand the consequences of PPRM before 23 weeks of pregnancy. They accepted the challenge

and worked with Little Heartbeats, and the UK Obstetric Surveillance System (UKOSS), University of Oxford, to conduct a study of more than 300 women to better understand outcomes of PPROM before 23 weeks' of pregnancy.

Dr. Goodfellow, one of the lead investigators of the study said, "Sadly, a difficult situation is often made even worse for women with early PPROM because health care staff lack guidance about how to manage their care. Conflicting information adds to psychological distress for women and families facing early PPROM. We cannot understate the gravitas of the decision to end a wanted pregnancy for women and their families. In this vulnerable position, they rely heavily on doctors' advice and require evidence to help support their decision-making. We were passionate about conducting this research to ensure women have access to the best information."

The study shows that neonatal survival, although still quite low, is now better than previously understood. Two-thirds of women in the UK now continue their pregnancies, of whom 44% have babies born alive and 26% take home surviving babies. Furthermore, over half of the surviving babies do not appear to have severe morbidity at discharge. The study also shows there is a risk of maternal death secondary to sepsis in women with early PPROM.

Importantly, 10% of women with early PPROM who opted for termination of pregnancy after they had first seen a doctor still developed sepsis, compared with 13% of women who initially chose to continue their pregnancy—and this is a reminder that infection can be the cause rather than the consequence of early PPROM. Therefore, immediate terminations might not prevent all maternal deaths, and these patients should be recognized as high-risk with early involvement of senior members of staff in their care.

Dr. Goodfellow continued, "PPROM under 23 weeks' gestation is too uncommon for one clinician to gain adequate experience from [clinical practice](#) alone, or to facilitate interventional research at a small number of centers. But it is common enough that at the UK population level, it affects many women. Our research provides data to allow more unified counseling about the outlook for women and babies after early PPRM and informed decisions about whether to continue a pregnancy.

"Now that we understand the level of risk attributed to this pathology, we need expert consensus, evidence-based research, clinical guidelines, and a reorganization of services to give the best care for these women and babies. We also need to understand how to best communicate these results, which are quite complex, with women and families. This includes understanding what information women facing PPRM want to know, and giving [health care professionals](#) the tools to provide that."

Curran explains how this work can positively impact women with PPRM at less than 23 weeks of pregnancy both now and in the future: "I see this research as crucial for advancing understanding of PPRM, supporting the development of national guidelines, patient resources and to secure funding for more research. Raising awareness about PPRM is essential to combating stigma and improving outcomes for affected pregnancies, to help save lives and understand how we can make it safe for women regardless of their informed choices, and to prevent baby loss.

"I promised my baby daughter, Sinead, she would change things to improve care for women, in her memory, and it feels that after 14 years it is starting to become a reality."

More information: Laura Goodfellow et al, Preterm prelabour rupture of membranes before 23 weeks' gestation: prospective observational study, *BMJ Medicine* (2024). [DOI: 10.1136/bmjmed-2023-000729](https://doi.org/10.1136/bmjmed-2023-000729)

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