Closing the Gap in Low Birthweight Births between Indigenous and Non-Indigenous Mothers, Queensland

Noor Khalidi, Karen McGill, Haes Houweling, Kathryn Arnett, & Anna Sheahan,
Health Statistics Centre, Queensland Health

Introduction

Closing the gap in health outcomes between Indigenous[1] and non-Indigenous children is considered a priority area of action by the Council of Australian Governments (COAG). As part of the COAG agenda, the Commonwealth, States and Territories agreed to the target of halving the gap in child mortality within 10 years (COAG Reform Council, 2010).

In this paper we compare the birthweight of singleton babies born to Indigenous and non-Indigenous mothers in Queensland. We also examine how smoking and antenatal care can influence the incidence of low birthweight babies.

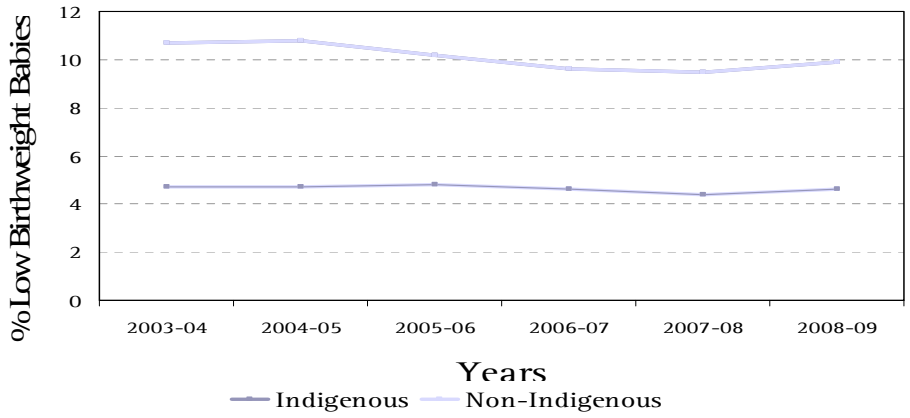
Low birthweight

Low birthweight (less than 2,500 grams) has been identified as an important factor impacting on child survival and can affect perinatal mortality, infant mortality, and development of chronic diseases in later life. Preterm birth (<37 weeks) or restricted foetal growth can result in a low birthweight birth. Accordingly, a key performance indicator measuring the incidence of low birthweight of live born babies has been adopted nationally to monitor the impact of interventions and to improve the chances of child survival.

A number of factors may affect the birthweight of a new born baby which include mother's weight and age, education, parity, nutritional status, smoking habits and illness during pregnancy, along with her socioeconomic status and use of health services.

Between July 2003 and June 2009, there were 327,730 births (54,600 per year) recorded in the Queensland Perinatal Data Collection. Of these, 18,041 (3,000 per year or 5.5 %) were born to Indigenous mothers. Figure 1 displays the smoothed level and trend in the percentage of low birthweight babies born to Indigenous and non-Indigenous mothers from 2003-04 to 2008-09.

Figure 1: Proportion of Low Birthweight babies born to Indigenous and non Indigenous mothers, Queensland, 2003-04 to 2008-09



Source: Smoothed annual trend based on data from Perinatal Data Collection, Queensland Health.

During this period, on average 10.1% of babies born to Indigenous mothers had a low birthweight compared to only 4.6% born to non-Indigenous mothers, a rate ratio of 2.2. The gap in low birthweight outcomes between the babies born to the Indigenous and non-Indigenous mothers has not been reduced significantly since 2003.

[1] The word 'Indigenous' is used in this paper as a short expression denoting a person of Aboriginal and or Torres Strait Islander origin.

Smoking

One of the factors associated with low birthweight births is the smoking status of the mothers during pregnancy. During 2006-08, on average 66.8% of Indigenous mothers reported smoking sometime during pregnancy, which is 2.4 times that of the non-Indigenous mothers. However, 75.5% of Indigenous mothers who had full 37 weeks of gestation and delivered singleton low birthweight babies reported smoking (Figures 2 and 3). This figure for the non-Indigenous mothers is 35.4% with an Indigenous to non-Indigenous rate ratio of 2.1.

Analysis show that Indigenous women who smoke during pregnancy have almost three times the rate of low birthweight babies than Indigenous women who do not smoke during pregnancy.

Figure 2: Proportion of LBW singleton babies born to non-Indigenous mothers by mother's smoking status during pregnancy, & gestation period, Qld 2006-08

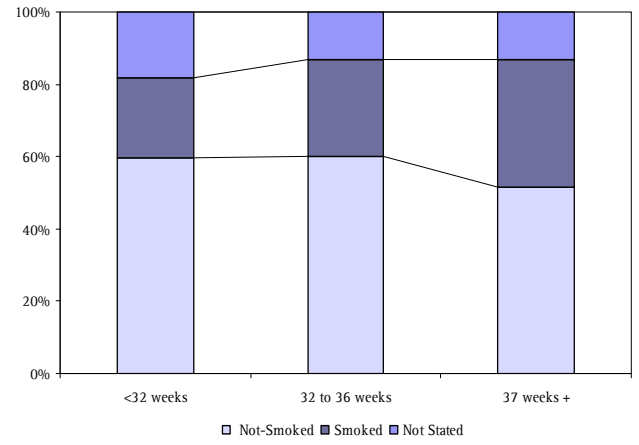
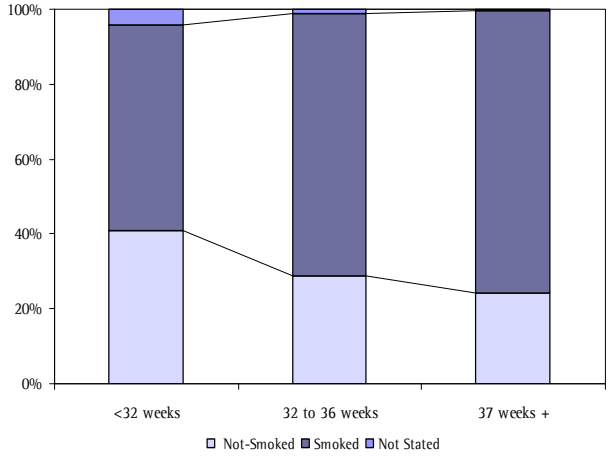


Figure 3: Proportion of LBW babies born to Indigenous mothers by mother's smoking Status during pregnancy, & gestation period, Qld 2006-08



The pattern is very similar for the non-Indigenous women who smoke during pregnancy.

Table 1: Proportion of Low birthweight singleton babies by maternal smoking status, Indigenous and non-Indigenous mothers with 37+ weeks of gestation, Queensland (2006 – 2008)

	2006	2007	2008	Grand Total
Smoked				
Indigenous	5.6%	5.9%	5.3%	5.6%
Non Indigenous	3.8%	3.0%	3.5%	3.4%
Not Smoked				
Indigenous	1.9%	2.2%	1.8%	1.9%
Non Indigenous	1.1%	1.1%	1.1%	1.1%
Odds Ratios of Smoking and Having a LBW Baby				
Indigenous	2.944	2.693	2.960	2.958
Non Indigenous	3.518	2.865	3.227	3.212

Source: Perinatal Data Collection, Queensland Health.

The odds of smoking during pregnancy and having a low birthweight birth show that smoker status during pregnancy clearly has a stronger influence on birthweight than Indigenous status.

Antenatal Care

Maternal use of antenatal care services is an important factor influencing babies' birthweight. As shown in Table 2, the higher the number of antenatal visits a woman makes during her pregnancy, the less likely it is that the baby will be born with a low birthweight.

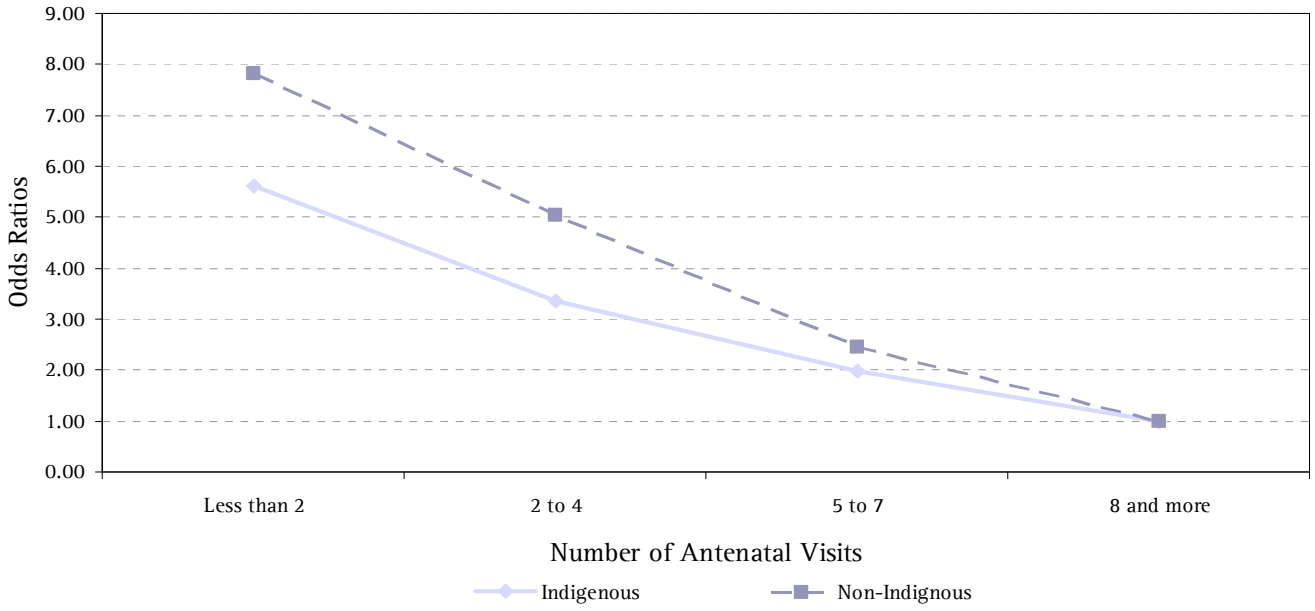
Table 2: Proportion of low birthweight live singleton births to Indigenous and non-Indigenous mothers with 37 weeks or more gestation and number of antenatal visits, Queensland, 2003-05, 2005-07, 2007-09

Indigenous Status	Number of Antenatal visits	2003-05	2005-07	2007-09
Indigenous	Less than 2	8.0%	5.8%	7.9%
	2 to 4	5.1%	6.4%	5.5%
	5 to 7	3.9%	4.5%	3.6%
	8 or more	3.0%	2.6%	2.9%
	Total*	196	208	220
Non-Indigenous	Less than 2	5.7%	5.6%	4.0%
	2 to 4	2.5%	2.6%	3.2%
	5 to 7	2.1%	2.0%	1.8%
	8 or more	1.5%	1.5%	1.5%
	Total*	1494	1606	1701

* Total includes "Not Stated" antenatal visits. Source: Perinatal Data Collection, Queensland Health (extracted March 23, 2011)

It was further found that when compared with 8 or more antenatal visits, the odds ratio of low birthweight were much higher in all other categories, including 5-7 visits. Figure 4, shows an analysis of the association between the incidence of low birthweight (<2500g) and the number of antenatal visits for Indigenous and non-Indigenous mothers.

Figure 4: Odds ratios of low birthweight births by number of mother antenatal visits compared to 8+ visits, Queensland, 2003-09



This result suggests that as the antenatal visits by mothers increase, the less likely they are to deliver a low birthweight baby, no matter the Indigenous status of the mother. There seem to be added benefits beyond 5 antenatal visits. However, due to the current grouping of antenatal visits, this data can not ascertain the optimal number of visits associated with improved perinatal outcomes. Nonetheless, a study in the Northern Territory found that 6 or more antenatal visits were associated with significantly decreased risk of perinatal mortality (Gray, A. Khalidi, N. 1990). When sufficient data become available, further analysis can be undertaken to assess the optimal number of antenatal visits required to reduce the risk of adverse perinatal outcomes for high risk women in Queensland.

Conclusions

Data from the Queensland Perinatal Data Collection for the period 2003 to 2009 indicate that Indigenous women gave birth to low birthweight babies at over twice the rate of non-Indigenous mothers. Although this is due to multiple factors, two contributing factors were examined: smoking and antenatal care. The impact of smoking during pregnancy on the increased risk of having a low birthweight baby is evident from the data we examined. Table 2 highlighted how smaller number of antenatal visits correlate with babies being born with a low birthweight. There is a need to intensify the focus on reducing smoking during pregnancy and also increase the number of visits to antenatal services by mothers, which in turn will have positive impacts on the birthweight. It is also plausible, that if the frequency of antenatal visits increases, the prevalence of maternal smoking during pregnancy may reduce, due to the health education and support provided with antenatal care, which in turn may reduce the rate of low birthweight babies.

References

Australian Bureau of Statistics, 2009, Deaths - Australia. Cat no. 3302.0. ABS, Canberra.

COAG Reform Council, 2010, National Indigenous Reform Agreement: Baseline performance report for 2008-09, COAG Reform Council, Sydney.

Gray, A., Khalidi, N., A comparative analysis of Aboriginal and non-Aboriginal perinatal outcomes in the Northern Territory. Chapter 6, A matter of life and death: contemporary aboriginal mortality. Edited by Gray, A. (1990).

Kennedy, B., Cornes, S., Martin, S., Wills, R. and Breckell, C., Measuring Indigenous Perinatal outcomes – should we use the Indigenous status of the mother, father or baby? Technical Report #2, Health Statistics Centre, Queensland Health, March 2009.

Khalidi, N., Closing the Gap in Indigenous Child Mortality in Queensland, Statbite #??, Health Statistics Centre, Queensland Health, February 2012

Johnston, T., Wills, R., Coory, M., 2008, Indigenous Trends in population based indicators of perinatal health in Queensland, Statbite #5, Health Statistics Centre, Queensland Health.

United Nations Children's Fund and World Health Organization, 2004, Low Birthweight: Country, regional and global estimates. UNICEF, New York.