



COLLEGE OF FAMILY PHYSICIANS SINGAPORE

# THE SINGAPORE FAMILY PHYSICIAN

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## OBESITY: PREVENTION & MANAGEMENT





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*Adj Asst Prof (Dr) Tan Ngiap Chuan*

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Honorary Editor  
The Singapore Family Physician

# OBESITY: PREVENTION & MANAGEMENT

Adj Asst Prof (Dr) Tan Ngiap Chuan

**SFP2012; 38(1): 4**

The Singapore Family Physician comes to you with a new dressing with the first issue of 2012. The new cover design reflects the ecological dynamism of the journal and the illustration indicates the key theme of the issue. The editorial team is expanding its pool of subeditors to expedite on the review of the invited articles as well as the original articles. You are invited to submit original articles – reviews, case studies, case reports, cross-sectional, and intervention studies. The editorial review team will give you constructive criticism where necessary to improve your manuscript. The instructions for authors who plan to submit to SFP have also been updated to tie in with the current trend of online article submission.

What is equally significant is our editorial effort in this first issue to transform the abstracts of all submitted articles into a format that allows them to be accessed via the Western Pacific Region Index Medicus (WPRIM), which is anchored by the World Health Organisation (WHO). This conversion is a tedious process but the Editorial team recognises the importance and relevance of indexing our publications, so that new information and knowledge pertaining to Family Medicine can be shared with our family physicians and primary care professionals in the Western Pacific region. This new endeavour will prepare the Editorial team to embark on the journey towards Pubmed indexing and ultimately bring the journal across the globe in the next few years.

The first issue of SFP in 2012 focuses on obesity prevention and control, which is an important area of health which affects an increasing proportion of the population in Singapore. The management of obesity is not rocket science to family physicians but nevertheless there are finer points to pay attention to. What is urgently needed are new approaches and method to nip this bulging problem early.

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TAN NGIAP CHUAN, Honorary Editor, Singapore Family Physician

Childhood obesity, persisting to after 3 years of age, or presence of obesity in at least one parent in children at every age predict adult obesity and contributes to morbidity and mortality in adulthood. Apart from excluding pathological causes and detect complications, family physicians need to introduce and inculcate healthy lifestyles amongst our young citizens: reduce energy-dense food, increase nutrient density and regular exercise regime in place of sedentary past-times.

Such evidence-based lifestyle interventions should continue to adulthood. It is never too late to start but to be sustainable; such interventions should be individualised to each person's needs and circumstances. Changing a person's behaviour is always arduous. However it can be facilitated by Motivational Interviewing (MI) which stresses on expressing empathy, developing discrepancy, rolling with resistance and supporting self-efficacy. Using open-ended questions, reflective listening and pulling change are essential skills in MI. In our practices, time is often a limiting factor to carry out MI. Brief strategies such as the Elicit-Provide-Elicit model can be used instead to provide patient with feedback and information about their health to facilitate their behaviour change.

The message to take on healthy lifestyles such as regular physical activity and having a healthy diet should be consistent from all healthcare professionals so that it can be uniformly assimilated and ingrained in our target population. To support such healthy lifestyles, the Health Promotion Board (HPB) has recently launched the National Physical Activity Guidelines, which recommend an accumulation of 150 minutes of moderate intensity physical activity per week. This amount of activities will result in remarkable benefits, with 20-50% reduction of premature death, decreases in incidences of cardiovascular complications such as stroke, colon and breast cancers, type2 diabetes, falls, depression and dementia. For ease of safe exercise prescription, family physicians can make use of the evidence-based tool introduced by HPB, the Physical Activity Advice Tool (PAAT).



## **DISTANCE LEARNING COURSE ON “OBESITY: PREVENTION & MANAGEMENT”**

- Overview of “Obesity: Prevention & Management”
- Unit 1 : Obesity in Singapore: Prevention & Control
- Unit 2 : Childhood
- Unit 3 : Introduction to Motivational Interviewing (MI)
- Unit 4 : Youth/Adults
- Unit 5 : Physical Activity Advice Tool (PAAT)

# OVERVIEW OF "OBESITY: PREVENTION & MANAGEMENT" FAMILY PRACTICE SKILLS COURSE

A/Prof Goh Lee Gan

SFP2012; 38(1): 6-7

## INTRODUCTION

This Family Practice Skills Course on prevention of obesity and management is jointly organised and supported by Health Promotion Board (HPB). The basic strategy of obesity prevention and control is quite straightforward and lies in achieving the caloric balance which is to reduce calorie intake and increase physical activity. To implement this strategy however can be challenging. We now have better tools such as motivational interview techniques to help the patient. The evidence base on what are effective things to do and what are not is also becoming clear. There is much to be updated in this topic. Thanks are due to the Health Promotion Board for supporting this Family Practice Skills Course.

## COURSE OUTLINE AND CME POINTS

This Family Practice Skills Course is made up of the following components. You can choose to participate in one or more parts of it. The CME points that will be awarded are also indicated below.

### Components and CME Points

- Distance Learning Course – 6 units (6 Core FM CME points upon attaining a minimum pass grade of 60% in Distance Learning Online MCQ Assessment).
- 2 Seminars (2 Core FM CME points per seminar).
- 2 Workshops (1 Core FM CME point per workshop).
- 10 Readings – read 5 out of 10 recommended journals (maximum of 5 CME points for the whole CME year).

### Distance Learning Course

Unit 1 : Obesity in Singapore: Prevention and Control

*A/Prof Goh Lee Gan & Dr Jonathan Pang*

Unit 2 : Childhood

*A/Prof Loke Kah Yin*

Unit 3 : Introduction to Motivational Interviewing (MI)

*Dr Audrey SL Tan*

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GOH LEE GAN, Professorial Fellow, Division of Family Medicine, University Medicine Cluster, National University Health System, Director, Institute of Family Medicine, College of Family Physicians Singapore

Unit 4 : Youth/ Adults

*Dr Tan Hong Chang, Dr Sonali Ganguly,*

*Dr Tham Kwang Wei*

Unit 5 : Physical Activity Advice Tool (PAAT)

*Mr Robert Sloan*

## COURSE TOPIC DETAILS

### Unit 1: Obesity in Singapore: prevention and control

- Obesity in Singapore.
- Causes and the importance of obesity.
- Factors promoting obesity.
- Do Singaporeans want to lose weight?
- Approach to obesity prevention and control in Singapore.
- What can healthcare providers do?

### Unit 2: Childhood

- Epidemiology.
- Clinical Evaluation.
- Management.

### Unit 3: Introduction to Motivational Interviewing (MI)

- Introduction.
- What is Motivational Interviewing?
- The Evidence for Motivational Interviewing.
- General Principles.
- Key Skills in Motivational Interviewing.
- Motivational Interviewing in Medical and Public Health Settings.
- Conclusion.

### Unit 4: Youth/ Adults

- Introduction.
- Epidemiology.
- Co-Morbidities of Obesity.
- Strategies for Management of Overweight and Obesity.
- The Role of the Family Physician.

### Unit 5: Physical Activity Advice Tool (PAAT)

- Introduction.
- Ecological Model of Active Living.
- Evidence based.
- Pre-participation screening and safety.
- Physical Activity Advice Tool.
- Conclusion.



## FACE-TO-FACE SESSIONS

Seminar 1: 14 Jan 2012, 2.00pm – 4.00pm

Unit 1 : Obesity in Singapore: prevention and control

*Dr Jonathan Pang*

Unit 2 : Childhood

*A/Prof Loke Kah Yin*

Unit 3 : Introduction to Motivational Interviewing (MI)

*Dr Audrey SL Tan*

Workshop 1: 14 Jan 2012, 4.30pm – 6.00pm

A. Motivational Interviewing (MI) &amp; Case Scenarios

*Dr Audrey SL Tan*

B. Role of Allied Health and Community in Continuity of Care

*Ms Vivian Feng Yu Lim*

Seminar 2: 15 Jan 2012, 2.00pm – 3.30pm

Unit 4 : Youth/ Adults

*Dr Tham Kwang Wei*

Unit 5 : Physical Activity Advice Tool (PAAT)

*Mr Robert Sloan*

Workshop 2: 15 Jan 2012, 4.00pm – 5.30pm

A. Physical Activity Advice Tool (PAAT)

*Mr Robert Sloan*

B. Health Choices – Lifestyle Advice Resource for Healthcare Professionals

*Ms Samantha Bennett*

## UNIT NO. I

## OBESITY IN SINGAPORE, PREVENTION AND CONTROL

A/Prof Goh Lee Gan, Dr Jonathan Pang

## ABSTRACT

**Obesity is increasing in prevalence in Singapore. This is part of a worldwide phenomenon. Action is being taken in Singapore to prevent and control obesity. Obesity is most commonly caused by a combination of excessive food energy intake, lack of physical activity, and genetic susceptibility. The basic strategy of obesity prevention and control however is quite straightforward and lies in achieving the caloric balance which is to reduce calorie intake and increase physical activity. To be effective however, obesity prevention and control requires multiple prevention and control interventions across the lifespan. There is a need for Health Promotion Board (HPB) to engage and mobilise various partners and stakeholders.**

**Policies and programs have been customised in Singapore for different segments of the population and conducted at various settings – in schools, workplaces, healthcare institutions, and communities. The current efforts to prevent and control obesity in Singapore can be grouped into 5 areas: (1) Health promotion policies; (2) Promoting supportive environments through social programmes; (3) HPB collaborating with partners to promote healthy behaviour; (4) Empowering partners and individuals; and (5) Raising awareness through health education and communication.**

**Keywords:** Health Promotion Board, health promotion policies, obesity prevention, obesity control, raising awareness

SFP2012; 38(1): 8-13

## OBESITY IN SINGAPORE

Obesity is increasing in prevalence in Singapore. This is part of a worldwide phenomenon. Action is being taken in Singapore to prevent and control obesity however. The need for obesity prevention and control has been recognised since the 1990s, and the country launched a National Healthy Lifestyle Program in 1992. The program spearheaded national strategies with the goal of controlling obesity through public education campaigns that focussed on physical activity and healthy eating.

Over the years, these efforts expanded to include strategies that promote supportive environments, restrict the availability of energy-dense foods to children, and increase access to exercise and fitness facilities – making “healthier choices for Singaporeans easier choices” (Soon et al, 2009)<sup>1</sup>.

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JONATHAN PANG, Executive Director, College of Family Physicians Singapore

## Definition of obesity

The WHO international classification of weight status is used to define obesity in the National Health Surveys, which is defined as BMI equal or more than 30 kg/m<sup>2</sup>. Abdominal fatness is defined as waist hip ratio (WHR) of more than 1.0 for males and more than 0.85 for females. (NHS, 2010)<sup>2</sup>.

For interpretation of health risks for Asian populations including Singaporeans, lower BMI cut offs are used namely: Low risk BMI (kg/m<sup>2</sup>) = 18.5 to 22.9; Moderate risk BMI (kg/m<sup>2</sup>) = 23.5 to 27.4; High risk BMI (kg/m<sup>2</sup>) = equal or more than 27.5.

## Key points on obesity in Singapore

From the National Health Survey (NHS) 2010, the key points on obesity are:

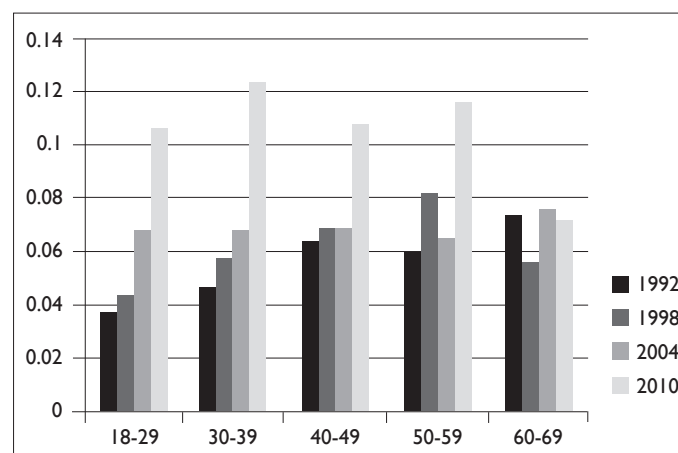
- One in nine (10.8%) Singapore residents aged 18 to 69 years was obese (BMI equal or more than 30 kg/m<sup>2</sup>).
- By gender, 12.1% males and 9.5% females were obese.
- By ethnic group, 24.0% Malays, 16.9% Indians and 7.9% Chinese were obese.
- By BMI risk category, 23.0% were in the high risk Asian BMI category (BMI 27.5 kg/m<sup>2</sup> or greater).

## Prevalence of obesity in the resident population

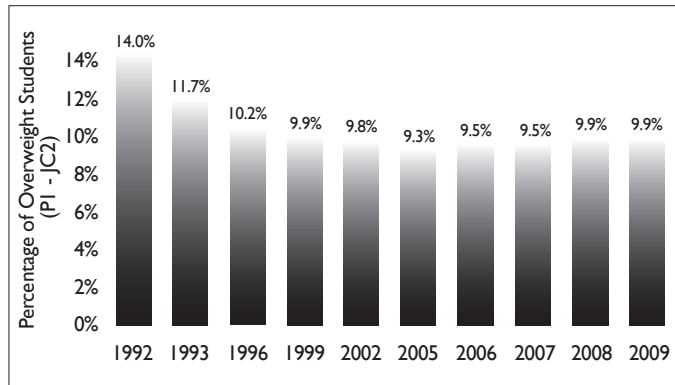
Figure 1 shows the prevalence of resident population 18 to 69 years who are obese. There is an increasing trend over the years for each of the age groups except for the group 60-69 years. Not the trend of increase between 2004 and 2010 is steep. More prevention and control of obesity is needed.

Fig 2 shows the overweight prevalence among the young in Singapore from 1992 to 2009. There is a drop from 14.0% in 1992 to 9.9% in 1999. The prevalence has remained around this figure since then.

**Fig 1: Prevalence of population who are obese (BMI equal or more than 30 kg/m<sup>2</sup>) by age-group and year of NHS survey**



Source: NHS 2010

**Fig 2. Overweight Prevalence Among The Young in Singapore (1992 - 2009)**

Source: MOH

Tables 1 and 2 shows the prevalence of obesity over the years by gender and ethnic group by BMI and abdominal fatness (truncal obesity) respectively. The salient demographic features have been summarised in the key points above.

Table 3 shows the prevalence of diabetes mellitus, hypertension, high total cholesterol, and obesity in the Singapore resident population as recorded in the national health surveys. Note that there is increasing prevalence of obesity and the prevalence of diabetes is climbing too, whereas the hypertension prevalence, and high cholesterol prevalence are stable.

### CAUSES AND THE IMPORTANCE OF OBESITY

Obesity is most commonly caused by a combination of excessive food energy intake, lack of physical activity, and genetic susceptibility. Abdominal fatness (truncal obesity) is of particular concern as it is associated with elevated risks to health in comparison to more peripheral fat distribution.

From the morbidity and mortality points of view, obesity is one component of a risk factor constellation that consists of insulin resistance (an/or hyperinsulinemia), hypertension, and a dyslipidemia characterised by a low HDL cholesterol level and high triglyceride levels. This risk factor constellation, which conveys enhanced risk for cardiovascular disease, is sometimes referred to as the “insulin resistance syndrome”, “syndrome x”, or the “metabolic” syndrome (Landberg, 1996)<sup>3</sup>; Kaplan 1996)<sup>4</sup>. The original mention of these four conditions as a syndrome goes back to the late sixties by Hanefeld and Leonhardt and by Kaplan (Kaplan, 1989)<sup>5</sup> who also called the syndrome the “deadly quartet” to emphasise its high atherogenic potential (Hauner, 2002)<sup>6</sup>.

Elements of this “deadly quartet” as a syndrome are common and interrelated (Nambi et al, 2002)<sup>7</sup>. For example:

- At least 10% of patients with coronary artery disease have three of the four risk factors.
- One third of adults in United States are estimated to be overweight or obese (with a body mass higher than 25 (Grundy, 1999)<sup>8</sup>. People who are obese are at least twice as likely to have hypertension, hypertriglycerimemia, or type 2 diabetes mellitus than people who are not obese.
- People with hypertension have a twofold higher prevalence of diabetes and obesity compared to normotensive people (Kaplan, 1989)<sup>5</sup>, and half are insulin resistant (Reaven et al., 1996)<sup>9</sup>
- Syndrome factors are also common in polycystic ovarian disease, a condition with a high incidence of atherosclerosis.

Obesity is also associated with osteoarthritis, and breast and colon cancer.

**Table 1. Prevalence of respondents who were obese (BMI equal or more than 30 kg/m<sup>2</sup>) by gender, ethnic group and year of survey**

Gender/ Ethnic Group	Crude prevalence				Age-standardised prevalence (95% Confidence Interval)			
	1992	1998	2004	2010	1992	1998	2004	2010
Total	5.1	6.0	6.9	10.8	5.5 (4.7, 6.2)	6.3 (5.6, 7.0)	6.8 (6.0, 7.5)	10.8 (9.8, 11.8)
<b>Gender</b>								
Males	4.1	5.3	6.4	12.1	4.0 (3.1, 4.9)	5.4 (4.5, 6.3)	6.3 (5.2, 7.4)	12.1 (10.6, 13.6)
Females	6.1	6.7	7.3	9.5	6.9 (5.7, 8.1)	7.1 (6.1, 8.1)	7.2 (6.1, 8.4)	9.5 (8.2, 10.8)
<b>Ethnic Group</b>								
Chinese	3.5	3.8	4.2	7.9	3.7 (3.0, 4.4)	4.0 (3.4, 4.6)	4.2 (3.5, 4.9)	7.9 (6.5, 9.3)
Malay	11.1	16.2	19.1	24.0	13.4 (10.3, 16.5)	18.0 (14.9, 21.1)	20.0 (16.6, 23.5)	24.0 (21.9, 26.1)
Indian	11.2	12.2	13.4	16.9	11.5 (7.6, 15.4)	12.6 (9.5, 16.1)	13.2 (9.5, 16.8)	16.9 (14.3, 19.5)

Source: NHS 2010, MOH

Table 2. Prevalence of respondents who had abdominal fatness (truncal obesity) by gender, ethnic group and year of survey

Gender/ Ethnic Group	Crude prevalence				Age-standardise prevalence (95% Confidence Interval)			
	1992	1998	2004	2010	1992	1998	2004	2010
Total	2.6	8.1	11.9	16.9	3.4 (2.8, 4.0)	9.9 (9.1, 10.8)	13.1 (12.0, 14.1)	16.9 (15.7, 18.1)
Gender								
Males	0.6	1.8	3.0	5.6	0.7 (0.3, 1.1)	2.3 (1.7, 3.0)	3.5 (2.7, 4.3)	5.6 (4.5, 6.7)
Females	4.6	14.4	20.7	28.0	6.1 (5.0, 7.2)	17.4 (15.9, 19.0)	22.5 (20.7, 24.3)	28.0 (26.0, 30.0)
Ethnic Group								
Chinese	2.1	7.4	11.1	15.5	2.9 (2.2, 3.5)	9.0 (8.1, 10.0)	11.9 (10.8, 13.0)	15.5 (13.6, 17.4)
Malay	3.8	9.5	12.5	18.9	5.2 (3.2, 7.2)	12.4 (9.7, 15.0)	14.3 (11.3, 17.3)	18.9 (16.9, 20.9)
Indian	5.6	12.9	18.7	26.1	6.4 (3.4, 9.4)	13.5 (9.9, 17.1)	19.0 (14.7, 23.2)	26.1 (23.0, 29.2)

Source: NHS 2010, MOH

Table 3. Prevalence of diabetes mellitus, hypertension, high total cholesterol, and obesity in resident Singapore population recorded in national health surveys

Year of survey	1992	1998	2004	2010
Risk factor				
Diabetes mellitus	8.6	9.0	8.2	11.3
Hypertension	12.2	27.3	24.9	23.5
High total cholesterol	19.4	25.4	18.7	17.4
Obesity	5.1	6.0	6.9	10.8

## FACTORS PROMOTING OBESITY

**Economic growth.** The most important factor promoting obesity is economic growth. Obesity is the metamorphic canary in the coal mine that has given the alert for epidemic of lifestyle-related chronic diseases. The speed with which the obesity epidemic has occurred precludes a primary generic cause, with most analysts now accepting an etiology within the modern environment. The increased availability of cheap, energy-dense foods and drinks and wide access to energy-saving technologies (e.g., cars, machines, and the Internet) are the hallmarks of a developing economy, while coincidentally constituting the ingredients for expanding waistlines and accompanying chronic disease. (Egger, 2009)<sup>10</sup>.

Obesity is the natural response to an unnatural environment. Put simply, it is the unintended but unavoidable consequence of economic progress or, has also been described as the collateral damage in the battle for modernity (Egger, 2009)<sup>10</sup>.

It is also interesting to note in the same paper these observations: In a range of economies from the US to Japan

and Mexico, health indices are affected negatively by economic upturns and affected positively by downturns. (Egger, 2009)<sup>10</sup>.

**Maternal obesity.** There is evidence that the offspring of obese mothers and those who gain excess gestational weight are also more likely to gain more weight in childhood into early adulthood. (Mamun et al, 2009)<sup>11</sup> Moreira et al, 2007)<sup>12</sup> Tsoi et al, 2010)<sup>13</sup>.

**Lower income families.** The traditional view of obesity as a consequence of affluence is increasingly being challenged, particularly in developed countries. In a study of 11 OECD countries including the United States, large and persistent social inequities in obesity by education level or socio-economic status exist (Devaux and Sassi, 2011)<sup>14</sup>; MOH, 2011)<sup>2</sup>. According to the 2009 Korea National Health and Nutrition Examination Survey, the proportion of low income South Koreans who became obese between 1998 and 2009 rose three times faster when compared to their more affluent counterparts.

In Singapore, this phenomenon has been observed too in the results of the 2010 National Health Survey: The highest prevalence of obese individuals (BMI more or equal to 30.0kg/m<sup>2</sup>) occurred in household earning less than SGD 2,000 per month (14.3%), compared to those earning SGD 6000 or more per month (8.8%). Based on education level, a higher proportion of obese individuals were observed among those with PSLE education or below (11.6%) when compared to those who had GCE 'A' Level education and above (9.7%).

The development of obesity among low income families in developed countries is a reflection of limited choices. To stretch their dollar, these families are more likely to consume excess of



nutritionally-depleted, cheap calories from processed foods or junk foods, or sweetened drinks. The nature of their work may allow them fewer opportunities for physical activity, and lead them to regularly use fast food outlets rather than cook their own food.

### DO SINGAPOREANS WANT TO LOSE WEIGHT?

A Singapore population survey done in 2008 by AC Nielsen showed the following results:

- One in two Singaporeans are dissatisfied with their weight and are trying to lose weight.
- On actions to take to lose weight 75% chose modifying their diet, compared to 56% who chose doing physical exercise.
- Only one in two (50%) exercise at least once or twice a week.

### APPROACH TO OBESITY PREVENTION AND CONTROL IN SINGAPORE

#### Basic strategy

The basic strategy of obesity prevention and control however is quite straightforward and lies in achieving the caloric balance which is to reduce calorie intake and increase physical activity.

**Reduce calorie intake.** One reduces calorie intake by 500kcal a day and aim to lose 5-15% of current body weight (no more than 1 kg per week) if one's BMI is above 23.

**Increase physical activity.** One increases physical activity to 150-250 minutes of moderate intensity aerobic activity a week or 75-125 minutes of vigorous activity each week.

#### Tackling obesity across the lifespan

To be effective however, obesity prevention and control requires multiple prevention and control interventions across the lifespan.

There is a need for Health Promotion Board (HPB) to engage and mobilise various partners and stakeholders.

Policies and programs have been customised in Singapore for different segments of the population and conducted at various settings – in schools, workplaces, healthcare institutions, and communities (Soon et al, 2008). See Figure 3.

The current efforts to prevent and control obesity in Singapore can be grouped into 5 areas:

1. Health promotion policies.
2. Promoting supportive environments through social programmes.
3. HPB collaborating with partners to promote healthy behaviour.
4. Empowering partners and individuals.
5. Raising awareness through health education and communication.

#### 1. Health promotion policies

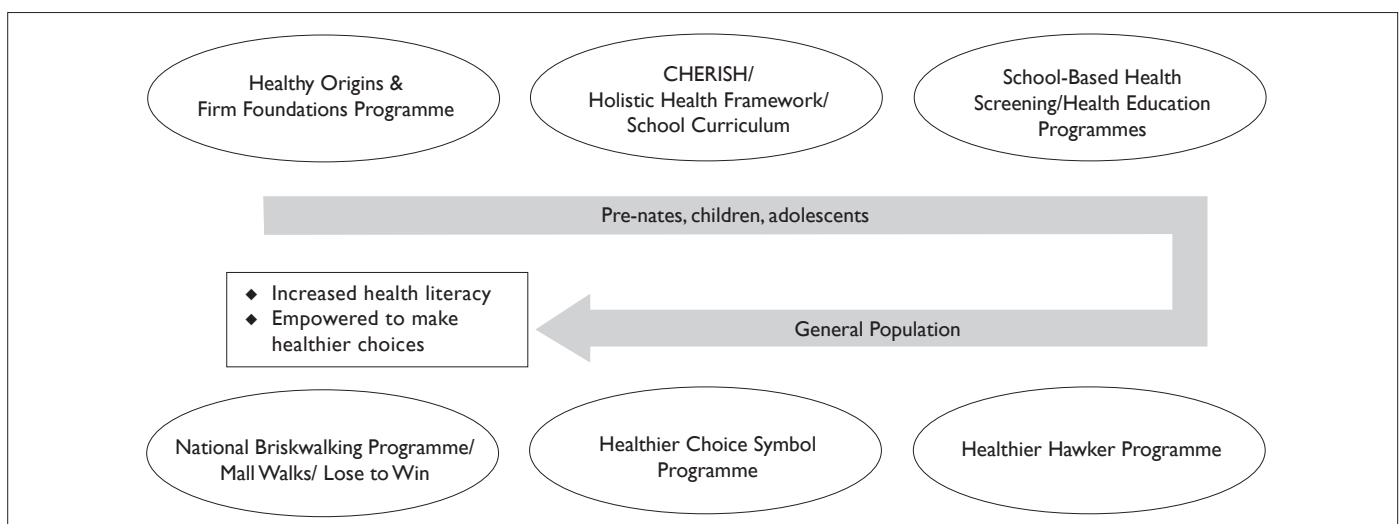
##### Dietary and physical activity guidelines

HPB has developed official dietary guidelines for Singapore's population, with separate guidelines for adults and children. It has also developed complementary, evidence-based dietary and physical activity guidelines that now form the basis of Singapore's health promotion programmes relating to nutrition, physical activity, and general health.

##### National awards and funding schemes

**CHERISH Award for Schools.** HPB introduced the CHERISH (Championing Efforts Resulting in Improved School Health) Award for primary and secondary schools, junior colleges, and centralised academic institutions in 2000. This award recognises schools with comprehensive health promotion programmes for staff and students. To-date, approximately 80% of schools in Singapore have received the CHERISH Award. To complement the CHERISH Award, HPB also offers participating schools a health promotion grant, which encourages schools to sustain their health promotion efforts for students and staff.

**Fig 3. Tackling Obesity Across the Lifespan**



## Singapore Workplace Health Promotion Programs.

Almost 60% of Singaporeans over the age of fifteen years participate in the workforce in some way. This makes the workplace a natural and effective setting in which to promote the health and well being of both employees and management. To incentivise companies and organisations to start and sustain Workplace Health Promotion (WHP) programs, HPB introduced WHP grants in 2001. The grants may be used to fund activities such as training for staff to conduct workplace health promotion programs, health risk assessment for employees, and health education activities. Grants may also support the purchase of related equipment and facilities or incentives that increase participation and motivate behaviour change.

**HEALTH Award for Companies.** To recognise the achievements of companies with commendable WHP programs, the Singapore HEALTH (Helping Employees Achieve Lifetime Health) Award was introduced in 1999.

## 2. Promoting supportive environments through social programs

### Programs in Schools

**Model School Tuck-Shop Program.** HPB introduced the Model School Tuck-shop Program (MSTP) in 2003 to increase access to healthier food choices in schools. Schools are provided with a set of healthier food service guidelines that aim to limit students' exposure to fat, salt, and sugars in food typically consumed in the tuck-shops, as well as increase their consumption of fruits and vegetables.

**Trim and Fit Program (TAF).** This was aimed to improve the physical fitness of the school population and to reduce the overall prevalence of overweight students. It was introduced in 1992 by the Ministry of Education. The overall percentage of overweight students decreased from 11.7 percent in 1993 to 9.5 percent in 2006. The overall percentage of students who passed the physical fitness test rose from 61.5 in 1993 to 80.8 in 2006. Following the review of this program in 2005, the program evolved into a Holistic Health Framework (HHF), which was formally established in 2007. The HHF seeks to broaden health promotion in schools beyond obesity prevention and fitness management by embracing a broader concept of students' general well-being and developing their intrinsic motivation to lead a healthy lifestyle.

### Programs in the Workplace

**Healthier Canteen Certification Program.** This program was introduced in 2006 to help employers encourage their employees to adopt healthier dietary practices. Appointed health facilitators and canteen vendors (or certified healthier caterers) work closely together with HPB nutritionists to help implement and drive the program. Half of the organisations in this program are HEALTH Award winners.

### Community-wide Programs

**Healthier Hawker Program.** Launched in 2006, this program encourages hawker centres to prepare their signature dishes with healthier ingredients. Participating stalls display the "Healthier Choice Symbol" on their Food Hygiene Certificate.

**Healthier Dining Program.** This program was introduced in 2003 to increase the availability of healthier dishes in restaurants. HPB works with participating restaurants to modify existing dishes so that they contain less oil, salt, and sugar – and include more fruit and vegetables – as well as to introduce healthier new dishes.

**Community Initiatives Promoting Physical Activity.** To encourage Singaporeans to incorporate physical activity into their daily life, HPB collaborates with the People's Association, Singapore Sports Council and various sporting companies to organise physical activities like brisk-walking, running, aerobic workouts, and Tai Chi in public places.

**Lose to win.** The objective of Lose to Win is to inspire and motivate groups of individuals to lose weight the healthy way through the provision of an effective structured program and evidence-based tools. See Figure 4.

## 3. Collaborating with partners to promote healthy behaviour

HPB collaborates with Government agencies, business community and food industry, unions, community partners, and non-governmental organisations to implement national health education and disease prevention efforts.

## 4. Empowering partners and individuals

HPB provides training to healthcare professionals, WHP facilitators, community leaders, educators, parents, domestic helpers and caregivers by leveraging on existing social and institutional networks. One such program is the "Wok the Talk" to train WHP ambassadors with healthy eating tips and food preparation skills. These ambassadors, in turn, share these messages and skills with families and friends through cooking sessions.

## 5. Raising awareness through health education and communication

HPB engages ongoing efforts to educate the general public via media campaigns and road shows that focus on how to make healthier lifestyle choices which feature specific themes such as eating a balanced diet, healthier food preparation, lowering fat intake, reading food labels, and tips in achieving weight loss. These campaigns also encourage physical activity.

**Fig 4. Lose To Win**

Component	Schedule	No. of Sessions
Measurements, Weight, Height, BMI & Non-exercise Fitness Test	<ul style="list-style-type: none"> <li>Weeks 0 and 12</li> </ul>	2
Group exercise sessions (low to medium intensity)	Weekdays / Weekends <ul style="list-style-type: none"> <li>About 1 to 1.5 hour per session</li> <li>2x a week for first 4 weeks &amp; 1x a week subsequently</li> </ul>	16
Nutrition workshops: interactive classroom-based session, supermarket tour & counselling sessions	<ul style="list-style-type: none"> <li>Weekdays / Weekends</li> <li>About 1 to 1.5 hour per session</li> </ul>	3
Mental well-being workshops (topics: goal setting, emotional intelligence, self-esteem & problem-solving)	<ul style="list-style-type: none"> <li>Weekends</li> <li>About 1.5 to 2 hours per session</li> </ul>	4
Follow-up activities	<ul style="list-style-type: none"> <li>Telephone: 3 &amp; 9 months after the programme</li> <li>Measurements: 6 and 12 months after the programme</li> </ul>	4

### WHAT CAN HEALTHCARE PROVIDERS DO?

Healthcare providers including family physicians and allied health professionals can help to promote obesity prevention and control through the following ways:

- Proactively engage patients in conversations about their weight.
- Provide advice on lifestyle behaviour changes to promote healthy weight.
- Refer patients to community-based healthy life programmes.

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### LEARNING POINTS

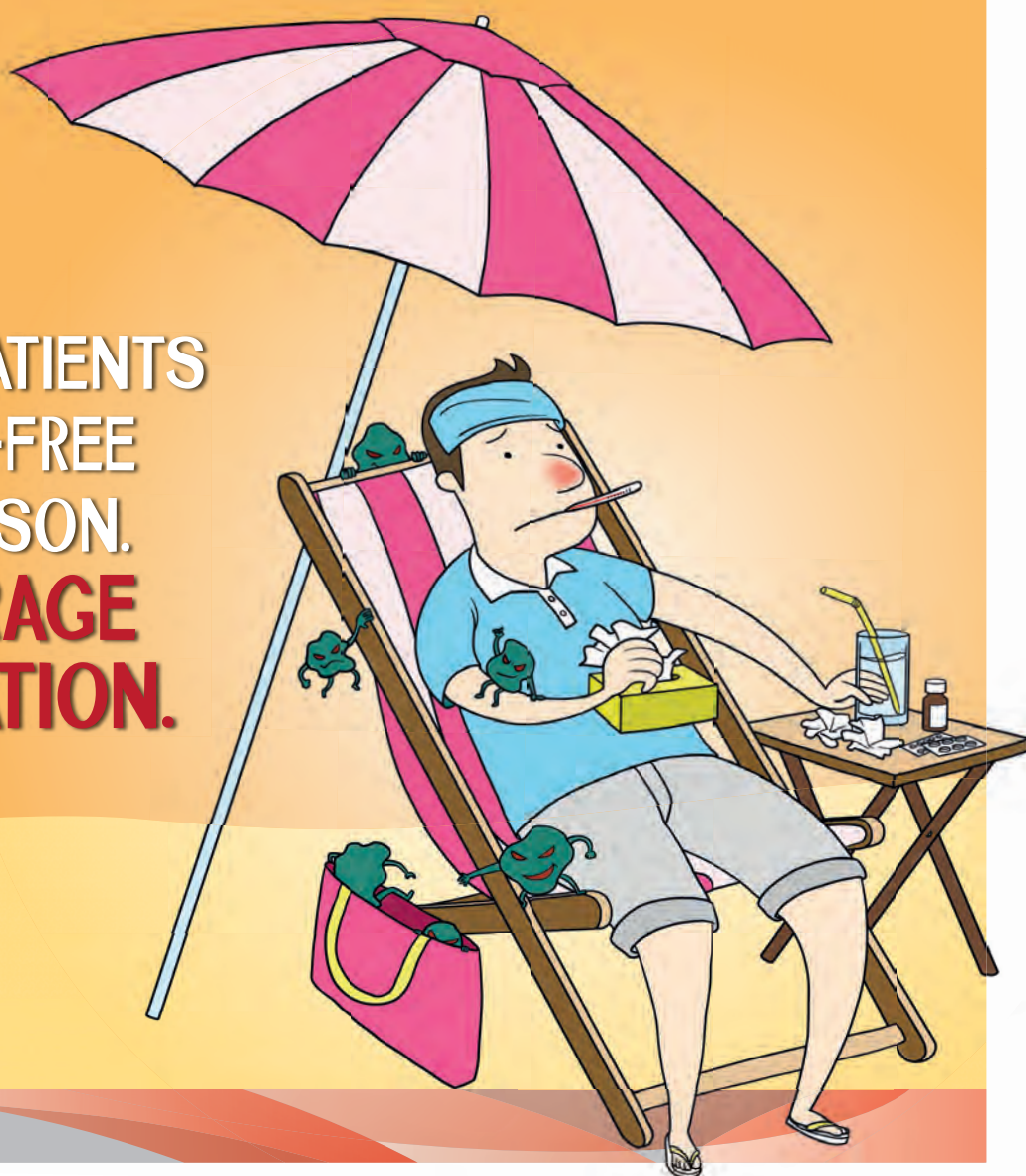
- **Obesity is most commonly caused by a combination of excessive food energy intake, lack of physical activity, and genetic susceptibility.**
- **The basic strategy of obesity prevention and control however is quite straightforward and lies in achieving the caloric balance which is to reduce calorie intake and increase physical activity.**
- **To be effective however, obesity prevention and control requires multiple prevention and control interventions across the lifespan.**
- **Policies and programs have been customised in Singapore for different segments of the population and conducted at various settings – in schools, workplaces, healthcare institutions, and communities.**
- **The current efforts to prevent and control obesity in Singapore can be grouped into 5 areas: (1) Health promotion policies; (2) Promoting supportive environments through social programmes; (3) HPB collaborating with partners to promote healthy behaviour; (4) Empowering partners and individuals; and (5) Raising awareness through health education and communication.**



STAY ALERT THIS  
FLU SEASON!

**KNOW  
HOW TO  
FIGHT  
FLU**

HELP YOUR PATIENTS  
STAY FLU-FREE  
THIS SEASON.  
**ENCOURAGE  
VACCINATION.**



## 5 WAYS TO **FIGHT** FLU



### PREVENTION IS BETTER THAN CURE

#### **F**requent Hand Washing

Wash your hands with soap and water or use an alcohol-based hand sanitiser.



#### **I**nfluenza Vaccination

If you belong to a high-risk group, ask your doctor about flu vaccination.



### STOP THE SPREAD

#### **G**o to the doctor early

If you experience flu-like symptoms, seek treatment early and wear a mask.



#### Stay **H**ome

If you're unwell, rest at home and avoid school, work, hospital visits and crowded places.



#### Use A **T**issue

Cover your nose and mouth with a tissue when you cough or sneeze. Dispose of the used tissue into a dustbin.



## UNIT NO. 2

## CHILDHOOD

A/Prof Loke Kah Yin

**ABSTRACT**

**Childhood obesity is increasing in prevalence world-wide, and is an important predictor of adult obesity. As a consequence, many chronic diseases are now appearing in childhood and adolescence, and will contribute to future morbidity and mortality in adulthood. Over the past 5 decades, while the heights of pre-schoolers and school age children appear to have optimised, their weights and body mass indices (BMI) are still increasing.**

**Childhood obesity is defined as a BMI  $\geq$  95th percentile for age and sex. The family doctor's approach to childhood obesity is to exclude pathological causes and detect complications of obesity for further treatment. However, the main management principles of childhood obesity encompass adopting healthy lifestyle interventions of age-appropriate diet and exercise recommendations which allow normal height growth to continue. The nutritional goal for obese children is to reduce energy-dense foods and increase nutrient density. Regular exercise encourages long term continuation. Equally important is decreasing time spent in sedentary pursuits and substituting with alternative forms of physical activity. For children, behaviour modification involving the family is essential and implementation requires a multi-disciplinary team. There is no data on long term efficacy and safety of medication for treatment of childhood obesity. There is also no role for bariatric surgery in childhood obesity.**

**Keywords: Childhood obesity; Epidemiology; Evaluation; Diet; Exercise; Behaviour therapy**

**SFP2012; 38(1): 15-18**

## **THE ASSESSMENT AND MANAGEMENT OF CHILDHOOD OBESITY**

### **Epidemiology**

In 1998, the World Health Organisation designated obesity as a global epidemic, affecting both children and adults (WHO, 1998)<sup>1</sup>. This arose as a consequence of societal and environmental factors which promote weight gain. The increasing prevalence of childhood and adolescent obesity is occurring even in the developing countries, and childhood

obesity is an important predictor of adult obesity (Deckelbaum et al, 2001)<sup>2</sup>. As a consequence, many chronic diseases are now appearing in childhood and adolescence, and will contribute to future morbidity and mortality in adulthood.

In a recent review of all major anthropometric studies in Singapore over the past 5 decades, although the heights of pre-schoolers and school age children appears to have optimised according to their genetic potential, the weights of children still appear to be increasing from 6-18 years for both sexes, and the body mass indices also appear to be increasing in tandem with this trend of weight increase (Loke et al, 2008)<sup>3</sup>.

The persistence of obesity into adulthood depends on the age at which the child becomes obese, the severity of obesity, and the presence of obesity in at least one parent. Overweight in a child under 3 years of age does not predict future obesity, unless at least one parent is also obese. After 3 years, the likelihood that obesity persists increases with advancing age of the child, and is higher in children with severe obesity in all age groups. The presence of obesity in at least one parent increases the risk of persistence in children at every age (Whitaker et al, 1997)<sup>4</sup>.

### **Clinical Evaluation**

#### A. Definition

Obesity is defined as excessive fat accumulation which presents a risk to health. In adults, obesity is assessed from the body mass index (BMI), which is calculated based on the person's weight (in kilograms) divided by the square of his / her height (in metres). Based on previous studies which have demonstrated an increased risk for cardiovascular events, the adult BMI cut-offs for those above 18 years who are overweight is 25.0 kg/m<sup>2</sup>, and for obesity, 30 kg/m<sup>2</sup> (Cole et al, 2000)<sup>5</sup>.

Clinical assessment of obese children and adolescents should also include determination of the BMI percentile (for age and sex). However, in normal children, the BMI increases after birth, decreases around 2 years, and increases again between the ages of 5 and 8 years. Since the BMI changes with age during childhood and adolescence, single BMI cut-offs cannot be used. In the past, surrogate measures of childhood adiposity include skinfold thickness and percentage of ideal weight for height. More recently, many countries are now adopting gender-specific BMI charts for their paediatric populations, and overweight is defined as a BMI between the 85th to 94th percentiles, while obesity is defined as a BMI at or more than the 95th percentile for age (Speiser et al, 2005)<sup>6</sup>.

#### B. Exclusion of pathological causes for obesity

While common exogenous obesity is very common, it is important to first exclude any pathological cause for obesity.

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Exogenous obesity is usually associated with increased linear growth, and these individuals are generally taller than their age-matched peers, with an advanced bone age. Conversely, most children with pathological obesity are short with a suboptimal height velocity (< 4 cm/year) and include genetic syndromes (Prader Willi syndrome) and endocrine disorders such as hypothyroidism, growth hormone deficiency, hypopituitarism and Cushing syndrome.

### C. Complications of obesity

There are two groups of obesity-related complications: psychosocial and medical problems.

#### Psychosocial problems

Childhood obesity has a significant impact on the emotional development of the child and adolescent, who may suffer from discrimination and stigmatisation. It has been observed that by 6 years of age, children have picked up societal messages that overweight is undesirable, and overweight children may encounter rejection and become socially isolated, or they may develop a distorted body image (Edmunds et al, 2001)<sup>7</sup>. The social burden of obesity may affect educational attainment and interpersonal relationships (Gortmaker et al, 1993)<sup>8</sup>. Obese children are more likely to have a poor body image, a low self-esteem and confidence (Stunkart et al, 1967)<sup>9</sup>. In general, obese children and adolescents have an increased risk of psychosocial and psychological problems that can persist into adulthood.

#### Medical problems

Obese children are also at risk of developing obstructive sleep apnoea syndrome and orthopaedic disorders (genu varus, genu valgus deformity of the knees, slipped capitae femoral epiphysis), in addition to components of the metabolic syndrome which include hypertension, dyslipidemias, insulin resistance and glucose intolerance (Barlow et al, 1998)<sup>10</sup>. The increased prevalence of obesity partly accounts for the increased incidence of type 2 diabetes mellitus in children and adolescents. Odds ratios in obese children are 2.4 (raised diastolic blood pressure), 4.5 (raised systolic blood pressure), and 3.0 (raised low density lipoprotein fraction of cholesterol). Two or more risk factors were present in 58% of obese children (Freedman et al, 1999)<sup>11</sup>.

Obese children are at higher risk of developing non-alcoholic fatty liver disease, which can present as a spectrum ranging from steatohepatitis to cirrhosis. This is characterised by elevated liver transaminases and a hyperechoic liver on ultrasonography, and is a diagnosis of exclusion.

### **Management**

The primary goal of childhood and adolescent obesity interventions is to adopt and maintain healthy lifestyle

behaviours, so as to decrease morbidity. However, these interventions should allow height growth to continue, so that height eventually becomes appropriate for weight, or the BMI percentile becomes reduced. The management of childhood and adolescent obesity incorporates the following components:

#### **a. Dietary changes**

The nutritional goal for obese children is to reduce energy density and increase nutrient density. However, all diets should be nutritionally balanced and designed to meet growth requirements. Calories should not be restricted in infants; rather, prevention of overfeeding should be emphasised. Diets consisting of drastically altered portions of various nutrients may be dangerous and should be avoided (American Academy of Pediatrics, 1998)<sup>12</sup>.

Very low calorie diets and protein-sparing regimens do not clearly offer significant improvements in long-term outcome compared to less restrictive diets (Yanovsky, 2001)<sup>13</sup>.

These are some practical healthy eating suggestions for obese children (provided by the Singapore Health Promotion Board):

1. Encourage fruits and vegetables, whole-grain foods and calcium-rich foods.
2. Reduce ingestion of foods rich in saturated and trans fat, food and drinks with added sugar and alcohol.
3. Reduce portion sizes.
4. Read food labels to understand nutrient content - even food and drinks labelled as 'no added sugar' or 'reduced sugar' should be consumed in moderation.
5. Encourage regular meals (reduced portions) and avoid skipping meals.

#### **b. Physical activity**

Regular exercise encourages long-term continuation, and is an essential component of the weight management program (American Academy of Pediatrics, 1998)<sup>12</sup>. Initial recommendations should be small, and exercise levels should be increased slowly to avoid discouragement.

Since younger children are generally incapable of focused activity for long periods of time, they need creative activities appropriate for their age, with generous periods of free play (Bailey et al, 1995)<sup>14</sup>.

In the older obese pre-adolescent and adolescent, a moderate-intensity progressive exercise programme with increasing levels of obesity has been recommended (Sothorn, 1999)<sup>15,16</sup>. For overweight children, weight-bearing activities can be recommended. For obese children, the exercises should be primarily non-weight bearing, and can include swimming, cycling, or interval walking (walking with frequent rests, gradually working up to longer walking periods with fewer rest stops).

Based on the guidelines from the Singapore Health Promotion Board:

1. Infants should be encouraged to be physically active through floor-based play in safe environments.
2. Pre-schoolers (<7 years) should be physically active for at least 180 minutes spread throughout each day.
3. 7-18 year old children and adolescents should accumulate at least 60 minutes of moderate-intensity physical activity every day, emphasising aerobic physical activities.
4. All age groups should break up sedentary periods (except time spent sleeping) lasting longer than 90 minutes with 5 to 10 minutes of moving around, active play, standing or doing some physical activity.

Decreasing time spent in sedentary pursuits (watching television, video games, computer uses) and substituting with an alternative form of physical activity is a useful strategy in weight loss (Epstein et al, 1995)<sup>17</sup>. Encouraging decreased sedentary time will help the children to identify their own areas of interest regarding physical activity, and will improve compliance.

### c. Behaviour modification

Behaviour-treatment programs have shown consistent success in weight loss (Epstein et al, 2001)<sup>18</sup>. However, the implementation requires a multi-disciplinary team which not only provides knowledge about diet and physical activity, but more importantly, has a consistent focus on principles of behaviour change.

The components of behaviour modification include (Epstein et al, 1990; Moran 1999)<sup>19,20</sup>:

- i) Educating the parents and children on the need for lifestyle changes.
- ii) Setting achievable weight maintenance and weight loss goals.
- iii) Teaching skills for weight loss.
- iv) Self-monitoring using food and activity logs, which increase awareness of eating and exercise patterns.
- v) Stimulus control, which includes limiting the amount of unhealthy food stocked at home.
- vi) Reinforcement through contracts, praise for behaviours, and rewards (but do not use food as a reward).

### d. Family involvement

Familial aggregation of risk factors for obesity is common. The long term effects of a weight control program (diet, physical activity, behaviour modification) are significantly improved when the intervention is directed at both the parents and the child, rather than the child alone (Epstein et al, 1996)<sup>21</sup>. This also avoids stigmatisation of the obese child, and provides social support and encouragement.

With regards to other strategies in the management of obesity:

### e. Pharmacotherapy

There is no data on the long term efficacy and safety of medication in childhood and adolescent obesity.

### f. Bariatric surgery

There is no role for bariatric surgery in childhood obesity. In limited case series, bariatric surgery has been performed in severely obese older adolescents who achieved significant post-operative weight reduction and improvement in co-morbid conditions (Strauss et al, 2001; Sugerman et al 2003)<sup>22,23</sup>, but were at increased risk of developing post-operative nutritional deficiencies (Strauss et al, 2001; Brodin et al, 1989)<sup>22,24</sup>. This cannot be recommended for most, but only for those at the highest risk of mortality from obesity, and with both patient and parental understanding of the consequences of surgery (Sugerman et al, 2003)<sup>23</sup>.

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## LEARNING POINTS

- **Childhood obesity is defined as a BMI  $\geq$  95th percentile for age and sex.**
  - **The family doctor's approach to childhood obesity is to exclude pathological causes and detect complications of obesity for further treatment.**
  - **The nutritional goal for obese children is to reduce energy-dense foods and increase nutrient density.**
  - **Equally important is decreasing time spent in sedentary pursuits and substituting with alternative forms of physical activity.**
  - **There is no data on long term efficacy and safety of medication for treatment of childhood obesity.**
  - **There is also no role for bariatric surgery in childhood obesity.**
-



## UNIT NO. 3

## INTRODUCTION TO MOTIVATIONAL INTERVIEWING (MI)

Dr Audrey SL Tan

**ABSTRACT**

**Changing our patients' health behaviour has always been difficult. To enhance their intrinsic motivation to change, we need to explore and resolve their ambivalence through motivational interviewing (MI). The four broad principles in MI are expressing empathy, developing discrepancy, rolling with resistance and supporting self-efficacy. Key skills in the practice of MI include using open ended questions, reflective listening and pulling change. While full blown MI may not be practical in our primary care setting, understanding the concept and principles of MI can help us be more patient-centred and collaborative which will help build motivation for change. Though time is a limiting factor for using MI in medical and public health settings, brief strategies like the Elicit-Provide-Elicit model can be used to give patients feedback and information about their health.**

**Keywords: Motivational interviewing; Motivation; Health behaviour change; Primary care setting.**

SFP2012; 38(1): 19-22

**INTRODUCTION**

Our common frustration when we try to change our patients' behaviour is that they often do not do what we tell them to do. Our advice may not have matched their motivational level, and hence they are not ready to receive the instructions that we have for them. To increase their readiness to change, and to increase their probability of behaviour change, the focus has to be on motivation and not more advice and information. The concept of motivational interviewing has therefore become more popular as we seek ways to engage our patients.

Motivational interviewing (MI) was first described by William Miller and Stephen Rollnick in 1983. Their first book published in 1991 was focused more on preparing people to change addictive behaviour like alcohol and drug use. Over the past ten years, MI has been found to be a useful intervention strategy in addressing other health behaviours and conditions such as smoking, diet, physical activity, diabetes control, sexual behaviour, medical adherence and obesity prevention. The revised and expanded second edition of the book published in 2002 applies MI to the challenges of change

beyond the addictions field and is simply entitled "Motivational Interviewing – Preparing People for Change".

**WHAT IS MOTIVATIONAL INTERVIEWING?**

Motivational interviewing is defined by Miller and Rollnick as a 'client-centred, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence<sup>1</sup>.

Ambivalence is a state when a person feels two ways about changing a behaviour – on the one hand, he wants to exercise because he knows it will help him lose weight. On the other hand, he does not want to exercise because it is just too troublesome, inconvenient and he simply does not have time. Ambivalence is a normal aspect of human nature and we expect it to be present in our patients. However, if people get stuck in ambivalence, they will not be able to make a change. Hence we need to acknowledge it and help our patients get out of this "I want to, but I don't want to" dilemma.

Professor Ken Resnicow has also described MI using the analogy of a ship. He likened the Health Care Professional (HCP) using traditional patient education to that of the ship's fuel and engine while the HCP using MI is like that of the ship's rudder. Understanding this helps to lessen our frustrations and is less energy-sapping as our focus will be more to guide our patients in their decisions rather than making the decisions for our patients and seeing it as our responsibility to push patients to make a change.

He also described the essence of MI as comforting the afflicted and afflicting the comfortable. This description emphasises the role of MI in encouraging people to make the change by comforting those who have difficulties and barriers while provoking those who are sitting on the fence, those who are stuck in ambivalence to think about making a change.

**THE EVIDENCE FOR MOTIVATIONAL INTERVIEWING**

In the paper by Subak et al<sup>2</sup>, a systematic review and meta-analysis was performed on 72 randomised controlled trials using MI as the intervention. The meta-analysis showed a significant effect (95% confidence interval) for motivational interviewing for combined effect estimates for body mass index, total blood cholesterol, systolic blood pressure, blood alcohol concentration and standard ethanol content, while combined effect estimates for cigarettes per day and for HbA1c were not significant. When using MI in brief encounters of 15 minutes, 64% of the studies

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showed an effect. The conclusion was that MI in a scientific setting outperforms traditional advice giving in the treatment of a broad range of behavioural problems and diseases.

## GENERAL PRINCIPLES

Four broad guiding principles that underlie MI are described by Miller and Rollnick<sup>1</sup> as follows:

### 1. Express empathy

A client-centred and empathic counselling style is a fundamental and defining characteristic of MI. The attitude underlying this principle of empathy is “acceptance”. That does not mean that we agree with or approve what our patients say. It means accepting and understanding the patient’s perspective while not agreeing with or endorsing it. This is possible to do through reflective listening which helps us understand their feelings and perspectives without judging, criticising or blaming. The attitude of acceptance and respect builds a working therapeutic alliance and supports our patients’ self-esteem, which will help promote change.

### 2. Develop discrepancy

While our attitude of acceptance is important, the goal of MI is not for them to stay where they are. MI is intentionally directive, directed towards helping them to resolve their ambivalence, to help them to be “unstuck” in their present situation. Thus, MI aims to create and amplify clients’ discrepancy between their present behaviour and their broader goals and values. When a behaviour is seen as conflicting with important personal goals, change is more likely to occur. In MI, the approach to developing discrepancy is to get the client to present the reasons for change, what is termed “eliciting self-motivational statements” rather than the practitioner telling the client what the discrepancy is and what should be done about it. The client rather than the practitioner is the one voicing the concerns, reasons for change, and intention to change.

### 3. Roll with resistance

The least desirable situation is when we advocate for change while our patients argue against it. Such argumentation is counterproductive. MI is not about winning or losing. When our patients are resistant, this can be turned or reframed slightly to create a new momentum towards change. In MI we do not directly oppose resistance, but roll or flow with it. We invite our patient to consider new information and we offer them new perspectives. We turn a question or problem back to them. We involve them actively in the process of problem solving.

### 4. Support self-efficacy

Self-efficacy refers to a person’s belief in his/her own ability to carry out and succeed in a specific task. It is a key element

in motivation for change and is a good predictor of treatment outcome. An important goal in MI is to enhance the client’s confidence in his capability to cope with obstacles and to succeed in change.

## KEY SKILLS IN MOTIVATIONAL INTERVIEWING

There are many skills and techniques in MI. Listed below are three key skills that will help us achieve our goals in MI.

### Open ended questions

Open ended questions are questions that cannot be answered with a ‘yes’ or ‘no’. Hence they allow patients to tell their stories and explore their ambivalence. We also receive less biased data because closed ended questions are leading and inefficient e.g. asking our patients whether their previous weight loss plan was successful (Was your previous attempt to lose weight successful?) does not give you much information if the answer is a ‘yes’ or a ‘no’. We would still have to ask further questions and their definition of success may also be different from ours. Closed ended questions also focus on our agenda and place our patients in a passive and less engaged role. Asking “Tell me more about your previous attempts to lose weight” would elicit more information.

### Reflective listening

Reflection is an active listening skill – reflecting what our patients say, feel or mean shows that we are following what our patient is saying and we have to be really listening in order to be able to do an accurate reflection. It also tests a hypothesis – that is, we are essentially saying “If I understand you correctly, it sounds like ...”. It involves taking a guess at what we think the patient means and reflecting it back in a short statement. It affirms and validates what the patient is thinking and it keeps the patients thinking and talking about change. So, the value-add is that in addition to getting and confirming the information we get from our patients, we also show empathy and understanding. Compare the question “How do you feel about being the only one overweight in your family?” vs the reflective statement “You don’t like the fact that you are the only one overweight in your family”. If that was an accurate reflection, your patient will know you heard and understood. Several types of reflections are useful; they can also help lower resistance – simple reflection, feeling reflection, amplified reflection, double-sided reflection, action reflection.

### Pulling change

In order to “pull change”, three conditions must be present:

- Patients must have some degree of concern about their current situation.
- Patients must believe that there are benefits to making the change.
- Patients must be confident that they are able to make the change.

To create these conditions, we want to elicit self-motivational statements from our patients so that they discover discrepancy between their current situation and their core values and goals. We want them to state their own “pros” and take the positive side of the argument.

Strategies to elicit change talk include:

- 0 to 10 ruler.
- Good, not so good things.
- Pros and Cons matrix (decisional balance).

### Concern for change

To get our patients to think about the importance or concern they have about their current situation, we could use the 0 to 10 ruler.

We could ask “On a scale of 0 to 10, with 0 being not concerned at all and 10 being very concerned, how concerned are you about losing weight?”

This is followed by “why is it not higher?” which will reflect barriers and “why is it not lower?” which reflects benefits. The next question “what would need to happen?” will get them to think about the link between their current situation and their core values.

### Benefits of change

To help our patients explore the benefits of making the change, we could use the “good and not so good things” or the pros and cons matrix (decisional balance).

Ask: What are some good things about losing weight?  
What are some not so good things about losing weight?

Or: What are the pros (benefits) and cons (costs) of losing weight?  
What are the pros (benefits) and cons (costs) of not losing weight?

As they talk, we reflect what they are saying and thinking so as to help them weigh the pros and cons.

### Confidence for change

To support their confidence in making the change, we could again use the 0 to 10 ruler.

Ask: On a scale of 0 to 10, if you have decided to change, how confident are you that you are able to lose weight?

- Why is it not higher? This gives us an idea of things that may not work.
- Why is it not lower? This gives us an idea of things that had worked.
- What would it take to bring the score higher? This helps us explore some possible solutions and things they feel they can do to deal with the problem.

## **MOTIVATIONAL INTERVIEWING IN MEDICAL AND PUBLIC HEALTH SETTINGS**

The most limiting factor in using MI in public health and medical settings is time. Full blown MI e.g. for addictive counselling, would usually involve multiple sessions of considerable duration. In medical settings particularly primary care, patient encounters usually range from 10 to 15 minutes, if not less. Moreover, we may only have a single contact with a patient for a particular health behaviour. So, in a primary care clinical setting where the HCP may not have much time to explore ambivalence and use MI fully, the MI style and approach is what we could aim for. HCPs do not need to administer all of the MI techniques but what fits best with their own style and patients’ needs. In fact, MI is a skilful clinical method, not a set of techniques that can be easily learned. It is more than a set of techniques for doing counselling. It is a way of being with people.

### **E-P-E Model**

A brief format of MI may be more suitable and applicable in primary care. One brief strategy that can be used is the E-P-E approach. MI uses the Elicit-Provide-Elicit process to give patients feedback and information about their health<sup>3</sup>.

**Elicit:** Assess patients’ concerns and perspectives about their condition. Check their understanding about their condition and the link with their current behaviour. Ask what they would like to know - in this way, we are also setting an agenda with our patients and focusing on what matters most to them.

**Provide:** Provide them with whatever information and advice they have asked for. Using phrases like “what happens to some people...”, “what usually happens...” is less confrontational than saying “this is what will happen to you”. Feedback can be given about their test results, medication use and symptoms etc. Give them choices of what they could do to deal with the condition or situation.

**Elicit:** Assess patients’ interpretation of the information. What does he make out of this information? What does he want to do about it? If he’s ready to make an action plan, we can help him to.

## **CONCLUSION**

MI has been shown to be useful in the treatment of a broad range of behavioural problems and diseases. It is a patient-centred approach to helping patients resolve their ambivalence about health behaviour change and build their motivation to change. It is a collaborative, not a prescriptive approach in which the practitioner evokes the patient’s own intrinsic motivation and resources for change.

MI may appear to be time-intensive for HCPs but enhancing the patient-practitioner communication can actually shorten the time it takes to arrive at a treatment plan because of a higher likelihood of patient adherence<sup>3</sup>.

More information can be obtained from [www.motivationalinterview.org](http://www.motivationalinterview.org)

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### GENERAL PRINCIPLES OF MOTIVATIONAL INTERVIEWING (Miller & Rollnick)

#### Principle 1: Express Empathy

Acceptance facilitates change.  
Skilful reflective listening is fundamental.  
Ambivalence is normal.

#### Principle 2: Develop discrepancy

The client rather than the counsellor should present the arguments for change.  
Change is motivated by a perceived discrepancy between present behaviour and important personal goals and values

#### Principle 3: Roll with resistance

Avoid arguing for change.  
Resistance is not directly opposed.  
New perspectives are invited but not imposed.  
The client is a primary resource in finding answers and solutions.  
Resistance is a signal to respond differently.

#### Principle 4: Support Self-efficacy

A person's belief in the possibility of change is an important motivator.  
The client, not the counsellor, is responsible for choosing and carrying out change.  
The counsellor's own belief in the person's ability to change becomes a self-fulfilling prophecy.

#### LEARNING POINTS

- **To enhance patients' intrinsic motivation to change, we need to explore and resolve their ambivalence through motivational interviewing (MI).**
- **The four broad principles in MI are expressing empathy, developing discrepancy, rolling with resistance and supporting self-efficacy.**
- **Though time is a limiting factor for using MI in medical and public health settings, brief strategies like the Elicit-Provide-Elicit model can be used to give patients feedback and information about their health.**



## UNIT NO. 4

## YOUTH / ADULTS

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**ABSTRACT**

**The prevalence of obesity is increasing. It is associated with conditions such as type 2 diabetes mellitus, hypertension, dyslipidaemia and non-alcoholic fatty liver disease and together with its co-morbidities, obesity has become a fast-growing public health concern and health burden. However, weight loss has been shown to reduce the development and improve these conditions. This paper looks at the epidemiology, obesity-related co-morbidities, in particular pre-diabetes, and the various strategies that can be implemented to prevent and treat this looming problem.**

**Keywords: Obesity; Weight loss; Pre-diabetes; Co-morbidities; Prevent**

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**INTRODUCTION**

With overweight and obesity increasingly contributing to greater healthcare burden and costs especially through its related co-morbidities, the primary healthcare professional plays a pivotal role in its management, including obesity prevention starting even before the start of life (i.e. pre-pregnancy). In this article, we aim to provide a basic overview on the epidemiology, co-morbidities and clinical management of obesity, with a special focus on prevention.

**Epidemiology**

Obesity is a chronic disease that is increasing in prevalence worldwide. Between 1980 and 2008, mean body mass index (BMI) worldwide increased by 0.4 kg/m<sup>2</sup> per decade for men and 0.5 kg/m<sup>2</sup> per decade for women. It was estimated that in 2008, there were 1.46 billion adults worldwide that were overweight; of these 502 million were obese<sup>1</sup>. A worrisome

trend is a similar rise in obesity prevalence in childhood and adolescence. Not only is this associated with severe obesity in adulthood<sup>2</sup>, increased BMI in childhood leads to development of hypertension, dyslipidemia, and type 2 diabetes mellitus (T2DM) and increases risk of premature death<sup>3,4</sup>.

Locally, 10.8% or 1 in 9 Singaporeans were found to be obese in 2010 compared to a prevalence of 6.9% a short 6 years ago. This increasing trend is expected to continue and represents a serious public health concern. Even more worrying would be the observation that for a given BMI, Asians, including Singaporeans, generally have a higher percentage of body fat than do Caucasians. It has also been shown that Asians tend to have an elevated risk of T2DM, hypertension, and dyslipidemia at a relatively low level of BMI<sup>5,6,7</sup>. In view of this, the BMI cut-off levels for Singaporeans have been revised such that a BMI 23 kg/m<sup>2</sup> or higher marks a moderate increase in risk while a BMI 27.5 kg/m<sup>2</sup> or more represents high risk for diabetes and cardiovascular diseases<sup>8</sup>.

**Co-Morbidities of Obesity**

Since the time of Hippocrates, it has been known that excess weight is associated with disease and premature mortality. In the last 3 decades, many studies worldwide have observed and confirmed undoubtedly that an increased BMI is associated with higher all-cause mortality, coronary heart disease (CHD), and type 2 diabetes (T2DM), with the risk deflection starting as low as BMI 20 kg/m<sup>2</sup> in some series. Regardless of baseline BMI, a weight gain of  $\geq 10$ kg in adulthood is also associated with increased mortality, CHD and T2DM<sup>9</sup>.

The co-morbidities of excess weight can be broadly categorized into those which are indirectly associated with obesity through metabolic effects (largely mediated through insulin resistance) and those which are direct effects of excess weight (both mechanical and psychosocial). Table 1 illustrates these associations and the relative risks associated.

**Strategies for Management of Overweight and Obesity**

The natural evolution of obesity starts from weight gain, progressing to development of obesity-related conditions in susceptible individuals, through to increased mortality and morbidity as a complication of these obesity-related diseases in the long-term. Hence, strategies in the management of overweight and obesity should involve prevention of obesity (weight gain prevention) and start earlier than childhood, targeting women in the reproductive age group even before they conceive. Ultimately, the goal on the whole is to reduce the incidence of obesity-related conditions and their sequelae (including increased financial burden).

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**Table 1. Conditions associated with Obesity.<sup>9-12</sup>**

Associated with Metabolic Effects	Directly Associated with Excess Weight	Relative Risk (RR)
Cancer (breast, endometrial, colon)	Musculoskeletal problems (eg. back pain)	Slightly increased 1-2
Subfertility / Polycystic Ovarian Syndrome	Varicose veins / Cellulitis / Stress incontinence	
Coronary heart disease	Osteoarthritis	Moderately increased 2-3
Stroke	Hernia	
Gout / Hyperuricemia		
T2DM	Obstructive sleep apnoea / Daytime somnolence	Highly increased >3
Hypertension	Asthma	
Dyslipidemia	Social isolation and depression	
Non-alcoholic fatty liver disease (NAFLD)		

**a) Prevention: Starting from the Beginning**

There is evidence supporting the nutritional programming of obesity, and other chronic diseases, in foetal and early life. The implication is that both under-nutrition and over-nutrition — associated with gestational diabetes, maternal obesity and excessive weight gain — increase the infant's risk of later fatness and the risk of developing obesity, diabetes, hypertension, and cardiovascular disease in adulthood<sup>13,14,15</sup>. Children born to mothers with diabetes are at a significantly increased risk of developing IGT even in the pre-adolescent age group<sup>15</sup>.

In the US, the Institute of Medicine in the US has made recommendations for weight gain during pregnancy according to a woman's prepregnancy weight, to avoid too little or excessive weight gain which then predisposes to the problems mentioned above<sup>16</sup>. Physicians should perhaps seize the opportune time to counsel women of reproductive age group to attain a healthy weight not just prior but during pregnancy to "safeguard" the next generation.

**b) Preventing Obesity-Related Co-Morbidities: Pre-DM as a Classic Example**

A modest weight loss of 5-10% from baseline weight has been associated with reduction in the risk of developing obesity-related conditions. This is best illustrated by the reduction in the progression of impaired fasting glycemia (IFG) and/or impaired glucose tolerance (IGT) to T2DM in several diabetes prevention studies<sup>17,18,19</sup>.

Of all the obesity-related co-morbidities, T2DM displays the greatest risk associated with obesity. In the US Nurses' Health Study, more than 100,000 healthy nurses were followed up prospectively for 14 years to examine the effects of weight and T2DM development<sup>9</sup>. Even within the normal BMI range of 22.0 – 22.9 kg/m<sup>2</sup>, there is already a 3-fold increase in diabetes compared to women who were <22.0 kg/m<sup>2</sup>. This risk increases to 40-fold in women with BMI ≥ 31.0 kg/m<sup>2</sup>. Weight gain in adulthood was strongly associated with risk for diabetes. Compared with women who gained < 5kg, those who gained between 5.0 – 7.9kg had a nearly 2-fold increase, while those who gained ≥ 20kg had a significantly increased relative

risk of 12.3. A similar trend was observed in men though the risk increase started at a higher BMI of ≥ 24 kg/m<sup>2</sup> and not was marked as in women<sup>10</sup>.

The natural history of development of T2DM in susceptible individuals traverses from completely normal glucose levels through IFG and/or IGT to finally the clinical entity of T2DM. Pre-diabetes broadly refers to the intermediate stage between normoglycemia to overt diabetes.

Pre-diabetes is not only a significant risk factor for progression to T2DM but is also considered a risk factor for macrovascular disease. In the Diabetes Prevention Program (DPP), patients in the standard arm with both IFG and IGT had an annual progression to T2DM of 11%<sup>17</sup>. In addition, multiple prospective studies have demonstrated a linear increase in cardiovascular events with 2-hour glucose following an OGTT at levels well below the diagnostic cut-off for T2DM<sup>20</sup>. On the other hand, the salutary benefits of weight loss are best illustrated in individuals afflicted with pre-diabetes and T2DM.

Dietary intervention, exercise and pharmacologic therapy are interventions that have been used to prevent T2DM and reduce the risk of progression from pre-diabetes to overt T2DM. More than 80% of cases of T2DM can be attributed to obesity and it is therefore not surprising that diabetes prevention correlated the most with weight loss (16% reduction for every kg weight loss)<sup>21</sup>.

Intensive lifestyle intervention confers the greatest benefit in the prevention of T2DM. This was illustrated in the DPP where a lifestyle-modification program with the goals of at least a 7% weight loss through a reduced fat intake (to <25% of total calories) and at least 150 minutes per week of moderate physical activity proved to be more effective in reducing the incidence of T2DM than a standardized lifestyle program (which adopted the National Cholesterol Education Program Step 1 diet and 150 minutes a week of an activity but with less intense monitoring) with metformin therapy or placebo (58% vs. 31%)<sup>22</sup>. Similar findings were found in the Da Qing Diabetes Prevention Study where diet and/or exercise interventions led to a significant decrease in the incidence of

T2DM in IGT subjects<sup>18</sup>. This effect is seen as early as 3½ years after intervention and is durable to as long as 10–20 years, even after weight regain has occurred in many<sup>23,24</sup>.

With lifestyle modification as the mainstay of treatment, metformin can be considered in those at highest risk, such as those with multiple risk factors, especially if they demonstrate a progression of hyperglycemia<sup>25</sup>. Locally, the Pre-diabetes Intervention Program (PIP) initiated by the Health Promotion Board, under the Nurse Educator Program (NEP) aims to empower individuals with the knowledge and skills to adopt lifestyle changes (healthy living and regular physical activity) to reduce the risk of developing type 2 diabetes.

### c) Treating Obesity in the Treatment of Established Obesity-Related Co-morbidities

When obesity-related conditions have developed, the main focus should be to reduce the severity and control these co-morbidities through lifestyle modification in weight reduction, with the aim to reduce mortality risks.

In the currently ongoing Look AHEAD trial, supported by the NHLBI, the long-term effects of modest weight loss (of 7%) with intensive lifestyle intervention (ILI), similar to that of DPP, on cardiovascular mortality and morbidity in about 5,000 overweight T2DM subjects will be examined. At one year, the mean weight loss in the ILI arm was 8.6% (versus 0.7% in conventional arm) with a reduction in HbA1c from 7.3% to 6.6%<sup>26</sup>. 264 of these patients were further examined for the effects of weight loss on obstructive sleep apnoea (OSA). After 1 year, the ILI group had lost 10.1 kg more than the conventional group and the number who had total remission of their OSA was 3 times more in the ILI than those in the conventional group. Moreover, the subjects in the conventional arm saw a worsening of their OSA<sup>27</sup>.

Bariatric surgery can result in remission of T2DM in up to 95% of patients 2 years after surgery<sup>28</sup>. In the Swedish Obesity Study, which prospectively examined the effects of more drastic weight loss through bariatric surgery compared with conventional treatment, there was a dramatic reduction on overall mortality (by 40%), particularly that related to cancer, coronary artery disease (by 62%) and T2DM (by 62%, 64% and 90% respectively)<sup>29,30</sup>.

### d) Strategies for Weight Loss

The fundamentals in the treatment of obesity lie in creating an overall energy deficit. Ideally, the treatment paradigm should involve combined modalities of dietary restriction with a balanced diet, increased physical activity (PA) with reduction in sedentary time and behavioural modification with or without pharmacotherapy.

In general, a reduced calorie diet (creating a 500 kcal/day deficit) without increased activity will result in a 0.5kg/week weight loss. Coupling this with exercise will hence create a greater energy deficit and reap the benefits of exercise on cardiovascular health like a reduction in blood pressure<sup>31</sup>.

In the last 2 decades, there have been a slew of diets manipulating the macronutrient marketed to tackle the rising issue of obesity, be it the low-carbohydrate diet or the very-low fat diet. Several studies have shown that the low-carbohydrate diets result in greater weight loss at 6 months but not 12 months compared to the restricted fat diets, with greater improvements in the HDL-cholesterol and triglyceride levels. However, these are generally not sustainable and there are no long-term studies to prove its safety and efficacy in the long-term<sup>32,33,34,35</sup>.

A more practical approach is a reduced calorie intake using the Mediterranean-type diets. These include a healthy balanced diet, incorporating an increased intake of unsaturated fatty acids, and have been shown to improve cardiovascular risk factors in the metabolic syndrome<sup>36</sup>. Meal replacements used within a low calorie diet have been proven to be practical, effective in losing weight and also safe and sustainable in the long-term (by to 10 years)<sup>37</sup>. It is vital to emphasize that the diet adopted needs to be balanced not just in its macronutrients but also meeting the patient's daily requirements for minerals, vitamins and fiber. Locally, the Health Promotion has published a comprehensive guide on healthy eating for all age-groups as well as an online platform with the nutritional information of our local foods. These resources are very helpful both for the primary care physicians to educate their patients and for the public<sup>38</sup>.

Bariatric surgery should be considered in carefully selected eligible individuals, particularly those with very high BMI, multiple obesity-related co-morbidities not well-controlled with conventional medical treatment and in whom weight loss was successful but with regain. Regardless of whether meal replacements, pharmacotherapy or bariatric surgery is used, the fundamentals of caloric restriction, increased PA and behavioral modification should be reinforced and adopted as these will enhance the weight loss and facilitate weight maintenance<sup>39,40</sup>.

However, before embarking on any form of treatment, it is important to assess each individual to determine how aggressive treatment should be, based on individual motivation level and readiness for change. In the patient who is not ready for weight loss, maintaining weight and preventing further weight gain is a reasonable goal and may mean reduction in long-term metabolic risks<sup>41</sup>. However, those in whom there are established obesity-related co-morbidities, should be encouraged and given appropriate help to increase their motivation and readiness to effect these lifestyle changes. As obesity is a chronic disease like hypertension and T2DM, different strategies may need to be adopted at different stages especially if weight regain occurs. For an example, someone with initial weight loss with dietary modification and exercise but not at targeted goal yet may be started on meal replacements.

Due to the lack of effective pharmacotherapy available that can be used long-term at present, it is important for both the healthcare team and the patient to recognize from the outset that some form of lifestyle change is necessary<sup>42</sup>. Though ideally

this should involve both reduced caloric intake and increased PA, greater emphasis on either one may be necessary as some individuals may prefer - or respond better to - one approach over the other. So varying amounts of either modality need to be tailored according to each patient's needs and/or past experience of which modality worked better.

### The Role of the Family Physician

The family physician plays a pivotal role in the care of the patient as he/she walks through the various stages of life with him/her. The interaction with the patient over the years provides an understanding of the patient and what strategies will work best for the patient, while not neglecting the role of the patient's family in supporting him through the weight loss treatment. The goals of treatment should be agreed upon by both the physician and the patient and regularly monitored. Different strategies will often need to be used over the years, providing the best result and care for the patient.

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## LEARNING POINTS

- **Obesity has become a fast-growing public health concern and health burden.**
  - **Weight loss has been shown to reduce the development of several obesity related conditions – namely, type 2 diabetes mellitus, hypertension, dyslipidemia, and non-alcoholic fatty liver disease and their co-morbidities.**
  - **Asians tend to have an elevated risk of obesity related conditions at a relatively low level of BMI – and hence the BMI cut-off levels for normal risk is set at 23 kg/m<sup>2</sup>.**
  - **There is also evidence supporting nutritional programming of obesity and other chronic diseases in foetal and early life and this should continue through the whole life span.**
  - **The weight control strategy involves combined modalities of dietary restriction with a balanced diet, increased physical activity (PA), reduction in sedentary time, with or without pharmacotherapy.**
  - **Bariatric surgery should be considered in carefully selected eligible individuals – very high BMI, multiple obesity-related co-morbidities not well controlled with conventional medical treatment and in whom weight loss was successful but with regain.**
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## UNIT NO. 5

## PHYSICAL ACTIVITY ADVICE TOOL (PAAT)

Mr Robert Sloan

**ABSTRACT**

**Family physicians can play an important role in providing lifestyle advice that aims to prevent or delay chronic disease. Given the vast amount of evidence that regular physical activity improves health and wellbeing, providing brief tailored advice in a clinic setting has the potential to make a positive impact on population health. Working side by side with physicians, the Health Promotion Board has developed the Physical Activity Advice Tool (PAAT) to enable physicians to quickly and accurately provide evidence-based tailored physical activity advice.**

**KEYWORDS: National Physical Activity Guidelines; Physical Activity Advice Tool (PAAT)**

**SFP2012; 38(1): 28-30**

**INTRODUCTION**

Evidence-based lifestyle intervention approaches that can be easily disseminated across the population of Singapore are needed. Providing physical activity advice during clinic visits has a logical appeal given that insufficient physical activity is a major public health threat accounting for 6% of deaths globally (ACSM, 2010)<sup>1</sup>. Concurrently the 2010 National Health Survey indicates that 39.1% of residents do not obtain sufficient physical activity and the obesity rate has risen to 10.8% (MOH, 2011)<sup>2</sup>.

To help address these problems the Health Promotion Board (2011)<sup>3</sup> recently launched the National Physical Activity Guidelines, which advocates a weekly accumulation of 150 minutes of moderate intensity physical activity per week for those  $\geq 19$  years old. This volume of activity is associated with a 20-50% lower risk of premature death and a reduction in the incidence of cardiovascular disease, stroke, hypertension, colon cancer, breast cancer, type II diabetes, falls, depression and dementia. Markedly, the majority of these health benefits occur independent of body mass index classification if sufficient physical activity is maintained.

Despite the growing pandemic of insufficient physical activity, the capacity and time for a physician to provide tailored evidence-based physical activity advice may be limited. Recognising this problem the HPB-Physical Activity Centre of Excellence (PACE) has developed a tangible solution referred to as the Physical Activity Advice Tool (PAAT). This solution is part of PACE's effort to address the growing ecological problems of insufficient

physical activity and sedentary behaviour (sitting) by applying a broad model for active living (Sallis, et al, 2006)<sup>4</sup>.

**ECOLOGICAL MODEL OF ACTIVE LIVING**

Evidence has shown there are many factors that influence the physical activity behaviours of individuals including:

- Intrapersonal (demographics, biological, psychological, family situation).
- Perceived environment (safety, access, attractiveness).
- Domain (recreational activities, occupation/household activities, active commuting).
- Behaviour settings (healthcare, workplace, home, community).
- Policy (media, workplace, transport, healthcare).

The areas of behaviour and policy in the healthcare setting present an opportune environment to provide brief physical activity advice to patients. GP and polyclinics are geographically spread out across the nation providing a broad reach into the population. According to the 2010 Primary Care Survey (MOH, 2011)<sup>5</sup> the daily reach is greater than 55,000 visits per day. Therefore an evidence-based tool designed to help physicians assess patients quickly; reserve time for brief advice; provide tailored guidance; and provide standardisation across the healthcare system is warranted.

**EVIDENCE BASED**

Given the high reach capacity of the GP and polyclinic settings it is important to consider the current evidence for providing brief tailored physical activity advice. Research shows that as many as 90% of patients would at least consider participating in physical activity if recommended by their doctor (Jimmy et al, 2005)<sup>6</sup>.

Currently the Ministry of Health (2011)<sup>7</sup> Clinical Practice Guidelines (CPG) for Screening for Cardiovascular Disease and Risk Factors recommends that, "all patients aged 18 and older should be asked if they are participating in any physical activity, and if so, the level, intensity, and duration of such activity" (pg 15). Further augmenting this recommendation a recent systematic review (Sorensen, et al, 2006)<sup>8</sup> found that 10% of patients who received brief physical activity advice (2-4 minutes) would follow the advice and increase cardiorespiratory fitness by 5-10%. Recent randomised control studies in the International Journal of General Medicine (ter Bogt et al, 2011)<sup>9</sup> and Archives of Internal Medicine (Baruth, et al, 2011)<sup>10</sup> provided findings that brief advice can significantly reduce CVD risk factors and prevent weight gain respectively. Remarkably both studies showed that brief advice was just as effective as more intensive counselling efforts.

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ROBERT SLOAN, Centre Head/Chief Exercise Physiologist, Physical Activity Centre of Excellence, Health Promotion Board

## 5 A's

Generally there are three steps for providing brief physical activity advice using the 5A's:

### 1. ASSESS

- Patient completes PAAT and PARQ questions while waiting (<2 minutes).
- Assistant inputs information into PAAT software (<1 minute).

### 2. ADVISE/ASK/ASSIST

- Pre-participation screening (check PARQ).
- Print and give tailored advice using the PAAT report (2-3 minutes).

### 3. ARRANGE

- Referral (<1minute).
- Schedule follow-up visit/contact.

## PRE-PARTICIPATION SCREENING AND SAFETY

The benefits of physical activity outweigh the inherent risk of adverse events (Physical Activity Guidelines Advisory Committee (2008)<sup>11</sup>. Given the voluminous evidence on the health benefits associated with physical activity, not providing physical activity advice possess a potential threat to public health and well-being which may be considered to be on par with not prescribing the appropriate medication for a chronic condition.

Research has now clearly revealed that some physical activity is better than none and sedentary/low active individuals who gradually become more active stand to gain substantial health benefits. Selection of low risk activities and prudent behaviour while doing any activity can minimise the incidence and severity of adverse events and maximise the benefits of regular physical activity. Furthermore, the risks of sudden adverse cardiac events are greater for those who remain sedentary than for those who increase their volume of physical activity in a gradual manner. Risks of sudden cardiac adverse events are lower for light-and moderate-intensity activities than for vigorous activities, and likely depend on relative intensity as much or more than absolute intensity (Physical Activity Guidelines Advisory Committee (2008)<sup>11</sup>.

While considering both the spectrum of adverse events and their causes, three key factors of any physical activity program must be considered.

1. The type (mode) of activity.
2. The volume (frequency, duration, and intensity).
3. The rate of volume progression.

The PAAT automatically calculates volume using the National Physical Activity Guidelines and the American College of Sports Medicine Guidelines. The printed PAAT report allows for the physician to ask and assist the patient in deciding the best type and progression of activity, thus providing a tailored programme. All programmes use a moderate-intensity relative to the patient's cardiorespiratory fitness level (Garber, et al, 2011)<sup>12</sup>.

Chapter 7 of the CPG for Screening for Cardiovascular Disease and Risk Factors (MOH, 2011)<sup>7</sup> provides guidelines on pre-participation screening for exercise (55-61). Key elements from chapter 7 of the CPG are provided:

- Participants in sports and recreational activities should be encouraged to complete a self-administered pre-participation screening questionnaire annually, and consult a doctor if the questionnaire indicates it.
- For pre-participation screening, a two- or more stage screening process is encouraged, where the first stage consists of personal and family history taking and physical examination. Based on the findings of the first stage, further tests such as a resting ECG (if not already done), chest X-ray, exercise stress test, echocardiogram, blood investigations, urine tests, etc. may be ordered if indicated.
- Routine use of the exercise treadmill testing to screen for coronary artery disease in asymptomatic low-to-moderate risk individuals is not recommended. Its use among those in the highest risk group (10-year predicted coronary artery disease risk of 20%) may be considered.

## PHYSICAL ACTIVITY ADVICE TOOL

The PAAT was designed with physicians, for physicians to provide a quick, safe, and effective method to provide brief tailored moderate-intensity physical activity advice in patients without existing heart disease or contraindicated conditions. For some physicians even providing 2-4 minutes of brief advice may be challenging therefore leveraging on clinical staff to assist in the process from check-in to advisement may be necessary.

PAAT incorporates the following evidence-based recommendations that enable the physician to more easily expedite the advice process:

- Incorporates questions regarding the physical activity level and identifies low fit/low active patients
- Attempts to interest patients in adopting a program of regular physical activity by discussing the role of physical activity in disease prevention and by addressing the patient's individual risk of conditions associated with inactivity and their own perceived health status.
- Guides the patient in choosing an appropriate type of physical activity that would be efficacious for health.
- Guides the patient in choosing an appropriate level of participation in terms of intensity, duration, and frequency.
- Helps monitors compliance with physical activity by calculating cardiorespiratory fitness level.
- Encourages gradual increase in volume of physical activity to reduce increased risks for injury and improve compliance.
- Encourages the social support of significant others and community programmes.

*(Adapted from USPSTF recommendations on counselling for physical activity)<sup>13</sup>*

## CONCLUSION

The increase in non-communicable diseases and health conditions such as obesity require population health approaches that also consider the needs of the individual. The PAAT provides a unique opportunity for physicians to provide standardised physical activity advice in a busy clinic environment.

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## LEARNING POINTS

- **Sufficient moderate intensity physical activity of 150 minutes per week can provide substantial health benefits.**
- **Sufficient physical activity may provide a 20-50% lower risk of premature death and a reduction in the incidence of cardiovascular disease, stroke, hypertension, colon cancer, breast cancer, type II diabetes, falls, depression and dementia.**
- **Because family practice physicians can potentially reach many patients, the cumulative population health impact of even a modestly effective intervention such as PAAT may surpass that of more intensive low-reach interventions.**
- **PAAT is an evidence-based tool designed to help physicians assess patients quickly; reserve time for brief advice; provide tailored guidance and provide standardisation across the healthcare system.**
- **Participants in sports and recreational activities should be encouraged to complete a self-administered pre-participation screening questionnaire annually, and consult a doctor if the questionnaire indicates it.**
- **The likelihood of adherence to physical activity involves tailored counselling, shared decision making, printed tailored activity programme, community referral and follow-up.**





Is your patient  
feeling down  
on a Monday?

Down on a Friday?

Down every day?

**Persistent feelings of sadness may be a symptom of depression.**

Someone with depression may also lose interest in most activities or experience a sense of worthlessness. If one of your patients is experiencing these symptoms, encourage them to seek help. With early detection and treatment, you can help them beat the blues.

For more information and resources, visit [www.hpb.gov.sg/mentalhealth](http://www.hpb.gov.sg/mentalhealth)

## ASSESSMENT OF 30 MCQs

FPSC NO : 47

## MCQs on OBESITY: PREVENTION &amp; MANAGEMENT

Submission DEADLINE : 25 FEBRUARY 2012

## INSTRUCTIONS

- To submit answers to the following multiple choice questions, you are required to log on to the College On-line Portal ([www.cfps2online.org](http://www.cfps2online.org)).
- Attempt ALL the following multiple choice questions.
- There is only ONE correct answer for each question.
- The answers should be submitted to the College of Family Physicians Singapore via the College On-line Portal before the submission deadline stated above.

- In the National Health Survey conducted in Singapore in 2010, obesity was defined as BMI equal or more than X kg/m<sup>2</sup>. What is X?
  - 25.
  - 27.5.
  - 30.
  - 35.
  - 40.
- In the National Health Survey conducted in Singapore in 2010, abdominal fatness or truncal obesity for males is defined as X. What is X?
  - Waist hip ratio of more than 1.0.
  - Waist hip ratio of more than 0.85.
  - Waist circumference of 30 inches or greater.
  - Waist circumference of 35 inches or greater.
  - Waist hip ratio of more than 0.85 and waist circumference of 35 inches or greater.
- In the National Health Survey conducted in Singapore in 2010, what was the prevalence of obesity for Malay Singapore residents aged 18 to 69 years?
  - 7.9%.
  - 9.5%.
  - 10.8%.
  - 16.9%.
  - 24.0%.
- The prevalence of obesity of Singaporeans in the 2010 National Health Survey with respect to household incomes was analysed. In which household income bracket would you expect to have the HIGHEST prevalence of obesity?
  - Less than SGD 2,000 per month.
  - SGD 3,000 per month.
  - SGD 4,000 per month.
  - SGD 5,000 per month.
  - SGD 6,000 per month.
- In the Singapore survey done in 2008 by AC Nielsen, on the question on what action the respondent would take to lose weight which of the following statements is correct?
  - 40% chose playing tennis.
  - 50% chose doing tai qi.
  - 65% chose doing physical exercise.
  - 75% chose to modify their diet.
  - 50% chose ten pin bowling.
- About health promotion programmes developed by the Health Promotion Board in Singapore, which of the following is a school programme?
  - HEALTH Award.
  - Healthier Canteen Certification Program.
  - Healthier Dining Program.
  - Lose to Win.
  - CHERISH Award.
- Childhood obesity is defined as BMI equal or greater than Xth percentile for age and sex, what is X?
  - 97.
  - 95.
  - 93.
  - 90.
  - 85.
- In which of the following scenarios is there an increased likelihood of future obesity?
  - The overweight child is older than 3 years.
  - One parent is also obese.
  - Both parents are also obese.
  - The overweight child is older than 6 years.
  - All of the above.
- A child with obesity is diagnosed to have a pathological cause for the obesity, Which of the following clinical feature is likely to be present?
  - Shorter than age matched peers.
  - Height velocity of 4 cm/year or more.
  - Increased linear growth.
  - Advanced bone age.
  - None of the above.



10. A 10-year old child is brought by the mother to see you because she thinks that the child is obese. Which of the following is **LEAST** likely to be a pathological cause for the obesity?
- Hypothyroidism.
  - Growth hormone deficiency.
  - Cushing's syndrome.
  - Down's syndrome.
  - Prader Willi syndrome.
11. In obese children, **X** percent of them will have two or more of the risk factors of hypertension, dyslipidemia, insulin resistance or glucose intolerance. What is **X**?
- 28.
  - 38.
  - 48.
  - 58.
  - 68.
12. With regards to intervention in a child with obesity, which of the following is the **MOST** appropriate?
- Educating the parents alone on the need for lifestyle changes.
  - Stimulus control, which includes limiting the amount of unhealthy food stocked at home.
  - Educating the child alone on the need for lifestyle changes.
  - Orlistat for morbid obesity.
  - Bariatric surgery.
13. About motivational interview which of the following is a component of this behavioural change technique?
- Client-centred, non-directive method of behaviour change.
  - Enhancing extrinsic motivation to change.
  - Argues for change.
  - Explores and resolves ambivalence.
  - All of the above are components.
14. Professor Ken Resnicow has described motivational interview (MI) using the analogy of a ship. The healthcare professional's use of MI is like using the **X** of the ship. What is **X**?
- Compass.
  - Telecommunication system.
  - Rudder.
  - Engine.
  - Fuel.
15. One of the four broad guiding principles that underline motivational interview as described by Miller and Rollnick is "express empathy". The attitude underlying this principle of empathy is **X**. What is **X**?
- Accepting the patient's perspective.
  - Agreeing with the patient's perspective.
  - Approving the patient's perspective.
  - Endorsing the patient's perspective.
  - All the above are correct.
16. "Developing discrepancy" is one of the four broad principles in motivational interview. Which of the following about developing discrepancy is **CORRECT**?
- Create a discrepancy in the patient between present behaviour and his broader goals and values.
  - Help the patient resolve his internal conflicts.
  - Present the reasons for change for the patient.
  - Voice concerns about the patient.
  - All the above are correct.
17. "Roll with resistance" is one of the four broad principles in motivational interview. Which of the following about rolling with resistance is **CORRECT**?
- Downplay the patient's resistance.
  - Try and solve the problem for the patient.
  - Invite the patient to reflect on his resistance to change.
  - Directly oppose the resistance to change.
  - Attempt to keep the momentum going by inviting the patient to consider new perspectives.
18. "Support self-efficacy" is one of the four broad principles in motivational interview. Which of the following about supporting self-efficacy is **CORRECT**?
- To analyse the patient's inability to change.
  - Enhance the patient's self confidence in the capability to succeed in change.
  - To counsel the patient on the mechanics of change.
  - To set goals for the patient to change.
  - To make a case on why change is necessary.
19. The relative risk (RR) for cancer in patients with obesity is slightly increased namely 1-2. Which of the following cancer is associated with obesity?
- Ovarian cancer.
  - Lung cancer.
  - Prostatic cancer.
  - Breast cancer.
  - Tongue cancer.
20. There are several conditions that have a relative risk (RR) of more than 3 in patients with obesity. Which of the following is one such condition?
- Stress incontinence.
  - Varicose veins.
  - Obstructive sleep apnoea.
  - Back pain.
  - Hernia.
21. Children born to mothers with diabetes are at a significantly increased risk of developing **X** even in the pre-adolescent age group. What is **X**?
- Impaired glucose tolerance.
  - Hypertension.
  - Cardiovascular disease.
  - Osteoarthritis.
  - Asthma.

22. In the Diabetes Prevention Program (DPP), it was found that patients in the standard arm with both impaired fasting glucose (IFG) and impaired glucose tolerance (IGT) had an annual progression to type 2 diabetes mellitus of X percent. What is X?
- 15.
  - 14.
  - 13.
  - 12.
  - 11.
23. Intensive lifestyle intervention confers the greatest benefit in the prevention of type 2 diabetes mellitus in people who are obese. In such a program the goal of weight loss is X% through a reduced fat intake to less than 25% total calories and at least Y minutes per week of moderate physical activity. What is X and Y?
- X = 7 and Y = 150 minutes.
  - X = 10 and Y = 100 minutes.
  - X = 15 and Y = 100 minutes.
  - X = 10 and Y = 200 minutes.
  - X = 14 and Y = 200 minutes.
24. In the Swedish Obesity Study which prospectively examined the effects of more drastic weight loss through bariatric surgery in the morbidly obese compared with conventional treatment, there was a drastic reduction of overall mortality of X%. What is X?
- 25.
  - 30.
  - 35.
  - 40.
  - 45.
25. In the National Health Survey of 2010, the results show that X% of residents do not obtain sufficient physical activity. What is X?
- 18.1.
  - 29.1.
  - 39.1.
  - 49.1.
  - 59.1.
26. A volume of exercise of 150 minutes of moderate intensity physical activity per week for those who are 19 years and older will in X% lower risk of premature death. What is X?
- 15 - 45.
  - 20 - 50.
  - 25 - 55.
  - 30 - 60.
  - 35 - 65.
27. Participants in sports and recreational activities should be encouraged to complete a self-administered pre-participation screening questionnaire and consult a doctor if the questionnaire indicates it. How often should the pre-participation screening questionnaire be completed?
- Every six months.
  - Annually.
  - Once every two years.
  - Once every three years.
  - Once every five years.
28. For a pre-participation screening, what does the process include?
- Chest Xray.
  - ECG.
  - Exercise treadmill testing
  - Echocardiogram.
  - Personal history, family history, and physical examination.
29. The impact of brief physical activity advice of 2-4 minutes has been evaluated. How many percent of those counseled will take up the advice to increase cardiovascular fitness?
- 6.
  - 8.
  - 10.
  - 15.
  - 20.
30. The Physical Activity Advice Tool (PAAT) is designed by physicians for physicians to provide a quick, safe, and effective physical activity advice to patients. Which of the following is NOT a feature of this tool?
- It provides physical activity advice for moderate intensity physical activities.
  - It has questions to identify the low fit, low activity individuals.
  - It attempts to interest patients to adopt regular physical activity.
  - It helps the patient choose an appropriate level of participation in terms of intensity, duration, and frequency.
  - It advises patients with existing heart disease and contraindicated conditions.

## Answers to Previous FPSCs

### FPSC No. 42 “Integrated Eldercare Course” Answers to 30 MCQ Assessment

- |       |       |       |
|-------|-------|-------|
| 1. B  | 11. D | 21. A |
| 2. C  | 12. B | 22. E |
| 3. D  | 13. D | 23. A |
| 4. B  | 14. C | 24. D |
| 5. A  | 15. A | 25. C |
| 6. E  | 16. A | 26. B |
| 7. C  | 17. E | 27. B |
| 8. B  | 18. B | 28. E |
| 9. A  | 19. E | 29. C |
| 10. D | 20. C | 30. E |

### FPSC No. 45 “Cardiometabolic Risk Update” Answers to 30 MCQ Assessment

- |       |       |       |
|-------|-------|-------|
| 1. A  | 11. D | 21. C |
| 2. B  | 12. E | 22. D |
| 3. C  | 13. A | 23. C |
| 4. D  | 14. B | 24. B |
| 5. E  | 15. C | 25. D |
| 6. E  | 16. C | 26. B |
| 7. C  | 17. E | 27. C |
| 8. B  | 18. E | 28. C |
| 9. B  | 19. A | 29. B |
| 10. E | 20. D | 30. B |

### FPSC No. 43 “Dementia” Answers to 30 MCQ Assessment

- |       |       |       |
|-------|-------|-------|
| 1. B  | 11. A | 21. A |
| 2. D  | 12. E | 22. D |
| 3. C  | 13. E | 23. C |
| 4. A  | 14. C | 24. A |
| 5. E  | 15. E | 25. B |
| 6. D  | 16. C | 26. C |
| 7. D  | 17. C | 27. D |
| 8. B  | 18. A | 28. B |
| 9. B  | 19. B | 29. A |
| 10. E | 20. C | 30. E |

### FPSC No. 46 “Bipolar Disorder & Depression” Answers to 30 MCQ Assessment

- |       |       |       |
|-------|-------|-------|
| 1. A  | 11. D | 21. A |
| 2. B  | 12. E | 22. B |
| 3. C  | 13. C | 23. C |
| 4. D  | 14. E | 24. D |
| 5. D  | 15. E | 25. D |
| 6. D  | 16. A | 26. C |
| 7. C  | 17. B | 27. D |
| 8. C  | 18. C | 28. A |
| 9. D  | 19. D | 29. B |
| 10. A | 20. E | 30. C |

### FPSC No. 44 “New Horizons in Hypertension” Answers to 30 MCQ Assessment

- |       |       |       |
|-------|-------|-------|
| 1. D  | 11. A | 21. E |
| 2. D  | 12. C | 22. D |
| 3. A  | 13. E | 23. E |
| 4. C  | 14. B | 24. C |
| 5. B  | 15. E | 25. D |
| 6. D  | 16. C | 26. E |
| 7. E  | 17. E | 27. C |
| 8. D  | 18. C | 28. D |
| 9. A  | 19. E | 29. B |
| 10. B | 20. C | 30. A |

## ERRATA to The Singapore Family Physician Vol 37(4) (Supplement 2) October – December 2011 Cardiometabolic Risk Update

On Page 35, Abstract (Line 21) should be:

Dual renin-angiotensin aldosterone system blockade should not be routinely used but is indicated for hypertensive patients with severe heart failure or chronic renal disease with heavy proteinuria.

On Page 39, Learning Points (Point 3) should be:

Dual renin-angiotensin aldosterone system blockade should not be routinely used but is indicated for hypertensive patients with severe heart failure or chronic renal disease with heavy proteinuria.







## **R E A D I N G S**

- A Selection of Ten Current Readings on Topics Related To Obesity: Prevention & Management

## **A SELECTION OF TEN CURRENT READINGS ON TOPICS RELATED TO OBESITY: PREVENTION & MANAGEMENT –**

**some available as free full-text and some requiring payment**

**Selection of readings made by A/Prof Goh Lee Gan**

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### **READING 1 – How effective is current public health approach**

**Chan RS, Woo J. Prevention of overweight and obesity: how effective is the current public health approach. Int J Environ Res Public Health. 2010 Mar;7(3):765-83. Epub 2010 Feb 26. Review. PubMed PMID: 20617002; PubMed Central PMCID: PMC2872299.**

URL: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2872299/pdf/ijerph-07-00765.pdf> (free full text)

Department of Medicine & Therapeutics, Chinese University of Hong Kong,  
Hong Kong, China. [ruthchansm@cuhk.edu.hk](mailto:ruthchansm@cuhk.edu.hk)

#### ABSTRACT

Obesity is a public health problem that has become epidemic worldwide. Substantial literature has emerged to show that overweight and obesity are major causes of co-morbidities, including type II diabetes, cardiovascular diseases, various cancers and other health problems, which can lead to further morbidity and mortality. The related health care costs are also substantial. Therefore, a public health approach to develop population-based strategies for the prevention of excess weight gain is of great importance. However, public health intervention programs have had limited success in tackling the rising prevalence of obesity. This paper reviews the definition of overweight and obesity and the variations with age and ethnicity; health consequences and factors contributing to the development of obesity; and critically reviews the effectiveness of current public health strategies for risk factor reduction and obesity prevention. PMCID: PMC2872299 PMID: 20617002 [PubMed - indexed for MEDLINE]

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### **READING 2 – Single or multiple health behaviour interventions?**

**Sweet SN, Fortier MS. Improving physical activity and dietary behaviours with single or multiple health behaviour interventions? A synthesis of meta-analyses and reviews. Int J Environ Res Public Health. 2010 Apr;7(4):1720-43. Epub 2010 Apr 16. Review. PubMed PMID: 20617056; PubMed Central PMCID: PMC2872344.**

URL: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2872344/pdf/ijerph-07-01720.pdf> (free full text)

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#### ABSTRACT

Since multiple health behaviour interventions have gained popularity, it is important to investigate their effectiveness compared to single health behaviour interventions. This synthesis aims to determine whether single intervention (physical activity or dietary) or multiple interventions (physical activity and dietary) are more effective at increasing these behaviours by synthesizing reviews and meta-analyses. A sub-purpose also explored their impact on weight. Overall, reviews/meta-analyses showed that single health behaviour interventions were more effective at increasing the targeted behaviours, while multiple health behaviour interventions resulted in greater weight loss. This review may assist policies aiming at improving physical activity and nutrition and reversing the obesity epidemic. PMCID: PMC2872344 PMID: 20617056 [PubMed - indexed for MEDLINE]

**READING 3 – Motivational interview**

**Armstrong MJ, Mottershead TA, Ronksley PE, Sigal RJ, Campbell TS, Hemmelgarn BR. Motivational interviewing to improve weight loss in overweight and/or obese patients: a systematic review and meta-analysis of randomized controlled trials. *Obes Rev.* 2011 Sep;12(9):709-23. doi: 10.1111/j.1467-789X.2011.00892.x. Epub 2011 Jun 21. Review. PubMed PMID: 21692966.**

URL: <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-789X.2011.00892.x/pdf> (payment required)

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marni.armstrong@ucalgary.ca

ABSTRACT

Motivational interviewing, a directive, patient-centred counselling approach focused on exploring and resolving ambivalence, has emerged as an effective therapeutic approach within the addictions field. However, the effectiveness of motivational interviewing in weight-loss interventions is unclear. Electronic databases were systematically searched for randomized controlled trials evaluating behaviour change interventions using motivational interviewing in overweight or obese adults. Standardized mean difference (SMD) for change in body mass index (BMI) or body weight (kg), mass, reported as either body mass index (BMI; kg was the primary outcome, with weighted mean difference (WMD) for change in body weight and BMI as secondary outcomes. The search strategy yielded 3540 citations and of the 101 potentially relevant studies, 12 met the inclusion criteria and 11 were included for meta-analysis. Motivational interviewing was associated with a greater reduction in body mass compared to controls (SMD = -0.51 [95% CI -1.04, 0.01]). There was a significant reduction in body weight (kg) for those in the intervention group compared with those in the control group (WMD = -1.47 kg [95% CI -2.05, -0.88]). For the BMI outcome, the WMD was -0.25 kg m<sup>-2</sup> (95% CI -0.50, 0.01). Motivational interviewing appears to enhance weight loss in overweight and obese patients. © 2011 The Authors. obesity reviews © 2011 International Association for the Study of Obesity. PMID: 21692966 [PubMed - indexed for MEDLINE]

**READING 4 – Facts and fallacies in weight management**

**Egger G, Egger S. Weight management - Facts and fallacies. *Aust Fam Physician.* 2009 Nov;38(11):921-3. Review. PubMed PMID: 19893844.**

URL: <http://www.racgp.org.au/afp/200911/200911egger.pdf> (free full text)

Southern Cross University, and Centre for Health Promotion and Research, New South Wales. [eggergj@ozemail.com.au](mailto:eggergj@ozemail.com.au)

ABSTRACT

There is a great deal of misunderstanding about the facts around weight loss among health professionals, and the general public. Possible reasons for this include lack of adequate education of doctors in this area, misreporting of health research in the popular media, and a need for further research in some areas. Training doctors in 'lifestyle medicine' may be helpful. Standards of evidence in media reports could be significantly improved. PMID: 19893844 [PubMed - indexed for MEDLINE]

**READING 5 – Office-based strategies for management of obesity**

**Rao G. Office-based strategies for the management of obesity. Am Fam Physician. 2010 Jun 15;81(12):1449-56 ; quiz 1429. Review. PubMed PMID: 20540483.**

URL: <http://www.aafp.org/afp/2010/0615/p1449.pdf> (free full text)

University of Pittsburgh School of Medicine, Pittsburgh, PA, USA. raog@upmc.edu

Comment in: Am Fam Physician. 2010 Jun 15;81(12):1406-8.

**ABSTRACT**

Roughly two thirds of U.S. adults are overweight or obese. Obesity increases the risk of hypertension, type 2 diabetes mellitus, hyperlipidemia, heart disease, pulmonary disease, hepatobiliary disease, cancer, and a number of psychosocial complications. Physicians often feel unprepared to handle this important problem. Practical office-based strategies include: (1) making recommendations for assisted self-management, including guidance on popular diets, (2) advising patients about commercial weight-loss programs, (3) advising patients about and prescribing medications, (4) recommending bariatric surgery, and (5) supplementing these strategies with counseling about lifestyle changes using a systematic approach. Family physicians should provide basic information about the effectiveness and safety of popular diets and commercial weight-loss programs, and refer patients to appropriate information sources. Sibutramine and orlistat, the only medications currently approved for the long-term treatment of obesity, should only be prescribed in combination with lifestyle changes. Bariatric surgery is an option for adults with a body mass index of 40 kg per m<sup>2</sup> or higher, or for those with a body mass index of 35 kg per m<sup>2</sup> or higher who have obesity-related comorbidities such as type 2 diabetes. The five A's behavioral counseling paradigm (ask, advise, assess, assist, and arrange) can be used as the basis for a systematic, practical approach to the management of obesity that incorporates evidence for managing common obesity-related behaviors. PMID: 20540483 [PubMed - indexed for MEDLINE]

**READING 6 – Bariatric surgery for adult obesity**

**Schroeder R, Garrison JM Jr, Johnson MS. Treatment of adult obesity with bariatric surgery. Am Fam Physician. 2011 Oct 1;84(7):805-14. Review. PubMed PMID: 22010619.**

URL: <http://www.aafp.org/afp/2011/1001/p805.pdf> (payment required)

University of Medicine and Dentistry of New Jersey-New Jersey Medical School, Newark, USA. schroers@umdnj.edu

Summary for patients in: Am Fam Physician. 2011 Oct 1;84(7):815.

**ABSTRACT**

Bariatric surgery procedures, including laparoscopic adjustable gastric banding, laparoscopic sleeve gastrectomy, and Roux-en-Y gastric bypass, result in an average weight loss of 50 percent of excess body weight. Remission of diabetes mellitus occurs in approximately 80 percent of patients after Roux-en-Y gastric bypass. Other obesity-related comorbidities are greatly reduced, and health-related quality of life improves. The Obesity Surgery Mortality Risk Score can help identify patients with increased mortality risk from bariatric surgery. Complications and adverse effects are lowest with laparoscopic surgery, and vary by procedure and presurgical risk. The Roux-en-Y procedure carries an increased risk of malabsorption sequelae, which can be minimized with standard nutritional supplementation. Outcomes are also influenced by the experience of the surgeon and surgical facility. Overall, these procedures have a mortality risk of less than 0.5 percent. Although there have been no long-term randomized controlled trials, existing studies show that bariatric surgery has a beneficial effect on mortality. The family physician is well positioned to care for obese patients by discussing surgery as an option for long-term weight loss. Counseling about the procedure options, risks and benefits of surgery, and the potential reduction in comorbid conditions is important. Patient selection, presurgical risk reduction, and postsurgical medical management, with nutrition and exercise support, are valuable roles for the family physician. PMID: 22010619 [PubMed - indexed for MEDLINE]



**READING 7 – Childhood overweight and obesity**

**Sargent GM, Pilotto LS, Baur LA. Components of primary care interventions to treat childhood overweight and obesity: a systematic review of effect. *Obes Rev.* 2011 May;12(5):e219-35. doi: 10.1111/j.1467-789X.2010.00777.x. Review. PubMed PMID: 20630025.**

URL: <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-789X.2010.00777.x/pdf> (payment required)

Rural Clinical School, Faculty of Medicine, The University of New South Wales, Wagga, Australia.  
 Ginny.Sargent@gmail.com

**ABSTRACT**

The primary care setting presents an opportunity for intervention of overweight and obese children but is in need of a feasible model-of-care with demonstrated effectiveness. The aims were to (i) identify controlled interventions that treated childhood overweight or obesity in either a primary care setting or with the involvement of a primary healthcare professional and (ii) examine components of those interventions associated with effective outcomes in order to inform future intervention trials in primary care settings. Major health and medicine databases were searched: MEDLINE, CINAHL, EMBASE, Cochrane Reviews, CENTRAL, DARE, PsychINFO and ERIC. Articles were excluded if they described primary prevention interventions, involved surgical or pharmacological treatment, were published before 1990 or not published in English. Twenty-two papers describing 17 studies were included. Twelve studies reported at least one significant intervention effect. Comparison of these 12 interventions provides evidence for: training for health professionals before intervention delivery; behaviour change options (including healthy diet, activity and sedentary behaviour); effecting behaviour change via a combination of counselling, education, written resources, support and motivation; and tailoring intensity according to whether behavioural, anthropometric or metabolic changes are the priority. These components are practicable to future intervention studies in primary care. © 2010 The Authors. obesity reviews © 2010 International Association for the Study of Obesity. PMID: 20630025 [PubMed - indexed for MEDLINE]

**READING 8 – Obesity in pregnancy**

**Tsoi E, Shaikh H, Robinson S, Teoh TG. Obesity in pregnancy: a major healthcare issue. *Postgrad Med J.* 2010 Oct;86(1020):617-23. Review. PubMed PMID: 20971713.**

URL: <http://pmj.bmj.com/content/86/1020/617.full.pdf> (payment required)

Department of Metabolic Medicine, St Mary's Hospital, Imperial College London, London, UK.  
 stephen.robinson@imperial.ac.uk

**ABSTRACT**

The prevalence of maternal obesity is rising, up to 20% in some antenatal clinics, in line with the prevalence of obesity in the general population. Maternal obesity poses significant risks for all aspects of pregnancy. There are risks to the mother with increased maternal mortality, pre-eclampsia, diabetes and thromboembolic disorders. There is increased perinatal mortality, macrosomia and congenital malformation. The obstetric management, with increased operative delivery rate, and increased difficulty of anaesthesia, carry risk for the obese mother. Long term complications associated with maternal obesity include increased likelihood of maternal weight retention and exacerbation of obesity. This review aims to discuss these risks with a view to suggesting management to ensure the best outcome for both the mother and the offspring. PMID: 20971713 [PubMed - indexed for MEDLINE]

## READING 9 – What is the best way to motivate patients to exercise?

**Martin SN, Crownover BK, Kovach FE. Clinical inquiries. What's the best way to motivate patients to exercise? J Fam Pract. 2010 Jan;59(1):43-4. Review. PubMed PMID: 20074502.**

URL: <http://www.jfponline.com/Pages.asp?AID=8268> (payment required)

Eglin Air Force Base Family Medicine Residency, Eglin Air Force Base, FL, USA.

### ABSTRACT

There is no single best strategy for motivating patients to exercise, given the lack of data from rigorous comparison studies. There are, however, several interventions for adults that are effective. They include: writing a patient-specific behavioral health “green” prescription, encouraging patients to join forces with accountability partners or support groups, and recommending the use of pedometers. In children and adolescents, multicomponent strategies that include school-based interventions combined with either family or community involvement increase physical activity. PMID: 20074502 [PubMed - indexed for MEDLINE]

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## READING 10 – Preventing chronic diseases by promoting healthy diet and lifestyle: public policy implications for China

**Hu FB, Liu Y, Willett WC. Preventing chronic diseases by promoting healthy diet and lifestyle: public policy implications for China. Obes Rev. 2011 Jul;12(7):552-9. doi: 10.1111/j.1467-789X.2011.00863.x. Epub 2011 Mar 2. Review. PubMed PMID: 21366840.**

URL: <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-789X.2011.00863.x/pdf> (payment required)

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[frank.hu@channing.harvard.edu](mailto:frank.hu@channing.harvard.edu)

### ABSTRACT

Fuelled by rapid urbanization and changes in dietary and lifestyle choices, chronic diseases have emerged as a critical public health issue in China. The Healthy China 2020 programme recently announced by the Chinese government has set an overarching goal of promoting public health and making health care accessible and affordable for all Chinese citizens by year 2020. One of important components of the programme is to reduce chronic diseases by promoting healthy eating and active lifestyles. Chronic diseases not only affect health and quality of life, but also have economical and social consequences. With a limited infrastructure for chronic disease care, China is ill-equipped to deal with the escalating chronic disease epidemic, which threatens to reverse the gains of economic development in recent decades. Population-based intervention studies conducted in China and elsewhere have demonstrated the efficacy and effectiveness of several preventive strategies to reduce risk of chronic diseases in high-risk individuals and the general population. However, translating these findings into practice requires changes in health systems and public policies. To achieve the goals set by the Healthy China 2020 programme, prevention of chronic diseases should be elevated to a national public policy priority. © 2011 The Authors. obesity reviews © 2011 International Association for the Study of Obesity. PMID: 21366840 [PubMed - indexed for MEDLINE]

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# GUIDELINES AND INFORMATION FOR AUTHORS

## THE SINGAPORE FAMILY PHYSICIAN

Authors are invited to submit articles for publication in The Singapore Family Physician on the understanding that the work is original and that it has not been submitted or published elsewhere. Your original article will be considered for publication on the understanding that they have to be approved by the Editorial Board via a double-blinded peer-review process and subject to revision. Authors are encouraged to consult the recommendations in the Uniform Requirements for Manuscripts Submitted to Biomedical Journals (<http://www.icmje.org/index.html>) which the SFP is in accord with.

The following types of articles may be suitable for publication: case reports/study, original research works, audits of patient care, protocols for patient or practice management and letters to the Editor. The CME and review articles will be published under the prerogative of the Institute of Family Medicine (IFM) in the College of Family Physicians Singapore. The article should be written in British English, and not be more than 3000 words in length. This must be submitted in an electronic form and of a format that is compatible with major word processor applications. Submissions in Microsoft Word in Word 1997-2003 format (.doc) is preferred, later versions (.docx) will not be accepted.

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All instructions for registration and submission can be found at the webpage. Authors and reviewers can follow clearly the progress of the manuscript submission and review process by logging into the SFP Editorial Manager. An online users' guide, authors' and reviewers' instructions are also located at the website in case of queries and difficulties. Any problems encountered logging in can be addressed to [editorialoffice@cfps.org.sg](mailto:editorialoffice@cfps.org.sg).

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The submission should comprise of the following:

1. Title Page
  2. Summary/ Abstract
  3. Key Words
  4. Text/ Manuscript (anonymised version)
  5. Tables
  6. Illustrations
  7. Authors Agreement/ Copyright Assignment Form
  8. Patient's Consent Form, if necessary (including consent for photograph or illustration taken of human subject)
- and each one of these sections should start on a fresh page.

Authors are advised to ensure the anonymity of study subjects and patients by removing any and all information that could compromise their privacy from the submission.

The text should be typed in Arial font, 12 point size with a 1.5 line space.

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- Add, at the end of summary in alphabetical listing, keywords of up to 5 in number which will be used for article indexing and retrieval under Medical Subject Headings or MeSH. MeSH is the NLM controlled vocabulary thesaurus used for indexing articles for WPRIM and PubMed. Please refer to [www.nlm.nih.gov/mesh/](http://www.nlm.nih.gov/mesh/) for details.

### The Text/ Manuscript (full complete)

The text should have the following sequence:

- **Introduction:** State clearly the purpose of the article.
- **Methods:** Describe the selection of the subjects clearly. Give References to established methods, including statistical methods; provide references and brief descriptions of methods that have been published but are not well known. Describe new or substantially modified methods, giving reasons for using them and evaluate their limitations. Include numbers of observations and the statistical significance of the findings where appropriate.

Drugs must be referred to generically; all the usual trade names may be included in parentheses.

Dosages should be quoted in metric units.

Laboratory values should be in SI units with traditional unit in parentheses.

Do not use patients' names, initials or hospital numbers to ensure anonymity.

- **Results:** Present results in logical sequence in the text, table and illustrations.
- **Statistics:** Describe statistical methods which can be easily understood and verified by the reader. Use technical terms in its proper place, and where possible quantify readings and indicate errors of uncertainty and confidence intervals.

*continue on page 44*

- **References:** The author(s) is/ are responsible for the accuracy and completeness of the references, which should be identified in the text by superscript Arabic numerals in the order of first citation and noted in numerical order at the end of the text.

Digital Object Identifier (DOI) citation information must be included as a full DOI URL by prepending <http://dx.doi.org/> to any DOI reference. To identify a DOI reference, please visit CrossRef at <http://www.crossref.org/guestquery/> and enter in the reference information in the box provided to locate the DOI where available. Such DOI information will facilitate readers to trace referenced papers easily.

Where there are more than three authors, the first three should be named and then followed by et al.

*Example:*

Tan and Ho. Treat-to-target approach in managing modifiable risk factors of patients with coronary heart disease in primary care in Singapore: What are the issues? *Asia Pacific Family Medicine*, 2011;10:12. doi:10.1186/1447-056X-10-12.

Authors may wish to familiarise themselves with the AMA style for the citing of references for BioMedical publications at [www.amamanualofstyle.com](http://www.amamanualofstyle.com).

## Tables

Tables should be submitted on a separate page. Label them in roman-numeric sequence [I,II,III etc] and ensure they are clear and with explanatory legends as required.

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- Illustrations must be submitted in a separate page, and should be provided whenever appropriate. Illustrations should be cited in the text. When required, it is the author's responsibility to obtain permission to reproduce illustrations. Authors need to ensure that photographs, illustrations and figures do not contain any information that will reveal the identities of the patients and authors. From 1 January 2012, all photographs and illustrations taken from any human subject must be accompanied by the respective endorsed consent form. Clear captions to the figures should be provided.

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As the original article will be subjected to a double-blinded peer review process, all identification of names and institutions have to be removed from this version to facilitate the peer review process.

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Author details must be included in the relevant fields when submitting an article. Only those who have made substantial contributions to the study and/ or preparation of the article should be acknowledged as authors and named in full. The SFP follows the International Committee of Medical Journal Editors (ICMJE) criteria pertaining to authorship (refer to [http://www.icmje.org/ethical\\_1author.html](http://www.icmje.org/ethical_1author.html)). The precise role(s) of each author should be included in the 'contributorship' declaration.

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Manuscripts may be returned to their respective authors for revision. This will be accompanied by an Editor's email for which comments and recommendations may be made. The authors are advised to read and to take note of these comments carefully and to revise their articles accordingly. The authors need to reply to the editor's email to outline their response before the resubmission of the revised manuscript. They should exclude the identity of the authors and their institutions, as the email may be redirected to the reviewers during the resubmission process. The resubmitted manuscripts should include the revised complete version, as well as the anonymised version as before.

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## Strike up a conversation

## Prescribe your best advice

Point them to the I Quit Club and/or other smoking cessation services

- QuitLine or Email

- I Quit iPhone app

- QuitLine SMS

- QuitLine Windows Live Messenger

To request for free resources for smoking patients, please email [hpb\\_smoking\\_control@hpb.gov.sg](mailto:hpb_smoking_control@hpb.gov.sg).

For more information on smoking cessation, visit [www.hpb.gov.sg/smokefree](http://www.hpb.gov.sg/smokefree).

# THE SILENT RISK OF UNDETECTED

## CHRONIC DISEASES

Undetected chronic diseases pose a risk to all Singaporeans. In 2004, 49.4% of the diabetic population was found to be previously undiagnosed and 38.5% of hypertension cases had gone undetected.<sup>1</sup>

Chronic diseases affect 1 in 4 people aged 40 or above and if left untreated, can lead to serious health problems. They are also risk factors for ischaemic heart disease, the second leading cause of death in Singapore.<sup>2</sup>

To reduce these risks, the Integrated Screening Programme (ISP) recommends important yet simple tests for all Singaporeans and Permanent Residents. Your role as a doctor is vital in reducing the burden of chronic diseases. You can play your part by encouraging your patients to go for regular screening for the chronic diseases below.

For further details on ISP, please visit [www.hpb.gov.sg/healthscreening](http://www.hpb.gov.sg/healthscreening) or email [hpb\\_integratedscreening@hpb.gov.sg](mailto:hpb_integratedscreening@hpb.gov.sg)

1. National Health Survey, 2004  
2. MOH Statistics 2006

DISEASE	SCREENING TEST	AGE TO SCREEN FROM (YEARS)	FREQUENCY OF SCREENING
For men and women			
Obesity	Body mass index Waist circumference measurement	18 and older	Once every year
High blood pressure	Body pressure measurement	18 and older	Once every 2 years
Diabetes	Fasting venous blood glucose	40 and older	Once every 3 years
High blood cholesterol	Fasting venous blood glucose	40 and older	Once every 3 years
Colorectal cancer	Faecal Immunochemical Test (FIT) or Colonoscopy	50 and older	Once every year Once every 10 years
For women only			
Cervical cancer	Pap smear	25 and older who have ever had sexual intercourse	Once every 3 years
Breast cancer	Mammogram	50 and older	Once every 2 years

This table serves as a guide for healthy individuals with average risk.