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## Characteristics of overweight and obese mothers in Queensland, 2008

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Maternal body mass index (BMI) has been identified as a risk factor for pregnancy and birth complications. Available evidence suggests that pregnancy complications and adverse pregnancy outcomes are more common in overweight and obese mothers. For example, higher pre-pregnancy BMI has been linked to a greater risk of gestational diabetes, preeclampsia, and caesarean delivery, as well as the delivery of a macrosomic infant<sup>1</sup>. Until now, there has been little information about the effect of BMI on pregnancy outcomes for mothers and babies in Queensland.

Self-reported weight at the time of conception and self-reported or measured height were used to calculate BMI. These were first introduced into the Queensland Perinatal Data Collection (QPDC) in July 2007<sup>2</sup>, and the 2008 calendar year represents the first full year of data. The data for the 2008 calendar year were extracted from the QPDC to evaluate BMI at conception and the characteristics of overweight and obese mothers in Queensland. Categories of BMI<sup>3</sup> were defined as underweight ( $\leq 18$  kg/m<sup>2</sup>), normal (19-24 kg/m<sup>2</sup>), overweight (25-29 kg/m<sup>2</sup>), obese class I-II (30-39 kg/m<sup>2</sup>) and obese class III ( $\geq 40$  kg/m<sup>2</sup>). Four characteristics were assessed in relation to BMI: maternal age (15-24 or 25-44), patient chargeable status (public or private), Indigenous status (Indigenous or non-Indigenous), and method of delivery (vaginal or caesarean section). Women who were not aged between 15 and 44 or whose BMI was missing were excluded from the analysis.

In 2008, 50.5% of mothers were classified as overweight or obese at the time of conception, with 22.1% in the obese categories. The single largest category was the normal group, with 45.3% of women having a BMI between 19 and 24 kg/m<sup>2</sup>.

There were small differences in BMI by age in the underweight and normal categories (Figure 1). A higher proportion of mothers aged 15-24 were in the underweight category (6.1% versus 3.7%) and a slightly lower proportion were in the normal BMI category (43.1% versus 45.9%) when compared with those aged 25-44. The proportions of mothers in the 15-24 and 25-44 age groups who were overweight or obese were similar.

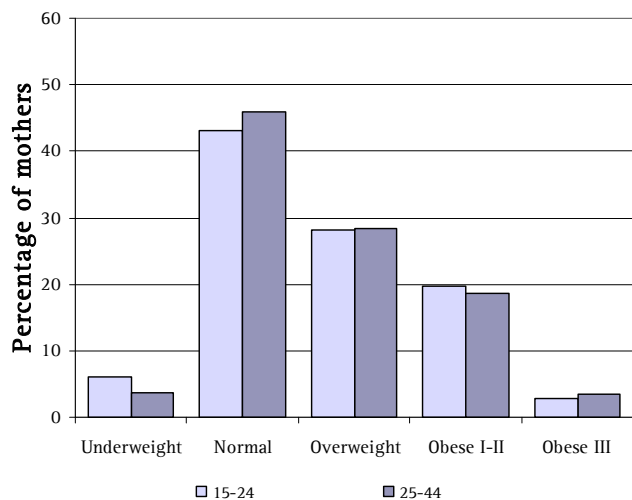
There was a large difference in BMI by patient chargeable status in the normal category (Figure 2). Of those women who were private patients, 53.7% had BMI values in the normal category, compared with 40.8% of public patients. A higher proportion of public patients were in obese class I-II (21.6% versus 13.7%) and obese class III (4.1% versus 1.7%) compared with those women who were private patients.

BMI varied by Indigenous status in 2008 (Figure 3). Higher proportions of Indigenous mothers were classified with obese values of BMI, while more non-Indigenous women had a BMI classified as normal (45.8% compared with 36.0%). Additionally, a slightly higher proportion of Indigenous women were in the underweight category compared with non-Indigenous women (5.3% and 4.2% respectively).

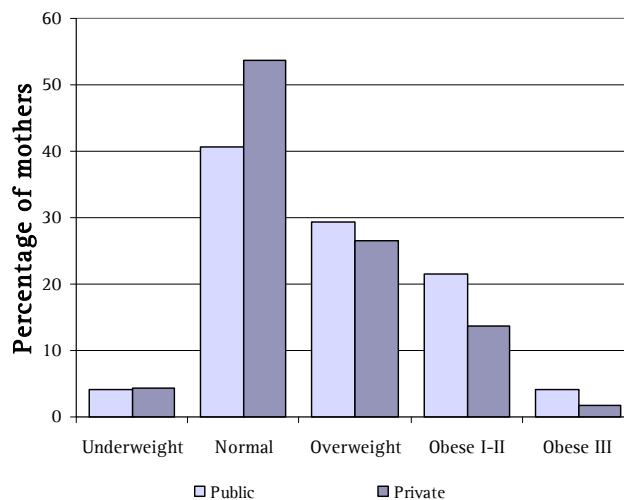
There was an association between maternal BMI and type of delivery in 2008 (Figure 4). Women who delivered vaginally were more likely to have a BMI in the underweight and normal categories, while women who delivered via caesarean section were more likely to have a BMI falling in the obese categories. There was no difference in delivery method in the overweight category.

In the QPDC for 2008, the single largest BMI category was the normal range; however, half of mothers fell into the overweight and obese categories combined. Mothers who were overweight or obese at the time of conception were more likely to have public chargeable status, be Indigenous and deliver via caesarean section.

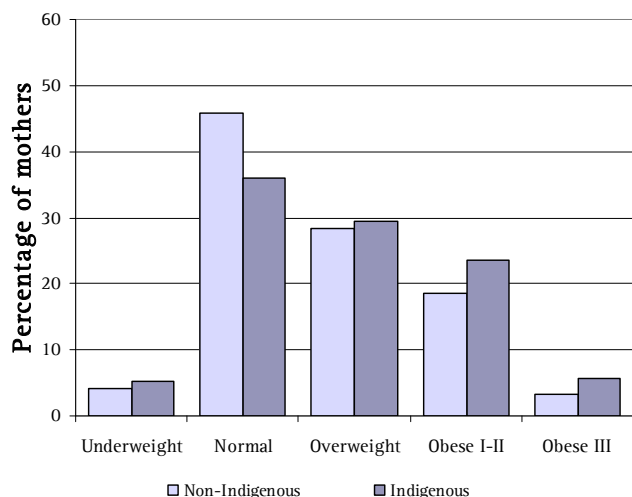
**Figure 1. Proportion of mothers in each BMI category by maternal age in years (Queensland, 2008)**



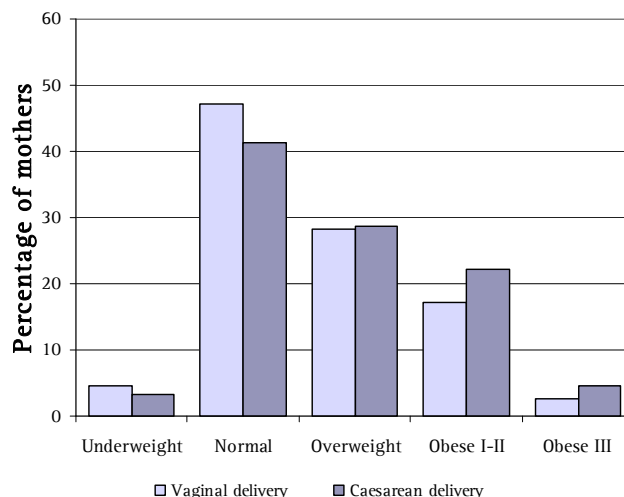
**Figure 2. Proportion of mothers in each BMI category by patient chargeable status (Queensland, 2008)**



**Figure 3. Proportion of mothers in each BMI category by Indigenous status (Queensland, 2008)**



**Figure 4. Proportion of mothers in each BMI category by method of delivery (Queensland, 2008)**



Source: Queensland Perinatal Data Collection, Queensland Health (extracted August 2009)

**References**

1. Baeten JM, Bukusi EA, Lambe, M. Pregnancy complications and outcomes among overweight and obese nulliparous women. *Am J Pub Health*, 2001; 91: 436-440
2. Howell, S. Technical notes on compliance with the maternal height and weight measures (at the time of conception) included in the Queensland Perinatal Data Collection (QPDC) from July 2007. Technical Report #4, July 2009. Queensland Health. [http://www.health.qld.gov.au/hic/tech\\_report/techreport\\_4.pdf](http://www.health.qld.gov.au/hic/tech_report/techreport_4.pdf)
3. Queensland Health. The Health of Queenslanders 2008: Prevention of Chronic Disease. Second Report of the Chief Health Officer Queensland, Queensland Health. Brisbane; 2008