

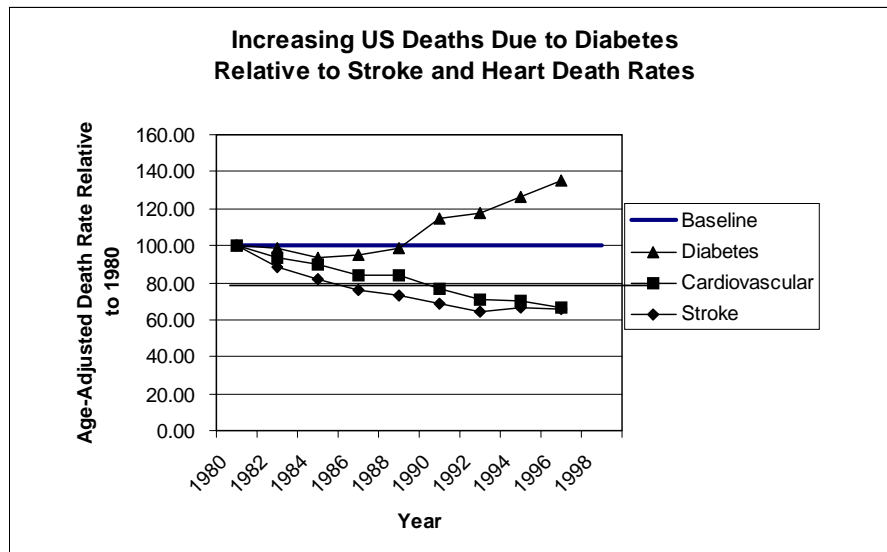
2. An Epidemic in Progress

2.1 International Data

In 1985, WHO estimated that 30 million people around the world had diabetes. By 1999, using the data available from published prevalence studies and information on the demographic characteristics of each country, WHO's new estimates reflected more than a quadrupling in numbers over a 15 year period, estimating that diabetes affects approximately 130 million people world-wide. WHO predicts a rise to approximately 300 million people with diabetes by year 2025⁴⁶. The 300 million people with diabetes include Type 1 diabetes. Between 80% and 90% of these are people with Type 2 diabetes.

The graph below highlights the increase in diabetes death rates compared to heart and stroke death rates in the USA.

Graph 2: Increasing US Diabetes Deaths 1980 – 1996



Source: National Centre (USA) Health Statistics and Nature Medicine April 99: 5:364

Although the increase in death due to diabetes reflects the increase in the numbers with both Type 1 and Type 2 diabetes, it is the rise in numbers with Type 2 diabetes which is driving the epidemic.

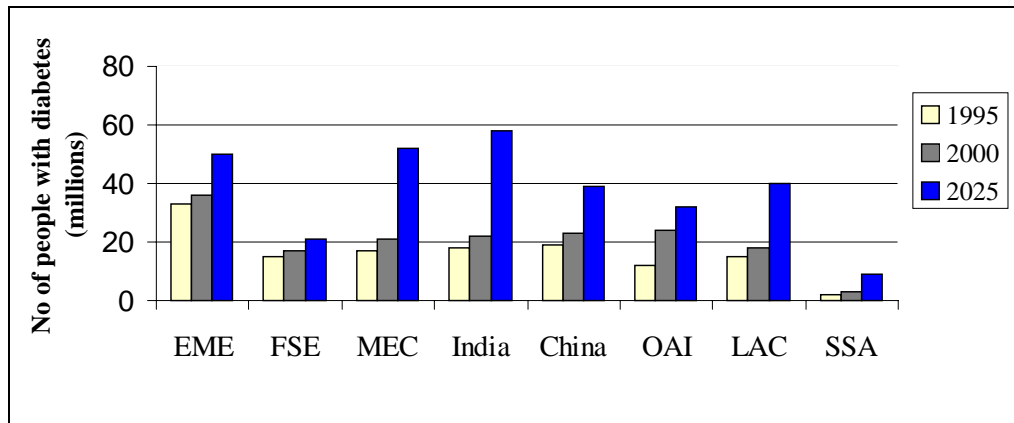
⁴⁶ International Diabetes Federation, IDF2, 1999; King H, Aubert R, Herman W, 1995.

Likely causes of increase in Type 2 diabetes are as follows:

- Ageing populations
- Lack of physical activity
- Unhealthy eating habits
- Socio-economic changes
- Industrialisation and urbanisation
- Previously undiagnosed people now recognised because of greater awareness
- Inappropriate preventative public health management of risk factors (diet and exercise)

In the past, Type 2 diabetes tended to be a condition experienced by a small group of people as they aged. In some parts of the world, however, Type 2 diabetes is also becoming increasingly common in young people. Anecdotal evidence obtained from medical professionals during this study indicated that they were now even seeing more teenagers with Type 2 Diabetes. This occurrence seemed to be increasing, especially in the ethnic minorities. At the joint IDF-WHO Council Meeting in Sydney in August 1999 this was well documented⁴⁷. The New Zealand Ministry of Health’s diabetes population forecasting model is consistent with WHO estimates and forecasts.

Graph 3: Estimates (1995) and predictions (2000 and 2025) of the absolute numbers of people with diabetes



EME = Established market economies
 FSE = Formerly socialist economies of Europe
 MEC = Middle Eastern Crescent
 OAI = Other Asia and islands
 LAC = Latin America and the Caribbean
 SSA = Sub-Saharan Africa

Source: WHO and International Diabetes Federation, several publications

In Graph 3, New Zealand is included with the established market economies (EME) grouping.

⁴⁷ International Diabetes Federation, IDFI, 1999.

2.2 The Epidemic in New Zealand

(a) Changing NZ population demographics

The population base of New Zealand is expected to change within the next 50 years. The main projections are:

- Statistics New Zealand population projections to the year 2051 show that the population is expected to grow from 3.83 million in mid-2000 to 4.35 million in year 2051. This growth trend represents an increase of 0.27% per annum over the next 51 years.
- The number of births per annum is expected to decrease over the next 51 years. The decrease is expected to be 22% over the period 2000-2051. The proportion of births will fall faster for some ethnic groups. By 2051, Maori, Pacific Island and Asian births will make up the majority of new-borns nationwide. They are already over 50% of births in the greater Auckland area.
- The average age of the New Zealand population is increasing. In 1997, 11.5% of the population was aged 65 or over and the median age was 33.5 years. In the year 2051, a quarter of the population will be 65 or over and the median age is expected to be 45 years.

The increase in the elderly population has important implications for the whole health sector. As Type 2 diabetes mainly affects people as they age, the increase in the number of people with this condition will place extra demand pressure on health services. Areas where costly health interventions due to complications can be prevented or delayed will help reduce the extra demand placed on health services by the ageing population in the future.

(b) Ministry of Health model used to predict prevalence in 20 years

The Ministry of Health's model to project the number of people with Type 2 diabetes does not include changes in known risk factors for diabetes and so may underestimate those likely to get diabetes. Given that current trends of increased obesity, unhealthy eating and exercise may not improve, the results of the Ministry's model are potentially understated. The scenarios used in our model are based on the prevalence figures for each 5-year period recorded in Table 4 below. No data exists for other risk projections and so it has been necessary to use assumptions to estimate the implications for those with diabetes.

Table 4: Diagnosed Type 2 diabetes in New Zealand by Three Ethnic Groups

Summary Table of Prevalence of Those Diagnosed with Type 2 Diabetes – MOH Forecast Model						
	2001	2006	2011	2016	2021	% inc.
Pacific Islanders	8,755	10,612	12,831	15,341	18,259	109%
Maori	24,824	29,398	34,715	40,565	47,073	90%
European and others	72,825	79,328	86,349	93,670	101,417	39%
Total number	106,404	119,338	133,895	149,576	166,749	

Source: MOH Model, estimate based in 1998/99 figures but still current at April 2001

Table 4 shows that although Pacific Island people with diabetes are a relatively small proportion of the total number of people with diabetes, they are one of the fastest growing groups. Maori people with diabetes are also a group growing rapidly with an estimated 90% increase over 20 years. The growth in the number of Europeans is slower, but it is still a significant increase of 39%.

Although the number of people with diagnosed diabetes is already large, international evidence suggests that there are likely to be large numbers of people with undiagnosed diabetes or IGT. Table 5 shows the prevalence of Type 2 diabetes, including estimates for those who are undiagnosed and those who may have IGT in New Zealand, based on the structure of current health services, which rations access and hence slows diagnosis.

The true numbers of undiagnosed people with Type 2 is currently not known⁴⁸. However, in the United States, the National Institute of Health has estimated that an equal number of those with diagnosed Type 2 diabetes could be undiagnosed. The same study estimates that IGT could possibly be more than three times as prevalent as diagnosed diabetes.⁴⁹ In New Zealand, the workforce studies have indicated that undiagnosed diabetes is closer to 50%.⁵⁰

Table 5: Prevalence of Type 2 diabetes and IGT in New Zealand – Diagnosed and Undiagnosed.

Prevalence of Type 2 diabetes and IGT – Diagnosed and Undiagnosed					
	2001	2006	2011	2016	2021
Diagnosed ^(a)	106,404	119,338	133,895	149,576	166,749
Undiagnosed ^(b)	53,202	59,669	66,947	74,788	83,375
Total Type 2	159,606	179,007	202,855	224,364	250,124
IGT ^(b)	319,213	358,013	401,684	448,727	500,247

Sources: (a) Ministry of Health projections; (b) PricewaterhouseCoopers estimates of current scenario

⁴⁸ Moore MP, Lunt H, Diabetes in NZ, 2000.

⁴⁹ National Institute of Health, 1999.

⁵⁰ Baker J, Metcalf P, Scragg, 1988; Schaaf D, Scragg R, Metcalf P, 2000.

(c) Prevalence and Incidence Studies

A number of studies have been undertaken by other researchers to estimate the number of New Zealanders with diabetes. Table 6 below summarises these studies⁵¹.

Table 6: Prevalence of Type 2 diabetes, mid-1990s

Type 2	Europeans	Maori	Pacific Is
% of people with diabetes who have Type 2 diabetes	89%	95%	95%
South Auckland Study >30 age	4.2%	7.9%	5.5%
Males with diabetes who are unemployed (South Auckland)	37%	62%	75%

Source: D Simmons, 1996

Table 7 below briefly summarises the results of several other studies designed to describe the age and ethnic characteristics of the population groups with diabetes.

Table 7: Workforce Studies

Site	Year	Age (yr)	European	Maori	Pacific Is
Kawerau ^(a)	1984	40-60	1%	8%	-
		> 60	8%	20%	-
Dunedin ^(b)	1990	50-69	8%	-	-
Christchurch ^(c)	1991	>65	10%	-	-
Mangere/Otara ^(d)	1992/3	30-39	1%	3%	1%
		40-49	2%	8%	6%
		50-59	5%	15%	13%
		60-69	8%	18%	15%
		70+	9%	12%	11%

Sources: (a) Baker, Metcalf, Scragg, 1988; (b) Bourn, Mann, 1992; (c) Lintott, Hanger, Scott, Sainsbury, Frampton, 1992; (d) Simmons, Gatland, Leakehe, Fleming, 1995

The Fletcher Workforce study⁵² examined workers health at two sites in the North Island. It found that of people between the ages of 40 and 60, 1% of Europeans had diabetes and 8% of Maori people. The proportion increased strongly for the over 60 age group where 8% of all Europeans at that age had diabetes and 20% of Maori.

⁵¹ Simmons D, 1996.

⁵² Baker J, Metcalf P, Scragg R, 1988.

Evidence from a Dunedin general practice⁵³ found that 8% of Europeans had non-insulin dependent diabetes mellitus and IGT. A slightly later study carried out in Christchurch in 1991⁵⁴ estimated that the proportion of Europeans with diabetes mellitus aged over 65 was 10%.

An even later study in Auckland carried out in 1992/1993⁵⁵ found significant increase in prevalence with age of European, Maori and Pacific Island people up to the age of 70. By 69, however, prevalence for Maori and Pacific Island people dropped off, perhaps reflecting the higher rate of early death for their people with diabetes (and hence lower prevalence in the remaining population). It should be noted that undiagnosed diabetes, IGT and even elevated random blood sugars are seen as predictors for sudden or premature death⁵⁶. The prevalence for diabetes is higher for Maori than the other two ethnic groups at each age band.

The studies in Tables 6 and 7 of prevalence rates of diabetes in New Zealand provide evidence for projecting the likely numbers of those with Type 2 diabetes or the propensity for it among European, Maori and Pacific Island peoples.

(d) Loss of Disability Life Years

Ministry of Health analysis currently ranks diabetes fourth in relation to the number of disability life years lost across the population. As diabetes often contributes to stroke and IHD, but is not recorded as such, the real loss in disability life years may be greater than this.

As the epidemic continues to become more prevalent, unless managed, the real loss in disability life years will be greater again.

⁵³ Bourn D, Mann J, 1992.

⁵⁴ Lintott CJ, Hanger HC, Scott RS, Sainsbury R, Frampton C, 1992.

⁵⁵ Simmons D, Gatland BA, Leakehe L, Fleming C, 1995.

⁵⁶ Balkan B, 1999; Barrett-Connor E, Ferrara A, 1998; Fuller JH, Shipley MH, Rose G, et alia, The Whitehall Study 1980; Gu K, Cowie CC, Harris M, 1998; Hanefield M, Temelkova-Kurktscher T, Schaper F et alia, 1999.