Short report

Avoidable mortality and life expectancy in New Zealand

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The effect of avoidable mortality on the life expectancy of Maori and non-Maori New Zealanders has been examined using a method similar to that of Benavides *et al*¹ for the Valencia region of Spain. Deaths that are avoidable by primary and secondary prevention are considered separately and the potential number of years of life gained by their prevention is compared.

Methods: Sex specific abridged life tables were constructed for the Maori and non-Maori populations using data from the Departments of Health and Statistics. Further tables were then constructed with: (1) primary avoidable, (2) secondary avoidable, and (3) all avoidable deaths omitted from the numerator of the age specific mortality rates.

Primary avoidable deaths² (at the specified ages) were: lung cancer (5–64); liver cirrhosis (15–74); and motor vehicle accidents. Secondary avoidable deaths² were: respiratory diseases, measles (1–14); whooping cough (0–14); tuberculosis, Hodgkin's disease, appendicitis, hernia, cholelithiasis and cholecystitis, typhoid (5–64); cervical cancer (15–64); chronic rheumatic heart disease, asthma (5–44); tetanus (0–64); osteomyelitis, hypertensive and cerebrovascular diseases (35–64); perinatal and maternal deaths.

Potential gains in life expectancy are expressed as years of life gained (YLG) and as a percentage of the sex and race specific "true" life expectancy – that is, that calculated with all causes of death included. As in Benavides *et al*,¹ competitive mortality is not accounted for, but it is assumed that people who do not die if avoidable deaths are prevented will not die at the same age from other causes.

Results: Table 2 shows the main results. The difference between males and females in the relative importance of primary and secondary prevention is a result of the greater male mortality from motor vehicle accidents. Life tables constructed with these deaths not included in

the primary prevention group produce a male/female pattern of YLG by primary prevention that is similar to that for secondary prevention.

Tables constructed without perinatal mortality in the secondary preventable group of causes of death (to enable comparison with Benavides *et al*¹) show that this group is similarly dominated by the perinatal deaths. Excluding perinatal mortality, YLG by secondary prevention would be 0.3 for non-Maori males and 0.42 for non-Maori females, compared with 0.38 and 0.34 for males and females respectively in Valencia. For primary preventable causes YLG in Valencia were 1.59 and 0.46, compared with 1.28 and 0.63 for (non-Maori) males and females respectively.

Discussion: The accuracy of Maori mortality statistics is known to be questionable.³ A study of mortality from coronary heart disease⁴ found that official statistics underestimated Maori mortality by 82% and overestimated non-Maori mortality by 5%. Similar underestimation is likely to occur for other causes of death. This study therefore almost certainly underestimates both the potential gain in life expectancy for Maori, and the difference between Maori and non-Maori avoidable mortality. Maori need to be included in any attempts to reduce this ethnic disparity, especially with regard to secondary avoidable mortality where issues of cultural appropriateness and sensitivity of health services must be addressed.

In New Zealand less than 3% of health spending was devoted to public health services in 1992.⁵ If this spending were to be increased or allocated differently, this study suggests that a substantial further benefit could be gained from primary prevention by public health measures. However, the fact that the primary avoidable deaths are dominated by motor vehicle accidents means preventive programmes with the greatest potential gains may be funded from outside the health budget.

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Life expectancy at birth (LEB) and years of life gained (YLG) before and after excluding avoidable deaths, New Zealand 1985–87

	LEB (mean (SEM))	YLG	% Gain	LEB (mean (SEM))	YLG	% Gain
	<i>Maori male</i>			<i>Non-Maori male</i>		
All deaths	67.99 (0.25)			71.34 (0.06)		
Primary preventable excluded	69.41 (0.25)	1.42	2.09	72.62 (0.06)	1.28	1.79
Secondary preventable excluded	69.14 (0.25)	1.15	1.69	72.34 (0.06)	1.00	1.40
All preventable excluded	70.61 (0.25)	2.62	3.85	73.65 (0.06)	2.31	3.24
	<i>Maori female</i>			<i>Non-Maori female</i>		
All deaths	73.36 (0.30)			77.44 (0.06)		
Primary preventable excluded	74.26 (0.30)	0.90	1.23	78.07 (0.06)	0.63	0.81
Secondary preventable excluded	75.10 (0.30)	1.74	2.37	78.48 (0.06)	1.04	1.34
All preventable excluded	76.04 (0.30)	2.68	3.65	79.12 (0.05)	1.68	2.17

1 Benavides FG, Orts R, Perez S. Adding years to life: effect of avoidable mortality on life expectancy at birth. *J Epidemiol Community Health* 1992;46:394–5.

2 Holland WW, ed. *European Community atlas of avoidable death*. Oxford: Oxford University Press, 1988.

3 Graham P, Jackson R, Beaglehole R, de Boer G. The validity of Maori mortality statistics. *NZ Med J* 1989;102:124–6.

4 Tipene-Leach D, Stewart A, Beaglehole R. Coronary heart disease mortality in Auckland Maori and Europeans. *NZ Med J* 1991;104:55–6.

5 McKendry CG, Muthumala D. *Health expenditure trends in New Zealand 1980–1992*. Wellington: Department of Health, 1993.