What defines *'Low birth weight'* in Pacific infants born in New Zealand?

Gerhard Sundborn[1,2§], Philip J Schluter[1,3,4], Meia Schmidt-Uili[5], Janis Paterson[1]

[1] AUT University, School of Public Health and Psychosocial Studies, Auckland, New Zealand
[2] University of Auckland, School of Population Health, Auckland New Zealand
[3] University of Otago, Department of Public Health and General Practice, Christchurch, New Zealand
[4] The University of Queensland, School of Nursing and Midwifery, Herston QLD 4029, Australia
[5] Waitemata DHB Paediatrics & Newborn Services, Auckland, New Zealand

§ ***Corresponding author:*** Dr Gerhard Sundborn, Faculty of Health & Environmental Sciences, AUT University, Private Bag 92006, Auckland, New Zealand, Phone: +64 09 921 9999 ext. 7735, Fax: +64 09 921 9877, Email: gerhard.sundborn@aut.ac.nz

Type of article: Original article.

Abstract

Aim: *To report the combined and ethnic specific proportions of preterm and low birth weight (LBW) births, and average birth weights, for New Zealand's four major Pacific ethnic groups (Samoan, Tongan, Cook Island Māori, Niuean).*

Methods: *Data were gathered from the Pacific Island Families Study (PIFS). Mothers of a cohort of 1398 Pacific infants born in South Auckland New Zealand (NZ) during 2000 were interviewed when their infants were 6 weeks old. Birth outcome data were obtained from hospital records on receipt of full informed consent.*

Results: *Of the Pacific ethnic groups preterm rates ranged from 5.3% to 8.3% (7.3% overall), LBW rates ranged from 3.4% to 5.7% (4.0% overall), and average birth weight of full term deliveries ranged from 3467 gm to 3751 gm (3664 gm overall). Cook Island and Niuean infants were significantly lighter than Samoan infants. Infants of Pacific born mothers were significantly heavier than infants born to NZ born Pacific mothers. There were no differences observed between infants of 'ethnically homogenous' parents compared 'ethnically heterogeneous' parents. The 10th percentile for all Pacific ethnic groups ranged from 2894 to 3065 grams.*

Conclusion: *These data reaffirm that infants of various Pacific ethnic groups are larger than other New Zealand infants. Furthermore, analyses of the PIFS cohort suggest that a LBW threshold for NZ born Pacific infants of 3000 grams may be more appropriate.*

Introduction

In 1919, a pioneering Finnish paediatrician Dr Arvo Ylppo advocated the use of the 2500 grams threshold (regardless of gestational age) to identify babies in need of special attention during the neonatal period.[1] He came to this recommendation whilst undertaking doctoral and post-doctoral study at a hospital in Berlin from 1912-1920, based on the clinical management and treatment of several hundred infants and 600 post mortems. Through his research the notion of "congenital weaklings" was displaced by "premature infants".[2] It was, however, not until 1950 that the World Health Organization (WHO) adopted this recommendation. Since the WHO recommendation, the 2500 grams threshold has become established as a clear population measure for perceived infant health.[3]

Subsequent research that investigated birth weight and mortality curves found that different populations can have important differences in average birth weight but no differences in infant mortality, and that birth weight distribution and infant mortality curves when adjusted to a standard z-scale were almost identical.[4]

From this finding there is considerable support for the construction of population specific birth weight thresholds and measures. Indeed the WHO now has a more flexible stance on the use of the 2500 grams threshold to define Low Birth Weight (LBW), and acknowledges that this definition of LBW should be mainly used as a comparative health statistic and not for clinical care. They clarify that for clinical purposes individual countries may develop alternative threshold values for LBW.[5]

Birth weight is one of the most important determinant of perinatal, neonatal and postneonatal outcomes.[6,7] LBW can result from poor intrauterine growth and increases risk of infant mortality and morbidity.[7-9] Demographic risk factors for LBW include socioeconomic status and ethnicity. It is well documented that in New Zealand (NZ) infants born of different ethnic groups have significant differences in mean birth weights.[10] Furthermore this literature demonstrates that, on average, infants of Pacific ethnicity are heavier than infants of NZ European infants, Māori and Asian ethnicity. McCowan and Stewart found that at 40 weeks gestation Tongan and Samoan infants born in NZ are 130-170 grams heavier than infants of 'European New Zealander' ethnicity.[11] Defining small for gestational age (SGA) as being below the 10th percentile, this means that Tongan or Samoan infants born at 40 weeks gestation with a birth weight of <3200 grams are SGA for these populations (as opposed to ≤3100 grams for European New Zealanders). Such differences highlight that current birth weight centile charts (and the definition of LBW) which are based on predominantly European births may be inappropriate for other ethnic groups in NZ. Earlier concerns have resulted in the construction of ethnic specific birth centile charts that were constructed using birth data gathered during 1993-2000.[11]

In 2006 Pacific people in NZ comprised 6.9% of the total population.[12] The Pacific population is more youthful compared to the national NZ population with an average age of 20 years, approximately 16 years lower than the national average.[13] Although the Pacific population have now been surpassed by the Asian community as the fastest growing population in NZ, unlike the Asian community, growth of the Pacific population is mostly attributed to higher fertility and child-birth rather than inbound migration.[13]

The infant mortality rate for Pacific of 6.4 deaths per 1000 live births is approximately 1.7 times that of the 'other NZ' population (which excludes Māori and Pacific) of 3.8 deaths per 1000 live births.[14] Both neonatal and post-neonatal circumstances contribute equally to the higher rate of Pacific infant mortality.[15] However, in terms of LBW, in 2004 European NZ infants were 1.4 times more likely to be of low birth weight compared to their Pacific counterparts (4.1% Pacific, 5.9% European New Zealanders).[16]

The measurement of ethnicity is continually being considered by researchers and analysts. In NZ many people identify with several ethnic groups which have led those who use ethnicity data to prioritise ethnicities. Ethnicity of infants and children is usually characterised by the primary self-reported ethnicity of the mother, with fathers' ethnicity rarely being considered. It could be argued that for infants born to ethnically heterogeneous parents assigning mothers ethnicity may fail to capture any genetic and/or cultural contribution that fathers may provide/impart with regard to birth weight.

The aim of this paper is to report the prevalence of preterm birth, LBW, and mean birth weight and calculate LBW, using the 10% percentile of full-term births to determine a LBW threshold, of the major Pacific ethnic groups represented in the Pacific Islands Families Study (PIFS). These data will expand on previous Pacific birth weight information by reporting Cook Island and Niue Pacific ethnic groups who with Samoan and Tongan ethnic groups make up the four largest Pacific ethnic groups constituting 92% of NZ's Pacific population.[10,11] Also, this paper aims to investigate the influence of father's ethnicity on birth weight. Previous research generally only considers the mother's ethnicity in relation to infant's birth weight.

Methods

Data were gathered from the PIFS.[17,18] The cohort was recruited from Middlemore Hospital, the largest Hospital of South Auckland Health in 2000. The maternity division of Middlemore has the largest number of Pacific births in New Zealand, and includes the main Pacific Islands ethnic groups. There are two small satellite maternity hospitals (Papakura and Botany Downs), connected to Middlemore Hospital. Mothers and infants who were transferred from Middlemore to these satellite hospitals after the birth were eligible for inclusion in the study. Selected hospital-based data, including birth weight, were also obtained on receipt of full informed consent.

Birth weight

Birth outcome data were obtained from hospital records on receipt of full informed consent. Biological mothers who gave birth to singletons.[19] For calculation of average birth weight, only full-term births were included (≥37 weeks gestation). Gestation was determined from the gestation variable extracted from infant discharge summaries. This estimate is calculated using self-reported date of mothers last menstrual cycle.

Ethnicity

Ethnicity was coded according to the sub-groupings of the 1996 Census. Mothers ethnicity was self-identified and fathers ethnicity was reported by the mother. For this study ethnicity of children was primarily based on their mother's ethnicity.

Statistical analysis

Descriptive statistics were calculated and reported, and included mean, standard deviation (SD) and percentiles of the empirical birth weight distributions. Comparisons between two categorical variables were made using Fisher's exact test, while comparisons between two or more groups on the birth weight data were made using Student's t-test and analysis of variance (ANOVA), respectively. All statistical calculations were undertaken using SAS version 9.1 (SAS SAS Institute Inc., Cary, NC, USA) with a significant level of α=5%.

Ethics

Careful consideration is continually given to the ethical aspects of this longitudinal study with Pacific peoples. Ethical approval for the pilot and main PIFS was obtained from the Auckland Branch of the National Ethics Committee, the Royal New Zealand Plunket Society, and the South Auckland Health Clinical Board.

Results

From the original PIFS cohort at 6 weeks, 1376 mothers gave birth to 1398 live infants including 45 twins (one twin member was stillborn).[17, 18] Of these cohort mothers, 650 (47%) self identified their major ethnic group as Samoan; 289 (21%) as Tongan; 232 (17%) as Cook Islands Māori; 59 (4%) as Niuean; 47 (3%) as other Pacific (this includes mothers identifying with Pacific groups other than Samoan, Tongan, Cook Island, or Niuean, or mothers identifying equally with two or more separate ethnicities); and 99 (7%) as non-Pacific (eligible in the PIFS through the Pacific identification of the infant's father). Mothers reported ethnicity for 1365 biological fathers and identified 635 (47%) Samoan; 330 (24%) Tongan; 170 (12%) Cook Islands Māori; 54 (4%) Niuean; 43 (3%) other Pacific; and 133 (19%) non-Pacific fathers. These frequencies are broadly similar to those seen in the New Zealand's Pacific population.[20]

Table 1. Demographic and lifestyle characteristics of cohort Mothers as baseline (n=1376)

Age	Number	(%)
<20	111	8.1%
20--29	720	52.3%
30--39	500	36.3%
40+	44	3.2%
Unknown	1	0.1%
Mother born in NZ		
No	922	67.0%
Yes	454	33.0%
Ethnicity		
Samoan	650	47.2%
Cook Island	232	16.9%
Niuean	59	4.3%
Tongan	289	21.0%
Other Pacific	47	3.4%
Non Pacific Island	99	7.2%
Parity		
1-2	705	51.2%
3-4	437	31.8%
5-6	160	11.6%
7-8	46	3.3%
9+	9	0.7%
Unknown	19	1.4%
Pre-term birth (<37 weeks)		
No	1249	90.8%
Yes	106	7.7%
Unknown	21	1.5%
Acculturation type		
Assimilationist	436	31.7%
Segregationalist	447	32.5%
Integrator	233	16.9%
Marginal	249	18.1%
Missing	11	0.8%
Household income		
$0 - $20,000	457	33.2%
$20,001-$40,000	710	51.6%
>$40,000	161	11.7%
Unknown	48	3.5%
Smoked during Pregnancy		
No	1031	74.9%
Yes	339	24.6%
Missing	6	0.4%
Highest educational qualification		
No formal qualifications	535	38.9%
Secondary school	464	33.7%
Post school qualification	377	27.4%

Excluding these twin infants, Table 2 shows the proportion of preterm deliveries and low birth weight (<2500 gm) by the four main maternal ethnic subgroups. Of the total maternal Samoan, Tongan, Cook Island Māori and Niuean sample with valid gestational age, 87 (7.3%) were born preterm (<37 weeks gestation) and 47 (4.0%) were low birth weight. There was no statistical difference in the percentages born preterm or low birth weight between the four major maternal ethnic groups (Fisher's exact test P=0.86, and P=0.47; respectively). Of preterm births 65% resulted from spontaneous delivery.

Table 2. Number and percentages of preterm (<37 weeks gestation) and numbers and percentages of low birth weight (<2500 gm) singleton births by the four major maternal ethnic groups.

	Gestation (weeks)			Birth weight (gm)		
	Total	Preterm (<37 wk)		Total	LBW (<2500 gm)	
Mothers ethnicity	N	n	(%)	N	n	(%)
Samoan	627	46	(7.3)	625	21	(3.4)
Tongan	278	23	(8.3)	251	11	(4.4)
Cook Island Māori	230	15	(6.5)	228	13	(5.7)
Niuean	57	3	(5.3)	57	2	(3.5)
Total	1192	87	(7.3)	1161	47	(4.0)

For those born term (≥37 weeks gestation), Table 3 presents the proportion of infants with LBW (<2500 grams) and the mean (standard deviation) birth weight by the four main maternal ethnic subgroups. Valid birth weight data was available for 1078 (97.6%) of the 1195 eligible singleton births. There was no statistically significant difference in the percentages born with LBW between the four major maternal ethnic groups (Fisher's exact test P=0.10), however, there was a significant difference between the mean birth weights (F=10.1, df=3, 1074, P<0.001). Taking Samoan infants as the reference group, Tongan infants mean birth weight was not different (t=1.2, df=809, P=0.23), Cook Island infants mean birth weight was significantly less (t=4.0, df=790, P<0.001), and Niuean infants mean birth weight was significantly less (t=3.0, df=631, P=0.003) than their Samoan counterparts.

Table 3. Numbers of percentages of low birth weight (LBW) infants and the mean and standard deviation (SD) of birth weights for term (≥37 weeks gestation) singleton births by the four major maternal ethnic groups.

	Total	Low birth weight (LBW) <2500 gm		Birth weight (gm)	
Mothers ethnicity	N	n	(%)	Mean	(SD)
Samoan	579	5	(0.9)	3699	(551)
Tongan	232	3	(1.3)	3751	(556)
Cook Island Māori	213	7	(3.3)	3523*	(529)
Niuean	54	0	(0.0)	3467*	(356)
Total	1078	15	(1.4)	3664	(547)

* p<0.01 compared to Samoan ethnic group

Infant birth weights were next considered in relation to both biological mothers and fathers' ethnicity. Again, infants' ethnicity was assigned from their mothers. If both mother and fathers' ethnicity was the same, they were labelled 'ethnically homogenous'. However, if the father's ethnicity differed from the mothers, then this infant had parents labelled 'ethnically heterogeneous'. Table 4 presents the numbers, mean birth weights (standard deviation) and associated p-value for the comparisons between ethnically homogenous and heterogeneous parents for term (≥37 weeks gestation) singleton infants by the four major maternal

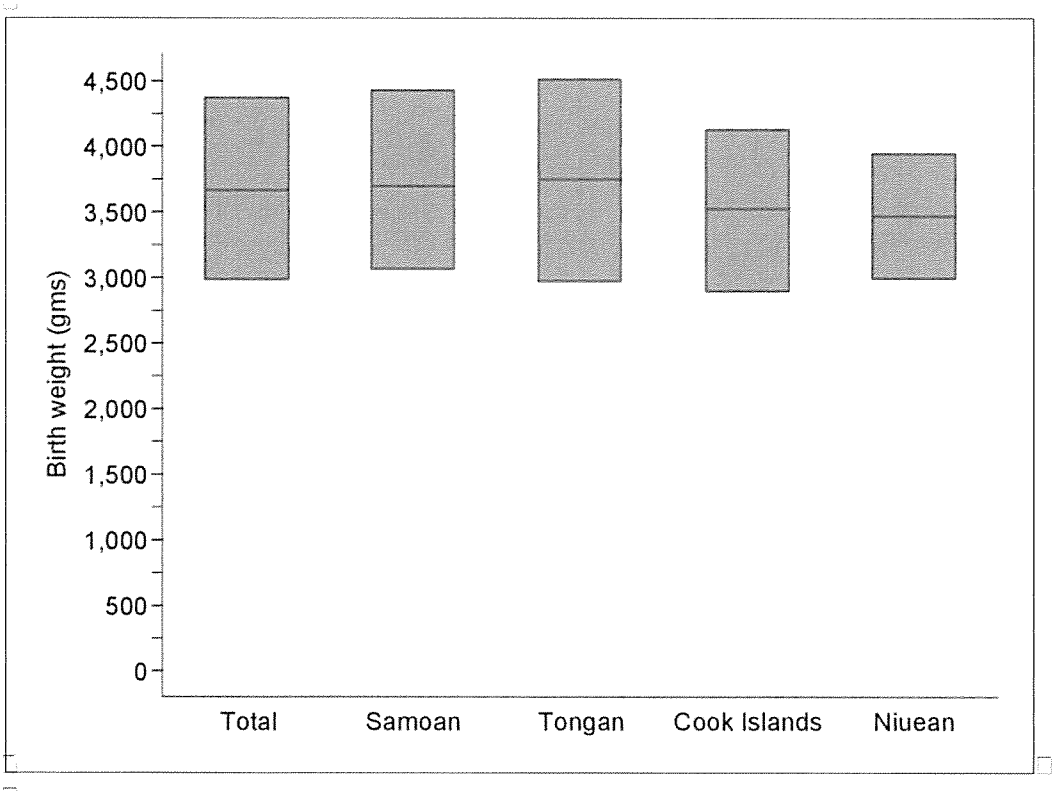
ethnic groups. No significant difference was found in mean birth weights between infants with ethnically homogenous and heterogeneous parents for any of the major maternal ethnic groups. However, Samoan (83%) and Tongan (88%) parents were more likely to be 'ethnically homogenous' than Cook Islands (50%) and Niuean (30%) parents (P<0.001).

Table 4. Numbers, mean birth weights (standard deviation) and associated p-value for the comparisons between ethnically homogenous and heterogeneous term (≥37 weeks gestation) singleton infants by the four major maternal ethnic groups.

	Ethnically homogenous birth weight (gm)			Ethnically heterogeneous birth weight (gm)			
Mothers ethnicity	n	mean	(SD)	n	mean	(SD)	P-value
Samoan	479	3705	(565)	97	3678	(480)	0.66
Tongan	203	3760	(547)	27	3747	(599)	0.91
Cook Island Māori	105	3543	(464)	105	3498	(595)	0.54
Niuean	16	3387	(409)	38	3500	(332)	0.29

Finally, Figure 1 shows the mean birth weight, and the 10th and 90th percentiles. These percentiles are used to determine LBW and high birth weight thresholds for population groups. Samoan infants have the highest of 10th percentile (3065 grams), whilst Tongan infants have the highest mean and 90th percentile (3751 and 4512 grams respectively). The 10th percentile measures for the four ethnic groups are centred on 3000 gms, with relatively little variability (range: 171 gms). There is greater diversity in the 90th percentile estimates between ethnic groups (range: 568 grams).

Figure 1. Box-plot of 10th percentile, mean and 90th percentile birth weight for term (≥37 weeks gestation) singleton infants of by the four major maternal ethnic groups.



The difference in birth weight distributions between Samoan and Tongan infants and those born to Cook Island Māori and Niuean mothers was investigated. Samoan and Tongan mothers were significantly less likely to be born in New Zealand than Cook Islands and Niuean mothers (Fisher's exact test P<0.001). Approximately forty percent of Cook Island (42.3%) and Niuean (38.9%) mothers were born in New Zealand compared to 26.9% Samoan and 11.4% of Tongan mothers. Overall, the mean birth weight of non-New Zealand born mothers was 152 grams higher (95% confidence interval: 79, 225 grams) than infants born to their New Zealand born counterparts for these four major ethnic groups (t=4.1, df=1076, P<0.001).

Discussion

Identifying infants of LBW has important clinical implications for their management. Low birth weight infants of any gestation are at risk of hypoglycaemia, hypothermia and would require regular monitoring in the neonatal and postnatal nurseries. Discharge is then dependent on establishing feeding with satisfactory glucose levels and maintaining normal temperatures whilst in the cot.

Average birth weights of the PIFS cohort are similar to those measured elsewhere and therefore concurs that infants of various Pacific ethnic groups are larger than other New Zealand infants.[11,20] Furthermore, this study has shown that there are significant differences in birth weight between the major Pacific groups and that mother's birthplace is also significantly related to birth weight. Differences observed by mothers' birthplace support the theory that the pre-pregnancy environment has an influence on the foetus. The 2004 Report on Maternity found that 6.2 % of Pacific births were preterm, compared to European NZ 7.4 %.[16] However, our study showed Pacific mothers had a similar level of preterm birth (7.3%) to those of European NZ reported in the 2004 Report on Maternity. This difference may be due to the exclusion of multiparous birth within our PIFS analyses.

Although there are significant differences in the average birth weight of the various Pacific ethnic groups there is considerable similarity in their 10th percentiles. All Pacific ethnic groups sit within a 171 gram range of each other and cluster around the 3000 gram measure. This suggests that 3000 grams may be a more appropriate measure to assess LBW in Pacific infants. Recognising that birth weight distribution and infant mortality curves when adjusted to a standard z-scale are almost identical,[4] this implies that using the standard LBW threshold of 2500 grams may overlook at risk infants of Pacific ethnicity.

Most ethnic-specific studies of birth weight assign maternal ethnicity to that of the child, without explicit regard to fathers' ethnicity. Our analyses showed this strategy to be appropriate for Pacific infants, as there was no difference in average birth weights between infants with parents of the same ethnicity and those with parents of differing ethnicity. This suggests that, on average, fathers' ethnicity has little impact on their child's birth weight over and above the impact of the mothers' ethnicity.

Overall Samoan and Tongan infants were heavier than Cook Islands and Niuean infants, and Samoan and Tongan mothers were more likely to have been born outside of New Zealand. This may indicate that varied migration histories that would have mediated exposure to the New Zealand environment and acculturation processes, and in so doing, has influenced birth weight. It may be that acculturation is of more importance than ethnicity in determining birth weight for Pacific infants.

Differences observed in birth weight between the Pacific ethnic groups and by birthplace of the mother may be partly explained by smoking prevalence during pregnancy. Previously reported PIFS findings show

that the Cook Islands and Niuean ethnic groups and NZ born mothers were more likely to smoke than their Samoan, Tongan and non NZ born counterparts respectively.[21] Considering this occurrence it is postulated that the threshold put forward in this paper would be if anything be a conservative estimate for the use of LBW as a screening tool for at risk infants.

In light of the above findings there are many questions that need to be considered before recommending the adoption of a Pacific specific low birth weight threshold. Are NZ born Pacific infants heavier compared NZ European infants due to genetic factors, environmental (especially the nutritional environment) factors or both? Are Pacific infants born in the Pacific of similar birth weight to their NZ born counterparts? Do Pacific infants born in different regions within NZ have comparable birth measures?

These are important questions that need to be investigated to determine the underlying contributing factors that result in higher Pacific birth weight. If birth weights are similar between NZ born and Pacific born infants one could speculate that most of the difference observed between Pacific and European infants is attributable to genetics, therefore, using a higher low birth weight threshold for Pacific is a valid recommendation. However if Pacific born infants show more similarity to European estimates, the higher birth weight of NZ born Pacific infants may be attributable to differences in lifestyle (especially during gestation) that have occurred on migration.

A limitation of this study is the inability to identify and exclude mothers that had gestational diabetes. Their inclusion would result in increased mean birth weight estimates as infants born of mothers with gestational diabetes are generally heavier. However, they are unlike to affect the 10th percentile estimates. Although this is a large study, a larger sample would have enabled more robust estimates with increased precision and have allowed investigation of other smaller Pacific ethnic groups. Strengths of this study is that all The PIFS cohort is representative of NZ's Pacific population[18] and surveys were collected within a single calendar year, this may prevent any dilution effects that time may have on differences in birth weight. In contrast the study by McCowan & Stewart gathered data over an 8 year period. Furthermore our study was able to test whether using father's ethnicity would have had any significant impact on findings.

Conclusion

The PIFS cohort is comprised of infants born in Middlemore hospital that is situated in the Counties Manakau District Health Board region. Further research comparing birth weights of Pacific infants born in the other major districts that have large Pacific populations (Auckland, Waitemata) and infants born in the pacific nations would be of value in developing a more robust LBW estimate for Pacific infants (born in the Pacific and in New Zealand). Our data suggest that a LBW threshold for NZ born Pacific infants of 3000 grams may be more appropriate.

Acknowledgements

The Pacific Islands Families Study (PIFS) is supported by grants awarded from the Foundation for Science, Research and Technology, the Health Research Council of New Zealand, and the Maurice and Phyllis Paykel Trust. The authors also gratefully acknowledge the families who participated in the study, the Pacific Peoples Advisory Board, and the other members of the PIFS research team.

References

1. Ballowitz, L., ed. *Arvo Ylppō. In: Historical review and recent advances in neonatal and perinatal medicine.* ed. G. Smith. 1985, Interprint: New Delhi.
2. Ylppō, A., ed. *The growth of prematures from birth to school age.* ed. Z. Kinderheilkd. Vol. 24. 1919.
3. World Health Organisation Expert Committee on Maternal and Child Health, *Public health aspects of low birthweight,* in *Technical series report,* W.H. Organisation, Editor. 1950.
4. Wilcox, A.J., *On the importance- and unimportance- of birthweight.* International Journal of Epidemiology, 2001. **30**: p. 1233-124
5. United Nations Children's Fund and World Health Organisation, *Low Birthweight: country, regional and global estimates.* 2004, New York: UNICEF.
6. McCormick, M., *The contribution of low birth weight to infant mortality and childhood morbidity.* National England Journal of Medicine, 1985. **312**: p. 82-90.
7. Pollack, R. and M. Divon, *Intrauterine growth retardation: definition, classification, etiology.* Clinical obstetrics and gynecology, 1992. **35**: p. 99-107.
8. Gulmezoglu, M., M de Onis, and J. Villar, *Effectiveness of interventions to prevent or treat impaired fetal growth.* Obstetric Gynecologic Survey, 1997. **52**: p. 139-149.
9. Kliegman, R., C. Rottman, and R. Behrman, *Strategies for the prevention of low birth weight* American Journal of Obstetrics and Gynecology, 1990. **162**: p. 1073-83.
10. McCowan, L., et al., *A customised birthweight centile calculator developed for a New Zealand population.* Australian and New Zealand Journal of Obstretics and Gynaecology, 2004. **44**: p. 428-431.
11. McCowan, L. and A. Stewart, *Term birth weight centiles for babies from New Zealand's main ethnic groups.* Australian and New Zealand Journal of Obstetrics and Gynaecology, 2004. **44**: p. 432-435.
12. Statistics New Zealand. *QuickStats About Pacific Peoples 2006 Census.* 2008 [cited 3 May 2008]; Available from: http://www.stats.govt.nz.
13. Statistics New Zealand, *Pacific Profiles: 2006.* 2006.
14. New Zealand Health Information Service. *Infant and perinatal mortality in 2004, 2005 and 2006.* 2009 [cited 2009 July]; Available from: http://www.nzhis.govt.nz/moh.nsf/indexns/stats-infant-perinatal-mort-04-06.
15. Ministry of Health, *Tupu Ola Moui: Pacific Health Chart Book 2004.* 2004, Ministry of Health: Wellington.
16. New Zealand Health Information Service, *Report on Maternity: Maternal and Newborn Information 2004.* 2004, Ministry of Health: Wellington.
17. Paterson, J., et al., *Cohort Profile: The Pacific Islands Families (PIF) Study.* International Journal of Epidemiology, 2008. **37**(2): p. 273-279.
18. Paterson, J., et al., *Pacific Islands Families: First Two Years of Life Study—design and methodology.* NZ Med J, 2006. **119**(1228).
19. Gao, W., et al., *Risk factors for preterm and small for gestational age babies. A cohort from the Pacific Islands Families Study (PIF).* Journal of Paediatrics & Child Health, 2006. **42**: p. 784-792.
20. Ministry of Health, *Report of Maternity 2000 & 2001.* 2003, Ministry of Health: Wellington.
21. Butler, S., Williams, M.,Paterson, J., Tukuitonga, C. *Smoking among mothers of a Pacific Island birth cohort in New Zealand: associated factors.* NZ Med J. 2004, **117**(1206).