

## INTRODUCTION

Chronic conditions like diabetes are associated with higher health system use and a negative impact on health-related quality of life. For people without diabetes, as the number of diabetes risk factors a person has increases, the likelihood of developing diabetes also increases. While not all of the risk factors for diabetes are influenced by health promotion activities, physical inactivity and weight can be. While it is known that diabetes increases health service use, the purpose of this study is to investigate whether being at higher risk of developing diabetes itself leads to higher service use.

## METHODS

The North West Adelaide Health Study examined the prevalence of chronic conditions, including diabetes, using a representative sample of adults living in the north western region of Adelaide. All households in this region with a telephone connected and listed in the Electronic White Pages were eligible for selection. Within each household, the person who had their birthday last and was 18 years or older, was selected for interview and invited to attend the clinic. The clinic participation rate was 70%.

Consent for release of Health Insurance Commission (HIC) Medicare Benefits Schedule (MBS) rebate data was requested from NWAHS clinic participants. Data were matched for 93% (n=2352) of the 2523 participants. HIC data included the MBS item number, the date of use and the rebate paid through the MBS from July 1997 to June 2002. MBS data are considered to be good indicators of health system use and health status.

Participants were categorised as having diabetes risk factors based on the following self-report data and biomedical measurements:

### Self-reported

- aged 45 years or over;
- family history of diabetes;
- insufficient physical activity (< 150 minutes per week of walking, moderate or vigorous activity);
- history of gestational diabetes.

### Biomedically measured

- body mass index (BMI  $\geq 30$  kg/m<sup>2</sup>);
- impaired fasting glucose (IFG, fasting plasma glucose of at least 6.1 mmol/l and less than 7.0 mmol/l).

Participants were defined as having diagnosed diabetes if they had been told by a doctor that they had diabetes. Analyses were performed on participants who did not have diagnosed diabetes.

## RESULTS

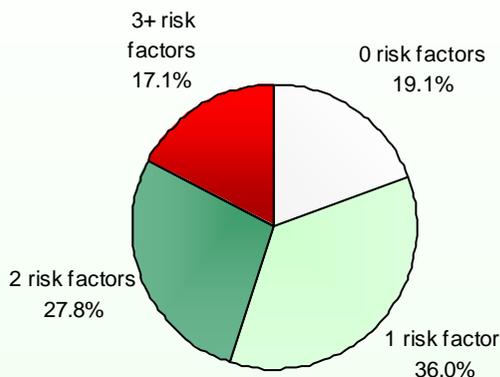
The prevalence of the individual diabetes risk factors among people without diabetes (n=2215) is shown in Table 1.

**Table 1: Prevalence of individual risk factors**

Risk factor	n	Prevalence (%)	(95% CI)
Age 45 years or over	954	43.1	(41.0 – 45.1)
Family history	464	21.0	(19.3 – 22.7)
Insufficient physical activity	1093	49.3	(47.3 – 51.4)
Gestational diabetes <sup>#</sup>	10	0.8	(0.4 – 1.5)
BMI 30 or higher	603	27.2	(25.4 – 29.1)
IFG	136	6.2	(5.2 – 7.2)

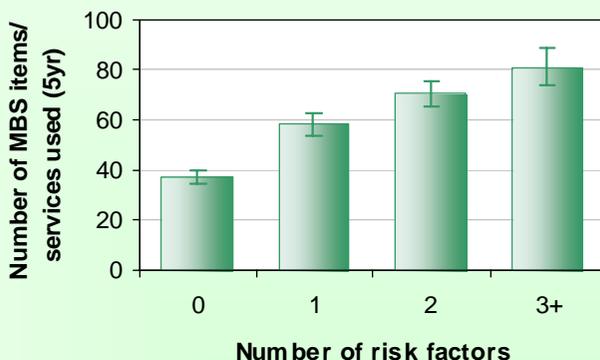
<sup>#</sup> prevalence amongst women only

The concentration of diabetes risk factors amongst people without diagnosed diabetes is shown in Figure 1.



**Figure 1: Concentration of diabetes risk factors amongst people who do not have diagnosed diabetes**

As the number of diabetes risk factors increased from 0 to 3 or more, the number of MBS services used also increased. These increases were statistically significant (p<0.05). The mean number of MBS services used over a five year period for each of these categories is shown in Figure 2.



**Figure 2: Mean number of MBS services used by people without diagnosed diabetes, 1997-2002**

People whose level of physical activity was insufficient used significantly more MBS services than people with a sufficient level of physical activity. People with a BMI of 30 or above used significantly more MBS services than people whose BMI was lower than 30. Of those people with 3 or more diabetes risk factors, 97% either had a BMI of 30 or more, or undertook insufficient physical activity.

## CONCLUSIONS

- People without diabetes but with a higher number of diabetes risk factors use more health care resources.
- Prior to developing diabetes, people with a higher number of risk factors for developing diabetes use more health care resources than people with less risk factors.
- 97% of people in the high risk / high resource use category are either obese or physically inactive, two risk factors that can be influenced by health promotion activities.