

Epidemiology and Health Information Branch

Information Circular No. 11

Diabetes Mellitus

Definition of the Problem

Diabetes mellitus is usually classified as:

1. **Insulin Dependent Diabetes Mellitus** (IDDM or Type 1) - This diagnosis is usually made before the age of 40 and insulin therapy is commenced soon after diagnosis. It is an 'insulin deficiency' state which results from pancreatic cell damage.
2. **Non Insulin Dependent Diabetes Mellitus** (NIDDM or Type 2) - This condition is usually diagnosed after the age of 40 years. Obesity is a major risk factor for NIDDM and treatment involves changes in food intake and physical activity. This condition results from resistance to the effect of insulin and inadequate insulin secretion.

80-85% of diabetics are in this category.

The Impact on Health Status

Diabetes is a major cause of death and disability. However, Figure 1 shows that in 1984-88 the general mortality attributed to diabetes was lower in Queensland than among the general Australian population. Queensland Aborigines and Torres Strait Islanders are a high risk group for diabetes. The Standardised Mortality Ratio for diabetes is more than ten times the Queensland average in areas where Aborigines and Torres Strait Islanders comprise the majority of the population.

The risk of coronary artery disease for diabetics is increased twofold in men and fourfold in women.

Strokes are four times more common among diabetics.

Vascular complications are of major concern for diabetics.

Diabetes is the leading cause of leg amputations and visual impairment in adults¹.

Diabetic patients are major users of renal dialysis facilities.

The psychological stress, (particularly for persons with IDDM) of coping with a chronic disease which requires close monitoring and usually daily injections, should not be underestimated.

Financial Cost

It was estimated in 1985, that non-hospital costs vary between \$1,000 and \$2,000 per person annually, depending on the type of diabetes. The direct medical costs of diabetes to the Australian health care system were calculated at \$650 million per annum with overall costs being in the order of \$1.2 billion.^{1,2}

Where and for Whom is this a Problem?

It is estimated that 2-3% of the total Australian population have diabetes². These figures have been derived from recent surveys^{3,4} and take into consideration the estimated number of undiagnosed diabetics. People with impaired glucose tolerance (often unmasked in pregnancy) may be at increased risk of developing NIDDM.

National Health Survey results for Queensland show that 1.6% of the population have Diabetes Mellitus⁵. Figure 2 provides a comparison of prevalence rates for Queensland Health Regions. The rate of variation between regions is not statistically significant.

Available data suggests that 1 in 200 pregnant women in Australia have diabetes². In view of the increased risk of still birth and neonatal death in diabetic pregnancies, routine screening for diabetes in pregnancy is important. Specialist prenatal care should be available for all pregnant diabetics.

Based on information of overseas trends, the rate of diabetes is expected to increase substantially in the next decade. Since the prevalence of diabetes rises steeply with age (Figure 3) the increasing proportion of aged people in the population is a major contributing factor in this phenomenon.

Groups most at risk

Particularly high rates of NIDDM have been noted in some populations who have changed from a traditional to an urban lifestyle. This is especially so for the Aboriginal and Torres Strait Islander populations^{6,7,8}, although genetic susceptibility has been demonstrated in Micronesians, Mexican Indians and Australian Aborigines⁹.

Overall prevalence of 8-19% has been reported for Aborigines¹⁰ and a rate of 13-19% for Torres Strait Islanders⁸.

For people whose birthplace was other than Australia, the National Health Survey reported rates higher than those for the Australian born population. In some instances (Southern Europe) the rate was more than twice the Australian rate¹¹.

What Can Be Done?

Primary prevention has an important role in both types of diabetes since the causes for IDDM are yet to be accurately defined¹. In view of the observation that only a minority of non-insulin dependent diabetics have never been overweight¹², it is important that programmes address the problem of obesity by emphasising balanced nutrition and exercise. This approach has also been recommended for insulin-dependent diabetes because of the demonstrated benefit of weight control (combined with a diet low in fat and sugar) and exercise⁶.

Programmes that address the risk factors of smoking and hypertension should also be a feature of diabetic education. There is an association between diabetes and cardiovascular complications.

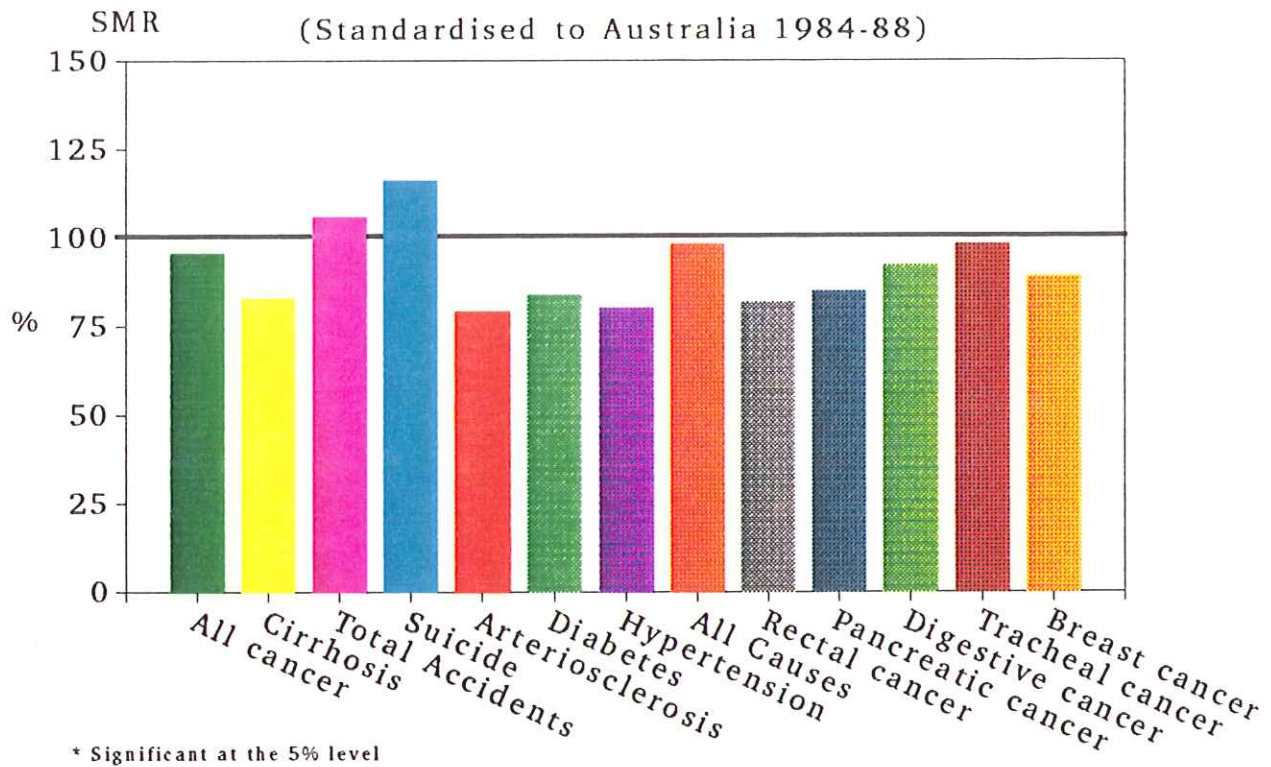
Aborigines and Torres Strait Islanders are among the most 'at risk' groups of developing diabetes. It is essential that intervention program for these groups are developed and controlled by themselves to ensure cultural appropriateness¹³. In addition, ownership of these programmes by the communities themselves should enhance compliance. Structural changes may be necessary in many communities to provide access to the variety of foods necessary for good health.

The principle of maintaining good nutritional practices throughout the lifespan should be promoted for all the Australian population. The evidence of the association between obesity and non-insulin dependent diabetes together with the reported effect of lifestyle on insulin-dependent diabetes, make programmes addressing these issues a high priority now and in the coming decade.

References

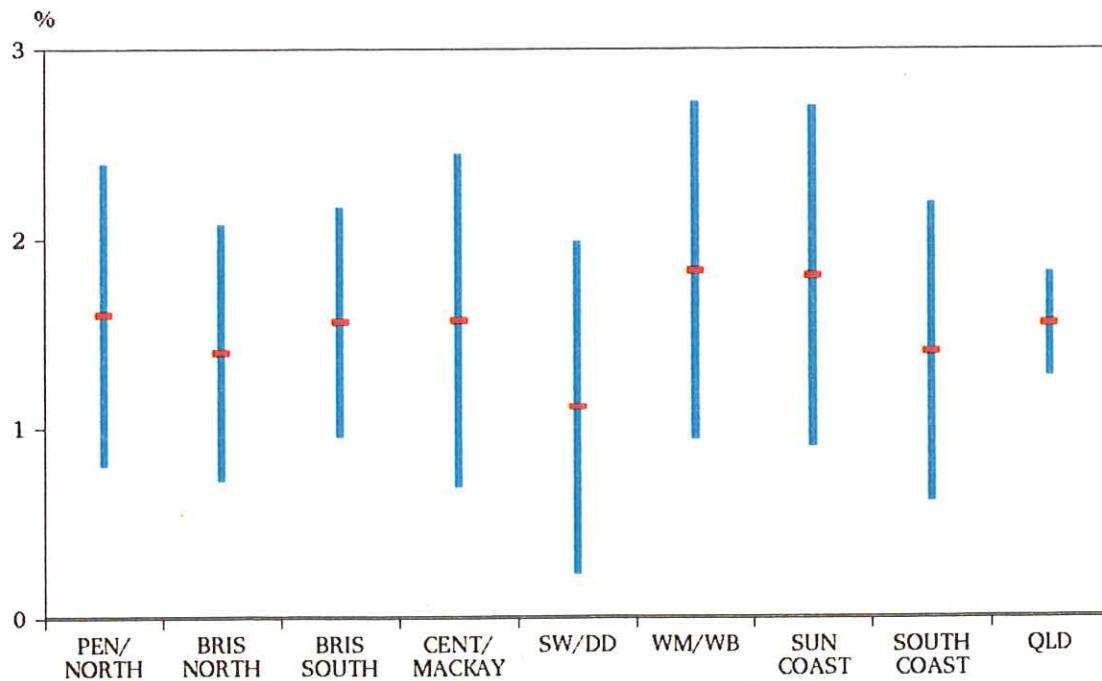
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2. Diabetes Australia Diabetes in Australia - Looking to the future. A report prepared for Diabetes Australia by the Australian Diabetes Society. Canberra:Reynolds Printing, 1988.
3. Glatthaar C, Wellborn TA, Stenhouse NS, Garcia-Webb P. Diabetes and impaired glucose tolerance:A prevalence estimate based on the Busselton 1981 survey. *Med J Aust* 1985;143:436-440.
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Figure 1: QUEENSLAND-MORTALITY 1984-88
Standardised Mortality Ratios* - Persons



Source: Epidemiology and Health Information Branch, Queensland Health

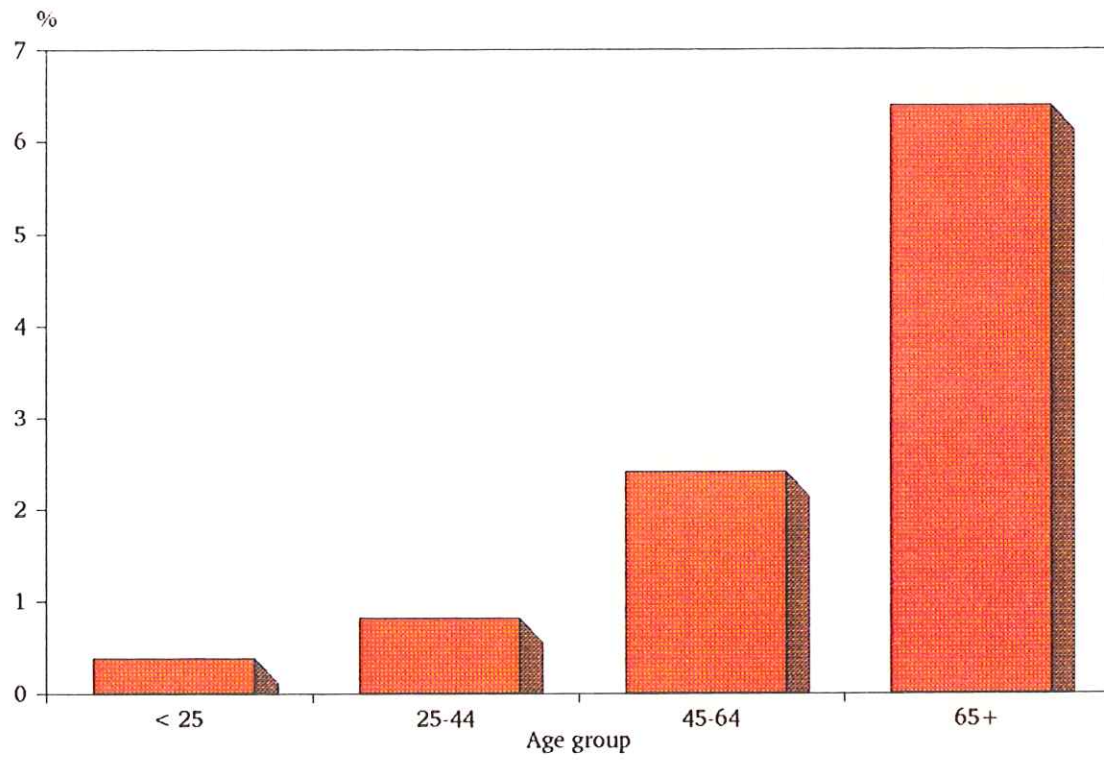
Figure 2: PREVALENCE* OF DIABETES BY HEALTH REGION, QUEENSLAND 1990



* 95% Confidence Intervals

Source : National Health Survey 1989-1990

Figure 3: PREVALENCE OF DIABETES MELLITUS
BY AGE GROUP, QUEENSLAND 1990



Source: National Health Survey 1989-1990

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