



COLLEGE OF FAMILY PHYSICIANS SINGAPORE

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VOL 38(1)(SUPPLEMENT) JANUARY-MARCH 2012

## MANAGEMENT UPDATE ON FUNCTIONAL DECLINE IN OLDER ADULTS 2012



# PRESCRIPTION

FOR:

Your Patients

FROM:

You & HPB

DIAGNOSIS:

Impaired Fasting Glucose (IFG)  
or Impaired Glucose Tolerance (IGT)

DATE:



TREATMENT:

Pre-diabetes Intervention Programme (PIP) x 1 year

## COULD PRE-DIABETES INTERVENTION BE THE BEST PRESCRIPTION?

14.4% of Singaporeans between the ages of 18 and 69 have IFG or IGT, and they are all at risk of developing Type 2 diabetes<sup>1</sup>.

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REGULAR PHONE FOLLOW-UPS OVER 12 MONTHS

PIP has been proven in international randomised controlled trials.

By recommending PIP to your eligible patients, you can make a difference in reducing the incidence of Type 2 diabetes in Singapore.

### SPECIAL INSTRUCTIONS

- ORAL GLUCOSE TOLERANCE TEST ANNUALLY
- EXERCISE 150 MINS/WEEK
- 2 VEGGIES AND 2 FRUITS/DAY

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E: HPB\_NURSE\_EDUCATOR@HPB.GOV.SG

<sup>1</sup>National Health Survey 2010

# C O N T E N T S

## EDITORIAL

4

Management Update on Functional Decline in Older Adults 2012  
*A/Prof Goh Lee Gan*

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## DISTANCE LEARNING COURSE ON “MANAGEMENT UPDATE ON FUNCTIONAL DECLINE IN OLDER ADULTS 2012”

6

Overview of “Management Update on Functional Decline in Older Adults 2012”  
*A/Prof Goh Lee Gan*

8

Unit 1: Physical Function  
*Dr Wong Sweet Fun*

18

Unit 2: Mood  
*Dr Ong Pui Sim*

24

Unit 3: Continence  
*Dr Terence Tang*

28

Unit 4: Hearing  
*A/Prof Lynne Lim Hsueh Yee*

31

Unit 5: Vision  
*Dr Au Eong Kah Guan, Ms Yulianti, Ms Fifiiana*

38

Unit 6: Oral Health  
*Dr Hilary P. Thean, A/Prof Robert Yee*

46

Assessment of 30 MCQs

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## READINGS

52

A Selection of Ten Current Readings on “Management Update on Functional Decline in Older Adults 2012”

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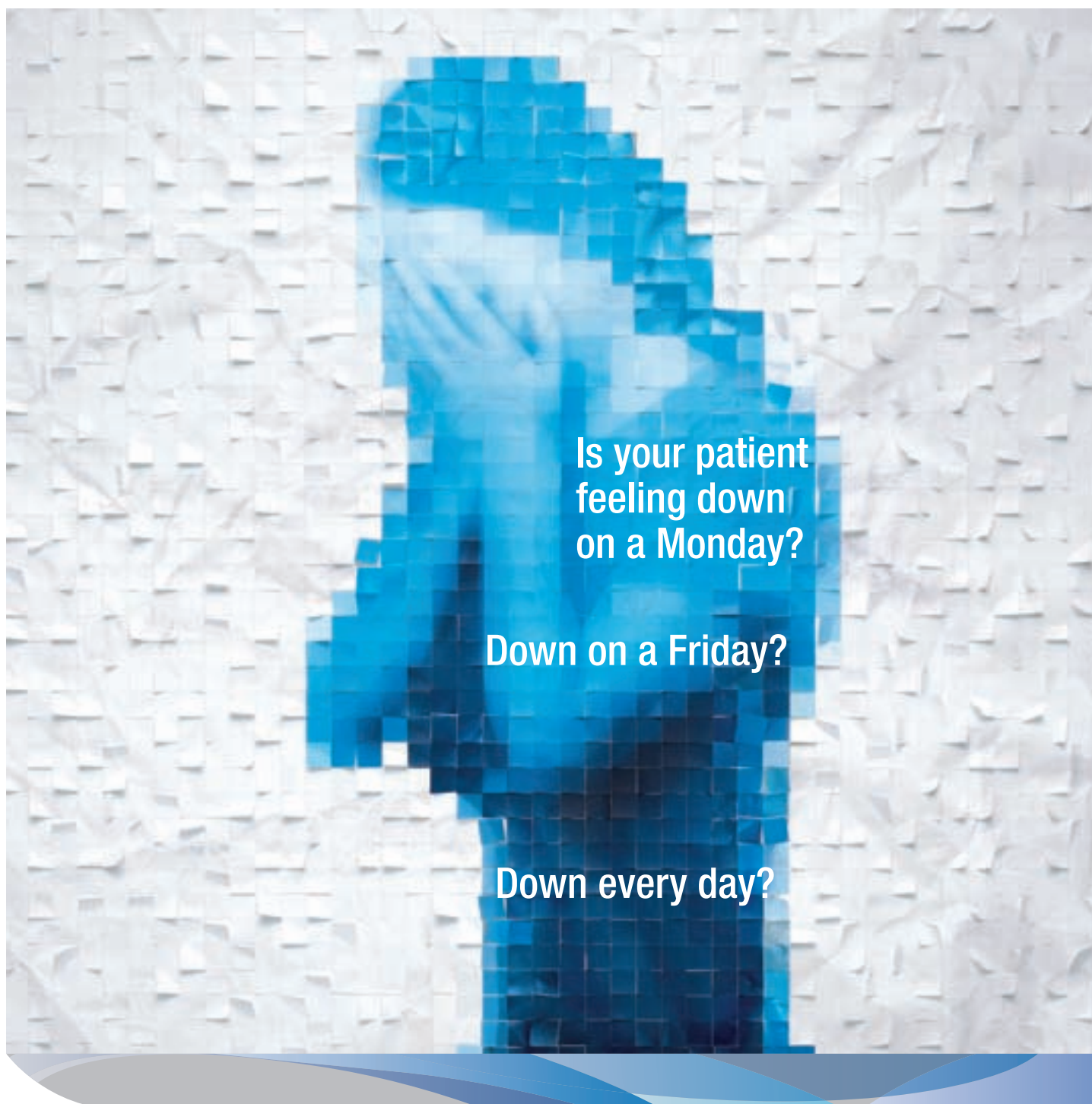
59

Guidelines and Information for Authors

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**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.

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# MANAGEMENT UPDATE ON FUNCTIONAL DECLINE IN OLDER ADULTS 2012

A/Prof Goh Lee Gan

## SFP2012; 38(1) Supplement: 4

This issue of The Singapore Family Physician contains an update of the articles in the Vol 37 No.2 (Supplement) April-June 2011 issue. Thanks are due to the Health Promotion Board for jointly organising and for sponsoring this course again. In the units of reading, the references have been updated and keywords are included. The units on vision and oral health have been updated. The ten readings are new and so are the MCQs. The Health Promotion Board is also publishing a set of e-learning case studies on its website for doctors to further consolidate the application of knowledge in functional decline.

Functional decline may be defined as the decline in the ability to perform activities of daily living namely, bathing, dressing, toileting, transfer, continence and feeding. With increasing age, this ability is eroded by degenerative processes linked to ageing per se, superimposed by incident disabilities accumulating during the course of life. Apart from disease, cognitive impairment and age-related muscular dysfunction are the key threats to independent lifestyle at older ages (Cederholm et al, 2011).

A study of 103 patients in a nursing home in Singapore, published in 2006, described the risk factors of functional decline. The significant risk factors noted were age and dementia. The majority of decline (78%) was due to progression of chronic illnesses, most commonly dementia (15 out of 36), both dementia and stroke (14%) and acute stroke (8%) (Ang et al, 2006).

How are frailty, sarcopenia, and functional decline linked? Frailty is a common condition in older persons and has been described as a geriatric syndrome resulting from age-related cumulative declines across multiple physiological systems, with impaired homeostatic reserve and a reduced capacity of the organism to resist stress. Therefore frailty is considered a state of high vulnerability for adverse health outcomes, such as disability, falls, hospitalisation, institutionalisation, and mortality (Landi

F et al, 2010). Sarcopenia is age-related muscle loss and contributes to frailty (Cooper C et al, 2012).

A variety of interventions can be undertaken to prevent, delay, or offset the process of functional decline. Primary prevention is designed to contain decline through individual or collective efforts focused on the individual (e.g. physical activities and nutrition) or his or her material and social resources. Secondary prevention involves screening those at risk for functional decline to allow earlier intervention, before the decline starts. This can be opportunistic. It can also be community based. For example, those who do not exercise regularly will be at risk and are encouraged to be active. Geriatric assessment and rehabilitation service act at the tertiary level by reducing the consequences of functional decline. These geriatric interventions focus on the correction of impairments, rehabilitation for the disabilities and mobilisation of social and material resources (Herbert, 1997).

Regular physical activity has been shown to protect against diverse components of the frailty syndrome in men and women of all ages and frailty is not a contraindication to physical activity, rather it may be one of the most important reasons to prescribe physical exercise (Landi F et al, 2010).

The objective of this skill course is to improve the management of functional decline in older adults. The topics of physical function, mood, continence, hearing, vision, and oral health in relation to functional decline in the elderly are examined from the perspectives of assessment, interpreting of results, clinical evaluation, management, clinical pathway, and referral.

## REFERENCES

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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



## **DISTANCE LEARNING COURSE ON “MANAGEMENT UPDATE ON FUNCTIONAL DECLINE IN OLDER ADULTS 2012”**

- Overview of “Management Update on Functional Decline in Older Adults 2012”
- Unit 1 : Physical Function
- Unit 2 : Mood
- Unit 3 : Continence
- Unit 4 : Hearing
- Unit 5 : Vision
- Unit 6 : Oral Health

# OVERVIEW OF “MANAGEMENT UPDATE ON FUNCTIONAL DECLINE IN OLDER ADULTS 2012” FAMILY PRACTICE SKILLS COURSE

A/Prof Goh Lee Gan

SFP2012; 38(1) Supplement: 6

## INTRODUCTION

This issue of the Singapore Family Physician contains an update of the articles in the Vol 37 No.2 (Supplement) April-June 2011 issue. Thanks are due to the Health Promotion Board jointly organising and for sponsoring this course again. We would like to invite the reader to attend the Family Practice Skills Course that accompanies this issue if you have not attended. For those of you who have, you may wish to do so again to update yourself.

## 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 : Physical Function

*Dr Wong Sweet Fun*

Unit 2 : Mood

*Dr Ong Pui Sim*

Unit 3 : Continence

*Dr Terence Tang*

Unit 4 : Hearing

*A/Prof Lynne Lim Hsueh Yee*

Unit 5 : Vision

*Dr Au Eong Kah Guan, Ms Yulianti, Ms Fifiana*

Unit 6 : Oral Health

*Dr Hilary P. Thean, A/Prof Robert Yee*

## COURSE TOPIC DETAILS

### Unit 1: Physical Function

- Background
- Assessment
- Interpreting Results
- Primary Care Roles and Responsibilities

### Unit 2: Mood

- Background
- Assessment
- Interpreting Results
- Primary care roles and responsibilities
  - o Diagnostic criteria
  - o Clinical evaluation
  - o Management
- Clinical Pathway
- Referral
- Resources

### Unit 3: Continence

- Background
- Assessment
- Interpreting Results
- Primary Care Roles and Responsibilities
- Management
- Clinical Pathway
- Referral

### Unit 4: Hearing

- Introduction
- Assessment
- Interpreting results
- Useful information
- Clinical pathway
- Referral

### Unit 5: Vision

- Background
- Assessment
- Interpreting results
- Clinical pathway
- Management and referral

### Unit 6: Oral Health

- Background
- Assessment
- Interpreting results
- Clinical implications
- Clinical pathway
- Management and referral

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



**FACE-TO-FACE SESSIONS****Seminar 1: 25 Feb 2012, 2.00pm – 4.00pm**

- Unit 1 : Physical Function  
*Dr Wong Sweet Fun*
- Unit 2 : Mood  
*Prof Kua Ee Heok*
- Unit 3 : Continence  
*Dr Lawrence Tan*

**Workshop 1: 25 Feb 2012, 4.30pm – 6.00pm**

- A : Physical Function  
*Dr Wong Sweet Fun*
- B : Mood  
*Prof Kua Ee Heok*
- C : Continence  
*Dr Lawrence Tan*

**Seminar 2: 26 Feb 2012, 2.00pm – 4.00pm**

- Unit 4 : Hearing  
*A/Prof Lynne Lim Hsueh Yee*
- Unit 5 : Vision  
*Dr Au Eong Kah Guan*
- Unit 6 : Oral Health  
*Dr Hilary P. Thean, Dr Wong Mun Loke*

**Workshop 2: 26 Feb 2012, 4.30pm – 6.00pm**

- A : Hearing  
*A/Prof Lynne Lim Hsueh Yee*
- B : Vision  
*Dr Au Eong Kah Guan*
- C : Oral Health  
*Dr Hilary P. Thean, Dr Wong Mun Loke*

## UNIT NO. 1

## PHYSICAL FUNCTION

Dr Wong Sweet Fun

## ABSTRACT

**In recent years, a growing body of research shows that physical performance measures such as the Short Physical Performance Battery (SPPB), are valuable in providing useful information in the assessment of older adults. These measures have the advantages of being reproducible and more sensitive to change. They have also been proven to be practical and safe for trained persons to administer in the home and community settings.**

**Keywords:** Disability evaluation

**SFP2012; 38(1) Supplement: 8-17**

## BACKGROUND

Assessing physical function and disability is a critical component in the evaluation of older adults in the clinical setting. Self- and proxy-reported measures in activities of daily living (ADL) and instrumental activities of daily living (IADL) are traditional tools used. They use interval scoring of degree-of-difficulty, and focus on identifying the presence of **disability** (defined as a limitation or inability to perform social activities and roles). Performance measures (i.e. observing performance of an activity in a person's normal milieu) are uneconomical and too time consuming, and rarely done outside of the rehabilitation setting. Discordance between self-reported measures and actual performance limit the true assessment of physical function. Many possible reasons could account for the discordance, including the person misunderstanding the question or referring to his usual state of function, instead of his current temporary incapacity or the interviewer misinterpreting the response.

In recent years, a growing body of research shows that physical performance measures such as the Short Physical Performance Battery (SPPB), are valuable in providing useful information in the assessment of older adults. These performance measures can access:

- The full range of performance, even in high functioning persons.
- The outcomes for useful healthcare utilisation, falls prevention, institutionalisation and death.
- Improvement in response to interventions, such as exercise and cataract surgery (where cataracts directly impact on physical function).

These measures have the advantages of being reproducible and more sensitive to change. They have also been proven to be practical and safe for trained persons to administer in the home and community settings.

**Functional limitations** (defined as a restriction or lack of ability to perform an action) lie proximal on the pathway to disability (Figure 1). Performance measures objectively assess these limitations. Low scores on these tests may indicate a pre-clinical precursor state prior to the onset of disability. For older adults with chronic disease, with little or no disability, physical performance measures can signal early functional decline even before it is reported by the patient or noticed by the doctor. It is at these early stages of decline that interventions are valuable to prevent established disability.

Measuring disability and functional limitations, using performance measures as well as self-reported measures, all add to our understanding of an older adult's function.

## ASSESSMENT

## Vulnerable Elders Survey (VES-13)

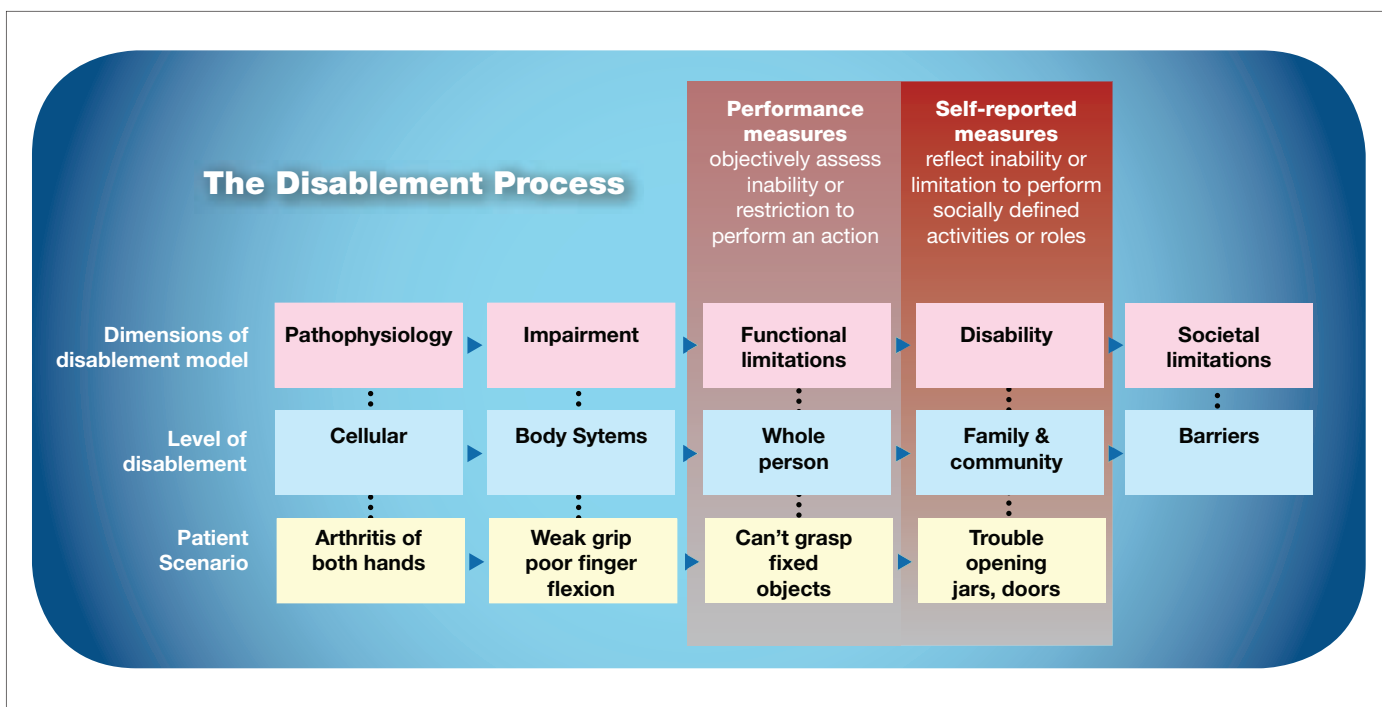
The Vulnerable Elders Survey (VES-13) is a simple function-based tool for screening community-dwelling populations to identify older adults at risk of health deterioration. The components of the 13-item questionnaire include age, self-rated health, limitations in physical function and disability. The VES-13 relies on self-reporting. It takes an older adult less than 5 minutes to complete it. See Annex PF1 & Figure 2.

In a US-based study, a score of 3 or more on the VES-13 identified 32% of individuals as vulnerable. This vulnerable group had 4.2 times the risk of death or functional decline over 2 years, compared to those who scored less than 3.

**Figure 2: Scoring of the VES-13**

Scoring the VES-13	
Item	Score Range
Age	0-3
Self-rated health	0-1
Physical function	0-2
Functional disability	0-4
Maximum possible score	10

WONG SWEET FUN, Senior Consultant, Department of Geriatric Medicine, Khoo Teck Puat Hospital

**Figure 1: The Disablement Process**

Source: Nagi, 1976; Verbrugge & Jette, 1994

### Short Physical Performance Battery (SPPB)

The SPPB measures balance, gait speed and lower limb strength and endurance. See Annex PF2. Functional decline is more rapid in the lower than in the upper extremities, and this difference might explain the value of lower limb function as a predictor of vulnerability. Among non-disabled older adults living in the community, the SPPB was highly predictive of subsequent disability, allowing identification of persons with a pre-clinical stage of disability who could benefit from early intervention.

In a study involving 3,381 subjects, non-disabled older adults with low performance score measuring  $\leq 6$  were more likely to have higher BMI and more often reported diagnoses of stroke, hip fracture, diabetes and hospital admission in the previous 3 years. Low performance scores were also associated with high levels of inflammation markers, and more frequent and longer hospital admissions.

## INTERPRETING RESULTS

### Abnormal Results

Higher scores on the VES-13 reflect greater risk of health deterioration. Lower scores on SPPB reflect higher odds of mobility-related disability. See Figure 3.

**Figure 3: Cut off scores and action to be taken**

<b>VES-13</b>	Individuals with scores $\geq 3$ are referred to their primary care doctor
<b>SPPB</b>	Individuals with scores $\leq 6$ are referred to their primary care doctor

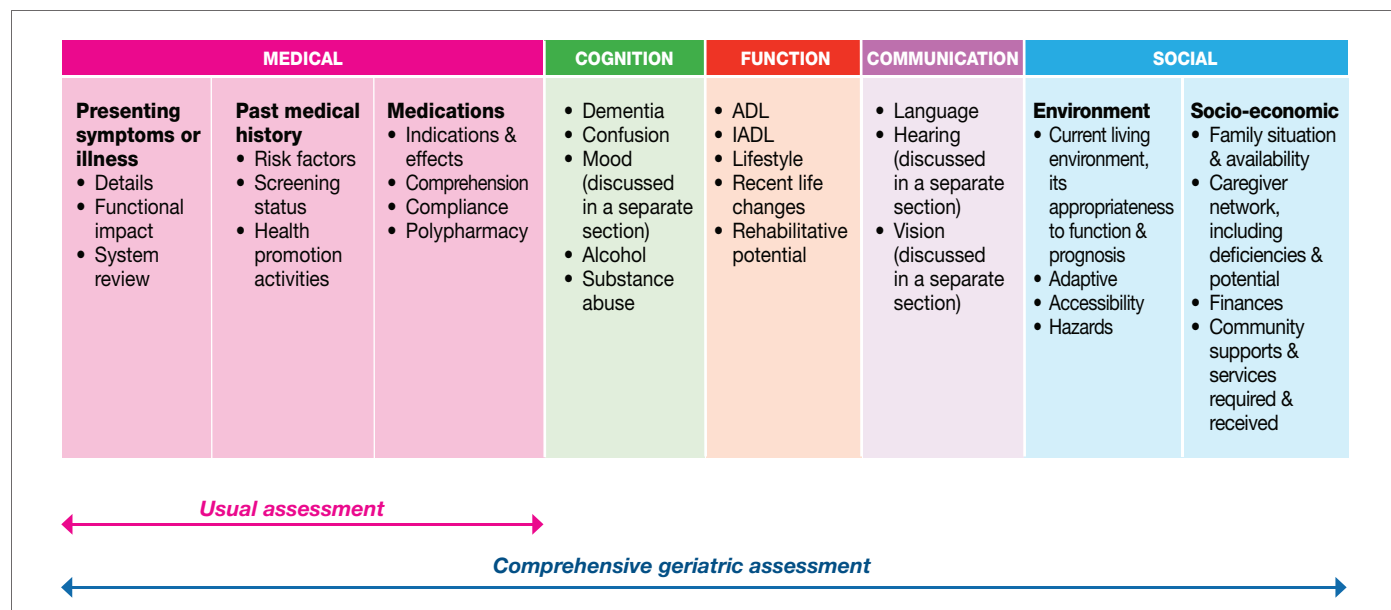
*A community-dwelling older gentleman has been referred to you, after attending the Community Functional Screening Programme with a VES-13 score of 4 and SPPB score of 6. How do you respond to this?*

The VES-13 score of more than 3 identifies him as vulnerable to the risks of functional decline over the next 2 years. The SPPB score of 6 is a low performance score, reflecting higher odds of mobility-related disability.

## PRIMARY CARE ROLES AND RESPONSIBILITIES

### Clinical Evaluation

The VES-13 and SPPB can identify older adults with impending decline in physical function, or those at risk of decline. Disuse, a lower level of fitness and an increased susceptibility to injury in those with impaired function can possibly explain the correlation. Acute illness and injury can precipitate poor function, usually in an abrupt manner which is potentially reversible if treated early. On the other hand, chronic diseases, especially those that limit physical activity, bring on gradual decline. Unhealthy lifestyles (e.g. being sedentary, malnutrition – either insufficiency or excess) conspire to worsen function. Such patients can benefit from disability prevention interventions such as aerobic exercise,

**Figure 4: Components of usual vs a comprehensive geriatric assessment of an older adult**

Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

strength training, medical (chronic disease) optimisation, weight management etc.

The first step in evaluating his low scores in function is to perform a comprehensive geriatric assessment. Components of an appropriate assessment include the domains in Figure 4.

A comprehensive assessment may be impossible in a busy practice, under constraints of time and limited tolerance of the older adult, and may require multiple visits. It needs to be sufficiently flexible in scope and adaptable in content to serve a wide range of patients. The point of a comprehensive assessment is to know and understand the patient well.

## Management

The result of the assessment is a problem list which should go beyond the traditional formal medical diagnoses. Medical diagnoses can be categorised into active and inactive problems, long-term and short-term problems, etc. to help prioritise attention. The problem list should also include function, risk factors for dependency, and relevant social history that can be improved with intervention, or that may affect decision-making in the care process. Moreover, it can guide therapeutic, rehabilitative, preventive and health-promoting plans, timely screening activity and practical plans for continuing and future care.

The management will largely be directed by the findings of the evaluation. Some areas for intervention, not necessarily by a doctor alone, are shown in Figure 5.

In geriatric care, the function of the patient, and the impact that a disease and its treatment has on his function, are central to all management decisions. Treatment that can make a huge

impact on function should take first priority. Function can also help decide if the intensity of a treatment module, and its overall effectiveness, shift the risk-benefit ratio in his favour.

Function, therefore, should be objectively measured, and its trend tracked, so that any change or the rate of change can be appreciated, and intervention offered early.

## Clinical Pathway

The clinical pathway to take from screening to intervention is shown in Figure 6.

## Referral

The primary care doctor first needs to decide if the older adult has an acute illness: this could occur even in a patient without specific organ-based symptoms, or one with non-specific, altered, atypical or functional presentation, since symptom specificity breaks the rules in ill older adults. These patients may benefit from referral for treatment in more acute care settings.

The other decision that a primary care doctor needs to make is the frequency of regular re-assessments in a clinically stable older adult. The recommendation for this is less clear, but a trusted relationship with the patient will yield occasions where open discussions can facilitate this decision.

## Recommended Physical Activity Programmes

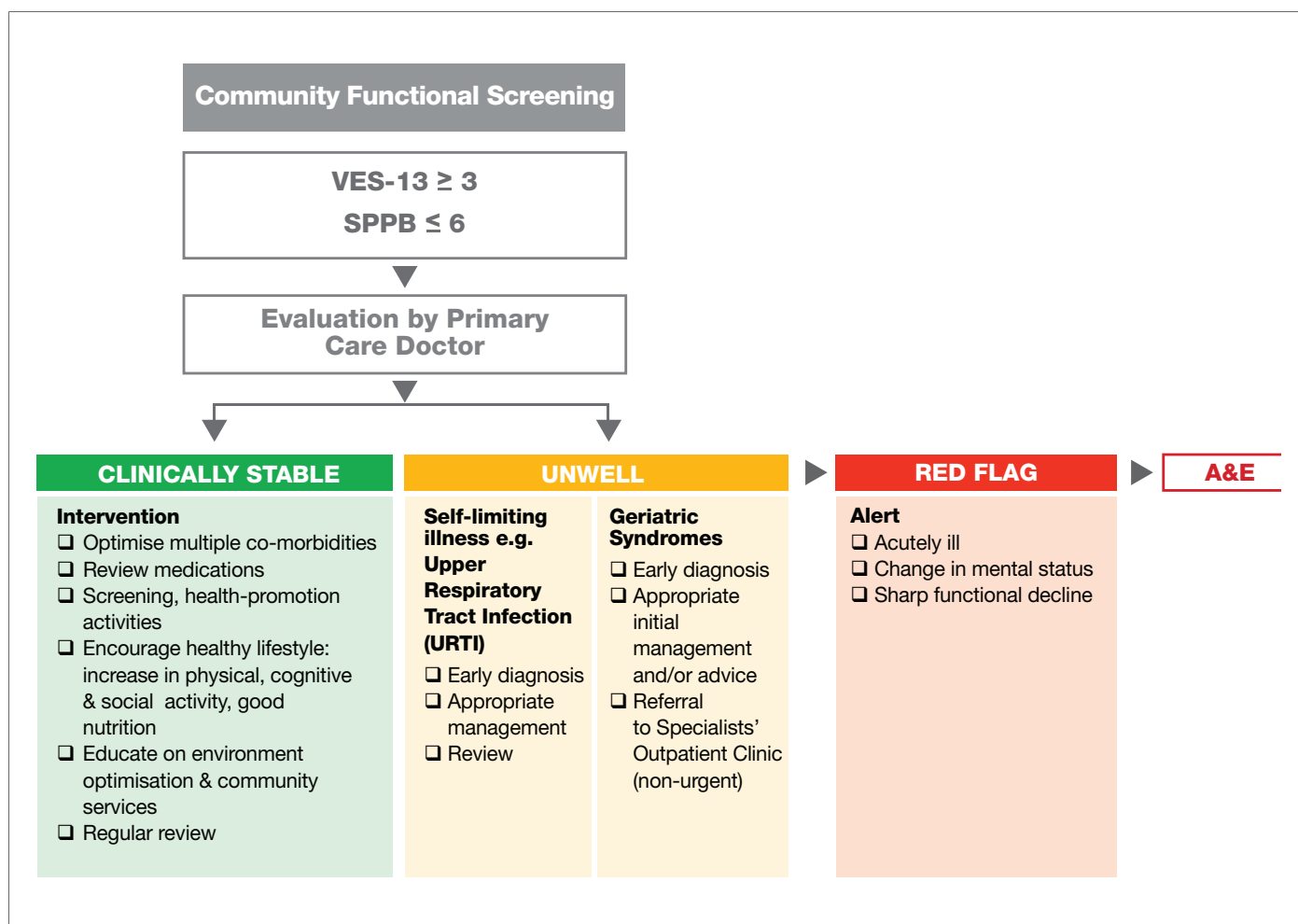
Figure 7 shows the recommended physical activity programmes based on SPPB scores. For further details about the physical activity programmes, please see Annex PF3.



**Figure 5: Intervention areas and persons involved**

Intervention areas		Persons involved
1	Early detection and appropriate management of acute illness or recent deterioration	Doctor
2	Management and coordination of co-morbidities with their attendant polypharmacy	Doctor, nurse, pharmacist
3	Mobilisation & increasing physical activity	Therapist, community services
4	Encouraging cognitive activities and social engagement	Community services
5	Optimisation of the environment	Therapist, community services
6	Maximising community & socio-economic support	Social worker, community services

Source: Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

**Figure 6: Clinical pathway from screening to intervention**

Source: Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

**Figure 7: Recommended physical activity programmes**

SPPB SCORES	0 - 3	4 - 6	7 - 9	10 - 12
CLASSIFICATION	Very low physical function	Low physical function	Moderate physical function	High physical function
RECOMMENDATIONS	<p>A. Geriatric assessment</p> <p>B. Recommend to visit a Geriatrician for further evaluation &amp; appropriate intervention of identified problems</p>	<p>A. Geriatric assessment</p> <p>B. Recommend self-help Strength Training Programme to patients along with advice about suitability of the activities based on doctor's assessment</p> <p>C. Recommend HPB's "Stronger Together" programme (a structured 12-week exercise programme conducted by HPB designed specifically for this group of patients)</p>	<p>Strongly recommend participants to take part in various forms of physical activity such as:</p> <p>A. HPB's FaBulouS community-based physical activity programme</p> <p>B. Brisk walking</p> <p>C. Health Qigong</p> <p><i>* to provide information for individuals to join existing classes and/or groups in the community</i></p>	<p>If participants are not already involved in any active lifestyle or exercise programme, recommend participants to take part in various forms of physical activity such as:</p> <p>A. HPB's FaBulouS physical activity programme</p> <p>B. Brisk walking</p> <p>C. Health Qigong</p> <p><i>* to provide information for individuals to join existing classes and/or groups in the community</i></p>
RESOURCES	Geriatric Clinics at restructured & private sector hospitals	<a href="http://www.hpb.gov.sg">www.hpb.gov.sg</a>	<a href="http://www.hpb.gov.sg/physicalactivity">www.hpb.gov.sg/physicalactivity</a>	<a href="http://www.hpb.gov.sg/physicalactivity">www.hpb.gov.sg/physicalactivity</a>

Source: Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

## ANNEX PFI – VULNERABLE ELDER'S SURVEY-13 (VES-13)

## VES-13

1. Age \_\_\_\_\_

SCORE : 1 POINT FOR AGE 73-84  
3 POINTS FOR AGE  $\geq$  85

2. In general compared to other people your age, would you say that your health is:

- ☐ Poor\* (1 POINT)  
☐ Fair\* (1 POINT)  
☐ Good  
☐ Very good, or  
☐ Excellent

SCORE : 1 POINT FOR FAIR or POOR

3. How much difficulty, on average, do you have with the following physical activities.

	No Difficulty	A little Difficulty	Some Difficulty	A Lot of Difficulty	Unable to do
a. stooping, crouching or kneeling?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *
b. lifting or carrying objects as heavy as 10 pounds?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *
c. reaching or extending arms above shoulder level?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *
d. writing or handling and draping small objects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *
e. walking a quarter of a mile?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *
f. heavy housework such as scrubbing floors or washing windows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> *	<input type="checkbox"/> *

SCORE : 1 POINT FOR EACH \* RESPONSE IN  
Q3a THROUGH Q3f. MAXIMUM OF 2 POINTS

4. Because of your health or a physical condition, do you have any difficulty

a. shopping for personal items (like toilet items or medicines)?

- ☐ YES → Do you get help with shopping? ☐ YES\* ☐ NO  
☐ NO  
☐ DON'T DO → Is that because of your health? ☐ YES\* ☐ NO

b. managing money (like keeping track of expenses or paying bills)?

- ☐ YES → Do you get help with managing money? ☐ YES\* ☐ NO  
☐ NO  
☐ DON'T DO → Is that because of your health? ☐ YES\* ☐ NO

c. walking across the room? USE OF CANE OR WALKER IS OK.

- ☐ YES → Do you get help with walking? ☐ YES\* ☐ NO  
☐ NO  
☐ DON'T DO → Is that because of your health? ☐ YES\* ☐ NO

d. doing light housework (like washing dishes, straightening up, or light cleaning)?

- ☐ YES → Do you get help with light housework? ☐ YES\* ☐ NO  
☐ NO  
☐ DON'T DO → Is that because of your health? ☐ YES\* ☐ NO

e. bathing or showering?

- ☐ YES → Do you get help with bathing or showering? ☐ YES\* ☐ NO  
☐ NO  
☐ DON'T DO → Is that because of your health? ☐ YES\* ☐ NO

SCORE : 1 POINTS FOR ONE OR MORE \*  
RESPONSES IN Q4a THROUGH Q4e

Source: Saliba S, Elliott M, Rubenstein LA, Solomon DH, et al. The Vulnerable Elders Survey (VES-13): A Tool for Identifying Vulnerable Elders in the Community. *Journal of the American Geriatric Society* 2001; 49:1691-9.

## ANNEX PF2 – SHORT PHYSICAL PERFORMANCE BATTERY

**1. Repeated Chair Stands**

**Instructions:** Do you think it is safe for you to try and stand up from a chair five times without using your arms? Please stand up straight as quickly as you can five times, without stopping in between. After standing up each time, sit down and then stand up again. Keep your arms folded across your chest. Please watch while I demonstrate. I'll be timing you with a stopwatch. Are you ready? Begin

**Grading:** Begin stop watch when subject begins to stand up. Count aloud each time subject arises. Stop the stopwatch when subject has straightened up completely for the fifth time. Also stop if the subject uses arms, or after 1 minute, if subject has not completed rises, and if concerned about the subject's safety.. Record the number of seconds and the presence of imbalance.. Then complete ordinal scoring.

Time: \_\_\_\_\_sec (if five stands are completed)

Number of Stands Completed: 1 2 3 4 5

**Chair Stand Ordinal Score:** \_\_\_\_\_

0 = unable

1 = > 16.7 sec

2 = 16.6-13.7 sec

3 = 13.6-11.2 sec

4 = < 11.1 sec

**2. Balance Testing**

Begin with a semitandem stand (heel of one foot placed by the big toe of the other foot). Individuals unable to hold this position should try the side-by-side position. Those able to stand in the semitandem position should be tested in the full tandem position. Once you have completed time measures, complete ordinal scoring.

**a. Semitandem Stand**

**Instructions:** Now I want you to try to stand with the side of the heel of one foot touching the big toe of the other foot for about 10 seconds. You may put either foot in front, whichever is more comfortable for you. Please watch while I demonstrate.

**Grading:** Stand next to the participant to help him or her into semitandem position. Allow participant to hold onto your arms to get balance. Begin timing when participant has the feet in position and lets go.

**Circle one number**

2. Held for 10 sec

1. Held for less than 10 sec; number of seconds held \_\_\_\_\_

0. Not attempted

**b. Side-by-Side stand**

**Instructions:** I want you to try to stand with your feet together, side by side, for about 10 sec. Please watch while I demonstrate. You may use your arms, bend your knees, or move your body to maintain your balance, but try not to move your feet. Try to hold this position until I tell you to stop.

**Grading:** Stand next to the participant to help him or her into the side-by-side position. Allow participant to hold onto your arms to get balance. Begin timing when participant has feet together and lets go.

**Grading**

2. Held for 10 sec

1. Held for less than 10 sec; number of seconds held \_\_\_\_\_

0. Not attempted



**c. Tandem Stand**

**Instructions:** Now I want you to try to stand with the heel of one foot in front of and touching the toes of the other foot for 10 sec. You may put either foot in front, whichever is more comfortable for you. Please watch while I demonstrate.

**Grading:** Stand next to the participant to help him or her into the side-by-side position. Allow participant to hold onto your arms to get balance. Begin timing when participant has feet together and lets go.

**Grading**

- 2. Held of 10 sec
- 1. Held for less than 10 sec; number of seconds held\_\_\_\_\_
- 0. Not attempted

**Balance Ordinal Score: \_\_\_\_\_**

- 0 = side by side 0-9 sec or unable
- 1 = side by side 10, <10 sec semitandem
- 2 = semitandem 10 sec, tandem 0-2 sec
- 3 = semitandem 10 sec, tandem 3-9 sec
- 4 = tandem 10 sec

**3. 8' Walk (2.44 meters)**

**Instructions:** This is our walking course. If you use a cane or other walking aid when walking outside your home, please use it for this test. I want you to walk at your usual pace to the other end of this course (a distance of 8'). Walk all the way past the other end of the tape before you stop. I will walk with you. Are you ready?

**Grading:** Press the start button to start the stopwatch as the participant begins walking. Measure the time take to walk 8'. Then complete ordinal scoring.

**Time:** \_\_\_\_\_ sec

**Gait Ordinal Score: \_\_\_\_\_**

- 0 = could not do
- 1 = >5.7 sec (<0.43 m/sec)
- 2 = 4.1-6.5 sec (0.44-0.60 m/sec)
- 3 = 3.2-4.0 (0.61-0.77 m/sec)
- 4 = <3.1 sec (>0.78 m/sec)

**Summary Ordinal Score: \_\_\_\_\_**

**Range:** 0 (worst performance) to 12 (best performance). Shown to have predictive validity showing a gradient of risk for mortality, nursing home admission, and disability.

*Reprinted from Guralnik JM, Simonsick EM, Ferrucci L, Glynn RJ, Berkman LF, Blazer DG, Scherr PA, Wallace RB. A short physical performance battery assessing lower extremity function: association with self-reported disability and prediction of mortality and nursing home admission. J Gerontol Med Sci 1994; 49(2):M85-M94*

## ANNEX PF3 – PHYSICAL ACTIVITY PROGRAMMES

### STRONGER TOGETHER

Stronger Together is a 12-week structured exercise programme designed by HPB to improve the muscle strength and balance of older adults with low physical function. The programme will be conducted twice-weekly in a small group setting supervised by a qualified physiotherapist. Evidence has shown that progressive strength training can improve muscle strength and functional performance in older adults. Cross-messaging with falls prevention education will also be incorporated into the programme to promote awareness and adherence to healthy behaviours.

#### Objectives for Stronger Together Programme:

1. Improve physical function
2. Reduce the risk of falls
3. Build the older adult's confidence (self-efficacy) in exercise

### FaBulouS

FaBulouS is an exercise routine developed by HPB to promote flexibility, balance and muscular-strength. Each routine has four progressive levels and each level comprises of the following components: warm-up, balance, muscle-strengthening and flexibility/cool-down.

### BRISK WALKING

Brisk walking is a great low-impact activity suitable for everyone, no matter what age or fitness level.

#### Regular brisk walking can:

- Improve stamina
- Provide an enjoyable way to share time with family and friends
- Burn calories and help manage weight
- Relieve stress and help beat the blues
- Help in getting better rest and sleep
- Create more confidence
- Provide a great way to bond and make new friends

### HEALTH QIGONG

Health Qigong belongs to a class of physical activity referred to by physical activity scientists as mind body exercise (MBE) or meditative movement. Health Qigong incorporates a series of easy to learn repeatable physical movements which requires the interaction of breathing and concentration.

#### Practising Health Qigong:

- Helps to slow the rate of bone loss
- Improves blood pressure
- Improves immune function
- Enhances balance
- Decreases anxiety
- Boosts self confidence

*\* For important health benefits, older adults need at least:*

*150 minutes of moderate-intensity aerobic activity every week and muscle-strengthening activities on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).*

*Moderate intensity aerobic activity includes brisk walking, leisurely biking, low impact aerobics, swimming, table tennis, badminton, dancing, house work, doubles tennis or water aerobics.*

*\*If your patient has a chronic disease or other health condition that might limit activity and prevents him from meeting the guidelines, encourage him about setting physical activity goals. Advise him to avoid an inactive lifestyle. If you recognise that your patient is inactive, ask him to increase the amount of physical activity gradually.*

## RESOURCES

For further information, prescribe to the patient:

- HealthLine - 1800 223 1313 to speak to a Nurse Advisor (available in 4 languages)
- Health Promotion Board website - <http://www.hpb.gov.sg>

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2. Physical Activity Resource – [http://growingstronger.nutrition.tufts.edu/growing\\_stronger.pdf](http://growingstronger.nutrition.tufts.edu/growing_stronger.pdf)

## LEARNING POINTS

- **For older adults with chronic disease, with little or no disability, physical performance measures can signal early functional decline even before it is reported by the patient or noticed by the doctor.**
- **The Vulnerable Elders Survey (VES-13) and Short Physical Performance Battery (SPPB) are simple function-based tools for screening community dwelling populations to identify older adults at risk for health deterioration.**
- **Function should be objectively measured, and its trend tracked, so that any change or the rate of change can be appreciated, and intervention offered early.**
- **The primary care doctor first needs to decide if the older adult has an acute illness. The other decision that a primary care doctor needs to make is the frequency of regular re-assessments in a clinically stable older adult.**

The above extract is taken from the 'Community Functional Screening Follow Up Resource for Primary Care Doctors', published by the Health Promotion Board in partnership with Dr Wong Sweet Fun, March 2011.

## UNIT NO. 2

## MOOD

Dr Ong Pui Sim

**ABSTRACT**

**Clinical depression is one of the most common and treatable psychiatric disorders in older adults but tends to be underrecognised and undertreated, leading to impaired functioning, greater service utilisation and increased morbidity and mortality including suicide. Depression in elderly represents a heterogeneous group of mood disturbances and often occur in a complex medical psychosocial context. Screening for depression is important especially for high risk populations such as those with chronic debilitating illnesses or major physical illnesses, the recently bereaved and the socially isolated. Screening relies predominantly on the assessment of depressive symptoms as there are few, if any, reliable signs or biological markers for depression. Milder cases of depression can be successfully treated at primary care level with appropriate pharmacological, psychological and social interventions.**

**Keywords:** Depression

**SFP2012; 38(1) Supplement: 18-23**

**BACKGROUND**

Clinical depression is one of the most common and treatable psychiatric disorders in older adults. It not only causes distress and suffering, but leads to:

- Greater risk of hospitalisation.
- Disability from physical disorders and greater physical decline.
- Prolonged hospitalisation.
- Reduced adherence to medical treatment.
- Reduced quality of life.
- Increased mortality.
- Increased healthcare utilisation costs, and
- Inappropriate use of hospital beds.

Clinical depression is the single most important predictor of suicide in older adults.

The prevalence of major depression ranges between 1% and 2%. The prevalence of milder forms of depression among community-dwelling older adults range from 6% to 10% in primary care settings. Among the medically ill older adults, milder or sub-syndromal forms are reported by up to 50%. A National Mental Health Survey in 2003 performed by the Institute of Mental Health (Chiam et al) showed a prevalence of between 3.5% and 4%.

Persons aged 65 years and older represent less than 13% of the population, but account for 25% of suicides. Studies show

that these older adults had seen their primary care doctor within one month of suicide. However, the symptoms were either not recognised or treatment was inadequate.

Depression in older adults is often caused by a combination of factors which include the following:

- Personality, attitudes and coping abilities, past history of depression.
- Physiological changes: brain chemicals that control mood decrease with increasing age.
- Physical health problems: long term or sudden illness, stroke, diabetes, Parkinson's disease, hormonal disorders, sensory impairment, mobility problems.
- Medications: digitalis,  $\beta$  blockers, steroids, sulfonamides, thiazide diuretics, cytotoxic drugs, analgesics, etc.
- Environmental and social triggers: retirement, financial problems, housing, interpersonal conflicts, loneliness, losses and bereavement.

**ASSESSMENT**

The 15-item Geriatric Depression Scale (GDS-15) is the recommended screening tool for depression among older adults. Screening for depression is important especially for high risk populations such as those with chronic debilitating illnesses or major physical illnesses, the recently bereaved and the socially isolated. Screening relies predominantly on the assessment of depressive symptoms as there are few, if any, reliable signs or biological markers for depression.

*For further details about the GDS-15, refer to annex M1.*

**INTERPRETING RESULTS****Abnormal Results**

Individuals who score 5 or more points on the GDS-15 must be referred to a primary care doctor for further assessment and treatment.

**PRIMARY CARE ROLES AND RESPONSIBILITIES****DIAGNOSTIC CRITERIA FOR DEPRESSION**

*Diagnostic Criteria for Major Depression-DSM-IV (Diagnostic & Statistical Manual of Mental Disorders IV)*

Five or more of the following (refer to Figure 1) must be present during the same 2-week period; of which, at least one symptom must either be 1 (depressed mood) or 2 (loss of interest or pleasure in most activities) below.

ONG PUI SIM, Senior Consultant, Psychogeriatrics, Changi General Hospital



**Figure 1: Diagnostic criteria for depression**

1	Depressed mood
2	Loss of interest or pleasure in most activities
3	Significant weight loss or gain (> 5% of body weight in one month)
4	Insomnia or hypersomnia nearly every day
5	Psychomotor agitation or retardation
6	Fatigue or loss of energy
7	Feelings of worthlessness or excessive guilt
8	Indecisiveness, inability to think or concentrate
9	Recurrent thoughts of death or suicidal ideation

Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

Psychotic symptoms of depression may include delusions which are false unshakeable beliefs centred on themes of poverty, guilt and/or ill-health (mood congruent). Hallucinations may comprise single voice condemning, scolding or saying, "You are worthless, useless", "You should die", "You should kill yourself."

Major depression in older adults often manifests in the same way as younger adults. However, several factors modify the presentation (Figure 2).

Major depression accounts for only about a third of older adults with depression. Non-major or sub-syndromal (sub-threshold) depression such as adjustment reactions, minor depression, dysthymia, mixed anxiety and depressive syndromes are more commonly seen. Such depression does not fulfill DSM major depression but are clinically significant. In 'minor depression', patients tend to present with low mood, negative cognitions, decreased energy and cognitive deficits, often in association with physical ill health. Dysthymia is a chronic disorder of mood characterized by several symptoms of depression lasting at least two years. Adjustment disorder with depressed mood is diagnosed when symptoms of low mood, often with anxiety, arise within 1 month of a stressful, major life event.

**Figure 2: Factors that modify the presentation of major**

•	A reduced complaint of sadness
•	Hypochondriasis and somatic concerns
•	Poor subjective memory or dementia-like picture
•	Marked anxiety
•	Apathy and poor motivation
•	Prominent sleep complaints

Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

## CLINICAL EVALUATION

The primary care doctor should consider the following in evaluating an older adult presenting with depressive mood:

- History (core symptoms as stated above: onset of depression, triggers, previous history of and treatment for depression, factors that may maintain or potentiate depression, current medication list, history of alcohol or tranquillizer use); corroborative history from relatives will be helpful.
- Mental state examination to check for psychotic symptoms, suicidality etc.
- Risk assessment for suicide and self-neglect such as refusal to eat or drink, neglecting self-care.
- Physical examination to identify organic causes (e.g. hypothyroidism) or any contraindications to particular classes of antidepressants.
- Basic laboratory investigations such as FBC, serum chemistry, glucose, liver function, thyroid function test, B12, folate, if indicated.

## Severity of Depression

Differentiation between mild, moderate and severe depressive symptoms relies on clinical judgment that involves number, type and severity of the (depressive) symptoms present (Figure 3). The extent of involvement in ordinary social and work activities is a useful general guide to the degree of severity of the episode.

**Figure 3: Severity of depressive symptoms**

<b>MILD</b>	<b>Few</b> , if any symptoms, in excess of those required to make the diagnosis; symptoms result in only minor impairment in occupational functioning or in usual social activities or relationships with others. In other words, an individual with mild depressive symptoms is usually distressed by the symptoms and has some difficulty in continuing with ordinary work or social activities but will probably not cease to function completely.
<b>MODERATE</b>	Symptoms or functional impairment between 'mild' and 'severe'. An individual with moderately severe depression will usually have considerable difficulty in continuing with social, work or domestic activities.
<b>SEVERE</b> (without psychotic features)	<b>Several</b> symptoms in excess of those required to make the diagnosis; symptoms <b>markedly</b> interfere with occupational functioning or with usual social activities or relationships with others. During a severe depressive episode, the sufferer will experience very limited capacity to continue with social, work, or domestic activities.

Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

## Suicide risk assessment

In evaluation of suicidal risk, high risk indicators to take note of include:

- Demographic factors such as being elderly, male, unemployed, widowed/divorced
- Little family or social support
- Presence of chronic painful and debilitating medical illnesses
- Presence of depressive illness
- Sense of hopelessness and uselessness
- History of alcoholism and drug abuse

The **SAD PERSONAS** (Patterson et al 1983, Campbell 2004) scale can be utilised to perform a quick suicide assessment:

**S**ex

**A**ge

**D**epression

**P**revious suicide attempt

**E**thanol and drug use

**R**ational; thinking loss

**S**ocial supports lacking

**O**rganised suicide plan

**N**o spouse

**A**vailability of lethal means

**S**ickness

To use the assessment, give 1 point for each risk factor present. Scores range from 0 (little or no risk) to 11 (high acute risk). Even if no apparent risk factors from the SAD PERSONAS scale are present, do inquire about feelings of being a burden, being useless and devalued, suicidal ideas or impulses such as giving away valued possessions or storing up medicine, feelings of being trapped with no way out or giving up on life etc, that may suggest high level of risk.

## MANAGEMENT

### 1. Differential Diagnoses

- Rule out organic causes of mood disturbances:
  - Drug or alcohol abuse
  - Medication side effects
  - Anaemia, hypothyroidism, other medical illnesses.
- Organic brain syndromes such as dementia and delirium.
- Bipolar disorder.

### 2. Treatment

Milder cases of depression can be managed by the primary care doctor. Ideally, management of depression comprises a combination of biological (medications), psychological (supportive counselling, grief work) and social (family intervention, support services, and activity programmes) strategies.

#### i. Pharmacological

All antidepressant drugs have comparable efficacy between and within classes of medications. Newer agents such as selective

serotonin reuptake inhibitors (SSRIs) and serotonin and adrenergic reuptake inhibitors (SNRIs) present more favourable side-effect profiles and simpler dosing patterns compared to older classes of antidepressants such as tricyclic antidepressants (TCAs). The initial choice of antidepressants is based largely on:

- Safety or tolerability of side-effects for individual patients (e.g. during pregnancy).
- Other potential side-effects.
- Age-associated pharmacokinetics.
- Drug interactions.
- Depression type (psychotic/non-psychotic).
- Prior response to a particular agent.
- Co-morbidity (dementia, physical disorders).
- Patient preference, cost, adherence.

### Guidelines for medication use

- Start at recommended dosage. To improve adherence, emphasise:
  - When and how often to take medication
  - Delayed efficacy (typically 2 to 4 weeks)
  - Need to continue medications for 6 to 12 months even after symptomatic recovery.
  - Consult doctor before discontinuing medication.
- Start low, go slow, but final doses may be similar to younger patients.
- Consider target symptoms and side-effect profiles.
- Consider medical co-morbidities and potential drug-drug interactions.
- Allow time for adequate medication trial.
- Maximise mono-therapy; if ineffective, refer to specialists.
- Stop antidepressants:
  - For patient with 1st depressive episode
  - When symptom-free with medication for at least 6 to 12 months
  - When the stressor for depression is resolved.

*For further details about antidepressants, refer to Annex M2.*

#### ii. Psychological

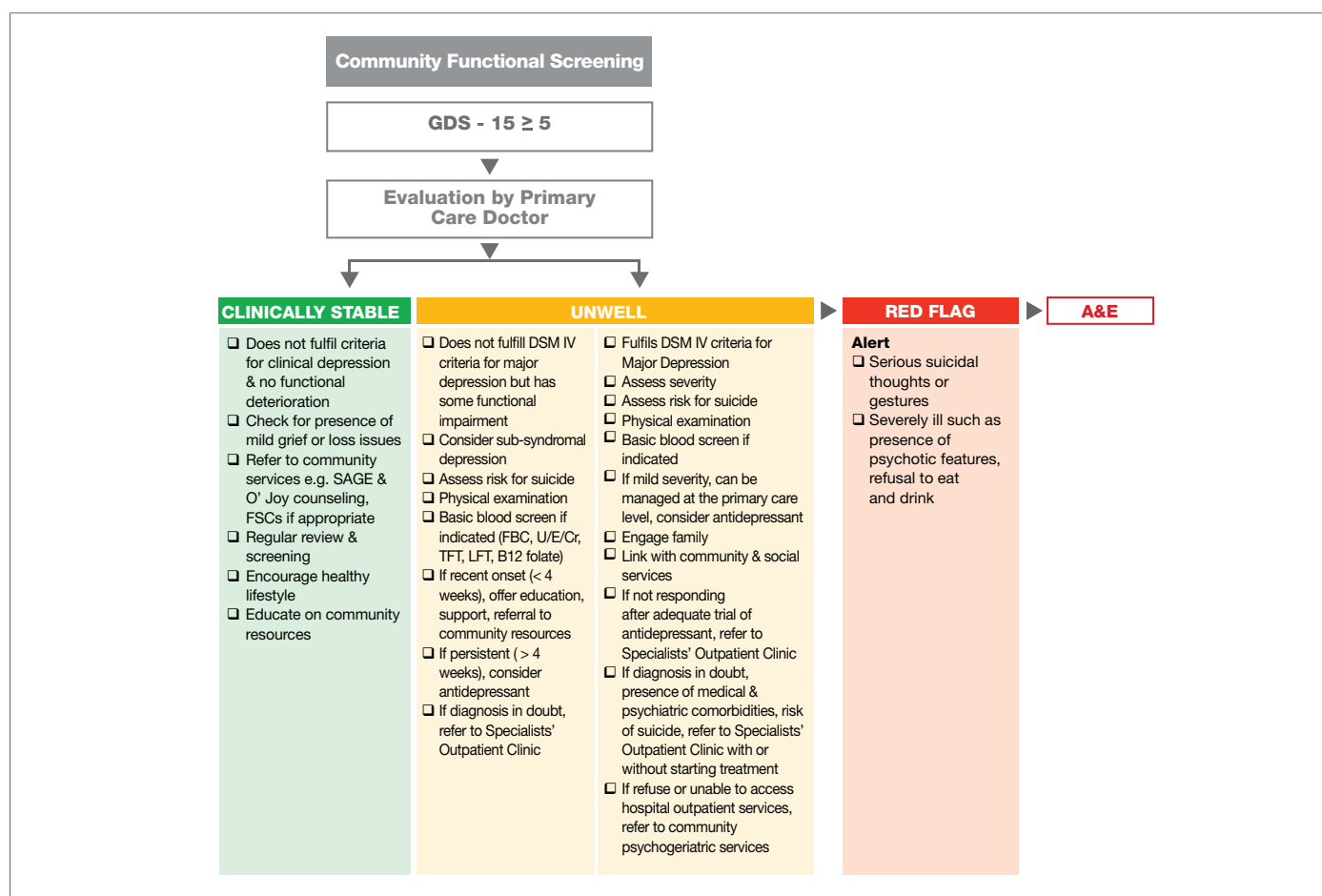
Supportive and more directive forms of therapies are useful when used alone or in conjunction with medication in ambulatory patients with mild to moderate depression. It may also involve referrals to appropriate community and social services for specific psychological therapies such as supportive, cognitive behavioural, problem-solving, inter-personal, brief psychodynamic, reminiscence therapies, and life reviews.

#### iii. Social

For all depressed older adults, it is important to work with their families as they may contribute in the aetiology, and can influence outcomes and management. Referrals to social agencies e.g. day care, befriender's services and family service centres (FSCs) will help in the aftercare and follow up.

## CLINICAL PATHWAY

The clinical pathway to take from screening to intervention is shown in Figure 4.

**Figure 4: Clinical pathway from screening to intervention**

Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011.

## REFERRAL

Patients should be referred to the Accident and Emergency Department if there is a current serious threat of harm to self or others (involuntary hospitalisation may be necessary), or if they are severely ill (presence of psychotic features, failure to eat and drink). They can be referred to the mental health specialists with or without starting treatment under the following circumstances:

- Diagnosis is in doubt.
- Bipolar disorder is suspected.
- Substance use disorder is present.
- Severe or recurrent depression.
- Significant impairment in socio-occupational and/or interpersonal functioning.
- Non or partial responders to treatment in polyclinic.
- Co-existing psychiatric disorders.
- Risk of suicide.

## RESOURCES

For advice on mental health, refer to the following helplines:

- HealthLine - 1800 223 1313 to speak to a Nurse Advisor (available in 4 languages)

- Helplines - <http://www.ncss.org.sg/documents/LIST%20OF%20HELPLINES.pdf>
- IMH Crisis Helpline (Psychiatric care and treatment) - 6389 2222
- Samaritans of Singapore (SOS) - 1800 221 4444
- Singapore Action Group of Elders (for older adults) SAGE Counselling Centre - 1800 555 5555, 6353 7159
- Singapore Association for Mental Health (SAMH) - 1800 283 7019
- Care Corner Mandarin Counselling - 1800 353 5800

Other important resources:

- Health Promotion Board website - <http://www.hpb.gov.sg>
- Family Services Centres (FSCs) - [www.ncss.org.sg/documents/List%20of%20FSCs.doc](http://www.ncss.org.sg/documents/List%20of%20FSCs.doc)
- Agency for Integrated Care - [www.aic.sg](http://www.aic.sg)
- Community Psychogeriatric Programme (CPGP) based at Changi General Hospital [www.cgh.com.sg/medical/files/CPGP%20brochure.pdf](http://www.cgh.com.sg/medical/files/CPGP%20brochure.pdf)
- Aged Psychiatry Community Assessment and Treatment Service (APCATS) based at Institute of Mental Health for those living in the central and western part of the island (Central, Northwest and Southwest CDCs) – 6389 2175, [www.imh.com.sg/patients\\_visitors/For\\_Elderly\\_APCATS.html](http://www.imh.com.sg/patients_visitors/For_Elderly_APCATS.html)

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## LEARNING POINTS

- **The 15-item Geriatric Depression Scale (GDS-15) is the recommended screening tool for depression among older adults.**
- **Individuals who score 5 or more points on the GDS-15 must be referred to a primary care doctor for further assessment and treatment.**
- **Patients should be referred to the Accident and Emergency Department if there is a current serious threat of harm to self or others (involuntary hospitalisation may be necessary), or if they are severely ill (presence of psychotic features, failure to eat and drink).**
- **Differentiation between mild, moderate and severe depressive symptoms relies on clinical judgement that involves number, type and severity of the (depressive) symptoms present. The extent of involvement in ordinary social and work activities is a useful general guide to the degree of severity of the episode.**

## ANNEX M1 – 15-ITEM GERIATRIC DEPRESSION SCALE (GDS-15)

Please choose the best answer for how you felt over the past week

Date: \_\_\_\_\_

No.	Question	YES	NO
1	Are you basically satisfied with your life?	<input type="checkbox"/>	<input type="checkbox"/>
2	Have you dropped many of your activities and interests?	<input type="checkbox"/>	<input type="checkbox"/>
3	Do you feel that your life is empty?	<input type="checkbox"/>	<input type="checkbox"/>
4	Do you often get bored?	<input type="checkbox"/>	<input type="checkbox"/>
5	Are you in good spirits most of the time?	<input type="checkbox"/>	<input type="checkbox"/>
6	Are you afraid that something bad is going to happen to you?	<input type="checkbox"/>	<input type="checkbox"/>
7	Do you feel happy most of the time?	<input type="checkbox"/>	<input type="checkbox"/>
8	Do you often feel helpless?	<input type="checkbox"/>	<input type="checkbox"/>
9	Do you prefer to stay at home, rather than going out and doing new things?	<input type="checkbox"/>	<input type="checkbox"/>
10	Do you feel you have more problems with memory than most?	<input type="checkbox"/>	<input type="checkbox"/>
11	Do you think it is wonderful to be alive?	<input type="checkbox"/>	<input type="checkbox"/>
12	Do you feel pretty worthless the way you are now?	<input type="checkbox"/>	<input type="checkbox"/>
13	Do you feel full of energy?	<input type="checkbox"/>	<input type="checkbox"/>
14	Do you feel that your situation is hopeless?	<input type="checkbox"/>	<input type="checkbox"/>
15	Do you think that most people are better off than you are?	<input type="checkbox"/>	<input type="checkbox"/>
		<b>TOTAL</b>	<input type="text"/>

Calculate the score by adding up the ticks in the shaded boxes

Source: Yesavage JA., Brink T.L., Rose T.L. et al. Development and validation of a geriatric depression screening scale: a preliminary report. *J. Psychiatr. Res.* 1983; 17: 37-49  
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## ANNEX M2 – ANTIDEPRESSANTS

**Table 1: Side effect profiles of main antidepressants in Singapore**

Class	Drug	Mode of action	Anticholinergic	Antihistaminic	α-adrenergic blocker
Tricyclic antidepressants	Amitriptyline	NA <sup>+</sup> ++5HT#+	++++	++++	++++
	Imipramine	NA++5HT+	++	++	+++
	Dothiepin	NA++5HT+	++	++	++
Reversible inhibitors of monoamine oxidase A	Moclobemide	MAO <sup>ψ</sup>	0/+	0	0
Selective serotonin reuptake inhibitors	Fluvoxamine	5HT	0/+	0/+	0
	Fluoxetine	5HT	0/+	0	0
	Sertraline	5HT	0/+	0	0
	Escitalopram	5HT	0/+	0	0
	Paroxetine	5HT	0/+	0	0
Noradrenaline and selective serotonin antidepressants	Mirtazepine	α 2,5HT <sub>2</sub>	0	++	0
Serotonin/Noradrenaline reuptake inhibitors	Venlafaxine	NA+5HT++	0/+	0	0/+
* Noradrenaline # Serotonin ψ Monoamines					

**Table 2: Commonly used antidepressants**

Drug	Therapeutic Dosage (mg)	Usual dose (mg)	Starting dose (mg)	Side effects
Amitriptyline	25-150	50-100	10-25	Dry mouth, blurred vision, constipation urinary retention, cardiotoxicity, postural hypotension, sedation, delirium
Imipramine	25-150	50-100	25	
Diothiepin	25-150	75-150	25	
Fluoxetine	10-40	10-40	10	Nausea, vomiting, diarrhoea, insomnia, anxiety, agitation, sexual dysfunction, headache, hyponatraemia, syndrome of inappropriate antidiuretic hormone secretion (SIADH)
Fluvoxamine	25-200	100-150	25-50	
Escitalopram	5-20	10-20	5	
Sertraline	25-500	50-150	25-50	
Moclobemide	150-450	300-450	150	Nausea, insomnia
Venlafaxine	25-200	75-150	25-37.5	Nausea, agitation, insomnia, tachycardia Elevations of blood pressure at higher doses
Mirtazepine	15-45	15-30	15	Sedation, weight gain

Source: Salzman C: Lippincott, Williams and Wilkins, 2004. *Clinical Geriatric Psychopharmacology*(4th edition), ed.

The above extract is taken from the 'Community Functional Screening Follow Up Resource for Primary Care Doctors', published by the Health Promotion Board in partnership with Dr Ong Pui Sim, March 2011."

## UNIT NO. 3

## CONTINENCE

Dr Terence Tang

**ABSTRACT**

In Singapore, the prevalence of UI among community-dwelling older adults was reported as 3.5% in those aged  $\geq 55$  years, 4.8% in those aged  $\geq 65$  years, and 7.9% in those aged  $\geq 75$  years. Although UI is not a life threatening problem, the symptoms of incontinence can cause considerable impairment. A questionnaire like the International Consultation on Incontinence Questionnaire Urinary Incontinence-Short Form (ICIQ-UI SF) is the simplest form of screening for continence status in both the community and primary care settings.

**Keywords:** Urinary Incontinence

SFP2012; 38(1) Supplement: 24-27

**BACKGROUND**

The International Continence Society (ICS) defines Urinary Incontinence (UI) as a condition where involuntary loss of urine is a social or hygienic problem. In Singapore, the prevalence of UI among community-dwelling older adults was reported as 3.5% in those aged  $\geq 55$  years, 4.8% in those aged  $\geq 65$  years, and 7.9% in those aged  $\geq 75$  years. Although UI is not a life threatening problem, the symptoms of incontinence can cause considerable impairment. UI is associated with a low quality of life in adults, especially women.

**ASSESSMENT**

A questionnaire like the International Consultation on Incontinence Questionnaire Urinary Incontinence-Short Form (ICIQ-UI SF) is the simplest form of screening for continence status in both the community and primary care settings. Basic questions like frequency and quantity of leakage, as well as impact of incontinence on the quality of life, should be included in the assessment of continence.

*For further details about the ICIQ-UI SF, refer to Annex C1.*

**INTERPRETING RESULTS**

Individuals who score 1 or greater in the ICIQ-UI SF are recommended to visit a primary care doctor for further evaluation.

TERENCE TANG, Senior Consultant, Department of Geriatric Medicine, Khoo Teck Puat Hospital

**PRIMARY CARE ROLES AND RESPONSIBILITIES****CLINICAL EVALUATION****1. History taking should include the following:****i. Details of UI**

- Onset/duration/progress/severity/pattern of occurrences (e.g. only in the night)
- Accompanying symptoms that characterise urinary incontinence include:
  - Voiding symptoms: such as hesitancy, intermittency, terminal dribbling, urinary retention.
  - Storage symptoms: such as urgency, stress symptoms, frequency, nocturia.
  - Atypical symptoms: such as dysuria, haematuria, bowel incontinence, lower limb weakness/numbness.

**ii. Bowel movement**

- Symptoms of constipation and/or faecal impaction.

**iii. Past medical history**

Pay attention to:

- Diabetes mellitus.
- Stroke.
- Spinal cord diseases.
- Parkinson's disease.
- Arthritis.
- Prostate diseases.
- Pelvic malignancies.
- Previous pelvic surgery.
- History of radiation therapy to the pelvic region.

**iv. Medications**

Pay attention to:

- Cholinergic agents.
- Anti-cholinergic agents.
- Diuretics.
- Sedatives.
- Anti-depressants.

**v. Brief assessment of ability to access the toilet**

- Restricted mobility.
- Cognitive impairment.
- Environmental barriers.

**2. Brief physical examination should include the following:**

- Abdominal examination.
- Rectal examination.
- Pelvic examination for women.

- Neurological examination (minimally of the lower limbs).
- Brief assessment of cognition and gait for accessibility of the toilet.

### 3. Office based investigation should include the following:

- Urine Dipstick – to identify blood, leukocytes, glucose in urine.

## MANAGEMENT

The main goals of the evaluation are:

1. To discover reversible conditions.
2. To uncover sinister conditions requiring further evaluation and management.

### Based on the above evaluation one should be able to rule out the common reversible causes of UI:

1. Delirium (acute change in cognition).
2. UTI.
3. Atrophic vaginitis.

4. Medications.
5. Psychological causes (anxiety, depression).
6. Endocrine causes (diabetes mellitus, hypercalcemia).
7. Restricted mobility.
8. Stool impaction.

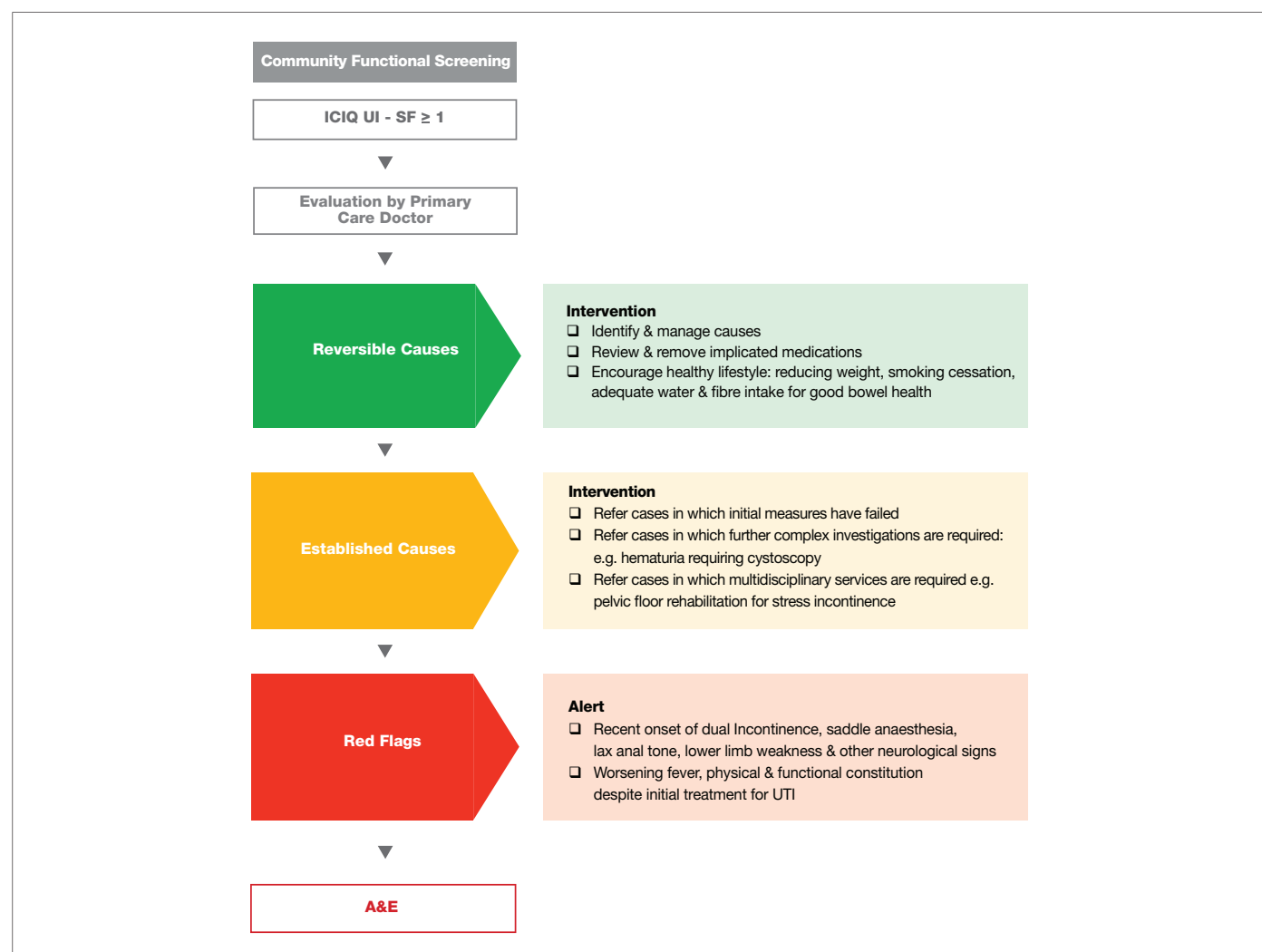
### Simple continence management tips include:

1. Recommend (& teach) Kegel exercises to patients as it helps strengthen pelvic floor muscles that control urination.
2. Recommend toilet scheduling to help them achieve bladder control.
3. Recommend use of pads and absorbent garments as and when deemed essential.
4. Other methods of managing incontinence e.g. the use of a Urinary catheters as deemed appropriate after evaluation.

## CLINICAL PATHWAY

The clinical pathway to take from screening to intervention is shown in Figure 1.

**Figure 1: Clinical pathway from screening to intervention**



Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

## REFERRAL

Primary care doctors should be aware that spinal cord diseases can present as loss of bladder or/and bowel control.

Warning signs include a recent onset of dual incontinence, 'saddle anaesthesia', lax anal tone, lower limb weakness and other neurological signs.

In the event of an impending spinal cord or nerve root compression, the patient should be directed for emergency care.

The causes of UI are often multi-factorial. The reversible causes are often the precipitant of the final event – UI.

These can be characterised as follows (Figure 2).

**Figure 2: Predisposing conditions and characteristics of UI**

	Predisposing conditions & characteristics	Clinical evaluation & management by:
<b>1</b>	Overflow incontinence that arises as a result of an obstructed bladder and/or a hypo-contractile bladder that is often insensate	Urologist, Urogynaecologist or specialist in continence management
<b>2</b>	Stress incontinence	
<b>3</b>	Urgency incontinence	
<b>4</b>	Functional incontinence due to environmental hindrances that exacerbate an already compromised access to the toilet	Geriatrician and Occupational Therapist

Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

## RESOURCES

For further information, prescribe to the patient:

- HealthLine - 1800 223 1313 to speak to a Nurse Advisor (available in 4 languages)
- Health Promotion Board website - <http://www.hpb.gov.sg>

## LEARNING POINTS

- **Basic questions like frequency and quantity of leakage, as well as impact of incontinence on the quality of life, should be included in the assessment of continence.**
- **The main goals of the evaluation are: (1) To discover reversible conditions, and (2) To uncover sinister conditions requiring further evaluation and management**
- **Recommend (& teach) Kegel exercises to patients as it helps strengthen pelvic floor muscles that control urination.**
- **Primary care doctors should be aware that spinal cord diseases can present as loss of bladder or/and bowel control.**
- **In the event of an impending spinal cord or nerve root compression, the patient should be directed for emergency care.**

# ANNEX C1 – INTERNATIONAL CONSULTATION ON INCONTINENCE QUESTIONNAIRE URINARY INCONTINENCE-SHORT FORM (ICIQ-UI SF)

Many people leak urine some of the time. We are trying to find out how many people leak urine, and how much this bothers them. We would be grateful if you could answer the following questions, thinking about how you have been, on average, over the PAST FOUR WEEKS.

1 Please write in your date of birth:

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
DAY		MONTH		YEAR	

2 Are you (tick one):

Female ☐ Male ☐

3 How often do you leak urine? (Tick one box)

never	<input type="checkbox"/>	0
about once a week or less often	<input type="checkbox"/>	1
two or three times a week	<input type="checkbox"/>	2
about once a day	<input type="checkbox"/>	3
several times a day	<input type="checkbox"/>	4
all the time	<input type="checkbox"/>	5

4 We would like to know how much urine you think leaks.

How much urine do you usually leak (whether you wear protection or not)?  
(Tick one box)

none	<input type="checkbox"/>	0
a small amount	<input type="checkbox"/>	2
a moderate amount	<input type="checkbox"/>	4
a large amount	<input type="checkbox"/>	6

5 Overall, how much does leaking urine interfere with your everyday life?

Please ring a number between 0 (not at all) and 10 (a great deal)

0	1	2	3	4	5	6	7	8	9	10
not at all										a great deal

ICIQ score: sum scores 3+4+5

6 When does urine leak? (Please tick all that apply to you)

never – urine does not leak	<input type="checkbox"/>
leaks before you can get to the toilet	<input type="checkbox"/>
leaks when you cough or sneeze	<input type="checkbox"/>
leaks when you are asleep	<input type="checkbox"/>
leaks when you are physically active/exercising	<input type="checkbox"/>
leaks when you have finished urinating and are dressed	<input type="checkbox"/>
leaks for no obvious reason	<input type="checkbox"/>
leaks all the time	<input type="checkbox"/>

Thank you very much for answering these questions.

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"The above extract is taken from the 'Community Functional Screening Follow Up Resource for Primary Care Doctors', published by the Health Promotion Board in partnership with Dr Terence Tang, March 2011."

## UNIT NO. 4

## HEARING

A/Prof Lynne Lim Hsueh Yee

**ABSTRACT**

**In Singapore, 27.6% of adults 60 years and above felt they had hearing loss. The prevalence of age-adjusted hearing impairment has increased significantly since the 1960s. Many older adults try to lip-read and use context cues. This can result in social withdrawal, reduced work and earning options, depression, poorer cognition and memory, and reduced safety. Hearing loss can progress and requires follow up. In certain conditions, medication and surgery may be needed.**

**Keywords:** Hearing loss

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

**INTRODUCTION**

Hearing impairment is highly prevalent amongst older adults, but is often missed and under-diagnosed. In Singapore, 27.6% of adults 60 years and above felt they had hearing loss. 26.7% reported having difficulty following conversations in the presence of background noise (e.g. noise from a TV or radio; traffic noise in the street; people talking at other tables in a crowded restaurant). In America, hearing impairment affects 25% to 40% of those 65 years or older. The prevalence of age-adjusted hearing impairment has increased significantly since the 1960s.

**ASSESSMENT****1. Simple Global Question**

Ask a global question such as, "Do you or your family think you may have hearing loss?"

**2. Hearing Handicap Inventory for the Elderly-Screening (HHIE-S)**

The HHIE-S includes 10 questions on hearing functioning. It can be administered in the primary care doctor's clinic in 3 minutes. A total score of 0-8, 10-24 or 26-40 indicates a 13%, 50% and 84% probability of hearing impairment respectively.

*For further details about the HHIE-S, refer to Annex H1.*

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LYNNE LIM HSUEH YEE, Associate Professor & Senior Consultant, Otolaryngology - Head, Neck Surgery, Director, Centre for Hearing Intervention and Language Development, Vice-Dean (Academic Affairs) and Vice-Chairman, Medical Board (Medical Affairs-Human Resource), National University Health System

**3. Audioscope**

An audioscope is a hand-held device combining an otoscope and audiometer. The audioscope is held securely in the ear canal, and gives 25 to 40dB pure tones at 500Hz, 1000Hz, 2000Hz, and 4000Hz. It can be administered in 3 minutes.

If tested at 40dB and failed, then at least a mild hearing loss is present. If tested at 25dB and failed, the test should be redone in a proper sound proof room by a professional audiologist as the result can be due to nonoptimal screening conditions.

**INTERPRETING RESULTS****Abnormal Results**

1. Simple Global Question
  - A positive result (answering 'Yes' to the question) could imply hearing loss
2. HHIE-S
  - Individuals with a score > 8 are referred to an audiologist and/or an otolaryngologist
3. Audioscope at 40dB for 4 frequencies namely 500Hz, 1000Hz, 2000Hz, 4000Hz
  - Failure to hear at any one frequency requires referral to an audiologist/otolaryngologist.

Individuals with positive results for any one of these 3 tests are referred for audiometric testing to an audiologist and/or otolaryngologist.

**USEFUL INFORMATION****Causes of Hearing Loss**

Possible causes of chronic hearing loss include:

- Presbycusis age-related loss (leading cause worldwide)
- Noise-induced hearing loss (2nd leading cause worldwide)
- Middle-ear infection
- Eardrum perforation
- Ossicular chain problems, including otosclerosis
- Meniere's disease

**Diagnoses Exclusions**

Certain diagnoses that pose a danger to the patient must be excluded in the examination. Though rarer these include: sudden hearing loss, tumours and progressive systemic diseases. They must be treated as early as possible. The ENT specialists may need to evaluate with more specific types of hearing tests, systemic blood tests and CT or MRI scans.



### Age-related Hearing Loss (Presbycusis)

Age-related hearing impairment, also termed presbycusis, often affects the higher frequencies of hearing (3000 to 8000kHz) first. This results in difficulty hearing the consonants of speech, especially in noisy background situations, meetings or over the telephone. Though the older adults hear words being spoken, they cannot discriminate the exact words. Many older adults try to lip-read and use context cues. This can result in social withdrawal, reduced work and earning options, depression, poorer cognition and memory, and reduced safety.

Hearing aids, if properly fitted, are often helpful. Assistive devices can be used. When hearing aids do not work, it could be that inappropriate ones have been fitted or that the fine tuning of the hearing aid has not been properly done. For example, a behind the ear (BTE) hearing aid may be more

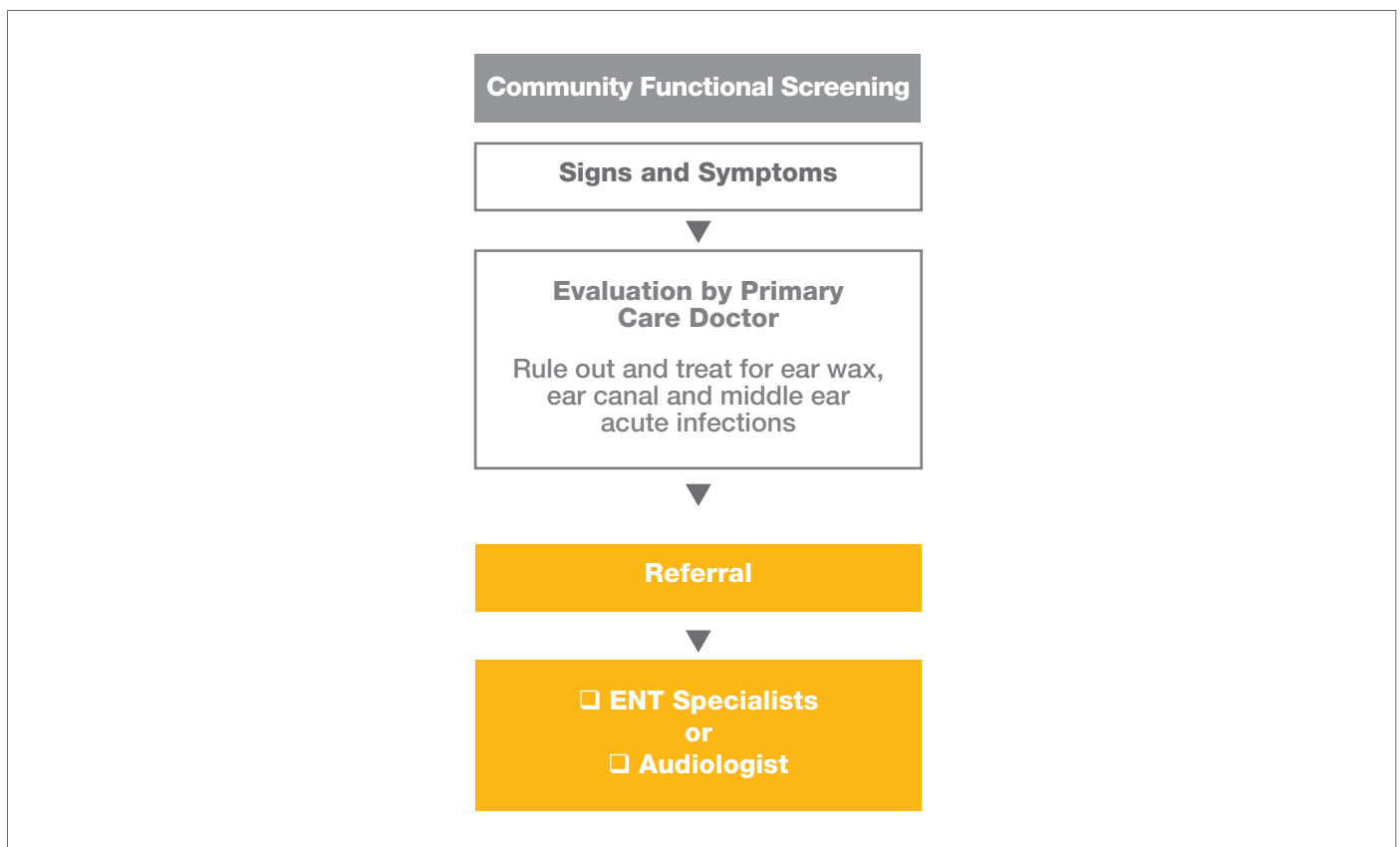
suitable than the small in-the-canal (ITC) cosmetic ones. Hearing loss can progress and requires follow up. In certain conditions, medication and surgery may be needed. Proper education, committed follow up and the involvement in support groups can further help the older adult sustain his hearing rehabilitation efforts.

### Initial Management

Before referral to an audiologist or ENT specialist rule out and treat for ear wax, acute ear canal and middle ear infections. Advise on the importance of ensuring optimal hearing for quality of life, work and social options, and the importance of ruling out rarer but dangerous conditions. Advise on the importance of buying hearing aids only after proper medical consultation and hearing tests.

## CLINICAL PATHWAY

**Figure 1: Clinical pathway from screening to intervention**



Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

### REFERRAL

Refer to an audiologist or ENT specialist if the hearing does not improve after treating for ear wax and acute infection. The audiologist in some centres can conduct gold standard hearing tests. The ENT specialists in some centres can order audiology tests, radiology and systemic tests, and offer medical and surgical treatment.

### RESOURCES

For further information, prescribe to the patient:

- HealthLine - 1800 223 1313 to speak to a Nurse Advisor (available in 4 languages)
- Health Promotion Board website - <http://www.hpb.gov.sg>

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## LEARNING POINTS

- **The HHIE-S includes 10 questions on hearing functioning. It can be administered in the primary care doctor's clinic in 3 minutes.**
- **Age-related hearing impairment, also termed presbycusis, often affects the higher frequencies of hearing (3000 to 8000 kHz) first.**
- **Before referral to an audiologist or ENT specialist rule out and treat for ear wax, acute ear canal and middle ear infections.**
- **Hearing loss can progress and requires follow up. In certain conditions, medication and surgery may be needed.**
- **Proper education, committed follow up and the involvement in support groups can further help the older adult sustain his hearing rehabilitation efforts.**

## ANNEX H1- HEARING HANDICAP INVENTORY FOR ELDERLY-SCREENING (HHIE-S)

**Box 1. Questions From Hearing Handicap Inventory for the Elderly-Screening Version (HHIE-S)\***

1. Does a hearing problem cause you to feel embarrassed when meeting new people?
2. Does a hearing problem cause you to feel frustrated when talking to members of your family?
3. Do you have difficulty hearing when someone speaks in a whisper?
4. Do you feel handicapped by a hearing problem?
5. Does a hearing problem cause you difficulty when visiting friends, relatives, or neighbours?
6. Does a hearing problem cause you to attend religious services less often than you would like?
7. Does a hearing problem cause you to have arguments with family members?
8. Does a hearing problem cause you difficulty when listening to TV or radio?
9. Do you feel that any difficulty with your hearing limits or hampers your personal or social life?
10. Does a hearing problem cause you difficulty when in a restaurant with relatives or friends?

\*The HHIE-S scores are yes, 4 points; sometimes, 2 points; or no, 0 points, to each question about a particular handicap. Scores range from 0 (no handicap) to 40 (maximum handicap). Adapted with permission.<sup>36,37</sup>

Source: Weinstein BE. Validity of a screening protocol for identifying elderly people with hearing problems. *ASHA*. 1986; 28:41-45.

"The above extract is taken from the 'Community Functional Screening Follow Up Resource for Primary Care Doctors', published by the Health Promotion Board in partnership with A/Prof Lynne Lim, March 2011."

## UNIT NO. 5

## VISION

Dr Au Eong Kah Guan, Ms Yulianti, Ms Fifiana

## ABSTRACT

**Among Singaporean adults of Chinese origin aged 40 to 79 years old, 1.1% and 0.5% were reported as being visually impaired and blind in both eyes respectively. Visual impairment and blindness can significantly affect one's quality of life. The key role of primary care doctors in the management of a patient with impaired vision is to diagnose its likely cause so that the patient can be referred to the appropriate eye care professional (i.e. optometrist or ophthalmologist) for treatment.**

**Keywords:** Blindness; Visual acuity

**SFP2012; 38(1) Supplement: 31-36**

## BACKGROUND

Visual impairment is defined by the World Health Organisation (WHO) as visual acuity worse than 6/18 but equal or better than 6/120 in the better eye, while blindness is defined as visual acuity worse than 6/120 in the better eye. Among Singaporean adults of Chinese origin aged 40 to 79 years old, 1.1% and 0.5% were reported as being visually impaired and blind in both eyes respectively.

Visual impairment and blindness have a significant negative impact on one's quality of life. They are associated with increased morbidity such as falls, hip fractures, road traffic accidents and depression. Less recognised is the fact that impaired vision is also associated with a higher mortality in the elderly population. It is therefore important to correct any visual impairment whenever possible.

## ASSESSMENT

A visual acuity chart (e.g. Snellen Chart) is recommended to identify the presence of visual impairment.

For details on measurement and recording of visual acuity, refer to Annex 1.

AU EONG KAH GUAN, Medical Director and Senior Consultant, Singapore International Eye Cataract Retina Centre, Mount Elizabeth Medical Centre, Singapore

YULIANTI, Optometrist, Singapore International Eye Cataract Retina Centre, Mount Elizabeth Medical Centre, Singapore

FIFIANA, Optometrist, Singapore International Eye Cataract Retina Centre, Mount Elizabeth Medical Centre, Singapore

## INTERPRETING RESULTS

## Interpreting Abnormal Visual Acuity

Patients with:

- Visual acuity worse than 6/12 (abnormal visual acuity) without pinhole on initial screening should have their visual acuity test repeated with a pinhole.
- Impaired vision correctable with a pinhole to a visual acuity of 6/12 or better are likely to have a refractive error(s) and should be referred to an optometrist in an optical outlet.
- Pinhole visual acuity worse than 6/12 may have eye conditions other than a refractive error(s) and should be referred to an ophthalmologist.

Any patient who complains of a subjective decrease in vision, even if his visual acuity with pinhole is 6/12 or better, should be referred to an optometrist if refractive error(s) is suspected or to an ophthalmologist if other ocular pathology is suspected.

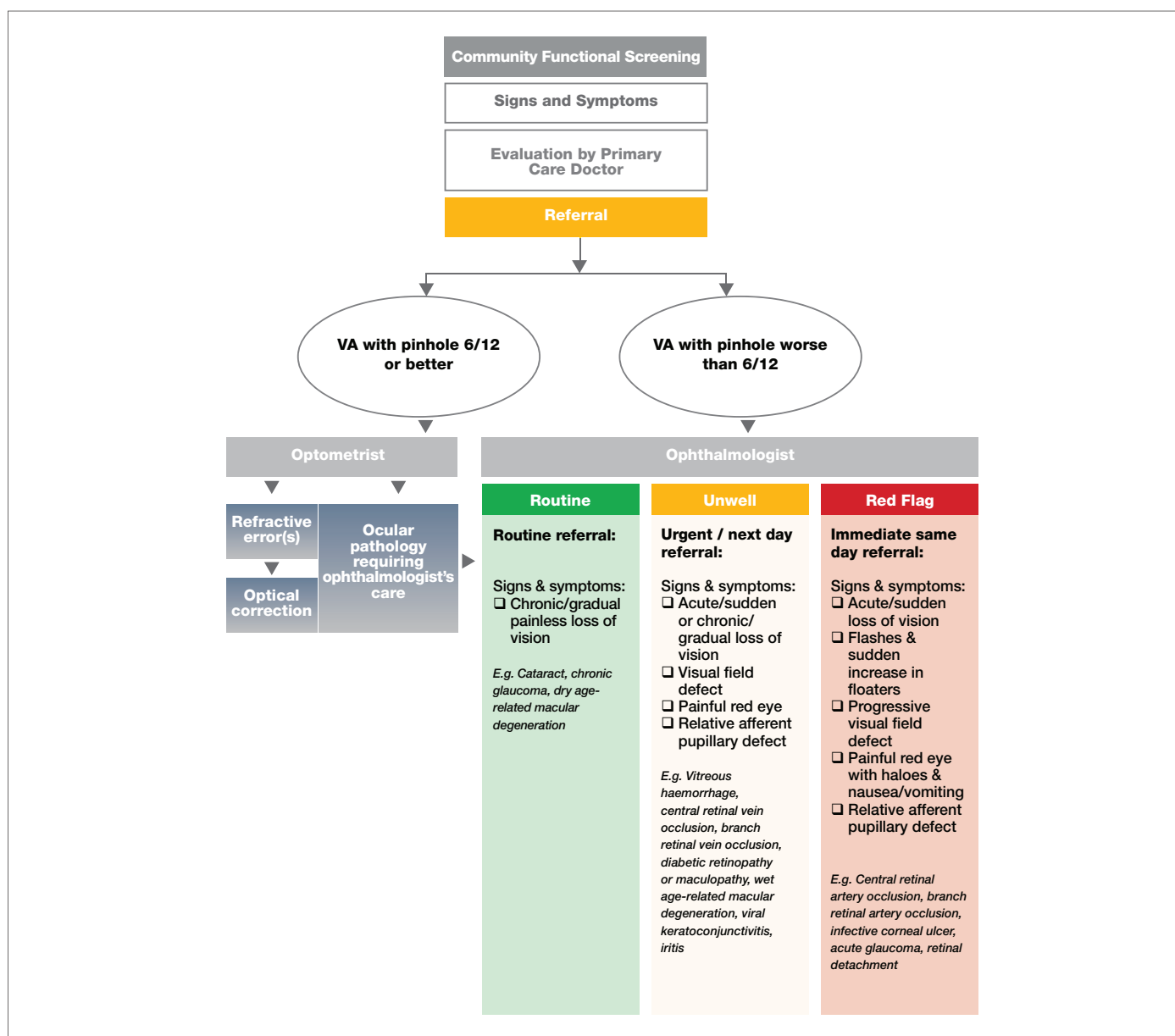
## Identifying Causes

Take a detailed ocular and medical history, and examine the eyes to determine the most likely cause of impaired vision:

- History of presenting symptom(s) e.g. onset (sudden/gradual), duration, progression (improving/deteriorating/stable), monocular or binocular, associated/aggravating/relieving factors (pain, redness, headache, vomiting), visual field defect.
- Past ocular history e.g. trauma, surgery, infection.
- Systemic history e.g. diabetes mellitus, stroke, pituitary tumour.
- Family history of ocular diseases e.g. glaucoma, age-related macular degeneration.
- Physical examination e.g. pupil (direct and indirect pupillary reflexes, size, shape), conjunctiva (circumcorneal injection), cornea (opacity, advanced pterygium), lens (opacity).
- Direct ophthalmoscopy e.g. decreased red reflex (cataract, corneal opacity, vitreous haemorrhage), retinal haemorrhages (diabetic retinopathy, age-related macular degeneration, retinal vein occlusion), hard exudates (diabetic retinopathy, age-related macular degeneration), cotton wool spots (diabetic retinopathy, retinal vein occlusion), mobile elevated retina (retinal detachment), enlarged optic cup/disc ratio (glaucoma), optic disc pallor (glaucoma, optic atrophy), optic disc splinter haemorrhage (glaucoma)

## CLINICAL PATHWAY

The clinical pathway to take from screening to intervention is shown in Figure 1.

**Figure 1: Clinical pathway for vision assessment**

Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

## MANAGEMENT AND REFERRAL

The key role of primary care doctors in the management of a patient with impaired vision is to diagnose its likely cause so that the patient can be referred to the appropriate eye care professional (i.e. optometrist or ophthalmologist) for treatment.

Specifically, 2 groups of patients should be differentiated:

- Those with refractive error(s).
- Those with ocular pathology other than or in addition to refractive error(s).

Pinhole testing is a quick way to distinguish between impaired vision due to uncorrected refractive error(s) and other ocular pathology. The pinhole focuses light, as in a pinhole camera, and temporarily removes the effects of refractive errors such as

myopia, hyperopia and astigmatism. Defects in the shape of the cornea and lens [refractive error(s)] have little effect when the pinhole is used because light rays pass through the visual axis undeviated. This allows the examiner to estimate the maximum improvement in a patient's vision that can be attained by lenses to correct the refractive error(s).

Refer to:

- Optometrist if impaired vision is likely due to refractive error(s)
- Ophthalmologist if impaired vision is likely due to ocular pathology other than refractive error(s)

It is not uncommon for both refractive error(s) and other ocular pathology to coexist in the same eye. In such a case, the patient should be referred to an ophthalmologist.

In patients with ocular pathology other than refractive

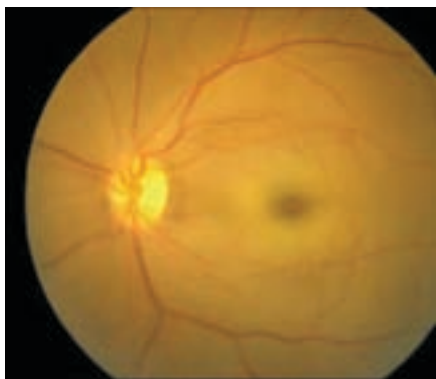
error(s), consider the urgency of referral according to the likely clinical diagnosis:

Conditions requiring emergency (immediate/same day) referral e.g. central retinal artery occlusion (Figure 2), branch retinal artery occlusion, infective corneal ulcer (Figure 3), acute glaucoma (Figure 4), retinal detachment (Figure 5).

Conditions requiring early (urgent/next day) referral e.g.

vitreous haemorrhage (Figure 6), central retinal vein occlusion (Figure 7), branch retinal vein occlusion (Figure 8), diabetic maculopathy (Figure 9), wet age-related macular degeneration (Figure 10).

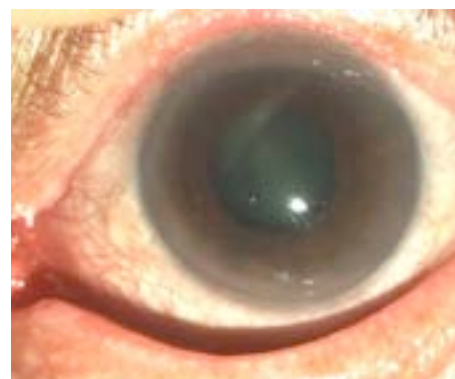
Conditions requiring routine referral e.g. dry age-related macular degeneration (Figure 11), cataract (Figure 12) and chronic glaucoma (Figure 13).



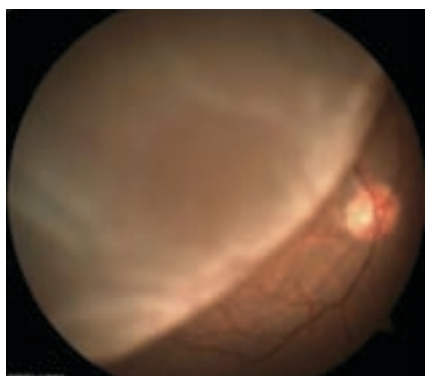
**Figure 2:** A “cherry-red spot” at the fovea in a patient with painless sudden profound loss of vision due to central retinal artery occlusion.



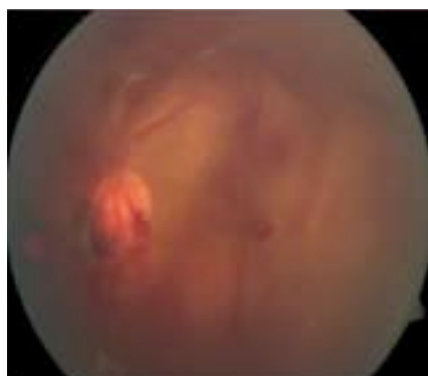
**Figure 3:** Corneal opacity and conjunctival injection due to infective corneal ulcer.



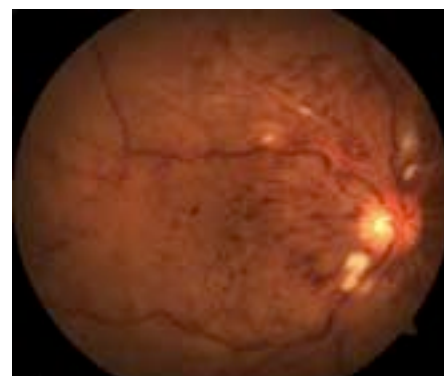
**Figure 4:** Conjunctival injection, corneal haziness and mid-dilated pupil secondary to acute glaucoma.



**Figure 5:** A large area of elevated retina in an eye causing visual field defect in a patient with retinal detachment.



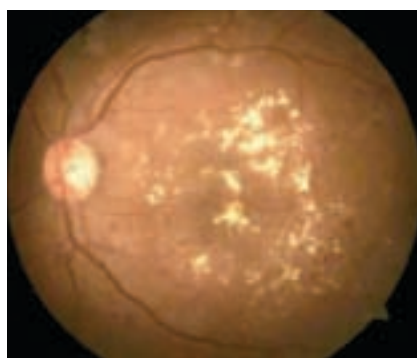
**Figure 6:** Moderate vitreous haemorrhage obscuring details of the ocular fundus.



**Figure 7:** Retinal vein tortuosity, scattered retinal haemorrhages and cotton wool spots in all quadrants of the ocular fundus due to central retinal vein occlusion.



**Figure 8:** Retinal haemorrhages in the area drained by the superotemporal retinal vein with some hard exudates in the macula due to branch retinal vein occlusion.



**Figure 9:** Severe hard exudates and retinal haemorrhages due to sight threatening diabetic maculopathy.

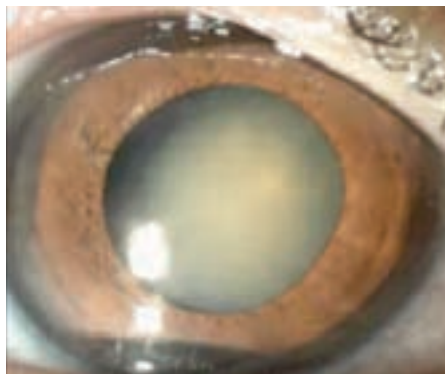


**Figure 10:** Severe hard exudates and sub-retinal haemorrhage due to wet age-related macular degeneration.





**Figure 11: Multiple small yellowish drusen in the fovea in dry age-related macular degeneration.**



**Figure 12: A cloudy, yellowish crystalline lens due to nuclear sclerotic cataract.**



**Figure 13: Splinter haemorrhage at optic disc margin due to chronic glaucoma.**

Source:

Figures 2, 3, 5 and 7 to 13 are courtesy of Singapore International Eye Cataract Retina Centre at Mount Elizabeth Medical Centre, Singapore.

Figures 4 and 6 are courtesy of Department of Ophthalmology and Visual Sciences at Khoo Teck Puat Hospital, Singapore.

## RESOURCES

For further information, prescribe to the patient:

- HealthLine - 1800 223 1313 to speak to a Nurse Advisor (available in 4 languages)
- Health Promotion Board website - <http://www.hpb.gov.sg>

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## LEARNING POINTS

- **Visual impairment is defined by the World Health Organisation (WHO) as visual acuity worse than 6/18 but equal or better than 6/120 in the better eye.**
  - **Blindness is defined as visual acuity worse than 6/120 in the better eye.**
  - **Any patient who complains of a subjective decrease in vision, even if his visual acuity with pinhole is 6/12 or better, should be referred to an optometrist if refractive error(s) is suspected or to an ophthalmologist if other ocular pathology is suspected.**
  - **Pinhole testing is a quick way to distinguish between impaired vision due to uncorrected refractive error(s) and other ocular pathology.**
-



## ANNEX 1 – MEASUREMENT OF VISUAL ACUITY (VA)

1. Ensure there is sufficient illumination on the visual acuity (VA) chart (e.g. use a well-lit room).
2. Stand the patient at the appropriate distance from the VA chart (e.g. 3 metres for a 3-metre chart).
3. Test the patient's right eye by covering his left eye (always test the right eye first).
4. Instruct and encourage the patient to read the VA chart until the smallest line possible without squinting.
5. If the patient is unable to read more than half of the letters on a particular line, instruct him to try reading the next line (with smaller letters) before determining his best VA.
6. If the patient can read the VA chart, record his VA as follows:
  - a. If all the letters of a line can be read correctly, record the VA of that particular line.  
Example:

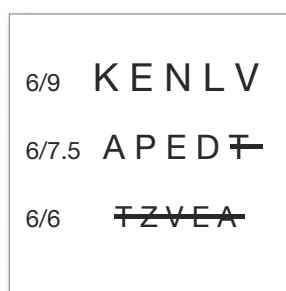


If 5 out of 5 of the letters of the 6/7.5 line can be read correctly but not any letter of the 6/6 line, record VA as 6/7.5.

- b. If more than half of all the letters of a line can be read correctly, record the VA of that particular line, minus the number of letters missed in that line.  
Examples:



If 3 out of 5 of the letters of the 6/6 line can be read correctly, record VA as 6/6<sup>-2</sup>.



If 4 out of 5 of the letters of the 6/7.5 line can be read correctly, record VA as 6/7.5<sup>-1</sup>.

- c. If less than half of the all the letters of a line can be read correctly, record the VA of the previous line (with bigger letters) plus the number of letters read correctly of that particular line.  
Example:



If 2 out of 5 of the letters of the 6/6 line can be read correctly, record VA as 6/7.5<sup>+2</sup>



If 1 out of 5 of the letters of the 6/7.5 line can be read correctly, record VA as 6/9<sup>+1</sup>

7. If the patient is unable to read any letter on the VA chart, proceed as follows:
  - a. Move the patient towards the chart until the biggest letter can be seen. Record the VA as follows:
    - i. If the patient can read the 6/120 line at 5 metres, record VA as 5/120.
    - ii. If the patient can read the 6/120 line at 4 metres, record VA as 4/120.
    - iii. If the patient can read the 6/120 line at 3 metres, record VA as 3/120.
    - iv. If the patient can read the 6/120 line at 2 metres, record VA as 2/120.
    - v. If the patient can read the 6/120 line at 1 metre, record VA as 1/120.
  - b. If the patient is unable to read the biggest letter at 1 metre, hold several fingers in front of the patient and instruct him to count the fingers. If the patient can count the number of fingers, record VA as “counting fingers” or CF.
  - c. If the patient is unable to count fingers, move your hand to and fro in front of him (either up and down or side to side). If the patient can perceive the hand movement, record VA as “hand movement” or HM.
  - d. If the patient is unable to perceive hand movement, shine a bright light source directly into the eye. If the patient can perceive the light, record VA as “light perception” or LP.
  - e. If the patient is unable to perceive the light, record VA as “no light perception” or NLP.
8. If the patient is unable to achieve an acceptable VA (i.e. 6/12 or better), recheck the VA with a pinhole. If the VA improves with pinhole, record the best VA with pinhole. If the VA is unable to improve with pinhole, record “no improvement with pinhole” or NIPH.
9. Repeat the same for the left eye by covering the right eye.

“The above extract is taken from the ‘Community Functional Screening Follow Up Resource for Primary Care Doctors’, published by the Health Promotion Board in partnership with Dr Au Eong Kah Guan and Ms Yulianti, March 2011.”

# THE SILENT RISK OF UNDETECTED

## CHRONIC DISEASES

According to the National Health Survey 2010, 1 in 2 Singapore residents who has diabetes, and 1 in 4 who has hypertension had not been previously diagnosed.<sup>1</sup>

The risk of getting chronic diseases increases from the age of 40. If left undiagnosed and untreated, they can lead to serious health problems, like ischaemic heart disease, the second leading cause of death in Singapore.<sup>2</sup>

To reduce such risks, the Integrated Screening Programme (ISP) recommends regular health screening to detect chronic conditions early.

As a doctor, you can do your part by encouraging your patients to get screened today.

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, 2010  
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 Screening 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.

## UNIT NO. 6

## ORAL HEALTH

Dr Hilary P.Thean, A/Prof Robert Yee

**ABSTRACT**

**Oral health problems such as edentulousness, dental caries, periodontal disease, oral cancer and xerostomia are some of the common oral conditions which can impact the everyday activities of the older adults. This can impact their quality of life, through social effects and nutritional status. Of pertinence to primary care doctors is the relationship between oral health and general health. Poor oral health and chronic diseases are interrelated due to common risk factors. Poor oral health can also be a risk factor for many common chronic diseases and poor periodontal health has been associated with cardiovascular disease, diabetes mellitus and aspiration pneumonia. Conversely, poor physical and mental health in the elderly has an effect on their oral health. The prevalence of poor mental health, dementia, depression, Alzheimer's disease, Parkinson's disease and physical function impairment increases with age and are associated with poor maintenance, greater risk of periodontal problems, edentulousness, poor oral function and pain.**

**Keywords:** Quality of life; Oral Health; Chronic disease; Physical function; Elderly; Older adults

**SFP2012; 38(1) Supplement: 38-45**

**BACKGROUND**

Missing teeth due to oral diseases (decayed teeth and periodontal conditions) are highly prevalent in Singapore amongst the elderly, affecting 100% of 60-64-year-olds (mean number of missing teeth = 13); 99.4% of 65-69-year-olds (mean number of missing teeth = 15) and 100% of 70-74-year-olds (mean number of missing teeth = 16). A large survey of Singapore adults aged 20 years and above (n=6,560) conducted by HPB in 2003 showed that 88.9% of adults brushed their teeth at least twice a day but only 32.8% flossed at least once a day and 45.5% visited a dentist once a year. No specific information was available on elderly Singaporeans. However with increasing age, males and low educational attainment were found to be significantly associated with less favourable tooth-brushing practices.

Oral health problems such as edentulousness, dental caries, periodontal disease, oral cancer and xerostomia are some of the common oral conditions which can impact the everyday

activities of the older adults. This can impact their quality of life, through social effects and nutritional status. For example, a patient with ill-fitting dentures or who experiences pain when he eats because of tooth decay, can avoid eating and experience weight loss.

Of pertinence to primary care doctors is the relationship between oral health and general health. Poor oral health and chronic diseases are interrelated due to common risk factors. Poor oral health can also be a risk factor for many common chronic diseases and poor periodontal health has been associated with cardiovascular disease, diabetes mellitus and aspiration pneumonia. For example, the presence of periodontitis has been found to increase the risk of the worsening glycaemic control over time, while diabetes is a strong risk factor for periodontitis<sup>1,2,3</sup>.

Conversely, poor physical and mental health in the elderly has an effect on their oral health. The prevalence of poor mental health, dementia, depression, Alzheimer's disease, Parkinson's disease and physical function impairment increases with age and are associated with poor maintenance, greater risk of periodontal problems, edentulousness, poor oral function and pain<sup>4</sup>.

Salivary hypofunction and xerostomia which is prevalent amongst older adults, affecting approximately 30%, is also often caused by systemic conditions, their treatment (e.g. radiotherapy and chemotherapy) and multiple use of medications such as antidepressants, antipsychotics, antihistamines and anticholinergics. Having a dry mouth not only affects the quality of life through difficulty in chewing and swallowing, but may also increase the risk of periodontal problems, dental caries and oral infections<sup>5,6</sup>.

In addition, the risk of oral cancer, oral pharyngeal cancer and oral premalignant lesions is high in the age group above 60 years, due to the decline in the immune system, the common risk factors related to oral health and general health, and limited social and psychological support.

**ASSESSMENT**

The Oral Health Assessment Tool (OHAT) developed by The Iowa Geriatric Education Centre is the recommended best practice oral health assessment; it includes 8 charts with images that can be used to easily recognise the categories of poor oral health.

An Oral Health Screening Checklist (modified OHAT) for screening markers can also be used. Nurses aides can be trained to use the revised version in community functional screening.

*For further details about the OHAT, refer to Annex OH1.*

HILARY P. THEAN, Visiting Consultant, National University Health System

ROBERT YEE, Associate Professor, Oral Sciences, Faculty of Dentistry, National University of Singapore

## INTERPRETING RESULTS

### Abnormal Results

Individuals with oral pain, dry mouth, poor dentition status, poor periodontal health, in need of oral prosthesis or who have existing prosthesis in need of repair/relining are referred to a dentist.

Assess the oral health status of the patient, especially if the patient has:

- Decreased functional capability, or
- Poor mental health
- Diabetes
- Cardiovascular disease
- Poly-pharmacy
- Complaints of pain, dry mouth, swelling or persistent ulcers

Instruments to be used for the assessment include: gauze, tongue depressor and penlight.

### 1. Lips

Source: OHAT (from The Iowa Geriatric Education Centre)  
Note: Fungal infections can cause redness and ulceration at the corners of the mouth (angular cheilitis). (Figure 1)

### 2. Tongue

Using the gauze to hold the tongue, check the lateral sides and floor of mouth for ulceration, swellings or white/red patches. There is a predilection for squamous cell carcinoma (the most common oral malignancy) to be found on the lateral tongue surfaces and anterior floor of mouth.

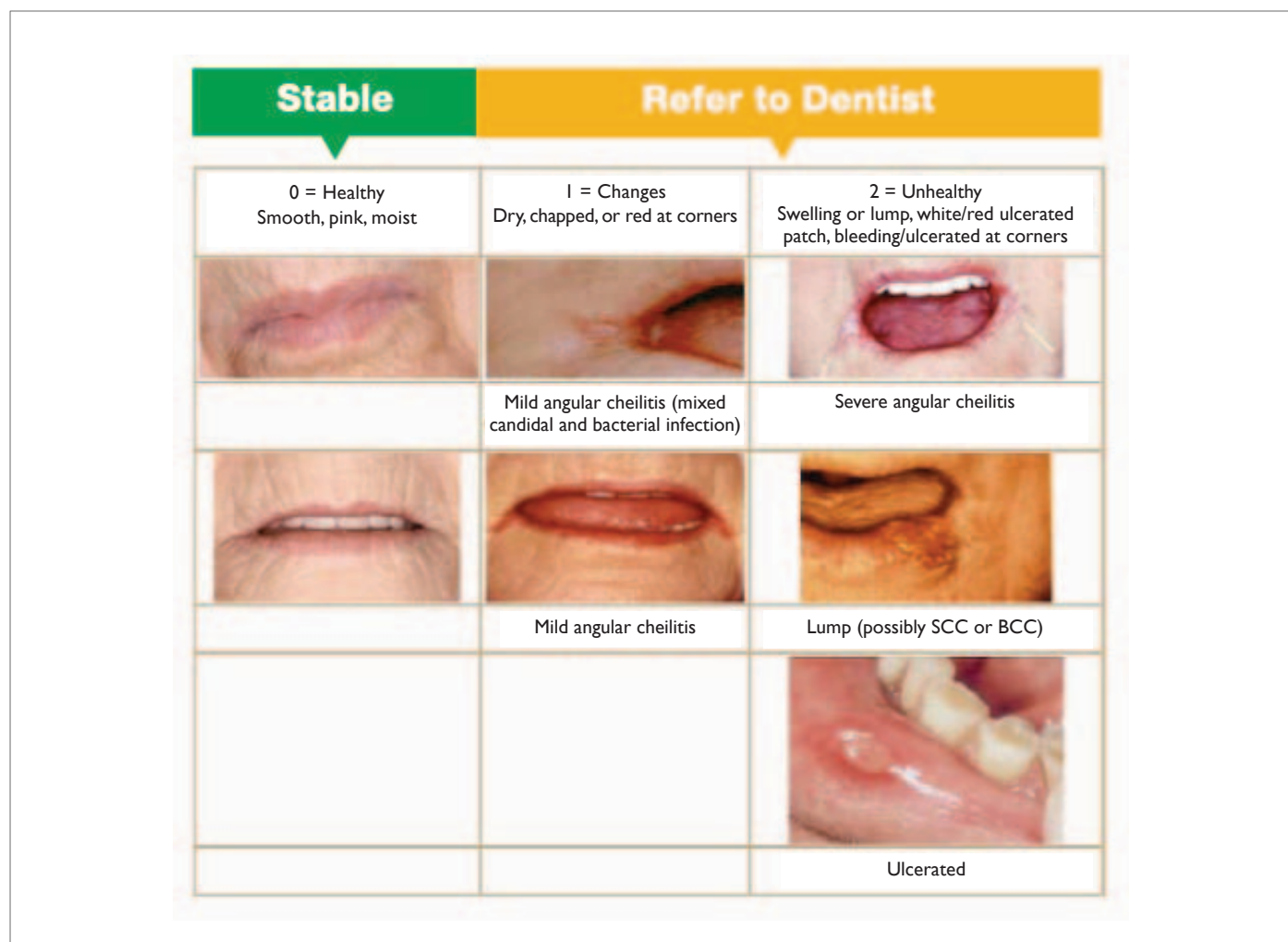
### 3. Gums & Tissues

Source: OHAT (from The Iowa Geriatric Education Centre)  
Note: Candida infections can be common in denture wearers or the immunocompromised older adult. Periodontal health is a risk factor for some chronic illnesses. (Figure 2)

### 4. Saliva

Many medications can cause salivary hypofunction which can lead to xerostomia.

**Figure 1: Assessing changes to the lips**



Source: OHAT (from The Iowa Geriatric Education Centre)



### 5. Natural Teeth

Source: OHAT (from The Iowa Geriatric Education Centre)

Note: Decayed teeth can lead to pain and the lack of teeth can affect chewing function. (Figure 3)

### 6. Dentures

Source: OHAT (from The Iowa Geriatric Education Centre)

Note: Ill-fitting dentures can cause pain and irritation to the tissue causing hyperplastic growth. Poor denture hygiene may lead to Candida infection. (Figure 4)

### 7. Oral Cleanliness

Source: OHAT (from The Iowa Geriatric Education Centre)


Note: Poor oral hygiene can lead to problems with bleeding gums, loss of bone support for the teeth, loss of teeth and is a risk factor for cardiovascular disease, diabetes, aspiration pneumonia. (Figure 5)

### 8. Dental Pain

Source: OHAT (from The Iowa Geriatric Education Centre)

Note: Oral facial pain can lead to impaired function and affect the older adult's quality of life. (Figure 6)

**Figure 2: Assessing changes to the gums & tissues**

Stable		Refer to Dentist	
<b>0 = Healthy</b> Pink, moist smooth, no bleeding		<b>1 = Changes</b> Dry, shiny, rough, red, swollen, one ulcer/sore spot under dentures	
<b>2 = Unhealthy</b> Swollen, bleeding, ulcers, white/red patches, generalized redness under dentures			
			
Normal gums		White and red patches (acute candidal infection)	
			
Normal gums		Swollen, bleeding gums	
			
Normal gums		Generalized redness under denture from denture stomatitis (fungal infection)	

Source: OHAT (from The Iowa Geriatric Education Centre)









**Figure 3: Assessing changes to the teeth**

Stable			Refer to Dentist		
0 = Healthy No decayed or broken teeth/roots		1 = Changes 1-3 decayed or broken teeth/roots or very worn-down teeth		2 = Unhealthy 4 + decayed or broken teeth/roots, or very worn-down teeth, or less than 4 teeth	
					
Normal teeth		2 decayed teeth		5 decayed teeth	
					
Normal teeth		1 tooth root		11 decayed teeth	
					
Normal teeth		1 molar tooth root		6 tooth roots	






Source: OHAT (from The Iowa Geriatric Education Centre)

**Figure 4: Assessing changes to the dentures**

Stable			Refer to Dentist		
0 = Healthy No broken areas or teeth dentures regularly worn, and named		1 = Changes 1 broken area/tooth or dentures only worn for 1-2 hrs daily, or dentures not named, or loose		2 = Unhealthy More than 1 broken area/tooth, denture missing or not worn, loose and needs denture adhesive, or not named	
					
Intact, named denture		1 broken area on partial denture		2 broken teeth in unnamed upper denture	
					
Intact, named denture		Unnamed lower denture		Denture loose and needs adhesive	

Source: OHAT (from The Iowa Geriatric Education Centre)

**Figure 5: Assessing changes in oral hygiene**

Stable		Refer to Dentist	
<b>0 = Healthy</b> Clean and no food particles or tartar in mouth or dentures		<b>1 = Changes</b> Food particles/tartar/plaque in 1-2 areas of the mouth or on small area, of dentures, or halitosis (bad breath)	
			
Clean mouth		Food particles, tartar and plaque all over	
			
Clean mouth		Food particles and plaque all over	
			
Clean mouth		Food particles, tartar and plaque all over	

Source: OHAT (from The Iowa Geriatric Education Centre)

**Figure 6: Assessing changes in oral facial pain**

Stable	Refer to Dentist	
<b>0 = Healthy</b> No behavioral, verbal, or physical signs of dental pain	<b>1 = Changes</b> Are verbal &/or behavioral signs of pain such as pulling at face, chewing lips, not eating, aggression	<b>2 = Unhealthy</b> Are physical pain signs (swelling of cheek or gum, broken teeth, ulcers), as well as verbal &/or behavioral signs (pulling at face, not eating, aggression)

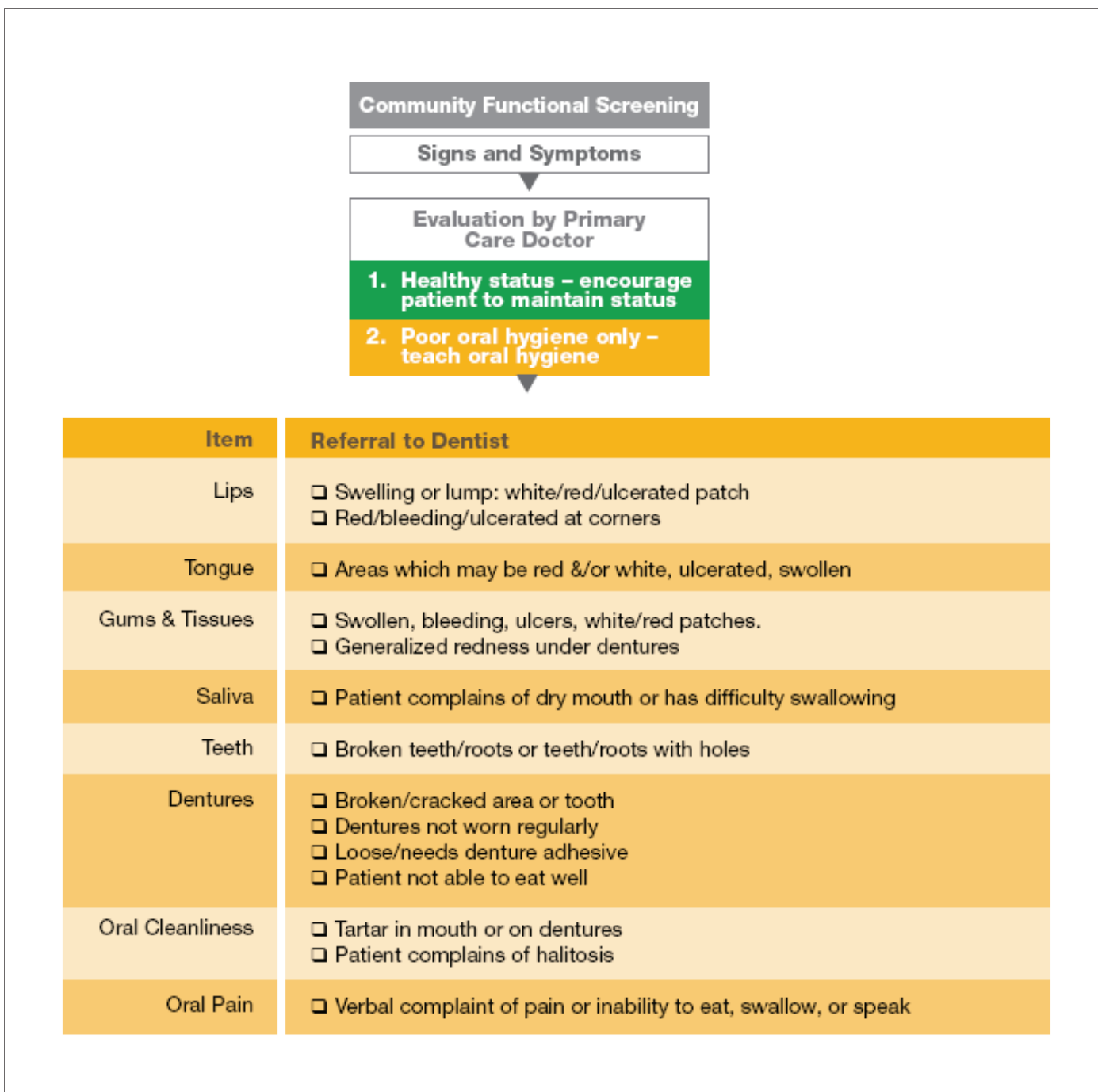
## CLINICAL IMPLICATIONS

The primary care doctor can play an important role by reinforcing the need for regular oral examinations, early detection of problems and referral to a dentist for treatment (e.g. for decayed teeth, ill-fitting dentures, or swelling and

pain of dental origin). As the older adult is more likely to visit a primary care doctor regularly, the opportunity for the doctor to screen for oral health problems and refer older patients for further treatment must not be overlooked.

## CLINICAL PATHWAY

**Figure 7: Clinical pathway from screening to intervention**



Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

## MANAGEMENT AND REFERRAL

The main aim is for the primary care doctor to spot the significant lesions and do one of three things outlined below:

1. Healthy status - encourage the patient to maintain good oral hygiene.
2. Poor oral hygiene only - teach oral hygiene.
3. Lesions/broken prosthesis/require prosthesis - refer to a dentist.
4. For dry mouth - encourage the person to take more frequent sips of water and stimulate salivary flow by sucking on sugarless candy (e.g. Ricola, Fisherman's Friend). For people who are willing and able to use chewing gum, chewing on xylitol gum can also be helpful.

### Simple oral hygiene tips:

1. Dental check-ups/visits at least once a year
2. Recommend cutting back on the number of cigarettes or consider quitting smoking as smoking causes gum disease, dry mouth as well as increases the risk of oral cancer
3. Care of dentures

## RESOURCES

For further information, prescribe to the patient:

- HealthLine - 1800 223 1313 to speak to a Nurse Advisor (available in 4 languages)
- Health Promotion Board website - <http://www.hpb.gov.sg>

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## LEARNING POINTS

- **The Oral Health Assessment Tool (OHAT) developed by The Iowa Geriatric Education Centre is the recommended best practice oral health assessment.**
- **The prevalence of poor mental health, dementia, depression, Alzheimer's Disease, Parkinson's Disease and physical function impairment increases with age and are associated with poor maintenance, greater risk of periodontal problems, edentulousness, poor oral function and pain.**
- **Individuals with oral pain, dry mouth, poor dentition status, poor periodontal health, in need of oral prosthesis or who have existing prosthesis in need of repair/relining are referred to a dentist.**
- **The primary care doctor can play an important role by reinforcing the need for regular oral examinations, early detection of problems and referral to a dentist for treatment (e.g. for decayed teeth, ill-fitting dentures, or swelling and pain of dental origin).**

# ANNEX OHI – ORAL HEALTH SCREENING CHECKLIST

\*For each category, tick the most severe condition that is seen in the patient. Please tick ONE box only.

Name:		NRIC:		Completed by:		Date: dd / mm / yy	
Items	Healthy-No treatment needed	Oral-self care required	Unhealthy - Referral to dentist needed				
Lips	Smooth, pink, moist <input type="checkbox"/>	Dry, chapped <input type="checkbox"/>	*Swelling or lump; white/red/ulcerated patch; red/bleeding/ulcerated at corners <input type="checkbox"/>				
Tongue	Normal, moist roughness, pink <input type="checkbox"/>	Coated with plaque/debris, easily removable by wiping with gauze <input type="checkbox"/>	Patchy, fissured, red *Patch that is red &/or white, ulcerated, swollen* <input type="checkbox"/>				
Gums & Tissues	Pink, moist, smooth, no bleeding <input type="checkbox"/>	Slightly reddish gums around teeth only <input type="checkbox"/>	Red, swollen, one ulcer/sore spot under denture *Swollen, bleeding, ulcers, white/red patches, generalized redness under dentures* <input type="checkbox"/>				
Saliva	Moist tissues, watery and free flowing saliva <input type="checkbox"/>	Dry, sticky tissues, little saliva present <input type="checkbox"/>	Tissues parched and red, very little/no saliva present, saliva is thick, resident think they have a dry mouth <input type="checkbox"/>				
Natural Teeth (Yes/No) *delete where appropriate	No decayed or broken teeth/roots <input type="checkbox"/>		*Decayed or broken teeth/roots* Less than 4 pairs of posterior teeth in occlusion (without dentures and pt unable to eat well) <input type="checkbox"/>				
Dentures (Yes/No) *delete where appropriate	No broken/cracked areas or teeth, dentures regularly worn <input type="checkbox"/>		Broken/cracked area or tooth; Dentures not worn regularly Loose/needs denture adhesive Pt not able to eat well <input type="checkbox"/>				
Oral Cleanliness	Clean and no food particles or tartar in mouth or dentures <input type="checkbox"/>	Food particles/plaque in the mouth or dentures Halitosis (bad breath) <input type="checkbox"/>	Tartar in mouth or on dentures Patient complains of halitosis <input type="checkbox"/>				
Dental Pain	No verbal or physical signs of dental pain <input type="checkbox"/>		*Verbal pain signs (complaint of pain on biting or not being able to eat)  Physical pain signs (swelling of cheek or gum, broken teeth, ulcers) * <input type="checkbox"/>				
	MAINTAIN GOOD ORAL HYGIENE	If any tick within this column please refer for oral hygiene instructions.  ORAL HYGIENE INSTRUCTIONS <input type="checkbox"/>	If any tick within this column, please refer to a dentist. For patient with * conditions, please reinforce the need to see a dentist ASAP.  REFER TO THE DENTIST <input type="checkbox"/>				

Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

"The above extract is taken from the 'Community Functional Screening Follow Up Resource for Primary Care Doctors', published by the Health Promotion Board in partnership with Dr Hilary P.Thean and A/Prof Robert Yee, March 2011."

## ASSESSMENT OF 30 MCQs

**FPSC NO : 48**  
**MCQs on MANAGEMENT UPDATE ON FUNCTIONAL DECLINE**  
**IN OLDER ADULTS 2012**  
**Submission DEADLINE : 7 APRIL 2012**

**INSTRUCTIONS**

- To submit answers to the following multiple choice questions, you are required to log on to the College Online 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 Online Portal before the submission deadline stated above.

1. **The Short Physical Performance Battery (SPPB) is a physical performance measure. Which of the following BEST describes the information it can provide?**
  - A. Impact of an acute illness hospitalisation.
  - B. Improvement from falls prevention training.
  - C. Physical performance in low and high functioning persons.
  - D. Improvement in response to interventions only e.g., cataract surgery.
  - E. Improvement in response to an exercise programme.
2. **About the Vulnerable Elders Survey (VES-13) which of the following statement about it is MOST CORRECT?**
  - A. The VES-13 measures self-rated health.
  - B. The VES-13 identifies who should be referred to hospital urgently.
  - C. The VES-13 takes one minute to complete.
  - D. A score of 3 or more in the VES-13 identifies an elderly with a high risk of functional decline.
  - E. A score of less than 3 in the VES-13 identifies an elderly with a high risk of death.
3. **The Short Physical Performance Battery (SPPB) is used by a community centre to screen mobility-related disability in elder persons. The cut off score for referring an individual to his or her primary care doctor for further action is less than or equal to X. What is X?**
  - A. 2.
  - B. 3.
  - C. 4.
  - D. 5.
  - E. 6.
4. **A 70-year-old man is found to have a SPPB score of 7-9. What is the next step of action?**
  - A. Refer him for geriatric assessment.
  - B. Recommend a self-help strength training programme.
  - C. Strongly recommend him to take part in a physical activity.
  - D. Recommend HPB's "Stronger Together" Programme.
  - E. Start him on a weight bearing exercise programme.
5. **Of the following physical activity programmes which is specially suited to promote muscle strength and balance of adults with low physical function?**
  - A. FaBulouS.
  - B. Stronger Together.
  - C. Health Qigong.
  - D. Brisk walking.
  - E. Line dancing.
6. **About suicides, persons aged 65 years and older account for X% of suicides in the total population. What is X?**
  - A. 25.
  - B. 30.
  - C. 35.
  - D. 40.
  - E. 45.
7. **The prevalence of milder forms of depression among community-dwelling older adults seen in primary care settings is X percent. What is X?**
  - A. 21-25.
  - B. 16-20.
  - C. 11-15.
  - D. 6-10.
  - E. Less than 5.



8. The 15-item Geriatric Depression Scale (GDS-15) is administered to a group of elderly in a community health survey by volunteers. The instruction is that if any individual scores **X** or more points on this scale, the person must be referred to see a primary care doctor for further assessment and treatment. What is **X**?
- 3.
  - 4.
  - 5.
  - 6.
  - 7.
9. About the commonly used antidepressants, which of the following is most likely to cause hyponatremia and syndrome of inappropriate antidiuretic hormone secretion (SIADH)?
- Dothiepin.
  - Sertraline.
  - Venlafaxine.
  - Moclobemide.
  - Mirtazepine.
10. About the 15-item depression scale (GDS-15) which of the following questions is **CORRECTLY** phrased?
- Are you basically dissatisfied with life?
  - Do you sometimes get bored?
  - Do you feel unhappy most of the time?
  - Do you sometimes feel helpless?
  - Do you think that most people are better off than you are?
11. In Singapore the prevalence of urinary incontinence has been found to be **X** percent among community-dwelling older adults aged 75 years and older. What is **X**?
- 2.8.
  - 3.0.
  - 3.5.
  - 4.8.
  - 7.9.
12. The simplest form of screening for continence status in both the community and primary care settings is the International Consultation on Incontinence – Short Form (ICIQ-UI SF). The ICIQ score is based on how many questions?
- 2
  - 3
  - 4.
  - 5.
  - 6.
13. In a community screening for incontinence the International Consultation on Incontinence – Short Form (ICIQ-UI SF) is used. A 72-year-old woman has a score of 2. What is the next step of action for her?
- Enrol her for Kegel exercises.
  - Recommend toilet scheduling for her.
  - Recommend use of pads and absorbent garments for her.
  - Recommend use of urinary catheter.
  - Recommend that she visits a primary care doctor for further evaluation.
14. Which of the following associations of urinary incontinence type and predisposing condition is **CORRECT**?
- Overflow incontinence – Arthritis.
  - Stress incontinence – Prostate diseases.
  - Urgency incontinence – Delirium.
  - Functional incontinence – Parkinson's disease.
  - Overflow incontinence – Atrophic vaginitis.
15. A 65-year-old man complains of a recent onset of dual incontinence, and lower limb weakness. Which of the following is **UNLIKELY** to be present on physical examination?
- Saddle-anaesthesia.
  - One sided limb weakness.
  - Distended bladder.
  - Lax anal tone.
  - Lower limb weakness.
16. In Singapore, it has been found that **X** percent of adults 60 years and above felt that they had hearing loss. What is **X**?
- 22.6
  - 27.6
  - 32.6
  - 37.6
  - 42.6
17. About chronic hearing loss worldwide, which of the following is the second leading cause?
- Noise-induced hearing loss.
  - Presbycusis.
  - Otitis Media.
  - Perforated tympanic membrane.
  - Meniere's Disease.

- 18. A Hearing Handicap Inventory for the Elderly Screening (HHIE-S) is done for Mr Tan, aged 65. He says that his hearing problem sometimes cause him to feel embarrassed when meeting new people. He sometimes has difficulty hearing when someone speaks in a whisper. His hearing is sometimes a problem when talking to members of his family. However, his hearing problem does not cause him to attend church services less often than he would like. Based on these findings, Mr Tan is likely to have a HHIE-S score of at least X. What is X?**
- 2 points
  - 4 points
  - 6 points
  - 8 points
  - 12 points
- 19. An audioscope screening is done on Mr Tan aged 70 years. When tested at 40 dB, he is able to hear the pure tone at 500Hz, 1000Hz, 2000Hz, but is unable to hear at 4000Hz. This is bilateral. Which of the following is he MOST LIKELY to have?**
- Middle-ear infection.
  - Eardrum perforation.
  - Otosclerosis.
  - Meniere's disease.
  - Presbycusis.
- 20. A 67-year-old woman has a Hearing Handicap Inventory for the Elderly Screening (HHIE-S) done. She has a score of 28. She has a X percent probability of hearing impairment. What is X?**
- 13.
  - 50.
  - 60.
  - 84.
  - 95.
- 21. The percentage of Singaporean adults of Chinese origin aged 40-79 with blindness in both eyes is X percent. What is X?**
- 0.5.
  - 1.1.
  - 5.2.
  - 6.5.
  - 12.2.
- 22. A 62-year-old-man complains of loss of vision in the left eye of sudden onset. He is noted to have a decreased red reflex. Which of the following conditions is MOST LIKELY?**
- Vitreous haemorrhage.
  - Cataract.
  - Retinal haemorrhage.
  - Glaucoma.
  - Retinal vein occlusion.
- 23. Pinhole visual acuity worse than X may have eye conditions other than a refractive error and should be referred to an ophthalmologist. What is X?**
- 6/9.
  - 6/12.
  - 6/18.
  - 6/24.
  - 6/60.
- 24. A 55-year-old patient with Type II diabetes complains of a painless sudden profound loss of vision. On direct ophthalmoscopy a "cherry-red spot" is noted at the fovea. Which of the following is the MOST LIKELY diagnosis?**
- Central retinal vein occlusion.
  - Acute glaucoma.
  - Wet age-related macular degeneration.
  - Retinal detachment.
  - Central retinal artery occlusion.
- 25. A 64-year-old man presents with left eye pain. Clinically, the following are noted: conjunctival injection, corneal haziness and a mid-dilated pupil. Which of the following is the MOST LIKELY diagnosis?**
- Diabetic maculopathy.
  - Branch retinal vein occlusion.
  - Infective corneal ulcer.
  - Acute glaucoma.
  - Retinal detachment.
- 26. In a survey of 6,560 individuals aged 20 years and older in Singapore conducted by HPB in 2003, the percentage of individuals visiting the dentist once a year is X. What is X?**
- 15.5.
  - 25.5
  - 45.5.
  - 55.5.
  - 65.5.

- 27. Salivary hypofunction and xerostomia is prevalent amongst older adults and it is estimated to affect X percent of these individuals. What is X**
- A. 20.
  - B. 30.
  - C. 40.
  - D. 50.
  - E. 60.
- 28. An elderly person has poor denture hygiene. Which of the following conditions is he or she MOST LIKELY to be predisposed to?**
- A. Aspiration pneumonia.
  - B. Periodontal disease.
  - C. Cardiovascular disease.
  - D. Poor diabetic control.
  - E. Candida infection.
- 29. About oral squamous cell carcinoma, which of the following is a site that it is likely to occur?**
- A. Premolar region.
  - B. Back of the tongue.
  - C. Roof of the mouth.
  - D. Lateral tongue surfaces.
  - E. Posterior floor of the mouth.
- 30. A 72-year-old man sees you because he is worried about oral malignancy. Which of the following is the MOST COMMON oral malignancy?**
- A. Adenocarcinoma.
  - B. Melanoma.
  - C. Teratoma.
  - D. Lymphoma.
  - E. Squamous cell carcinoma.





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

- A Selection of Ten Current Readings on Topics Related To  
Management Update on Functional Decline in Older Adults 2012

**A SELECTION OF TEN CURRENT READINGS ON TOPICS RELATED TO  
MANAGEMENT UPDATE OF FUNCTIONAL DECLINE IN OLDER ADULTS 2012 –**

**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 – Defining frailty and sarcopenia**

**Cooper C, Dere W, Evans W, Kanis JA, Rizzoli R, Sayer AA, Sieber CC, Kaufman JM, Abellan van Kan G, Boonen S, Adachi J, Mitlak B, Tsouderos Y, Rolland Y, Reginster JY. Frailty and sarcopenia: definitions and outcome parameters. Osteoporos Int. 2012 Jan 31. [Epub ahead of print] PubMed PMID: 22290243.**

URL: <http://dx.doi.org/10.1007/s00198-012-1913-1> (payment required)

MRC Lifecourse Epidemiology Unit, University of Southampton, Southampton, England, UK, [cc@mrc.soton.ac.uk](mailto:cc@mrc.soton.ac.uk).

ABSTRACT

An operational definition of musculoskeletal decline in older people is needed to allow development of interventions for prevention or treatment, as was developed for the treatment of osteoporosis. Frailty and sarcopenia are linked, but distinct, correlates of musculoskeletal aging that have many causes, including age-related changes in body composition, inflammation, and hormonal imbalance. With the emergence of a number of exciting candidate therapies to retard the loss of muscle mass with aging, the derivation of a consensual definition of sarcopenia and physical frailty becomes an urgent priority. Although several consensual definitions have been proposed, these require clinical validation. An operational definition, which might provide a threshold for treatment/trial inclusion, should incorporate a loss of muscle mass as well as evidence of a decrease in muscle strength and/or physical activity. Evidence is required for a link between improvements in the measures of muscle strength and/or physical activity and clinical outcomes to allow development of interventions to improve clinical outcomes in frail older patients. PMID: 22290243 [PubMed - as supplied by publisher]

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**READING 2 – Physical activity in preventing frailty**

**Landi F, Abbatecola AM, Provinciali M, Corsonello A, Bustacchini S, Manigrasso L, Cherubini A, Bernabei R, Lattanzio F. Moving against frailty: does physical activity matter? Biogerontology. 2010 Oct;11(5):537-45. Epub 2010 Aug 10. Review. PubMed PMID: 20697813.**

URL: <http://dx.doi.org/10.1007/s10522-010-9296-1> (payment required)

Department of Gerontology and Geriatrics, Catholic University of Sacred Heart, Rome, Italy.

ABSTRACT

Frailty is a common condition in older persons and has been described as a geriatric syndrome resulting from age-related cumulative declines across multiple physiologic systems, with impaired homeostatic reserve and a reduced capacity of the organism to resist stress. Therefore, frailty is considered as a state of high vulnerability for adverse



health outcomes, such as disability, falls, hospitalization, institutionalization, and mortality. Regular physical activity has been shown to protect against diverse components of the frailty syndrome in men and women of all ages and frailty is not a contra-indication to physical activity, rather it may be one of the most important reasons to prescribe physical exercise. It has been recognized that physical activity can have an impact on different components of the frailty syndrome. This review will address the role of physical activity on the most relevant components of frailty syndrome, with specific reference to: (i) sarcopenia, as a condition which frequently overlaps with frailty; (ii) functional impairment, considering the role of physical inactivity as one of the strongest predictors of physical disability in elders; (iii) cognitive performance, including evidence on how exercise and physical activity decrease the risk of early cognitive decline and poor cognition in late life; and (iv) depression by reviewing the effect of exercise on improving mood and increasing positive well-being.

PMID: 20697813 [PubMed - indexed for MEDLINE]

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### **READING 3 – Physical exercise as preventive or disease-modifying treatment of dementia and brain aging**

**Ahlskog JE, Geda YE, Graff-Radford NR, Petersen RC. Physical exercise as a preventive or disease-modifying treatment of dementia and brain aging. *Mayo Clin Proc.* 2011 Sep;86(9):876-84. Review. PubMed PMID: 21878600; PubMed Central PMCID: PMC3258000.**

URL: [http://linkinghub.elsevier.com/retrieve/pii/S0025-6196\(11\)65219-1](http://linkinghub.elsevier.com/retrieve/pii/S0025-6196(11)65219-1) (payment required)

Department of Neurology, Mayo Clinic, Rochester, MN 55905, USA. [eahlskog@mayo.edu](mailto:eahlskog@mayo.edu)

#### ABSTRACT

A rapidly growing literature strongly suggests that exercise, specifically aerobic exercise, may attenuate cognitive impairment and reduce dementia risk. We used PubMed (keywords exercise and cognition) and manuscript bibliographies to examine the published evidence of a cognitive neuroprotective effect of exercise. Meta-analyses of prospective studies documented a significantly reduced risk of dementia associated with midlife exercise; similarly, midlife exercise significantly reduced later risks of mild cognitive impairment in several studies. Among patients with dementia or mild cognitive impairment, randomized controlled trials (RCTs) documented better cognitive scores after 6 to 12 months of exercise compared with sedentary controls. Meta-analyses of RCTs of aerobic exercise in healthy adults were also associated with significantly improved cognitive scores. One year of aerobic exercise in a large RCT of seniors was associated with significantly larger hippocampal volumes and better spatial memory; other RCTs in seniors documented attenuation of age-related gray matter volume loss with aerobic exercise. Cross-sectional studies similarly reported significantly larger hippocampal or gray matter volumes among physically fit seniors compared with unfit seniors. Brain cognitive networks studied with functional magnetic resonance imaging display improved connectivity after 6 to 12 months of exercise. Animal studies indicate that exercise facilitates neuroplasticity via a variety of biomechanisms, with improved learning outcomes. Induction of brain neurotrophic factors by exercise has been confirmed in multiple animal studies, with indirect evidence for this process in humans. Besides a brain neuroprotective effect, physical exercise may also attenuate cognitive decline via mitigation of cerebrovascular risk, including the contribution of small vessel disease to dementia. Exercise should not be overlooked as an important therapeutic strategy.

PMCID: PMC3258000 [Available on 2012/3/1] PMID: 21878600 [PubMed - indexed for MEDLINE]

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**READING 4 – Geriatric assessment tools**

**Rosen SL, Reuben DB. Geriatric assessment tools. Mt Sinai J Med. 2011 Jul-Aug;78(4):489-97. doi: 10.1002/msj.20277. Review. PubMed PMID: 21748738. 4. Mt Sinai J Med. 2011 Jul-Aug;78(4):489-97. doi: 10.1002/msj.20277.**

URL: <http://dx.doi.org/10.1002/msj.20277> (payment required)

David Geffen School of Medicine at UCLA, Los Angeles, CA, USA. [srosen@mednet.ucla.edu](mailto:srosen@mednet.ucla.edu)

**ABSTRACT**

In addition to medical diseases, psychological, social, cognitive, and functional issues influence the health of older persons. Therefore, the traditional medical assessment alone is often not enough to evaluate the older population with multiple comorbidities. Out of this recognized need, the geriatric assessment has been developed, which emphasizes a broader approach to evaluating contributors to health in older persons. Geriatric assessment uses specific tools to help determine patient's status across several different dimensions, including assessment of medical, cognitive, affective, social, economic, environmental, spiritual, and functional status. This article reviews specific tools that practitioners can use in their screening for the following geriatric syndromes: hearing impairment, vision impairment, functional decline, falls, urinary incontinence, cognitive impairment, depression, and malnutrition. This article also reviews spiritual, economic, and social assessment. By identifying conditions that are common in the elderly, geriatric assessment can provide substantial insight into the comprehensive care of older persons, from those who are healthy and high-functioning to those with significant impairments and multiple comorbidities. PMID: 21748738 [PubMed - indexed for MEDLINE]

**READING 5 – Collaborative effects of diet and exercise on cognitive enhancement**

**Gomez-Pinilla F. Collaborative effects of diet and exercise on cognitive enhancement. Nutr Health. 2011;20(3-4):165-9. Review. PubMed PMID: 22141190; PubMed Central PMCID: PMC3258096.**

URL: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3258096/?tool=pubmed> (free full text)

Department of Integrative Biology and Physiology, University of California Los Angeles, Los Angeles, CA 90095, USA. [fgomezpi@ucla.edu](mailto:fgomezpi@ucla.edu)

**ABSTRACT**

Certain dietary factors, such as omega-3 fatty acids and curcumin, are reviewed in their context of stimulating molecular systems that serve synaptic function, while diets rich in saturated fats do the opposite. In turn, exercise, using similar mechanisms as healthy diets, displays healing effects on the brain such as counteracting the mental decline associated with age and facilitating functional recovery resulting from brain injury and disease. Diet and exercise are two noninvasive approaches that used together may enhance neural repair. Omega 3 fatty acids and curcumin elevate levels of molecules important for synaptic plasticity such as brain-derived neurotrophic factor (BDNF), thus benefiting normal brain function and recovery events following brain insults. PMCID: PMC3258096 PMID: 22141190 [PubMed - indexed for MEDLINE]

**READING 6 – Home blood pressure monitoring reduces long-term risk**

**Sheikh S, Sinha AD, Agarwal R. Home blood pressure monitoring: how good a predictor of long-term risk? *Curr Hypertens Rep.* 2011 Jun;13(3):192-9. Review. PubMed PMID: 21327567; PubMed Central PMCID: PMC3124655.**

URL: <http://dx.doi.org/10.1007/s11906-011-0193-z> (payment required)

Roudebush VA Medical Center, Indiana University School of Medicine, Indianapolis, IN, USA.

**ABSTRACT**

Most management decisions for the diagnosis and treatment of hypertension are made using blood pressure (BP) measurements made in the clinic. However, home BP recordings may be of superior prognostic value. In this review, we show that home BP recordings are generally superior to clinic BP measurements in predicting long-term prognosis. Home BP has been shown to significantly predict important end points including all-cause mortality, progression of chronic kidney disease, and functional decline in the elderly. In addition, home BP recordings significantly and strongly predict cardiovascular events. These findings are robust, as they concur despite having been studied in disparate populations, using heterogeneous methods of clinic and home BP measurement, and with varied methods of statistical analysis. The advantages of home BP recordings are not due solely to a larger number of measurements, and they extend to the elderly, patients with chronic kidney disease, and those on hemodialysis. Because home BP recordings combine improved accuracy with the advantages of low cost and easy implementation, most patients with known or suspected hypertension should have their BP assessed and managed by means of home BP recordings.

PMCID: PMC3124655 [Available on 2012/6/1] PMID: 21327567 [PubMed - indexed for MEDLINE]

**READING 7 – Home care supporting clinics for frail elderly persons living alone in Japan**

**Akiyama A, Hanabusa H, Mikami H. Characteristics of home care supporting clinics providing home care for frail elderly persons living alone in Japan. *Arch Gerontol Geriatr.* 2011 Mar-Apr;52(2):e85-8. Epub 2010 Aug 21. PubMed PMID: 20732720.**

URL: [http://linkinghub.elsevier.com/retrieve/pii/S0167-4943\(10\)00208-6](http://linkinghub.elsevier.com/retrieve/pii/S0167-4943(10)00208-6) (payment required)

Division of Health Sciences, Osaka University, Graduate School of Medicine, 1-7 Yamadaoka, Suita, Osaka 565-0871, Japan.

**ABSTRACT**

To explore the characteristics of home care supporting clinics providing home care for frail elderly persons living alone (EPLA), a self-administered questionnaire was mailed to 998 home care supporting clinics in the 23 wards of Tokyo, Japan between July and August 2009. Clinics providing home care for the frail EPLA significantly collaborated with 4 or more home visit nursing stations (42.5%) and 4 or more care managers (58.7%) and had sufficient medical care equipment, such as an oxygen inhaler, ventilator, and intravenous hyperalimentation. Sixty-one percent of the clinics which provided care for the 18 patients who died at home collaborated with 4 or more care managers. Our findings suggest that the factors enabling home care for frail EPLA are as follows: (1) collaboration with care managers, (2) collaboration with home visit nursing stations, (3) sufficient medical care equipment.

PMID: 20732720 [PubMed - indexed for MEDLINE]

**READING 8 – Nursing home care – Clinical Aspects**

**Unwin BK, Porvaznik M, Spoelhof GD. Nursing home care: part II. Clinical aspects. Am Fam Physician. 2010 May 15;81(10):1229-37. Review. PubMed PMID: 20507047.**

URL: <http://www.aafp.org/afp/2010/0515/p1229.html> (free full text)

Uniformed Services University of the Health Sciences, Bethesda, MD, USA. [unwin@usuhs.mil](mailto:unwin@usuhs.mil)

**ABSTRACT**

Comment in Am Fam Physician. 2010 May 15;81(10):1200.

Understanding the distinctions between the management of clinical problems in nursing homes compared with the community setting helps improve the overall care of nursing home residents. Liberalizing diets helps avoid unintentional weight loss in nursing home residents, although the use of feeding tubes usually does not improve nutrition or decrease aspiration risk. Medical assessment, treatment of comorbidities, and appropriate use of rehabilitation therapies minimize the frequency of falls. Toileting programs may be used to treat incontinence and retention in cooperative patients. Adverse effects and drug interactions should be considered when initiating pharmacologic treatment of overactive bladder. Urinary tract infection and pneumonia are the most common bacterial infections in nursing home residents. Signs and symptoms of infection include fever or hypothermia, and functional decline. Virus identification is recommended for influenza-like illnesses. Nonpharmacologic behavioral management strategies are the preferred treatment for dementia-related problem behaviors. The Beers criteria, which outline potentially inappropriate medication use in older persons, provide guidance for medication use in the nursing home. PMID: 20507047 [PubMed - indexed for MEDLINE]

**READING 9 – Care of elderly patients with diabetes mellitus: a focus on frailty**

**Chen LK, Chen YM, Lin MH, Peng LN, Hwang SJ. Care of elderly patients with diabetes mellitus: a focus on frailty. Ageing Res Rev. 2010 Nov;9 Suppl 1:S18-22. Epub 2010 Sep 19. Review. PubMed PMID: 20849981.**

URL: [http://linkinghub.elsevier.com/retrieve/pii/S1568-1637\(10\)00065-6](http://linkinghub.elsevier.com/retrieve/pii/S1568-1637(10)00065-6) (payment required)

Centre for Geriatrics and Gerontology, Department of Family Medicine, Taipei Veterans General Hospital, No 201, Shih-Pai Road Section 2, Taipei 112, Taiwan, ROC.

**ABSTRACT**

The prevalence and incidence of type 2 diabetes mellitus (DM) increase with age, and its diagnosis and treatment in older people present a challenge. Applying evidence to elderly patients can be problematic, because older persons with frailty, multiple comorbidities, and functional disabilities are generally excluded from diabetes clinical trials. Frailty is characterized by multisystem decline and vulnerability to adverse health outcomes. Insulin resistance predicts frailty, and DM accelerates muscle strength loss. Geriatric diabetes care guidelines have refocused from risk factor control to geriatric syndromes. The European Diabetes Working Party guidelines for elderly type 2 DM patients consider frailty, recommending a conservative target (hemoglobin A1c <8%). Diabetic care-home residents with physical disabilities, cognitive impairment, tube feeding, and the inability to communicate pose particular challenges. Tight glycemic control for such patients increases the risk of hypoglycemia and significant functional decline; a mean hemoglobin A1c <7% did not protect them from care-home-acquired pneumonia. In conclusion, caring for elderly diabetic patients poses unique challenges. Little is known about diabetes care of elderly people with frailty, disabilities, or multiple comorbidities. The interrelationship between frailty and DM deserves further investigation. Practice guidelines for care-home residents with DM are needed to ensure quality of care.

PMID: 20849981 [PubMed - indexed for MEDLINE]

**READING 10 – Study protocol for Home-Based Older People's Exercise (HOPE) randomized control trial**

**Clegg A, Barber S, Young J, Forster A, Iliffe S. The Home-Based Older People's Exercise (HOPE) trial: study protocol for a randomised controlled trial. *Trials*. 2011 Jun 8;12:143. PubMed PMID: 21651805; PubMed Central PMCID: PMC3121609.**

URL: <http://www.ncbi.nlm.nih.gov/pubmed/21651805> (free full text)

Academic Unit of Elderly Care & Rehabilitation, University of Leeds, Bradford Institute for Health Research, Bradford Teaching Hospitals NHS Foundation Trust, Duckworth Lane, Bradford BD9 6RJ, UK. [andrewpaulclegg@yahoo.co.uk](mailto:andrewpaulclegg@yahoo.co.uk)

**ABSTRACT**

**BACKGROUND:** Frailty is common in older age, and is associated with important adverse health outcomes including increased risk of disability and admission to hospital or long-term care. Exercise interventions for frail older people have the potential to reduce the risk of these adverse outcomes by increasing muscle strength and improving mobility.

**METHODS/DESIGN:** The Home-Based Older People's Exercise (HOPE) trial is a two arm, assessor blind pilot randomised controlled trial (RCT) to assess the effectiveness of a 12 week exercise intervention (the HOPE programme) designed to improve the mobility and functional abilities of frail older people living at home, compared with usual care. The primary outcome is the timed-up-and-go test (TUGT), measured at baseline and 14 weeks post-randomisation. Secondary outcomes include the Barthel Index of activities of daily living (ADL), EuroQol Group 5-Dimension Self-Report Questionnaire (EQ-5D) quality of life measure and the geriatric depression scale (GDS), measured at baseline and 14 weeks post-randomisation. We will record baseline frailty using the Edmonton Frail Scale (EFS), record falls and document muscle/joint pain. We will test the feasibility of collection of data to identify therapy resources required for delivery of the intervention.

**DISCUSSION:** The HOPE trial will explore and evaluate a home-based exercise intervention for frail older people. Although previous RCTs have used operationalised, non-validated methods of measuring frailty, the HOPE trial is, to our knowledge, the first RCT of an exercise intervention for frail older people that includes a validated method of frailty assessment at baseline.

**TRIAL REGISTRATION:** ISRCTN: ISRCTN57066881. PMCID: PMC3121609 PMID: 21651805 [PubMed - indexed for MEDLINE]



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*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.

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