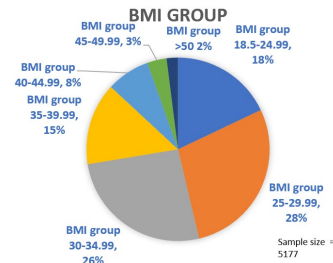


# Rates of obstetric complications in patients with a BMI over 50 – An audit

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Outcome	BMI						
	18.5-24.99	25-29.99	30-34.99	35-39.99	40-44.99	45-49.99	>50
Spontaneous Labour	55.8%	48.6%	42.1%	32.2%	23.2%	19.8%	19.2%
SVD	62.80%	62.40%	55.40%	51.40%	51.40%	46.90%	37.50%
Emergency CS	18.10%	17.90%	23.20%	23.80%	25.40%	26.00%	34.60%
Elective CS	12.30%	12.30%	14.70%	19.40%	20.20%	24.30%	26.90%
VBAC attempted successful	2.80%	2.20%	2.90%	2.00%	1.00%	1.10%	1.00%
VBAC attempted unsuccessful	1.10%	1.00%	1.30%	0.50%	0.50%	1.10%	0.00%
Reason for delivery type - Failure to progress	3.80%	4.20%	4.70%	6.00%	7.80%	8.50%	10.60%
Reason for delivery type - Fetal distress	6.60%	6.10%	8.00%	7.10%	5.80%	6.80%	8.70%

## Introduction:

Obesity is an important, increasingly prevalent public health issue with major implications on the general public and health services and is a leading cause of death and disability in Australia [1].

- 64% of Australian women are overweight or obese in regional areas compared to 53% in urban areas[2].
- In 2019 47.5% of mothers were overweight or obese [3].
- 39% of mothers who had >4 children were obese, compared to 21% of mothers with only 1 child [3] – **highlights the importance of engagement with patients in inter-pregnancy and postpartum periods to encourage health modification.**

## Literature:

Previous studies have identified an association between adverse obstetric and neonatal outcomes including: emergency CS, PPH, Shoulder dystocia, LGA, GDM, Pre-eclampsia, amongst other complications [4-10].

Of mothers with overweight or obese BMI, the literature reports: A 7% increase in rate of CS for ever one unit increase in maternal BMI (south Australian study), Increase rate of PPH by 70%. The literature is variable regarding rates of small for gestational age babies (SGA) and Obstetric anal sphincter injuries (OASI) with some, but not all, reporting high BMI as protective [4,8,9].

**Reason for audit:** There is paucity of literature specific to patients with a BMI > 50 and this audit was completed out of interest. A study by Cedergren et al with 972 806 pregnancies, had 1.6% with BMI 35-40 and 0.6% BMI >40 [5] *Dodd et al* had 4% in the BMI > 40 group and no specific group of patients in the BMI > 50 group. *Sebire et al* had grouped all patients with BMI > 30 in a single group as 'very obese' [9].

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**Aim:** This audit explores the obstetric outcomes amongst different BMI categories in a regional Australian Hospital.

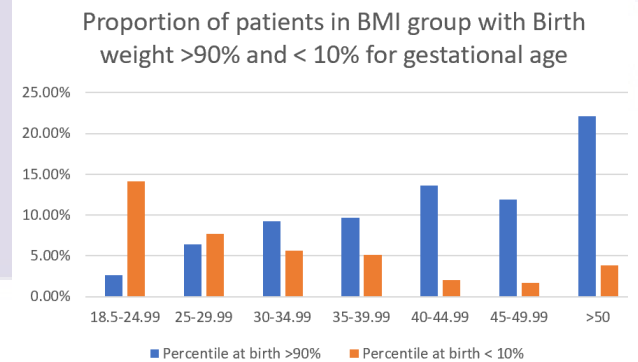
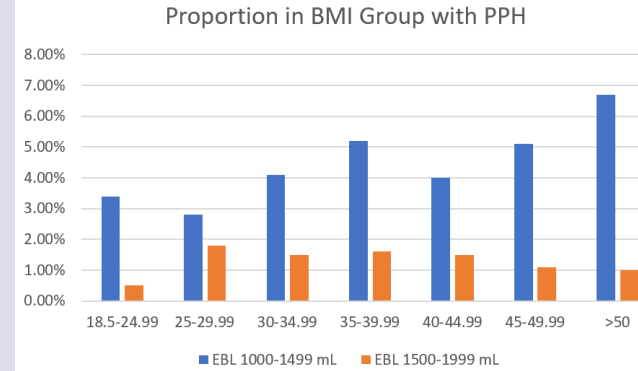
## Method:

- Data was collected from the local perinatal database between August 2017 and August 2021 in a local hospital, single centre only. Local birth rate around 2600 births/year. Information is manually put into the database at time of delivery staff involved.
- Patients with BMI < 18.5 were excluded
- Patients were grouped into the BMI categories by increments of 5
- Data analysis was completed using excel and SPSS.
- A basic statistical analysis has been completed for this audit looking at proportion/rate only and does not consider the impact of contributing co-variants which may affect results and statistical significance.

**Results:** Mean BMI = 31.3, Median = 30, Total sample size = 5177. 2% BMI > 50, 11% BMI > 40, 18% Normal BMI

Comparing normal BMI to those with BMI over 50:

- Spontaneous labour decreased from 55.8% to 19.2%
- Emergency Caesarean section increased from 18.1% to 34.6%.
- PPH appeared significantly increased by BMI. 3.4 % of normal BMI group had a PPH of 1-1.5L compared to 6.7% in the BMI >50 group.
- 0.5% of people with a Normal BMI had a PPH of 1.5-2 L compared to 1.1% of those with a BMI 45-49.9 and 1% of those with a BMI > 50.
- Birthweight (percentile for gestational age) > 90<sup>th</sup> percentile was significantly increased with increasing BMI and BW < 10<sup>th</sup> percentile appeared decreased.
- There was not a significant trend noted in the rate of 3<sup>rd</sup> and 4<sup>th</sup> degree tear, however the total sample size of this was small (96 total), as with shoulder dystocia (78 total) and stillbirth (total 29)



## Discussion:

- These trends are similar to those compared in previous studies with increased rates of PPH, LGA babies, emergency CS and reduced rates of SVD. This audit noticed a decrease in infants with birth weight <10% up to the BMI category 45-49.99 and then a slight increase in the BMI > 50 group. Rates of 3<sup>rd</sup> and 4<sup>th</sup> degree tears did not show a significant trend as with

## Limitations:

- Limited sample size (n=104) of patients in the BMI > 50 category.
- However, relatively large sample size (n=488) in group BMI >40, results in this group would likely be more reliable than in the BMI > 50 group.
- Patients were excluded with BMI < 18.5. Comparison in this group would also be useful.
- Data relies on the accuracy of the staff inputting the data.
- Unable to confidently determine at what gestation the BMI is calculated at, typically BMI recorded is at time of delivery.
- Patients suspected to have a preterm birth are transferred to a tertiary centre which will skew data regarding pre-term birth rates.
- Patients with BMI over 60 are referred to a tertiary centre so this group will be limited.
- Basic statistical analysis, no log regression completed or analysis of co-variants (medical comorbidities, age, parity, gestation) which are important to consider and would likely affect the results - analysis of this could be considered for a future project.