

# Maternal and fetal outcomes following induction of labour for suspected large-for-gestational age or fetal macrosomia

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## INTRODUCTION

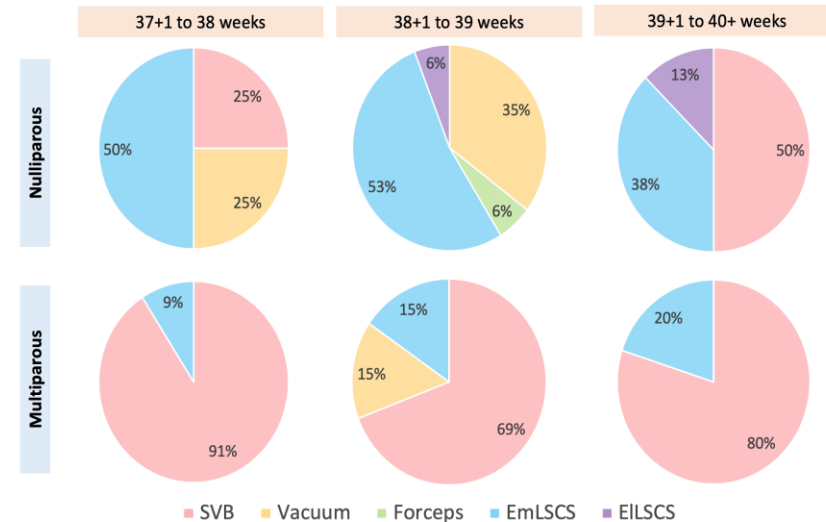
Women with suspected large-for-gestational age (LGA) fetuses or fetal macrosomia are at risk of labour and shoulder dystocia, operative birth, caesarean section, and obstetric anal sphincter injuries (OASIS)<sup>1</sup>. The baby is also at increased risk of birth trauma. The purpose of induction of labour (IOL) in these cases is to reduce the risk of maternal and perinatal morbidity<sup>1,2</sup>. The objective of this clinical audit is to determine the outcomes of pregnancies that underwent IOL for suspected LGA fetus or fetal macrosomia based on ultrasound estimation at the Townsville Hospital in 2018. In addition, this audit aims to assess the accuracy of ultrasound in predicting the actual birth weight by comparing it to the reported estimated fetal weight (EFW)<sup>3,4</sup>.

## METHODOLOGY

68 cases were identified by reviewing the induction booking records, excluding any cases with known gestational or pre-existing diabetes. Projected EFWs at the gestational age of delivery were generated using the Hadlock growth chart based on third trimester ultrasounds scan results<sup>4</sup>.

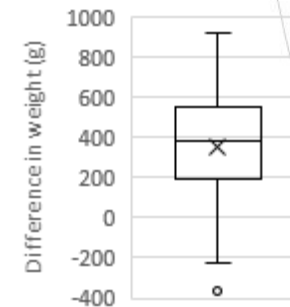
## RESULTS & DISCUSSION

The overall rate of caesarean section was 32%. The rate of caesarean section in nulliparous women remained consistent (50-60%) regardless of gestational age at time of delivery, while the caesarean section rates in multiparous women decreased with induction of labour at an earlier gestation.



**Figure 1.** Mode of delivery following induction of labour for suspected LGA fetus or fetal macrosomia in nulliparous and multiparous women, comparing outcomes depending on gestational age at time of delivery. SVB – Spontaneous Vaginal Birth; EmLSCS – Emergency Lower Segment Caesarean Section; EILSCS – Elective Lower Segment Caesarean Section.

Of the 68 cases, 43% resulted in postpartum haemorrhage (PPH). The overall incidence of OASIS in women whom delivered vaginally was 11%, and up to 23% in nulliparous women. Compared to published national rates on all births across Australia, the rate of PPH and OASIS in this study was 3-times and 4-times higher respectively<sup>5,6</sup>. Findings of this audit recapitulated that fetal macrosomia is associated with an increased rates of caesarean section in nulliparous women, PPH, and OASIS. Nevertheless, maternal outcomes following an earlier IOL may be more favourable.



**Figure 2.** Box-and-Whisker Plot showing the difference in projected estimated fetal weight and actual birth weight (positive indicates overestimation,  $p < 0.05$ ). The perimeter of the box marks the first and third quartile, with the vertical line through the box at the median. The whiskers on either side of the box mark the minimum and maximum values. The cross (x) denotes the mean, and the circle (o) indicates an outlier, which is more than 1.5 times the interquartile range, assuming a normal distribution.

Ultrasound scan tends to overestimate the birth weight by 7-10% ( $p < 0.05$ ), which may result in overdiagnosis of suspected LGA fetus or fetal macrosomia and unnecessary interventions. This is a reminder for clinicians to interpret investigation findings with caution and to correlate with the clinical scenario.

**References:** <sup>1</sup>Boulvain M, Irlon O, Dowswell T, Thornton JG. Induction of labour at or near term for suspected fetal macrosomia. Cochrane Database Syst Rev 2016(5):Cd000938. <sup>2</sup>Queensland Clinical Guidelines. Induction of Labour. Statewide Maternity and Neonatal Clinical Network (Queensland); 2017. <sup>3</sup>Papageorgiou AT, Ohuma EO, Gravett MG, Hirst J, da Silveira MF, Lambert A, et al. International standards for symphysis-fundal height based on serial measurements from the Fetal Growth Longitudinal Study of the INTERGROWTH-21st Project: prospective cohort study in eight countries. *Bmj* 2016;355:i5662. <sup>4</sup>Milner J, Arezina J. The accuracy of ultrasound estimation of fetal weight in comparison to birth weight: A systematic review. *Ultrasound* 2018;26(1):32-41. <sup>5</sup>Begley CM, Gyte GM, Devane D, McGuire W, Weeks A. Active versus expectant management for women in the third stage of labour. Cochrane Database Syst Rev 2011(11):Cd007412. <sup>6</sup>Australia Institute of Health and Welfare. National Core Maternity Indicators 2017: summary report. Canberra: AIHW; 2019.