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MANAGEMENT OF FUNCTIONAL DECLINE IN OLDER ADULTS

Dr Tan Tze Lee

SFP2011; 37(2) Supplement : 3

Singapore is facing a silver tsunami, so said our Health Minister, Mr Khaw Boon Wan in 2009. The proportion of Singapore residents (i.e. citizens and PRs) aged 65 and above has increased from 7.0% of the resident population in 1999 to 8.8% in 2009. We in the Family Medicine fraternity need to be prepared to manage this growing group of patients. One of the consequences of ageing is functional decline. The objective of this skill course is to improve the management of functional decline in older adults, and this has come just at the right time.

It often takes a lot more effort to maintain the same level of fitness as we get older. As clinicians, we need to know simple methods of assessing physical function and decline. Dr Wong Sweet Fun addresses this in her article on physical function, which also covers functional assessment, and the roles and responsibilities that primary care doctors can play.

Many of the senior members of our community also suffer from psychiatric and psychological disorders in their later years. Of these, depression remains the biggest problem, and we as primary care physicians need to be on the lookout for it. Better awareness, surveillance and management is needed to battle this debilitating illness, and Dr Ong Pui Sim's paper on "Mood" takes us step by step through the process of managing such patients.

TAN TZE LEE, Honorary Editor, College of Family Physicians Singapore

Incontinence can be a significant problem in the older adult who suffers from this. The loss of continence is not only physically debilitating, it deals a psychological blow to the self-esteem, and is often suffered in silence. GPs would welcome a clear and simple guide, and Dr Terence Tang's unit 3 is just the ticket.

Many of us will have patients and relatives who are hard of hearing. The Hearing Handicap Inventory for the Elderly-Screening (HHIE-S) questionnaire is a useful tool for primary care providers to screen their older patients for hearing problems. A/Prof Lynne Lim's unit on hearing disorders in the elderly highlights this and gives a comprehensive overview, which is concise and clear.

Failing eyesight is something we all face with time. Presbyopia, glaucoma, macular degeneration, cataract, the list goes on. The 5th unit by Dr Au Eong Kay Guan and Ms Yulianti on vision gives a clear step-by-step guide on how to diagnose and manage visual impairment. The segment highlighting those red flag eye conditions that require emergency and urgent treatment will be of particular interest for us in Family Practice.

Oral health can impact the health and quality of life of the older adult. Poor oral health and chronic diseases are often interrelated. The need to help our elderly population maintain good oral health is emphasized in this unit by Dr Thean and Prof Yee.

This issue on management of functional decline addresses key health issues in the elderly. Primary care doctors would benefit from a deeper understanding of these issues and the timely intervention that they can initiate. It will better equip us to address the problems that the older adult is likely to face.

Distance Learning Course on "Management Of Functional Decline in Older Adults"

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

OVERVIEW OF "MANAGEMENT OF FUNCTIONAL DECLINE IN OLDER ADULTS"

A/Prof Goh Lee Gan

SFP2011; 37(2) Supplement : 6-7

INTRODUCTION

The objective of this skills course is to update primary care doctors on the key issues that can contribute to functional decline in older adults. Assessment followed by timely intervention is the key to arrest and prevent further functional decline. Like in other spheres of medicine, prevention is better than cure. This is also a guiding principle here. Thanks are due to the many colleagues who have contributed much to put together a set of notes, to present their talks in the seminars, and also to be resource persons in the workshops. We look forward to you participating in this skills course.

COURSE OUTLINE AND CME POINTS

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

Components and CME Points

- Distance Learning Course – 6 units (6 CME points upon completing the Distance Learning Online Assessment).
- 2 Seminars (max. of 3 CME points per seminar cum workshop).
- 2 Workshops.
- 10 Readings – read 5 out of 10 recommended journals (max. 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
Unit 5 : Vision
Dr Au Eong Kah Guan, Ms Yulianti
Unit 6 : Oral Health
Dr Hilary P. Thean, A/Prof Robert Yee

GOH LEE GAN, Associate Professor, Head, Division of Family Medicine, University Medicine Cluster, National University Health System
Senior Consultant, Institute of Family Medicine, College of Family Physicians Singapore

COURSE TOPIC DETAILS

Unit 1: Physical Function
- Background
- Assessment
  - o Vulnerable Elders Survey (VES-13)
  - o Short Physical Performance Battery (SPPB)
- Interpreting Results
- Clinical Evaluation
- Management
- Clinical Pathway
- Referral
- Recommended Physical Activity Programmes
- Resources

Unit 2: Mood
- Background
- Assessment
- Interpreting Results
- Diagnostic Criteria for Depression
- Clinical Evaluation
- Management
- Clinical Pathway
- Referral
- Resources

Unit 3: Continence
- Background
- Assessment
- Interpreting Results
- Clinical Evaluation
- Management
- Clinical Pathway
- Referral

Unit 4: Hearing
- Background
- Assessment
- Interpreting Results
- Useful Information
  - o Causes of Hearing Loss
  - o Diagnoses Exclusions
  - o Age-related Hearing Loss (Presbyacusis)
  - o Initial Management
- Clinical Pathway
- Referral
- Resources

Unit 5: Vision
- Background
- Assessment
- Interpreting Results
- Clinical Pathway
- Management & Referral
- Resources

Unit 6: Oral Health
- Background
- Assessment
- Interpreting Results
- Clinical Implications
- Clinical Pathway
- Management & Referral
- Resources

FACE-TO-FACE SESSIONS

Seminar 1: 12 March 2011
2.00pm – 4.00pm

Physical Function
Dr Wong Sweet Fun

Continence
Dr Terence Tang

Hearing
A/Prof Lynne Lim

Workshop 1: 12 March 2011
4.30pm – 5.30pm
Case Studies/Demonstration

Seminar 2: 13 March 2011
2.00pm – 4.00pm

Vision
Dr Au Eong Kah Guan

Mood
Dr Ong Pui Sim

Oral Health
Dr Wong Mun Loke

Workshop 2: 13 March 2011
4.30pm – 5.30pm
Case Studies/Demonstration

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.

SFP2011; 37(2) 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 assess 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).

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

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)

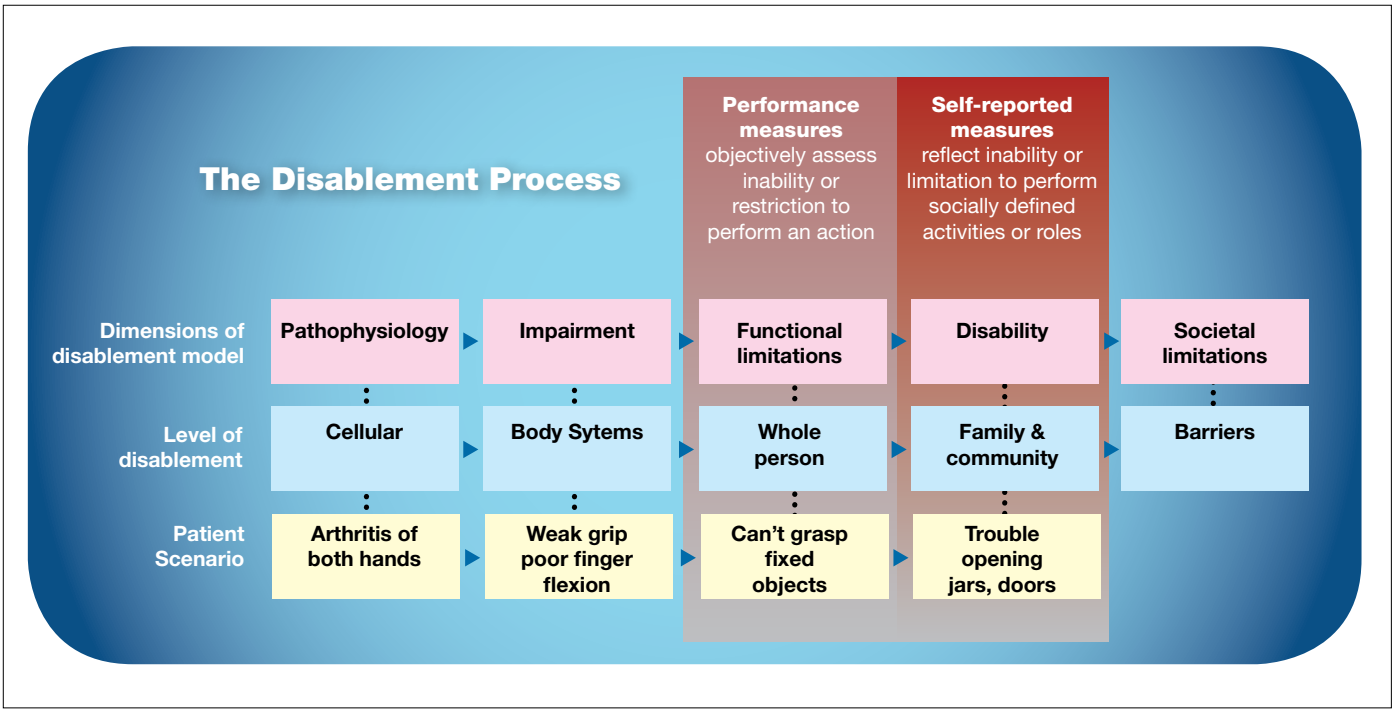
The Vulnerable Elders Survey (VES-13) is a simple function-based tool for screening community-dwelling populations to identify older adults at risk of health deterioration. The components of the 13-item questionnaire include age, self-rated health, limitations in physical function and disability. The 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

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 ≤ 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

VES-13	Individuals with scores ≥ 3 are referred to their primary care doctor
SPPB	Individuals with scores ≤ 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?

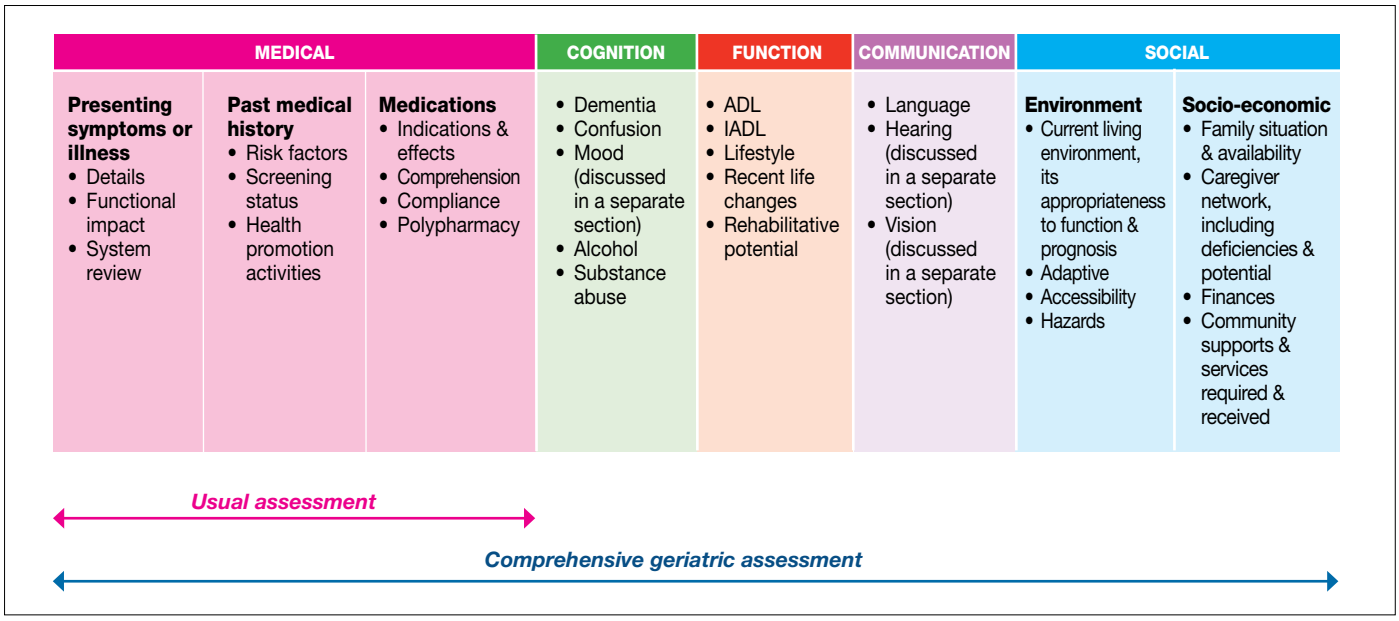
The VES-13 score of more than 3 identifies him as vulnerable to the risks of functional decline over the next 2 years. The SPPB score of 6 is a low performance score, reflecting higher odds of mobility-related disability.

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

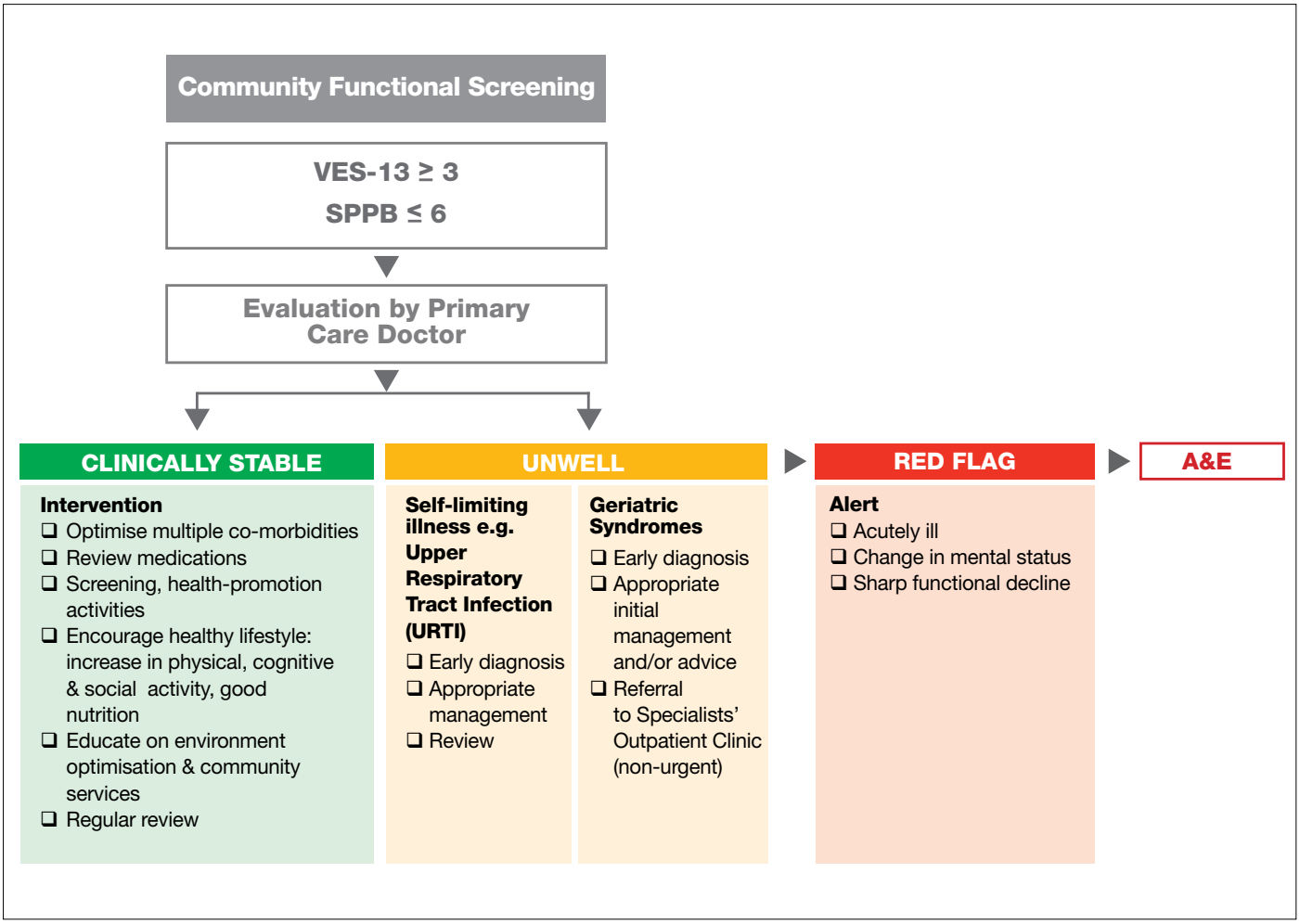
Figure 7 shows the recommended physician activity programmes based on SPPB scores. For further details about the physical activity programmes, please see Annex PF3.

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	A. Geriatric assessment B. Recommend to visit a Geriatrician for further evaluation & appropriate intervention of identified problems	A. Geriatric assessment B. Recommend self-help Strength Training Programme to patients along with advice about suitability of the activities based on doctor's assessment C. Recommend HPB's "Stronger Together" programme (a structured 12-week exercise programme conducted by HPB designed specifically for this group of patients)	Strongly recommend participants to take part in various forms of physical activity such as: A. HPB's FaBulouS community-based physical activity programme B. Brisk walking C. Health Qigong * *to provide information for individuals to join existing classes and/or groups in the community*	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: A. HPB's FaBulouS physical activity programme B. Brisk walking C. Health Qigong * *to provide information for individuals to join existing classes and/or groups in the community*
RESOURCES	Geriatric Clinics at restructured & private sector hospitals	www.hpb.gov.sg	www.hpb.gov.sg/physicalactivity	www.hpb.gov.sg/physicalactivity

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

ANNEX PF1 – VULNERABLE ELDERS SURVEY-13 (VES-13)

VES-13

1. Age _____

SCORE : 1 POINT FOR AGE 73-84
3 POINTS FOR AGE ≥ 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?	☐	☐	☐	☐*	☐*
b. lifting or carrying objects as heavy as 10 pounds?	☐	☐	☐	☐*	☐*
c. reaching or extending arms above shoulder level?	☐	☐	☐	☐*	☐*
d. writing or handling and drasping small objects?	☐	☐	☐	☐*	☐*
e. walking a quarter of a mile?	☐	☐	☐	☐*	☐*
f. heavy housework such as scrubbing floors or washing windows?	☐	☐	☐	☐*	☐*

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 of 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 PROGRAMME

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

REFERENCES

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2. Verbrugge LM, Jette AM. The disablement process. Soc Sci Med. 1994; 38: 1-14.

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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) is a simple function-based tool 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 heterogenous 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.

SFP2011; 37(2) 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 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, ß 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

MILD	**Few**, 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.
MODERATE	Symptoms or functional impairment between 'mild' and 'severe'. An individual wth moderately severe depression will usually have considerable difficulty in continuing with social, work or domestic activities.
SEVERE (without psychotic features)	**Several** symptoms in excess of those required to make the diagnosis; symptoms **markedly** 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

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

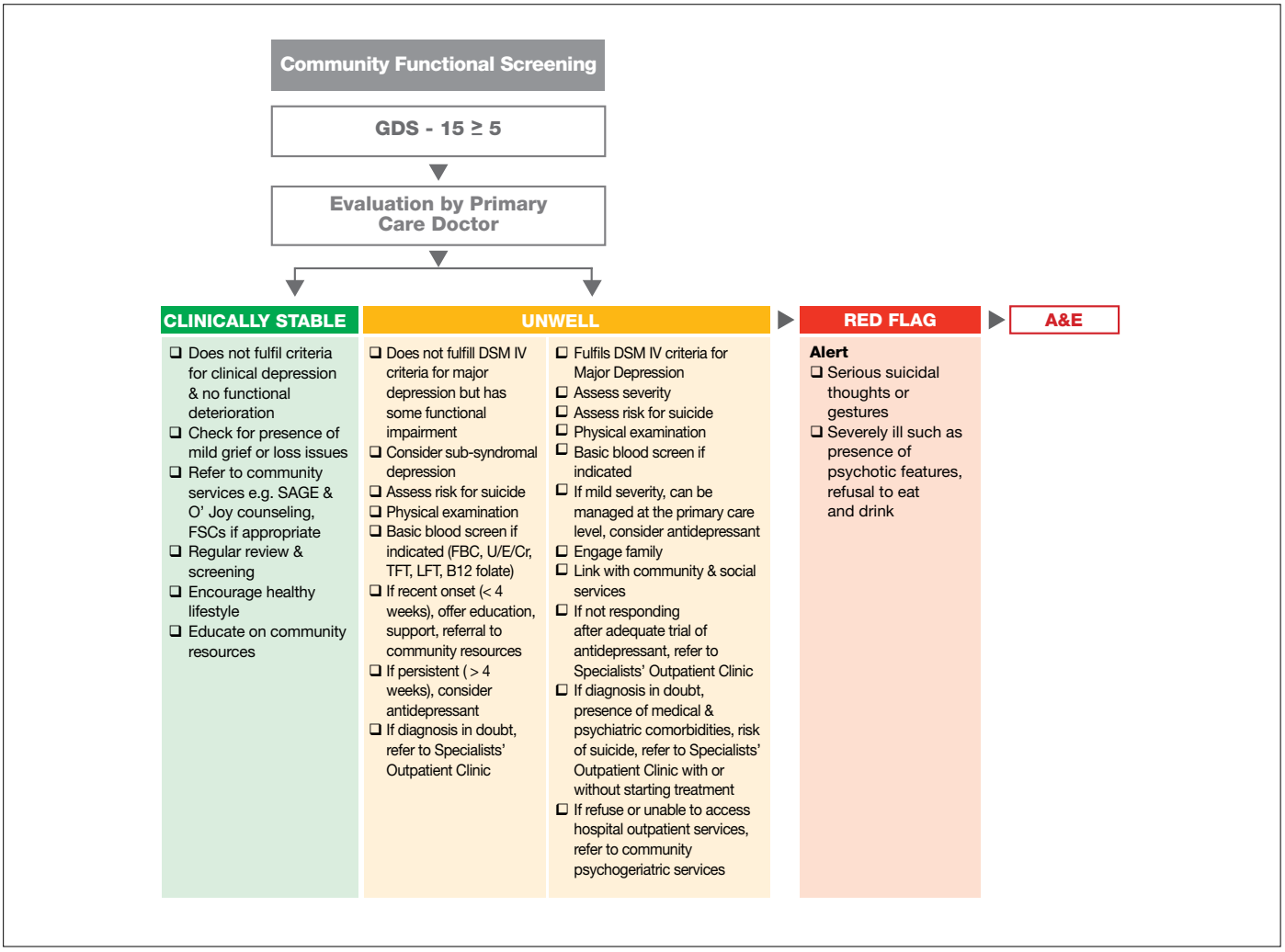
The clinical pathway to take from screening to intervention is shown in Figure 4.

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.

Figure 4: Clinical pathway from screening to intervention



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

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
- Agency for Integrated Care - www.aic.sg
- Community Psychogeriatric Programme (CPGP) based at Changi General Hospital 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

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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?		
2	Have you dropped many of your activities and interests?		
3	Do you feel that your life is empty?		
4	Do you often get bored?		
5	Are you in good spirits most of the time?		
6	Are you afraid that something bad is going to happen to you?		
7	Do you feel happy most of the time?		
8	Do you often feel helpless?		
9	Do you prefer to stay at home, rather than going out and doing new things?		
10	Do you feel you have more problems with memory than most?		
11	Do you think it is wonderful to be alive?		
12	Do you feel pretty worthless the way you are now?		
13	Do you feel full of energy?		
14	Do you feel that your situation is hopeless?		
15	Do you think that most people are better off than you are?		
		TOTAL	

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

Source: Yesavage J.A., 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
Jerome A. Yesavage, Geriatric Depression Scale. Psychopharmacology Bulletin, 1988; 24 (4): 709-711

ANNEX M2 – ANTRIDEPRESSANTS

Table 1: Side effect profiles of main antidepressants in Singapore

Class	Drug	Mode of action	Anticholinergic	Antihistaminic	α-adrenergic blocker
Tricyclic antidepressants	Amitriptyline	NA*++5HT#+	++++	++++	++++
	Imipramine	NA++5HT+	++	++	+++
	Dothiepin	NA++5HT+	++	++	++
Reversible inhibitors of monoamine oxidase A	Moclobemide	MAOψ	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 2,5HT2	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)
Fluovoxamine	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: Lippincolt, 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 ≥ 55 years, 4.8% in those aged ≥ 65 years, and 7.9% in those aged ≥ 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.

SFP2011; 37(2) 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 ≥ 55 years, 4.8% in those aged ≥ 65 years, and 7.9% in those aged ≥ 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.

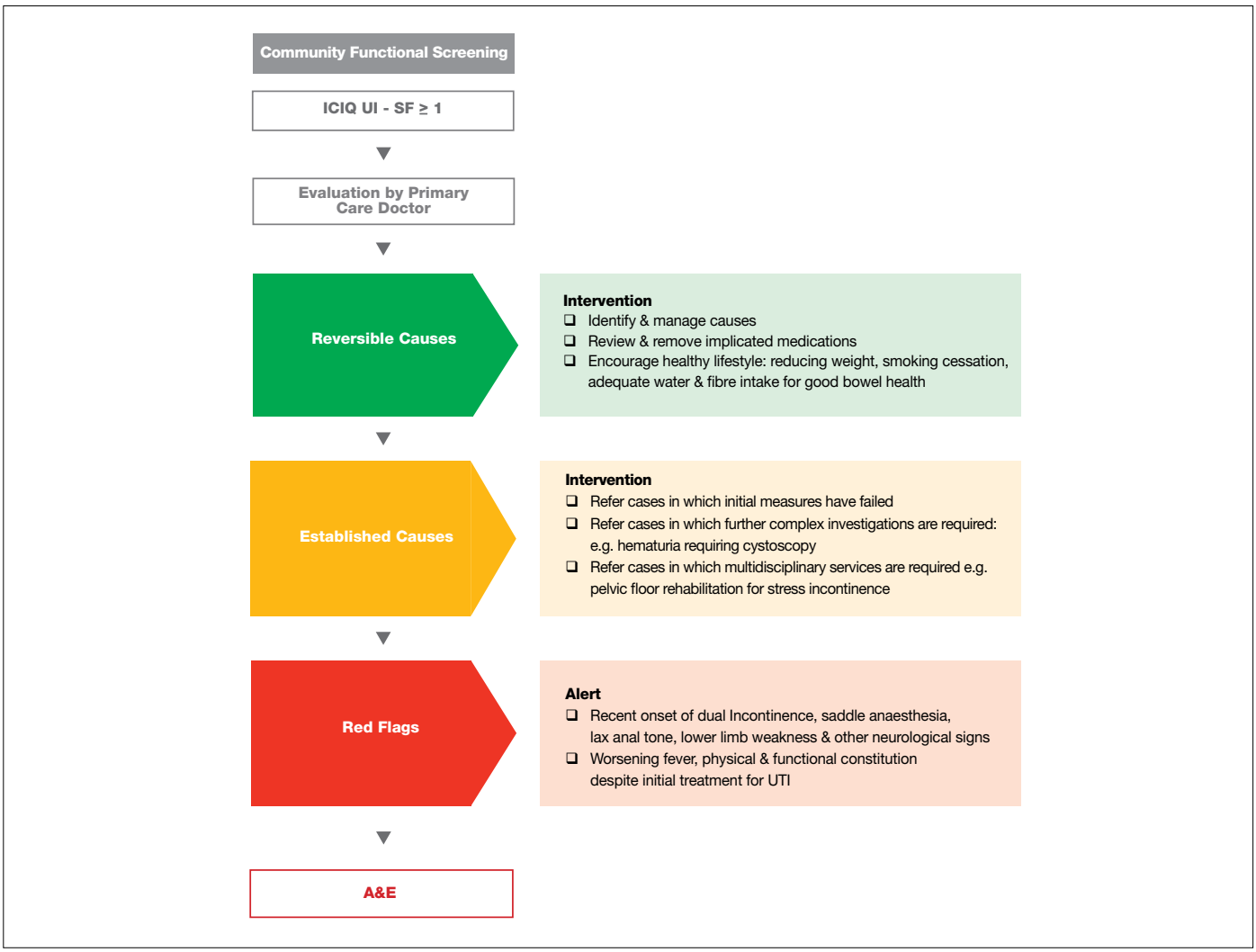
Simple continence management tips include:

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 anesthesia', 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:
1	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
2	Stress incontinence	
3	Urgency incontinence	
4	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: ☐☐ ☐☐ ☐☐

DAY MONTH YEAR

2 Are you *(tick one)*: Female ☐ Male ☐

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

never	☐	0
about once a week or less often	☐	1
two or three times a week	☐	2
about once a day	☐	3
several times a day	☐	4
all the time	☐	5

4 We would like to know how much urine <u>you think</u> leaks.
How much urine do you <u>usually</u> leak (whether you wear protection or not)?
(Tick one box)

none	☐	0
a small amount	☐	2
a moderate amount	☐	4
a large amount	☐	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	☐
leaks before you can get to the toilet	☐
leaks when you cough or sneeze	☐
leaks when you are asleep	☐
leaks when you are physically active/exercising	☐
leaks when you have finished urinating and are dressed	☐
leaks for no obvious reason	☐
leaks all the time	☐

Thank you very much for answering these questions.

"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

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.

SFP2011; 37(2) Supplement : 28-30

BACKGROUND

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.

LYNNE LIM HSUEH YEE, Senior Consultant, Department of Otolaryngology - Head, Neck Surgery, National University Hospital & National University of Singapore

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. A 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 four 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:

- Presbyacusis 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 (Presbyacusis)

Age-related hearing impairment, also termed presbyacusis, 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.

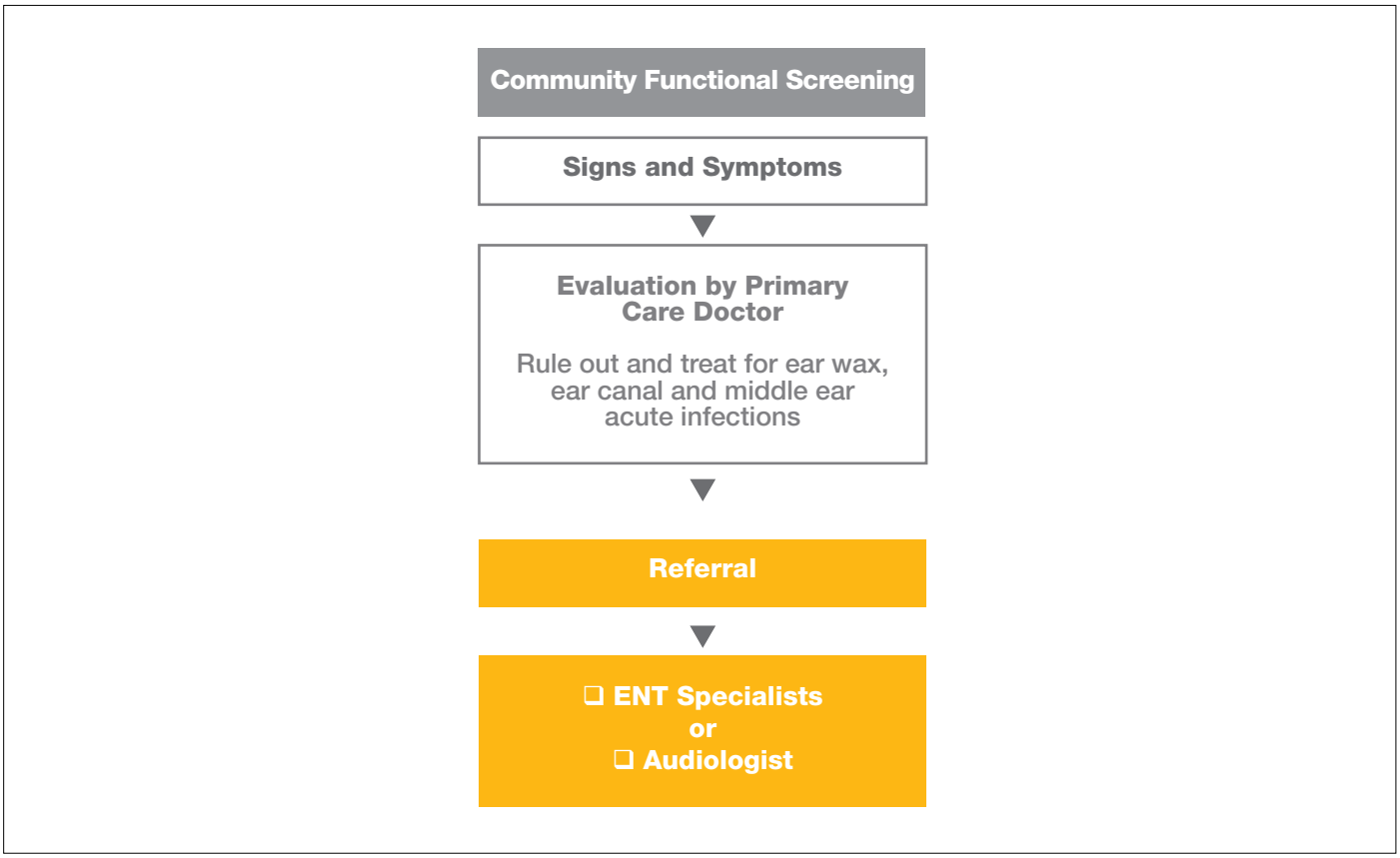
Hearing aids, if properly fitted, are often helpful. Assistive devices can be used. When hearing aids do not work, it could be that inappropriate ones have been fitted or that the fine tuning of the hearing aid has not been properly done. For example, a behind the ear (BTE) hearing aid may be more suitable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

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 presbyacusis, 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 neighbors?
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.[36,37]

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

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. 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.

SFP2011; 37(2) Supplement : 31-35

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.

ASSESSMENT

A visual acuity chart (e.g. Snellen Chart) is recommended for identifying presence of visual impairment.

INTERPRETING RESULTS

Abnormal Results

Patients with:

- Visual acuity worse than 6/12 (abnormal visual acuity) without pinhole on initial screening should have their visual acuity testing 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.

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

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

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.

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

Causes

Take a detailed ocular and medical history, and examine the eyes in more detail to determine the 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 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. red reflex (cataract, corneal opacity, vitreous haemorrhage), retina (diabetic retinopathy, age-related macular degeneration, retinal detachment), optic disc (glaucoma, optic disc swelling).

CLINICAL PATHWAY

The clinical pathway to take from screening to intervention is shown in Figure 7.

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).

Figure 1: A "cherry-red spot" at the fovea in a patient with painless sudden profound loss of vision due to central retinal artery occlusion.

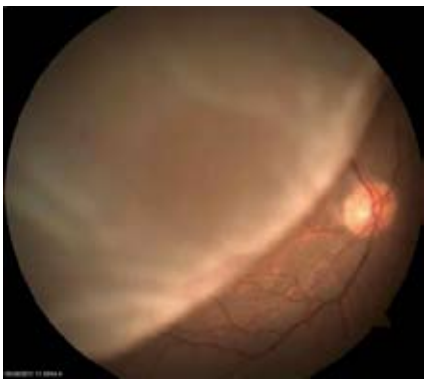


Figure 2: A large area of elevated retina in an eye causing visual field defect in a patient with retinal detachment.

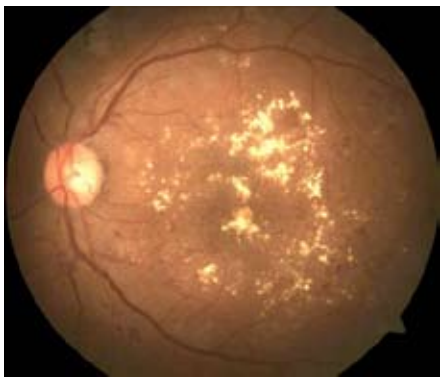


Figure 3: Severe hard exudates and retina haemorrhages due to sight-threatening diabetic maculopathy.

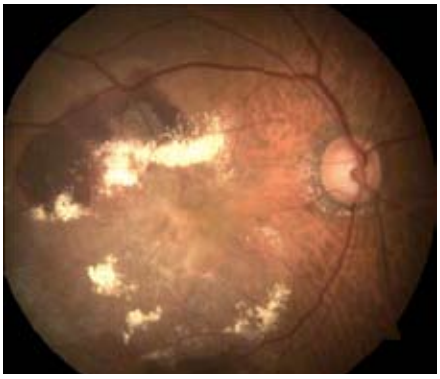


Figure 4: Severe hard exudates and sub-retinal haemorrhage due to wet age-related macular degeneration.

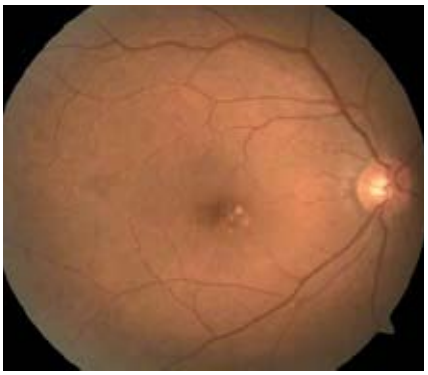


Figure 5: Multiple small yellowish drusen in the fovea in dry, age-related macular degeneration.

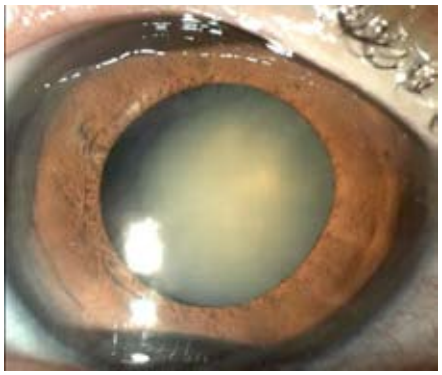


Figure 6: A cloudy, yellowish crystalline lens due to nuclear sclerotic cataract.

Source: Figures 1 to 6 are courtesy of Singapore International Eye Cataract Retina Centre at Mount Elizabeth Medical Centre, Singapore.

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 1), branch retinal artery occlusion, infective corneal ulcer, acute glaucoma, retinal detachment (Figure 2).

Conditions requiring early (urgent/next day) referral

e.g. vitreous haemorrhage, central retinal vein occlusion, branch retinal vein occlusion, diabetic maculopathy (Figure 3), wet age-related macular degeneration (Figure 4).

Conditions requiring routine referral

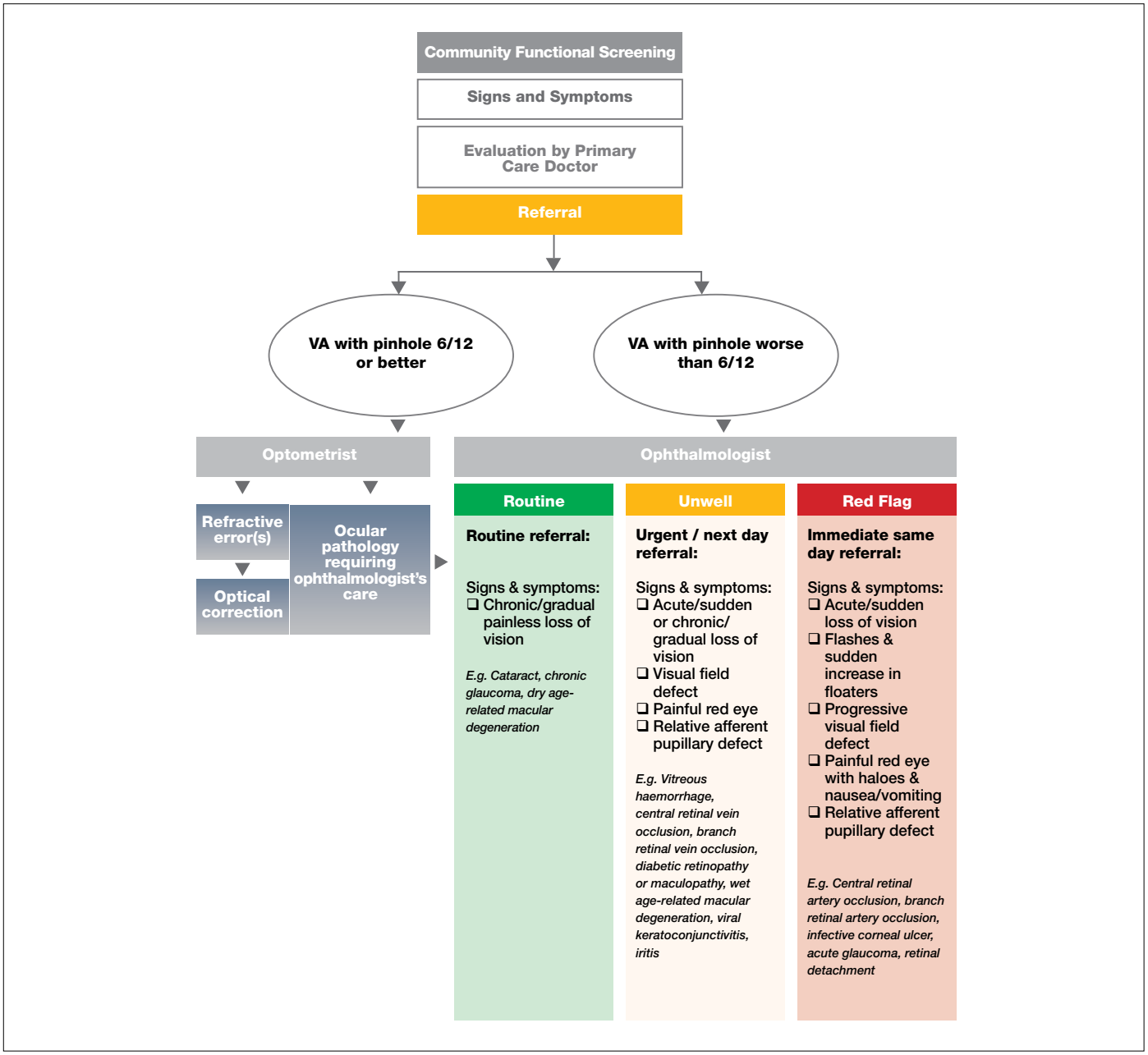
e.g. dry age-related macular degeneration (Figure 5), cataract (Figure 6) and chronic glaucoma.

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

Figure 7: Clinical pathway for vision assessment



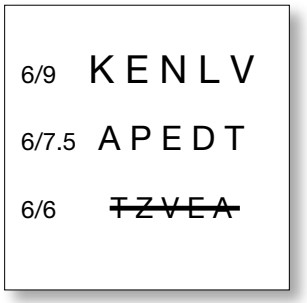
Source: 'Community Functional Screening Follow Up Resource for Primary Care Doctors', March 2011

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.**

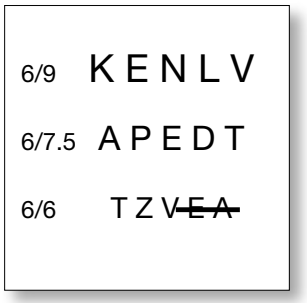
ANNEX 1 – MEASUREMENT OF VISUAL ACUITY (VA)

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:

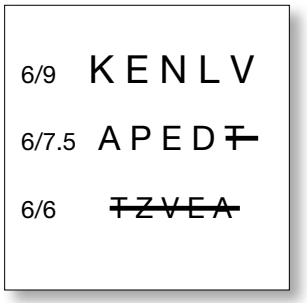


   If 5 out of 5 of the letters of the 6/7.5 line can be read correctly but not any letter of the 6/6 line, record VA as 6/7.5.

   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:

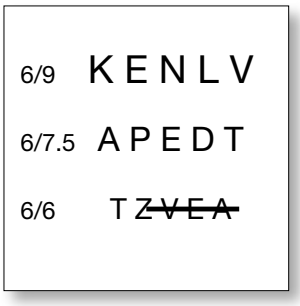


   If 3 out of 5 of the letters of the 6/6 line can be read correctly, record VA as $6/6^{-2}$.



   If 4 out of 5 of the letters of the 6/7.5 line can be read correctly, record VA as $6/7.5^{-1}$.

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 $6/7.5^{+2}$

If 1 out of 5 of the letters of the 6/7.5 line can be read correctly, record VA as $6/9^{+1}$

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."

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.

SFP2011; 37(2) Supplement : 36-43

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.

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.

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.

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, Senior Lecturer, Department of Restorative Dentistry, National University of Singapore

ROBERT YEE, Associate Professor, Department of Preventive Dentistry, 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.

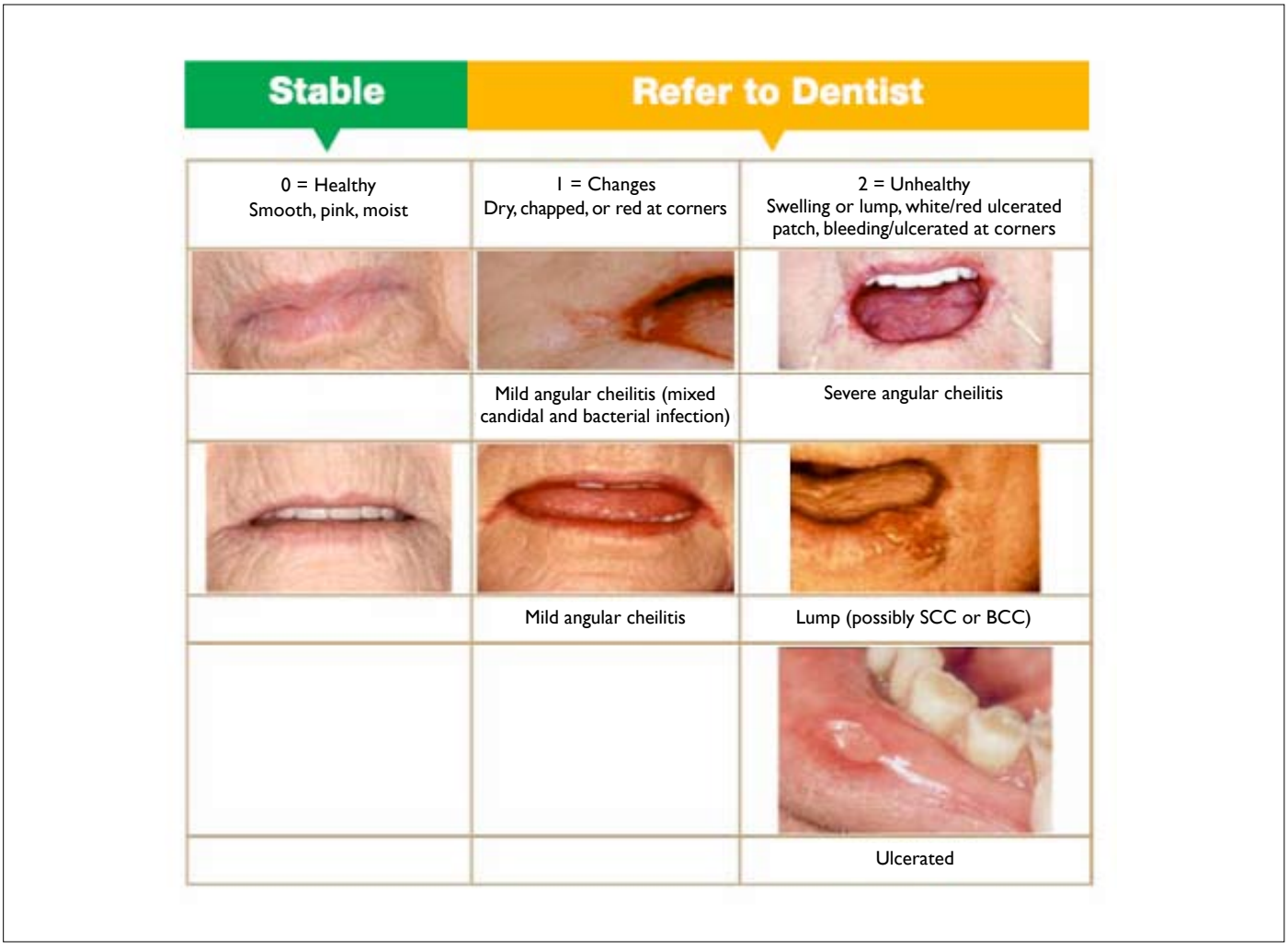
3. Gums & Tissues

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 3)

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.

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.

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.

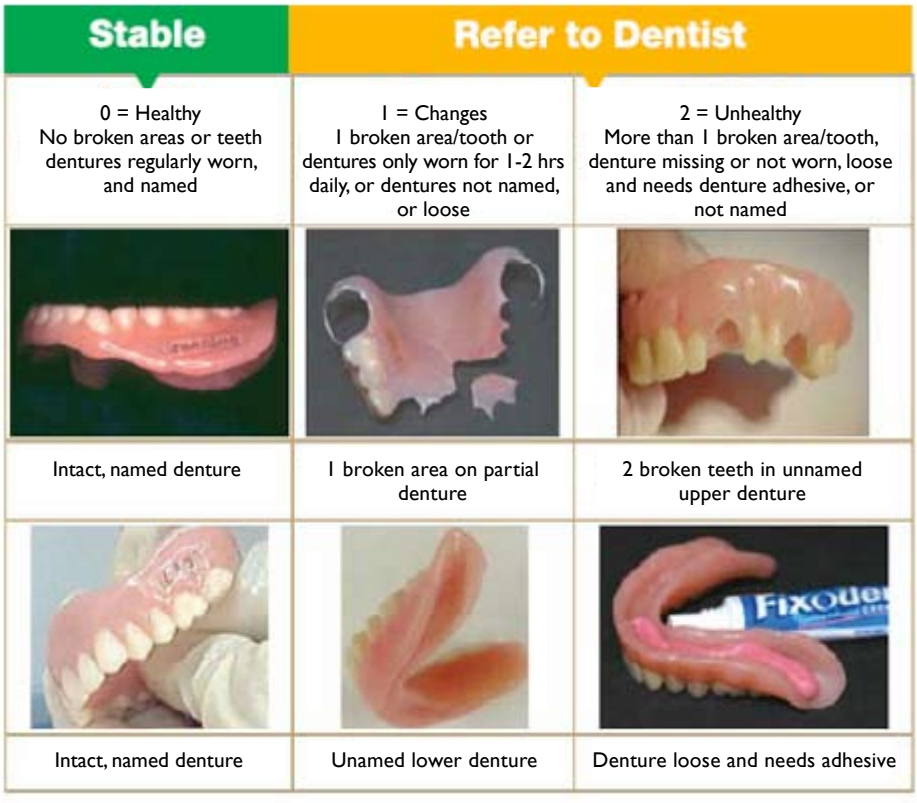
Figure 2: Assessing changes to the gums & tissues

Source: OHAT (from The Iowa Geriatric Education Centre)

Figure 3: Assessing changes to the teeth

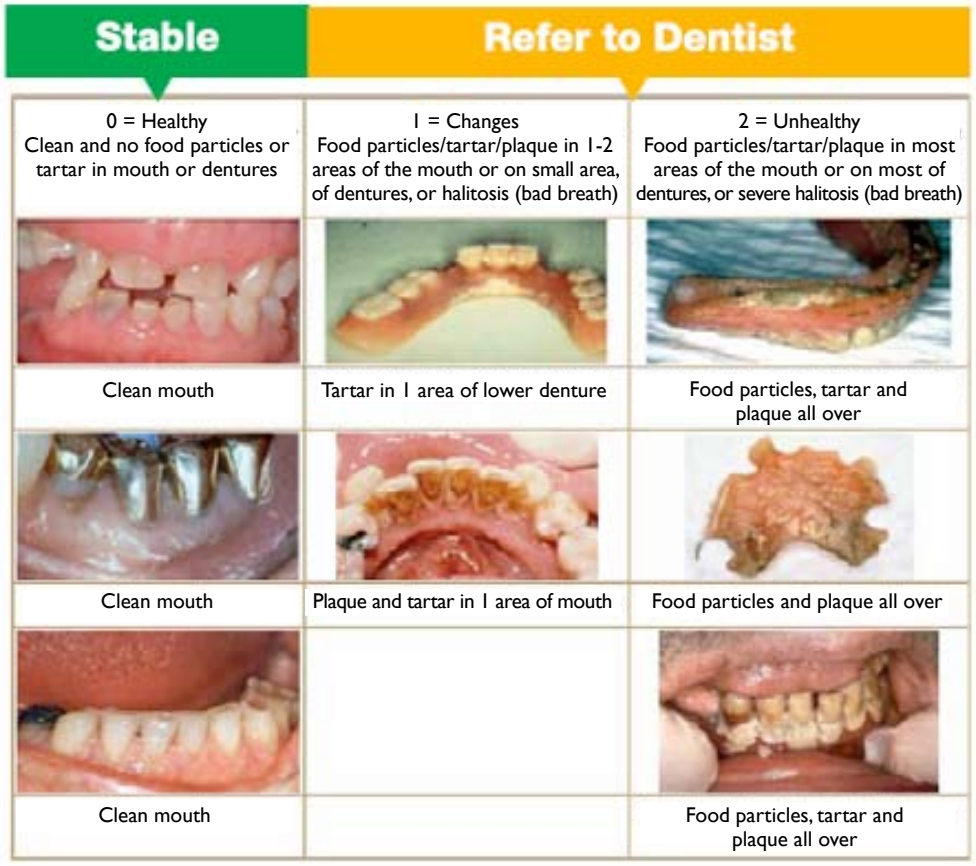
Source: OHAT (from The Iowa Geriatric Education Centre)

Figure 4: Assessing changes to the dentures



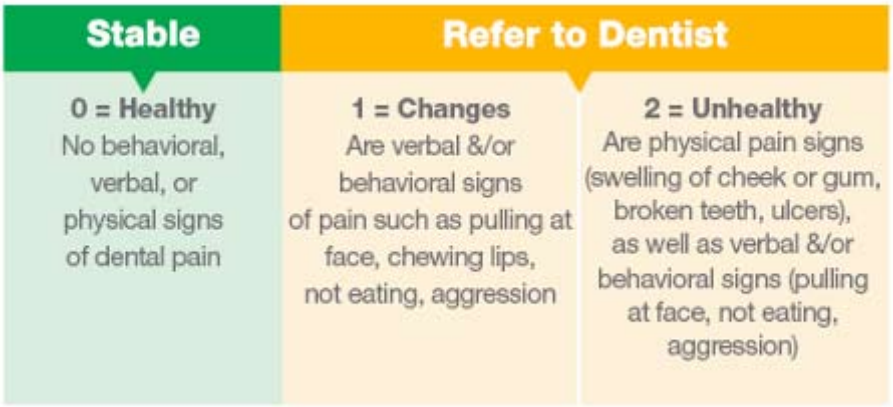
Source: OHAT (from The Iowa Geriatric Education Centre)

Figure 5: Assessing changes in oral hygiene



Source: OHAT (from The Iowa Geriatric Education Centre)

Figure 6: Assessing changes in oral facial pain

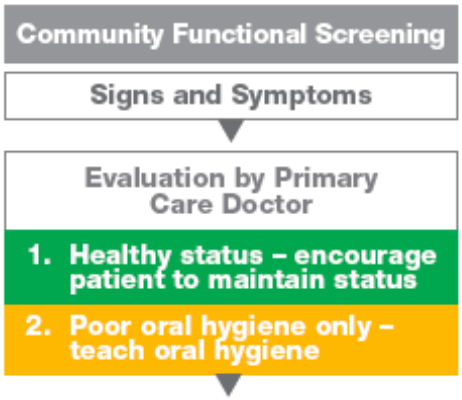


CLINICAL IMPLICATIONS

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



Item	Referral to Dentist
Lips	❑ Swelling or lump: white/red/ulcerated patch ❑ Red/bleeding/ulcerated at corners
Tongue	❑ Areas which may be red &/or white, ulcerated, swollen
Gums & Tissues	❑ Swollen, bleeding, ulcers, white/red patches. ❑ Generalized redness under dentures
Saliva	❑ Patient complains of dry mouth or has difficulty swallowing
Teeth	❑ Broken teeth/roots or teeth/roots with holes
Dentures	❑ Broken/cracked area or tooth ❑ Dentures not worn regularly ❑ Loose/needs denture adhesive ❑ Patient not able to eat well
Oral Cleanliness	❑ Tartar in mouth or on dentures ❑ Patient complains of halitosis
Oral Pain	❑ Verbal complaint of pain or inability to eat, swallow, or speak

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.

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

REFERENCES

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2. Diabetes Mellitus and Periodontal Disease J Periodontol 2006; 77:1289-1303.
3. Avlund K H-PP, Schroll M. Functional ability and oral health among older people: A longitudinal study from age 70 to 80. Journal of the American Geriatric Society 2001; 49:954-62.
4. Sreebny LM, Schwartz SS.A reference guide to drugs and dry mouth-2nd edition. Gerodontology 1997;14(1):33-47.
5. "Improving Oral Health for the Elderly- An Interdisciplinary Approach" edited by Lamster IR and Northridge ME. New York: Springer Science & Business Media LLC, 2008.

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 OH1 – 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	Dry, chapped	*Swelling or lump; white/red/ulcerated patch; red/bleeding/ulcerated at corners
Tongue	Normal, moist roughness, pink	Coated with plaque/ debris, easily removable by wiping with gauze	Patchy, fissured, red *Patch that is red &/or white, ulcerated, swollen*
Gums & Tissues	Pink, moist, smooth, no bleeding	Slightly reddish gums around teeth only	Red, swollen, one ulcer/sore spot under denture *Swollen, bleeding, ulcers, white/red patches, generalized redness under dentures*
Saliva	Moist tissues, watery and free flowing saliva	Dry, sticky tissues, little saliva present	Tissues parched and red, very little/no saliva present, saliva is thick, resident think they have a dry mouth
Natural Teeth (Yes/No) *delete where appropriate	No decayed or broken teeth/ roots		*Decayed or broken teeth/roots* Less than 4 pairs of posterior teeth in occlusion (without dentures and pt unable to eat well)
Dentures (Yes/No) *delete where appropriate	No broken/cracked areas or teeth, dentures regularly worn		Broken/cracked area or tooth; Dentures not worn regularly Loose/needs denture adhesive Pt not able to eat well
Oral Cleanliness	Clean and no food particles or tartar in mouth or dentures	Food particles/ plaque in the mouth or dentures Halitosis (bad breath)	Tartar in mouth or on dentures Patient complains of halitosis
Dental Pain	No verbal or physical signs of dental pain		*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) *
	MAINTAIN GOOD ORAL HYGIENE	If any tick within this column please refer for oral hygiene instructions. ORAL HYGIENE INSTRUCTIONS	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

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 : 41
MCQs on MANAGEMENT OF FUNCTIONAL DECLINE IN OLDER ADULTS
Submission DEADLINE : 3 MAY 2011

INSTRUCTIONS

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

1. Physical performance measures such as the Short Physical Performance Battery (SPPB) can help assess elderly patients. In this context, which of the following statements is CORRECT?

A. SPPB cannot assess full range of performance , even in high functioning persons.
B. SPPB is not reproducible and is not sensitive to change.
C. SPPB can signal functional decline even before it is reported by patient or noticed by doctor.
D. SPPB is unable to predict preclinical stage nor allow early intervention.
E. SPPB measures upper limb power and endurance only.

2. A community dwelling elderly gentleman is referred to you after a community functional screening program because his VES 13 score is 5 and his SPPB score is 6. What should you do FIRST?

A. You should do a complete geriatric assessment.
B. You should refer him to the hospital urgently.
C. You tell them that he can see you next month.
D. You check him to make sure that there is no acute illness.
E. None of the above is correct.

3. In the treatment of the elderly patient, which of the following statements is CORRECT?

A. Treatment that makes a huge impact on function should take priority.
B. Function of the patient should be objectively measured and monitored for trend.
C. Early intervention can sometimes help preserve function.
D. Doctors, nurses, therapist, pharmacists may all be involved in the areas of intervention.
E. All the above are true.

4. About brisk walking as an exercise, which of the following statements is CORRECT?

A. It is suitable only for the elderly as it is a low impact aerobic activity.
B. It makes the elderly tired and sleep less.
C. It burns calories and manages weight.
D. It increases the stress levels.
E. It is ineffective in creating an environment for bonding.

5. Older patients need to exercise to acquire good health benefits. Which of the following recommendations is CORRECT?

A. Have 60 minutes of exercise every day.
B. Have 150 minutes of moderate intensity aerobic activity every week.
C. Have muscle building exercises daily.
D. Have gym workouts in a circuit training fashion once a week.
E. Train like they were 10 years younger.

6. About factors causing depression, which of the following is LEAST likely to cause depression in the elderly?

A. Having too many children.
B. Taking drugs such as thiazide diuretics, beta blockers, or steroids.
C. Being afflicted by sudden illnesses such as stroke or heart attack.
D. Have a past history of depression.
E. Having retirement and financial difficulties.

7. About suicide in the elderly, which of the following is the SINGLE MOST IMPORTANT predictor?

A. Loneliness.
B. Stroke.
C. Chronic renal disease.
D. Clinical depression.
E. Having no friends.

8. Besides medical therapy, which of the following is a treatment option for mild to moderate depression in the elderly?

A. Forced admission to Institute of Mental Health.
B. Calling the Police for help.
C. Referring to Family Service Centres or Day Care Centres.
D. Frequent visits to A & E.
E. Asking the patient to stop all social activities.

9. A patient develops nausea, vomiting, diarrhoea, and hyponatremia after being prescribed an antidepressant X. Which of the following is MOST LIKELY to be X?

A. Diazepam.
B. Fluoxetine.
C. Amitriptylline.
D. Moclobemide.
E. Mirtazepine.

10. About immediate referral to the A & E in an elderly patient with depression, which of the following is a CORRECT indication?

A. The diagnosis is in doubt.
B. Bipolar disorder is suspected.
C. Severe or recurrent depression is diagnosed.
D. Interference with socio and interpersonal interaction is present.
E. Danger to life of self or others is present.

11. About common causes of reversible urinary incontinence, which of the following is the LEAST LIKELY?

A. Anxiety or depression.
B. Diabetes mellitus.
C. Urinary tract infection.
D. Atrophic vaginitis.
E. Fracture of tibia and fibula.

12. About a screening question for urinary incontinence, which of the following is the BEST?

A. "How often do you have sexual relations?"
B. "How often do you wake up to pass urine at night?"
C. "How often do you leak urine?"
D. "How often do you have urinary tract infections?"
E. "How often do you see a doctor for urine problems?"

13. In an elderly patient with urinary incontinence, which of the following should be included in the physical examination?

A. Pelvic examination for ladies.
B. Rectal examination.
C. Neurological examination, especially of lower limbs.
D. Abdominal examination.
E. All of the above examinations.

14. About evaluating the elderly with urinary incontinence, which of the following is the MAIN AIM?:

A. Teach them Kegel's exercises.
B. Recommend who should be wearing pads.
C. Refer them for further investigations at the hospital.
D. Discover reversible conditions and treat them if possible.
E. Help the patient to improve mobility.

15. In the assessment of elderly with urinary incontinence, which of the following is the MOST IMPORTANT red flag?

A. Late onset of bowel incontinence.
B. Saddle area anaesthesia.
C. Good anal tone.
D. Upper limb weakness.
E. Neck and arm numbness.

16. With regards to assessing hearing loss, which of following can be used as a simple global question?

A. "Hello, can you hear me?"
B. "Do you or your family think you may have hearing loss?"
C. "Is hearing a problem when you are in a noisy restaurant with relatives?"
D. "Do you need to turn up the volume when you watch TV?"
E. "Do you have difficulty hearing when someone speaks in a whisper?"

17. About chronic hearing loss in the elderly, which of the following is the leading cause?

A. Presbyacusis.
B. Noise-induced hearing loss.
C. Otitis Media.
D. Perforated tympanic membrane.
E. Meniere's Disease.

18. Mr Tan always feels frustrated when talking to his wife. He always has difficulty hearing what is on the television. He definitely feels handicapped due to his hearing problem and he sometimes skips Sunday church services. He does not feel that his social life has suffered. Based on these findings, Mr Tan is likely to have a HHIE-S score of at least X. What is X?

A. 6 points
B. 8 points
C. 14 points
D. 26 points
E. 40 points

19. Regarding presbyacusis, which of the following statements is CORRECT?

A. It affects the lower frequencies of hearing first.
B. Noisy background situations have little effect.
C. Lip reading and context cues are not usually required.
D. It is usually fixed and non-progressive.
E. It may lead to social withdrawal, depression, and poorer cognition.

20. If an elderly patient complains of hearing loss, which of the following is the FIRST step that the GP would take?

A. Refer for audiology test.
B. Refer to ENT specialist.
C. Arrange for MRI of ear canal.
D. Check for ear wax and ear infections.
E. Advice on buying hearing aids.

21. The percentage of Singaporean adults of Chinese origin aged 40-79 with visual impairment in both eyes is X. What is X?

A. 0.5%
B. 1.1%
C. 5.2%
D. 6.5%
E. 12.2%

22. About immediate same day referral to an ophthalmologist, which of the following is the LEAST LIKELY indication?

A. Itchy red eye with discharge.
B. Acute sudden loss of vision.
C. Flashes with sudden increase in floaters.
D. Progressive visual field defect.
E. Relative afferent pupillary defect.

23. Impaired vision correctable with a pinhole visual acuity of X or better is likely to have refractive error and should be referred to an optometrist. What is X?

A. 6/9
B. 6/12
C. 6/18
D. 6/60
E. 6/120

24. About pinhole testing to distinguish between refractive error and ocular pathology, which of the following explanation is the MOST CORRECT?

A. Patients with ocular pathology will see better with a pinhole.
B. Patients with refractive error will not be able to focus with a pinhole.
C. It dilates the pupil by allowing less light to fall on the retina.
D. Patients are unlikely to have co-existent refractive error and ocular pathology in the same eye.
E. The pinhole focuses light and allows light to pass through the visual axis undeviated, thereby temporarily removing the effects of refractive error.

25. Which of the following conditions can be referred as a non-urgent routine case to the ophthalmologist?

A. Central retinal vein occlusion.
B. Central retinal artery occlusion.
C. Wet age-related macular degeneration.
D. Dry age-related macular degeneration.
E. Retinal detachment.

26. What did the HPB survey of Singaporean adults in 2003 show?

A. Most adults only brushed their teeth once a day.
B. The mean number of missing teeth in the elderly aged 65-69 years old is 5.
C. 32.8% of adults flossed their teeth at least once a day.
D. 45.5% of adults visited the dentist once every 6 months.
E. Most Singaporeans have the correct perception of their own oral health.

27. Diabetes Mellitus has the greatest association with X. What is X?

A. Dental caries.
B. Periodontal disease.
C. Tooth loss.
D. Oral cancer.
E. Oral ulcers.

28. Regarding xerostomia, which of the following is CORRECT?

A. It affects approximately 30% of older adults.
B. It may be caused by concomitant chemotherapy.
C. It may be due to medications such as antihistamines and antidepressants.
D. It increases the risk of dental caries and oral infections.
E. All of the above are correct.

29. The primary care doctor can play a role in the maintenance of good oral health by giving simple oral hygiene tips. Which of the following is CORRECT?

A. Keeping lips moist by frequent licking.
B. Once a day brushing of teeth.
C. Dental checkups if symptoms such as pain develops.
D. Stop smoking.
E. Leaving dentures in a cool dry place for storage.

30. About referral to the dental surgeon for further management, which of the following conditions should be referred?

A. Gum redness and inflammation under dentures.
B. Dry mouth leading to difficulty in swallowing.
C. Broken teeth exposing the roots.
D. Loose dentures that require adhesive.
E. All the above should be referred.

Prevent Cervical Cancer. ☺ffer a Pap smear today.

Cervical cancer presents a serious risk to Singaporean women, taking an average of 77 lives each year[1]. Approximately 200 new cases are detected annually, making it the 7th most common cancer among women[1].

Yet something as simple as a Pap smear can help to detect cervical cancer at an early stage.

How can you help to prevent cervical cancer?

1. Offer a Pap smear to women aged 25 or older who have ever had sex
2. Encourage them to go for a Pap smear once every 3 years
3. Follow up on their screening results to ensure continuity of care

Find out more about cervical cancer screening by visiting HPB's website at http://www.hpb.gov.sg/healthscreening or calling a Nurse Advisor on 1800 223 1313.

[1] Singapore Cancer Registry Interim Report 2004 - 2008

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READINGS

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

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

available as free full-text and some requiring payment

Selection of readings made by A/Prof Goh Lee Gan

READING 1 – Vascular basis for brain degeneration

Kalaria RN. Vascular basis for brain degeneration: faltering controls and risk factors for dementia. Nutr Rev. 2010 Dec;68 Suppl 2:S74-87. doi: 10.1111/j.1753-4887.2010.00352.x. Review. PubMed PMID: 21091952.

URL: http://onlinelibrary.wiley.com/doi/10.1111/j.1753-4887.2010.00352.x/pdf (payment required)

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SUMMARY

The integrity of the vascular system is essential for the efficient functioning of the brain. Aging-related structural and functional disturbances in the macro- or microcirculation of the brain make it vulnerable to cognitive dysfunction, leading to brain degeneration and dementing illness. Several faltering controls, including impairment in autoregulation, neurovascular coupling, blood-brain barrier leakage, decreased cerebrospinal fluid, and reduced vascular tone, appear to be responsible for varying degrees of neurodegeneration in old age. There is ample evidence to indicate vascular risk factors are also linked to neurodegenerative processes preceding cognitive decline and dementia. The strongest risk factor for brain degeneration, whether it results from vascular or neurodegenerative mechanisms or both, is age. However, several modifiable risks such as cardiovascular disease, hypertension, dyslipidemia, diabetes, and obesity enhance the rate of cognitive decline and increase the risk of Alzheimer's disease in particular. The ultimate accumulation of brain pathological lesions may be modified by genetic influences, such as the apolipoprotein E ε4 allele and the environment. Lifestyle measures that maintain or improve cardiovascular health, including consumption of healthy diets, moderate use of alcohol, and implementation of regular physical exercise are important factors for brain protection. PMID: 21091952 [PubMed - indexed for MEDLINE]

READING 2 – Moving against frailty – physical activity protects

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://www.springerlink.com/content/2248332292413l27/fulltext.pdf (payment required)

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SUMMARY

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]

READING 3 – Aging, frailty and age-related diseases

Fulop T, Larbi A, Witkowski JM, McElhaney J, Loeb M, Mitnitski A, Pawelec G. Aging, frailty and age-related diseases. Biogerontology. 2010 Oct;11(5):547-63. Epub 2010 Jun 18. Review. PubMed PMID: 20559726.

URL: http://www.springerlink.com/content/2248332292413l27/fulltext.pdf (payment required)

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SUMMARY

The concept of frailty as a medically distinct syndrome has evolved based on the clinical experience of geriatricians and is clinically well recognizable. Frailty is a nonspecific state of vulnerability, which reflects multisystem physiological change. These changes underlying frailty do not always achieve disease status, so some people, usually very elderly, are frail without a specific life threatening illness. Current thinking is that not only physical but also psychological, cognitive and social factors contribute to this syndrome and need to be taken into account in its definition and treatment. Together, these signs and symptoms seem to reflect a reduced functional reserve and consequent decrease in adaptation (resilience) to any sort of stressor and perhaps even in the absence of extrinsic stressors. The overall consequence is that frail elderly are at higher risk for accelerated physical and cognitive decline, disability and death. All these characteristics associated with frailty can easily be applied to the definition and characterization of the aging process per se and there is little consensus in the literature concerning the physiological/biological pathways associated with or determining frailty. It is probably true to say that a consensus view would implicate heightened chronic systemic inflammation as a major contributor to frailty. This review will focus on the relationship between aging, frailty and age-related diseases, and will highlight possible interventions to reduce the occurrence and effects of frailty in elderly people. PMID: 20559726 [PubMed - indexed for MEDLINE]

READING 4 – Walking speed is a reliable barometer of functional decline

Schrack JA, Simonsick EM, Ferrucci L. The energetic pathway to mobility loss: an emerging new framework for longitudinal studies on aging. J Am Geriatr Soc. 2010 Oct;58 Suppl 2:S329-36. doi: 10.1111/j.1532-5415.2010.02913.x. Review. PubMed PMID: 21029063.

URL: http://onlinelibrary.wiley.com/doi/10.1111/j.1532-5415.2010.02913.x/pdf (payment required)

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SUMMARY

The capacity to walk independently is a central component of independent living. Numerous large and well-designed longitudinal studies have shown that gait speed, a reliable marker of mobility, tends to decline with age and as a consequence of chronic disease. This decline in performance is of utmost importance because slow walking speed is a strong, independent predictor of disability, healthcare utilization, nursing home admission, and mortality. Based on these robust findings, it has been postulated that age-associated decline in walking speed is a reliable barometer of the effect of biological aging on health and functional status. Despite the extraordinary prognostic information that walking speed provides, which is often superior to traditional medical information, there is a limited understanding of the mechanisms that underlie age- and disease-related gait speed decline. Identifying the mechanisms that underlie

the prognostic value of walking speed should be a central theme in the design of the next generation of longitudinal studies of aging, with appropriate measures introduced and analytical approaches incorporated. This study hypothesized that a scarcity of available energy induces the decline in customary walking speed with aging and disease. Based on work in the Baltimore Longitudinal Study of Aging, examples of measures, operationalized dimensions, and analytical models that may be implemented to address this are provided. The main premise is simple: the biochemical processes that maintain life, secure homeostatic equilibrium, and prevent the collapse of health require energy. If energy becomes deficient, adaptive behaviors develop to conserve energy. PMID: 21029063 [PubMed - indexed for MEDLINE]

READING 5 – Nutritional assessment is important to identify and treat patients at risk

Ahmed T, Haboubi N. Assessment and management of nutrition in older people and its importance to health. Clin Interv Aging. 2010 Aug 9;5:207-16. Review. PubMed PMID: 20711440; PubMed Central PMCID: PMC2920201.

URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2920201/pdf/cia-5-207.pdf (free full text)

Adult and Elderly Medicine, Nevill Hall Hospital, Abergavenny, Wales, UK.

SUMMARY
Nutrition is an important element of health in the older population and affects the aging process. The prevalence of malnutrition is increasing in this population and is associated with a decline in: functional status, impaired muscle function, decreased bone mass, immune dysfunction, anemia, reduced cognitive function, poor wound healing, delayed recovery from surgery, higher hospital readmission rates, and mortality. Older people often have reduced appetite and energy expenditure, which, coupled with a decline in biological and physiological functions such as reduced lean body mass, changes in cytokine and hormonal level, and changes in fluid electrolyte regulation, delay gastric emptying and diminish senses of smell and taste. In addition pathologic changes of aging such as chronic diseases and psychological illness all play a role in the complex etiology of malnutrition in older people. Nutritional assessment is important to identify and treat patients at risk, the Malnutrition Universal Screening Tool being commonly used in clinical practice. Management requires a holistic approach, and underlying causes such as chronic illness, depression, medication and social isolation must be treated. Patients with physical or cognitive impairment require special care and attention. Oral supplements or enteral feeding should be considered in patients at high risk or in patients unable to meet daily requirements. PMCID: PMC2920201 PMID: 20711440 [PubMed - indexed for MEDLINE]

READING 6 – Sarcopenia and significance

Narici MV, Maffulli N. Sarcopenia: characteristics, mechanisms and functional significance. Br Med Bull. 2010;95:139-59. Epub 2010 Mar 2. Review. PubMed PMID: 20200012.

URL: http://bmb.oxfordjournals.org/content/95/1/139.full.pdf+html (payment required)

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SUMMARY
Sarcopenia reflects a progressive withdrawal of anabolism and an increasedcatabolism, along with a reduced muscle regeneration capacity. Muscle force and power decline more than muscle dimensions: older muscle is intrinsically weak. Sarcopenic obesity (SO) among the elderly corroborates to the loss of muscle mass increasing the risk of metabolic syndrome development. Recent studies on the musculoskeletal adaptations with ageing and key papers on the mechanisms of muscle wasting, its functional repercussions and on SO are included. Neuropathic, hormonal, immunological, nutritional and physical activity factors contribute to sarcopenia. Selective fast fibre atrophy, loss of motor units and an increase in hybrid fibres are typical findings of ageing. Satellite cell number decreases reducing muscle regeneration capacity. SO promotes further muscle wasting and increases risk of metabolic syndrome development.

The proportion of fast to slow fibres seems maintained in old age. In elderly humans, nuclear domain is maintained constant. Basal protein synthesis and breakdown show little changes in old age. Instead, blunting of the anabolic response to feeding and exercise and of the antiproteolytic effect of insulin is observed. Further understanding of the mechanisms of sarcopenia requires disentangling of the effects of ageing alone from those of disuse and disease. The causes of the greater anabolic resistance to feeding and exercise of elderly women need elucidating. The enhancement of muscle regeneration via satellite cell activation via the MAPK/notch molecular pathways seems particularly promising.PMID: 20200012 [PubMed - indexed for MEDLINE]

READING 7 – Health and disease in 85 year olds

Collerton J, Davies K, Jagger C, Kingston A, Bond J, Eccles MP, Robinson LA, Martin-Ruiz C, von Zglinicki T, James OF, Kirkwood TB. Health and disease in 85 year olds: baseline findings from the Newcastle 85+ cohort study. BMJ. 2009 Dec 22;339:b4904. doi: 10.1136/bmj.b4904. PubMed PMID: 20028777; PubMed Central PMCID: PMC2797051.

URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2797051/pdf/bmj.b4904.pdf (free full text)

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SUMMARY

Comment in:
BMJ. 2009;339:b4715.

OBJECTIVES: The Newcastle 85+ Study aims to systematically study the clinical, biological, and psychosocial attributes of an unselected cohort of 85 year olds and to examine subsequent health trajectories as the cohort ages; health at baseline is reported.
DESIGN: Cross sectional analysis of baseline data from a cohort study.
SETTING: Newcastle upon Tyne and North Tyneside primary care trusts, United Kingdom.
PARTICIPANTS: 1042 people born in 1921 and registered with the participating general practices.
MAIN OUTCOME MEASURES: Detailed health assessment and review of general practice records (disease, medication, and use of general practice services); participants could decline elements of the protocol.
RESULTS: Of the 1453 eligible people, 851 (58.6%) were recruited to health assessment plus record review, 188 (12.9%) to record review only, and 3 (0.2%) to health assessment only. Data from record review are reported on a maximum of 1030 and from health assessment on a maximum of 853; individual denominators differ owing to withdrawal and missing values. Of the health assessment sample (n=853), 62.1% (n=530) were women and 10.4% (n=89) were in institutional care. The most prevalent diseases were hypertension (57.5%, 592/1030) and osteoarthritis (51.8%, 534/1030). Moderate or severe cognitive impairment was present in 11.7% (96/824) of participants, severe or profound urinary incontinence in 21.3% (173/813), hearing impairment in 59.6% (505/848), and visual impairment in 37.2% (309/831). Health assessment identified participants with possible disease but without a previous diagnosis in their medical record for hypertension (25.1%, 206/821), ischaemic heart disease (12.6%, 99/788), depression (6.9%, 53/772), dementia (6.7%, 56/840), and atrial fibrillation (3.8%, 30/788). Undiagnosed diabetes mellitus and thyroid disease were rare (1%, 7/717 and 6/762, respectively). A median of 3 (interquartile range 1-8) activities of daily living were undertaken with difficulty. Overall, 77.6% (646/832) of participants rated their health compared with others of the same age as good, very good, or excellent. High contact rates in the previous year with general practitioners (93.8%, 960/1024) were recorded. Women had significantly higher disease counts (medians: women 5, men 4; P=0.033) and disability scores (medians: women 4, men 2; P=0.0006) than men, but were less likely to have attended outpatient clinics in the previous three months (women 29% (150/524), men 37% (118/320), odds ratio 0.7, 95% confidence interval 0.5 to 0.9).
CONCLUSIONS: This large cohort of 85 year olds showed good levels of both self rated health and functional ability despite significant levels of disease and impairment. Hypertension, ischaemic heart disease, atrial fibrillation, depression, and dementia may be underdiagnosed. Notable differences were found between the sexes: women outnumbered men and had more disease and disability. PMCID: PMC2797051 PMID: 20028777 [PubMed - indexed for MEDLINE]

READING 8 – Approaches to characterize geriatric depression

Steffens DC. A multiplicity of approaches to characterize geriatric depression and its outcomes. Curr Opin Psychiatry. 2009 Nov;22(6):522-6. Review. PubMed PMID: 19625967; PubMed Central PMCID: PMC2833219.

URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2833219/pdf/nihms-180955.pdf (free full text)

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SUMMARY
PURPOSE OF REVIEW: Research in geriatric depression has always had a multidisciplinary bent, particularly in methods used to characterize depression. Understanding diagnosis, psychiatric comorbidities, and course continues to be a goal of clinical researchers. Those interested in cognitive neuroscience and basic neuroscience have more recently trained their sights on late-life depression. This review identifies recent progress in the characterization of geriatric depression using a variety of methodologies.
RECENT FINDINGS: Depression in the elderly remains underdetected and underdiagnosed, particularly in nonmental health settings. Studies of the impact of psychiatric comorbidities and of the negative outcomes of depression in older adults demonstrate that geriatric depression is a serious medical condition that not only affects mood but can also lead to functional and cognitive decline. Advances in neuroimaging technology have demonstrated structural and functional changes in the brains of older depressed patients. With the advent of brain banks in neuropsychiatry, we are now seeing postmortem neuroanatomical studies that seek to extend findings from clinical practice and from neuroimaging research.
SUMMARY: Clinicians should become more aware of advances in detection of depression, the effect of psychiatric comorbidities, the poor mood and cognitive outcomes associated with late-life depression and should keep abreast of recent neuroimaging and neuroanatomical findings. PMCID: PMC2833219 PMID: 19625967 [PubMed - indexed for MEDLINE]

READING 9 – Progressive resistance strength training (PRT) exercises increase strength.

Liu CJ, Latham NK. Progressive resistance strength training for improving physical function in older adults. Cochrane Database Syst Rev. 2009 Jul 8;(3):CD002759. Review. PubMed PMID: 19588334.

URL: http://onlinelibrary.wiley.com/o/cochrane/clsysrev/articles/CD002759/frame.html (payment required)

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SUMMARY
Update of:
Cochrane Database Syst Rev. 2003;(2):CD002759.
BACKGROUND: Muscle weakness in old age is associated with physical function decline. Progressive resistance strength training (PRT) exercises are designed to increase strength.
OBJECTIVES: To assess the effects of PRT on older people and identify adverse events.
SEARCH STRATEGY: We searched the Cochrane Bone, Joint and Muscle Trauma Group Specialized Register (to March 2007), the Cochrane Central Register of Controlled Trials (The Cochrane Library 2007, Issue 2), MEDLINE (1966 to May 01, 2008), EMBASE (1980 to February 06 2007), CINAHL (1982 to July 01 2007) and two other electronic databases. We also searched reference lists of articles, reviewed conference abstracts and contacted authors.

SELECTION CRITERIA: Randomised controlled trials reporting physical outcomes of PRT for older people were included.
DATA COLLECTION AND ANALYSIS: Two review authors independently selected trials, assessed trial quality and extracted data. Data were pooled where appropriate.
MAIN RESULTS: One hundred and twenty one trials with 6700 participants were included. In most trials, PRT was performed two to three times per week and at a high intensity. PRT resulted in a small but significant improvement in physical ability (33 trials, 2172 participants; SMD 0.14, 95% CI 0.05 to 0.22). Functional limitation measures also showed improvements: e.g. there was a modest improvement in gait speed (24 trials, 1179 participants, MD 0.08 m/s, 95% CI 0.04 to 0.12); and a moderate to large effect for getting out of a chair (11 trials, 384 participants, SMD -0.94, 95% CI -1.49 to -0.38). PRT had a large positive effect on muscle strength (73 trials, 3059 participants, SMD 0.84, 95% CI 0.67 to 1.00). Participants with osteoarthritis reported a reduction in pain following PRT(6 trials, 503 participants, SMD -0.30, 95% CI -0.48 to -0.13). There was no evidence from 10 other trials (587 participants) that PRT had an effect on bodily pain. Adverse events were poorly recorded but adverse events related to musculoskeletal complaints, such as joint pain and muscle soreness, were reported in many of the studies that prospectively defined and monitored these events. Serious adverse events were rare, and no serious events were reported to be directly related to the exercise programme.
AUTHORS' CONCLUSIONS: This review provides evidence that PRT is an effective intervention for improving physical functioning in older people, including improving strength and the performance of some simple and complex activities. However, some caution is needed with transferring these exercises for use with clinical populations because adverse events are not adequately reported. PMID: 19588334 [PubMed - indexed for MEDLINE]

READING 10 – Aging, exercise, and muscle protein metabolism

Koopman R, van Loon LJ. Aging, exercise, and muscle protein metabolism. J Appl Physiol. 2009 Jun;106(6):2040-8. Epub 2009 Jan 8. Review. PubMed PMID: 19131471.

URL: http://jap.physiology.org/content/106/6/2040.long (full free text)

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SUMMARY
Aging is accompanied by a progressive loss of skeletal muscle mass and strength, leading to the loss of functional capacity and an increased risk of developing chronic metabolic disease. The age-related loss of skeletal muscle mass is attributed to a disruption in the regulation of skeletal muscle protein turnover, resulting in an imbalance between muscle protein synthesis and degradation. As basal (fasting) muscle protein synthesis rates do not seem to differ substantially between the young and elderly, many research groups have started to focus on the muscle protein synthetic response to the main anabolic stimuli, i.e., food intake and physical activity. Recent studies suggest that the muscle protein synthetic response to food intake is blunted in the elderly. The latter is now believed to represent a key factor responsible for the age-related decline in skeletal muscle mass. Physical activity and/or exercise stimulate postexercise muscle protein accretion in both the young and elderly. However, the latter largely depends on the timed administration of amino acids and/or protein before, during, and/or after exercise. Prolonged resistance type exercise training represents an effective therapeutic strategy to augment skeletal muscle mass and improve functional performance in the elderly. The latter shows that the ability of the muscle protein synthetic machinery to respond to anabolic stimuli is preserved up to very old age. Research is warranted to elucidate the interaction between nutrition, exercise, and the skeletal muscle adaptive response. The latter is needed to define more effective strategies that will maximize the therapeutic benefits of lifestyle intervention in the elderly. PMID: 19131471 [PubMed - indexed for MEDLINE]

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