

Changing pattern of ill health for indigenous people

Control of lifestyle is beyond individuals and depends on social and political factors

Industrialising societies are said to have undergone various epidemiological transition stages, in which the transition from stage two to stage three involves a change from receding pandemics to lifestyle diseases.¹ The dynamics of this transition, which took thousands of years in Western countries, have been unprecedented and greatly compacted in time in most indigenous populations. Rather than a transition we see the rise of lifestyle non-communicable diseases at a time when the receding pandemics have not yet receded.² The pattern seems to be similar in indigenous people in their traditional lands, such as the Pacific, and in newly adopted metropolitan centres, such as New Zealand. We consider here the different dynamics of the epidemiological transition in indigenous people and argue that these are linked to socio-economic transitions beyond their power and their borders. Thus individual lifestyle interventions cannot be naively transferred to indigenous populations. Rather, what is required is appropriate national and international social and political commitment to health protection, with the specific interventions to be identified and implemented primarily by indigenous people.

Even with “traditional” communicable diseases, the experience of indigenous people has differed from that of Western countries.³ In Western countries agriculture, domestication of animals, the adoption of a sedentary existence, and the accompanying population increase and density contributed to the emergence of epidemics of the major communicable diseases.⁴ The European colonisation of the Pacific and the Americas after 1492 saw indigenous populations decimated by imported communicable diseases.⁵ These effects were not uniform, depending highly on local conditions. For example, in the Pacific indigenous people experienced high mortality from imported infectious diseases mainly when their land was taken and their economic base, food supply, and social networks were disrupted. When land was not taken in large amounts by European settlers the death rate was relatively low.⁵ Similar social disruption resulting in increases in communicable disease has been seen more recently in eastern Europe.⁶

Just as the introduction of the major communicable diseases did not occur in a vacuum, neither has the rise of non-communicable diseases.⁷ For example, the Pima Indians of Arizona had their own way of life and economy until the late 19th century, when the new white settlers upstream diverted their water supply.⁸ This disrupted a 2000 year old tradition of irrigation and agriculture, causing poverty and starvation. The Pima then had to survive on lard, sugar, and flour supplied by the United States government, resulting in one of the highest rates of prevalence of diabetes in the world—a particularly graphic example of a population living with the consequences of decisions taken upstream.⁹

Such problems persist. In one Pacific country, fishing for food is illegal in front of certain villages, in an

area recently leased to a commercial fishing company partly owned by a political leader. Inequitable land distribution in Pacific Island countries, deforestation in Asia by multinational companies, and mass purchasing of individual land for grazing and cash cropping in the Americas all continue to compromise the ability of indigenous people to grow food and sustain adequate nutrition. The use of the Marshall Islands by the United States for nuclear testing led to ecological destruction, making farming impossible and fish radiotoxic and resulting in whole populations being displaced and becoming economically dependent, with a diet now based on imported processed and canned foods.¹⁰

Vested political and commercial interests also affect trade policy. For example, in the Pacific, healthier low fat local sources of protein, such as fish, generally cost 15-50% more and are less accessible than imported fatty mutton pieces, chicken pieces, or tinned fish. Fiji’s ban on the importation of mutton flaps immediately resulted in New Zealand threatening a complaint to the World Trade Organization,¹¹ an action similar to the tobacco companies flooding of developing countries with their products.¹²

Although non-communicable diseases are often attributed to genetic factors or individual lifestyle, they are also caused by broader political and social factors needing social action.⁹ The World Health Organization’s view that non-communicable diseases cannot be addressed by the medical profession alone, and require public, private sector, socioeconomic, and political involvement,¹³ is equally valid for indigenous people. Despite the best intentions of WHO the year 2000 has come and gone, and instead of “Health For All,” health care is increasingly being privatised—effectively putting health out of the reach of those most in need, while they face increasing socioeconomic pressures against healthy lifestyles. Most indigenous health infrastructures cannot accommodate expensive healthcare models designed to meet the needs of 3% of the population; however, they can easily deliver comprehensive primary health care to the other 97%. What is required, rather than the transfer of individual lifestyle oriented health promotion to indigenous people, is the active involvement of indigenous people in primary health care and in the planning and implementation of health protection programmes at the local, national, and international levels.

Sunia Foliaki *Wellcome Trust visiting research fellow*
(s.foliaki@massey.ac.nz)

Neil Pearce *director*

Centre for Public Health Research, Massey University, Wellington Campus, Private Box 756, Wellington, New Zealand

The Centre for Public Health Research is supported by a programme grant from the Health Research Council of New Zealand. SF is funded by a grant from the Wellcome Trust for epidemiology of asthma and other non-communicable diseases in the Pacific.

Competing interests: None declared.

BMJ 2003;327:406-7

- 1 Omran AR. The epidemiologic transition. A theory of the epidemiology of population change. *Milbank Mem Fund Q* 1971;29:509-38.
- 2 Gaylin DS, Kates J. Refocusing the lens: epidemiologic transition theory, mortality differentials, and the AIDS pandemic. *Soc Sci Med* 1997;44:609-21.
- 3 Pearce N, McMichael AJ. Interactions of environmental change and human health. In: *Our fragile world: challenges and opportunities for sustainable development*. Oxford: EOLSS, 2001:795-804.
- 4 Diamond J. *Guns, germs and steel*. London: Vintage, 1998.
- 5 Kunitz S. *Disease and social diversity*. New York: Oxford University Press, 1994.
- 6 Bobak M, Marmot M. East-west mortality divide and its potential explanations: proposed research agenda. *BMJ* 1996;312:421-5.
- 7 Pearce N. Traditional epidemiology, modern epidemiology, and public health. *Am J Publ Health* 1996;86:678-83.
- 8 Schulz LO. Traditional environment protects against diabetes in Pima Indians. *Healthy Weight Journal* 1999;13:68-70.
- 9 McKinlay JB. The promotion of health through planned socio-political change: challenges for research and policy. *Soc Sci Med* 1993;36:109-17.
- 10 Yamada S, Palafox N. On the biopsychosocial model: the example of political economic causes of diabetes in the Marshall Islands. *Fam Med* 2001;33:702-4.
- 11 Fiji Government. Health of Fijians more important than New Zealand threats. Press release, 15 March 2001. http://fiji.gov.fj/press/2001_03/2001_03_15-01.shtml (accessed 29 Jul 2003).
- 12 Barry M. The influence of the US tobacco industry on the health, economy, and environment of developing countries. *N Engl J Med* 1991;324:917-20.
- 13 World Health Report. *Making a difference*. Geneva: WHO, 1999.

Health benefits of swimming pools in remote Aboriginal communities

Would depend on community participation and long term sustainability

Papers p 415

We welcome the study in this issue showing improved health outcomes for children after swimming pools were installed in two remote Aboriginal communities in Western Australia—but with guarded optimism.¹ Improvements in Aboriginal children's health, particularly in remote communities, have been remarkably difficult to achieve, so successful interventions that are potentially transferable warrant serious consideration.

Optimism, however, must be guarded. There is no quick fix for the many health problems that occur in remote communities, including both infectious and chronic illnesses. As the authors note, pyoderma and chronic ear disease have remained intractably high in children for decades. In some communities the prevalence of trachoma is as high as 40% in children under 10 years.² Mortality for indigenous infants is 2.5 times as high as for all Australia,³ and hospital admissions for children under 14 years are 1.5 times as high.⁴ As the authors point out, continued efforts in the areas of improved housing, sanitation, nutrition, education, and access to health care are all a high priority. We would like to add community hope, involvement, and control as essential ingredients for change through community development.⁵

Adding a swimming pool has costs and benefits that have to be weighed in the context of the community's interest and capacity, including ecological capacity. An assessment with each community interested in a pool is an essential prerequisite, and several factors need to be considered.⁶ The cost of establishing pools and their associated amenities in remote communities and the cost and feasibility of maintenance are not addressed in this paper. Also not considered are the considerable opportunity costs in communities working to maintain basic goods and services. Nor is it known whether community members have been trained to maintain the pools, thereby gaining useful skills. A pool can turn from a place of fun and health gain to a source of illness and even tragedy if maintenance and supervision are neglected for any reason. Such threats, however, need to be considered in

the context of the poor quality of natural water supplies turned to as alternatives, and the difficulties for adequate supervision that these pose. Moreover, artesian water is a precious commodity and some parts of the desert have insufficient water supplies to maintain a pool in the long term.⁷ Water savings in other ways may be necessary to offset the ecological "surprise" of an evaporating pool of water in hot, arid conditions.

The authors allude to population mobility, which continues at high levels as people move between communities and travel for ceremonial and other reasons.^{7,8} This will result in use of the pool being intermittent, which could have an impact on the effectiveness of pools as a health intervention, although in this study the children who were seen fewer than three times did not have a greater prevalence of sores than those seen more often. Certainly, high mobility is a major issue both for the design of suitable health interventions that are appropriate for a mobile population and for robust evaluation of such interventions.

The authors say that there did not seem to be any other changes that might have accounted for the health improvements seen, although this could be quite difficult to assess, especially given the high rate of movement in and out of communities. And it is impossible to tease apart the extent to which immersion in the pool, heightened awareness of skin hygiene, or a range of other factors contributed to the results documented in this study. However, it is probably more important to monitor whether improved health outcomes are sustained than to deliberate on the intricacies of their underlying mechanisms. The proposed ongoing monitoring in this study is very valuable.

Considerable health benefits for children and adolescents might be expected from regular relief from heat and boredom, combined with pleasurable physical activity in a safe meeting place where disruptions—such as those related to alcohol and petrol sniffing, which are issues in some communities—are likely to be banned. The improved school attendance in this study is testimony to the potential