Hong Kong Reference Framework for Preventive Care for Older Adults in Primary Care Settings

Revised Edition 2018

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Supported by:

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- Hong Kong Dental Association
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PREFACE TO THE FIRST EDITION

Enhancing primary care is one of the proposals put forward in the Healthcare Reform Consultation Document “Your Health, Your Life” and has received broad public support during the first stage of public consultation conducted in 2008. In recognition of this broad support for the proposals, the Working Group on Primary Care (Working Group) under the Health and Medical Development Advisory Committee and chaired by the Secretary for Food and Health was reconvened to discuss and provide strategic recommendations on enhancing and developing primary care in Hong Kong.

Four Task Forces have been established to study specific proposals set out in the Healthcare Reform Consultation Document. One of them is the Task Force on Conceptual Model and Preventive Protocols (Task Force). The Task Force makes recommendations to the Working Group on conceptual models that are evidence based with associated reference frameworks for use in the local primary care settings. The Task Force is also responsible for promulgating, maintaining and revising the models and frameworks, and the strategies to promote their adoption.

After a series of discussions with stakeholders, the Task Force has developed a basic conceptual model for the management of chronic disease using a population approach across life-course. It is based on the recognition that we need a comprehensive and continuous approach to care focussed on the person to meet their needs and address their risks. With reference to the conceptual model, two reference frameworks on diabetes and hypertension were developed in 2011. The reference frameworks cover primary prevention and lifestyle changes, assessment of high risk groups, early detection and management of disease as well as ensuring the quality of care for more complicated conditions or disabilities within the community. The need to coordinate inputs from multi-disciplinary teams, engage patients and interface with the community and other sectors is also highlighted.

To date, another two reference frameworks, one for children and another for older adults, have been developed. These reference frameworks consist of a core document supplemented by a series of different modules addressing various aspects of disease management and preventive care for different population groups which aim to –

(a) provide a common reference to all healthcare professionals across different sectors in Hong Kong for the provision of continuous, comprehensive and evidence-based care for children and older adults in the community;
(b) empower patients and their carers;
(c) raise public’s awareness on the importance of health promotion and disease prevention for children and older adults.

Drawing on international experience and best evidence, these frameworks provide general reference for practice in primary care settings to support the policy of promoting primary
care within Hong Kong. However, since clinical practice and patient engagement need to keep pace with scientific advancements, in order to ensure the latest medical developments and evidence are reflected in the frameworks to provide reference for best practice, four Clinical Advisory Groups under the Task Force have been established to review and update the reference frameworks on a regular basis. The Clinical Advisory Groups are composed of experts from academia, professional organisations, private and public primary care sectors and patients groups who are members of the groups in their own right, not representing organisations.

To facilitate the promulgation and adoption of the reference frameworks, support and endorsement from healthcare professionals across different sectors in Hong Kong has been and will continue to be very important. We hope that the adoption of the reference frameworks will improve the health of children and older adults by putting greater emphasis on preventive care, facilitating co-ordination of their care and management continuity through multidisciplinary approach, promoting evidence based effective and efficient practice, empowering parents and carers as well as enhancing collaboration and interfacing of service providers for better care of these two specific populations in our community.

Professor Sian GRIFFITHS
Convenor
Task Force on Conceptual Model and Preventive Protocols
### Levels of Evidence

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<tr>
<td>1++</td>
<td>High quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias</td>
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<tr>
<td>1+</td>
<td>Well conducted meta-analysis, systematic reviews of RCTs, or RCTs with a low risk of bias</td>
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<tr>
<td>1-</td>
<td>Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias</td>
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<tr>
<td>2++</td>
<td>High quality systematic reviews of case-control or cohort studies; High quality case-control or cohort studies with a very low risk of confounding, bias, or chance and a high probability that the relationship is causal</td>
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<tr>
<td>2+</td>
<td>Well conducted case control or cohort studies with a low risk of confounding, bias, or chance and a moderate probability that the relationship is causal</td>
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<tr>
<td>2-</td>
<td>Case control or cohort studies with a high risk of confounding, bias, or chance and a significant risk that the relationship is not causal</td>
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<td>3</td>
<td>Non-analytic studies, e.g. case reports, case series</td>
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<td>4</td>
<td>Expert opinion</td>
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### Grades of Recommendations

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<td>A</td>
<td>At least one meta-analysis, systematic review, or RCT rated as 1++, and directly applicable to the target population; or A systematic review of RCTs or a body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results</td>
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<tr>
<td>B</td>
<td>A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 1++ or 1</td>
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<tr>
<td>C</td>
<td>A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 2++</td>
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<td>D</td>
<td>Evidence level 3 or 4; or Extrapolated evidence from studies rated as 2+</td>
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^Scottish Intercollegiate Guidelines Network (SIGN) classification
SUMMARY OF RECOMMENDATIONS

Chapter 5.1- Vaccination

- Annual seasonal influenza vaccination is recommended for older adults aged 65 or older and those high risk groups. (Page 20)

- Either a single dose of PCV13 or a single dose of 23vPPV is recommended for elders 65 years of age or older without high risk conditions. For those with high risk conditions who have not received any pneumococcal vaccines before, a single dose of PCV13, followed by a single dose of 23vPPV one year later is recommended. For those high risk individuals who have already received either PCV13 or 23vPPV before, a single dose of the other type of pneumococcal vaccine should be administered one year after the previous pneumococcal vaccination. (Page 20)

Chapter 5.2 - Practice of healthy lifestyle

Smoking

- Ask about tobacco use at every opportunity and advise all current smokers to quit smoking. (Page 21)

Drinking

- Assess the quantity and frequency of alcohol intake in all older adults. (Page 22)
- Advise on drinking to minimize alcohol-related harm. (Page 22)

Physical activity

- Assess all older adults on current level of activities and promote regular physical activity whenever possible. (Page 23)

Obesity

- Screen all older adults for overweight and obesity, and advise on behavioural interventions to optimise body weight. (Page 26)

Chapter 5.3 - Dental Health

- It is recommended to promote oral hygiene as part of general health education and assess for oral health problems periodically. (Page 29)

Chapter 5.4.1 - Chronic diseases

Hypertension

- Annual screening of hypertension is recommended for older adults. (Page 30)

Diabetes Mellitus

- Periodic screening of diabetes mellitus is recommended for adults starting from age 45 years. (Page 31)
• Screen for diabetes mellitus every 3 years if previous results are normal, and more frequent testing e.g. every 12 months is recommended when risk factors are present. (Page 31)

Hyperlipidaemia
• Periodic screening of hyperlipidaemia is recommended for older adults aged 50 to 75 years. (Page 32)
• Screen for hyperlipidaemia every 3 years if previous results are within optimal range, and more frequent testing e.g. every 12 months is recommended when risk factors of cardiovascular diseases are present. (Page 32)

Chapter 5.4.2 - Cancers
Cervical cancer
• Women aged between 25 and 64 who have ever had sex are recommended to have cervical cytology test every 3 years after two consecutive normal annual cytology tests. (Page 34)
• Screening may be discontinued in women aged 65 years or above if 3 previous consecutive tests are normal. (Page 34)
• Women over 65 years who have never had cervical cytology, or who request a cervical cytology test, should also be screened. (Page 34)

Colorectal cancer
• Asymptomatic average-risk individuals aged 50 to 75 years should consider screening for colorectal cancer by one of the screening methods including annual or biennial faecal occult blood test (FOBT), flexible sigmoidoscopy every five years and colonoscopy every ten years. (Page 36)

Chapter 5.4.3 - Functional disability
Hearing impairment
• Opportunistic screening of hearing impairment is recommended for community-dwelling older adults. (Page 37)

Visual impairment
• Opportunistic screening of visual impairment is recommended for community-dwelling older adults. (Page 38)

Incontinence
• Opportunistic screening of urinary incontinence is recommended for older adults. (Page 39)

Falls
• Primary care providers are recommended to assess the risk of falls in older adults opportunistically. (Page 40)
Chapter 5.4.4 - Mental disorders

Depression

• Opportunistic screening of depression is recommended for older adults. (Page 41)

Dementia

• Primary care providers should assess cognitive function whenever cognitive impairment or deterioration is suspected, based on direct observation, patient report, or concerns raised by family members or carers. (Page 42)

Chapter 5.4.5 - Polypharmacy and adverse drug reactions

• When prescribing new drugs to the older patients, health care professionals should review all the medications (including over-the-counter drugs and herbal remedies) so as to avoid possible drug duplications, interactions or adverse drug reactions. (Page 43)

Chapter 5.5 - Assessment of social network and support

• Opportunistic screening on the social support networks of older adults, including the social needs and the extent and availability of social support available is recommended. (Page 44)

• It is recommended to provide personalised support to carers enabling them to remain mentally and physically well. (Page 44)
STATEMENT OF INTENT

The framework is constructed from global evidence of best practice. As with all guidance it aims to support decision making, recognising that all individuals and patients are unique and have their own needs. The Task Force endeavours to provide accurate and up-to-date information. The frameworks provide support for decision making and as such are not mandatory. They should not be construed as within any legal framework, rather as guidance for professional practice. Standards of care for individual patients are determined on the basis of all the facts and circumstances involved in a particular case. They are subject to change as scientific knowledge and technology advances and patterns of care evolve. Management of diseases must be made by the appropriate primary care practitioners responsible for clinical decisions regarding a particular treatment procedure or care plan. The responsible primary care practitioners should only arrive at a particular treatment procedure or care plan following discussion with the patient on the diagnostic and treatment choices available.
1 OVERVIEW OF OLDER ADULTS HEALTH IN HONG KONG

1.1 Ageing demographics

Hong Kong is undergoing a demographic transformation with a significant increase in both the number and proportion of older people in the population.

It is expected that by 2039 (Figure 1), the number of Hong Kong residents aged 65 and over is estimated to increase from 0.9 million in 2011 (13% of the population) to around 2.5 million (28% of the projected population). The proportion of the population aged 85 and over is projected to more than double to around 5% of the population by 2039. Although small, this is the fastest-growing age group.

Figure 1. Population trend in Hong Kong by age groups in 2011-2039

![Population Trend Chart](image)

Majority of older adults are independent and healthy. However, compared to younger age groups, a greater proportion of older adults require high levels of care and community support to deal with their complex needs. These requirements usually arise during the last few years of their lives, or in relation to chronic illness or disability that may have been present for many years. The elderly dependency ratio which defined as the number
of persons aged 65 years or above per 1 000 persons aged 15-64 years has been rising steadily over the last few decades and is projected to remain so in the coming 30 years. It is projected to increase from 180 in 2009 to 489 in 2039. This means that in the next thirty years, every 1 000 persons aged between 15 and 64 years have to support 489 older people.

This situation presents both challenges and opportunities to the existing health care system. It is anticipated that prevalence of common chronic diseases will be further increased as population age which invariably leads to escalating demand on various health services among older adults. On the other hand, if older adults can optimise their health and live in an environment that promotes their active participation, their experience, skills and wisdom will be without any doubts a valuable resource for the society.

Therefore, strategies to safeguard health and functional ability of older adults are of top priorities for active ageing.

1.2 Common health-related problems that jeopardise active ageing and compromise quality of life in older adults

The older adult’s health and wellbeing is influenced by a wide range of health determinants, i.e. physical, psychological, social, cultural, economic and environmental factors (Annex 1). There are specific physical, psychological and social factors that can, separately or in combination, affect older adults and impact on their daily activities.

1.2.1 Physical

Disabilities and functional decline

Although disability is not an inevitable part of the experience of ageing, it does become more common at older ages. As the population grows and life expectancy increases, there will be more people at older ages and therefore more older adults with disability.

With the process of ageing, most organs undergo a decline in functional capacity and in their ability to maintain homeostasis. The age related functional decline of physiologic systems means that older people are less able to prevent and recover from illness and are more susceptible to deconditioning. And functional decline often leads to functional limitations, thus adversely affect an individual’s independency and quality of life (Figure 2). Depending on the degree of functional decline, some older adults experience profound activity limitation, whereas others have comparatively less.
Chronic pain is a common condition among older adults in Hong Kong and has been found to affect 37.1% of local population aged 60 years and above, with 37.2% reporting multiple pain sites. Over 32% of those with chronic pain complained of moderate to severe limiting disability. In a local study of 4,000 community-dwelling older adults aged 65 years and over, musculoskeletal back pain (48%), knee (31%), neck (22.5%) and hip (8.9%) pain were prevalent among the respondents, giving rise to considerable functional and psychological impairment.

Based on the local data from the General Household Survey in 2008. It was shown that 21.5% of people aged 60 years and over in the general population experienced some kinds of disabilities that restricted everyday activities. The major problems are restriction in body movement (14%), seeing difficulty (9.2%) and hearing difficulty (6.1%). A study estimating the functional disability burden in 2032 older Hong Kong Chinese aged 70 and above found that the prevalence of disability for different activities of daily living varied from the lowest of 0.8% for feeding to the highest 26.0% for climbing stairs and bathing.

Functional disability jeopardises quality of life, but on the other hand, being active can help older adults to remain as independent as possible and to improve mental health by means of increased social contacts.
1.2.2 Psychological

Apart from physical functioning, psychological (cognitive and affective) and social functioning are equally important to the older adult’s quality of life. These functional abilities determine the extent to which older adults can cope independently in the community, participate in recreational and community activities, interact with family and friends and generally enrich their own lives and those of the people closest to them.

(a) Cognitive impairment

Dementia is a syndrome of cognitive impairment characterized by memory impairment, increasing difficulties with everyday tasks and a later progression to a loss of capacity to live independently. A local study had shown that the incidence of dementia increased with age and approximately doubled for every 5 years. And by the age of 90, approximately one in four older persons had developed dementia.

A more recent local study estimated that 8.9% of community-dwelling older Chinese aged 70 years or above suffered from mild dementia. Females had a higher rate (12.3%) as compared with males (5.0%). With the ageing population, the burden of dementia will invariably become an issue of concern in the future.

(b) Mood problems

Mental health problems (e.g. depression) can cause considerable suffering and may cause individuals to experience social isolation and poor quality of life, as well as having negative impacts on their families and the wider community.

Depression is frequently encountered in primary care settings but the exact prevalence is difficult to be determined. A local study showed that the prevalence of depression among community-dwelling older Chinese was 11.0% and 14.5% for men and women respectively, which were more or less similar to the rates in Western countries.

1.2.3 Social network and support

Disruption of personal ties and loneliness are major sources of stress, while supportive social connections and intimate relations are vital sources of emotional strength. Older adults are more likely to lose family members and friends and to be more vulnerable to loneliness and social isolation. It was noted that about 10% of the local elderly population live alone and 67% of them live with one family member, giving a rough total of 78% of the elderly population who live either alone or with one family member only. In another local survey, majority of older adults (81.4%) preferred to remain living at home instead of moving into a residential care home even if their health condition deteriorated.

Social support and increased social contacts are associated not only with improved physical and mental well-being, but also reduced morbidities.
2 INTEGRATED AND COLLABORATIVE APPROACH FOR OLDER ADULT HEALTH

2.1 Population-based life course approach and high-risk individual approach

Ageing has been seen to represent a period of increasing dependency, as physical functioning decline, and the individual has to cope with chronic or long term conditions. The way in which people grow old, their health and functional ability all depend not only on their genetic makeup, but also more importantly on how they live their lives. Thus it follows that ageing should be viewed from a life course perspective.

As established risk factors in early age can lead to poorer health in later life, so it is important to prevent and modify the risk factors at all life stages through appropriate strategies. The strategies on disease prevention can be either population-based or high-risk individual approach to address health determinants at different levels.

Population-based approach is designed to produce large-scale changes in health status of the population (both the average level of health and distribution of health). It addresses the life course risk factors through health promotion and public health strategies at the population level (e.g. promotion of healthy lifestyle and vaccination).

High-risk individual approach focuses specifically on individuals who are identified as being at high risk which is defined by demographic, health characteristics, or life stage. The high-risk individual approach involves disease identification and follow-up at the individual level and often occurs in primary care settings.

Annex 1 summarises the conceptual models for preventive care for older adults in primary care settings which adopts life course approach supplemented by population-based prevention and management strategies.

2.2 Interface between primary and secondary healthcare providers

The key to the successful implementation of various preventive strategies recommended in this framework would be its adaptability to local structures, environments and needs. Achieving the goal of most effectively providing preventive services requires seamless co-operation between primary care and secondary care providers, and involves a system adopting a more proactive approach that comprises the whole spectrum of primary, secondary and tertiary levels of prevention.
2.3 Multi-disciplinary care

Older adults often have complex care needs for their multiple co-morbidities and thus the preventive services work best as part of a wider programme of care in which multiple strategies are employed to integrate care. The strategies involve a multidisciplinary approach with concerted effort from all the stakeholders, and are embedded in a wider system that supports integrated and co-ordinated care. The successful model involves the following ‘pillars’ of care and is illustrated in Figure 3:

- The service delivery system is designed to facilitate constant communication and collaboration among health care providers such that co-ordinated and continuous services can be achieved.
- The clinical information system provides good quality patient data and supports timely information flow within the wider multidisciplinary team.
- There is on-going professional support so that health care professionals across different sectors can provide best practice based on available evidence.

Across all these ‘pillars’ which support the delivery of high quality preventive care services to older adults, there should be a shared vision that:

- the family doctor concept which emphasizes continuity of care, holistic and patient-centred care should be promoted.
- greater emphasis is put on prevention of diseases through public education and patient empowerment.
- community partners are engaged and closer links between medical and social care are established.
2.4 Inter-sectoral collaboration

Older adults with chronic conditions and complex health care needs often require to move across different levels of the health system. It is therefore important for the health services to be coordinated to avoid delays and duplication as well as to ensure a smooth continuum of care.

The wide range of health care needs of older adults also calls for an integrated approach with joint effort between different sectors, such as specialists in secondary care, geriatricians, primary care providers, allied health teams, professional groups and community partners. A collaborative platform with co-ordinated supporting network is important to help older adults to live in the community independently and with quality of life.
2.5 Empowerment of patients and carers

The process of enabling people to take control and to improve their health through health promotion throughout life is the cornerstone of healthy ageing. Knowledge, attitudes and beliefs about health are important determinants of lifestyle and health behaviours. As these behaviours will shape both present and future health status, health interventions that aim to increase knowledge or modify attitudes and beliefs are a valuable component of health promotion and education.

It has been well shown that patient education and counselling in primary care setting contribute to better understanding of health and thus influence an individual to adopt health-protective behaviours.

Moreover, patients perceive their family doctors as a key, first contact and credible source of clinical information and preventive advice, and thus family doctors are in an advantageous position to deliver health education messages as well as empower their patients. Patient empowerment not only helps patients to understand their diseases and health needs but also builds confidence, develops skills in self-management and strengthens linkages for support within the community. This is especially important to older adults who are more likely to experience low health literacy. It has been shown that patients with low health literacy have poorer health status, higher rates of hospital admission, and are less likely to adhere to prescribed treatments and self care plans. They tend to experience more drug and treatment errors and make less use of preventive services. With appropriate patient empowerment, older adults are not only more likely to be engaged in self-care and chronic-disease management, but also more competent in making appropriate health decisions and navigating the complex health care systems to ensure access to quality care.
3 ROLE OF PRIMARY CARE IN THE PREVENTIVE CARE OF OLDER ADULTS

Active aging is seen as multidimensional, encompassing the low probability of disease and disease-related disability, high cognitive and physical functional capacity, and active engagement with life. With advancing age, the relative contribution of genetic factors decreases and the impact of non-genetic factors such as lifestyles increases. Many of the predictors of risk appear to be potentially modifiable, either by individuals or change in their immediate environments. Therefore, preventive care especially health promotion is of paramount importance towards active ageing.

Being the first point of contact professionals, primary care providers are in a prime position in the preventive health care for older adults, including health promotion and risk assessment, as well as follow-up care after medical conditions of patients have stabilized and after discharge from hospitals. If another level of care is deemed necessary, the primary care providers should serve as the co-ordinators for advising and directing patients for necessary and appropriate healthcare services including specialist and in-patient care.

Older adults with chronic health conditions often have wide range of health care needs which create challenges for health care workers to develop integrated services. Therefore, a robust primary care system which emphasizes provision of community-oriented, comprehensive, continuous and co-ordinated care plays a pivotal role in enabling older adults to live independently, preventing functional decline and supporting carers.
4 DEVELOPMENT OF THE REFERENCE FRAMEWORK FOR PREVENTIVE CARE FOR OLDER ADULTS IN PRIMARY CARE SETTINGS

4.1 Aim and objectives

The Hong Kong Reference Framework for Preventive Care for Older Adults in Primary Care Settings provides updated evidence-based recommendations to influence current practice with a view to enhancing health of older adults. The framework aims to-

• provide a common reference to all healthcare professionals across different sectors in Hong Kong for the provision of continuing and comprehensive care for older adults in the community;
• recommend interventions which are evidence-based and appropriate to primary care settings to promote health, prevent diseases and tackle major health risks of older adults; and
• educate and empower older adults as well as their carers with knowledge and skills for better health promotion, disease prevention and proactive disease control.

4.2 Organisation and structure

The reference framework consists of a core document and a series of Modules. The core document provides evidence-based recommendations for preventive care of older adults in primary care settings according to the conceptual model as detailed in Annex 1; while Modules elaborate various domains which are relevant to older adult’s health. (In order to fully utilise existing resources, some of the health domains will be addressed in the form of Modules and will be developed in stages while ‘signposting’ will be adopted for the others. For details, please refer to Annex 2 and Annex 3.)

4.3 Evidence-based approach

The recommendations in this Reference Framework are based on research evidence, expert opinions and the values underpinning preventive care services. In order for some weight to be attached to the supportive evidence, a typology (as shown in page 5) was developed to distinguish between evidence stemming from, for instance, systematic reviews of existing information, the experience of experts, and case studies of individual interventions. The typology is adopted from Scottish Intercollegiate Guidelines Network (SIGN) classification. In general, grade A recommendation is supported by level 1 evidence, whilst levels 2 and 3 evidence are considered as fair evidence.

Note. ‘Signposting’ in the reference framework refers to a guide which helps readers to access relevant information.
5 RECOMMENDATIONS FOR PREVENTIVE CARE OF OLDER ADULTS

5.1 Vaccination

Older adults are at high risk of suffering from certain communicable diseases such as influenza and pneumococcal infections and the complications of these diseases.

Primary care doctors play an important role in the prevention and management of communicable diseases which includes advice on prevention and immunization. The websites that provide useful vaccination information are listed in Annex 3.

**Recommendations**

Recommendations on pneumococcal vaccination have been updated in August 2016.

Annual seasonal influenza vaccination is recommended for older adults aged 65 or older and those high risk groups*.

Either a single dose of PCV13 or a single dose of 23vPPV is recommended for elders 65 years of age or older without high risk conditions. For those with high risk conditions who have not received any pneumococcal vaccines before, a single dose of PCV13, followed by a single dose of 23vPPV one year later is recommended. For those high risk individuals who have already received either PCV13 or 23vPPV before, a single dose of the other type of pneumococcal vaccine should be administered one year after the previous pneumococcal vaccination.

**Supporting evidence**

Although influenza affects all ages and persons aged 65 years or older have higher rates of serious illnesses, complications and mortality. Influenza vaccination is one of the effective means in preventing influenza and its complications. Among the older people, the vaccine reduces severe illnesses and complications by up to 60% and deaths by 80% 21-23. Influenza vaccination may reduce the number of hospitalizations by 25-39% among older people not living in institutions. It has also been shown to reduce overall mortality by 39-75% during influenza seasons 24.

Invasive pneumococcal diseases (IPD) are serious diseases of which the overall case-fatality rate ranges from about 20% in pneumococcal bacteraemia to about 30% in pneumococcal meningitis. The case fatality rate for IPD is substantially higher among older patients 25. During influenza pandemics, secondary bacterial pneumonia has been an important cause of morbidity and mortality.
the high risk groups include:
- Persons living or working in personal care institutions
- Persons with chronic medical problems mainly refer to those who have chronic cardiovascular (except hypertension without complication), pulmonary, metabolic or renal disease, obesity (BMI 30 or above), who are immunocompromised, and those with chronic neurological conditions that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration or those who lack the ability to care for themselves for their increased risk of complications and death associated with influenza infection
- Health care workers
- Poultry workers
- Pig farmers and pig-slaughtering industry personnel

For more information on vaccination, refer to Annex 3.

5.2 Practice of healthy lifestyle

Many major chronic health problems in old age are preventable. Risk factors accumulated as a result of risk exposure during the life course and risk factors established in middle age can lead to poorer health in later life. There is, however, potential for health gain at all life stages through appropriate management of risk factors in addition to early prevention. Many healthy lifestyle behaviours are positively associated not only with better physical and mental health but also with longevity, reduced risk of chronic diseases, and more quality adjusted life years. Therefore, promoting a healthy lifestyle should be one of the main focuses in healthy ageing.

5.2.1 Smoking

Smoking is one of the leading preventable causes of death and disease worldwide. Scientific evidence confirms that smokers face significantly increased risks of death and illness from cancers, heart disease, stroke, atherosclerosis, chronic obstructive pulmonary disease and other respiratory diseases. Quitting at any age has benefits, with the largest reduction in risk in those who quit the earliest.

Recommendation

Ask about tobacco use at every opportunity and advise all current smokers to quit smoking.
Supporting evidence

Primary care doctors can influence smoking rates by systematically providing opportunistic advice and offering support to all attending patients who smoke 28, 29.

There is evidence that smoking cessation after 70 years is still associated with a positive health effect 30, 31.

The 5A’s (Ask, Advice, Assess, Assist, Arrange) model is a systematic framework for counselling on smoking cessation.

- Ask about tobacco use during every office visit
- Assess the willingness to quit
- Advise all smokers to quit
- Assist with motivation, skills and prescriptions
- Arrange follow up and provide ongoing support

For more information on smoking cessation services, refer to Annex 3.

5.2.2 Drinking

Alcohol consumption is a major risk factor for a variety of health problems such as stroke, coronary heart disease, high blood pressure, some cancers, and pancreatitis. Older adults are especially vulnerable to the effects of alcohol due to changes in body composition, decreased metabolic capacity and the presence of other medical conditions. Therefore it is important to moderate alcohol consumption to reduce the lifetime risk of harm from alcohol related diseases if the elder chooses to drink 32.

Recommendations

Assess the quantity and frequency of alcohol intake in all older adults.
Advise on drinking to minimize alcohol-related harm.

Supporting evidence

The U.S. Preventive Services Task Force in 2004 found good evidence that screening in primary care settings can accurately identify patients with harmful levels or patterns of alcohol consumption.

Brief behavioural counselling interventions with follow-up in primary care have been demonstrated to have resulted in reduction in problem drinking and alcohol related harm 33, 34.
The Alcohol Use Disorders Identification Test (AUDIT) is the most studied screening tool for detecting alcohol-related problems in primary care settings. It is a simple ten-question test developed by the World Health Organization as a simple method of screening for excessive drinking in the last year and to assist in brief assessment.\(^{35}\)

The 4-item CAGE questionnaire (feeling the need to cut down, annoyed by criticism, guilty about drinking, and eye-opener) is another popular screening test for detecting alcohol abuse or dependence in primary care.

Behavioural counselling interventions for alcohol misuse can also be made reference to the 5 A’s framework (i.e. Ask, Assess, Advise, Assist, Arrange follow up). Complete abstinence from alcohol is recommended as even low level of alcohol consumption may produce deleterious physical effects in older adults. For those who choose to continue drinking, it is advisable to drink no more than two standard drinks\(^*\) for men and one standard drink for women on any day.

For more information about the risk of alcohol drinking and local centres which provide counselling services, refer to Annex 3.

\(^*\) Each standard drink contains 10 grams of pure alcohol. Defining one standard drink as 10 grams of pure alcohol, equates to about 250ml of regular beer at 5% of alcohol content, one small glass (100ml) of wine at 12% of alcohol content, or one pub measure (30ml) of hard liquor at 40% alcohol content.

### 5.2.3 Physical activity

Physical inactivity is an independent risk factor for a number of chronic diseases and is associated with other risk factors such as high blood pressure, high blood cholesterol and excessive body weight. On the other hand, regular physical activity is particularly significant to the health and functional needs of older adults as it helps to:

- reduce the risk of developing as well as control of chronic conditions such as diabetes mellitus, obesity, hypertension and heart diseases which are particularly significant in later life\(^{36,37}\);
- improve mobility, functional capacity and independence\(^{36-40}\). The risk of falls can also be reduced through the promotion of muscle strength and improvement in balance and posture\(^ {41,42}\).
- improve psychological and social well-being, quality of life and social integration\(^ {43}\).
Recommendation

Assess all older adults on current level of activities and promote regular physical activity whenever possible.

Supporting evidence

Randomised controlled trials and reviews confirm that regular physical activity improves psychological and physical function of both healthy older people and those with impairment and depression ⁴⁴-⁴⁶.

The Global Recommendations on Physical Activity for Health published by the World Health Organization in 2010 recommended that adults over 65 years of age and above should do at least 150 minutes of moderate-intensity aerobic physical activity per week, or do at least 75 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity activity. Aerobic activity should be performed in bouts of at least 10 minutes duration ⁴⁷. Brief episodes of physical activity, such as 10 minutes at a time, can be beneficial if repeated. When older adults cannot do the recommended amount of physical activity due to health conditions, they should be as physically active as their abilities and conditions allow.

Apart from aerobic activities, healthy older adults are recommended to perform resistance exercise at least 2 non-consecutive days per week. Examples include progressive weight training programme, weight bearing calisthenics, stair climbing and other muscle strengthening activities that use major muscle groups. Stretching exercise of at least 10 minutes involving the major muscle tendon groups of body with 4 or more repetition (with 10 to 30 seconds for a static stretch) per muscle group performed on a minimum of 2 days per week is also recommended for healthy older adults. On the other hand, the recommendations on physical activities should be adjusted accordingly for elderly persons with chronic diseases, such as diabetes, hypertension, osteoarthritis, osteoporosis and heart diseases. Detail information is described in the Exercise Prescription Doctor's Handbook published by Department of Health and is available at http://exerciserx.cheu.gov.hk/en/index.asp?MenuID=5.

To achieve long-term adherence to regular physical activity, the strategies that found to be useful include:

• assess the older adult before prescribing exercise of level more intense than usual and monitor for any adverse effects of increased exercise;
• individualise the progression of activities and tailor to the older adult’s tolerance and preference to minimize the risk of injury as well as to enhance compliance;
• involve older adults in the design and delivery of the programme and tailor activity type to particular needs;
• provide a flexible mix of activities (endurance, strength, flexibility and balance), intensity (gentle, moderate and vigorous) and format (individual, small and large group);
offer the opportunity for home-based activities;
• attempt to create physical activity opportunities for people in similar life stages (e.g. those who are retired, bereaved);
• undertake activity that is enjoyable and has a broader social element to it;
• address social and environmental barriers to access and in particular consider affordability;
• create safe and elder friendly environments for activity

For more information on physical activity, refer to Annex 3.

5.2.4 Weight management and Nutrition

(a) Healthy eating habit and balanced diet

The relationships between dietary patterns and health outcomes have been widely examined and it is well supported that people consuming diets that are low in fat, saturated fat, trans-fatty acids and cholesterol and high in fruits, vegetables and whole grain products containing fibre have lower rates of morbidity and mortality from coronary heart disease.

High salt intake is associated with high blood pressure, which will lead to cardiovascular diseases, including strokes, heart attacks and heart failure. And studies have shown that patients with high blood pressure are benefited from the adoption of the Dietary Approaches to Stop Hypertension (DASH) eating plan which is a diet rich in fruits, vegetables, and low in fat dairy products with a reduced content of dietary cholesterol as well as saturated and total fat\(^58\).

Adoption of a healthy eating plan which is a diet rich in fruits, vegetables (about 5 servings of fruits and vegetables a day), and low in fat dairy products with a reduced content of dietary cholesterol as well as saturated and total fat is thus recommended for older adults\(^59\).

Besides the nutritional content, the frequency of food and drink intake is related to dental health as frequent eating and drinking may increase the chance of getting tooth decay. It is best to reduce the frequency of eating and drinking sugar-containing food substances. When this is unavoidable due to medical or health reasons, the older adult should be advised to see a dentist for enhanced preventive care.

For more information on nutrition and health eating habit, refer to Annex 3.
(b) **Obesity**

BMI is the most commonly used method of obesity classification among scientific researchers and health institutes of different countries. World Health Organization (WHO) recommended Body Mass Index (BMI) cut-off points for overweight as 25 kg/m\(^2\) and obesity as 30 kg/m\(^2\) in 2004. For Asian populations who generally have a higher percentage of body fat, the BMI cut-off points of 23 kg/m\(^2\) and 27.5 kg/m\(^2\) were added as points for public health action. Central obesity is defined as waist circumference ≥ 90 cm and ≥ 80 cm in male and female respectively for the Chinese population.

Obesity is associated with an increased risk for coronary heart disease, hypertension, stroke, type 2 diabetes, and a higher prevalence of musculoskeletal disorders, such as knee osteoarthritis.

In addition, obesity is associated with decreased quality of life, including diminished mobility and social stigmatization.

**Recommendation**

**Screen all older adults for overweight and obesity, and advise on behavioural interventions to optimise body weight.**

**Supporting evidence**

Weight reduction in obese patients is associated with lower incidence of diabetes mellitus, reduced blood pressure, and improved dyslipidaemia. Body Mass Index (BMI) and waist circumference are reliable and valid tools for identifying individuals at risk for mortality and morbidity due to overweight and obesity. Although it is true that obesity in the general adult population is associated with higher mortality, this relationship is controversial for persons of advanced age (aged ≥65 years). Large scale prospective studies with better control of confounding factors are needed to resolve this important public health issue.

The behavioural interventions include diet education and exercise counselling to help patients acquire the skills and supports needed to change diet patterns and to become physically active. The 5 A’s framework (Assess, Advise, Agree, Assist, and Arrange) can also be a useful tool to guide interventions for weight management.

(c) **Underweight and malnutrition**

Underweight in older age is known to be associated with poor health outcomes. Malnutrition occurs when nutritional intake fails to meet the nutritional requirement and is often due to one or more of the following factors: inadequate food intake, illness that causes increased nutrient loss, poor nutrient absorption.
Malnutrition is common among geriatric patients. A local study showed that 16.7% of geriatric patients admitted to a convalescent and rehabilitation hospital were suffering from malnutrition, and patients who were totally dependent, living in a care home for the elderly or chair- or bed-bound had a higher risk of malnutrition.

Malnutrition contributes to progressive decline in health, reduced physical and cognitive functional status, increased utilisation of health care services, premature institutionalisation and increased mortality. Early identification of older adults with nutritional problems or those nutritionally at risk can minimise or reverse the negative impacts of malnutrition through early intervention.

Determining whether an older adult is malnourished can be difficult. No reliable laboratory tests have been validated as effective screening tools for detection of malnutrition in older adults. Anaemia, hypoalbuminaemia and lymphocytopenia which known to accompany malnourished states may indicate acute or chronic illnesses but are unreliable screening markers of malnutrition in older adults.

For nutritional screening for community-dwelling older persons, the preferred screening tool should be user-friendly and practical at primary care settings. Serial body weight measurement can be served as a simple tool for screening and monitoring of malnutrition. Malnutrition Universal Screening Tool (MUST), Mini Nutritional Assessment (MNA) and Chinese Nutrition Screening (CNS) are assessment tools developed to assess the risk of malnutrition in institutionalised older adults. Details of MUST, MNA and CNS are described in the Module.

Management of malnutrition in the elderly population requires a multidisciplinary approach that treats pathology and uses both social and dietary forms of intervention.

5.2.5 Social and leisure activities

Active ageing has been advocated for older adults to enhance their quality of life through active participation in everyday activities. In addition to physical exercise, both social and leisure activities are important domains for active ageing.

Leisure is a source of pleasurable experiences and it has been shown that frequent participation in leisure activity contributes to physical, mental and social well being. Engaging in leisure activities can also reduce levels of depression and enhance the capacity to cope with the life changes associated with ageing.

A local study has shown that among Chinese older people in Hong Kong, solitary and sedentary activities, such as watching television and listening to radio, had the highest rate of participation, whereas playing cards or mahjong was the least engaged activity. Gender, employment status, educational level, receiving welfare benefits, self-rated health...
and functional capacity were significantly related to the participation rate in most leisure activities.

To promote active ageing, older adults are recommended to have more active participation in diversified leisure activities that are consonant with their socio-economic and health status. As participating in community elderly centre activities is one of the most regular form of social leisure in older adults, the role of these centres should be strengthened, as a means of providing a platform for social networking and support for the older adults. Community centres which provide social and leisure activities to older adults are signposted at Annex 3.

5.2.6 Sleep hygiene

Sleep disturbance is common among older people and a local survey showed that 38.2% of community-dwelling older Chinese aged 70 years or above in Hong Kong suffered from insomnia (e.g. difficulty in falling asleep, recurrent wakening at night, or waking up too early). Insomnia in older adults is usually multi-factorial and has been associated with poorer quality of life and even increased morbidity and mortality.

Healthy lifestyle (e.g. regular exercise, smoking cessation, moderation of alcohol consumption) and good sleep hygiene can be helpful in improving sleep.

For more information about sleep hygiene, refer to Annex 3.

5.3 Dental health care

Teeth are important to older adults not only in maintaining adequate and balanced nutrition, but also in speech, appearance and general well-being. Oral health problems are prevalent among older adults and associated with decreased quality of life. The Oral Health Survey in 2001 revealed that only 8.6% of community-dwelling older adults aged between 65-74 were edentulous and more than half of the community dwelling older adults had untreated tooth decay.

Poor oral health and poor general health are interrelated, primarily because of common risk factors; for example, severe periodontal disease is associated with diabetes mellitus, ischaemia heart disease and chronic respiratory disease. On the other hand, arthritis, stroke and dementia that affect an older adult’s hand mobility and ability in self-care, i.e. tooth-brushing and inter-dental cleaning have immense implication on the oral health of the older adult. Therefore, the importance of oral-related lifestyle should be emphasized in the relevant health education and promotion activities.
Recommendation

It is recommended to promote oral hygiene as part of general health education and assess for oral health problems periodically.

Supporting evidence

Studies showed that poor oral health (i.e. primarily dental caries, periodontal diseases and tooth loss) is associated with a multitude of systemic health problems. Prevention of oral health problem is beneficial to both oral and general health. Studies have shown that oral health can be maintained over the long term by appropriate self care and proper use of professional dental care.

It is in the older adults’ best interest if primary care professionals of all disciplines can include oral and general health messages in their interaction with older adults. Dentists are now providing advice on smoking cessation and diabetes screening to patients especially those with severe periodontal problems. Primary care providers can also provide oral health messages including the importance of daily oral hygiene, reduced frequency of food/drink intake and snacking, and regular dental check.

The mouth and teeth are important in the eating function, any systemic problems related to eating, malnutrition and pain and infection of the head and neck region should include oral and dental problems as possible causative factor. Older adults with physical disabilities e.g. stroke, parkinsonism or arthritis, or cognitive disabilities such as dementia face increasing difficulties in maintaining oral self care and accessing professional dental care. These older adults should be advised to seek preventive dental care as early as possible. Generally, the functions of ‘eating ability’ and ‘oral hygiene ability’ can be assessed by asking simple questions on ‘any chewing problem’ and ‘any problem cleaning your teeth’. Older adults with positive response in any of these screening questions should be encouraged to consult a dentist.

For more information about oral health, refer to Annex 3.

5.4 Early identification and management of health problems commonly found in older adults

5.4.1 Chronic diseases

Heart diseases and cancers have become the leading causes of disability and mortality in older adults. A local survey showed that more than 80% of persons aged 65 and above reported to have chronic diseases, with hypertension, high cholesterol, diabetes mellitus and heart diseases being among the commonest conditions.
Screening of common chronic diseases (e.g. hypertension, diabetes, hyperlipidaemia) is thus important in minimising the disability and mortality in older adults. On the other hand, as it takes time for interventions to demonstrate beneficial effects, the initiation of screening of these common chronic diseases should take into consideration of individual factors (e.g. frailty, co-morbidities and life expectancy).

(a) **Hypertension**

Hypertension is often undiagnosed. Hypertension is also a major risk factor for coronary heart disease, stroke, heart failure and chronic kidney disease. Good blood pressure control is correlated with a reduction in incidence of myocardial infarctions, strokes and heart failure.

**Recommendation**

**Annual screening of hypertension is recommended for older adults.**

**Supporting evidence**

The benefits of screening for hypertension are well established and early treatment of high blood pressure substantially decreases the incidence of cardiovascular events.

A large prospective meta-analysis of major antihypertensive therapy trials confirms that antihypertensive treatment in the elderly is highly beneficial. The proportional benefit in patients aged more than 65 years is no less than that in younger patients.

A recent outcome study indicated that even in the very elderly stratum of the population (i.e. aged 80 years or above), antihypertensive treatment does not only prevent cardiovascular morbid events but also translates into prolongation of life.

High blood pressures identified during screening should be confirmed and followed up per protocol. As the clinical profile of older people can be very heterogeneous, management plan on blood pressure control should be individualised and blood pressure lowering should be gradual and carefully monitored. The Hong Kong Reference Framework for Hypertension Care for Adults in Primary Care Settings provides useful information on assessment and management of hypertension and is available at http://www.pco.gov.hk/tc_chi/resource/professionals_hypertension_pdf.html

(b) **Diabetes Mellitus**

Diabetes mellitus and its associated complications contribute significantly to ill health, disability and premature death, especially if undetected or poorly controlled. The risk
factors identified as important predictors of cardiovascular complications among type 2 diabetes mellitus included older age, smoking, hypertension, hyperlipidaemia and suboptimal glycaemic control.

There is evidence that the risk of getting type 2 diabetes mellitus is significantly reduced by having a healthier lifestyle. Early detection and effective management are the keys to diabetic control.

**Recommendations**

*Periodic screening of diabetes mellitus is recommended for adults starting from age 45 years.*

*Screen for diabetes mellitus every 3 years if previous results are normal, and more frequent testing e.g. every 12 months is recommended when risk factors are present.*

**Supporting evidence**

Diabetes mellitus may remain undiagnosed for several years because hyperglycaemia develops gradually and may not cause symptoms. However, risk of cardiovascular complications increases in persons with undiagnosed diabetes mellitus. Early detection and intervention are the keys to diabetic control. Intensive glycaemic control at early stage of the disease development can delay the occurrence of subsequent diabetic related complications.

Two tests have been used to screen for diabetes: fasting plasma glucose and 2-hour post-load plasma glucose (OGTT), each has advantages and disadvantages. The American Diabetes Association has recommended the fasting plasma glucose test for screening because it is easier and faster to perform, more convenient and acceptable to patients. Diabetes is confirmed if a diagnostic fasting glucose of $\geq 7$ mmol/L or 2-hour post-load glucose level value $\geq 11.1$ mmol/L is again found in different settings.


# Risk factors for diabetes mellitus include:
- Family history (first-degree relatives) of diabetes
- Overweight (BMI $\geq 23$ kg/m$^2$)/ obese subjects (BMI $\geq 27.5$ kg/m$^2$)
- Previous impaired glucose tolerance or impaired fasting glucose
- Abdominal circumference: $\geq 80$ cm in females; $\geq 90$ cm in males
- Hypertension (BP $\geq 140/90$ mmHg)
• Metabolic syndrome
• Clinical cardiovascular disease (e.g. coronary heart disease, stroke, peripheral vascular disease)
• Presence of other cardiovascular risk factors (e.g. high LDL-C, low HDL or high TG, smoking, physical inactivity)
• Women with history of gestational diabetes mellitus/ big baby
• Polycystic ovarian syndrome
• Long term systemic steroid therapy

(c) Hyperlipidaemia

High levels of low-density lipoprotein cholesterol (LDL-C) and low levels of high-density lipoprotein cholesterol (HDL-C) are important risk factors for coronary heart disease (CHD)\(^{92,93}\). The absolute risk of CHD is higher for the elderly, and thus the total number of potentially preventable CHD events remains high for the elderly\(^{94}\). The knowledge of lipid profile can help inform decisions about cardiovascular disease (CVD) prevention strategies, including assessment of CVD risk and subsequent consideration of lipid-lowering agents.

On the other hand, a significant proportion of people with hyperlipidaemia are unaware of the condition. The Population Health Survey conducted by Department of Health showed that the prevalence of borderline high or high level of total cholesterol (> 5.2 mmol/L) increased with age, from 15.5% in persons aged 15-24 to 44.0% in persons aged 65-84. Among those with higher levels of total cholesterol, more than two-thirds (70.2%) of persons were unaware of their condition\(^{13b}\).

Recommendations

Periodic screening of hyperlipidaemia is recommended for older adults aged 50 to 75 years.

Screen for hyperlipidaemia every 3 years if previous results are within optimal range, and more frequent testing e.g. every 12 months is recommended when risk factors of cardiovascular diseases are present\(^{9}\).

Supporting evidence

Lipid-lowering drug therapy substantially decreases the incidence of coronary heart disease in persons with abnormal lipids. The knowledge of lipid levels can help to identify those at high risk of cardiovascular diseases and plan for subsequent intervention strategies\(^{96-98}\).

For asymptomatic individuals with no history of CVD or diabetes mellitus, the values of total cholesterol and LDL-C should be viewed in the context of total cardiovascular risk by using various CVD assessment tools based on Framingham study.
As the total cholesterol to HDL-C ratio is commonly used for CVD risk assessment, so total cholesterol and HDL-C can be used as an initial assessment tool. And when lipid level is warranted for intervention, LDL-C should be checked and monitored.

# Increased risk of cardiovascular diseases is defined by the presence of any one of the followings:
- Smoking
- Obesity
- Family history of premature CVD in first degree relatives
- Patients with the following existing diagnoses:
  - diabetes mellitus
  - hypertension
  - hyperlipidaemia with high LDL-C and/or low HDL-C
  - coronary heart disease, peripheral vascular disease or ischaemic stroke
  - chronic kidney disease

## 5.4.2 Cancers

Cancer has been a major cause of illness and the leading cause of death in Hong Kong. Family doctors play an important role in the prevention and early detection of cancers by providing evidence-based advice or screening where appropriate. With the emergence of evidence-based medicine, more emphasis has been put on published evidence for making recommendations on preventive measures. Nevertheless, uncertainties may still exist because evidence comes from multiple sources and recommendations from different health authorities often differ. The local situation was reviewed by an expert panel from the Cancer Expert Working Group (CEWG) on Cancer Prevention and Screening, and the recommendations on cancer screening which applicable to the local population were made as shown in Table 1 below.

Table 1. CEWG’s recommendation on population based screening of common cancers in Hong Kong

<table>
<thead>
<tr>
<th>Types of cancer</th>
<th>Recommendations on population based screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung cancer</td>
<td>Routine screening for lung cancer with chest X-ray or sputum cytology in asymptomatic persons or among smokers is not recommended.</td>
</tr>
<tr>
<td></td>
<td>There is insufficient evidence to recommend for or against low-dose spiral computed tomography (CT) for periodic health examination in asymptomatic person or for mass screening.</td>
</tr>
<tr>
<td>Types of cancer</td>
<td>Recommendations on population based screening</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Liver cancer</td>
<td>Routine screening with alpha-fetoprotein (AFP) or ultrasonography (USG) for asymptomatic persons is not recommended (^99). (Selected high-risk group, such as hepatitis B carriers, may undertake periodic screening with AFP and USG in consultation with health care professionals.)</td>
</tr>
<tr>
<td>Nasopharyngeal Cancer</td>
<td>There is insufficient evidence to recommend a population based NPC screening programme using IgA against specific Epstein-Barr virus (EBV) viral antigens or EBV DNA detection (^99).</td>
</tr>
<tr>
<td>Breast Cancer</td>
<td>Routine breast self-examination (BSE) is not recommended for population-based breast cancer screening while there is insufficient evidence to recommend clinical breast examination (CBE) for the general female population in Hong Kong (^100).</td>
</tr>
<tr>
<td></td>
<td>There is insufficient evidence to recommend for or against routine mammography screening for the general female population in Hong Kong (^100).</td>
</tr>
<tr>
<td>Prostate Cancer</td>
<td>There is insufficient evidence to recommend for or against screening for prostate cancer in men without symptoms by prostate-specific antigen and/or digital rectal examination (^101).</td>
</tr>
</tbody>
</table>

(a) **Cervical cancer**

Cervical cancer is one of the few cancers where precancerous lesions are detectable and treatable. Up to 90 per cent of cases of the most common types of cervical cancer can be prevented if cell changes are detected and treated early enough.

**Recommendations**

**Women aged between 25 and 64 who have ever had sex are recommended to have cervical cytology test every 3 years after two consecutive normal annual cytology tests.**

Screening may be discontinued in women aged 65 years or above if 3 previous consecutive tests are normal.

**Women over 65 years who have never had cervical cytology, or who request a cervical cytology test, should also be screened.**
Supporting evidence

Detection of cervical cancer in its earliest stages is lifesaving, as survival depends heavily on stage at diagnosis. Screening programme has been shown to be very effective in detecting and preventing cervical cancer[^102][^103]. This reduction of mortality and morbidity with introduction of the Pap test is consistent and dramatic across populations.

Screening at 3-yearly intervals is less costly and does not significantly reduce the efficacy of preventing invasive cervical cancer compared to that achieved with annual screening[^104]. However more frequent screening may be considered for persons at higher risk of developing cervical carcinoma more rapidly (e.g. immunocompromised women), at the discretion of the health care practitioner.

On the other hand, women who have never had sexual intercourse or who have had total hysterectomy with removal of cervix for benign diseases need not have cervical cancer screening.


(b) Colorectal cancer

The number of new cases of colorectal cancer were on the increasing trend and it is the second commonest cancer in Hong Kong with 4,335 new cases in 2009[^105]. Around half of the new cases of colorectal cancer were diagnosed at stage III or above[^106] and about 90% of new cases occurred in people aged 50 or above.

The age-standardised incidence rates* in 2008 were 39.9 for male and 26.8 for female in Hong Kong, which were comparable to those in Singapore, Japan and United Kingdom.

In addition, colorectal cancer was the third leading cause of cancer deaths in males and second leading cause of cancer deaths in females with a total of 1,864 deaths in 2010, accounting for 14.3% of all cancer deaths.

It is well recognized that there are improved survival rates if the disease is treated in its early stages and screening programme has been implemented in many countries (e.g. United States, United Kingdom, Australia and Singapore).
Recommendations

Asymptomatic average-risk individuals aged 50 to 75 years should consider screening for colorectal cancer by one of the screening methods including annual or biennial faecal occult blood test (FOBT), flexible sigmoidoscopy every five years and colonoscopy every ten years.

Supporting evidence

For average-risk individuals, screening colorectal cancer has been shown to improve survival \(^{107-109}\) and is widely recommended overseas \(^{110-113}\).

For screening of individuals in the primary care setting, health care providers are advised to discuss with their patients on the best screening test according to individual risk profile. Taking into consideration of the low sensitivity of FOBT and the potential complications and harms associated with sigmoidoscopy and colonoscopy, health care providers are also advised to provide adequate explanation, especially on the limitations, and the potential risks and benefits in receiving a screening test, so that their patients can make informed choices.


For the population-based colorectal cancer screening, detailed planning is required before implementation of a population-based screening programme. The factors that should be considered include public acceptance, determination of appropriate screening policies, cost-effectiveness of screening, and the readiness and capacity of the health care system in coping with screening and management of positive screening test results. There is lack of published data among Chinese populations on whether screening can effectively reduce the incidence and mortality of colorectal cancer. There is also lack of study on the cost-effectiveness of implementing colorectal cancer screening in Hong Kong \(^{111}\). Currently, a local community-based screening programme is underway to test the feasibility of a large-scale programme in Hong Kong. Besides, there is an on-going study analysing the cost-effectiveness of implementing colorectal cancer screening programme in Hong Kong. More local data will be available in the coming years.

*For comparison purpose, the age-standardised rates for Hong Kong are calculated using the same age-standardisation method adopted by GLOBOCAN 2008, in which the age-standardised rates are calculated based on the world standard population modified by Doll et al. (1966) from that proposed by Segi (1960), and are calculated using 10 age-groups.*

# Average risk is defined as asymptomatic individuals with no personal or family history of colorectal cancer or adenomatous polyps and no history of pre-existing medical conditions known to increase the risk of colorectal cancer (e.g. inflammatory bowel disease).
5.4.3 Functional disabilities

Older adults are especially vulnerable to loss of functional capacity arising from the interaction of medical problems with psychological stress and environmental changes. Those clinical conditions (i.e. immobility, instability and fall, intellectual impairment, iatrogenesis, incontinence, impaired vision, impaired hearing, insomnia, isolation) are especially prevalent in older adults and have significant implications for active ageing and quality of life.

Well-conducted epidemiological studies in different populations of community-dwelling older adults have shown that screening of physical function, when conducted by trained personnel using a variety of tools, is able to identify older adults who are at risk of adverse outcomes.

Assessment of various functional domains can assist in the timely provision of healthcare services to prevent loss of function and thus support older adults to stay healthy and reach their optimal level of independent functioning.

(a) Hearing impairment

Hearing impairment is one of the most common disabilities affecting older adults, but often missed and under-diagnosed. With increasing age, the prevalence of hearing disability increased greatly. At age 60 years or above, the rate was more than four times higher than the rates for their counterparts aged 40-59 years.

Hearing impairment can negatively impact an individual’s quality of life and ability to function independently. Hearing impairment has been shown to be associated with increased social isolation and depression among older adults.

Recommendations

Opportunistic screening of hearing impairment is recommended for community-dwelling older adults.
The question: “Do you or your family think that you may have hearing loss?” can act as a first screening tool for hearing impairment.

Supporting evidence

There is no direct evidence to support routine screening for hearing loss in asymptomatic older adults. However, opportunistic hearing screening has been suggested which is based upon high prevalence of hearing impairment and the effectiveness of hearing aids. Primary care providers also play an important role in identifying hearing impairment in the older adults and in assisting them to obtain rehabilitative services including hearing aids. Inadequately corrected hearing can become a barrier to care and a randomised controlled trial showed that hearing loss is associated with important adverse effects on quality of life in old persons that are reversible with hearing aids.
The single Global screening Question: “Do you or your family think that you may have hearing loss?” can act as a first screening tool for hearing impairment, although mild hearing impairment might still be missed\textsuperscript{125, 126}. A positive response to this screening question warrants for further clinical evaluation. Patients with chronic otitis media or sudden hearing loss, or who have their daily activities affected by hearing impairment should be referred to an otolaryngologist for further assessment\textsuperscript{127}.

(b) Visual impairment


Older age is an important risk factor for most types of visual impairment. At age 60 years or above, the rate was more than eight times higher than the rates for their counterparts aged 40-59 years\textsuperscript{8}.

Older adults may underreport visual impairment because symptoms may be relatively mild and the common causes of visual impairment (i.e. uncorrected refractive errors, cataract, glaucoma, age-related macular degeneration) usually progress slowly.

Even mildly impaired visual acuity can have significant impact on physical and psychosocial status. It is also consistently associated with falls, decreased functional capacity and quality of life in older adults, including the ability to live independently, with more severe visual impairment associated with greater negative effects\textsuperscript{128}.

**Recommendation**

**Opportunistic screening of visual impairment is recommended for community-dwelling older adults**\textsuperscript{96, 129}.

**Supporting evidence**

Despite the lack of direct evidence to show that screening for visual impairment in older adults in primary care settings is associated with improved clinical outcomes\textsuperscript{130}, benefits of early detection and management have been shown for those older adults with uncorrected refractive errors\textsuperscript{131-134}. Visual acuity testing in the primary care setting is non-invasive and could potentially identify persons likely to benefit from referral for interventions to improve visual acuity.

Visual acuity determination using Snellen charts is an easily administered test that has proved to be effective in detecting serious eye diseases\textsuperscript{135, 136}. A supplementary pinhole test can help to verify whether the loss of visual acuity is due to refractive error or not. Referrals to health professionals (e.g. ophthalmologist, optometrist) can be considered when a more comprehensive eye and vision assessment is needed.

Although evidence is limited on the use of Amsler grid or fundoscopy for screening of visual impairment\textsuperscript{130, 137}, these instruments can be useful tools to assess older adults presenting with vision problems in primary care settings. Bedside confrontation visual field can also be tested in order to detect visual field defects that could be caused by eye diseases like glaucoma. The use of Snellen chart with pinhole and Amsler grid test are described in the Module.
(c) Incontinence

Incontinence is highly prevalent in old age (about 30% of the older female population)\textsuperscript{138}. In most cases, the problem remains unknown to the family doctors\textsuperscript{139}. Although urinary incontinence is not a life threatening problem, psychosocial implications can be significant which include loss of self-esteem, restriction of social and depression\textsuperscript{140}.

**Recommendation**

**Opportunistc screening of urinary incontinence is recommended for older adults.**

**Supporting evidence**

Though there is no evidence for screening in the general population, case finding is recommended in those at higher risk (women who have had multi-parity, women who are overweight, those with diabetes, stroke, heart conditions, neurological disorders, recent surgery, respiratory conditions and the frail, elderly or long term care residents)\textsuperscript{96}.

The presence of urinary incontinence can be identified by simple questioning, “Do you ever lose your urine or get wet?”\textsuperscript{141}.

Patients with urinary incontinence should be assessed to determine the diagnostic category as well as underlying aetiology. This can usually be determined on the basis of history, physical examination and urinary culture and microscopy.

- Stress incontinence is the leaking of small amounts of urine which may occur during exercise, coughing, sneezing, laughing, walking, lifting or playing sport. This is more common in women, although it also occurs in men, especially after prostatic surgery. Pregnancy, childbirth and menopause are the main contributors. The presence of stress incontinence can be identified by asking, “Do you lose urine during sudden physical exertion, lifting, coughing or sneezing?”(positive likelihood ratio = 2.2; negative likelihood ratio = 0.39)\textsuperscript{142}.
- Urge incontinence is a sudden and strong need to urinate. It is often associated with frequency and nocturia. It is more common in people with overactive or unstable bladder, neurological conditions and enlarged prostate.
- Mixed incontinence is a combination of both stress and urge incontinence and is more common in older women.
- Overflow incontinence often occurs in an atonic bladder with overfilling.

Urinary incontinence can often be managed successfully within a primary care setting and the simple continence management tips include:

- Recommend and teach pelvic floor exercises to patients as it helps strengthen pelvic floor muscles that control urination
- Recommend toilet scheduling to achieve bladder control
- Recommend use of pads and absorbent garments as and when deemed essential
Referral to other specialists e.g. geriatrician, gynaecologist, urologist should be considered when further evaluation or management is required.

**(d) Falls**

For details, please refer to the Module on Falls in Elderly available at www.pco.gov.hk/english/resource/files/Module_on_Falls_in_elderly.pdf

The risk of falls increases with age. Between 30% and 40% of community-dwelling persons 65 years or older fall at least once per year $^{143, 144}$. In Hong Kong, a cross-sectional study reported that the prevalence of having at least one fall in the preceding 12 months was 18% $^{145}$, and 9.9% had bone fractures and 31.3% had soft tissue injuries $^{146}$. Falls are not only associated with morbidity and mortality in the older population, but are also linked to poorer overall functioning and early admission to long-term care facilities. Fall-related injuries are more common among older adults and are a major cause of pain and disability which will lead to a further restriction in daily activities and loss of independence. Reducing fall risk in older adults is therefore an important public health objective $^{147}$.

**Recommendation**

Primary care providers are recommended to assess the risk of falls in older adults opportunistically.

**Supporting evidence**

Although the overall benefit of clinical assessment programmes addressing fall risk is controversial $^{148, 149}$, detecting a history of falls and performing a fall-related assessment are likely to reduce future probability of falls when coupled with interventions, based on a number of controlled studies and systematic review $^{150-152}$.

Falls are usually under-reported, direct questioning is required for case finding. Ask for history of fall in the past 12 months as screening. Any positive answer to the following screening questions puts the person screened in a high risk group that warrants further evaluation.

- Whether there is history of two or more falls within the last twelve months?
- Whether the patient is presented with acute fall?
- Whether there is presence of clinical conditions (e.g. stroke, Parkinson’s disease, osteoarthritis) that leads to either weakness of the lower limb, balance and/or gait impairment?

Timed Up and Go Test can be performed to further delineate the risk of falls $^{153, 154}$. This test involves observing as a patient gets up from a chair without using his or her arms, walks 3 metres, turns around, walks back, and returns to a seated position. Those patients who require more than 14 seconds to complete the test have increased risk of falls and need further evaluation. Referral to specialists e.g. geriatrician for multifactorial fall risk assessment should also be considered when an older adult present for medical attention because of recurrent falls (i.e. two or more falls) in the last 12 months, or demonstrate abnormalities of gait and/or balance.
5.4.4 Mental disorders

(a) Depression

Depression is associated with decreased energy and motivation, poor self esteem, interpersonal difficulties and can precipitate a cycle of social withdrawal and negative thinking, which in turn increases depression. Risk factors of depression in older adults include poor self-related health, multiple co-morbidities, chronic pain, vision problems, higher level of impairment in activities of daily living, financial strain and poor social support. Elderly suicide is also a serious problem in Hong Kong and timely recognition and early treatment of depression in older adults provide opportunities for improvements in quality of life, reduce disability and prevention of premature death.

Recommendations

**Opportunistic screening of depression is recommended for older adults.**

Supporting evidence

Depression is often missed at the primary care level as many older adults with depression presented with common somatic symptoms. This probably reflects the increased likelihood of depression in frequent attenders and emphasises the potential value of opportunistic assessment in detecting depression in primary care setting. The systematic review also found good evidence that screening for depression in the primary care setting improves detection rates.

Screening of depression and assessment of suicidal risk should be linked to appropriate follow-up and treatment and service providers should ensure that a process is in place for assessing people with depression that identifies the severity of symptoms and the degree of associated functional impairment.

Both 15-item Geriatric Depression Scale (GDS-15) and Patient Health Questionnaire-9 (PHQ-9) are reliable and valid tools for depression screening and are widely used at local settings.

A shorter version has been developed for both instruments. GDS 4-item Cantonese version has been developed as a preliminary screening tool and validated for primary care setting.

Patient Health Questionnaire-2 (PHQ-2) which composed of two questions (i.e. “Over the past 2 weeks, have you felt down, depressed, or hopeless?” and “Over the past 2 weeks, have you felt little interest or pleasure in doing things?”) has good sensitivity and can be used in the first step.

Positive screening test should trigger full diagnostic interviews that use standard diagnostic criteria to determine the presence or absence of specific depressive disorders.
Details on Geriatric Depression Scale and Patient Health Questionnaire are described in the Module.

(b) Dementia


Dementia can be devastating not only for patients themselves, but also their family and carers. It has been shown that only one-fifth to one-half of cases of dementia are routinely recognised and documented in primary care. And that lack of detection is a significant barrier to improve lives of people with dementia, their families and carers.

On the other hand, earlier diagnosis allows people with dementia and their family members to anticipate and plan for future problems. And the early therapeutic interventions can be effective in improving quality of life, reducing carer strain and delaying institutionalisation.

As patients with dementia are often unaware of their problems and may be seen for other reasons (e.g. decrease in general condition, deterioration in nutritional status, increasing accidents, decline in social functioning), primary care workers need to have a high index of suspicion and be aware of different presentations of dementia.

**Recommendation**

**Primary care providers should assess cognitive function whenever cognitive impairment or deterioration is suspected, based on direct observation, patient report, or concerns raised by family members or carers.**

**Supporting evidence**

Current evidence does not support routine screening of patients in whom cognitive impairment is not otherwise suspected. However, using the currently accepted cognitive and memory tests, individuals with early stage of dementia can be identified opportunistically and thus advance care planning and individual counselling can be facilitated.

Evidence also suggests that primary care providers can make a diagnosis with reasonable accuracy in the limited time available during a typical consultation.

The diagnosis of dementia can be suggested when there is an impairment in memory and an impairment of at least one other area of higher cognitive functioning (i.e. judgment, abstract thinking, complex task performance, agnosia, apraxia, visuospatial awareness, personality change in the context of deficits) that interferes with normal social and executive functioning in an otherwise alert person.

The Mini-Mental State Examination (MMSE) is the best-studied instrument for screening for cognitive impairment. The MMSE cut off points for cognitive impairment varies with individual’s education level (i.e. ≤ 18 if illiterate, ≤ 20 for those with one to two years of schooling and ≤ 22 for clients with more than two years of schooling).

# It should be noted that MMSE is under copyright protection; permission for use at a cost would be required.
In view of time constraint at busy primary care setting, other screening tools have been suggested. The Abbreviated Mental Test (AMT) was developed as a brief test for abnormal cognitive function in older adults. The AMT is considered specific but less sensitive than MMSE. A validated local version of the Abbreviated Mental Test is commonly used in Hong Kong. Specialist referral (e.g., geriatrician, neurologist, psychogeriatricians) should be considered when further evaluation or management on dementia is required.

Details about the Abbreviated Mental Test are described in the Module.

5.4.5 Others

Polypharmacy and adverse drug reactions

Because of declining homeostatic mechanisms and adaptive capacity, older adults are especially susceptible to side effects of drugs and adverse drug interactions. Prescribing multiple medications in older patients is common and thus puts older adults at higher risk of experiencing adverse drug events. Among various medication-related adverse events, delirium and falls are two well-established complications of poor medication management in older adults and both are associated with increased morbidity and mortality.

Increased use of medications is also associated with dry mouth which is a risk factor of tooth decay in addition to its negative impact on quality of life. The side effect of dry mouth should be evaluated and the older adult should be advised to see a dentist if dry mouth is significantly affecting oral functions.

Recommendation

When prescribing new drugs to the older patients, health care professionals should review all the medications (including over-the-counter drugs and herbal remedies) so as to avoid possible drug duplications, interactions or adverse drug reactions.

Supporting evidence

Multiple drug use, or polypharmacy, in older adults increases the risks of inappropriate prescribing, adverse drug events and hospitalisation, of which a considerable number can be prevented through medication review.

5.5 Assessment of social network and support

The assessment of older adults should be comprehensive, incorporating the physical, psychological and social dimensions of care need and to involve carers and other service providers in the care planning processes, so that the most appropriate services can be recommended.

Social networking and support is important for older adults to live independently in the
community. Many older adults can live independently in the community if they have appropriate social support e.g. home helper service, meals on wheel service, carer support.

A sense of self-worth can contribute to better health and thus older adults should be encouraged to remain active, engage in leisure activities, and remain involved with other people.

**Recommendation**

**Opportunistic screening on the social support networks of older adults, including the social needs and the extent and availability of social support is recommended.**

**Supporting evidence**

In old age, social background is implicated in all aspects of disease; it can contribute to the aetiology of illness and the possibilities of recovery. Social support can have a direct beneficial effect on health, irrespective of whether individuals are faced with stressful events or not. It can also have an indirect effect by mitigating the negative consequences of stressful events on individual health status.

**Carer stress**

Carers play a vital role in supporting older adults to stay at home and may delay the need to be relocated to a residential aged care facility. On the other hand, carers have particular needs resulting from their carer role and are at risk of emotional distress, loneliness, isolation, and may become overburdened and unable to continue in the role.

The stress and burden can negatively affect the health of the carers and can lead to health declines of both the carers and the older adults, and result in elderly abuse in some situations. Therefore, in addition to the evaluation on the need of older adults, carer’s need and support should also be assessed.

**Recommendation**

**It is recommended to provide personalised support to carers enabling them to remain mentally and physically well.**

**Supporting evidence**

There is a clear relationship between poor health and caring that increases with the duration and intensity of the caring role. Those providing high levels of care are twice as likely to have poor health compared with those without caring responsibilities.

There is also evidence that assessment of carers and supporting their needs resulted in improved outcomes for both the carer and the care recipient, including a reduction in abuse in caregiving situations.
Caring can be rewarding and fulfilling but it can also be emotionally and physically draining without recognition and practical and emotional support.

Strategies should be set out to recognise the value of their contribution, involve them in how care is delivered, support their mental and physical health and enable them to have a work, family and community life.

It has been shown that carer support resources are helpful for carer well being and may delay the need for the older adults to be relocated to a residential aged care facility\textsuperscript{198}.

For practical information to carer in taking care of older adults, refer to Annex 3.

**Elder abuse**

Elder abuse refers to any action or behaviour which endangers the welfare or safety of an elder. Elder abuse is a complex problem and is often the result of an interaction of a host of risk and protective factors in individuals, in the family and in society. A local study revealed that about 20\% of elderly have experienced various form of abuse in the past year. Verbal abuse was the most prevalent form of elder abuse (20.8\%), followed by social abuse/neglect (3.9\%), and physical abuse (2.0\%). In general, abused elderly participants were more likely to be older women living with their families. They generally had poor vision and memory, were more likely to have chronic illnesses, and viewed themselves as being dependent on their family members\textsuperscript{199,200}.

Abused elders are more likely to report bodily discomfort, anxiety symptoms, depressed mood and social withdrawal. Health care workers are advised to have increased alertness on these behaviours and signs, and take the initiative to assess possibility of elder abuse when these vulnerable elders are encountered.

To minimise the potential for elder abuse, it is advisable for the carer to learn care-giving skills and share the care-giving work with others. Community supports available to older people at risk of abuse should also be strengthened.

For more information about elder abuse, refer to Annex 3.
6 PRACTICE OF EVIDENCE-BASED RECOMMENDATIONS FOR OLDER ADULTS WITH DIFFERENT FUNCTIONAL CAPACITY

The evidence-based recommendations in this document cover essential elements of primary care including assessment of health risks, early identification of common health problems, and promotion of healthy lifestyle. To maximise the health gains for the whole population, the implementation of preventive services can combine both high-risk individual and population-base approach which will shift the distribution of risk factor level to a lower range that yield better health outcomes.

6.1 Lifestyle advice – population-based approach

Since unhealthy lifestyle practices and chronic diseases are common among the local population\(^{201}\), even modest changes in risk factor levels through population based interventions can be expected to yield significant improvements in population health. Grounded in a population health approach, the initial emphasis is on those potentially modifiable behavioural risk factors, including unhealthy diet, physical inactivity, tobacco use, alcohol misuse.

As mentioned in chapter 5, health care workers are recommended to promote healthy lifestyles, vaccination and dental health care whenever opportunities arise. These recommendations are summarised in Table 2 below.

Table 2. Recommendations on lifestyle advice using population based-approach

<table>
<thead>
<tr>
<th>Preventive Care</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Vaccination</td>
<td>Arrange seasonal influenza annually.</td>
</tr>
<tr>
<td></td>
<td>Arrange pneumococcal vaccination as appropriate. (Chapter 5.1)</td>
</tr>
<tr>
<td>2. Smoking</td>
<td>Smoking cessation advice (Chapter 5.2.1)</td>
</tr>
<tr>
<td>3. Drinking</td>
<td>Moderation of alcohol intake (Chapter 5.2.2)</td>
</tr>
<tr>
<td>4. Physical activity</td>
<td>Advise regular physical activities (Chapter 5.2.3)</td>
</tr>
<tr>
<td>5. Diet and nutrition</td>
<td>Advise healthy eating habit and balanced diet (Chapter 5.2.4)</td>
</tr>
<tr>
<td>6. Oral health</td>
<td>Oral hygiene advice and assess any difficulty in eating and oral hygiene (Chapter 5.3)</td>
</tr>
</tbody>
</table>
6.2 Risk assessment and early identification

Apart from promotion of healthy lifestyle, preventive strategies through early identification of risk factors and chronic diseases have also demonstrated significant reduction in health care needs as well as improvement in health outcomes among older adults.

To engage more older adults in preventive care, a systematic health assessment can be conducted in a designated visit with the goal of early identification of risk factors and common health problems. Based on the risk profile and functional capacity obtained in the systematic health assessment, a personalised preventive care plan can be formulated for different categories of older adults, range from independent and healthy to independent with chronic diseases, and to older adults with disabilities.

The practice of a targeted, community-based and pro-active approach to preventive care that involves case-finding, assessment, care planning, and care co-ordination is elaborated in the Module on Health Assessment.

Notwithstanding the above, it is worth to note that screening is the testing of people who do not suspect they have a problem. Once a disease is suspected, prompt clinical management should be instituted. Moreover, screening involves a system not just a test and there is always a trade-off between benefit, harm and affordability. Hence, screening programme if implemented should be occurred at settings where screening service is provided and relevant supporting service is readily accessible.

6.3 Care for older adults with different functional capacity – high risk individual approach

Older adults have a varying intensity of needs and the preventive services depend much on their levels of functional capacity. A healthy active older adult more often requires a life course approach which emphasises on health promotion and disease prevention activities. To another extreme is a frail older adult with additional special needs which requires comprehensive assessment such that a personalised care plan can be initiated. Moreover, it is not uncommon to see a healthy active older adult suddenly becomes disabled after an untoward event. Take all these into considerations, a high risk individual approach is adopted for an older adult at different stages of functioning capacity (Figure 4 and 5). Essentially, the more dependent an older adult is, the more advanced level of care is required. Primary prevention and early identification of health risk are applied to older adults of all functional stages. When chronic diseases developed, more emphasis should be put on secondary prevention. With the progression of chronic disease to the stage of disability, tertiary prevention should be in place on top of primary and secondary prevention.
Figure 4. A life course perspective of maintaining independence in older adults

Figure 5. Preventive care strategies for an older adult throughout the life course

- **Primary prevention and early identification of health risk for all functional stages**
  - Health education and promotion of healthy lifestyle
  - Regular assessment of health risk (Chapter 5.1-5.4.2): vaccination, lifestyle, nutrition, dental health, common chronic diseases (e.g., HT, DM, hyperlipidaemia) and colorectal cancer.
  - Opportunistic screening of functional impairment (Chapter 5.4.3-5.5): hearing, vision, incontinence, falls, dental, depression, dementia (if with clinical suspicion), social isolation

- **Secondary prevention when chronic diseases developed**
  - Aim at preventing disease complications and co-morbidities
  - Annual risk assessment of HT and DM if any (Chapter 5.4.1)
  - Regular review use of medications (Chapter 5.4.5)
  - Screen ADL and risk of malnutrition (Module)

- **Tertiary prevention when complicated with disabilities**
  - Collaborative care to support optimal level of independent functioning
  - Assess ADL and risk of malnutrition (Module)
  - Screen carer stress and assess social support (Chapter 5.5)
6.3.1 Independent with no known chronic diseases

Staying active and healthy is essential to the quality of life. It is noted that the functional declines that occur with ageing may be due at least partly to lifestyle, behaviour, diet, and environment and thus can be modified. There is also a growing body of evidence to suggest that the modification of risk factors for disease even late in life can have health benefits for the individual.

Therefore, the primary objective for this category of older adults is to prevent or delay chronic diseases and maintain optimal functional capacity, thus helping to extend healthy active life.

Health promotion and systematic health assessment are thus important in this category of older adults and the recommended items for assessment are described in Table 3 below.

Table 3. Recommendations on preventive care for independent older adults with no known chronic diseases

<table>
<thead>
<tr>
<th>Preventive Care</th>
<th>Recommendations</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Health education and promotion</td>
<td>Vaccination, healthy lifestyle, nutrition, oral health (Chapter 5.1- Chapter 5.4.2)</td>
<td>Every opportunities</td>
</tr>
<tr>
<td>2. Screening for hypertension</td>
<td>Measure blood pressure (Chapter 5.4.1 a)</td>
<td>Annually</td>
</tr>
<tr>
<td>3. Screening for diabetes mellitus</td>
<td>Check blood for fasting blood sugar (Chapter 5.4.1 b)</td>
<td>Every 1-3 years</td>
</tr>
<tr>
<td>4. Screening for hyperlipidaemia</td>
<td>Check blood for lipid profile (Chapter 5.4.1 c)</td>
<td>Every 1-3 years</td>
</tr>
<tr>
<td>5. Screening for overweight and underweight</td>
<td>Check BMI +/- waist circumference (Chapter 5.2.4)</td>
<td>Annually</td>
</tr>
<tr>
<td></td>
<td>Monitor body weight and assess risk of malnutrition (Chapter 5.2.4 and Module)</td>
<td></td>
</tr>
<tr>
<td>6. Screening for cervical cancer</td>
<td>Check cervical cytology test (Chapter 5.4.2 a)</td>
<td>Every 3 years after two consecutive normal annual cytology tests (refer to page 34 for details)</td>
</tr>
<tr>
<td>7. Screening for colorectal cancer</td>
<td>Check faecal occult blood test (FOBT) (Chapter 5.4.2 b)</td>
<td>Every 1-2 years</td>
</tr>
<tr>
<td>8. Screening for functional impairment</td>
<td>Hearing, vision, incontinence, falls, dental, depression, dementia, social isolation (Chapter 5.4.3- Chapter 5.5)</td>
<td>Opportunistic or when clinically indicated</td>
</tr>
</tbody>
</table>

# Primary care providers should assess cognitive function whenever cognitive impairment or deterioration is suspected
6.3.2 Independent with chronic diseases

In general, older adult with chronic diseases is characterised by tremendous clinical heterogeneity, and substantially varies in the number of chronic conditions, the severity of illness and functional limitations. Chronic diseases exert a synergistic effect such that the combined disabling effect of different diseases is greater than the summed effect of each of them \(^203\). And as the number of chronic diseases in an individual increases, the risks of mortality, poor functional status, unnecessary hospitalisations, adverse drug events also increases \(^204-206\).

Multiple chronic diseases can be accompanied by loss of function, reduced self efficacy, increased risk of depressive illness and subsequently contribute to frailty and disability \(^203,\ 207\). Therefore, the objectives of preventive services in these older adults are to appropriately manage their chronic diseases with reference to both secondary and tertiary prevention, as well as to maintain functional independence.

The recommendations on preventive care for independent older adults with chronic diseases are described in Table 4 below and the assessment of various functional domains will be elaborated in the Module.

**Table 4. Recommendations on preventive care for independent older adults with chronic diseases**

<table>
<thead>
<tr>
<th>Preventive care</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Risk assessment of hypertension and diabetes mellitus (if any)</td>
<td>Risk assessment for secondary and tertiary prevention (Chapter 5.4.1)</td>
</tr>
<tr>
<td>2. Review use of medications</td>
<td>Screen for problems related to medication use and polypharmacy (Chapter 5.4.5)</td>
</tr>
<tr>
<td>3. Screen for overweight and underweight</td>
<td>Check BMI +/- waist circumference (Chapter 5.2.4)</td>
</tr>
<tr>
<td></td>
<td>Monitor body weight and assess risk of malnutrition (Chapter 5.2.4 and Module)</td>
</tr>
<tr>
<td>4. Opportunistic screening of functional impairment</td>
<td>Hearing, vision, incontinence, falls, dental, depression, dementia(^#), social isolation (Chapter 5.4.3 – Chapter 5.5)</td>
</tr>
<tr>
<td>5. Screening for abilities on self care and daily living</td>
<td>Screen for daily living problems by Basic ADL and Instrumental ADL (Module)</td>
</tr>
<tr>
<td>6. Assess social network and support</td>
<td>Assess the need of social and carer support (Chapter 5.5)</td>
</tr>
</tbody>
</table>

\(^#\) Primary care providers should assess cognitive function whenever cognitive impairment or deterioration is suspected
6.3.3 Care for older adults with disabilities

Those older adults who suffer multiple debilitating diseases (such as stroke, dementia, or arthritis) are likely to face disabling barriers which inhibit or prevent their integration in community. There is evidence that functional decline in older adult is associated with adverse outcomes ranging from increased length of stay to higher levels of institutionalisation and increased mortality. Institutionalisation which in turn can further exacerbate functional decline which are manifested as the development of malnutrition, decreased mobility, incontinence, falls, delirium, problems with medication and depression.

Chronic pain is also common in this group older adult and invariably jeopardises physical, psychological and social wellbeing. The approach to this group of older adults is thus to intervene early to prevent further loss of function, so as to maintain optimal functional capacity and facilitate their integration in society. A comprehensive assessment should be offered to this group of older adults with complex needs, and should cover physical, psychological and social aspects of care (e.g. ability in self care, hearing and visual impairment, incontinence, falls, depression, cognitive impairment, malnutrition, polypharmacy, social support and carer stress).

The recommendations on preventive care for older adults with disabilities are described in Table 5 below and will be elaborated in the Module.

Table 5. Recommendations on preventive care for older adults with disabilities

<table>
<thead>
<tr>
<th>Preventive care</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Assess the abilities on self care and daily living</td>
<td>Assess functioning of daily living in the community by Basic ADL and Instrumental ADL (Module)</td>
</tr>
<tr>
<td>2. Opportunistic screening of functional impairment</td>
<td>Hearing, vision, incontinence, falls, dental, depression, dementia*, social isolation (Chapter 5.4.3- Chapter 5.5)</td>
</tr>
<tr>
<td>3. Assess risk of malnutrition</td>
<td>Check BMI and monitor body weight (Chapter 5.2.4 and Module)</td>
</tr>
<tr>
<td>4. Review use of medications</td>
<td>Screen for problems related to medication use and polypharmacy (Chapter 5.4.5)</td>
</tr>
<tr>
<td>5. Assess social network and support</td>
<td>Screen for carer stress (Chapter 5.5)</td>
</tr>
</tbody>
</table>

* Primary care providers should assess cognitive function whenever cognitive impairment or deterioration is suspected
Once the functional problems have been identified, the primary care providers may choose to make the initial intervention themselves or may choose to refer the patient to other professional disciplines or to community centres from which additional information or services would be helpful. Role of primary care providers is especially important for following aspects:

- Provide information on local resources and services tailored to the needs of older adults and their families for help and support. Information on community resources to support frail older adults and their carers is signposted in Annex 3.
- Coordinate care with other medical professionals, specialists, and link families with community-based services for ageing in place.
- Ensure coordinated and community-based transitions for all older adults with disabilities by advocating for access to appropriate community-based transition services.
- Recognise the unique needs of carers of frail older adults, and offer strategies for them to promote their own physical and emotional health and wellbeing, including links to family support groups and mental health services.
- Understand and promote access to financial supports for families of frail older adults.
- Recognise carer stress and ensure that all carers are aware of self-care strategies and options for good-quality care.
- Encourage participation of frail older adults and their families in recreational and social activities by actively linking them to community-based agencies and organisations.
- Adopt a family-centred approach to the care of frail older adults by involving families in all aspects of medical, financial and social decision-making process, including end of life care.
7 FUTURE DIRECTION

Through developing and promoting this reference framework, coupled with other system changes to the service delivery model for primary care, it is hoped to bring about a paradigm shift that would put greater emphasis on preventive care.

While caring for the older adult is the responsibility of every family, a truly supportive environment for active and healthy ageing is also of paramount importance. To foster a community that is conducive to active and healthy ageing requires the concerted efforts of all stakeholders in the community.

The reference framework is an evolving entity that will be extended and improved over time. To take forth the proposed recommendations, continuing effort will be made to engage different healthcare providers, professional organisations, non-government organisations, community stakeholders and social service agencies to adopt, implement, and, when indicated, further modify the framework.
Annex 1. Conceptual models for preventive care for older adults in primary care settings

<table>
<thead>
<tr>
<th>Individual Lifestyle Factors</th>
<th>Physical and Psychological Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults aged 65 years old and above</td>
<td>Physical factors</td>
</tr>
<tr>
<td>• Healthy eating habit</td>
<td>• Risk factors:</td>
</tr>
<tr>
<td>• Regular physical activity</td>
<td>➢ Fall</td>
</tr>
<tr>
<td>• Weight management</td>
<td>➢ Hyperlipidaemia</td>
</tr>
<tr>
<td>• Smoking cessation if smokers</td>
<td>➢ Obesity or malnutrition</td>
</tr>
<tr>
<td>• Prevention of alcohol related problems</td>
<td>➢ Smoking</td>
</tr>
<tr>
<td>• Personal hygiene and social hygiene</td>
<td>• Common diseases:</td>
</tr>
<tr>
<td>• Daily oral hygiene and regular dental check-up</td>
<td>➢ Cancer e.g. cervical and colorectal</td>
</tr>
<tr>
<td>• Quality sleep</td>
<td>➢ Diabetes</td>
</tr>
<tr>
<td>• Leisure and hobby – elderly group activities, e.g. reading books and newspaper, playing chess and mahjong, playing Tai Ji, Wu Qin Xi etc.</td>
<td>➢ Hypertension</td>
</tr>
<tr>
<td></td>
<td>➢ Degenerative arthritis</td>
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<tr>
<td></td>
<td>➢ COPD</td>
</tr>
<tr>
<td></td>
<td>➢ Osteoporosis</td>
</tr>
<tr>
<td></td>
<td>• Functional assessment:</td>
</tr>
<tr>
<td></td>
<td>➢ Hearing</td>
</tr>
<tr>
<td></td>
<td>➢ Vision</td>
</tr>
<tr>
<td></td>
<td>➢ Mobility</td>
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<tr>
<td></td>
<td>➢ Basic Activity of Daily Living (ADL) and Instrumental Activity of Daily Living (IADL)</td>
</tr>
<tr>
<td></td>
<td>➢ Eating ability</td>
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<tr>
<td></td>
<td>➢ Oral hygiene ability</td>
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<td></td>
<td>➢ Incontinence</td>
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<td></td>
<td>• Chronic pain</td>
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<tr>
<td></td>
<td>• Musculoskeletal pain</td>
</tr>
<tr>
<td></td>
<td>• Drug abuse and counselling</td>
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<tr>
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<td>Psychological factors</td>
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<td>➢ Cognitive functions</td>
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<td>➢ Dementia</td>
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<td>➢ Mood problems</td>
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<td>➢ Suicide prevention</td>
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<td>➢ Stress management</td>
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<td>➢ Coping strategy</td>
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<td>➢ Life transition</td>
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<td>➢ Family changes</td>
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<tr>
<th>Determinants of Health</th>
<th>Adults aged 65 years old and above</th>
<th>Community and Environmental Factors</th>
<th>Service Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family and Social Factors</td>
<td>• Family support – educate carer and provide support • Social networks and support • Institutionalisation • Care for “old old” people</td>
<td>• Physical environment ➢ Housing ➢ Water ➢ Living and working environment • Poverty and social status • Environmental risk factors (e.g. exposure to infective agents, toxic or radioactive substances, extremes of temperature) • Injury prevention</td>
<td>• Health ➢ Access to health service (including dental service) ➢ Health education and promotion ➢ Preventive dental service ➢ Ophthalmologic service ➢ Community nursing service ➢ Advice on self care ➢ Vaccination ➢ Control of risk factors ➢ Management of functional incapacity ➢ Rehabilitation service ➢ Management of acute and chronic diseases • Prevention of iatrogenesis related to medications ➢ Traditional Chinese Medicine practitioners ➢ Health seeking behaviour ➢ Doctor shopping behaviour ➢ Collaboration with social service • Education ➢ Health literacy ➢ Coping skills to manage daily activities and disease complications • Social ➢ Access to social welfare services ➢ Carer support ➢ Respite care ➢ Advance care planning ➢ Bereavement support ➢ Financial support ➢ Social network expansion ➢ Positive ageing ➢ Collaboration with health service • End-of-life care</td>
</tr>
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Annex 2. List of health domains and the timeframe for developing the Modules

Following health domains will be elaborated in the form of Modules

<table>
<thead>
<tr>
<th>Health domain</th>
<th>Work schedule</th>
<th>Remarks</th>
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<tr>
<td>Health Assessment</td>
<td>First phase</td>
<td>Table 4 and Annex 2 have been updated in February 2015.</td>
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<td>Functional disability</td>
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<tr>
<td>• Fall</td>
<td>Second phase</td>
<td>The module on falls in elderly has been released in February 2015.</td>
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<tr>
<td>• Visual impairment</td>
<td></td>
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<tr>
<td>• Hearing impairment</td>
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<tr>
<td>• Incontinence</td>
<td></td>
<td></td>
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<tr>
<td>Mental disorder</td>
<td>Third phase</td>
<td></td>
</tr>
<tr>
<td>• Mood problem</td>
<td></td>
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<tr>
<td>• Cognitive impairment</td>
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</tbody>
</table>

Following health domains will be signposted to existing relevant resources (for details please refer to Annex 3)

- Healthy ageing
- Vaccination for older adults
- Smoking
- Alcohol and related problems
- Nutrition for older adults
- Physical activity
- Oral health
- Resources for patients and carers
Annex 3. Websites providing practical information related to health care of older adults

<table>
<thead>
<tr>
<th>Health topics</th>
<th>Relevant materials</th>
<th>Sources and websites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Healthy ageing</strong></td>
<td>Health education for service providers</td>
<td>Department of Health <a href="http://www.info.gov.hk/elderly/tc_chi/service_providers/education_kit.html">http://www.info.gov.hk/elderly/tc_chi/service_providers/education_kit.html</a></td>
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<tr>
<td></td>
<td></td>
<td>The Chinese University of Hong Kong <a href="http://www.cuhk.edu.hk/med/shhccg/healthyageing/healthyageing.html">http://www.cuhk.edu.hk/med/shhccg/healthyageing/healthyageing.html</a></td>
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<tr>
<td></td>
<td></td>
<td>Hong Kong Housing Society <a href="http://www.hkhselderly.com/tc/health">http://www.hkhselderly.com/tc/health</a></td>
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</tbody>
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<tr>
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<th>Relevant materials</th>
<th>Sources and websites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Smoking</strong></td>
<td>Practical tips on smoking cessation</td>
<td>Tobacco Control Office</td>
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<tr>
<td></td>
<td>Local centres which provide smoking cessation services</td>
<td>Tung Wah Groups of Hospitals</td>
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<tr>
<td></td>
<td></td>
<td><a href="http://icsc.tungwahcsd.org/c4_smoke.html">http://icsc.tungwahcsd.org/c4_smoke.html</a></td>
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<td></td>
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<td>Hong Kong Council on Smoking and Health</td>
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<td></td>
<td><a href="http://www.smokefree.hk/tc/content/web.do?page=Methods">http://www.smokefree.hk/tc/content/web.do?page=Methods</a></td>
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<td></td>
<td></td>
<td>Department of Health</td>
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<tr>
<td></td>
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<td>Tung Wah Group of Hospitals</td>
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<td><a href="http://icsc.tungwahcsd.org/c32s_service.html">http://icsc.tungwahcsd.org/c32s_service.html</a></td>
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<tr>
<td></td>
<td></td>
<td>Hospital Authority</td>
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<td></td>
<td></td>
<td><a href="http://www.ha.org.hk/visitor/ha_visitor_index.asp?Content_ID=10098&amp;Lang=CHIB5&amp;Dimension=100">http://www.ha.org.hk/visitor/ha_visitor_index.asp?Content_ID=10098&amp;Lang=CHIB5&amp;Dimension=100</a></td>
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<tr>
<td></td>
<td></td>
<td>Further smoking cessation service providers</td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://www.smokefree.hk/en/content/web.do?page=Services">http://www.smokefree.hk/en/content/web.do?page=Services</a></td>
</tr>
<tr>
<td><strong>Alcohol and related problems</strong></td>
<td>Information on alcohol screening, brief intervention and its related harm</td>
<td>Department of Health</td>
</tr>
<tr>
<td></td>
<td>Local centres which provide services for alcohol-related problems</td>
<td>World Health Organization</td>
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<tr>
<td></td>
<td></td>
<td><a href="http://www.who.int/topics/alcohol_drinking/en/">http://www.who.int/topics/alcohol_drinking/en/</a></td>
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<td>Tuen Mun Alcohol Problems Clinic</td>
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<td>“Stay Sober, Stay Free” Alcohol Addiction Treatment Project</td>
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<td><a href="http://atp.tungwahcsd.org/">http://atp.tungwahcsd.org/</a></td>
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<tr>
<td></td>
<td></td>
<td>Alcoholics Anonymous</td>
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<td><a href="http://www.aa-hk.org/">http://www.aa-hk.org/</a></td>
</tr>
<tr>
<td>Health topics</td>
<td>Relevant materials</td>
<td>Sources and websites</td>
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<table>
<thead>
<tr>
<th>Health topics</th>
<th>Relevant materials</th>
<th>Sources and websites</th>
</tr>
</thead>
</table>
| **Physical activity** | Exercise Prescription Doctor’s Handbook | Department of Health  
| | Fitness programmes for older adults | Leisure and Cultural Services Department  
| | Recommendations on level of physical activities for older adults | World Health Organization  
http://www.who.int/dietphysicalactivity/factsheet_olderadults/en/ |
| |  | Department of Health  
http://exerciserx.cheu.gov.hk/  
US National Institute of Health  
http://nihseniorhealth.gov/exerciseforolderadults/faq/faqlist.html |
| |  | UK Department of Health  
| |  | UK National Health Service  
http://www.nhs.uk/Livewell/fitness/Pages/physicalactivity-guidelines-for-older-adults.aspx |
| **Sleep** | Sleep Hygiene | Department of Health  
http://www.cheu.gov.hk/b5/info/mental_03.htm  
| **Oral health** | Dental care | Department of Health  

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<tr>
<th>Health topics</th>
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<th>Sources and websites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community support</td>
<td></td>
<td>Hong Kong Housing Society <a href="http://www.hkh%E4%BD%8F%E6%88%BFelderly.com/tc/provider">http://www.hkh住房elderly.com/tc/provider</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>香港基督教服務處 - 虐老防治資訊網 <a href="http://ears.hkc.org/">http://ears.hkc.org/</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>善寧會 <a href="http://www2.hospicecare.org.hk/">http://www2.hospicecare.org.hk/</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>寧舍 <a href="http://www.hospicehome.hk/">http://www.hospicehome.hk/</a></td>
</tr>
</tbody>
</table>
Screening

Screening is the presumptive identification of unrecognized disease or defect by the application of tests, examinations or other procedures which can be applied rapidly. Screening tests sort out apparently well persons who probably have a disease from those who probably do not. A screening test is not intended to be diagnostic. Once a disease is suspected, prompt clinical management should be instituted. Moreover, screening involves a system not just a test and there is always a trade-off between benefit, harm and affordability. Hence, screening programme if implemented should be occurred at settings where screening service is provided and relevant supporting service is readily accessible.

Population-based screening

Population-based screening is offered systematically to all individuals in the defined target group within a framework of agreed policy, protocols, quality management, monitoring and evaluation by applying a screening test for a disease which is considered important and will produce a net benefit that is cost effective and that the community considers acceptable.

Opportunistic screening

Opportunistic screening occurs when a test is offered to individuals when they present to a health care practitioner for reasons unrelated to that disease, and particularly for individuals who may be predisposed to that disease, e.g. individuals with particular risk factors or at increased risk, and the disease can be controlled better when detected early in the natural history. The differences between population-based screening and opportunistic screening are described in the table below.
<table>
<thead>
<tr>
<th>Population-based screening</th>
<th>Opportunistic screening</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Targets</strong></td>
<td><strong>Targets</strong></td>
</tr>
<tr>
<td>➤ Targeted to general population.</td>
<td>➤ Targeted to individuals rather than general population.</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td><strong>Process</strong></td>
</tr>
<tr>
<td>➤ Adequate staffing and facilities for testing, diagnosis, treatment and programme management should be available prior to the commencement of the screening programme.</td>
<td>➤ The decision to initiate the health care encounter is made by the individual rather than being invited.</td>
</tr>
<tr>
<td>➤ There is proactive invitation of the target population.</td>
<td>➤ The primary care doctor acts on appropriate opportunities during the consultation process for disease prevention.</td>
</tr>
<tr>
<td>➤ An organised integrated process where all activities along the screening pathway are planned, coordinated and monitored.</td>
<td>➤ The choice of the disease to be screened depends on circumstances in the consultation and has to be legitimate and selective.</td>
</tr>
<tr>
<td><strong>Example</strong></td>
<td><strong>Example</strong></td>
</tr>
<tr>
<td>➤ Cervical cancer screening programme. Women aged between 25 and 64 who have ever had sex are invited to have cervical cytology test every 3 years after two consecutive normal annual cytology tests.</td>
<td>➤ Opportunistic screening of dementia. The primary care doctor is aware of cues pointing to the possibility of dementia during the consultation process, though the patient comes for the condition unrelated to cognitive problem. The primary care doctor then takes the opportunity and performs screening test for dementia.</td>
</tr>
</tbody>
</table>

**Primary prevention**

Primary prevention aims to reduce the incidence of disease by personal and communal efforts, such as decreasing environmental risks, enhancing nutritional status, immunising against communicable diseases, or improving water supplies. It is a core task of public health, including health promotion.
Secondary prevention

Secondary prevention aims to reduce the prevalence of disease by shortening its duration. If the disease has no cure, it may increase survival and quality of life. It seldom prevents disease occurrence; it does so only when early detection of a precursor lesion leads to complete removal of all such lesions. It is a set of measures available to individuals and communities for the early detection and prompt intervention to control disease and minimise disability; e.g., by the use of screening programmes.

Tertiary prevention

Tertiary prevention consists of measures aimed at softening the impact of long term disease and disability by eliminating or reducing impairment, disability, and handicap; minimising suffering; and maximising potential years or useful life.
Acknowledgments

The Working Group on Primary Care of the Health and Medical Development Advisory Committee gratefully acknowledges the invaluable contribution of the Members of the Task Force on Conceptual Model and Preventive Protocols and the Clinical Advisory Group on the Hong Kong Reference Framework for Preventive Care for Older Adults in Primary Care Settings in the development of the Reference Framework.

Members of the Working Group on Primary Care of the Health and Medical Development Advisory Committee (2012)

<table>
<thead>
<tr>
<th>Chairman:</th>
<th>Members:</th>
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<tbody>
<tr>
<td>Dr York CHOW Yat-ngok Secretary for Food and Health (up to June 2012)</td>
<td>Ms Elaine CHAN Sau-ho Chief Health &amp; Protection Officer, AXA China Region Insurance Company Limited</td>
</tr>
<tr>
<td>Dr KO Wing-man Secretary for Food and Health (from July 2012)</td>
<td>Dr Joseph CHAN Woon-tong Deputy Medical Superintendent &amp; Head, Department of Women’s Health and Obstetrics, Hong Kong Sanatorium &amp; Hospital</td>
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<td>Mr CHEUNG Tak-hai Immediate Past Chairman &amp; Vice-chairperson, Alliance for Patients’ Mutual Help Organizations (up to May 2012)</td>
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<td>Dr Amy CHIU Pui-yin Head, Primary Care Office, Department of Health (up to Sep 2012)</td>
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<td></td>
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</tr>
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<tr>
<td>Ms Agnes HO Kam-har</td>
<td>Head of Medical and Group Life, HSBC Insurance (Asia) Limited</td>
</tr>
<tr>
<td>Dr Ronnie HUI Ka-wah</td>
<td>Chief Executive Officer, Apollo Solar Energy Technology Holdings Limited</td>
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<tr>
<td>Prof Cindy LAM Lo-kuen</td>
<td>Professor and Head, Department of Family Medicine and Primary Care, The University of Hong Kong</td>
</tr>
<tr>
<td>Ms Connie LAU Yin-hing</td>
<td>Chief Executive, Consumer Council</td>
</tr>
<tr>
<td>Dr Paco LEE Wang-yat</td>
<td>Specialist in Family Medicine, St. Paul’s Hospital</td>
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<td>Dr Emily LEUNG Chi-mei</td>
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<td>President, Hong Kong Dental Association</td>
</tr>
<tr>
<td>Dr Donald LI Kwok-tung</td>
<td>Specialist in Family Medicine; Director, Bauhinia Foundation Research Centre</td>
</tr>
<tr>
<td>Prof LIU Liang</td>
<td>Vice Rector (Research and Development), The Macau University of Science and Technology</td>
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<tr>
<td>Dr LO Su-vui</td>
<td>Director (Strategy and Planning), Hospital Authority</td>
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<tr>
<td>Dr Louis SHIH Tai-cho</td>
<td>Specialist in Dermatology &amp; Venereology</td>
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<tr>
<td>Dr Gene TSOI Wai-wang</td>
<td>Immediate Past President, The Hong Kong College of Family Physicians</td>
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<tr>
<td>Dr Nelson WONG Chi-kit</td>
<td>Head, Corporate Medical Scheme Service, Dr Vio &amp; Partners</td>
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<tr>
<td>Prof Thomas WONG Kwok-shing</td>
<td>President, Tung Wah College</td>
</tr>
<tr>
<td>Prof George WOO</td>
<td>Visiting Chair Professor of Optometry and Emeritus Professor, School of Optometry, The Hong Kong Polytechnic University</td>
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<tr>
<td>Dr YEUNG Chiu-fat</td>
<td>President, Hong Kong Doctors Union</td>
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<td>Hong Kong West Cluster Service Director (Primary &amp; Community Health Care)</td>
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# Members of the Clinical Advisory Group on Reference Framework for Preventive Care for Older Adults in Primary Care Settings (2012)

<table>
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