Indigenous diabetes: how can we improve health outcomes?

**Noel Hayman**, Australian Indigenous Doctors Association

Diabetes is a global public health concern. The World Health Organisation estimates that there are 150 million people worldwide with diabetes, and predicts by 2025 there will be 300 million diabetes. There will be a forty-two per cent increase in developing countries and an 82% increase in developed countries. Two-thirds will come from India, China, USA, Russia and Japan. The prevalence of diabetes in developing countries in greater in females but in developed countries is greater in males. The overall prevalence is 1:1 male to female. The prevalence of diabetes around the world varies significantly from race to race. For example, in the American Pima Indians the prevalence of diabetes is 50%, in Aboriginal communities in Australia the prevalence is between 10 to 20%, white USA 6%, black Afro-Americans 10%, New Zealand Maori 12% and in the highlands of Papua New Guinea only 2%.

World Health organisation estimates by death certificates that there are 600,000 deaths per year from diabetes and if diabetes is taken into account as a risk factor then deaths from diabetes increase to 4.4 million worldwide. In Australia diabetes is the seventh leading underlying cause of death, and contributes to significant ill health, poor quality of life and premature death. In 1997–1998, diabetes was associated with 16.4% of all Indigenous deaths, this compared to only 7.5% of all deaths in the non-Indigenous population.

Table 1 Diabetes as a cause of death, Indigenous and non-Indigenous Australians\(^{(a)}\), 1997 and 1998

<table>
<thead>
<tr>
<th>Cause of death</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Proportion of all deaths (%)</td>
<td>4.7 8.6 6.3</td>
<td>2.1 2.2 2.2</td>
</tr>
<tr>
<td>Underlying</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associated</td>
<td>8.6 12.0 10.0</td>
<td>5.1 4.8 5.0</td>
</tr>
<tr>
<td>Total diabetes deaths</td>
<td>13.3 20.6 16.4</td>
<td>7.2 7.0 7.2</td>
</tr>
<tr>
<td>Number</td>
<td>50 68 118</td>
<td>504 468 972</td>
</tr>
<tr>
<td>Underlying</td>
<td>92 95 187</td>
<td>1 208 1 019 2 227</td>
</tr>
<tr>
<td>Associated</td>
<td>142 163 305</td>
<td>1 712 1 487 3 199</td>
</tr>
<tr>
<td>Total diabetes deaths</td>
<td>1 071 790 1 861</td>
<td>23 631 21 096 44 727</td>
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<td>1 071 790 1 861</td>
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</tr>
</tbody>
</table>

\(^{(a)}\) Includes deaths only for Western Australia, South Australia and northern Territory
MORTALITY RATES

Figure 1  Age standardised mortality rates by selected disease groups

MORBIDITY: HOSPITAL ADMISSIONS

Figure 2  Age standardised hospital admission rates by selected disease groups, Queensland DOGIT communities, 1995–1997
The recent AUSDIAB Study conducted by Professor Paul Zimmett and team showed that the prevalence rate of diabetes has doubled over the last 20 years in Australia. Other notable findings include:

- 7.5% of the population over 25 years have diabetes
- 11% have impaired glucose metabolism
- 60% of Australian adults were either obese or overweight reflecting a weight gain of almost 5 kg per person over 20 years.

**CLUSTER TRIAL IN THE TORRES STRAIT**

A randomised cluster trial was conducted in the Torres Strait and Northern Peninsula Area Health Service District in 1999–2000. The intervention was based on a simple recall system managed by local Aboriginal health Workers.

Figure 3 shows the study design and patient recruitment.

At the intervention sites 250 patients were recruited and 51 patients added during the study period. There were 19 patients lost to follow-up. At the control sites 305 patients were recruited, 121 added to the register and 30 patients were lost to follow-up.

**Figure 3 Trial design**
The intervention group showed a 32% reduction in hospital admissions for diabetes related conditions over the one-year study period. The study concluded that a simple recall system managed by health workers achieved significant improvement in diabetes care and significantly decreased hospital admission in a high-need population.

**TOUCHSCREEN TECHNOLOGY IN INDIGENOUS SETTINGS**

Delivering health information to people with diabetes is an important process whereby patients develop an understanding of the disease and its complications. This paper will explore the use of electronic information kiosks in Indigenous settings to disseminate health messages.

Figure 4  Yarrabah children operating the information kiosk

The use of touchscreen technology is new to Australia, and the question is will aboriginal people use this technology? A project was set up thanks to the corporate philanthropic division of Glaxo Smith Kline and Julia Schofield consulting. During preliminary meetings several sites were considered. Ultimately two sites were selected having different health care settings. Firstly Yarrabah having a mainstream health service with a majority of Indigenous population and Inala a mainstream service with a majority of non-Indigenous patients but containing a well utilised Indigenous primary health care service. The results of the evaluation showed quite clearly aboriginal people will use electronic touchscreen technology. A summary of the results follows:
- 60% of activation's were “non-spurious”, a meaningful attempt to access health information
- more purposive use in clinical settings
- similar access at both sites
- most users accessed one content area only
- 50% of sessions lasted 3–7 minutes
- purposive users in clinical setting more likely to answer on-screen questionnaire
- younger males more likely to use the touchscreen.

Now that we know that aboriginal people will use touchscreen technology, Health Promotion Queensland had funded a project that will focus on Information technology strategies for the “information disadvantaged” in rural communities. The main aim of the project is to improve health literacy in relation to Indigenous Health issues, including diabetic, adolescent and musculoskeletal problems.