



Men Ageing And Health

Achieving health across the life span

Noncommunicable Diseases and Mental Health
Cluster

Noncommunicable disease prevention and Health Promotion
Department

Ageing and Life Course
Unit



World Health Organization

Geneva

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The preliminary draft of this paper was prepared, under the guidance of the WHO Ageing and Health Programme, by two young professionals, then based in WHO as interns. They attended the First International Congress on the Ageing Male, Geneva, from 4 to 8 February 1998, and took copious notes. Thus, the initial input of Hans-Georg Justl and Emily Hartigan, combining their skills (Hans as a senior medical student and Emily as a recently graduated public health journalist), provided a very good start. The first draft was further improved by various technical officers working with the Programme – Ken Black, Ingrid Keller, Irene Hoskins and, critically, Paul Kowal. Professor Egon Diczfalusy provided crucial guidance throughout the process. The resulting draft was then circulated to individual members of the International Society for the Study of the Ageing Male (ISSAM) for further revision.

Subsequently, Professor Robert Beaglehole assumed the task of final editing in close collaboration with Alexandre Kalache (Co-ordinator of the WHO Ageing and Life Course Unit, WHO-ALC). Professor Beaglehole's final draft was submitted to an Editorial Board chaired by Professor Bruno Lunenfeld, the president of ISSAM, and composed of other ISSAM members representing different disciplines (Professor Claude Schulman, Professor Eino Heikkinen, Dr. Hana Hermanova, Dr. David Crook, Professor Ronald Swerdlhoff, Dr. Jean Kaufman, Professor Egon Diczfalusy, Professor Jean-Pierre Michel, Dr. Wojtek Chodzko-Zajko, Mr. Horace Deets, Dr. Ruth Bonita, Professor Giuseppe Benagiano, Dr. Taina Rantanen and Mr. Todd Petersen). Their advice and freely provided time is hereby acknowledged with thanks. Dr. J. O'Brien of the University of Newcastle also provided significant input.

A meeting of the full editorial board took place in Geneva on 9 February 2000, immediately prior to the opening session of the 2nd World Congress on the Ageing Male. During the Congress, a special symposium was held, open to all participants as a plenary session. At this symposium which was co-chaired by Professor Egon Diczfalusy, Professor Bruno Lunenfeld and Dr. Alexandre Kalache, Professor Robert Beaglehole introduced the paper, section by section, and solicited comments and suggestions for final amendments from the participants. He was assisted in this process by Hans-Georg Justl in recognition of the latter's crucial initial input. A resolution was passed, unanimously endorsing the paper as being a document that expresses the views of both WHO and ISSAM on the subject matter.

A preliminary version of this document was published in March 2000 issue of *The Ageing Male*, the official Journal of the ISSAM.

This current version has incorporated further inputs - this time from Dr. Sanjeeb Sapkota, an intern who attended the WHO Ageing and Life Course Unit (WHO - ALC) from October 2000 to June 2001, and again from Professor Robert Beaglehole and Ingrid Keller always under the WHO-ALC guidance.

This long process not only ensured the quality of the final product but also provided a model for effective collaboration between the scientific community and a specialized UN Agency ultimately responsible for advancing evidence-based knowledge on health issues.

“We must refine and define the strategies that stimulate healthy and active ageing. Active ageing strategies concern everyone from policy makers to researchers, from practitioners to every individual in this planet.

....from the gender perspective we must recognise gender based difficulties and inequalities which affects how well we age as men and women.”

Gro Harlem Brundtland, MD, MPH
Director General
World Health Organization

7 April 1999
World Health Day - Active ageing makes the difference

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FOREWORD

Health and the ageing male

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It is impossible to understand ageing and health without a gender perspective. Both from a physiological and from a psychosocial point of view, the determinants of health as we age are intrinsically related to gender. There is increasing recognition that unless research and programs – on both clinical science and public health – acknowledge these differences, they will not be effective. While women experience greater burdens of morbidity and disability, men die earlier, yet the reasons for such premature mortality are not fully understood. The rapidity with which the world-wide population is ageing will require a sharp focus on gender issues if meaningful policies are to be developed. Yet so often gender in the health context is taken as being synonymous only with women's issues.

This perception has its roots in the successful campaigns orchestrated by women's groups in the 1970s and 1980s. These campaigns were imperative. The health status of women had been neglected throughout history, and a sharper focus on it was essential in order to extend services to millions of women throughout the world who were exposed to neglect and an unnecessary burden of diseases. It was therefore largely due to very appropriate advocacy, often led by non-governmental organizations, that the importance of women's health gradually gained prominence in many, although not yet all, countries. This achievement must not be eroded; on the contrary, it requires consolidation.

By and large, the reasons why such advocacy was successful stemmed from the fact that women were fighting a battle against oppressors – men, who for as far back as history goes had retained power through politics, economics and their prominence in society. The challenge involved in placing the concerns of men firmly on the health agenda is even greater, since it will entail orchestrating a fight in which there is no opponent, no oppressor. The battle will be against complacency, against established attitudes, towards a culture in which men would recognize the importance of looking after themselves, a culture of self-care, as opposed to the current common belief of men who regard themselves as 'indestructible machines'. And this battle could eventually lead the health sector to acknowledge the fact that it should also cater for men's health issues. So often, throughout the world, the message transmitted by health services is 'We are not interested in your health'; many men come into contact with the health sector only when they are children and/or at the end of their lives. Too little, too late. By the time they consult a physician diseases, that could have been prevented or adequately managed if detected earlier, have already progressed to an irreversible stage, leading to premature death. It follows that a life-course perspective is required on gender and health; our health, at the end of our lives, is the result of past experiences in terms of lifestyle, environmental exposures and encounters with the health sector.

The paper on 'Men, Ageing and Health' was conceived by the World Health Organization's Ageing and Health Programme in an attempt to summarize the knowledge gained in recent years about the health of male individuals as they age. In addition, the paper identifies knowledge gaps requiring research efforts and recommends specific actions that need to be taken immediately if the situation is to improve. This initiative by WHO has benefited immensely from the support and collaboration of the International Society for the Study of the Ageing Male, through its Executive Board and many individual members who enthusiastically provided advice and commented on successive drafts.

Despite the enormous medical progress achieved during the past few decades, the fact remains that the last years of life are still often accompanied by increasing ill health and disability. The key factor in healthy ageing is the ability to maintain independent living for as long as possible. Effective programs promoting healthy ageing and preventing disability in older people will result in more efficient use of health and social services, and will improve the quality of life of older persons by enabling them to remain independent and productive.

In addition, interventions such as hormone replacement therapy may help to prevent the preventable and delay the inevitable. Evidence is available that such interventions may slow the progression of disease in women. There is an urgent need to obtain comparable information for men.

In the light of this, public awareness of established medical knowledge needs to be increased and basic clinical, socio-economic and epidemiological research intensified. This challenge will necessitate a quantum leap in international research efforts, supported by new partnerships between intergovernmental, governmental, private and voluntary sectors.

It is our sincere hope that this paper will increase awareness that a public health agenda for the 21st century will need to incorporate a strong focus on the health of ageing males. In the process, the gains will be shared by society as a whole.

1 INTRODUCTION AND DEFINITIONS

The year 2002 marks the 20th anniversary of the World Assembly on Ageing's adoption of the Vienna International Plan of Action on Ageing (IPAA). This plan, subsequently endorsed by the United Nations' (UN) General Assembly, was the first policy document on ageing to be adopted by international consensus. It aimed to strengthen the capacity of governments and civil society to respond to the needs of ageing populations while also promoting older persons as vital resources for all societies.

Projections for the increase in numbers and proportions of older persons are impressive. Between the years 2000 and 2050, the world wide proportion of persons over 65 years of age is expected to more than double from the current 6.9% to 16.4%¹. The proportion of oldest-old (those aged 80 years and older) will increase during this period from 1.9 to 4.2%. The population of centenarians in 2050 will be 16 times larger than that in 1998 (2.2 million compared to 135 000) with the male-to-female ratio of centenarians falling to approximately 1: 4.

Building on the foundations of the IPAA and the UN Principles for Older Persons and recognizing the projections for population ageing, the World Health Organization's Ageing and Health Programme now advocates a gender-specific approach to healthy ageing². A gender-specific approach refers not just to the biological differences between men and women, but also to the socially constructed roles that shape male and female identities throughout the life course. A gender-specific approach will assist understanding of the differences in health and social needs between the sexes according to the differential ways in which men and women age.

While a gender-specific approach is often used to identify persistent inequalities in the status of women, the specific situation of men, particularly older men, also requires investigation and further studies, especially with regard to the determinants of health. For example, why is it that men continue to be at higher risk of most of the important causes of mortality? Why is it that life expectancy for men at all ages is still shorter than for women in almost every country?

This document forms a basis for the development of policies and strategies to address male ageing and health issues in both developed and developing countries. While this report can neither account for all disparities in the ageing profile nor address the health needs of all ageing men globally, it provides a broad background of information, focusing on both medical and socio-economic issues that affect men's health. It also outlines strategies for dealing with these issues. Through specific information and examples of past successful initiatives and programmes, this report offers health professionals, policy- and decision-makers, as well as older men themselves, the prospect of optimizing the health and ageing process.

1.1 Defining health and ageing

The WHO defines health as ‘a state of complete physical, mental, and social well-being and not merely the absence of disease, or infirmity’. This broad definition can be applied equally to developed and developing countries and to both genders. Health is a cumulative state, to be promoted throughout life in order to ensure that the full benefits are enjoyed in later years. Good health is vital to maintain an acceptable quality of life in older individuals and to ensure the continued contributions of older persons to society³.

It is important to distinguish the ageing process from the process of ageing. The *ageing process* (‘normal ageing’) represents the universal biological changes that occur with age and are unaffected by disease and environmental influences. Not all of these age-related changes have adverse clinical impacts.

By contrast, the *process of ageing* is strongly influenced by the effects of environmental, lifestyle and disease states that, in turn, are related to or change with ageing but are not due to ageing itself. Often what was once thought to be a consequence of normal ageing is now more appropriately attributed to ageing-associated factors. In this context, common definitions of ageing rarely separate the two processes. For example, ageing has been defined as a ‘progressive, generalised impairment of function resulting in a loss of adaptive response to stress and in a growing risk of age associated disease’⁴. An important research aim is to identify the two contributions to ill health in older populations. The active-ageing concept, now promoted by WHO, encourages the ‘process of growing older without growing old through the maintenance of physical, social, and spiritual activities throughout a lifetime’³.

Categorical definitions of the old, elderly, aged and ageing are neither straightforward nor universally applicable. Old is an individual-, culture-, country- and gender-specific term. The definitions can differ for the sexes as life-course events contribute to the ageing transitions, for example, retirement from work. A chronological definition of elderly or aged is commonly used, but contested. UN tabulations provided figures for both 60 and 65 years of age and older⁵, making possible more detailed estimates and projections for older people in most countries. The WHO uses categories starting at the age of 65 and 80 (Table 1).

For many men and women, particularly in developing countries, old age will be accompanied by chronic illness and disability, the result of lives lived in poverty, with little or no access to adequate health care. Many people are functionally ‘old’ in their forties and fifties, calling into question the relevance of chronological definitions of old age. For older individuals in developing countries personal health consistently ranks alongside material security as a priority concern⁶.

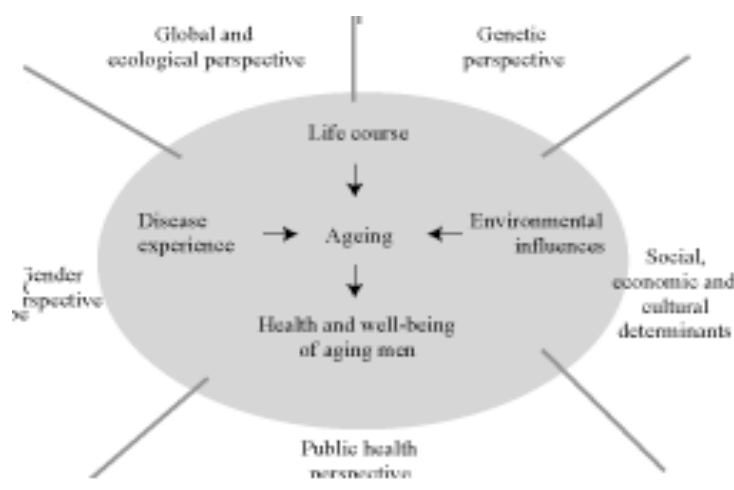
The southern Africa region has the continent’s highest percentage of older inhabitants; in 1997 the 60+ age group constituted 6.2%, slightly more than in the northern African region⁷. Although one definition of old age is based on the official retirement age, in many countries this is incongruent with the African life experience since few people are engaged in the formal sector

with appropriate retirement provisions. Apart from South Africa and Namibia, where there are retirement arrangements for both formal and informal sectors, in most of Africa 'retirement' from work is the age at which age or ill health makes it impossible to be active⁸. In Ghana old age is defined in relation to the ability to work and the social attributes of experience and leadership. A person is therefore considered as old when he/she is unable to work due to advancement in years and reduced physical strength or poor health. Based on this physical capacity to work, the old are placed in three categories⁹:

- (1) *Recent old* who are still active and undertake normal activities without support;
- (2) *Old* who work with difficulty and hence have reduced activities;
- (3) *Very old* who work with difficulty in the home or not at all.

Table 1: Older age group categories

Category	Age Group (years)
Elderly (Older persons)	65+ (sometimes 60+)
Oldest-old	80+



In South Africa, in contrast, old age is defined in relation to increasing dependency on others due to increasing need for security caused by physical weakness and deteriorating health. In Africa, and other countries, older people may be perceived as burdens due to their disability or dependence. Generally, the perceived dependency of older persons on family support signifies the basis for defining old age¹⁰.

Despite these differences, the timing of social role transitions, such as becoming a parent or

grandparent and losing the ability to reproduce, emerge as indicators of old age in many African societies¹¹. The words used to describe older people in many cultures are synonymous with wisdom, experience and vision, guardians of tradition, and the ties that bind the family together.

2 A CONCEPTUAL FRAMEWORK FOR THE HEALTH OF AGEING MEN

Constructive policy and strategy approaches to the health of ageing men are more likely to evolve if they are developed within an explicit conceptual framework. This should incorporate:

- (1) Normal ageing and the ageing process;
- (2) A gender perspective;
- (3) A life-course perspective;
- (4) A global perspective, recognizing that most older men live in developing countries;
- (5) The broad social, economic and cultural determinants of health; and
- (6) A strong public health perspective.

A schematic representation of this inclusive conceptual approach to understanding and improving the health of ageing men is proposed in Figure 1.

2.1 The ageing process and the process of ageing

Identifying the specific features of normal ageing and the process of ageing to the health of older men requires a formal research agenda, the results of which are likely to have major policy implications for improving the health of older men.

2.2 The gender perspective

The gender perspective on the health of men, including ageing men, builds on experience from the women's health movement, although it is much less well articulated. This perspective recognizes that the health of men can not be separated from their socially constructed roles. In turn, these roles are strongly influenced by culturally dominant views on masculinity. The social construction of masculinity, the way men are expected to behave, appears to be an important determinant of the health of men in all societies. Men's health is inevitably influenced by the nature of their social relationships. Based on the perceived lack of male skills in building social networks and familial ties, a substantial proportion of older men may be more isolated and less socially supported than women. It is known that appropriate social integration is beneficial to health.

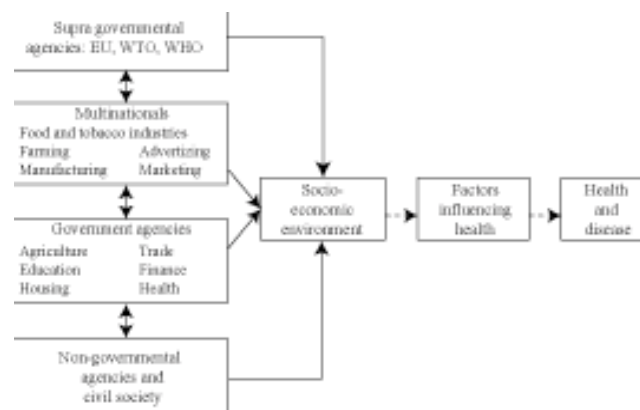
The importance of this gender perspective on the health of men is illustrated by the varying

effects of interpersonal violence on the health status of men. Another demonstration of gender difference is the recent increase of mortality rates in older Russian men in response to the pressures induced by the social and economic disruption in the Russian Federation¹².

The experience from a gender analysis of women's health suggests that many of the important causes of ill health in older men may be equally bound up with social, economic, cultural and psychological processes. The health problems of ageing men have more of an impact on the lives of women than vice versa. The solutions to these gender-based health problems are to be found at multiple levels within society and do not only lie at the individual level.

2.3 The global perspective

The majority of older men and women today live in developing countries. As the demographic transition gathers pace in the poorer regions of the world, an even greater proportion of the world's older men and women will live in those countries and regions with the least resources to respond to their needs. Of course, a global approach to the health of ageing men and women cannot neglect the health needs of older men and women living in affluent countries. However, if this global approach is to be meaningful it must be driven by the perspectives and needs of older men and women in the poorer regions. The health of indigenous older men and women must also be considered as part of this global perspective. Many groups of older indigenous men and women are at a particular disadvantage from a health perspective for reasons intimately related to their past experience of colonialism and ongoing experience of racism.



While there are a limited number of studies available on the health concerns of older women in developing countries, data on older men are especially limited. Unfortunately – as will become clear in later sections – most of the data on the health of ageing men, limited as they are, come from relatively wealthy societies and are increasingly influenced by a small number of specific health problems of affluent societies.

2.4 Life course perspective

This perspective recognizes that the health of older men is influenced by events throughout the course of their lives, perhaps beginning with events even before birth. For example, the nutritional status of the mother influences intrauterine growth rate, birth weight and possibly the later life risks of several important health problems, such as heart and other diseases¹³.

This life-course perspective leads to important policy and strategy decisions. It is clearly possible, and indeed desirable, to improve the health status of men when they are old. Yet, a complementary approach to improving the health of older men would focus on appropriate interventions from an earlier age.

2.5 The determinants of health

The determinants of health in older men are broad and extend from the genetic and molecular to the increasingly powerful forces of economic, technological and cultural globalization. An inclusive framework for the consideration of the health of ageing men must acknowledge all these factors (Figure 2).

Regrettably, the usual approach to health improvement has been to focus on the individual older man himself. The implementation of an inclusive approach to improving the health of older men, based on the broad determinants of health, is still in its infancy. A schematic representation of the determinants of the health of older men is shown in Figure 2. A more detailed discussion of the determinants of the health of ageing men is to be found in the section on demographic transitions and the health of ageing men.

2.6 The public health perspective

Public health is ‘the art and science of preventing disease, promoting health, and prolonging life through the organised efforts of society’¹⁴. Traditionally, public health has been concerned with promoting health and preventing disease, optimizing the underlying determinants of health, and increasing the effectiveness and efficiency of the allocation of health-care budgets.

The practice of modern public health is made more difficult by two underlying issues¹⁵. First is the central importance of health inequalities. Since social and material inequalities within a society generate health inequalities, an important public health task is to identify through research the underlying determinants of these health inequalities. This research knowledge must then be applied, in part through public health practice, to the development of social policies to improve health. Second is the recognition that longer-term changes in the structure and conditions of the social, economic and natural environments, at both the local and the global levels, affect the level and sustainability of good health within populations.

The scope of contemporary public health practice includes the health consequences of rapid urbanization, demographic change, the globalization of economic, social and cultural relations, and human-induced global environmental changes. All these factors impinge on the

health status of ageing men. The public health approach to improving the health of ageing men must address all of these issues as well as the specific health problems of individual men.

3 DEMOGRAPHIC TRANSITION AND HEALTH OF AGEING MEN

3.1 Population ageing and life expectancy transitions

The world is experiencing the later stages of a longstanding demographic transition from a predominant high mortality/high fertility pattern to a low mortality/low fertility pattern. The global increases in life expectancy and sharp declines in fertility rates underlie the current, rapid age-specific population growth. Using the medium variant projections of population growth, it is estimated that by 2050, 16% of the projected 9 billion person global population will be older than 65 years (Table 2). The social and economic impacts of this transition in dependency ratios will be enormous.

According to these same projections, one in four of those living in more developed region populations will be over 65 years of age by 2050 and the proportion in the less developed regions will increase three-fold to 15% over the same time period (Table 3).

The oldest-old population, people 80 years of age and older, forms a relatively small proportion of the current population, but is now the fastest growing population segment (Table 4). Northern, western and southern European countries have the largest proportion of oldest-old people (nearly 4.8% of the total population in Sweden), while China has the largest number with 10.5 million oldest-old people.

The male-to-female ratio shrinks significantly with increasing age: 55 men to 100 women in octogenarians, 35 men to 100 women in nonagenarians and only 26 men to 100 women in centenarians.

3.2 Gender differences in demographic indicators

Populations grow proportionately older and average life expectancies continue to increase in all regions of the world (Table 5), although the projections for Africa seem optimistic in the face of the AIDS epidemic. A man's life expectancy remains, on average, 7–8 years shorter than a woman's. The female life-expectancy advantage can be as great as 12–13 years in some countries of the former Soviet Union. The average difference in most developed countries is between 5 and 8 years (mean 7.4 years)¹⁷. A few developing countries have higher male life expectancy than female, but, on average, the female advantage in most developing countries is slightly less than 5 years. The gender gap is generally projected to decrease in developed countries and increase in developing countries¹⁶.

Table 2: Dependent populations of the world (%)

Age Group	1950	1975	2000	2025	2050
Younger than 15 years	34	37	30	24	21
Older than 65 years	5	6	7	10	16
Total	39	43	37	35	37

Table 3: Number (in millions) and proportion (percentage of total population) of persons 65 years of age and older.

Region	1997	2025	2050
	Number(%)	Number (%)	Number (%)
Africa	17.7 (3)	37.9 (4)	97.0 (6)
The Americas	62.7 (8)	136.9 (13)	227.7 (19)
Eastern Mediterranean	16.7 (4)	44.1 (5)	116.3 (10)
Europe	112.5 (13)	169.8 (18)	229.4 (25)
south-east Asia	60.5 (4)	166.7 (8)	370.0 (16)
Western Pacific	110.7 (7)	267.7 (14)	450.1 (23)

Table 4: World population (millions) of elderly and oldest-old

Population	2000	2025	2050
Total (millions)	6055	7823	8 900
Elderly 65+ (%)	6.9	10.4	16.4
Oldest-old 80+ (%)	1.1	1.9	4.2

Table 5: Average life expectancies at birth by region.

Region	Average life expectancies at Birth (years).		
	1975	1997	2025
Africa	46	53	65
The Americas	67	73	77
Eastern Mediterranean	52	64	72
Europe	70	72	77
South-east Asia	52	63	72
Western Pacific	64	70	75

While the absolute numbers project an increase in the overall gap, the future evolution of the gap in male and female life expectancies is difficult to predict. The differences in life expectancies do, however, increase with increasing age and differ by region. By the year 2050, women in Africa are expected to have a life-expectancy advantage of 4.3 years; women in Asia 4.4 years; women in Latin America 5.5 years; women in North America 5.6 years; and women in Europe 6.2 years¹⁹. It appears that globally, by the year 2050, women's life expectancy advantage will be an average of 5 years. Gender differences in age-specific life expectancies are maintained in the oldest age categories (Table 6). At age 65 years there is a 3-year advantage to women and at age 90 years a 9-month advantage.

Table 7 shows the male-to-female sex ratios in the six WHO regions for 1997. These sex ratios for older persons (65 years and older) and the oldest old (80 years and older) will change dramatically by the year 2025¹⁷. The ratio of elderly men to women will increase by 8.3 men (from 69.7 to 78) to 100 women and in the oldest old by 11.5 men (from 44.3 to 55.8) to 100 women in developed countries between the years 1998 and 2025. In developing countries the estimates of the ratio for people aged 60+ years project 5.2 fewer men (from 91.5 to 86.3) to 100 women, and for the oldest old 4.1 fewer men (from 70.2 to 66.1) to 100 women during the same time period. Precise explanations for these gender and country differences in projected life expectancies are unknown, but may include a complex interplay of behavioural, biological and social aspects.

3.3 Diversity within global ageing

Of the population aged 65 years and older, 79% will be living in developing countries in 2050, compared to 59% in 2000⁵. This corresponds to an increase in absolute numbers of people 65 years and over from 418 million in 2000 to 816 million in 2025 and 1.46 billion in 2050 (Table 8).

Table 6: Standard life expectancies at specific ages.

Age (years)	Life expectancy (years)	
	Men	Women
60	21.8	24.8
65	17.5	20.4
70	13.6	16.2
75	10.2	12.3
80	7.5	8.9
85	5.2	6.2
90	3.5	4.3
95	2.3	2.9
100	1.5	2.0

Table 7: Male-to-female sex ratios per age category by region.

Region	Number of Men to 100 Women			
	65-69 y	70-74 y	75-79 y	80+ y
Africa	89	88	86	83
The Americas	85	79	72	58
Eastern Mediterranean	102	100	98	95
Europe	79	65	55	42
South-east Asia	95	94	93	105
Western Pacific	97	86	75	57

Table 8: Population of regions of the world

Population (in billions)	2000	2025	2050
Total	6.055	7.824	8.909
More developed countries	1.188	1.215	1.155
Less developed countries	4.867	6.609	7.754
Age >65 years			
Total	0.419	0.817	1.459
More developed countries	0.171	0.254	0.299
Less developed countries	0.248	0.563	1.159

Table 9: Distribution of Life expectancies at birth: percentage of countries in each life expectancy category, 1998

		Life Expectancy (years)				
Developed Countries		Less than 70	70-74	75-79	80+	
Men		27%	41%	30%	2%	
Women		4%	14%	30%	52%	
Developing Countries		Less than 50	50-59	60-69	70-79	80+
Men		20%	20%	32%	28%	-
Women		14%	17%	20%	42%	8%

The rates of population ageing and gender-specific life expectancies in developed and developing countries will vary over the next decades. China (199 million), India (108 million) and the European Union (37 million) will have the largest populations aged 65 years and older by the year 2010, but the country with the highest proportion of older men will be Japan (26% of total male population), while the European Union will have 20%¹⁹. Current male-to-female sex ratios are generally higher amongst elderly people (aged 65 years and older) in developed countries and lower in developing countries³.

Developed countries are projected to have a more balanced ratio by the year 2025, but developing countries will have more unbalanced sex ratios with fewer older men to older women. Even within countries, life expectancies can be widely variable depending on the region. The life expectancy structures for developed and developing countries are quite different now (Table 9), but will become more similar in the future as average life expectancies increase in developing countries at a greater rate.

These population statistics raise major questions about health care provision for, and the financial capacities of, these older populations in developing and developed regions. This challenge is compounded by the demographic shift in fertility rates and work-age populations. These rates and populations are decreasing, meaning that the social support necessary to accommodate a changing age structure may be insufficient. A larger dependent and elderly population will place greater financial demands on the working population and governmental budgets¹⁹. This will be especially true in *less-developed countries* which will have had a much *shorter time frame in which to accommodate an older population*. However, the issue of dependent populations is one that could be ameliorated by appropriate work and retirement policies for ageing populations and this is one of the policy goals of active ageing programs.

3.4 Levels and trends in health status and well-being of older men

Mortality rates

There are major variations in all-cause and cause-specific mortality levels and trends in older men. Regrettably, the routinely available data relate to only a small number of developed countries.

Table 10: Total and cause-specific male mortality rates (per 100,000) in eleven countries, men aged 65-74 and 75-84 years

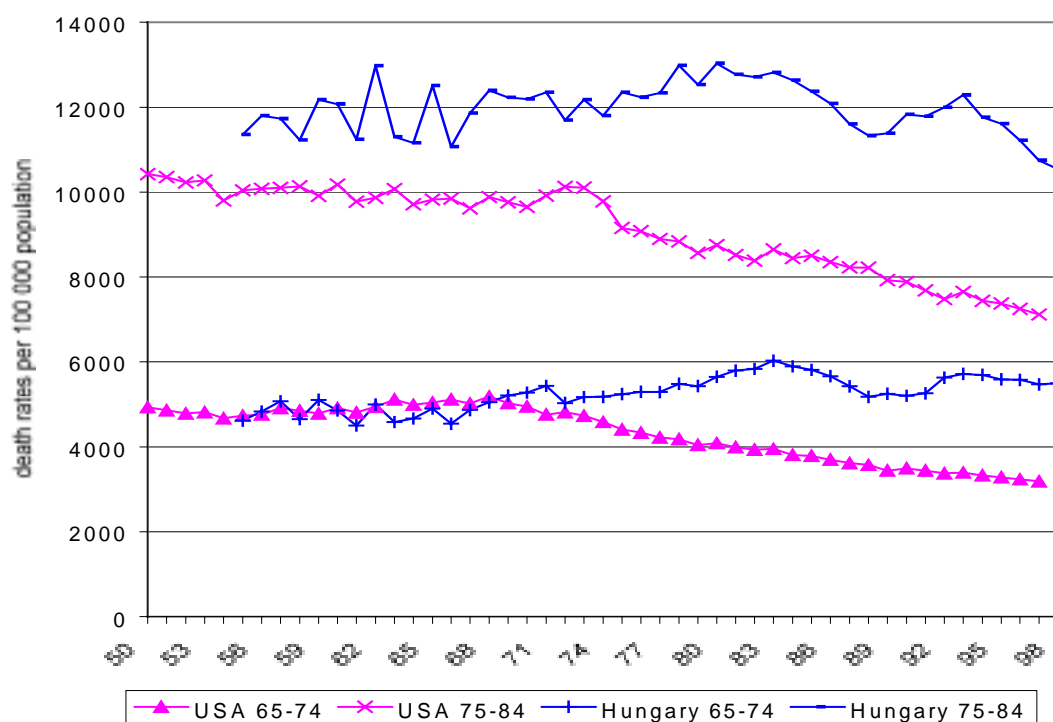
Country	Total mortality		Cardiovascular Disease Mortality		Cancer Mortality	
	65-74 y	75-84 y	65-74 y	75-84 y	65-74 y	75-84 y
USA (1997)	3191	7116	1269	3145	1058	1770
Japan (1994)	2387	6930	654	2375	994	1881
France (1996)	2799	6678	788	2361	1187	1986
Hungary (1995)	5590	11612	2783	6877	1594	2538
Russian Fed (1997)	6292	11920	3659	8150	1386	1570
U.K. (1997)	3387	8342	1488	3775	1142	2104
Australia (1995)	2880	7352	1138	3423	1070	1951
New Zealand (1996)	3107	7815	1336	3691	1065	1980
Argentina (1996)	3880	8506	1678	3837	937	1666
Mexico (1995)	3133	6715	910	2275	519	968
Hong Kong (1996)	2795	6734	738	1875	1084	1820

These international variations are illustrated in Table 10 which shows age-specific mortality rates for eleven selected countries. The range of total mortality rates for men aged 65–74 years is from a high of 6300 per 100 000 in the Russian Federation to 2400 per 100 000 in Japan, a 2.5 fold variation. Similar variations exist for cancer mortality but the variations for cardiovascular disease (CVD) mortality are even greater.

A major feature of global health statistics over the last half century has been the widespread decline in age specific mortality rates, including those in older age groups, especially in North America, Australia, New Zealand and most western European countries. By contrast, it appears that the total mortality rates have not declined to the same extent in several eastern European countries. Contrasting trends in total mortality rates are illustrated for ageing men in the USA and Hungary in Figure 3.

In many developed countries the recent major decline in non-communicable disease death rates has increased life expectancy at older ages. The mortality declines for the major cardiovascular diseases have been striking since they began in the late 1960s and early 1970s in many, but not all, developed countries. There is some evidence that this mortality decline has slowed and perhaps stopped in the USA, despite the fact that the CVD rates are still very high in comparison to other developed countries, for example, Mediterranean countries and Japan.

Figure 3: Trends in total mortality rates (per 100,000) in USA and Hungary, men aged 65-74 and 75-84 years, 1950-1997



Fewer internationally comparable data are available for morbidity rates. However, it appears that similar geographic variations occur for CVD morbidity as for mortality rates. For example, limited results from the WHO Multinational Monitoring of Trends and Determinants of Cardiovascular Disease (MONICA) project centres that collected data on the trends and determinants of CVD in older people show a marked variation at older ages in the rates of both non-fatal and fatal coronary heart disease.

Differences in health status only hint at the considerable impact of gender on individual health and well-being. This is demonstrated by comparing differences in healthy life expectancies to life expectancies in men and women (Table 11). This table presents comparable data on healthy life expectancies as measured by functional limitation-free life expectancy²¹. Men also report less illness and distress than women in later life. Both biological differences and gender-specific cultural, social and economic roles of men and women induce different health problems and sequelae. The course of disease, response to disease and societal response to illness exhibit gender differences and often results in different treatment and access to health care.

Table 11: Life Expectancy (LE, years) and Healthy Life Expectancy (HE, years) in six countries at birth and at age 65 years

Country	At birth				At age 65 years			
	Men		Women		Men		Women	
	LE	HE	LE	HE	LE	HE	LE	HE
Australia, 1993	75.0	58.4	80.9	64.2	15.7	6.5	19.5	9.1
Denmark, 1994	-	-	-	-	14.3	9.9	17.8	9.7
Netherlands, 1986-8	73.5	64.1	79.9	65.1	-	-	-	-
New Zealand 1992-3	-	-	-	-	14.8	10.0	18.4	10.2
Spain 1986	73.2	61.6	79.6	63.6	15.0	7.0	18.4	6.9
United Kingdom, 1985	71.7	63.6	77.5	66.5	-	-	-	-

Trends in health expectancy are of major importance in monitoring health and social policy for older people. However, very few countries have made reliable assessments of healthy life expectancy over time. Investment in research infrastructure is required to ensure that regular health and disability surveys using comparable methodology are established. The International Healthy Life Expectancy Network (REVES) has demonstrated the limitations of available data²². Application of earlier and later disability prevalence rates will make a major difference to projections of disability and health burden over the next two decades. Cross-sectional data from the USA and England, using more severe disability as the criterion, suggest that health expectancy may be increasing more rapidly than life expectancy^{23,24}. Unfortunately, such data are suspect owing to possible selection bias in successive samples of older people and differences in how such questions on disability are interpreted by successive cohorts of older people. In the USA recent favourable trends in disability have been interpreted as demonstrating the effects of better health services²⁵.

4 DETERMINANTS OF THE HEALTH OF AGEING MEN

Both health and ageing are social and cultural constructs in addition to being biologically determined. There are three basic sources of differences in healthy ageing: hereditary determinants, socio-economic circumstances and lifestyle and other behavioural factors. Gender differences span all three domains. Cultural and political factors also influence the health of older men.

4.1 Hereditary determinants

The effects of genetic factors on the various components of health and ageing are poorly understood. It has been estimated that only 20–25% of variability in the age at death is explained by genetic factors^{26,27}. About 50% of variation in human life span is attributable to survival attributes that are fixed for individuals by the time they are age 30, but only a third to a half of

this effect is thought to be due to genetic factors²⁷. The influence of genetic factors on the development of chronic conditions varies significantly. Many individuals have a genetic predisposition to chronic conditions, such as coronary heart disease, diabetes, certain cancers and Alzheimer's disease. Rather than indicating genes associated with increased longevity, family and twin studies emphasize a role for deleterious genes that lead to premature death due to detrimental effects: single genes associated with dyslipidemias, for example, or multiple genes associated with heart disease and some cancers²⁸. The effect of hereditary factors on the incidence of chronic conditions seems to decrease with age^{29,30}. Estimates of the genetic contribution to physical performance tasks are largely derived from studies of younger subjects.

4.2 Socio-economic determinants

Social and economic determinants of healthy ageing refer to a wide range of factors including occupational status, work conditions and security, and at earlier ages educational attainment, housing environment and tenure, and family circumstances. It is likely that many of these factors act differently on health at each stage of life. From the healthy ageing point of view, an important question to investigate is the extent to which the roots of health inequalities in old age lie in socio-economic circumstances earlier in life.”

It can be concluded from life-history studies of childhood and adolescence that social factors probably operate in a cumulative fashion. There are significant social class differences in rates of growth and other aspects of physical development, as well as in the incidence of infectious and other diseases and risk of injury. Vulnerability to physical ill health in childhood and later adult life is associated with poor parental socio-economic circumstances and low levels of parental education and concern¹². Cross-sectional studies show differences in mortality and morbidity as a function of socio-economic status, across various disease categories throughout the life span³¹ (see also the section on lifestyles and other behavioural determinants).

Educational attainment and marital status have also been shown in several longitudinal studies to be powerful predictors of mortality. In addition, age, gender and socio-economic status influence disability-free life expectancy.

Marital status is a major aspect of the demographic transition, since it is of crucial importance as far as the needs for socio-economic support are concerned. In the age group 60 years and over, there are by far more women who are not currently married than unmarried men in the same age group in most countries (both developed and developing) all over the world (Table 12).

Obviously, most of these older women who are not currently married are widows, having lost their spouse in middle age and old age due to the higher overall mortality rates for males. In China, for instance, the vast majority of older women without husband were widows, with only insignificant numbers for those divorced or never married. A similar pattern is observed in older men (Table 13).

Table 12: Percentage of women and men aged 60 and over in the most populous countries of the world who are not currently married.

Country	Women	Men
China	54	28
India	65	22
United States	48	22
Indonesia	75	16
Brazil	58	20
Russian Federation	67	17
Pakistan	50	14
Japan	51	14
Bangladesh	67	9
Mexico	50	20
Germany	61	20
Philippines	49	19

Table 13: Distribution of the population aged 60 and over by marital status in 1982 in China

Marital status	Men (%)	Women (%)	Total (%)
Single	2.5	0.3	1.4
Married	69.0	41.2	54.1
Widowed	26.9	58.1	43.6
Divorced	1.5	0.4	0.9

The health of ageing men is strongly influenced by work history and work conditions which are undergoing rapid transformations in most parts of the world. Occupational injuries are a major cause of preventable morbidity (and mortality) in men, especially in regions where work place health and safety standards are deficient.

Despite the ageing of populations, working conditions, including work content, work demands and work environment, are generally organized on the basis that the average worker is a young and fully healthy person. The rigidity of work demands with age is particularly unfair in physically demanding occupations because the human physical capacity starts to decline after the age of 40–45 years³⁴. More research is required into the specific effects of work on the ageing

process so that the interactions between ageing and work can be optimized. The older worker in developed countries is now increasingly well educated, healthier and more likely to be female than in the 1960s³⁵. It is important that modern employment policies take into account the reality of the health status of the ageing male workforce, the need to fit the work to the ageing work force and the need to ensure the safest possible work environments.

In most countries the relative security of employment has been replaced by considerable insecurity and periods of unemployment are increasingly common. Employment rates of men aged over 60 years decreased in developed countries in the last two decades and only in Japan did the labour force participation rates approach 40% in men over 65 years in the early 1990s³⁵. This employment insecurity has important adverse consequences for the health of ageing men, especially as they reach retirement age.

Many countries have experienced major changes in the work and retirement patterns of their older citizens over the last three decades. Retirement is now less likely to occur at a regulated age. A wide variety of approaches to old age security have emerged and various potential routes for the transition from the labour force to retirement now exist, but mostly in developed countries.

In the last decades many European countries like France, Germany and Spain were able to practice very early retirement practices in the light of the availability of generous social-security provision. Recently, however, early complete retirement routes have been reduced significantly and will probably be less accessible and more expensive in the future, as unemployment issues and social-security shortage become priorities. In several European countries recent legislation is beginning to promote replacement of full early retirement by gradual early retirement and to make retirement more flexible and later.

Table 14: Total population and population without access to health services in selected countries

Country	Population (millions)	Without access to health services
China	1178	118
India	898	133
Indonesia	187	38
Pakistan	123	58
Bangladesh	115	62
Nigeria	105	35
Vietnam	71	7
Philippines	65	15
Thailand	58	6
Ethiopia	52	27
Myanmar (Burma)	45	23
Colombia	36	13

As it is widely acknowledged that the majority of the people reaching retirement age do not wish to retire as early as possible, gradual retirement should become one of the priorities for both politicians and companies in increasing the quality of life of men and women in this transition period. In order for older workers to remain motivated and productive, training should not terminate at the age of 50 years, but should be continued until the end of career. Very good results in continued training are seen in Sweden and France³⁶.

A major consequence of retirement is to place many older citizens in a position of financial vulnerability. Public pensions are the financial lifeline for the elderly in many societies, although these systems in the developing world generally cover a smaller proportion of the labour force than in developed countries. The cost of public pensions is greatest among developed countries, most of which have pay-as-you-go systems with pension expenditure exceeding, on average, 9% of gross domestic product (GDP)³⁵. As populations age in both the developing and the developed worlds the issue becomes how to keep older persons economically viable within their respective societies. No community will be exempt from the financial hardships experienced by ageing populations.

The 'World Development Report 1995'³⁷ by the World Bank (Table 14) showed dramatic data concerning the percentage of different populations in the developing world without access to health services. As a high proportion of them would be older women with low income after

losing their spouse, this still seems to be a predominantly female problem³⁸. However, with male life expectancy rising at a higher rate than that of their female counterparts in the coming decades, more and more men will reach old age and thus be concerned by poverty and limited or no access to health-care.

As populations stop working, they lose not only the economic but also the social and psychological benefits of activity and purpose. *Men seem to be particularly sensitive to loss of work and retirement.* Although the standard retirement age in developing countries tends to be lower than in developed countries, older persons are often forced to work through their later years in these countries. While there are health benefits in some parts of the world, these benefits do not always adequately cover the increasing medical costs that accompany age. This may deter older men from seeking appropriate medical consultation throughout later life.

4.3 Lifestyles and other behavioural determinants

Behavioural factors, such as smoking, physical exercise, activity in everyday life, alcohol consumption, diet, self-care practices, social contacts and work-style, are important determinants of healthy ageing. Although the research on these factors focused initially on middle-aged men, there is now substantial and convincing support for the central importance of these same factors for the health of ageing men. There is no age cut-off at which the major risk factors for disease become insignificant. The most readily *modifiable risk factors* for death and disease in ageing men are *tobacco use, excessive food intake* (especially of saturated fat, alcohol, salt) and *physical inactivity*. The role of alcohol is complex because of the possible cardioprotective effect of regular low levels of consumption and the serious adverse effects of excessive drinking.

The relationships seen between the major risk factors and disease are a little weaker in ageing men than in middle-aged men. However, the *absolute risks* of death and disease are much *higher in older men* and the public health importance of the risk factors is even greater in older men.

Alcoholism seems to be a male-specific public health problem. The 'Men's Health Report of Vienna, 1999' showed that one-quarter of the male population of Vienna consume alcohol daily, whereas only about 7% of women drink alcohol on a daily basis³⁹. Alcohol consumption is one of the major factors for the higher mortality rates among men, especially in younger and middle-aged men. For men between the ages of 20 and 50 years, alcohol abuse is by far the most important cause of admission to Austrian hospitals. Half of all deaths caused by accidents and violence are due to excess alcohol consumption. Furthermore, the highest alcohol-associated death rates are found among men with low socio-economic status. With excessive alcohol consumption being more frequent in men with no higher education, the mortality of working men with only compulsory education was about twice as high as that of men with higher education. This variation of mortality by educational level turned out to be far more pronounced among men than among women and is true regardless of the cause of death³⁹ (see also the section on socio-economic determinants).

Research on the importance of risk factors is especially deficient in ageing men in developing countries. However, since the risk factors have the same significance in middle-aged men in both

developed and developing countries, it can be assumed that they are equally important in ageing men in developing countries. General health education messages have only a limited impact on people from disadvantaged social circumstances. Attempts to change people's health-related behaviour have been based on a superficial understanding of their social condition⁴⁰. The concept of prevention, as with the concept of health, is a cultural and social construct. Interventions have to be adjusted to different cultures and social circumstances and to the life experiences of different individuals.

4.4 Gender-related determinants

Gender differences in longevity, one of the major features of demographic ageing, have led to the feminization of later age, i.e. older age is increasingly dominated by the problems of older women⁴¹. Women have higher prevalence of chronic conditions and disabilities, particularly in old age. The influence of social structures on health for women goes beyond causes related to conventional socio-economic differentials⁴².

More attention needs to be given to understanding men's shorter life expectancy. The important role of 'masculinity' in shaping men's expectations, behaviour, and thus health, requires further exploration and is likely to be as important as 'feminine' roles are in shaping the health of girls and women. Development of gender-specific health policies and research on health and ageing need to be encouraged.

In mainly agrarian societies, for example, throughout sub-Saharan Africa, livelihood dynamics in old age are influenced by gender. There is a shift in dependency from economic livelihood sources to social sources, and this trend is swifter for older men than older women. For example, while most very old people may be home bound, older women still undertake 'petty trading' activities. Older men, on the other hand, are not able to harness the same income-generating opportunities due to traditional notions of inappropriateness. Gender-based livelihood opportunities imply that older men's resources and opportunities often diminish sooner than women's.

4.5 Cultural determinants

Different cultures assign different values to the role that older persons play within their societies. In certain cultures, older persons are assigned the tasks of government or other important duties and are regarded with great respect as community leaders. The particular impact of ageing on the health of indigenous older men is an under-researched area. It is known that some indigenous older men, for example New Zealand Maori, are severely disadvantaged from a health perspective, despite their relatively high social and cultural status.

In industrialized cultures, older persons are often removed from the patterns of regular life when families are unable to fulfil care-giver roles, and are resettled in residential nursing institutions. Such environments can lead to diminished states of physical and psychological well-being and mark the beginning of serious declines in health. Groups like *Circulos de Abuelos* have

recognized the importance of incorporating older persons back into the communities⁴³. The success of their program demonstrates how important such reintegrations are for older and younger persons alike. Older persons can help with such tasks as queuing for food, watching young children, teaching school age children about their histories and social experiences. The potential tasks and rewards are innumerable. It is simply a question of finding the time and interest within cultural groups to establish such programs.

In any discussion of the cultural determinants of older men's health it is essential to address the issues of men's social roles, ideas of machismo and masculinity, which pervade cultural conceptions about ageing. In those cultures where such ideals about masculinity are central to perceptions of self, ageing can become a particularly negative and even psychologically debilitating process. Depression, anxiety and suicide become increasingly common as men age. Analysis of such trends has moved beyond biological boundaries and focused on the social and cultural significance of ageing. In cultures where men become devalued by age, where isolation is both self and socially induced, it is not surprising that the rates of mood-affective disorders and suicide increase. The challenge is to successfully implement educational programs in affected communities, changing their perceptions about ageing and the male role within that process. Concern for (and implementation of) activities and educational programs dealing with nutrition and exercise are also determined by cultural environments.

4.6 Political determinants

Political decisions shape the social and economic environments in which men age and have an important effect on the health of older men. Policies involving social security and insurance programs, for example, can provide the economic and social support needed by the growing population of older persons. The collaboration of health advocacy groups in lobbying policy makers and creating general awareness forms a key element in promoting the health needs of ageing men. In turn, policy makers need to utilize the resources that their older constituents can provide.

Non-governmental organizations (NGOs) provide health advocacy at the local developmental level. Functioning in both developed and developing countries, these groups are vital members of the information chain, having direct access to populations. Health advocacy NGOs, such as the *Circulos de Abuelos* in Cuba, the Geneva International Network on Ageing in Switzerland, and specifically on male ageing (ISSMA), are indispensable as they raise public awareness and mobilize interested parties into policy changing machines.

In addition to the gender differences in life expectancy and illness, diseases faced by ageing persons differ from those seen in the general population, as do the health-care system, financial and social capacities to care for such diseases. Consequently, when developing global policy strategies to accommodate gender differences and the ongoing demographic shift, it is vital to keep in mind the world's cultural and economic differences. The 'working to dependent population ratios' are shrinking and, in the near future, there could be too few younger working persons to provide adequate social support for older relatives. Collectively, the smaller working-age population may lack the financial provisions necessary to support older family members. The solution may be to place increased obligations on already underfunded government programs and

to shift the burden back to older people. In many developing countries, where the GNP per capita is only US\$ 200 – compared to US\$ 23 262 in developed countries – serious concerns exist about the monetary capacities of future government programs and health care systems¹⁹. Health priorities for older men will need to be defined within the prevailing systems, but with a view to future demographic, social and economic trends.

4.7 Spiritual and religious determinants

Separate from, but interacting with cultural and social factors, are issues surrounding spirituality. Spiritual beliefs and spiritual practices may impact both on a person's response to a certain disease state and the outcome of a disease process. Evidently, spiritual factors like adaptation and acceptance have a positive impact on the course of cancers, substance abuse disorders and other diseases, whereas anxiety and indifferentism are obviously negative factors in coping with most of the diseases.

Religion is an important influence on human life and has influenced many political decisions. Religion also plays a role in the shaping of individuals' lives. Religious and spiritual beliefs are important aids in coping with serious diseases in a positive way, often remaining the central point of reflection in patients when all biomedical treatments are no longer effective in terminal disease.

5 HEALTH PRIORITIES FOR AGEING MEN

5.1 Defining health priorities

The WHO definition of health will help delineate health priorities for ageing men. These concepts of ageing, disease and well-being can be used to influence male perceptions of health and overall quality of life. These definitions and concepts can then be used to identify criteria to define health priorities. The criteria for older men include the:

(1) Importance of the issue:

- (a) Size of current and future older populations and the magnitude and rate of change;
- (b) Gender-specific differences and implications;
- (c) Significance in developed and developing countries;

(2) Nature of the issue:

- (a) Impact of ageing on health and health status measures (individual and population level);
 - (b) Male health perceptions and definition of quality of life;
 - (c) Physical, psychosocial, financial and status changes and losses for ageing men;
- (3) Presentation of the issue:
- (a) Demographic trends in ageing and male life expectancies;
 - (b) Primary health care abilities to address healthy ageing;
 - (c) National health goals and policies.

Ageing involves physical, mental and social changes. In recent years, scientists and clinicians have striven to develop new treatments for age-associated disease and disabling conditions, while epidemiologists have attempted to elucidate many aspects of ageing and the impact of interventions. Further research is required to ascertain the potential benefits of agents which could delay symptoms of ageing, such as nutritional supplements, antioxidants and herbal remedies. Until this information is fully analyzed and evaluated, preventive measures and good health practices begun early in life are still the best age-attenuating strategies available. Public policy may help ageing men to incorporate behaviours that lead to the benefits associated with a lifelong pursuit of active ageing.

In health-care terms, male health problems can be broadly categorised into three areas:

- (1) Major (partially preventable) causes of morbidity and mortality: cardiovascular, cerebrovascular diseases and certain malignant diseases;
- (2) Chronic disabling medical conditions: genitourinary, endocrinological and metabolic, musculoskeletal, sexual and sensory;
- (3) Psychological: anxiety/depression, dementia and addiction.

5.2 Major preventable causes of morbidity and mortality

As morbidity and mortality in men often result from lifelong processes, a life-course perspective is a necessary framework when discussing the prevention and control of the health problems of ageing men. Primary prevention strategies promoting healthy lifestyles will be most effective when initiated at the earliest opportunity. Coronary heart disease, cerebrovascular disease and lung cancer are good examples of common diseases in elderly men for which primary prevention strategies are available, although not universally applied for a variety of reasons, including cost effectiveness.

5.2.1 *Cardiovascular disease*

Cardiovascular disease (CVD) remains the most common single cause of death in old age in both sexes in most countries. Ageing males suffer from higher incidences of CVD than females, although in later life the rates converge. Coronary heart disease and stroke are the major causes of death and disability in ageing men (see Table 2). Approximately 52 million deaths occur world-wide each year, 39 million occurring in developing countries. About one-quarter of all deaths in developing countries and half of all deaths in developed countries are attributed to CVD. Globally, there are more deaths from coronary heart disease (5.2 million) than from stroke (4.6 million). Age-specific death rates from CVD increase dramatically with age. Within each country, age-specific death rates for all cardiovascular diseases increase at least twofold between the age groups 65–74 years and 75–84 years in both sexes, with at least 50% higher rates for elderly men than for women⁴⁴. Morbidity and disability from these diseases are also high. For example, the Global Burden of Disease project estimates that by 2020, coronary heart disease and stroke will be the first and second leading causes of disability adjusted life years (DALYs) lost each year¹⁷

Significant variations in the prevalence and mortality rates for CVD exist between countries. Countries with the highest death rates from coronary heart disease are Finland, Scotland and central and eastern European countries, whereas the lowest rates are found in Japan, Spain, France, Switzerland, Italy and China⁴⁵.

In the majority of countries for which data are available, and with the exception of many central and eastern European countries, mortality rates for CVD have declined in those aged over 65 years. This is one of the principal reasons for the increase in general life expectancy at older ages. Declining mortality rates are most impressive in developed countries, including Australia, Canada, Japan and the USA, where a 50% decline in CVD mortality over the last 25 years has been observed in both sexes⁴⁴.

Unfortunately, the most important risk factors for CVD, old age and male sex, are not modifiable (although some of the sex-related mechanisms that increase risk may be modifiable). However, there are four major risk factors which certainly can be influenced: cigarette smoking, hypertension, elevated serum cholesterol and obesity. The prevention of tobacco addiction in youth, and especially smoking cessation programs, offer immediate scope for a great reduction in disease burden. Smoking cessation programmes are especially important for ageing men.

Diabetes mellitus, often observed in association with obesity, is also a potent cardiovascular risk factor, and hyperglycemia can be modified both by medical treatment and weight loss. The prevalence of diabetes mellitus rises to almost 20% by the age of 80 years. Impaired glucose tolerance and diabetes in the elderly is primarily the consequence of reduced physical activity and increased body weight.

There is substantial evidence that physical exercise, particularly sustained aerobic training, decreases the risk of hypertension and hyperlipidemia. One might think that these risk factors

are far more prevalent in developed countries sustaining more affluent lifestyles. There is, however, increasing knowledge about equally unfavourable patterns of risk factors in many lesser developed countries, although most data are restricted to the younger age groups⁴⁶. Independent of the positive influence on any of the CVD risk factors mentioned above, physical exercise has been shown to reduce rates of coronary-artery disease. The American Heart Association and other consensus panels include physical inactivity as an independent risk factor for coronary heart disease⁴⁷. In an increasingly cost-conscious medical environment, regular physical activity, even at a moderate level, represents the most cost-effective way, along with tobacco control, for alleviating the burden of CVD from the developed world's ageing populations. The available evidence suggests that the major risk factors for CVD are of similar significance in developing countries, although there are important interactions with ethnic status for some of the factors, for example diabetes appears to place south Asian men at particularly high risk of coronary heart disease.

Cerebrovascular disease

Cerebrovascular disease (stroke) is a leading cause of mortality and an important contributor to morbidity and disability in developed countries⁴⁸. Most developed countries share similar declining time trends in stroke mortality rates. Except for a few eastern European countries, death rates declined over a 40-year period starting in 1950. Similar trends have been observed in age-related stroke mortality with a decline of more than 50% in stroke mortality in men and women aged 65–75 years⁴⁴.

A comparison of age-standardized truncated mortality rates for men aged 55 years and older revealed considerable global variation in stroke mortality⁴⁹. Amongst those countries for which data were available, lowest rates were found among affluent western European and north American countries, whereas the highest rates were found in poorer countries like China, Portugal, most of the eastern European countries, Mauritius and Trinidad and Tobago. In these countries, stroke mortality among those aged 55–64 is higher than the rates for those in the US and Canada aged 65–74.

The dramatic decline in cerebrovascular mortality rates that has taken place in the established market economies over the last 20 years is related to both improved medical care and public health practices. This impressive fall in stroke mortality in Japan over the last 20 years is a good example of the value of primary prevention, particularly when combating a disease in which current therapy and rehabilitation can offer only limited benefits. In fact, only a fraction of this decline can be attributed to the impact of programs focusing on the medical control of hypertension. It is suggested that this positive change reflects the improvement in the general standard of living, which facilitated the decline in dietary salt intake among the Japanese population. An improved economic profile allowed Japanese citizens to shift from salt-rich preserved foods and pickled vegetables to increased consumption of fresh fruit and vegetables. By decreasing salt ingestion while simultaneously increasing potassium intake, they were able to prevent hypertension and consequently cerebrovascular disease⁴⁹.

The decreases in mortality rates for CVD are important achievements and the result of both public health programs and medical advances that have also contributed greatly through

decreased in-hospital case-fatality rates. Improved diagnostic techniques and standardized disease surveillance systems will undoubtedly improve international comparisons.

Other cardiovascular diseases

Heart failure is an important and increasing cause of mortality and hospital admission in ageing men and over 80% of pacemaker implants occur in people over the age of 65 years. Disorders, such as carotid sinus syndrome, isolated systolic hypertension and sick sinus syndrome, occur almost exclusively in later life. Atrial fibrillation has a reported prevalence of about 5% in those over 65 years and of 10% in men and 6% in women over 75 years⁵⁰. The prevalence of established hypertension is at least 30% in men over the age of 65 years and this is undiagnosed in almost a third and untreated in a similar proportion⁴⁴. Carotid sinus syndrome is responsible for about 45% of falls in elderly people attending casualty departments after falling⁵¹.

CVD frequently presents atypically in older people. For example, heart failure can present as weakness, acute confusion, fatigue, anorexia and disorientation. Syncopes can present as unexplained falls with amnesia. Clinically unrecognised myocardial infarction is common in ageing men either because it is truly silent or because it presents atypically.

The role of vascular factors in the etiology of dementia and cognitive dysfunction in later life is an active area of research (see also the section on dementia).

5.2.2 Cancers

Many forms of cancer can be prevented or effectively treated with early detection. For other cancers, such as lung cancer, prevention is possible, but early detection does not necessarily improve prognosis. Cancer screening is of greatest value for those cancers with long incubation periods that are amenable to treatments started early in the course of the disease. For all malignancies, healthy lifestyles and elimination of potential risk factors, especially tobacco, are the most effective and often only ways to reduce cancer mortality. Common gender-specific malignancies, such as cervical cancer in women and prostate cancer in men, have a typical age range for onset and screening strategies do exist, although not all have been shown to be effective.

World wide, more than 9 million people developed cancer in 1997 and more than 6 million died of cancer. Cancer deaths increased from 6 to 9% of total deaths from 1985 to 1997 in developing countries, but remained about constant at 21% of total deaths in developed countries. For men, prostate cancer is the most prevalent malignancy. The highest mortality rate was observed for lung cancer with approximately 790 000 deaths in 1997, followed by stomach, liver, colorectal, oesophageal and prostate cancer¹⁸.

Lung cancer

Lung cancer is not only the most frequent cause of death from cancer among men, but also the most preventable. In men, 90% of all cases are caused by cigarette smoking. Strategies to promote smoking cessation should become a top public health policy priority, especially in those developing countries where aggressive marketing by the tobacco industry is not adequately counterbalanced by public health information advertisements.

The average age of onset for lung cancer in men was 62.3 years in 1990, and almost two-thirds of men suffering from lung cancer were more than 60 years old. In 2020, 1 809 000 lung cancer-related deaths are projected. Developing countries like China will make significant contributions to the anticipated increase in lung cancer mortality. China reported approximately 152 000 male deaths in 1990, and expects 507 000 male deaths in 2020¹⁷.

In all countries, comprehensive tobacco control policies, including prohibition of cigarette advertizing, tax increases and health promotion strategies, must be implemented as a high priority to reduce lung cancer mortality. Antismoking policies may contribute to other health gains, including the prevention of chronic respiratory and cardiovascular diseases.

Prostate cancer

Prostate cancer is the most prevalent cancer in western countries and is the third leading cause of cancer deaths in men¹⁸. Since prostate cancer is primarily a disease affecting men over the age of 50 years, the worldwide trend towards an ageing population means that the number of prostate cancer deaths is predicted to increase markedly during the next two decades. Since the 1960s, nearly all prostate cancer registries have reported increased incidence rates even when accounting for improved detection methods⁴. The life-time risk of developing clinical prostate cancer is about 10%, while the life time risk of dying from the disease is approximately 3%⁵². In the European Union (EU), by age 75 years, an estimated 33% of men will have latent cancer, 4% will be diagnosed with prostatic cancer, and 1% will die from the disease. However, while incidence has increased rather rapidly, mortality rates have increased only slowly in comparison. Data on trends remain conflicting, with some recent studies suggesting a decline in the mortality rates⁵³.

Worldwide, there were 193 000 deaths from prostate cancer in 1990. Of those, 127 000 deaths occurred in men aged 70 years and older, while only 51 000 deaths were in men aged 60–69 years. By the year 2020, a global increase of prostate cancer-related deaths is predicted: 393 000 deaths are expected with 259 000 of those deaths in men 70 years old and older and 103 000 deaths in men aged 60–69 years¹⁷.

The natural course of the prostatic cancer is still incompletely understood. A wide variation exists in reported incidence and mortality rates and also in the clinical progression of the disease. Some prostate cancer manifests as a slow-growing tumour, while for other men it is an

aggressive and invasive malignancy⁵⁴. Greater public awareness and cancer-detection program implementation, utilizing digital rectal examination and prostate-specific antigen (PSA) testing, have improved identification of this cancer, accounting only in part for the increased incidence observed in the last decade.

PSA is a protein normally secreted into the blood of men in increasing amounts with ageing. It is secreted in much greater quantities by the prostate when a man has prostate cancer. In the Massachusetts Male Ageing Study, which included data from 1200 men, 3% of subjects developed prostate cancer during 1987 and 1995. Men with elevated PSA levels (> 4 ng/ml) were 12 times more likely to be diagnosed with prostate cancer⁵⁵.

Determining what preventive measures can be promoted is therefore of importance for public policy. Risk factors for this disease include dietary and familial histories, and this indicates some potential for primary preventive health measures¹⁷. Several studies have shown that nutritional factors, including animal fat, high caloric intake, vitamin E and selenium levels, influence prostate cancer risk⁵⁶.

Currently, there is no consensus on prostate cancer detection practices or subsequent therapeutic options for many men. The challenge is to improve classification and describe the natural history of the disease, which will help identify men with aggressive disease. When this information is known, important public health advances may be achieved.

Stomach cancer

Mortality rates from stomach cancer are declining. However, it remains the second leading cause of cancer-related death in both men and women. A total of 485 000 male stomach cancer-related deaths were reported globally in 1997; in women, 280 000 deaths were reported.

In 1990, the average age of stomach cancer detection for males was 62.9 years with an average disease duration of 3.1 years. The majority of newly detected stomach cancers were found in people over 45 years old. Among males 60 years and older, the incidence was 480 000 new cases, compared to 186 000 new cases in those 45–49 years old. For females this distribution trend is even more pronounced, largely due to the fact that there are more women in the age group 60 years and over. With increasing male life expectancy in the coming years, this gender gap will probably be narrowed. As compared to 469 000 male deaths from stomach cancer worldwide in 1990, it is estimated that there will be a more than two-fold increase up to 1 069 000 deaths in 2020¹⁷.

Despite the increase in absolute numbers, stomach cancer-mortality rates consistently declined through the late 1980s. This is probably largely attributable to changes in dietary habits, and food preparation and preservation techniques, because screening programs for early detection of gastric cancer have not shown clear benefits on mortality rates. In Japan, the country with the highest stomach cancer rates in the world, screening activities have been widely performed

without any significant reduction in stomach cancer mortality rates. Therefore, screening efforts using barium X-ray and endoscopy for entire populations should not be recommended as routine public health policy⁵⁷. It must, however, be emphasized that people who present with unclear symptoms, which might be early signs of stomach cancer, should undergo a diagnostic evaluation. The most effective way to reduce stomach cancer mortality is through improvements in food preparation and preservation conditions. Special attention should be given to those parts of the developing world where unfavourable preservation methods are common.

Colorectal cancer

In both sexes, colorectal cancer is the third most common malignant neoplasm worldwide, with a total of 495 000 deaths in 1996. The average age of detection was 63.8 years. For the year 2020, that number is expected to increase to 457 000 male deaths¹⁷.

There is a striking linear relationship between total dietary fat availability and colorectal cancer mortality in different countries. Thus, genetic–nutritional interactions may form the basis for the development of colorectal cancer. It is generally recognized that high fat consumption increases the risk of colorectal cancer.

Several studies have shown that nutrition plays an important role in colorectal carcinogenesis. Studies in populations migrating from areas with diets low in animal fat and protein to regions with a ‘Western’ (high fat and protein intake) diet show that colon cancer incidence increases postmigration. This effect has been seen in migrants from Japan to Hawaii and from Poland to Australia, and emphasizes the role of nutrition in colorectal carcinogenesis, independent of genetic factors.

A diet high in fibre may protect against colorectal cancer. It has been demonstrated that, independent of the type of diet, increased caloric consumption and body weight enhance the risk of colorectal cancer. Calcium may have a protective effect by neutralizing the damaging effects of bile products and free fatty acids. In addition, antioxidant vitamins (A, C and E) may neutralize these damaging effects, particularly free radical effects originating from fat metabolism⁵⁸. These data demonstrate the potential for maintaining health through the promotion of a healthy diet.

Effective screening for colorectal cancer is neither simple nor cheap. While still greatly debated, screening strategies for colorectal cancer include digital rectal examination, stool blood test and sigmoidoscopy. Digital rectal examination can detect up to one-third of cases, but fails to detect cancers situated above the palpable area. Testing of stools for occult blood detects about 17% of cases but can lead to false-positive results, thereby subjecting a healthy individual to additional diagnostic evaluation⁵⁸. Finally, colonoscopy (flexible sigmoidoscopy) is highly sensitive but mostly reserved for diagnosing strongly suspected colorectal cancer due to its substantial cost and inconvenience for the patient. Considering the limited resources in health-care systems, especially in developing countries, this is a very costly procedure for an entire ageing population⁵⁹. Indeed, there is no consensus on which procedure to use or how often and

in whom to use it. The benefits of screening are higher in those with a family history of colorectal cancer in two or more first degree relatives.

Among these four most common male cancers, public health interventions should focus on primary prevention. Antismoking policies, healthy nutrition programs and educational activities should promote the healthy lifestyles that can reduce cancer rates. Funding should also be allocated for secondary prevention measures, such as comprehensive screening strategies, when they have been demonstrated to result in more good than harm.

5.3 Chronic disabling conditions

5.3.1 *Decline in physiological functions in ageing males*

Ageing is characterized by an overall decline in physiological competence and loss of functional reserve, precipitated by a decreased capacity to respond to stressors. Significant variability exists in the individual ageing process and it is often difficult to discern pathological processes from age-related physiological decline. Ageing of specific organ systems has been described. These losses can take a psychological toll on an individual and may be compounded by more general symptoms such as lack of energy, generalized weakness, difficulties in concentration, forgetfulness, irritability and sleep disorders. Changes in sexuality, affecting libido, erectile function and potency, may also be the consequence of physiological decline.

5.3.2 *Ageing of the male endocrine system*

Ageing in healthy men is associated by a gradual decline in physical stamina, anabolism and reproductive function (both potency and libido). This is associated with decrements in serum total and free testosterone concentrations in most but not all cross sectional studies as well as in several recent longitudinal clinical investigations⁶⁰⁻⁶⁷. The precise pathophysiological mechanisms that underlie the age-associated decrease in androgen output and the accompanying relative physical frailty are not well defined. Both low testosterone and frailty of ageing are aggravated by co-morbidity, such as acute or chronic illness, concurrent medications, weight loss and/or uncompensated metabolic stress⁶⁸⁻⁷⁰. Despite the predictable decline in most individuals as age increases, serum total testosterone levels in the majority of men remain within the normal range. Because sex hormone binding globulin levels increase concomitantly with the decline in total serum testosterone, the free testosterone concentrations fall more steeply with increasing age. Approximately 20% of men 60-80 years old and 33% of men over the age of 80 have serum testosterone concentrations which are below the normal range for young adult men⁶⁷.

The mechanisms leading to decreased androgen concentrations in the ageing male presumably include both testicular failure and inappropriately reduced gonadotropin secretion. The biological impact of decreasing free testosterone concentrations in older men has been termed '*the andropause*'. It is believed that the andropause has significant clinical implications to the ageing-related reductions in physical (aerobic) capacity, diminution in muscle strength and mass, decline in bone mineral density, decline in psychological well-being, and impairment in libido and

sexual function. Today, the majority of physicians propose using symptomatology rather than absolute testosterone levels to define hypogonadism in ageing males since there is no general agreement about normal values of androgens in older men. Furthermore, low free testosterone levels alone do not justify hormone replacement therapy in men who do not suffer from symptoms⁷¹. Since androgens act at multiple target organs, each of which may have different thresholds for androgen-induced effects, a symptom complex rather than a specific symptom needs to be considered. Organ-specific differences in thresholds for testosterone-induced biological effects may be reflective of differences in local testosterone metabolism. Testosterone, the principal product of the testes, acts in a complex fashion on many target organs and may act directly on the intranuclear androgen receptor, non-genomically on the cell membrane, indirectly through conversion to dihydrotestosterone (which acts on the androgen receptor with twice the potency as compared to testosterone) or indirectly through conversion to estradiol (which acts on the estrogen receptor)⁷². These different metabolic pathways and modes of action in target cells (also referred to as '*intracrinology*') create difficulties in the assessment of hormonal effects⁷³. Nonetheless, studies to determine the positive and negative effects of replacing the declining levels of androgens in older men need to be carefully designed and analysed before widespread preventative treatment can be contemplated.

Apart from the increased research in gonadal androgens, there has also been a growing interest in sex steroids produced in the adrenal glands during the last few years. The most important so-called 'precursor hormones' for androgens that are produced in the adrenal glands are dehydroepiandrosterone (DHEA) and dehydroepiandrosterone-sulfate (DHEA-S). These two hormones along with androstendione (production of which also takes place in the testes) are often referred to as 'adrenal androgens'. They are interconvertible in almost all tissues and can be further converted into the more 'potent' androgens testosterone and dihydrotestosterone, as well as into estrogens. Thus, greater amounts of adrenal androgens are the source for increased androgenic (and also estrogenic) target cell effect⁷⁴.

Interestingly, both DHEA and DHEA-S show a progressive decline with age. Their levels in blood peak at age 25 for both sexes and by the age of 70 years are only 5–10% of what they were during youth⁷⁵. This slowly progressing, but in summary impressive, decline of adrenal androgens over the whole life span seems to be one of the factors contributing to decreased quality of life in elderly persons. Substitution studies in elderly males bringing hormone levels of DHEA-S back to those in young men, have shown beneficial effects on osteoporosis, cardiovascular morbidity and cognitive functions, as well as general well-being⁷⁶. Nevertheless, the full spectrum of biological importance of adrenal androgen deficiency has not been fully defined in men. Thus, the clinical importance of low levels of adrenal androgens cannot yet be fully specified.

There is, however, not only a decrease in steroid concentrations in ageing males. An age-dependent decrease in growth hormone (GH) secretion by the pituitary gland is also well established, with a reduction in GH secretion of approximately 14% per decade. GH pulse frequency and insulin-like growth factor-I (IGF-I) – an anabolic protein produced in the liver depending on GH stimulation – also decrease with age. Reduced GH and IGF-I levels, similar to decreased androgen levels, result in a decrease of general performance, reduced muscle mass and strength, and an increased tendency towards obesity. Since sleep in older men is often shallow and fragmented and growth hormone secretion occurs predominantly with deeper stages

of sleep, there seems to be a correlation between impaired sleep and reduced (nocturnal) GH production in ageing males. Of course, other factors, e.g. changes in the hypothalamic–pituitary axis, also contribute to the reduction of GH and IGF-I with age^{77–80}.

Similarly, there is a decline of melatonin secretion, a hormone regulating circadian rhythms and other physiological functions, with age. Decreased melatonin concentrations may thus also contribute to some of the age-associated changes in male ageing, especially in sleep disorders (see also the section on sleep disorders).

Finally, reports concerning hormonal changes in the ageing male have sparked media attention, and some hormone therapies have been described as modern-day miracles capable of ‘reversing the ageing process’. In reality, such publicity is unwarranted as definitions have not been established for appropriate interventions and therapies have yet to be adequately tested.

5.3.3 Benign Prostate Hypertrophy

Benign Prostatic Hypertrophy (BPH) is the progressive non-malignant growth of the prostate gland surrounding the male urethra. BPH may be present in up to 10% of 40-year-old men and 80% of 80-year-old men⁴⁸. With projected male life expectancy approaching 80 years in many more developed countries by the year 2000, BPH will have an increasing influence on morbidity, mortality and health costs.

Most men with BPH remain asymptomatic or ignore symptoms for long periods of time. The increase in prostate volume associated with ageing compresses the urethra and decreases its lumen, resulting in urinary urgency and poor urine flow. Common symptoms are frequency, urgency, nocturia, poor stream and dribbling, difficulty starting and continuing, uncomfortable micturation, and a feeling of incomplete emptying. Urethral obstruction in advanced cases may lead to urinary retention. The prostate gland is an androgen responsive target organ. Androgens are known to stimulate prostate growth although they are not necessarily responsible for induction or aggravation of BPH. It is not known whether the declining testosterone levels with ageing in men is a prostate-protective bodily response. Furthermore, it is unclear if androgen replacement therapy would have positive, neutral or negative effects on symptomatic BPH.

Available treatments and procedures can effectively manage most patients. The large portion of the burden and relief of this disease weighs on the individual. Reluctance to report symptoms or seek medical care are the primary barriers to treating this disease. This suggests a substantial need for community and professional education and health promotion programs.

5.3.4 Urinary incontinence

The prevalence of incontinence has not been precisely measured in either men or women. In community-dwelling older people, up to 7% of men and 20% of women report regular

incontinence⁸¹. Urinary incontinence is one of the leading causes for nursing home admissions⁸². It is both a medical concern and a socio-economic problem. Increased public awareness and education about incontinence may encourage those afflicted to seek professional help. Incontinence is a physical condition with negative personal and social repercussions. Failure to address the condition may lead to increased anxiety, loss of self-esteem and depression. Self-imposed isolation and social aversion may leave incontinent men without access to adequate social support or medical care. To avoid these problems, men should be informed that incontinence is a treatable condition, rather than an inevitable consequence of ageing.

In males, there are three basic types of incontinence:

- (1) Overflow incontinence is often due to BPH as a result of urethral compression leading to bladder outlet obstruction. Subsequent bladder distension can cause an overflow of small amounts of urine.
- (2) Urge incontinence due to bladder instability and progressive decrease in bladder compliance.
- (3) Postprostatectomy incontinence may be a sequela of surgical intervention. The smooth muscle of the urethral sphincter, responsible for the maintenance of a constant tone (pressure) inside the urethra, may be damaged during surgery. This commonly leads to loss of bladder control when intra-abdominal pressure increases, for instance when a person laughs or coughs.

5.3.5 Erectile dysfunction and sexuality

Health professionals, educators and elderly men are becoming aware that libido, sexual interest, capacity and pleasure can be maintained throughout a lifetime. Study findings on the subject were positive in many countries, such as the US, Italy, Sweden, Denmark, Israel, and Turkey, and suggest cross-culture validity and comparability over time. Most found persistent interest in sexual activity associated with positive mental and physical health benefits⁴⁸. Unfortunately, societal taboos still discourage discussion in some countries.

Some older men may become less sexually active with age. Reasons for decreased sexual activity include loss of libido (partly due to decreased androgen), erectile dysfunction (due to progressive vascular changes in erectile tissue), lack of partner, chronic illness and/or various social and environmental factors. Among the sexual impairments, erectile dysfunction is one of the most frequent conditions. This can be a significant contributor to a man's loss of sexual activity in old age. Most data indicate that decreased penile vasodilatory capacity is the prime age-related cause of erectile dysfunction. Selective penile vasoactive medications may improve erectile function. While generally effective, these medications (i.e. selective type 5 phosphodiesterase inhibitors) are relatively expensive and thus not available to many men in developing countries. Moderate or complete erectile dysfunction was reported by 31% of the 556 men (average age 62 years) remaining in the Massachusetts Male Ageing Study⁸³ at the 8-year follow-up. A positive independent association between erectile dysfunction and modifiable risk factors for CVD was reported in this study.

The Men's Health Survey⁸⁴ assessed erectile dysfunction in 3607 men of all ages from five European countries and Canada. This study reported that the prevalence of complete erectile

dysfunction tripled from 5% in 40-year-old men to 15% in 70 year olds. Culture and socio-economic status were sources of remarkable variation. Lower income was associated with higher erectile dysfunction rates in this study. Erectile dysfunction is of increasing concern to ageing men. When focusing on the maintenance of quality of life among older men, efforts to promote a good sexual life should not be neglected.

5.3.6 *Osteoporosis*

Osteoporosis is a disease characterised by low bone mass and bone matrix deterioration leading to increased fragility and risk of fracture. Criteria for the diagnosis of osteoporosis based on bone density were established by the WHO, using the relationship between risk of fracture and bone mineral density in Caucasian women⁸⁵. Such criteria have not been defined for men, who have larger bones with thicker cortices, although their density and trabecular architecture is similar to that of women.

Traditionally, osteoporosis has been viewed as a female problem accelerated after menopause. Men are also affected, but have an estimated lifetime risk of fracture three times lower than women, at least in Caucasian populations⁴⁸. In both sexes, bone mass in older ages is influenced by the peak bone mass achieved in young adult life and by the rate of age-associated bone mass reduction. The gender difference in fracture rates is largely due to men losing less porous (trabecular) bone than women. Many osteoporosis risk factors can be reduced without substantially increasing costs for the individual or the health-care system. Risk factors for osteoporosis in older men include low calcium intake, cigarette smoking, alcohol abuse and physical inactivity.

The first sign of osteoporosis is often a spontaneous fracture of the lumbar spine, or a fracture of the proximal femur or distal forearm after a fall. Elderly persons are at a higher risk of falling, which can be attributed to use of certain medications, alterations in balance, loss of muscle strength and prolonged reaction times. Preventive measures should target reducing bone loss and factors that contribute to falling. One of the most cost-effective prevention strategies is physical activity; an adequate intake of calcium, vitamin D and an exercise program that maximizes bone and muscle strength are also important^{86,87}.

Studies on osteoporosis have been overwhelmingly focused on women. Treatment guidelines for male osteoporosis are not well established. There is a significant need to develop primary and secondary prevention strategies for ageing males. Health policies should focus on promoting regular physical exercise, regulating smoking, reducing excessive alcohol consumption, modifying unsafe living environments and minimizing prescription medications that contribute to falls⁸⁸. While more data from large scale studies are needed, androgen replacement therapy of hypogonadal young and older men has shown improvement in bone mineral density.

5.3.7 Sarcopenia

Loss of muscle mass (sarcopenia) with age in humans is well documented⁸⁹. The excretion of urinary creatinine, reflecting muscle creatine content and total muscle mass, decreases by nearly 50% between the ages of 20 and 90 years⁹⁰. Computed tomography of individual muscles shows that after age 30, there is a decrease in cross-sectional areas of the thigh, decreased muscle density and increased intramuscular fat. These changes are most pronounced in women⁹¹. Muscle atrophy may result from a gradual and selective loss of muscle fibres. The number of muscle fibres in the midsection of the vastus lateralis of autopsy specimens is significantly lower in older men (age 70–73 years) compared with younger men (age 19–37 years)⁹². The decline is more marked in Type II muscle fibres, which decrease from an average of 60% in sedentary young men to below 30% after the age of 80 years⁹³ and is directly related to age-related decreases in strength.

A reduction in muscle strength is common with ageing. Data from the Framingham study⁹⁴ indicate that 40% of the female population aged 55–64, 45% of women aged 65–74, and 65% of women aged 75–84 years were unable to lift 4.5 kg. In addition, similarly high percentages of women in this population reported that they were unable to perform some aspects of normal household work. It has been reported that isometric and dynamic strength of the quadriceps increases up to the age of 30 and decreases after the age of 50⁹⁵.

An approximate 30% reduction in strength between 50 and 70 years of age is generally found. Much of the reduction in strength is due to a selective atrophy of Type II muscle fibres. It appears that muscle strength losses are most dramatic after the age of 70 years. Knee extensor strength in a group of healthy 80-year-old men and women studied in the Copenhagen City Heart Study⁹⁶ was found to be 30% lower than a previous population study⁹⁷ of 70-year-old men and women. Thus, cross-sectional, as well as longitudinal, data indicate that muscle strength declines by approximately 15% per decade in the 6th and 7th decades and about 30% thereafter^{96–100}. While there is some indication that muscle function is reduced with advancing age, the overwhelming majority of the loss in strength results from an age-related decrease in muscle mass.

The decline in muscle strength associated with ageing carries with it significant consequences related to functional capacity. A significant correlation between muscle strength and preferred walking speed has been reported for both sexes¹⁰¹. A strong relationship between quadriceps strength and habitual gait speed in frail institutionalized men and women above the age of 86 years supports this concept¹⁰². In older frail women, leg power was highly correlated with walking speed, accounting for up to 86% of the variance in walking speed¹⁰³. Leg power, which represents a more dynamic measurement of muscle function, may be a useful predictor of functional capacity in the very old. This suggests that with the advancing age and very low activity levels seen in institutionalized patients, muscle strength is a critical component of walking ability.

5.3.8 Nutritional issues of ageing men

Several physiological changes of relevance to the nutritional status of men occur with increasing age. Loss of appetite has been reported, as well as decrease in taste, smell and thirst sensations. The absorption of certain nutrients can be reduced, for example, through diminished production of stomach acid, which results in a lower solubility of calcium and iron. Also, digestive problems are more common with increasing age, among them lactose intolerance¹⁰⁴. The basal metabolic rate (BMR) declines 3–4% per decade over the life span, resulting in less energy requirement in older age, which also depends on personal factors, such as physical activity level and health status. An energy intake of 1.4–1.8 times BMR is recommended¹⁰⁵. This would mean that a 65-year-old man needs about 2240 kcal/day and a 75-year-old man 2130 kcal, when engaged in the non-strenuous activities of daily living. Respective figures for women would be 1920 kcal with 65 years of age and 1840 kcal with 75 years of age¹⁰⁴.

Older people may be at risk for calcium, zinc, magnesium, folate, vitamin B₆ and vitamin D deficiency^{106,107} and a lower intake of non-prescription micronutrient supplements in independently living Norwegian men (age 75 and over) than in their female peers has been reported. Micronutrient supplements may be indicated in certain cases, such as vitamin D supplementation for home-bound older persons¹⁰⁴.

Regarding body weight, an increase is often seen in middle-age, while weight decreases are observed in older ages. According to Wahlqvist and colleagues¹⁰⁶, several nationwide studies have indicated that low dietary intake is common among older adults. This seems to be especially true for geriatric patients, as shown in studies from Sweden¹⁰⁸ and Germany¹⁰⁴. The German data from Volkert illustrate that 60% of male geriatric patients in the study (75 years and older) were undernourished in regards to general appearance/body weight plus micronutrient status.

The risk factors for malnutrition in older age, apart from physiological changes, include poor dietary habits (e.g. minimal food variety, inadequate choice of food) and effects of medication and/or disease (e.g. maldigestion, malabsorption). Moreover, forgetfulness, depression and socio-economic factors, such as loneliness¹⁰⁶, poverty, or a poor housing situation can impact on the nutritional status. In a US-based study Ritchie and co-workers¹⁰⁹ found about 60% of the older home-bound urban men (age 65 and over) were underweight. Lower weight was not only related to sex, but also to low education status and poor dental health. Swiss data¹¹⁰ show a similar concern, with more than 20% of older independently living men, age 74–79, consuming less than 1500 kcal/day. On the other hand, Finnish data for free living older men did not indicate malnutrition in the healthy study participants. Older Finnish men with chronic disease, conversely, were found to consume less than their healthy peers. This was not found for the women studied¹¹¹.

Data from developing countries on nutrition and older persons are not yet readily available. However, it has been shown in a sample of poor community dwelling older (65 years and older) Chileans¹¹² and in institutionalized persons 80 years and older in Venezuela¹¹³ that men, as well as women, have an energy intake below recommended levels. In summary, older persons seem to be more at risk of malnutrition than overweight in both developed and developing countries.

5.3.9 *Oral health problems*

There has been no systematic evaluation of oral health status in the elderly on a global level. Limited information is available at the WHO Global Oral Data Bank and from a few national surveys that included some data on ageing population¹¹⁴⁻¹¹⁶. It can be concluded that the major problems of the elderly are tooth loss, widespread and severe periodontal disease, dental root caries, facial pain, jaw joint pain and burning mouth, hyposalivation and a high need for extractions.

Several studies have reported that oral health status is much poorer in those who are suffering from general diseases and that poor oral hygiene may be a risk factor for respiratory tract infection among the elderly. Oral health disability may also affect the nutritional status of this population. At the same time, there is a low level of oral health services utilization by the elderly. This may reflect the fact that many are edentulous and thus do not perceive themselves in need of oral care. In addition, the elderly have less exposure to oral health education than the young.

5.3.10 *Sensory impairment*

Cataracts are a major source of visual impairment in older people. Approximately 90% of people with cataracts live in developing countries, 60% of whom are elderly¹¹⁷. In these countries, cataracts are the greatest cause of blindness and visual disability. The most common form of the disease is age-related and its prevalence is therefore expected to continue to grow with the increasing life expectancy. There are no effective primary prevention techniques. However, mobile eye camps are able to restore sight using low technology and thus cost-effective treatment. Unfortunately, these procedures are still not affordable for many parts of the developing world.

The loss of vision, hearing and other senses should be recognized as more than physical problems. Such conditions have profound effects on social and personal interactions, economic viability, and mental health of those affected, and should be treated seriously.

5.3.11 *Co-morbidity*

Many of the chronic disabling genetic and metabolic conditions experienced by ageing men are interrelated. The effects of a single minor condition may not be severe, but its interaction with other conditions can reduce functional capacity, aggravate pain and cause serious anxiety about the future. In addition, and, in part, as the result of the presence of multiple conditions, ageing men are at risk of specific problems resulting from polypharmacy.

5.4 Mental health

5.4.1 Dementia

Dementia is a clinical diagnosis, the core description of which is ‘the acquired global impairment of cognition which has significant effects on occupational, social and functional ability’. It includes impairments in capacity to solve problems of day-to-day living, perceptual skills, language and communication and frequently involves disturbances of emotional reactions. It occurs in the absence of gross clouding of consciousness which is usually associated with acute confusional states, such as delirium. Although cognitive decline is inevitable, the rate of progression is unpredictable and very much dependent on the type of dementia (for example, dementia with Lewy bodies runs a fluctuating course, Alzheimer’s disease is associated with a progressive relentless decline while vascular dementia is associated with a stepwise decline). Depending on the degree of dementia, the observed impairment is variable, ranging from relatively isolated cognitive disturbances which may be undetectable in usual social circumstances to severe forgetfulness and global intellectual disturbance with loss of psychological and social functioning¹¹⁸.

The prevalence of dementia after 65 years was estimated as being between 4 and 7% in ten epidemiological studies, while prevalence doubles every 5 years such that rates rise from 1% at ages 65–74 to 7% at ages 75–84 to finally 25% after the age of 85¹¹⁸. US population projections using an average estimate of 5.5% predict 2.3 million persons with severe dementia in 2000, 3.2 million in 2020 and 7.2 million in 2040. Although dementia is more prevalent in women, incidence studies generally find an equal sex incidence suggesting that men suffer from dementia at the same rate as women but die more quickly.

It is a major and significant public health issue in all countries, accounting for significant morbidity, high cost due to institutionalization and carries a severe adverse prognosis with regard to excess mortality. Dementias, such as Alzheimer’s disease, can be subdivided according to clinical stages and have characteristic behavioural, psychiatric and functional problems.

The major causes of dementia are Alzheimer’s disease (approximately 50%), dementia with Lewy bodies (approximately 20%), vascular dementia (approximately 20%) and other rarer causes including frontotemporal dementia, Huntington’s disease, and other dementias associated with Parkinson’s disease, etc. These disorders coexist in 15–20% of cases. In the under 65s, Alzheimer’s disease remains the most common cause, frontotemporal dementia becomes the second commonest, with dementia with Lewy bodies, vascular dementia, Parkinson’s disease and others being less prevalent¹¹⁹.

While a definite diagnosis of the cause of dementia can only be made by autopsy, clinical diagnostic criteria have positive predictive values of 80–90%, and as such they have sufficient accuracy to be used during life. However, it may be argued that the distinction between the different types of dementia is of less significance for planning services than the consequences of having the disorder.

The main risk factors for Alzheimer's disease are advancing age and genetic susceptibility (in particular possession of the apolipoprotein E4 allele), while other risk factors may include past history of head injury, past history of depression and other genetic factors. Environmental agents, including exposure to aluminium and tobacco abuse, have been suspected, but not substantiated¹²⁰. Risk factors for dementia with Lewy bodies include advancing age, male sex and concurrent Parkinson's disease, whilst risk factors for vascular dementia include past history of stroke and cardiovascular risk factors (hypertension, hyperlipidemia, diabetes, smoking). As these are more common in men, it is unsurprising that vascular dementia is much more frequent in men than women^{121,122}. As most of these cardiovascular risk factors are modifiable, the significance of primary prevention for ageing males in preventing or delaying the onset of vascular dementia has to be stressed.

Until recently, the mainstay of management of dementia involved accurate clinical assessment and diagnosis, full explanation and support, the management of commonly associated problems, such as depression, psychosis, behavioural disturbances and carer stress, and the provision of appropriate support packages to optimize functioning and independence. However, the introduction of pharmacological agents that have a direct symptomatic benefit on cognition and behaviour in those with Alzheimers's disease (such as donepezil and rivastigmine) has been a major advance¹²³. On average, these drugs produce a symptomatic benefit that is the equivalent to 'reversing' 5–12 months of naturalistic decline. This has undoubtedly led to a more optimistic approach to the diagnosis and management of dementia and a shift towards early identification of Alzheimer's disease. This will be particularly important in the future when it is hoped that disease modifying rather than purely symptomatic agents will become available.

Other dementias require different management approaches, for example antiplatelet agents may be indicated for vascular dementia while antipsychotics need to be prescribed with extreme caution to those with dementia with Lewy bodies.

5.4.2 *Depression*

Depression is a common disorder in the over 65s, with severe depression affecting 1–3% of the population and milder forms affecting 10–15%. It may sometimes be a difficult diagnosis, as depression in late life can sometimes be caused by other disorders, such as dementia, concomitant administration of drugs, physical illness and disorders, such as hypothyroidism. The incidence of major depression is significantly increased after stroke, after bereavement and in those with organic diseases or dementia, such as Parkinson's disease, Alzheimer's disease, vascular dementia or dementia with Lewy bodies¹²⁴.

Apart from genetic factors, etiological theories of major depression range from lack of dietary intake of <S>L-tryptophan to chronically increased blood levels of cortisol. The observed increase in the prevalence of depression – especially in younger and middle-age cohorts – may be the result of environmental changes, such as unemployment, increasing stresses and reduction of social support associated with modern living¹²³. It is important to remember that although, as in all people, reactive and short term depressed mood may be a normal response to loss, prolonged and persistent depressed mood, particularly when associated with other biological symptoms, such as sleep disturbance, diurnal mood variation, appetite and weight loss, loss of

libido, and suicidal ideation are an important pointer towards the presence of clinically significant depressed mood¹²³.

There is a female predominance of depression at all ages, although this difference tends to diminish later on in life where men are almost as often affected as women. It appears to be true that women are more likely to report depression than men, although depression is undoubtedly the most common functional disorder affecting ageing males¹²³.

Despite the slight predominance of women in terms of those affected with depression, it is men who are most successful at committing suicide. Indeed, suicide rates rise with age so that the highest rates are seen in males over the age of 75. Depression is often under-diagnosed and undertreated, especially in older men who are less likely to present with psychological ('I'm depressed') than physical ('I have pain') problems¹²³.

It must be remembered that about 90% of older men who attempt or complete suicide have depression, either undiagnosed or inadequately treated. If men continue to under-report depression, the morbidity and mortality of this condition will remain unchanged or increase in this population. Effective pharmacological and psychosocial treatments are available and – while prognosis is poor in untreated community samples – approximately 70% of patients treated in hospital settings do well or very well. Patients with poor outcome are those with concurrent physical illness, cognitive impairment, or subtle cerebral changes. A number of studies have shown men to have a worse outcome than women. The high prevalence of depression, its underrecognition despite the availability of effective treatments, and its poor outcome and high suicide rates in males indicate that it is an important condition to target with regard to the health of ageing men¹²³

5.4.3 Sleep disorders

Older men and women have a high incidence of sleep complaints in general. Many of them turn to hypnotics or sedatives as a remedy. This is fraught with problems and may mask a sleep disorder. While there are numerous psychological and social factors contributing to quality and quantity of sleep, certain physiological conditions can be disruptive to sleep. In ageing men melatonin secretion decreases and the circadian periodicity of melatonin is gradually disrupted¹²⁵. Sleep in older men can be shallow and fragmented and these alterations influence growth hormone secretion which occurs with deeper stages of sleep (see also the section on ageing of the male endocrine system). The disruptions of normal sleep patterns in ageing men may have important health consequences, especially on mood and cognitive functions.

A series of other factors contributing to sleep disorders include:

(1) Mental health – sleep disorders are frequent symptoms of depression or dementia and may disappear when the underlying cause is treated;

(2) Institutionalisation – persons living in nursing homes are required to go to bed according to personnel shift changes and are often awakened for checks or medication throughout the night. Noise, lack of privacy and rooms either too warm or too cold further

contribute to what is called ‘institutional insomnia’;

(3) The ageing process – older people, whether living at home or in care facilities, experience sleep disorders with greater frequency than their younger counterparts. Consequently, sleep efficiency (the ratio of time spent sleeping to total time spent in bed) decreases from 95% in adolescence to less than 80% in old age.

Obstructive sleep apnea, periodic limb movement disorder, insomnia and parasomnias are important groups of sleep disorders in the elderly. Medical, pharmaceutical and/or behavioural treatments are available to the patient and frequently improve the quality of sleep. The first step, however, is recognition of the problem.

5.5 Functional disability

Disability is defined as a negative balance between a person’s abilities and the environmental requirements. It is usually measured using questionnaires on self-reported difficulty doing various activities, such as walking, shopping, cooking and self-care¹²⁶. In the older population progression of severe disabilities is an important public health concern as disabilities are major risk factors for institutionalization^{127–129}. Risk factors predictive of future disability that can be modified to reduce the risk or signal an early state of disablement in which intervention can retard progression need to be identified. The disablement process model as presented by Nagi¹³⁰ and further developed by Verbrugge and Jette¹²⁶ may be used as an outline to explore the early signs of disability. In old age, pathology causes impairments (e.g. decreased muscle strength, poor balance, low oxygen consumption). Impairments predispose people to functional limitation (e.g. slow walking speed) which will cause disabilities (e.g. difficulties in mobility and self-care). Some evidence exists that people who have normal body weight, who exercise and don’t smoke may survive longer with disability compressed into fewer years at the end of life¹³¹.

However, some people may be genetically more prone to disability than others. Currently, little information exists about the long-term predictors of old age disability, but both environmental and genetic factors are probably involved. Information on the effect of the interaction of lifestyle and genetic factors on disability is scarce.

6 IMPROVING THE HEALTH OF AGEING MEN

6.1 General framework to improve and maintain ageing men’s health

The general framework for improving the health of ageing men is the same as that for the general population. This framework should consider all aspects of the concept of health of ageing men outlined earlier in this paper.

Collaborative partnerships between all sectors of international and national governmental organizations and civil society will ensure successful long-term planning for improving the health of ageing men. The WHO has a particular responsibility to provide this international leadership and work directly with government agencies and NGOs in the interests of the health

of ageing men. The WHO Programme on Ageing and Health is well placed to provide this international leadership. This program acts as a leader within WHO, at the regional level, and through interagency and intergovernmental initiatives. At the national level the program is in an excellent position to work with national authorities to promote policies and programs directed towards improving the health of elderly men.

A key NGO involved in the health of ageing men is the International Society for the Study of the Ageing Male (ISSAM) which aims at creating awareness of the health problems of ageing men and to stimulate interdisciplinary research and action to improve the health status of ageing men.

Education is the foundation for instituting positive policies to improve and maintain older men's health. All sectors of society in all countries, including health professionals, require education and information about the health needs of older men. This material must be presented in a culturally relevant manner and addressed to the specific needs of men in each community. This information could usefully address several issues, including the processes of normal ageing and the most important environmental determinants of ageing as it is commonly experienced in each society. Men's expectations of health as they age must be addressed and, if appropriate, challenged so that men are in a position to become more directly involved in the organization and delivery of health services designed to improve and protect their health.

Research provides the scientific underpinning for both educational strategies and appropriate policy formulation and implementation. A *worldwide network of research groups or project sites* should be established covering especially those geographical areas which are most in need of research on the issue of the health of ageing men. There are already several WHO Collaborating Centres, but the number is limited and distribution of these sites is uneven at present and cannot cope with the increasing needs. Additional research sites could enhance government and public awareness on this issue and may be able to generate interest in funding and creating a friendly atmosphere for such activities. These centres would do their core activity under the direction of the WHO Ageing and Health Programme, studying social, epidemiological and public health topics, while other fields of their work would involve basic and applied research projects. The share of supporting financially these project sites could also be set according to their activities: i.e. by WHO / government (e.g. educational, public health tasks) / national and international research funds, and other sources. Proposals for the establishment of new sites to fill the gaps could be made as a stepwise planned process based on justifiable local initiative and government or university commitments.

National research agendas for ageing men's health could usefully be developed and made explicit. It is important that laboratory-based research be complemented by multi-focal widely generalizable community-based longitudinal research, including biological and psychosocial variables, in both developed and developing countries.

All sections of society should strive for a '*global social contract*' to provide every older human being with a minimum standard of human dignity. This contract may be defined in a similar way to 'the five guarantees' giving the basic needs for an old age in dignity to elderly villagers in China: food, clothing, housing, medical care and funeral expenses³⁸.

6.2 Specific strategies to improve and maintain ageing men's health

A priority for ageing men in the poorer regions of the world is to ensure an *old age free from the burdens imposed by decades of impoverishment*. This task is beyond the scope of single agencies and requires coordinated intergovernmental commitment and resources.

National authorities will often require support as they develop and implement policies and strategies to improve the health of older men. The WHO and NGOs have an important role in supporting these national activities.

Men must be encouraged to *take symptoms more seriously* and seek professional support and advice sooner than they have done in the past. In turn, this will require the availability of services that are suitable for, and sensitive to, the health needs of older men. There may be much to learn from the successes and failures of health services established to meet the specific health needs of women.

There is an urgent need to provide more information about the normal male ageing process and to advertise and *promote ageing in a positive and active way*. In addition, gender-specific training of primary health-care workers who can respond to the unique health concerns of elderly men must be supported. To this end ISSAM and the WHO Ageing and Health Programme will work together to develop curricula particularly for primary health workers. Discussion of medical, psychological and social problems should be actively encouraged. Men should receive education and be prompted to take on teaching roles themselves, leading self-help groups and advocating on behalf of their ageing communities. Programs should be established empowering men to become *well-informed active managers of their own health and the health* of their surrounding social environments.

It will be necessary to set up information and consultation systems suited to the health needs of males. Such a system should include telephone hotlines for at-risk men, reinforced by a network of self-help groups for ageing men, as well as psychological counselling for stress situations. Ageing men in all societies need training in the life skills that will be needed to cope with the continuing changes in their social and economic environment.

Employment policy must consider the special work and training needs of ageing men since changes in the nature of work and the increase in the service sector may require fewer older men in the regular workforce. The creation of a *greater range of employment options* for ageing men, and for all workers, will be important in all countries, together with changes in attitudes of employers and employees towards older workers.

Evidence-based advocacy organizations and activities are required in all regions and countries to support the health of ageing men.

Specific disease prevention and control programs are required, especially in the poorer regions of the world where they must be adapted to local conditions. CVD prevention and control remains the top priority, given the importance of CVD in all regions and the *availability of effective and low-cost interventions*, for example, tobacco control, physical activity and dietary programs.

Region-specific research agendas are required and these, in turn, will require resources and a skilled research workforce.

Finally, in order to promote more effectively the health of the new cohorts of ageing men, the coordinated and complementary efforts of all relevant governmental and non-governmental organizations at local, national and international levels must be strongly encouraged and supported.

/ **Actions toward healthy Ageing****Main Behavioural Factors**• **Physical activity****Actions aimed at the individual**

Increase your knowledge about the importance of :

- regular physical activity and its role in decreasing the risk of diseases/ conditions such as osteoporosis, falls, hypertension, ischemic heart disease and stroke. Physical activity also helps to reduce and prevent stress and promote mental health.
- exercising, walking, climbing stairs, and doing household works.

Policy Actions

- Ensure awareness of importance of regular physical activity.
- Provide the opportunity of supervised exercise group for guidance, encouragement and for socialisation.
- Promote exercise-friendly environment such as walking paths, bicycles tracks and parks where people can exercise.

• **Nutrition**

Increase your knowledge about the importance of:

- risk factors of malnutrition and dehydration in older age and taking preventive measures.
- adverse and protective dietary factors associated with specific diseases- for example high salt diet (sodium) and excessive alcohol consumption are risk factors for stroke while potassium-rich food (e.g. fresh fruits and fruit juice) is protective for the same.
- following a diet high in fruits and vegetables and low in animal fat and salt.
- the risks of obesity in old age and about maintaining your body weight within the normal range.

- Promote awareness that older people have special nutritional need and that they are vulnerable to malnutrition.
- Increase consumer awareness about direct links between balanced nutrition and good health.
- Promote the availability of healthy food at affordable prices.
- Assure appropriate, easy to follow food labelling.
- Encourage caterers to offer healthy meals, appropriate to the needs of the older people.

• **Smoking**

Increase your awareness that:

- smoking causes heart diseases, important respiratory diseases and several forms of cancers such as lung, throat, bladder and mouth.
- stopping smoking prevents important chronic respiratory diseases, cardiovascular diseases, stroke and premature deaths due to several forms of cancers.
- stopping smoking at any age brings great benefit to health.

- Ban all forms of tobacco advertising and promotion.
- Inform adults and older persons that tobacco cessation is beneficial at every stage of the life course.
- Increase the taxation on tobacco product.
- Promote health education campaigns through the media.
- Disseminate information widely in the community (schools, workplaces, sports facilities as well as health centres)

Specific ageing related diseases and conditions
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- **Cardiovascular disease (CVD)**

Actions aimed at the individual

Increase your knowledge about the importance of:

- cardiovascular disease which remains the most common single cause of death in old age.
- the four major risk factors of CVD: hypertension, cigarette smoking, elevated serum cholesterol and obesity.
- salt reduction and physical activity for the control of hypertension.

Policy actions

- Promote awareness of major risk factors of CVD such as hypertension, elevated serum cholesterol, cigarette smoking and physical inactivity leading to obesity.
- Promote public health policies aimed at decreasing cigarette smoking, promoting physical activity and healthy eating.
- Support primary prevention strategies.

- **Depressive Illness**

Increase your knowledge about the importance of:

- involving yourself in a healthier and more active life style - physically, mentally and socially.
- seeking support and seeking counselling at critical times of loss and crisis.

- Increase economic provision for the older people to enable social and leisure activities.
- Train health care providers to diagnose depressive illness and to effectively treat the illness.

- **Benign Prostate Hypertrophy (BPH)**

Increase your knowledge about the importance of:

- the symptoms of this progressive disease of ageing males.
- available treatment and procedures that can effectively manage most patients.

- Increase professional and community education on BPH so that patient's reluctance to report symptoms and seek medical care is reduced.

- **Urinary incontinence**

- Increase your awareness that urinary incontinence is a treatable condition.

- Increase public awareness of symptoms of incontinence to encourage those afflicted to seek professional help.

- **Osteoporosis**

- Increase your knowledge about the importance of giving up smoking, exercising regularly and avoiding excessive alcohol consumption for significantly reducing the occurrence of osteoporosis.

- Focus on promoting regular physical exercise, smoking cessation, reducing excessive alcohol consumption and taking adequate calcium and vitamin D.

- **Erectile dysfunction**

- Increase your knowledge that sexual interest, capacity and pleasure can be maintained throughout life.

- Support research focused on how to maintain healthy sexual life among older men.

Main Cancers**Actions aimed at the individual****Policy actions**• **Lung cancer***Increase your awareness that:*

- lung cancer is the most frequent cause of death from cancer among men and 90% of all cases are caused by cigarette smoking.

- Comprehensive anti-smoking strategies should become a top public health policy and should include increasing tax on cigarettes, smoking cessation programmes and prohibition of cigarette advertising.

• **Stomach cancer***Increase your awareness that:*

- stomach cancer is one of the leading cause of cancer death in both sexes.
- hygiene improvement in food preparation and appropriate food preservation reduce the risk of stomach cancer.
- early detection reduces mortality risk.

- Increase consumer awareness not to take food that is badly prepared and preserved.
- Support availability of correctly prepared and preserved food at affordable price.

• **Prostate cancer***Increase your awareness that:*

- prostate cancer is one of the leading causes of cancer deaths in men.
- not all prostate cancers are aggressive and the risk of dying from prostate cancer is much lower than dying with this disease.

- Promote national/ multi-national research to help investigate best detection practices and subsequent therapeutic options.

• **Colorectal cancer***Increase your awareness that:*

- for the prevention of colorectal cancer it is important to consume a diet rich in fruit, vegetable, calcium, vitamin A, C and E and avoid high calorie consumption.
 - it is important to maintain your body weight.
- it is important to take regular advice on screening strategies from health professionals.

- Promote the awareness of the diets that protect against and aggravate the disease.

Immunization	<u>Actions aimed at the individual</u>	<u>Policy actions</u>
	<p>Increase your awareness that immunization can prevent the onset of flu, pneumonia, tetanus typhoid and hepatitis B.</p>	<ul style="list-style-type: none"> • Ensure awareness of the diseases that can be prevented by immunization. • Provide specific immunization services for older people free of charge.
Social Integration	<p><i>Increase your knowledge about the importance of:</i></p> <ul style="list-style-type: none"> ▪ staying involved in your family and your community (for instance through a club or the involvement in a religious organization). ▪ continuing self-education throughout your life. 	<ul style="list-style-type: none"> • Promote social cohesion and intergenerational solidarity. • Provide access to life-long education. • Implement legislation to protect the rights of the older members of society and to prevent discrimination. • Educate the public about the negative attitude and practices resulting in social exclusion for older people. • Promote mental health
Income Security	<ul style="list-style-type: none"> ▪ Increase your knowledge about the public and private measures intended to protect income security over the life course. 	<ul style="list-style-type: none"> • Provide income security and access to appropriate health care for older person. • Fight age discrimination in the work place.

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