

# Diabetes education: Essential but underfunded in Australia

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**Citation:** Kennedy M, Dunning T (2017) Diabetes education: Essential but underfunded in Australia. *Diabetes & Primary Care Australia* 2: 10–4

## Article points

1. More work is needed to support improved access for Australians with diabetes to education, and thereby achieve optimal glycaemic levels and reduce early mortality and complication development.
2. Despite a multitude of new treatments for lowering cardiovascular risk factors, many people with diabetes remain far above target levels.
3. Structured diabetes education has beneficial effects on blood glucose, lipids and blood pressure and specialist attendance rates.
4. Structured diabetes education remains underfunded by Government and private health insurers, and this restricts access for people with diabetes contributing to sub-optimal health outcomes.

## Key words

- Access to education
- Diabetes educator
- Health funding

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**Many people with diabetes develop comorbidities during their lives. These include diabetes-related complications, such as cardiovascular disease, neuropathy and chronic kidney disease, and other medical problems such as arthritis, heart failure and depression. These complications and comorbidities can adversely affect mental health and self-care, and contribute to premature decline in functional status, morbidity, mortality and a significant reduction in quality of life. Despite better understanding of the natural history of diabetes and a multitude of new treatments for lowering the risk factors of the disease, many people with diabetes remain far above target levels. Structured diabetes education has beneficial effects on blood glucose, lipids and blood pressure and specialist attendance rates. Structured diabetes education remains underfunded by the Australian Government and private health insurers. Given the growing rates of diabetes and earlier diagnosis of the disease, without increased access to diabetes education for Australians with diabetes, suboptimal health outcomes will continue. Australia needs to do more to make diabetes education accessible to all people with type 2 diabetes.**

**D**iabetes mellitus is a complex, chronic and progressive disease affecting multiple body organs and systems. The prevalence in Australia in 2015 was estimated to be 6.3% of adults, representing more than 1 million adults, with almost another 500 000 thought to meet criteria for a diagnosis of diabetes but who are still undiagnosed (International Diabetes Federation [IDF] Diabetes Atlas Committee, 2015). It has also been estimated that the mean annual diabetes-related expenditure per person with diabetes in Australia was more than \$7600 in 2015, and that there were more than 6300 diabetes-related deaths in Australia in the same year (IDF Diabetes Atlas Committee, 2015). The prevalence of diabetes has been rising across the world for many years and, in recent decades, there has been a fall in the average age of onset, so the number of cases on type 2 diabetes in the young has been rising (Alberti et al, 2004). With earlier onset type 2 diabetes, the increased

lifetime exposure to hyperglycaemia is associated with a higher complication rate over time (Constantino et al, 2013). Many of these people have or will develop comorbidities during their lives, including diabetes-related complications and conditions, such as cardiovascular disease, neuropathy and chronic kidney disease, and other medical problems such as arthritis, heart failure and depression (Haas et al, 2013). These complications and comorbidities can adversely affect mental health and self-care, and contribute to premature decline in functional status, morbidity, mortality and significantly reduce quality of life (UK Prospective Diabetes Study Group, 1999; Skovlund and Peyrot, 2005; Huxley et al, 2006; Seshasai et al, 2011). Self-care is often made more difficult by the emotional toll associated with the diagnosis of diabetes, the progressive nature of the condition and the emotional toll from the need for constant attention and care (Peyrot et al, 2009). In recent years, there have been significant

developments in the understanding and management of diabetes, and in the many ways in which complications of diabetes can be delayed or prevented. However, suboptimal management of many of the contributing factors to these complications, such as unhealthy lifestyle and elevated blood glucose, blood lipids and blood pressure, remains a significant problem for people with diabetes and the health care system. In all these areas, the most important person to address and optimally manage these factors is the person with diabetes. The person with diabetes needs timely and appropriate diabetes education to enable them to manage their diabetes.

### Diabetes education

One of the goals of diabetes education is to assist people with diabetes to better understand their diabetes in order to enable them to make informed choices about self-management, to improve their quality of life and to reduce the risk of complications (Australian Diabetes Educators Association, 2016). This also increases the confidence of people with diabetes to manage their condition and assists them to undertake the practical aspects of monitoring and managing therapy (Australian Diabetes Educators Association, 2016). Diabetes education also helps people with diabetes and their families to deal with the daily physical and emotional demands of the condition in the context of their social, cultural and economic circumstances (Australian Diabetes Educators Association, 2016).

Optimal diabetes management involves co-ordinated multidisciplinary care in the hospital setting and in the community, with the person with diabetes having the central role (Haas et al, 2013). Initial and ongoing education about diabetes is a critical process provided by all those involved in the multidisciplinary care of people with diabetes. This article focuses on the roles provided by diabetes educators and credentialled diabetes educators in Australia, and on the evidence supporting those roles, and highlights issues with access to these health professionals.

### Evidence for the importance and effectiveness of structured diabetes education

There is randomised controlled trial evidence that structured diabetes education improves blood glucose levels, blood pressure, weight and lipid levels, as well as blood glucose self-monitoring (Norris et al, 2001; 2002; Ellis et al, 2004; Minet et al, 2010). There is also evidence that diabetes education can increase use of glucose, lipid and blood pressure-lowering medications, and consultation rates with optometrists or ophthalmologists (Murray and Shah, 2016). An Australian study showed that a structured education and treatment program can result in reduced mortality and reduced use of hospital services by people with type 2 diabetes (Lowe et al, 2009).

While more recent local data is not available, the American Diabetes Association (ADA, 2013) estimated that in 2012 the average number of workdays lost per patient per year from diabetes was 1.1 days, with another 5.1 days characterised by reduced work performance and 5.8 days of reduced participation in the labour force. In 2002, it was estimated that the average income lost by patients and carers in Australia from type 2 diabetes was \$35 per person per year, while income loss was higher when complications were present. However, the study population had a mean age of 65 years, so employment rates reflected that older age demographic, and the analysis did not include people with type 1 diabetes (Colagiuri, 2003). These analyses highlight the links between diabetes and reduced productivity, but studies connecting the provision of structured diabetes education to improvements in productivity have not yet been done.

While the benefits of structured diabetes education are now well-established, there can be considerable variability in the amount and type of education provided. Comparison of studies examining effectiveness of diabetes education are often complicated by the variation in number of sessions provided, how they are delivered and the period of follow-up after study completion. Studies also vary in the methodology utilised for comparisons and in how rates of people dropping out of the study are managed. A recent meta-

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2. An Australian study showed that a structured education and treatment program can result in reduced mortality and reduced use of hospital services by people with type 2 diabetes.
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1. A diabetes education assessment encompasses a detailed medical history, health beliefs and attitudes, baseline diabetes knowledge, cultural context, self-management skills, readiness to learn, general and health literacy, family and social support, and financial status.
2. Effective diabetes education needs to be an ongoing process, involving ongoing support and reinforcement by the diabetes educator and other members of the multidisciplinary team.

analysis showed that for every 1 hour of diabetes education provided, HbA<sub>1c</sub> fell by an additional 0.04% up to 28 hours of education, an amount that can be equal to the benefit provided by some glucose-lowering medications (Norris et al, 2002).

Effective diabetes education requires teaching and assessment skills and the ability to personalise the information to the needs of the individual with diabetes (Australian Diabetes Educators Association, 2016). The increased benefits of individualised diabetes education are well-established and provide the basis of the initial assessment of a person with diabetes by a diabetes educator (Davis et al, 1981; Gildea et al, 1989; Davis et al, 1990; Glasgow et al, 1992; Brown, 1999). A diabetes education assessment encompasses a detailed medical history, health beliefs and attitudes, baseline diabetes

knowledge, cultural context, self-management skills, readiness to learn, general and health literacy, family and social support, and financial status (Haas et al, 2013). An appropriate structured diabetes education program can be developed with and for the person with diabetes based on this assessment and using the various components of a diabetes educator’s role (See *Table 1*).

Initial improvements in metabolic outcomes and other parameters after diabetes education often diminish over time, even after only 6 months (Norris et al, 2002). Effective diabetes education, therefore, needs to be an ongoing process involving ongoing support and reinforcement by the diabetes educator and other members of the multidisciplinary team. How often, and how intensive, the support and education is required will vary among individuals and

**Table 1. Core components of the diabetes educator role.\***

Role component	Clinical input	Competency
Research	<ul style="list-style-type: none"> <li>• Translate research into practice and evaluate outcomes, and undertake audits and evaluate their practice.</li> <li>• Educate and support clinical staff to understand and use research.</li> <li>• Collaborate in or lead research.</li> </ul>	<ul style="list-style-type: none"> <li>• Be able to read and analyse research reports and make decisions about the relevance to practice.</li> </ul>
Clinical practice	<ul style="list-style-type: none"> <li>• Comprehensive clinical and educational assessment as part of the annual cycle of care.</li> <li>• Plan relevant care (personalised) and education with the individual with diabetes and often their families.</li> <li>• Deliver clinical care, such as foot care and wound care.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand glucose homeostasis and the impact of diabetes and related conditions.</li> </ul>
Diabetes education	<ul style="list-style-type: none"> <li>• Provide diabetes education to individuals, groups and sometimes in public forums.</li> <li>• Provide diabetes education to care facility staff in undergraduate and postgraduate health professional education (e.g. nurses, allied health and medical students).</li> <li>• Supervise clinical placements.</li> </ul>	<ul style="list-style-type: none"> <li>• Have an understanding of teaching and learning process.</li> </ul>
Management	<ul style="list-style-type: none"> <li>• Manage issues, such as referrals, product supply and clinical governance.</li> <li>• Facilitate complex communication pathways involving those with diabetes, their families, the other members of the multidisciplinary team, and one or more institutions involved in provision of care.</li> <li>• Staff management.</li> <li>• Collaborate with the interdisciplinary health care team.</li> <li>• Help people with diabetes navigate transitions among services.</li> </ul>	<ul style="list-style-type: none"> <li>• Have a solid understanding of good governance and service delivery systems.</li> </ul>

\*The time spent in each component of the role depends on where the diabetes educator works and their position description.

throughout their life course with diabetes. The effectiveness of diabetes education is enhanced when communication between multidisciplinary team members facilitates reinforcement of shared advice and when team members have agreed priorities with the people with diabetes they manage (Haas et al, 2013).

### Accessibility of diabetes education in Australia

Despite the evidence supporting structured diabetes education, over 40% of Australians with diabetes do not have access to diabetes education programs (Deloitte Access Economics, 2014). Medicare funding through chronic disease management funding is often inadequate for the amount of initial and ongoing education required (Deloitte Access Economics, 2014), where a maximum of five individual sessions across all allied health staff per year is funded. The need for more education may be greater for those newly diagnosed or those transitioning onto injectable therapies and when functional status changes or complications develop. Many Australian private health insurance companies provide little or no coverage for diabetes education.

Recently, the Australian Diabetes Educators Association commissioned Deloitte Access Economics to determine the cost-effectiveness of diabetes education in Australia. The report indicated that over \$16 can be saved in health system costs for every dollar spent on diabetes education (Deloitte Access Economics, 2014). The reduced spending results from a combination of fewer hospital admissions, emergency department attendances and physician consultations and the reduced costs from delayed or avoided secondary complications, such as retinopathy, chronic kidney disease, amputations, coronary heart disease and stroke.

As the burden of diabetes on Australian families, our health care system and our economy continues to increase, providing adequate funding to train the additional required diabetes educator workforce and to ensure that all Australians with diabetes are able to access adequate structured diabetes education alongside their other multidisciplinary care must be a priority. Government and private health insurers must work together to address this underfunding

of a vital component of diabetes care in this country.

### Conclusion

Diabetes education is central to effective diabetes self-care to improve the ability of people with diabetes to self-manage, and has significant cost benefits and other benefits for the health system and individuals with diabetes. However the current funding for five allied health visits, which includes visits to diabetes education, is inadequate to meet those needs and is not consistent with the changes in information needs people with diabetes encounter over their life journey with diabetes. The lack of private health insurance funding of diabetes education contributes to the limited ability of people with diabetes to improve glycaemic self-management. More work is needed to support improved access of Australians with diabetes to diabetes education, and thereby achieve optimal glycaemic levels and reduce early mortality and complication development. ■

Alberti G, Zimmet P, Shaw et al (2004) Type 2 diabetes in the young: The evolving epidemic. The International Diabetes Federation Consensus Workshop. *Diabetes Care* **27**: 1798–811

American Diabetes Association (2013) Economic costs of diabetes in the U.S. in 2012. *Diabetes Care* **36**: 1033–46

Australian Diabetes Educators Association (2016) *Diabetes self-management education and credentialled diabetes educators* [Online]. Australian Diabetes Educators Association, Woden, ACT. Available at: <https://www.adea.com.au/about-us/our-people/diabetes-self-management-education-and-credentialled-diabetes-educators/> (accessed 29.11.16)

Brown SA (1999) Interventions to Promote Diabetes Self-Management: State of the Science. *Diabetes Educator* **25**: 52–61

Colagiuri SC, Conway B, Grainger D, Davy P (2003) *DiabCoSt Australia: assessing the burden of type 2 diabetes in Australia*. Diabetes Australia, Canberra Australia

Constantino MI, Molyneaux L, Limacher-Gisler F et al (2013) Long-term complications and mortality in young-onset diabetes: type 2 diabetes is more hazardous and lethal than type 1 diabetes. *Diabetes Care* **36**: 3863–9

Davis WK, Hull AL, Boutaugh ML (1981) Factors affecting the educational diagnosis of diabetic patients. *Diabetes Care* **4**: 275

Davis TC, Crouch MA, Wills G et al (1990) The gap between patient reading comprehension and the readability of patient education materials. Quadrant Healthcom Inc.

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- Deloitte Access Economics (2014) *Benefits of Credentialed Diabetes Educators (CDEs) to people with diabetes in Australia*. Australian Diabetes Educators Association, Canberra, ACT
- Ellis SE, Speroff T, Dittus RS et al (2004) Diabetes patient education: a meta-analysis and meta-regression. *Patient Educ Couns* **52**: 97–105
- Gilden JL, Hendryx M, Casia C, Singh SP (1989) The effectiveness of diabetes education programs for older patients and their spouses. *J Amer Geriatrics Soc* **37**: 1023–30
- Glasgow RE, Toobert DJ, Hampson SE et al (1992) Improving self-care among older patients with type II diabetes: the 'Sixty Something...' study. *Patient Educ Couns* **19**: 61–74
- Haas L, Maryniuk M, Beck J et al (2013) National Standards for Diabetes Self-Management Education and Support. *Diabetes Care* **36**: S100–S108
- Huxley R, Barzi F, Woodward M (2006) Excess risk of fatal coronary heart disease associated with diabetes in men and women: meta-analysis of 37 prospective cohort studies. *BMJ* **332**: 73–8
- IDF Diabetes Atlas Committee (2015) *IDF Diabetes Atlas. IDF Diabetes Atlas (7<sup>th</sup> edition)*. International Diabetes Federation, Brussels, Belgium
- Lowe JM, Mensch M, McElduff P et al (2009) Does an advanced insulin education programme improve outcomes and health service use for people with Type 2 diabetes? A 5-year follow-up of the Newcastle Empowerment course. *Diabet Med* **26**: 1277–81
- Minet L, Maller S, Vach W et al (2010) Mediating the effect of self-care management intervention in type 2 diabetes: A meta-analysis of 47 randomised controlled trials. *Patient Educ Counsel* **80**: 29–41
- Murray CM, Shah BR (2016) Diabetes self-management education improves medication utilization and retinopathy screening in the elderly. *Primary Care Diabetes* **10**: 179–85
- Norris SL, Engelgau MM, Narayan KM (2001) Effectiveness of self-management training in type 2 diabetes: a systematic review of randomized controlled trials. *Diabetes Care* **24**: 561–87
- Norris SL, Lau J, Smith SJ et al (2002) Self-management education for adults with type 2 diabetes: a meta-analysis of the effect on glycemic control. *Diabetes Care* **25**: 1159–71
- Peyrot M, Rubin RR, Funnell MM, Siminerio LM (2009) Access to diabetes self-management education: results of national surveys of patients educators and physicians. *Diabetes Educ* **35**: 246–8, 252–6, 258–63
- Seshasai SR, Kaptoge S, Thompson A et al (2011) Diabetes mellitus fasting glucose and risk of cause-specific death. *New Engl J Med* **364**: 829–41
- Skovlund SE, Peyrot M (2005) The Diabetes Attitudes Wishes and Needs (DAWN) Program: A new approach to improving outcomes of diabetes care. *Diabetes Spectrum* **18**: 136–42
- UK Prospective Diabetes Study Group (1999) Quality of life in type 2 diabetic patients is affected by complications but not by intensive policies to improve blood glucose or blood pressure control (UKPDS 37). *Diabetes Care* **22**: 1125–36