

Treatment and outcomes of paediatric asthma in new zealand



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Inequities are present in the prevalence, treatment and outcomes of paediatric asthma in New Zealand (NZ). A sound body of literature and research confirms these inequities, and associates them with various axes, including socioeconomic status (SES) and ethnicity. A conceptual framework, Williams' model, is proposed to explain how basic and surface causal factors have resulted in such inequities in paediatric asthma in NZ. Finally, this essay articulates two evidence-based interventions which have been devised with one potent aim: to reduce the unfair disparities in the health status for different population groups.

Asthma can affect people of any age, yet is much more common in children than adults. On one hand, studies have suggested that the prevalence of paediatric asthma is similar between Maori and non-Maori (Holt & Beasley, 2002). Conversely, there is evidence that Maori boys and girls are 1.5 times as likely to be taking medication for asthma than non-Maori boys and girls (Ministry of Health, 2008). Yet, medicated asthma as a proxy for paediatric asthma prevalence may not be desirable as it fails to include those who should be medicated but are not currently due to barriers such as cost, access and education. This may have the effect of underestimating the true ethnic disparities. However, using asthma symptoms as a better indicator of asthma prevalence, evidence from the ISAAC study (2004) conclude that there are, in fact, significant ethnic variations; that the prevalence of recent wheeze is higher in Maori than in non-Maori children, and is lower for Pacific children than for other ethnic groups. These findings are consistent with an earlier study on paediatric asthma prevalence in New Zealand, suggesting

that the pattern of interethnic differences have persisted over time (Pattermore et al., 2004).

Perhaps the greatest difference in the prevalence of paediatric asthma between ethnic groups is the presence of more severe symptoms among Maori and Pacific children when compared with European children. Both Maori and Pacific children had symptoms suggesting more severe asthma; findings from the ISAAC study (2004) indicated that they reported a higher frequency of wheeze disturbing sleep reported than Europeans. Moreover, Maori and Pacific children are hospitalised more frequently and require more days off school as a result of their asthma than their European counterparts (Pattermore et al., 2004). Although asthma admissions among all children in NZ have remained relatively stable over the last decade, this not the case for all ethnicities (Craig, Jackson & Han, 2007). NZ European children have experienced a steady decline for hospital admission rates due to asthma, but this decreasing trend is not the case for Maori and Pacific children, of whom Metcalf (2004) found asthma hospitalisation rates for children under 5 to be four times more likely than that of NZ Europeans. Similar ethnic disparities in hospital admission rates for asthma have also been recognised in the United Kingdom, where children of African and South Asian origins have an increased risk of hospitalisation when compared with the majority European population (Netuveli et al., 2005). Furthermore, it seems worth noting that hospital admissions for Maori compared to non-Maori are not distributed equally: a geographical analysis found the difference in asthma hospitalisation rates between Maori and non-Maori to be more significant in rural areas than in urban areas, despite the fact there was no consistent

association between rurality and the prevalence of paediatric asthma (Netuveli).

As asthma is a chronic disease with no cure, the goal of asthma treatment is, instead, to control its symptoms. There are two key areas in asthma management: self-management (by the caregivers of children) through asthma education and knowledge; and management via medication. In a trial of a community-based asthma education clinic, Kolbe, Garrett, Vamos and Rea (1994) reported greater improvements in asthma knowledge among European than Maori or Pacific participants. A more recent study found that, compared to children of the European ethnic group, Maori and Pacific children with asthma received less asthma education and medication, had lower levels of parental asthma knowledge, had more problems with accessing appropriate asthma care, and were less likely to have an action plan (Crengle, Robinson, Grant & Arroll, 2005). Thus, it can be inferred that ethnic inequities in asthma education and self-management have been maintained throughout the years. Despite medication being a critical component of effective asthma management, studies have shown that Maori and Pacific children with severe morbidity may be less likely to receive preventative medications than NZ European children (Crengle et al.). Where reliever medications bring immediate, short-term relief for acute asthma attacks (an indicator of poor asthma control), preventers (or inhaled corticosteroids) prevent symptoms from occurring and is used in the long-term management of asthma (Asher & Byrnes, 2006). The ratio of reliever to preventer use is higher in Maori and Pacific than European children, implying a disproportionate burden; that despite a higher prevalence of asthma

symptoms, Maori and Pacific children are more likely to have sub-optimal asthma control. (“Asthma and chronic cough”, 2008).

Death from asthma remains a relatively uncommon event, and most are largely preventable. Yet, ethnic inequities are also present: Maori are four times more likely to die from asthma than non-Maori. Asthma deaths in Maori are higher than non-Maori for every age-group, including children from 0 to 14 years old (Asher & Byrnes, 2006).

There have been many studies attempting to evaluate the relationship between SES and paediatric asthma in NZ; yet, evidence is conflicting on such an association. In terms of prevalence, the Dunedin Multidisciplinary Health and Development Study (1990) argue that the SES of families has no impact on the prevalence of childhood asthma. There are many studies, however, that demonstrate that socioeconomic disadvantage adversely affects asthma severity and management. Damp, cold and mouldy environments are probably more frequent in houses of families with lower SES, and there is some evidence of a dose-response relationship with more severe asthma occurring with increasing dampness level (Butler, Williams, Tukuitonga & Paterson, 2003). Moreover, due to such barriers as cost and location, children of lower SES families have less frequent use of asthma medication and less regular contact with medical practitioners, which, in turn, results in higher rates of asthma-related hospital admissions (Mitchell, et al. , 1989). It is important to note that evidence exists to show higher proportions of Maori and Pacific ethnic groups living in more deprived socioeconomic decile areas with poorer housing, having household incomes of less than \$40, 000, and having caregivers with no high school qualification

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(Butler et al., 2003). If the gradient of increasing severity in asthma morbidity is steeper for Maori and Pacific children than Europeans, it seems likely that this could also be a manifestation of the influence of socioeconomic deprivation on childhood asthma. Socioeconomic deprivation is therefore not only more common, but has a stronger effect on health for Maori and Pacific Islanders.

Why, then, should such inequities be identified and addressed? Health inequities are, by definition, differences which are unfair, avoidable, and amenable to intervention. The basic human right to health guaranteed under the international human rights law affirms health – the highest attainable state of physical and mental health – as a fundamental human right; as a resource which allows everyone, including children, to achieve their fullest potential (United Nations, 2009). Ought such potential to be hindered by less than favourable health outcomes due to familial socioeconomic status or the ethnic group to which a child belongs to be a breach of human rights and is simply unjust. Thus, dealing with childhood asthma inequities is, for Maori and Pacific children in particular, reflective of their high need due to an unacceptable contravention of rights. Moreover, it is important to address Maori and non-Maori inequities because, as tangata whenua, Maori are indigenous to NZ. Kingi's (2007) report states that the Treaty of Waitangi has a role in protecting the interests of Maori, and it is, undoubtedly, not in their interests to be disadvantaged in health. There is therefore a strong ethical imperative, on the basis of both human and indigenous rights, for addressing inequities in the prevalence, treatment and outcomes of paediatric asthma in NZ.

Williams' (1997, adapted) model conceptualises the determinants of inequities as being of two kinds: basic causes and surface causes. It makes explicit the key drivers of inequities in the prevalence, treatment and outcomes of paediatric asthma in NZ; as in, what has created, and maintains, the inequities between ethnic and socioeconomic groups. These are referred to as the basic causes, or those factors which necessitate alteration to fundamentally create changes in population health outcomes and therefore address inequities (Williams). Surface causes are also related to the outcome but, where basic causes remain, modifying surface factors alone will not result in subsequent changes in the outcome; that is, health inequities persist (Williams).

As can be seen with paediatric asthma, ethnicity is strongly associated with SES in NZ. Yet, both ethnicity and SES are not independent factors; they have themselves been shaped by underlying basic causal forces. Inequities in the distribution of prevalence, morbidity and mortality of paediatric asthma seems to resonate with an undervaluing of Maori and Pacific lives and health in NZ. Using Williams' model, this undervaluing of Maori and Pacific people, and subsequent inequity, is deeply rooted in our colonial history (for Maori) and economic recession (for Pacific Islanders), as well as the scourge of institutional racism. Churchill (1996) argues that colonisation is based on the dehumanisation of indigenous people. Central to colonisation is the belief among colonisers of their superiority and the creation of a 'new history', with indigenous Maori knowledge relabelled as myths, the traditional landscape renamed, and land alienation. On the other hand, the economic downturn from the 1970s to early 1980s, which coincided with the

significant arrival of Pacific peoples to NZ, resulted in a shortage of jobs and a tightening of immigration policy (Dunsford et al., 2011). Pacific peoples were now labelled as 'overstayers', which culminated in the infamous 'dawn raids' (Dunsford et al.). Both indigenous Maori and Pacific migrants became ethnic groups defined by exclusion and marginalisation, which has been embedded in NZ society (thus, institutionalised racism). In other words, they have been removed from a 'sense of place' and belonging which is an entitlement of all New Zealanders.

The effects of the basic causal forces introduced unnecessary challenges and has led to disparities in the social status of Maori and Pacific peoples when compared with Europeans. This is manifested in the distribution of socioeconomic deprivation, where Maori and Pacific peoples are overrepresented in the most deprived areas (Mare, Mawson & Timmins, 2001). This is largely the result of the inequitable distribution of socioeconomic factors stemming from the basic causes; that is, below average educational attainment, high rates of unemployment and reduction of income among Maori and Pacific Islanders.

Ethnicity, deprivation and social status all give rise to what Williams' model labels as the 'surface causes'. The amalgamation of low socioeconomic status alongside less than favourable determinants of health and being marginalised has exacerbated to produce a quagmire in which inequities in health are a given for many Maori and Pacific peoples. This provides part of the explanation of the inequities in the prevalence, treatment and outcomes in paediatric asthma, as Maori and Pacific peoples are less likely to have routine visits to their GP, access to regular preventive medication, and to live

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in sufficient housing (therefore more susceptible to house dust mites and damp environments) - all of which seem to be due to cost constraints (Pattermore et al., 2004). However, this is unlikely to explain the full picture, as poor outcomes are also evident for children aged under six, in whom the provision of care is free of charge. Thus, other surface causes could be a lack of culturally appropriate services as well as differences in the quality of care received (Rumball-Smith, 2009).

Next in the causal pathway of Williams' model is 'biological processes', where the cumulative impacts of the basic and surface causal factors together with social status manifest themselves as diseases, such as asthma, via the notion of 'embodiment' (Williams, 1997, adapted). In the case of paediatric asthma, the immune responses of Maori and Pacific children may be compromised, making them more susceptible to complications in their already vulnerable health (as Maori and Pacific children with asthma are more likely to suffer more severe symptoms). These biological processes, in turn, determine health status (health, morbidity and mortality) and where we all sit on the spectrum. The issue with paediatric asthma is that many children are on the wrong end of the spectrum, and too many of these children are of Maori and Pacific ethnic groups.

One way in which inequities in the prevalence, treatment and outcome of paediatric asthma has been addressed is through housing improvement intervention programmes in NZ, such as the randomised controlled trial examining the effects of improvements in housing on the symptoms of asthma. Parents of children in the intervention group allocated a non-polluting, more effective replacement heater in their homes reported fewer <https://assignbuster.com/treatment-and-outcomes-of-paediatric-asthma-in-new-zealand/>

days of school, and fewer visits to the doctor and pharmacist for asthma (Howden-Chapman et al., 2008). Through increasing warmth, and reducing dampness and mould in households, housing intervention programmes directly improve the health status of all children with asthma. Moreover, fuel poverty is common in NZ; as in, unaffordable fuel and unsafe heating are a significant issue for many families, especially for Maori and Pacific peoples in whom higher rates of paediatric asthma prevalence, severity, hospitalisation and mortality occur (Asher & Byrnes, 2006). Thus, interventions of this kind, which prioritise socioeconomically disadvantaged communities and poorer quality housing (where there are a higher proportion of Maori and Pacific families), have the potential to reduce not only inequities in health status among ethnic groups, but also the inequitable distribution of adequate housing, a key social determinant of health.

After the Maori asthma review (1991), which contended that improving outcomes from asthma among Maori required promotion techniques that incorporated Maori visions and values, a trial of an asthma action plan was devised and undertaken by Maori from Wairarapa with the aim of increasing interactions between Maori community groups and the health sector, reducing inequities between Maori and non-Maori, and improving asthma in the Maori community. Over a period of six months, Maori with asthma were educated in asthma control, seen at marae-based asthma clinics, and were provided with credit card sized asthma action plans (Beasley et al., 1993). In addition to improvements in asthma morbidity (via improvements in asthma control), the programme was found to have benefits extending beyond the effects of asthma, including greater cultural affirmation and increased access

to other healthcare services among the Maori community. These successes were largely due to the involvement of the Maori community in the programme. 'For Maori, by Maori' interventions target the surface causes of Williams' model, which identified a lack of culturally appropriate care as a driver of inequities in paediatric asthma. Moreover, there is international evidence to show that similar interventions for other minority ethnic groups have also had beneficial effects (La Roche, Koinis-Mitchell & Gualdron, 2006). By taking into account the needs of groups which have historically been marginalised in NZ society, these interventions allow for a more culturally meaningful engagement with regard to the experience of asthma, and serves to reduce inequities in the differential access and receipt of quality care among Maori and Pacific peoples.

There is a myriad of evidence to suggest that ethnicity and SES are intrinsically linked to the inequities in the prevalence, severity, hospitalisation rates and mortality with regards to childhood asthma in NZ. Williams' model may explain this relationship: the negative effects of colonisation, the economic recession and institutional racism, especially on the key determinants of health, impact differentially on population groups, resulting in the disparities in outcomes of asthma among Maori and Pacific children when compared to their European counterparts. Based on this discussion, it can be seen that approaches to develop strategies need to both prioritise those with the greatest need as well as proceed in partnership with Maori and Pacific peoples in order to address the inequities in childhood asthma in NZ.