

## **Executive Summary on National Population Health Survey 2016/17**

- The Ministry of Health (MOH) and Health Promotion Board (HPB) jointly conducted a pilot for the National Population Health Survey (NPHS) from November 2016 to May 2017 to track the health and risk factors, as well as lifestyle practices of Singapore residents. The NPHS consists of two stages: (i) Household interview and (ii) Health examination.
- The pilot involved over 3,000 respondents (aged between 18 and 74 years) out of 5,800 randomly selected households in the household interview, and about 1,100 respondents in the health examination.
- In the long run, the survey findings from the full-scale NPHS will be used by MOH and HPB to monitor the health of the population, track progress towards national health targets and for the planning and evaluation of programmes and health care services.

### **Obesity and Overweight**

- The overall trends for obesity and overweight, for both males and females, have been rising since 1992. The proportion of obese and overweight adults aged 18 to 69 years was 8.7% and 36.2% respectively in 2017. MOH and HPB will continue to encourage Singaporeans to lead an active lifestyle and eat healthily.

### **Physical Activity**

- Prevalence of sufficient total physical activity remains high, where around 8 in 10 persons aged 18 to 69 years are physically active.
- This is encouraging and demonstrates Singaporeans' awareness of the importance of staying active.

### **Daily Smoking**

- Daily smoking prevalence amongst Singapore residents<sup>1</sup> aged 18 to 69 years has been fluctuating since 2004, with no significant decrease since then. The overall prevalence of daily smoking was 12% in 2017. Daily smoking was much more prevalent among males compared with females.
- In addition to the legislative measures adopted to reduce smoking prevalence, including the point-of-sale display ban and the raising of the minimum legal age for the sale, purchase and possession of tobacco products progressively from 18 to 21 years of age, MOH and HPB will continue efforts to educate Singaporeans, especially youth and young adults, on the harms of tobacco use and encourage smoking cessation.

### **Binge Drinking**

- Binge drinking continued to see an increasing trend over the years, from 2.2% in 2001 to 9.0% in 2017, and is generally more prevalent in males.
- While prevalence of binge drinking is low in absolute terms, the increasing trends bear watching.

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<sup>1</sup> Singapore residents refer to Singapore citizens and permanent residents (PRs).

- The reasons behind binge drinking are multi-factorial. MOH and HPB will study this and continue to work with partners to address it.

## **Cardiovascular Risk Screening<sup>2</sup>**

- Around 6 to 7 in 10 Singapore residents aged 40 to 69 years go for recommended cardiovascular risk screening.
- Enhanced Screen for Life (SFL) subsidies are expected to help increase the detection of hypertension, hyperlipidaemia and diabetes early for prompt intervention and management. MOH and HPB will continue to review existing efforts to encourage all Singaporeans to attend evidence-based screening and follow up.

## **Hypertension and Hyperlipidaemia**

- The prevalence of hypertension and hyperlipidaemia in the population has increased over time, and this is likely due to our population ageing, as well as overweight (including obese) prevalence. MOH and HPB will continue to encourage the take-up of enhanced Screen for Life (SFL) subsidies, to help increase the early detection of diabetes, hypertension and hyperlipidaemia for prompt intervention and management.

## **Diabetes Mellitus**

- The two-hour Oral Glucose Tolerance Test (OGTT) has been used previously for diabetes surveillance. Starting from NPHS 2017, the Fasting Plasma Glucose (FPG) test has been adopted for diabetes surveillance among our health survey participants. The FPG is more convenient for survey participants than the two-hour OGTT<sup>3</sup> and is deemed adequate for diabetes surveillance. The FPG is one of the tests recommended by the World Health Organization (WHO) for diabetes surveillance, and is widely used by developed countries<sup>4</sup> for tracking and monitoring diabetes prevalence.
- However, the FPG is more likely to reflect a lower national diabetes prevalence as compared to the OGTT<sup>5</sup>, as the OGTT is more sensitive in picking up diabetes as compared to FPG. Nonetheless, prevalence of diabetes remained high at 8.6%<sup>6</sup> in 2017, continuing a rising trend since 1992.

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<sup>2</sup> Screening coverage is for three conditions, namely diabetes mellitus, hypertension or hyperlipidaemia.

<sup>3</sup> The FPG test is more convenient for participants since there is no need to wait two hours for an additional blood sample to be taken.

<sup>4</sup> The developed countries include Australia, Canada and South Korea.

<sup>5</sup> Both the FPG and OGTT are accepted tests for diabetes surveillance globally. The FPG is less sensitive as compared to the OGTT in detecting diabetes. Therefore, in line with WHO's recommendations, the MOH Clinical Practice Guidelines 1/2014 on Diabetes Mellitus recommended that all individuals with FPG ranging from 6.1 – 6.9 millimoles per litre (mmol/L) be subject to an OGTT to better determine the individual's glycemic status.

<sup>6</sup> Based on FPG

**TABLE 1**

**COMPARISON OF NPHS 2017 FINDINGS AMONG SINGAPORE RESIDENTS AGED 18 – 69 YEARS (EXCEPT THOSE AGED 40 – 69 YEARS FOR CARDIOVASCULAR RISK SCREENING) WITH PAST SURVEY TRENDS\***

Prevalence Among Singapore Residents	National Health Survey				National Health Surveillance Survey			National Population Health Survey	
	1992	1998	2004	2010	2001	2007	2013	2017	
Overweight (including obese)	26.2%	30.5%	32.5%	40.1%				34.3%	36.2%
Obesity	5.1%	6.0%	6.9%	10.8%				8.6%	8.7%
Daily smoking	18.3%	15.2%	12.6%	14.3%	13.8%	13.6%	13.3%	12.0%	
Diabetes mellitus <sup>+</sup>	7.3%	7.4%	7.0%	8.3%				8.6%	
Hypertension	16.1%	21.5%	20.1%	18.9%				21.5%	
Hyperlipidaemia <sup>#</sup>				25.2%				33.6%	
Sufficient total physical activity						82.3%	73.9%	81.0%	
Binge drinking					2.2%	4.4%	7.7%	9.0%	
Proportion of Singapore residents who were screened for chronic diseases according to the recommended frequency <sup>^</sup>									55.9%

\* The findings of different surveys are not directly comparable, and should be interpreted with caution, because of differences in the survey methodology.

<sup>+</sup> The prevalence rate is measured with Fasting Plasma Glucose test.

<sup>#</sup> Hyperlipidaemia is defined as high low-density lipoprotein (LDL) cholesterol based on the presence of either of two criteria – (a) those diagnosed and on treatment; or (b) those with high measured blood cholesterol concentrations.

<sup>^</sup> The respondents were aged 40 – 69 years. Individuals with known diabetes, hypertension or hyperlipidaemia were excluded. The recommended screening frequency for diabetes and hyperlipidaemia is at least once every three years, and that for hypertension at least once every two years.

**TABLE 2**

**COMPARISON OF NPBS 2017 FINDINGS AMONG SINGAPORE RESIDENTS AGED 18 – 69 YEARS (EXCEPT THOSE AGED 40 – 69 YEARS FOR CARDIOVASCULAR RISK SCREENING) WITH PAST SURVEY TRENDS, BY GENDER\***

Prevalence Among Singapore Residents	National Health Survey								National Health Surveillance Survey						National Population Health Survey					
	1992		1998		2004		2010		2001		2007		2013		2017					
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F				
Overweight (including obese)	27.4%	24.9%	33.9%	27.0%	35.0%	30.0%	46.6%	33.8%							40.2%	28.6%	43.4%	29.4%		
Obesity	4.1%	6.1%	5.3%	6.7%	6.4%	7.3%	12.1%	9.5%							9.4%	7.9%	7.0%	10.3%		
Daily smoking	33.2%	3.1%	27.1%	3.2%	21.8%	3.5%	24.7%	4.2%	24.3%	3.6%	23.7%	3.7%	23.1%	3.8%	21.1%	3.4%				
Diabetes mellitus <sup>+</sup>	8.1%	6.4%	7.7%	7.2%	8.0%	6.2%	9.2%	7.5%							10.3%	7.1%				
Hypertension	18.8%	13.4%	25.0%	18.1%	24.5%	15.9%	21.1%	16.7%							23.6%	19.6%				
Hyperlipidaemia <sup>#</sup>							28.0%	22.5%							40.9%	26.6%				
Sufficient total physical activity													81.6%	83.0%	75.1%	72.7%	81.4%	80.7%		
Binge drinking													3.8%	0.6%	6.6%	2.2%	11.1%	4.5%	13.2%	5.0%
Proportion of Singapore residents who were screened for chronic diseases according to the recommended frequency <sup>^</sup>													55.1%	56.7%	63.4%	65.1%				

\* The findings of different surveys are not directly comparable, and should be interpreted with caution, because of differences in the survey methodology.

<sup>+</sup> The prevalence rate is measured with Fasting Plasma Glucose test.

<sup>#</sup> Hyperlipidaemia is defined as high low-density lipoprotein (LDL) cholesterol based on the presence of either of two criteria – (a) those diagnosed and on treatment; or (b) those with high measured blood cholesterol concentrations.

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