

## KEY FACTS

- *Diabetes is on the rise, and is among the top 10 causes of death in Singapore.*
- *Indians are most likely to have diabetes, followed by the Malays and Chinese.*
- *The risk of diabetes can be reduced by maintaining a healthy lifestyle e.g. eating a healthy diet, regular exercise, not smoking and limiting alcohol intake.*



## OBJECTIVES

This paper provides an overview of diabetes trends in Singapore, as well as ways in which to reduce the risk of developing the disease. The paper aims to increase public awareness of diabetes, in conjunction with the World Diabetes Day 2011 which is on 14<sup>th</sup> November 2011.

## INTRODUCTION

**Diabetes** is a well recognised health problem today. The disease, once thought as a disease of the Western world, is now a worldwide epidemic. The diabetic population in Asia has increased dramatically to match that in the West.

Diabetes is a chronic condition in which the body produces too little or ineffective insulin resulting in high amounts of glucose (sugar) in the blood.<sup>1</sup> Besides being a cause of premature death, diabetes can also cause an earlier onset of cardiovascular diseases (such as heart attack and stroke), kidney disease, limb amputations and loss of vision. In Singapore, diabetes remains one of the top 10 leading causes of death.<sup>2</sup>

World Diabetes Day is a global event held annually on 14<sup>th</sup> November to draw attention to the increasing health issues that diabetes poses. Worldwide, this event engages millions of people while raising diabetes awareness and advocacy. This year's theme for World Diabetes Day is 'Diabetes Education and Prevention'.<sup>3</sup> It highlights the need to increase awareness of the adverse effects of diabetes and encourages everyone to adopt a healthy lifestyle and better manage this condition.

In Singapore, World Diabetes Day is celebrated each year with planned events by various organisations from the people and public sectors. For the first time last year, Singapore joined the World Diabetes Day Monument challenge with the lighting of the Singapore Flyer in blue. Over 900 monuments and buildings in 84 countries were lit up in blue. The lit Flyer, a blue circle, represented the global symbol for diabetes reflecting the unity of the global diabetes community in response to the diabetes pandemic. Efforts to improve public awareness and education on diabetes are ongoing as we continue to address the rising incidence of diabetes in Singapore.

## Trend of diabetes in Singapore<sup>4</sup>

- The percentage of Singapore residents with diabetes aged between 18 and 69 years old has

<sup>1</sup> Diabetes Action Now: An initiative of the World Health Organization and the international Diabetes Federation

<sup>2</sup> Health Facts Singapore, Ministry of Health

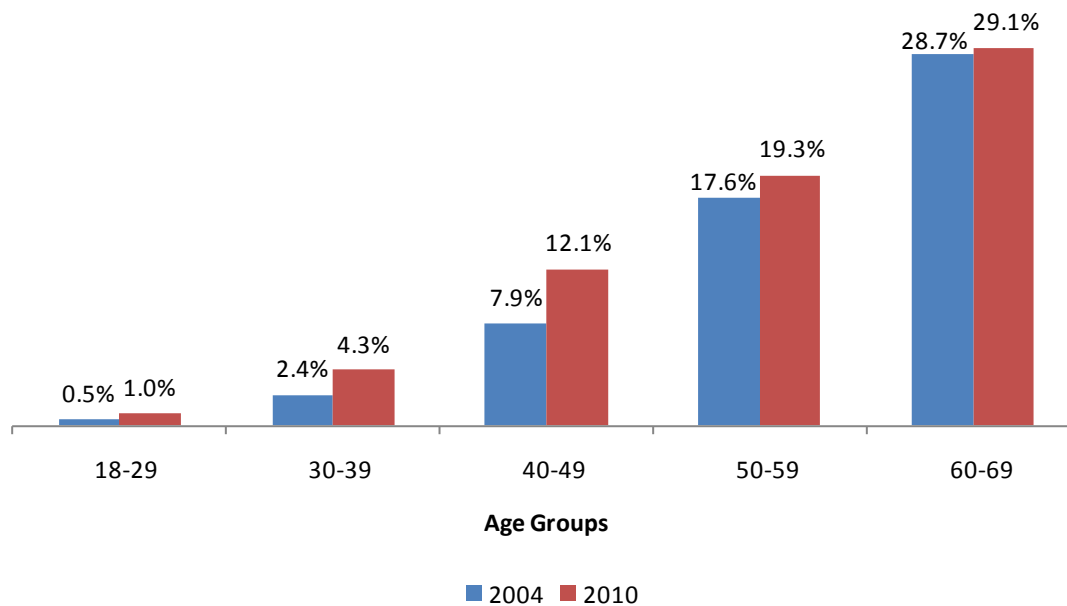
<sup>3</sup> International Diabetes Federation

<sup>4</sup> National Health Survey 2004 and 2010

increased from 8.2% in year 2004 to 11.3% in year 2010.

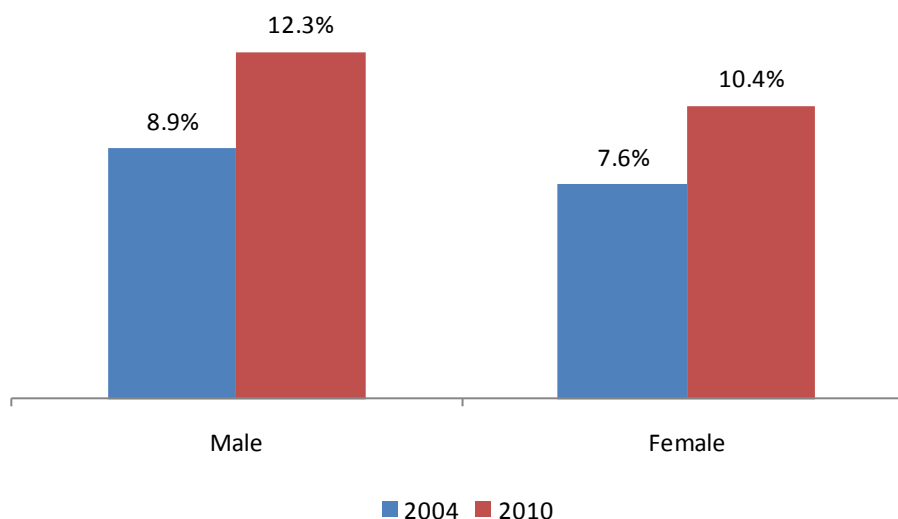
- 49.4% of Singapore residents were unaware that they have diabetes. The proportion of undiagnosed diabetics was highest among the Malays (55.6%), followed by the Chinese (50.4%) and Indians (38.0%).<sup>5</sup>

### Age Group



- The percentage of diabetics increased with age.

### Gender

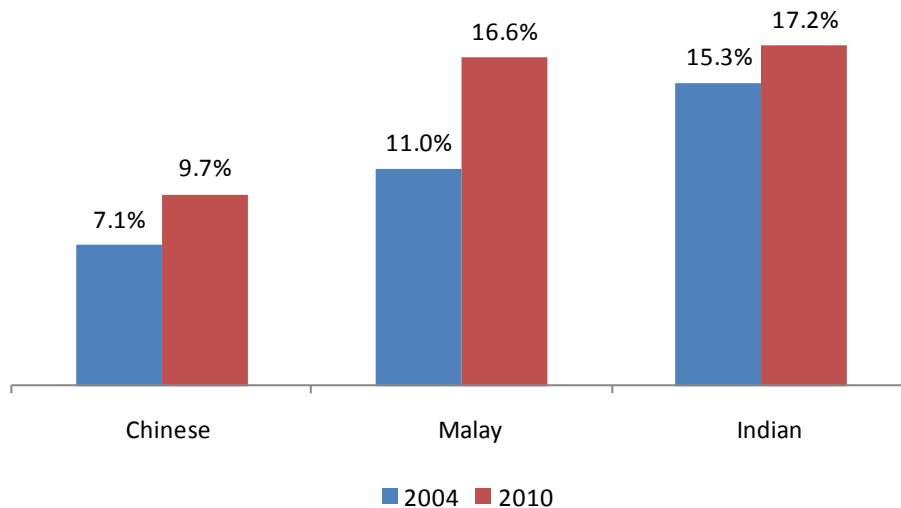


- The percentage of diabetics has increased from year 2004 to year 2010, for both males and females.

<sup>5</sup> National Health Survey 2004

- Diabetes was more common among men than women.

### Ethnicity

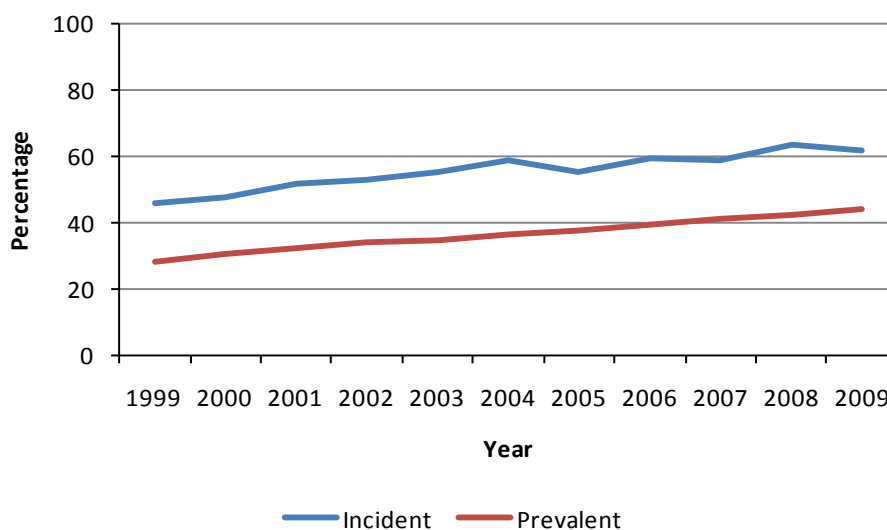


- Regardless of ethnicity, the percentage of diabetics increased from year 2004 to year 2010, with the most dramatic increase among the Malays.
- Indians were most likely to have diabetes, followed by the Malays and the Chinese.

### Complications of diabetes

Diabetes can result in health complications such as coronary heart disease (angina and heart attack), kidney failure and stroke in the long-term. The onset of these complications is quickened when the disease condition is not well controlled.

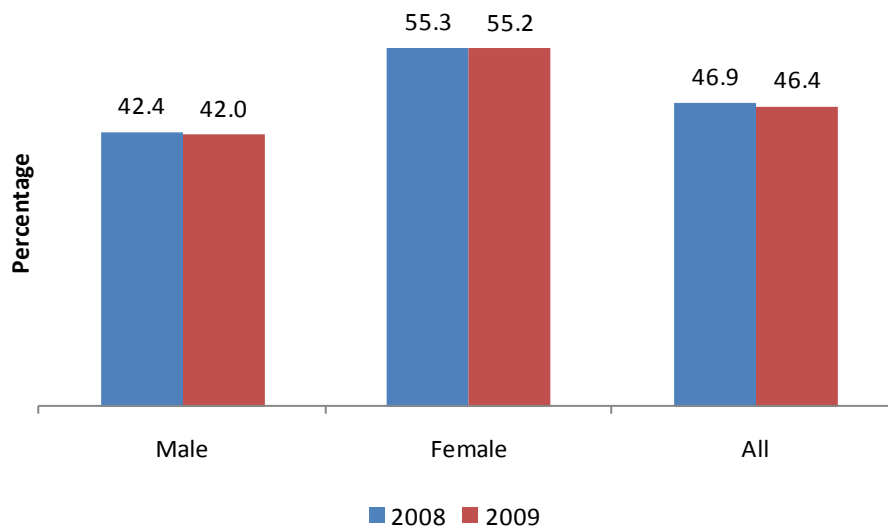
#### End Stage Renal Failure (Kidney Failure):



- The proportion of new (incident) cases of kidney failure arising from diabetes has been increasing from 46% in year 1999 to 62% in year 2009; in tandem with the increase in prevalence of diabetes in the population.

- Correspondingly, the proportion of all diagnosed (prevalent) ESRD cases increased from 28% in year 1999 to 44% in year 2009.
- Among patients on dialysis, those without diabetes are twice as likely to survive as compared to those with diabetes.<sup>†</sup>
- In Singapore, about 700 lower limb amputations every year were due to diabetic foot complications.<sup>6</sup>

### AMI (Acute Myocardial Infarction; commonly known as heart attack):



- 46.4% of all patients, who had their first attack in year 2009, were diabetic.
- There were more female than male diabetics who had a heart attack.

### What are the types of diabetes?

Diabetes is broadly classified into 3 types:

#### Type 1 Diabetes

- Results from body's inability to produce insulin
- Comprises 5-10% of all diabetics
- Usually diagnosed in children or young adults
- Insulin injections are needed for treatment
- Complications are sudden and life-threatening

#### Type 2 Diabetes

- Results from failure of the body to use insulin effectively combined with the inadequate production of insulin
- Comprises about 90% of all diabetics
- Occurs more frequently in people over 40 years old, particularly in those who are overweight and physically inactive
- **Can be controlled with proper diet and exercise** but most diabetics may also need oral medication

<sup>6</sup> Nather A, Chionh SB, Chan YH, Chew JLL, Lin CB, Neo SH, et al. Epidemiology of diabetic foot problems and predictive factors for limb loss. J Diabetes Complications 2008;22:77-82

### Gestational Diabetes Mellitus (GDM)

- Women who were not diagnosed to have diabetes previously and who show high blood glucose levels during pregnancy
- Occurs in about 9% of all pregnancies in Singapore
- Diabetes mellitus may have acute as well long term health complications for mother and the baby.

While symptoms for Type 1 diabetics may occur suddenly, symptoms for Type 2 diabetics usually do not occur until after many years of onset.<sup>7</sup> Hence, it is important to be screened regularly for diabetes so that the condition can be detected and treated early.

### Common symptoms of diabetes

The common symptoms of diabetes are:

- Perpetual hunger (always or often hungry)
- Excessive thirst
- Frequent urination
- Unexplained weight loss
- Constant fatigue (feeling tired)
- Wounds that heal poorly
- Extreme tiredness

### Diagnosis of Diabetes

Diabetes can be detected through a fasting blood glucose test.

You have diabetes if your:

**Fasting Blood Glucose (after 8 hours of fasting)** is 7.0 mmol/L or higher

If you are 40 years and older, visit your family doctor for a fasting blood glucose test once every 3 years or more frequently<sup>8</sup> as advised by your doctor.

The **Integrated Screening Programme** by Health Promotion Board (HPB) encourages Singaporeans aged 40 years and above to be screened for diabetes, high blood pressure, high blood cholesterol, obesity and cervical cancer at a Chronic Disease Management Programme (CDMP)-registered General Practitioner (GP) clinic.

An invitation letter will be sent to you if you are a Singaporean or Permanent Resident aged between 40 and 69 years old. You can also consult your family doctor about health screening even if you have not received the letter.<sup>9</sup>

### How can I lower my risk of getting diabetes?

Obesity has been linked to diabetes. By reducing obesity, one will reduce the risk of developing diabetes.

<sup>7</sup> [Diabetes Action Now: An initiative of the World Health Organization and the international Diabetes Federation](#)

<sup>8</sup> [MOH Clinical Practice Guidelines 6/2003](#)

<sup>9</sup> <http://www.hpb.gov.sg/programmes/article.aspx?id=3672>

You can lower your risk of diabetes by following some simple lifestyle measures:

- **Be physically active.** Exercise helps to control your weight and keeps your heart healthy. The HPB Physical Activity guidelines recommend 150 minutes of moderate intensity, or 75 minutes of vigorous intensity physical activity each week.<sup>10</sup> Do seek advice from your family doctor before starting on any exercise programme.
- **Maintain a healthy diet** to keep your blood glucose under control and to control your weight.
- **Quit smoking.** Smoking further narrows the blood vessels caused by diabetes, which will reduce blood flow to many organs and lead to complications.
- **Limit your alcohol intake,** as alcohol can interfere with your blood glucose control.<sup>11</sup>

### Where do I get more information?

For more information on diabetes, visit the following websites:

Health Promotion Board: <http://www.hpb.gov.sg/diseases/article.aspx?id=680>

Diabetic Society of Singapore: <http://www.diabetes.org.sg/>

International Diabetes Federation: <http://www.idf.org>

World Health Organization: <http://www.who.int/diabetes/en/>

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<sup>10</sup> [http://www.hpb.gov.sg/uploadedFiles/HPB\\_Online/News\\_and\\_Events/News/2011/Nat%20PA%20Guidelines.pdf](http://www.hpb.gov.sg/uploadedFiles/HPB_Online/News_and_Events/News/2011/Nat%20PA%20Guidelines.pdf)

<sup>11</sup> [Health Promotion Board](#)