SIDS among Pacificans in New Zealand: An ecological perspective

Abstract: Sudden Infant Death Syndrome (SIDS) or Cot Death has unevenly affected ethnic groups more in New Zealand. This paper examines risk factors for SIDS from a political ecology perspective. The New Zealand Cot-Death Study (1987-1990) identified four modifiable risk factors of major concerns. These became the targets of a national prevention campaign. The four modifiable risk factors were: prone sleeping position of the baby, lack of breast feeding, maternal smoking and bed sharing.

These four risk factors are more prevalent amongst Pacific and Mdori than others in New Zealand, and are influenced by cultural and other factors. This paper discusses these from a Pacific perspective. Through a discussion of the socio-economic situation of Pacific people in New Zealand and drawing on political ecology theory, it also challenges the classification of some risk factors as `unmodifiable'. It argues that, through addressing the low socio-economic status of Pacificans, the so-called `unmodifiable' risk factors are modifiable. Addressing these wider inequalities would contribute to the govaernmenrs aims of closing the social and economic gaps affecting Pacificans' health status and reduce the risk of SIDS among Pacific infants. (Pacific Health Dialog 2003 Vol.10 (2); Pg 155-162)

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Introduction

Sudden Infant Death Syndrome (SIDS), also known as Cot Death, is considered to result from the coincidence of several factors. SIDS has claimed the lives of many infants and is generally defined as:

The sudden death of an infant or young child which is unexpected by history, and in which a full post-mortem examination fails to demonstrate an adequate cause of death (Webb 1986:26).

This sudden, unexpected death has no medical explanation (Knight 1983). However, studies on SIDS have identified several contributing factors. In particular, factors identified by a case control study in New Zealand have been the basis of SIDS prevention efforts (Mitchell *et al,* 1992).

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In New Zealand SIDS is a major cause of infant death. It was the leading cause of infant deaths in 1986 (Webb, 1986) and this was still true almost a decade later. In 1993, SIDS was responsible for 53 percent of male and 45 percent of female infant deaths (NZHIS 1996). Mitchell (1991) reported that the postneonatal mortality rate was high in New Zealand, compared with other developed countries.

The New Zealand Cot Death Study (NZCDS), a case control study undertaken between 1987 and 1990, involved 485 SIDS cases in the postneonatal age group and these were compared with 1800 randomly selected control subjects. In addition, it collected data from community health nurses and from obstetric and police records of SIDS cases (Mitchell, 1991). The study identified a number of factors that were divided into 'modifiable' and 'unmodifiable' risk factors. The possible reduction of the 'modifiable' risk factors motivated the health researchers and the Ministry of Health to set up a SIDS prevention programme in 1991 where the main thrust was to educate the public about these 'modifiable' risk factors. The prevention programme resulted in a large and steady reduction in national SIDS cases and rates. However, Pacific cases and rates rates did not reduce in the same way (see Table 1). Some commentators questioned the monocultural approach of the prevention programme (Everard 1997) and in 1999 a Pacific-specific SIDS prevention programme was instituted (Finau *et al,* 2000).

In discussing SIDS, and SIDS risk factors amongst Pacificans in New Zealand, this paper uses a political ecology framework. Political ecology includes within its framework an analysis of political-economic factors as well as the social, cultural and natural environment. In order to understand SIDS and its risk factors amongst Pacificans, it is necessary to examine their social and

cultural dimensions.

The paper begins with an overview of political ecology theory. It then moves on to describe the situation of Pacificans in New Zealand, the issue of SIDS in New Zealand and to place the case of Pacific SIDS in the national context. The social and cultural aspects of the `modifiable' risk factors as they pertain to Pacificans are then discussed. This is followed by an examination of the socio-economic environment of the 'unmodifiable' risk factors and other issues of relevance. The subsequent summary and conclusion includes some policy recommendations.

Political Ecology

The theoretical basis for this paper is political ecology. Such a theoretical model is helpful when trying to explain the causes that contribute to the increased risks of diseases in certain ethnic groups in a society. Ecological studies focus on the interaction of humans and their environment, broadly conceived (Inborn and Brown, 1990). The political ecology perspective focuses on the integration and connection of political-economic processes with ecological, social and cultural studies. It also assists to reveal the interrelationship between human biology and regional, national and international global economic systems that affect the local communities in terms of material resources, and influence the kind of life chances residents have. Stonich (1993) believed that political ecology studies are likely to identify the interactional roles of social institutions that affect not only our health but also decisions about our lives. She argued that:

This integrated perspective has been termed political ecology and has been used in a variety of disciplines to demonstrate how interconnected social, economic and political processes affect the way natural resources are exploited. (Stonich, 1993:25).

In addition, Turshen (Inborn and Brown, 1990) introduced a political ecology of disease where she considered economic, social and political factors as contributing to causes of infectious diseases that affected human population.

Likewise, the *Journal of Physical Anthropology* (1997) published a variety of studies based on the integration of perspectives from social and political-economic anthropology with those of ecology from biological anthropology, which revealed causes of human diseases. They introduced a new bio-cultural approach that integrates the political-economic perspectives with human biology. It is this interrelationship that shows inequalities in social relations and distribution of material resources affect not only human population but also their environments. These factors, as Leatherman and Goodman (1997:2) have argued, are more likely to hold responsibility for why... *"one individual or family is richer or poorer, better nourished or healthier or exposed to pollutants or not".*

Political ecology helps extend the ideas and knowledge of anthropologists in their analysis and methodology of studying human lives. Stonich (1993) indicated that the political ecology approach strengthened the abilities of anthropologists to deeply address issues and methodological perspectives concerned with the integration of development and environment. This, as Stonich (1993) emphasised, will enhance anthropologists' involvement and participation in interdisciplinary fields related to global environmental changes that are likely to affect local areas and people's health.

The political ecology perspective focuses on the integration and connection of political-economic processes with ecological, social and cultural studies.

The distinctive character of ecological studies provide us with an opportunity to formulate an ecological model of SIDS and to examine the interrelationships between the 'modifiable' and 'unmodifiable' risk factors and to determine how the economy and political processes contribute to the existence of these risk factors amongst Pacificans in New Zealand. To this end, in the next section we outline the demographic, economic and social issues experienced by Pacificans in New Zealand.

Pacificans in New Zealand

Pacific migration to New Zealand increased immediately after World War II. Pacificans migrated to New Zealand mainly for jobs, education, and economic opportunities for their families and children (Krishnan, *et al,* 1994). They settled primarily in Auckland and Wellington although many are scattered around other communities where job opportunities were available (Barker 1993). The new migrants were likely to stay with relatives already in New Zealand and moved on when financially secure (Spoonley *et al,* 1993). This pattern reflects traditional communal life and reciprocity values that Pacific people share, as well as the financial constraints that are more likely to limit life choices and freedom of action.

Pacific migrants were mainly employed in the processing and manufacturing sectors of the NZ

economy. Krishnan et al (1994:19) indicated that Pacific workers were likely to be 'employed as waged labour in semi-skilled and unskilled jobs'. These jobs were affected by economic restructuring, and reduced production in New Zealand leading to high unemployment among Pacificans. Krishnan and colleagues also showed how Pacific workers have been disproportionately affected by new economic development in New Zealand. New technology has replaced large labour forces in many factories where the majority have worked for many years. This economic recession and restructuring has forced a lot of companies to make workers redundant. Krishnan *et a*/ commented on how Pacific workers in the process have become a 'convenient political scapegoats' for the economic problems facing NZ. They argued that:

Pacific Island workers had been actively recruited into certain sectors of the New Zealand economy and primarily occupied low-skilled, low-waged positions in the manufacturing industries. (Krishnan et al, 1994: 24).

As the political and economic restructuring has disproportionately affected Pacificans, this has markedly influenced their choices of how they want to live, and most of all their health

In terms of political and economic development, Pacific migrants' status in the New Zealand economy can thus be considered working class; a fact emphasised by Krishnan et al (1994) who stated that Pacificans also live in the working class residential areas. As the political and economic restructuring has disproportionately affected Pacificans, this has markedly influenced their choices of how they want to live, and most of all their health (Bathgate et *al,* 1994).

Review of SIDS in New Zealand

The New Zealand Cot Death Study (NZCDS) was one of the largest SIDS case-controlled studies undertaken. The results identified several risk factors for SIDS and divided these into factors considered 'modifiable' and `unmodifiable'; that is factors that are easy to change and control, and factors that are not (Mitchell, *et al,* 1992).

The four factors identified as modifiable were: prone sleeping position, a lack of breastfeeding, maternal smoking and bedsharing. The study showed that these four factors are estimated to account for nearly 80% of all cot deaths in New Zealand. The 'unmodifiable' factors included low socio-economic status, unmarried mother, young mother, mother with young school leavers, young mothers at first pregnancy, late attendance at antenatal clinic, non-attendance at antenatal classes, a greater numbers of previous pregnancies, low birth weight and short gestation (Mitchell *et al,* 1992).

Following the study 1991, the New Zealand Cot Death Association (NZCDA), the study team and the Ministry of Health initiated a national cot death prevention campaign. It employed strategies focused on the education of health professionals, including community health professionals, general practitioners, Plunket nurses, community health workers and the general public. The campaign was considered a 'risk reduction approach' and set out to advise the community to be aware and change their behaviour appropriately in relation to the modifiable risk factors. It involved distributing information to parents to place babies on t[Inir backs, to avoid smoking and to breast-feed their baby for as long as possible.

However, the campaign was aimed at the predominantly European (Pakeha), mainstream New Zealand population, without considering the different environments and lifestyles of other people in multicultural New Zealand (Everard 1997). Consequently, although there was a significant reduction in Pakeha SIDS rates following the campaign, the Maori SIDS rate, which was already disproportionately high, decreased only by an insignificant amount (Tipene-Leach 1994). The Pacific SIDS rate, although not high relative to other ethnic groups before the campaign, did not decrease following it.

SIDS among Pacificans

Up until the 1990s, Pacific infants had a low rate of SIDS relative to the general population. However, while the national and non-Maori, non-Pacific SIDS rates decreased significantly from 1990, following early leakage of the newly discovered risk factor then the prevention campaign, this steady decline did not occur amongst Pacific (or Maori) infants. In Auckland, where a large proportion of the New Zealand Pacific population reside, the numbers of reported Pacific SIDS infants raised concern among health workers and the Pacific communities (Tukuitonga 1996). As a result, a Pacific SIDS prevention programme was put in place (Finau *et al,* 2000). Table 1 detail the number and rates of SIDS for Maori, Pacific, Other (non-Maori, non-Pacific) and Total SIDS cases between 1988 and 1997.

Although from 1996 the Pacific rates appear to have improved, there is still a question mark over the trend. Prior to 1995, Pacific ethnicity was defined as: "Infants of half or more Pacific Islands ancestry except those of half Pacific Islands and half Maori ancestry. These were recorded as Maori" (NZHIS, 1998:88). From 1995, ethnicity was defined according to self- identification (or

identification by parents in SIDS cases). A range of ethnicities could be chosen. If Maori was chosen at all, the person was defined as Maori (NZHIS, 2000:7). This meant that some infants considered to be of Pacific ethnicity might have been classified as Maori.

The poor impact of the early 1990s prevention programme on Pacific SIDS rates suggests that there is a need to examine the social, cultural and other contexts of the 'modifiable' risk factors amongst Pacificans. It is also not unreasonable to conclude that there might be other factors preventing reduction in rates, such as poverty, language, education and social dislocation, especially with young single mothers. These latter issues are intimately connected with the 'unmodifiable' risk factors. We now go on to discuss these areas.

Table 1: Number and Rate (per 1,000 live births) of Maori, Pacific, Other and Total SIDS cases in New Zealand 1988 - 1997.

Year	Maori		Pacific		Other		Total	
	No.	Rates	**No.**	Rates	**No.**	Rates	**No.**	Rates
1988	57	8.4	10	2.3	187	4.0	254	4.4
1989	69	9.9	9	1.9	159	3.4	237	4.1
1990	58	8.3	14	2.8	103	2.1	175	2.9
1991	48	6.9	11	2.3	89	1.8	148	2.5
1992	50	6.9	15	3.2	72	1.5	137	2.3
1993	56	7.9	4	0.9	65	1.4	125	2.1
1994	49	6.9	10	2.3	62	1.3	121	2.1
1995*	N/A	N/A	N/A	N/A	N/A	N/A	121	2.1
1996*	73	4.6	11	1.9	25	0.7	109	1.9
1997*	59	3.6	5	0.9	20	0.6	84	1.5

(Source: NZHIS 1999:40; NZH1S 2000:15 & 39)
** Because of changes in ethnicity classification in 1995, ethnic data are not available for 1995, and data before and after this date cannot be reliably compared*

The modifiable risk factors - an ecological perspective

The approaches taken to prevent modifiable SIDS risk factors aim to influence parents' behaviours and lifestyles based on individual behaviour change. Current ecological approaches provide explanations on how our behaviour and lifestyle affects our health. In the society we live in, a wide range of factors influence our lifestyle choices. For example, Le Vine's work (1988) on human parental care discusses human adaptive behaviour in a given environmental setting. This approach emphasises the different values adopted by parents of different cultures and how these values influence the way they choose to live. Here, infant care practices are argued to represent the ongoing conflict between "cultural and phylogenetic determinism". The phylogenetic approach proposes an innate maternal responsiveness to infant signals for nurturance and attention. Whilst on the other hand, the cultural approach assumes that the parents' care for their infants is guided by "cultural specific models of interpersonal relations" (Le Vine 1988).

Families in multicultural New Zealand lead different lifestyles and have different life chances depending on their socio-economic and cultural backgrounds. Different ethnic groups who have migrated here have brought with them varied traditional knowledge and practices for infant care. A multiethnic study of Infant Care Practices (ICP) amongst Auckland Maori, Pacific and Pakeha families (Abel *et al,* 1999) reported that traditional practices such as baby massage were used by the Pacific parents and caregivers to treat conditions and to also strengthen the baby's well- being. Other Pacific parents used traditional herbal remedies and other plant infusions to settle a crying baby, cure rashes and to heal the umbilical stump (Abel *et al,* 1999). Parental goals for their infants are more likely to depend on traditional customs in their communities. However, being isolated from their native communities and environments produce big changes, not only culturally but also biologically, in terms of dietary programmes, weather and physical activity. These cultural and biological factors impact on the 'modifiable' SIDS risk factors of infant sleeping arrangements, infant feeding and smoking.

Bed **Sharing -** Evolutionary **and Cultural** Perspectives

The NZCDS initially considered infant bedsharing with another person was a significant risk factor for SIDS in itself (Mitchell & Scragg , 1993). A later re-analysis of the data, however, found that infants sharing a bed with another person were at an increased risk of SIDS primarily if the mother had smoked in pregnancy (Scragg, *et al,* 1993).

A review of evolutionary studies shows the importance of adult-infant co-sleeping. The evolutionary approach of biological anthropology shows that adult-infant co-sleeping is very important for bonding and developing the infant's breathing patterns, and aiding the baby to master their breathing techniques. Thus, an infant who sleeps with an adult is more likely to react to their movements and wakes up more times during the night. This frequent arousal of an infant will help them to

overcome apnoea or pauses in breathing. McKenna and Mosko (1992) clearly indicated that co-sleeping mothers did not control babies' breathing but rather their breathing was physiologically entwined. Thus, the movements and breathing of each could affect the other. McKenna and Mosko also emphasised that all babies tended to experience prolonged sleep apnoea or pauses in breathing; that is, normal speed breathing alternated with slow breathing. Thus, if the baby slept with an adult, frequent arousal and movements were more likely to occur, this being an important protective response to prolonged apnoea. Mosko and Mackenna proposed that:

Bed sharing might prevent long periods of quiet sleep from which a vulnerable infant might have particular difficulty arousing in a response to a potentially life threatening condition such as prolonged apnoea or hyperthermia (1996: 681).

Thus, the evolutionary approach stresses the importance of co-sleeping during the early months of life. In addition, Mosko & Mackenna, (1996) emphasised that if arousal deficit does play a role in SIDS, then it is important to facilitate infant arousability. They commented on recent epidemiological studies amongst African-Americans and Asians, which failed to find an increased risk for SIDS in relation to bed sharing.

In New Zealand bedsharing is more common amongst Pacific and Maori than amongst Pakeha (Tuohy & Smale, 1998). For Pacific families, bedsharing is part of traditional childcare practice. The ICP study found that bed sharing was a strong and important cultural tradition for Pacific families and was perceived as having many benefits for the baby (Abel et *al,* 1999). The ICP study found that where Pacific babies shared a bed with an adult, this was either both parents or the mother and the grandmother. The baby was usually placed between the adults or on the mother's side. Several other Pacific parents used a pillow or a small mattress to place the baby on in the same bed (Abel et *al,* 1999).

In the Pacific Islands it is generally considered unnatural to isolate infants (Marshall 1985). There are few cots and babies tend to sleep in their mother's arms until they are thought capable of sleeping on their own. SIDS is rare in the Pacific island countries where bedsharing has been predominant as the infant sleeping arrangement.

In brief, several studies point to mother-infant co-sleeping as conducive to breastfeeding, bonding, and child development. In addition the strong cultural value placed on the practice suggests that in SIDS prevention education it may be more important to focus on safe bed sharing practices than discouraging bedsharing altogether.

Infant Feeding

The lack of breastfeeding was identified as a modifiable risk factor for SIDS and the promotion of breastfeeding was part of the SIDS prevention campaign. Traditionally, breastfeeding is popular amongst Pacific mothers. In Pacific societies, family and community tend to provide moral support for new mothers and their infants. Mothers, mothers-in-law and aunts of Pacific extended families take over the responsibilities of looking after existing children living in the same household, thus ensuring that the new mother is able to attend to her new infant. Family members also cook food and make sure the mother is well-fed and nourished in order to produce milk for the new baby. In her study on the Butaritari, Brewis (1988) emphasised the importance for new mothers receiving moral support from their family and community. Marshall (1985) commented that semen or pregnancy was thought to spoil breast milk and could affect the baby's health. Before the influence of Christianity, this belief led to the traditional ritual of separating the husband from the mother and the newborn baby. This separation was widespread in the Pacific; the belief being that it was the safest way to prevent new mothers from becoming pregnant again, and having a sexual relationship whilst breastfeeding the infant. However, several studies have shown that Pacific women's increased involvement in the cash economy and financial pressure to return to the workforce, have led to early termination of breastfeeding and early weaning (Schiefflin 1985; Nardi 1985).

SIDS is rare in the Pacific island countries where bedsharing has been predominant as the infant sleeping arrangement.

Pacific mothers in New Zealand also place high value on breastfeeding. The ICP study (Abel *et al,* 1999) found that Pacific women perceived the advantages of breastfeeding as being not only nutritional but also enhancing the bonding and closeness of mother and baby. Many of the Pacific women in the study had fed their babies for several months. Bathgate et al (1994) showed that in the early 1990s Pacific infant breastfeeding rates in New Zealand were higher than other ethnic groups at three, six and nine months. However, the ICP study found that the return to work was an important reason for ceasing breastfeeding (Abel *et al,* 1999) and since many Pacific mothers are from lower socio-economic groups, they are under pressure to return to work in order to help support the family

financially. In New Zealand, Pacific women are more likely to hold two or three part time jobs (Krishnan *et al*, 1994) and are more likely to be employed than other women.

Pacific women coming from the Islands to New Zealand must also adapt to differing attitudes towards breastfeeding. For example, within the Pacific proper it is culturally acceptable and considered natural for women to breastfeed their baby in the public arena, whereas in New Zealand it is often less accepted. Wagner (1975) argued that culture is a system of meanings; people invent these meanings differently on a psychological level. Therefore Pacific 'invent another culture' in New Zealand to adapt to the idea that breastfeeding in public places is not acceptable, whereas in their own culture it is important and acceptable to do so.

The **"unmodifiable" risk factors**

An ecological analysis of SIDS also involves an examination of the 'unmodifiable' risk factors, such as low antenatal attendance, teenage pregnancy, young school-leaver mothers and unmarried motherhood. Many of these risk factors are related to socio-economic status. Schell (1997) argues that political and economic factors limit choices amongst certain sectors and also contribute to the unjust distribution of human-made stressors within urban and rural populations. Therefore an individual's socio-economic status influences their lifestyle and life chances, living standards, health status and choices of the residential area. Blackwell et al (1998) argued that lower socio-economic conditions in Britain are an important factor relating to the risk for SIDS. Since Pacific people are disproportionately represented in the lower socio-economic groups in New Zealand they are disproportionately exposed to the risks associated with this status. Krishnan et al (1994) indicated that economic recession, causing unemployment for Pacific people, decreased participation in education. Economic restructuring also precipitated early retirements and redundancy for Pacificans. To support other family members, students were coerced to leave school and enter the labour market. It is unclear why young school leavers are at risk for SIDS, but those who leave school at an early age are likely to miss out on education on sex, contraceptive methods and health issues that are delivered in schools. In addition, a low level of education may decrease the ability to absorb and act on health education and SIDS prevention programmes.

Bathgate et al (1994) further linked unemployment to low standard of living and found that this was likely to restrict one's ability to meet health costs and limit access to health care, including antenatal care and antenatal education. Bathgate et al (1994) also state that between 1987 and 1991 Pacific solo parents in New Zealand increased from 1,290 to 7,595. Identifying the impact of socio-economic and cultural factors on these 'unmodifiable risk factors' is important. The ICP study (Abel *et al,* 1999) discussed the impact of socio-economic and cultural factors in relation to low antenatal attendance and being young mothers. The study found the few participants who reported attending antenatal care and antenatal classes tended to have been 'raised in New Zealand and be tertiary educated' (1999:240). The majority who did not attend cited a number of factors for not attending. The barriers reported included not having time because of work commitments; language and transport problems and the classes were too large, impersonal and intimidating (Abel *et al,* 1999:241). Furthermore most participants tended to repeat customary practices by their mothers and grandmothers such as using a *"fofo"* (massager) rather than attending antenatal care. Teenage pregnancy, early school-leaving age of mother and unmarried mothers were concerns raised by the participants in the ICP study. To a large extent these young school-leaver and unmarried mothers were more likely to lack the moral support of partners and families, access to health education and most importantly, lack of financial support. In addition, this study indicated that mothers in this situation could be quite mobile in terms of where they resided, and even which room they slept in, depending on who else was living in their household. Under these conditions it is more difficult for these younger women to control the space that they and their baby occupy. For example, they may not be able to control the air quality in regard to being smoke free, or where and how their baby sleeps.

From an ecological perspective the division of SIDS risk factors into `modifiable' or `unmodifiable' is artificial as they are all interconnected and situated within, and influenced by, wider cultural, political and socio-economic conditions that are potentially changeable.

Conclusion

The 1991 the national SIDS prevention programme that focussed strictly on the 'modifiable' risk factors appears to have had less effect on Pacific infants than on non-Maori, non-Pacific infants. This may be because the programme had a poor understanding of the cultural and social environments of Pacific families. The 'modifiable' risk factors are embedded within particular cultural, social and political environments, which become important when change is required. From an ecological

perspective the division of SIDS risk factors into 'modifiable' or 'unmodifiable' is artificial as they are all interconnected and situated within, and influenced by, wider cultural, political and socio-economic conditions that are potentially changeable.

From this view the work to be done involves not only changing behaviours during pregnancy and caring for an infant, but also changing the policies, structures and environments that contribute in a broad sense to the risk factors mentioned. For example, in order for Pacific women to receive antenatal education and support provided by health services, more affordable clinics are needed within local communities rather than public hospitals where transportation could be a problem for many new parents. Regular health programmes within each ethnic community, providing health information in each Pacific language and context, could make a difference to the various Pacific groups. Since so many risk factors are associated with low socio-economic status, addressing social and economic inequalities could also reduce SIDS amongst Pacificans. In particular young and unmarried mothers need the moral support of culturally appropriate support groups with the participation of Pacific families and parents. Furthermore, ongoing education may contribute to enhancing the knowledge of these young mothers about the effect of SIDS, and financial support that will help develop and cater for safer environment for their babies.

Regular health programmes within each ethnic community, providing health information in each Pacific language and context, could make a difference to the various Pacific groups.

Acknowledgments

This paper is derived from Fuafiva Fa'alau's dissertation for her Master of Arts degree. We acknowledge the Department of Anthropology at Auckland of University where this dissertation was carried out. Our gratitude and thanks go to Dr Judith Huntsman and the Atiu Trust who provided a scholarship to complete this research. We would like to thank Carol Everard and the Pacific Health Research Centre for their input.

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Parents are the last people on earth who ought to have children
Samuel Butler (1835 - 1922)