

Non-Communicable Diseases Watch

October 2015



衛生防護中心
Centre for Health Protection



衛生署
Department of Health

Diabetes—Self-care and Family Support

Key points

- ※ Diabetes is a chronic disease marked by high levels of sugar in the blood. There are three major types of diabetes: type 1, type 2, and gestational diabetes. Worldwide, some 387 million people aged 20 to 79 (or 8.3% of adults) are living with the disease.
- ※ Prolonged exposure to high blood glucose levels may lead to long-term damage, dysfunction, and failure of different organs. The consequences can be serious and fatal.
- ※ In Hong Kong, about 1 in every 10 adults aged 20 to 79 have diabetes. In 2014, diabetes was the tenth leading cause of death with 390 registered deaths.
- ※ There is no proven cure for diabetes, but the disease can be treated and controlled. The main treatment goals are to control blood glucose levels, prevent or delay the onset of diabetic complications, and optimise quality of life.
- ※ Self-care is the cornerstone of optimal diabetes management. Essential self-care skills include monitoring of blood sugar, medication compliance, healthy eating, being physically active, good problem-solving skills, risk-reduction behaviours, and healthy coping skills.
- ※ Good diabetic care is a family affair too. Family can empower diabetic patients through assisting them in daily needs and diabetes management, providing social and emotional support, and serving as a linkage to clinical care.

Diabetes—Self-care and Family Support

Diabetes is a chronic disease marked by high levels of sugar in the blood. It occurs when the pancreas is no longer able to produce enough insulin (a hormone which helps glucose get into the cells for use),

or when the body reduces its responsiveness to insulin. There are three major types of diabetes: type 1, type 2, and gestational diabetes (Table 1).

Table 1: Major types of diabetes

<p>Type 1 diabetes (formerly called insulin dependent diabetes mellitus or juvenile diabetes)</p>	<ul style="list-style-type: none"> • It is characterised by deficient insulin production and requires daily administration of insulin. • It is related to factors of genetic and immune system that result in destruction of insulin producing cells, leaving the cells completely incapable to produce insulin for the need of body. • It usually develops in children and young adults.
<p>Type 2 diabetes (formerly called non-insulin dependent diabetes mellitus or adult-onset diabetes)</p>	<ul style="list-style-type: none"> • It results from reduced responsiveness of body to insulin. • A number of lifestyle factors are known to influence its occurrence, including overweight and obesity, physical inactivity, unhealthy diet and smoking. • It usually occurs in adults, but is increasingly seen in children.¹
<p>Gestational diabetes</p>	<ul style="list-style-type: none"> • It occurs during pregnancy when insulin is not working properly, but usually disappears after delivery. • However, women with gestational diabetes and their children are at an increased risk of developing type 2 diabetes later in life.¹

Diabetes is a major cause of morbidity and mortality

Between 1990 and 2013, the global prevalence of diabetes increased by 45%.² According to the International Diabetes Federation (IDF)'s estimation, some 387 million people aged 20 to 79 (or 8.3% of adults) worldwide are living with diabetes. Type 2 diabetes accounts for at least 90% of all cases, and majority are adults between 40 and 59 years. More importantly, as many as 179 million people with diabetes worldwide are undiagnosed, meaning that about 1 in 2 people with diabetes do not know they have the disease requiring early treatment. As a global killer, every 7 seconds a person dies from diabetes. In 2014, it caused 4.9 million deaths.³

In Hong Kong, estimates from IDF indicate that about 1 in every 10 adults aged 20 to 79 have the disease.³ In 2014, diabetes was the tenth leading cause of death with 390 registered deaths.⁴ In terms of economic burden, a study in 2006 estimated that health care costs for diabetes were around HK\$ 2 billion per year.⁵

Uncontrolled diabetes can lead to serious complications

Prolonged exposure to uncontrolled high blood sugar levels in long term may lead to damage, dysfunction, and failure of different organs. The consequences can be serious and fatal. For example, diabetic ketoacidosis is an acute complication that can lead to coma or even death. Long-term complications of diabetes include kidney failure, retinopathy with potential loss of vision, as well as peripheral neuropathy with the risk of foot ulcers and lower limb amputations. People with diabetes have an increased risk of coronary heart disease and stroke. In men, diabetes can lead to erectile dysfunction.⁶ Sharing many risk factors (including ageing, obesity, smoking, unhealthy diet and physical inactivity), epidemiological evidence indicates an association between diabetes (mainly type 2) and increased risk of some cancers (including cancers of the colon and rectum, breast, liver, pancreas, bladder and endometrium).⁷ People with diabetes are more vulnerable to mood disorders (such as depression and anxiety), and at an increased risk of dementia than those without.⁸⁻¹⁰ Research conducted by the Hong Kong Institute of Diabetes and Obesity at The Chinese University of Hong Kong revealed that the risk of diabetes patients having depression is double that of the general population.¹¹

Local study also found a high prevalence of complications among diabetic patients. Of 15 856 Chinese patients with type 2 diabetes, nephropathy was present in 38.8% of patients; diabetic retinopathy was detected in 12.9% of patients; and neuropathy was present in 2.4% of patients. Overall, 37.9%, 6.7% and 0.3% had single, two and all of the three micro-vascular complications respectively. Among male patients, 15.0% reported to have erectile dysfunction.¹²

With optimal care, diabetic patient can maintain good health and live a productive life

There is no proven cure for diabetes, but the disease can be treated and controlled. The treatment of choice would depend on the type of diabetes and its severity. The main treatment goals are to control blood sugar levels, prevent or delay the onset of diabetic complications, and optimise quality of life. To achieve the treatment goals, diabetic patients need to work closely with their family doctors and relevant health care professionals, follow their diabetes treatment plan with commitment, lead a healthy lifestyle, and involve actively in self-managing their diabetes.

Self-care is the cornerstone of optimal diabetes management

The American Diabetes Association identifies 7 essential behaviours which have been found to be positively correlated with improved health in people with diabetes. They include monitoring of blood sugar, medication compliance (or adherence), healthy eating, being physically active, good problem-solving skills (e.g. knowing how to inspect feet and identify foot problems early, take care and protect feet from injury or infections, and seek medical care if indicated), risk-reduction behaviours, and healthy coping skills (such as stress reduction strategies like practicing yoga and deep breathing).^{13, 14} For optimal diabetes management, diabetic patients are urged to learn as much as they can about the disease, be proficient in necessary self-care skills, and sustain self-care behaviours (Box 1).^{13, 15, 16} If indicated, check with family doctors or health care providers for diabetes self-management education programmes.

Box 1: Essential self-care skills and knowledge for optimal diabetes management

Blood sugar control and monitoring

- ◇ how to maintain optimal blood sugar levels
- ◇ when and how to test blood sugar
- ◇ how to use the diabetic equipment, what the blood sugar numbers mean and how to record the results
- ◇ how to recognise symptoms of low or high blood sugar
- ◇ what to do if the blood sugar levels are too high or too low

Taking medications

- ◇ how the medications work
- ◇ when and how to take them
- ◇ what are the possible side-effects and how to handle them

Nutrition and healthy eating

- ◇ what foods are best to eat or avoid
- ◇ when and how much to eat
- ◇ how to count carbohydrates, read food labels and make healthy food choices

Physical activity participation

- ◇ what type of activities to do and for how often, how hard and how long
- ◇ how to get started and incorporate physical activity into daily routine
- ◇ how to stay safe when exercising

Weight management

- ◇ what is the optimal weight and waist circumference
- ◇ how to safely maintain or get to a healthy weight and waist circumference

Physical care

- ◇ how to take care of the skin, feet, eyes, gums and teeth
- ◇ what early warning signs and symptoms to look out for

Blood pressure control and monitoring

- ◇ what is the target blood pressure
- ◇ how to maintain blood pressure at optimal levels
- ◇ when to check blood pressure and what the blood pressure numbers mean

Blood lipids control and monitoring

- ◇ what is the optimal level of blood lipids
- ◇ how to maintain blood lipids at optimal levels
- ◇ when to check blood lipids and what the blood lipid levels mean

Emotions

- ◇ how to maintain a positive mood
- ◇ how to manage stress, control negative emotions (such as frustration, anger or depression) and regain emotional stability

Good diabetic care is a family affair

Family can empower diabetic patients (notably the young and old) through assisting them in daily needs and diabetes management, providing social and emotional support, and serving as a linkage to clinical care (Box 2).^{17, 18} All are of great benefits to the patients. Studies exploring the role of family support in people with diabetes reported that support from family members was associated with better adherence to diet and medication as well as control of blood sugar.^{19, 20} Depression is closely associated with poor glycaemic control, which may be mediated by suboptimal adherence to self-care and medication. The co-existence of diabetes and depression can increase patients' risk of complications, including coronary heart disease and stroke.²¹ However, diabetic patients themselves may be unaware that they have depression or do not actively seek help. Family should stay alert and seek professional help if indicated.

Box 2: Examples of support from family members

Daily needs and diabetes management

- ◇ offer healthy food options or diabetic friendly meals
- ◇ make exercise part of the family routine and exercise together
- ◇ assist with blood glucose testing
- ◇ offer gentle reminders about taking medications
- ◇ identify the signs of hypoglycaemia or hyperglycaemia
- ◇ check foot and skin for signs of complications, such as infections, cuts and ulcers

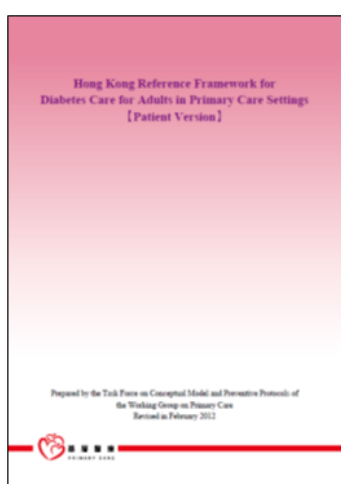
Social and emotional support

- ◇ be willing to listen and offer words of support often
- ◇ cheer them up and encourage them to view themselves as healthy and normal
- ◇ connect them with others
- ◇ find diabetes support groups

Linkage to clinical care

- ◇ keep track of important medical checkups
- ◇ help them prepare and accompany them to attend medical appointments

It is noteworthy that the Task Force on Conceptual Model and Preventive Protocols under the Working Group on Primary Care developed the Hong Kong Reference Framework for Diabetes Care for Adults in Primary Care Settings [Patient Version]. The Framework can serve as a reference to adults at risk of developing or with Type 2 diabetes and their carers, empowering them to take care of themselves or their loved one. To download a copy, please visit <http://www.pco.gov.hk>.



References

1. Diabetes. Fact sheet No. 312. Geneva: World Health Organization, 2015.
2. Global Burden of Disease Study 2013. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Diseases Study 2013. *Lancet* 2015; 386(9995): 743-800.
3. The Diabetes Atlas. 6th Edition. 2014 Update. Brussels, Belgium: International Diabetes Federation, 2014.
4. Mortality Statistics, 2014. Hong Kong SAR: Department of Health.
5. McGhee SM, Thomas GN, Schooling CM, et al. Economic burden of diabetes related to excess body weight in Hong Kong. *Hong Kong Med J* 2014; 20(3 Suppl 3):5-7.
6. Diagnosis and classification of diabetes mellitus. *Diabetes Care* 2014; 37 Suppl 1:S81-90.
7. Giovannucci E, Harlan DM, Archer MC, et al. Diabetes and cancer: a consensus report. *Diabetes Care* 2010; 33(7):1674-85.
8. Cheng G, Huang C, Deng H, Wang H. Diabetes as a risk factor for dementia and mild cognitive impairment: a meta-analysis of longitudinal studies. *Intern Med J* 2012; 42(5):484-91.
9. Hasan SS, Mamun AA, Clavarino AM, Kairuz T. Incidence and risk of depression associated with diabetes in adults: evidence from longitudinal studies. *Community Ment Health J* 2014; 51(2): 204-10.
10. Smith KJ, Beland M, Clyde M, et al. Association of diabetes with anxiety: a systematic review and meta-analysis. *J Psychosom Res* 2013; 74(2):89-99.
11. Zhang Y, Ting R, Lam M, et al. Measuring depressive symptoms using the Patient Health Questionnaire-9 in Hong Kong Chinese subjects with type 2 diabetes. *J Affect Disord* 2013; 151(2):660-6.
12. Kung K, Chow KM, Hui EM, et al. Prevalence of complications among Chinese diabetic patients in urban primary care clinics: a cross-sectional study. *BMC Fam Pract* 2014; 15:8.
13. AADE7 Self-Care Behaviours. American Association of Diabetes Educators (AADE) Position Statement. 3 December 2014. Chicago, IL: American Association of Diabetes Educators.
14. Shrivastava SR, Shrivastava PS, Ramasamy J. Role of self-care in management of diabetes mellitus. *J Diabetes Metab Disord* 2013; 12(1):14.
15. Hong Kong Reference Framework for Diabetes Care for Adults in Primary Care Settings [Patient Version]. Hong Kong SAR: Task Force on Conceptual Model and Preventive Protocols of the Working Group on Primary Care, 2012.
16. Diabetes Self-Care Information and Record Booklet. Wisconsin: Wisconsin Department of Health Services, 2012.
17. How to Help a Loved One Cope with Diabetes. Bethesda, MD: National Diabetes Education Program, National Institutes of Health and the Centers for Disease Control and Prevention, 2013.
18. Miller TA, DiMatteo MR. Importance of family/social support and impact on adherence to diabetic therapy. *Diabetes Metab Syndr Obes* 2013; 6:421-6.
19. Mayberry LS, Osborn CY. Family support, medication adherence, and glycemic control among adults with type 2 diabetes. *Diabetes Care* 2012; 35(6):1239-45.
20. Rad GS, Bakht LA, Feizi A, Mohebi S. Importance of social support in diabetes care. *J Educ Health Promot* 2013; 2:62.
21. Zhang Y, Ting RZ, Yang W, et al. Depression in Chinese patients with type 2 diabetes: associations with hyperglycemia, hypoglycemia, and poor treatment adherence. *J Diabetes* 2014; DOI: 10.1111/1753-0407.12238.

World Diabetes Day

14 November, 2015

World Diabetes Day is set annually on November 14 by the IDF and the World Health Organization since 1991 in response to growing concerns about the escalating health threat posed by diabetes.

Activities in 2015 will focus on **healthy eating** as a key factor in the fight against diabetes and a cornerstone of health and sustainable development.

IDF estimates that up to 70% of type 2 diabetes cases could be prevented through lifestyle interventions, and healthy eating can help reduce risks.

Let's get involved and act today to change our life !

To know more about the World Diabetes Day and relevant activities, please visit <http://www.idf.org/wdd-index>.



Non-Communicable Diseases (NCD) WATCH is dedicated to promote public's awareness of and disseminate health information about non-communicable diseases and related issues, and the importance of their prevention and control. It is also an indication of our commitments in responsive risk communication and to address the growing non-communicable disease threats to the health of our community. The Editorial Board welcomes your views and comments. Please send all comments and/or questions to so_dp3@dh.gov.hk.

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