

## **The unintended harm of improving the detection of fetal growth restriction to reduce stillbirth.**

**Introduction:** Fetal growth restriction (FGR) is a major cause of stillbirth. More than half of growth restricted babies are not detected before birth. If detected, the risk of stillbirth is half that of the undetected fetus. Improving the detection of FGR is therefore central to reducing the stillbirth rate. In Victoria, Australia, one strategy to improve detection has been to publicly report an annual statewide performance indicator since 2012 that measures individual hospital rates of their detection of severe FGR (birthweight <3<sup>rd</sup> centile). We assessed the impact of publicly reporting this performance indicator, including improvements in care and potential unintended harm.

**Methods:** We retrospectively analysed 1,231,415 singleton births in Victoria, Australia from 2000 to 2017 using the Victorian Perinatal Data Collection. We performed an interrupted time series analysis to assess the impact of publicly reporting the FGR performance indicator on the detection of FGR and on perinatal mortality and morbidity. To evaluate harm, we calculated the actual birthweight centiles for babies iatrogenically delivered for the indication of suspected FGR before 40 weeks', as well as their rate of admission to the neonatal intensive care unit (NICU). Descriptive statistics were used and chi-square test for linear trend.

**Results:** Public reporting of a statewide FGR performance indicator was associated with a four-fold reduction in the rate per quarter of severe FGR undelivered by 40 weeks', from 0.13% to 0.51% ( $P < 0.001$ ), and a 24% decrease in the rate of stillbirth among severe FGR babies from 13.6 per 1,000 births to 10.3 per 1,000 births ( $P = 0.01$ ). However, the number of pregnancies iatrogenically delivered for suspected FGR before 40 weeks' increased from 741 pregnancies in 2000 to 2996 pregnancies in 2017. Of these, the percentage that had an actual birthweight  $\geq 10^{\text{th}}$  centile increased from 41.4% ( $n=307$ ) in 2000 to 53.3% ( $n=1597$ ) in 2017 ( $P < 0.001$ ). The rate of NICU admission for these babies increased from 0.8% to 2.0% over this same time period ( $P < 0.001$ ).

**Conclusion:** Severe FGR detection has improved following public reporting of an FGR performance indicator in Victoria. The rate of stillbirth among severe FGR pregnancies has also fallen. However, these improvements have been accompanied with increasing iatrogenic birth and associated morbidity in normally grown pregnancies. Approaches to improve the specificity of interventions for FGR are needed.