AIHW
AUSTRALIAN INSTITUTE OF HEALTH & WELFARE

9

bulletin

A picture of diabetes in overseas-born Australians

Introduction

Diabetes is a long-term condition in which blood glucose levels become too high because the body produces little or no insulin, or cannot use insulin properly. There has been a dramatic worldwide increase in the prevalence of diabetes in recent years (Drivsholm et al. 2001; Dunstan et al. 2002; Harris et al. 1998; IDF 2000; Pan et al. 1997; Ramachandran et al. 1997). This rise primarily reflects the increasing prevalence of Type 2 diabetes in both developed and developing countries, but especially in Asia and the Pacific. The World Health Organization predicts that global diabetes prevalence will continue increasing and that the current estimate of 150 million diabetes cases will double by 2025 (WHO 2002).

The Australian Diabetes, Obesity & Lifestyle Study estimated that almost one million Australians have diabetes, with Type 2 diabetes accounting for 85–90% of cases (Dunstan et al. 2001). Some Australians, such as Aboriginal and Torres Strait Islander peoples and those born in some overseas regions, are at greater risk of diabetes (AIHW 2002).

This bulletin describes patterns of diabetes prevalence, hospitalisations and deaths amongst Australians who were born overseas and compares these patterns with their Australian-born counterparts. This analysis is important because it contributes to the planning and management of diabetes services for people of different cultural and linguistic backgrounds.

The descriptive content of this bulletin also contributes to the global work being undertaken to understand why diabetes has affected countries and ethnicities differently around the world. For example, experts are unsure of whether differences in prevalence are linked to genetic factors of a country's population, its diet and lifestyle, or a combination of these.

CONTENTS

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Background

International epidemiological studies have shown that various ethnic groups, such as Indians and Chinese who migrated; Pacific Islanders; Indigenous Australians; and Pima American Indians are more susceptible to Type 2 diabetes than other ethnicities. The introduction of western culture into these communities seems to enhance their susceptibility to diabetes (Colagiuri et al. 1998; Dunstan et al. 2002). An evaluation of international diabetes prevalence studies concluded that ethnic minorities within industrialised countries face an increased risk of diabetes (King & Rewers 1993). This conclusion was supported by Riste et al. (2001) who found that the prevalence of diabetes amongst Britons living in urban Manchester who were of European descent was 20% compared with 22% for those of Afro-Carribbean descent and 33% for those of Pakistani descent.

Abate & Chandalia (2003) have differentiated between the physiological cause of diabetes in different ethnic groups as either insulin resistance or insufficient insulin production. For example, they found that Indians and Hispanics are more often insulin resistant—insulin is not utilised as it should, resulting in high blood glucose. Whereas, African-American people with diabetes more commonly appear to produce insufficient levels of insulin. This has implications for preventing abnormal blood glucose levels progressing into diabetes and the subsequent management of diabetes.

Translating these findings to Australian data is complicated by the methods used to describe cultural and linguistic diversity in Australia. Data are commonly collated on country of birth and language spoken at home, but racial or ethnic ancestry is not asked. The discussion in this bulletin needs to be read with this in mind.

The prevalence of diabetes has previously been reported as higher among people born overseas compared with people born in Australia and among people who speak a language other than English at home. In 1989, Australians who spoke languages other than English at home had significantly higher levels of self-reported diabetes (Welborn et al. 1995). English-speaking males and females had diabetes prevalence rates of 1.7% and 1.9%, respectively. In comparison, the prevalence of diabetes in males and females who spoke a language other than English at home was 2.9% and 3.0%, respectively. In particular, people born in Southern Europe (3.3% of males and 3.5% of females) and South-East Asia (2.0% of males and 2.8% of females) had a higher prevalence of diabetes than Australian-born people (1.6% of males and 1.7% of females).

In a study of women living in Australia, women born in Australia and New Zealand had significantly lower combined incidence of gestational diabetes compared to women born in African, Mediterranean, Arabian, and Asian countries (Beischer et al. 1991). Gestational diabetes occurs during pregnancy and is also strongly associated with developing diabetes later in life. Some research suggests that a 'maternal inheritance mechanism' makes future generations more susceptible to diabetes when the maternal lineage has had diabetes or gestational diabetes (Simmons 1995). This indicates that genetics could be a contributing factor to varying diabetes prevalence rates between different ethnic groups.

Diabetes has genetic, environmental and behavioural risk factors. Obesity, poor diet and insufficient physical activity are the most significant and modifiable risk factors for developing diabetes. People of different backgrounds have different prevalence rates of these risk factors, especially when introduced to a western culture and lifestyle. In 2001, without accounting for age differences amongst these populations, 60.6% of Southern and Eastern European-born people were overweight or obese compared to 46.4% of

Australian-born people, and Australian-born people had the highest prevalence of low or no usual intake of fruit (49.4%) compared to people born in other regions (Table 1). In 2000, people who usually spoke a language other than English at home were more likely to be insufficiently physically active or sedentary (64.2%) compared to people who spoke English at home (53.6%) (Table 2). However, behavioural risk factors are unlikely to completely account for disparities in diabetes prevalence among people of culturally and linguistically diverse backgrounds (DHAC & AIHW 1999; Abate & Chandalia 2003).

Table 1: Risk factors, by region of birth, 2001

	Per cent of people aged 18 years and over								
	Obese[a]			Overweight/obese[b][c]			Low/no usual intake of fruit[c][d]		
Region of birth	Males	Females	People	Males	Females	People	Males	Females	People
Australia	16.2	17.7	16.6	55.1	38.1	46.4	56.3	42.8	49.4
Other Oceania	n.a.	n.a.	n.a.	51.9	44.0	47.9	46.3	44.9	45.6
United Kingdom	n.a.	n.a.	n.a.	56.4	41.6	49.0	55.4	42.2	48.9
Other North-West Europe	n.a.	n.a.	n.a.	55.8	39.1	47.7	50.0	31.5	41.1
Southern & Eastern Europe	n.a.	n.a.	n.a.	70.3	51.1	60.6	35.3	29.7	32.4
North Africa & Middle East	n.a.	n.a.	n.a.	65.7	37.1	54.4	40.0	36.2	38.5
South-East Asia	n.a.	n.a.	n.a.	32.6	18.4	34.5	51.2	44.8	47.5
All other countries	13.6	15.1	13.8	33.4	29.2	31.3	47.2	41.0	44.1

(a) AIHW analysis of the National Health Survey 2001. Age-standardised to the 2001 Standard Australian Population. Obese indicates a self-reported and derived Body Mass Index of 30.0+.

(b) Overweight/obese indicates a self-reported and derived Body Mass Index of 25.0+.

(c) These data are not age-standardised and therefore, the age distribution of the population should be considered when interpreting these estimates.

(d) Low/no usual intake of fruit indicates one serve or less of fruit per day. Australian nutritional guidelines suggest that a minimum of two serves of fruit per day is necessary for adequate nutritional intake for adults (Children's Health Development Foundation: Smith, Kellett & Schmerlaib 1998).

n.a. Not available

Source: ABS 2002b.

Table 2: Sedentary and insufficient levels of physical exercise, by language usually spoken at home, 2000

	Per cent of people sedentary or insufficiently active aged 18–75 years		
Language usually spoken at home	Males	Females	People
English	53.2	54.1	53.6
Language other than English	58.4	70.9	64.2

Notes

1. Standardised to the 2001 Standard Australian Population (ABS).
2. 'Sedentary' is no activity per week.
3. 'Insufficient' is less than 150 minutes of activity per week or less than five sessions of activity per week.

Source: AIHW analysis of the National Physical Activity Survey 2000 (Australian Sports Commission).

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Method

This report uses data from the 1999–2000 Australian Diabetes, Obesity and Lifestyle Study, National Health Surveys, the National Diabetes Register, the National Hospital Morbidity Database and the AIHW National Mortality Database (Appendix A).

Country of birth was used to distinguish between people of different cultural backgrounds. Some Australian-born people who have parents who were born overseas may have lifestyles that reflect overseas-born cultural backgrounds. Country of birth data are unable to account for this; however other related cultural measures including language spoken at home or first language spoken were not used in this analysis, as they are not available in hospital and mortality data.

Country of birth was categorised into the following geographical regions based upon Australian Bureau of Statistics (ABS) classifications (see Appendix B):

- Australia
- New Zealand
- South Pacific Islands
- United Kingdom and Ireland
- North and West Europe
- Southern Europe
- Eastern Europe and Central Asia
- Middle East
- North Africa
- Other Africa
- South-East Asia
- North-East Asia
- Southern Asia
- Americas.

When the numbers for a region were too small to statistically analyse, the region was combined with others to make larger regions.

The most recent Australian survey to measure the prevalence of diabetes through blood glucose levels was the 1999–2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab Study). A major source of self-reported diabetes prevalence data is the ABS series of National Health Surveys (NHSs) conducted in 1977–78, 1983, 1989–90, 1995 and 2001. The NHSs report data for people aged 20 years or over, whereas the AusDiab Study measured a sample of people aged 25 years or over. Results from the 1995 and 2001 NHSs and the 1999-2000 AusDiab Study are reported in this bulletin.

As these surveys were not specifically designed to provide prevalence estimates by region of birth, the estimates calculated may not reflect the true prevalence of diabetes in people born in these regions. Further, as estimates based on survey data are subject to sampling variability (the smaller the estimate, the higher the sampling variability), very small estimates, such as those calculated for some of the regions of birth reported here, have large standard errors (relative to the size of the estimate) and may not be considered statistically reliable.

Standardised prevalence ratios (SPRs) are reported here. For a particular region of birth, the SPR is the ratio of the observed number of cases of diabetes (either self-reported or measured depending on the data source) to the number expected based on the Australian-born population. SPRs are statistically significant to the expected rate based upon the Australian-born population (the expected rate) when the error bars do not include the value of 1.0.

The indirect method of age standardisation has been used for prevalence because of the small number of cases and instability of the age-specific prevalence rates in most of the regions of birth. Different standard populations have been used for males and females—

Australian-born males have been used as the standard population for males, while Australian-born females have been used as the standard population for females. The use of different standards for males and females was adopted to reflect any differences in the Australian-born male and female age-specific rates. However, it should be noted that this means that it is not possible to compare SPRs for males with those for females.

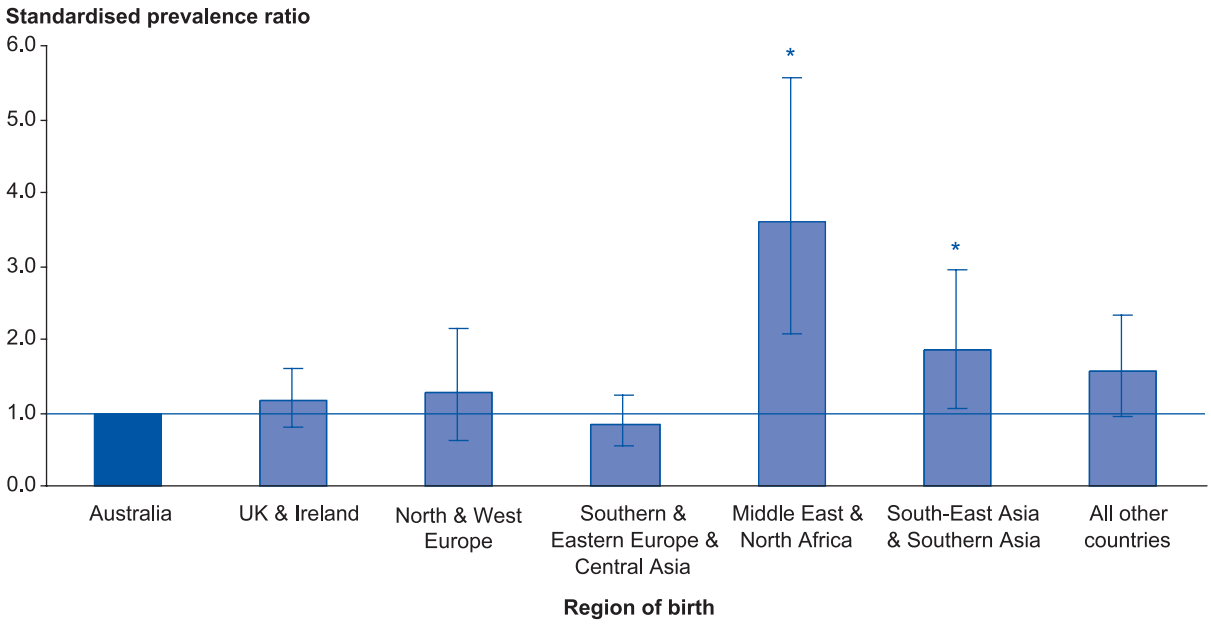
The direct method of standardisation was used for incidence rates, hospital separation rates and mortality rates for people.

Results

Prevalence based on self-report

In 2001, the standardised prevalence ratios (SPRs) for self-reported diabetes (i.e. diabetes reported as a current, long-term condition) for men who were born in the Middle East and North Africa and in South-East and Southern Asia were significantly greater than 1.0 (Figure 1). This means that in these regions of birth, the number of men reporting that they had diabetes was significantly higher than expected based on the age-specific rates for Australian-born men. Men born in the Middle East and North Africa reported 3.6 times more diabetes than expected, while those born in South-East and Southern Asia reported 1.9 times more diabetes than expected.

Figure 1: Standardised prevalence ratios for self-reported diabetes, males by birthplace, 2001



Notes

1. Indirectly age-standardised to the Australian-born male population in the 2001 NHS.
2. Includes males aged 20 years and over.
3. The estimates for North & West Europe, Middle East & North Africa and South-East & Southern Asia have relative standard errors greater than 25% and should be interpreted with caution.

* Indicates significantly different from Australia.

Source: 2001 National Health Survey, ABS.