

# A Clinical Audit of Fetal Macrosomia and Antenatal Ultrasound Use at a Regional Hospital

Dr Katie Blunt<sup>1</sup>, Dr Matilda Maynard<sup>1</sup>, Dr Nicola Yuen<sup>1</sup>

<sup>1</sup> Bendigo Health



## Background

Fetal macrosomia is associated with increased risk of both maternal and neonatal morbidity<sup>1,2</sup>. Fetal weight predictions can impact both timing of delivery and counselling about and readiness for potential sequelae. Whilst ultrasound is commonly used to predict fetal macrosomia, its accuracy is poor. A meta-analysis of 25 studies (13285 participants) demonstrated a sensitivity of 56% for predicting birth weight more than 4000g<sup>3</sup>, and elsewhere in the literature it is suggested that this falls to somewhere between 33 and 44%<sup>4</sup> if birth weight is more than 4500g. This audit was conducted in the context of the recent publication of the RANZCOG “Diagnosis and Management of Suspected Fetal Macrosomia” guideline.



## Aim

To audit the sensitivity of antenatal growth ultrasounds in predicting fetal macrosomia and to review rates of macrosomia-associated morbidity in a regional obstetric department.



## Methods

This was a retrospective audit of women who delivered a macrosomic baby from January 1st to December 31st 2021 at a regional level IV obstetric department. For the purposes of this audit, macrosomia was defined as a birth weight of greater than 4500g. Cases were identified via the Birthing Outcomes System and information collected about mode of delivery, induction status, blood loss at delivery, obstetric anal sphincter injuries, and shoulder dystocia. Data about most recent growth ultrasound was collected from the imaging database.



## Results

Of 1889 babies born, 26 weighed greater than 4500g at birth. 13 of these patients had at least one growth ultrasound in pregnancy. 69% of growth ultrasounds accurately predicted a macrosomic baby. Patients with macrosomic babies who had at least one growth ultrasound were less likely to have an emergency caesarean section and equally likely to have a post-partum haemorrhage or a shoulder dystocia compared to those who had not. Rates of primary post-partum haemorrhage (58%), obstetric anal sphincter injuries (8.3%), and shoulder dystocias (7.7%) were significantly higher with vaginally-born macrosomic babies compared to the entire cohort.



## Discussion

This audit suggests that the sensitivity of ultrasound in predicting fetal macrosomia in this regional health service is similar to, or better than, rates quoted in the literature. Ultrasound can be used as a tool in Shared Decision Making with women with suspected fetal macrosomia, but its limitations must be acknowledged. The audit also highlights the increased rates of morbidity associated with fetal macrosomia and reminds clinicians to consider this when individualising care.

## References

1. Zhang X, Decker A, Platt RW, Kramer MS. How big is too big? The perinatal consequences of fetal macrosomia. *American journal of obstetrics and gynecology*. 2008;198(5):517 e1-6.
2. Orskou J, Henriksen TB, Kesmodel U, Secher NJ. Maternal characteristics and lifestyle factors and the risk of delivering high birth weight infants. *Obstetrics and gynecology*. 2003;102(1):115-20.
3. Robinson R, Walker KF, White VA, Bugg GJ, Snell KIE, Jones NW. The test accuracy of antenatal ultrasound definitions of fetal macrosomia to predict birth injury: A systematic review. *European Journal of Obstetrics and Gynecology and Reproductive Biology*. 2020;246:79-85.
4. Malin GL, Bugg GJ, Takwoingi Y, Thornton JG, Jones NW. Antenatal magnetic resonance imaging versus ultrasound for predicting neonatal macrosomia: a systematic review and meta-analysis. *BJOG : an international journal of obstetrics and gynaecology*. 2016;123(1):77-88.