

CHAPTER 1

DEVELOPMENT AND PRACTICE OF GERIATRIC MEDICINE

Tak-kwan KONG

OBJECTIVE

To learn the “what”, “why”, and “how” of geriatric medicine; the origin of geriatric medicine and its development in Hong Kong; global and local ageing demographics; biological ageing and frailty; the unique aspects of the history, physical examination, and diagnosis in elderly people including the altered / atypical presentation of disease, the multifactorial nature of illness, and multiple pathology; the need for a comprehensive geriatric assessment and holistic approach, as well as a model of geriatric practice.

KEY POINTS

- Elderly people are heterogeneous and encompass a broad spectrum from fit to frail.
- Biologically aged patients are characterised by frailty and complexity.
- When stressed by illness, drugs, and adverse social factors, frail elderly persons readily present with geriatric syndromes (including the classic “geriatric giants”: intellectual decline, instability, immobility, and incontinence) with functional decline.
- An apparent “social problem” may represent a social crisis precipitated by disease(s) yet to be diagnosed.
- A comprehensive geriatric assessment means knowing an elderly person in all dimensions; it is the cornerstone of geriatric medicine.
- Make a problem list instead of a diagnosis in a frail elderly individual.
- Do not ignore functional assessment.
- Question both the elderly individual and his / her caregiver.
- The essence of geriatric medicine is to assess and treat the medical and rehabilitative needs of elderly people. This is accomplished by establishing the problems, identifying their causes, treating conditions that are treatable, correcting deficiencies that can be corrected, and compensating for what cannot be corrected.
- The aims of a geriatric service are: to maintain health in old age by continuing social engagement and avoiding disease; enabling early detection and appropriate treatment of disease; maintaining maximum independence in the presence of irreversible disease and disability; and providing sympathetic care and support during terminal illness.

1.1 Historical Background

1.1.1 Origin of Geriatric Medicine

The history of geriatric medicine can be traced to the Industrial Revolution of the 19th century, when the poor and the aged sick were kept in workhouses, leading miserable and monotonous lives in gloomy environments. This is depicted vividly in a painting by Hubert von Herkomer titled “Eventide” (see inside of front cover). “Eventide” depicts inmates of the St. James’s Workhouse in Soho, London in 1878. Workhouses were the last resort of those — often the old — who through extreme poverty were unable to support themselves. von Herkomer was drawn to the subject because of his sympathy for what he called

“the sorrowful side of humanity”.¹

Many workhouse inmates were stricken by illnesses but the prevailing attitude of the time was that nothing further could be done. A turning point occurred in 1935 when Marjory Warren was given the medical responsibility for one such workhouse infirmary in London where primarily elderly patients were labelled as “incurable”.² With enthusiasm, optimism, and hope, she showed the medical profession that something could be done, and published her work in the 1940s.^{3,4} She noted that elderly patients were heterogeneous and thus assessed and classified them according to their mobility, continence and mental state, as well as addressing their underlying

problems. In this way, she introduced comprehensive geriatric assessment (CGA) and rehabilitation, and managed to discharge some of the institutionalised elderly people back to the community. Thus geriatric medicine arose in the UK 80 years ago in reaction to an attitude of neglect and apathy towards elderly patients who were thought to be incurable and thus abandoned in chronic infirmaries where they were obliged to spend their remaining years. The need for a positive attitude in the medical care of elderly people was expressed by Ignatz Nascher when he coined the name “Geriatrics” in 1909⁵: “Geriatrics, from *geras*, old age, and *iatrikos*, relating to the physician, is a term I would suggest... to emphasise the necessity of considering senility and its diseases apart from maturity and to assign it a separate place in medicine.” Since Marjory Warren showed that many elderly patients had conditions from which they could often be cured or rehabilitated, the specialty of geriatric medicine has continued to grow and an impressive knowledge base has been accumulated.^{6,7} This, combined with increasing expertise in the interdisciplinary treatment and assessment of elderly patients and in ensuring that health and social services work in a coordinated fashion, has improved the care of ill elderly people.

1.1.2 Development of Geriatric Medicine in Hong Kong

Although the origin of geriatric medicine has traditionally been associated with the work of Marjory Warren in London from the late 1930s, a parallel development of geriatric medicine was emerging simultaneously in Glasgow led by Noah Morris, Professor of *Materia Medica* and Therapeutics at Glasgow University, with its clinical unit at Stobhill Hospital.⁸ From this cradle of geriatrics in Glasgow emerged three of the first Professorial Chairs of Geriatric Medicine in the UK, and two Presidencies of the British Geriatrics Society — Ferguson Anderson, Bernard Isaacs and John Brocklehurst, who in turn, have served respectively as the mentors of three Presidents of the Hong Kong Geriatrics Society (HKGS) — Sik Chan, Ngai-sing Ng, and Tak-kwan Kong. The development of geriatric medicine in Hong Kong is thus closely tied to that of Glasgow.⁹

To plan the new establishment of geriatric services in Hong Kong, Sik Chan was sent by the Hong Kong Government to the UK from late 1973 to early 1974 to see how British geriatric services were organised.^{9,10} He stayed mainly at Stobhill Hospital with Ferguson Anderson and returned to establish the first geriatric unit in Hong Kong at Princess Margaret Hospital (PMH) in 1975 following the model of geriatrics in Glasgow,⁹ himself becoming the first consultant geriatrician in Hong Kong. Sik Chan, together with his followers, founded the HKGS in 1981 as

a professional association in the field of geriatric medical care, and was elected the first President of the HKGS. The Glasgow connection was further strengthened by Yun-cheong Lee, who visited Stobhill Hospital in 1979. In his subsequent role as the first Honorary Secretary of HKGS, he invited the Glaswegian professors in geriatric medicine to share their experience and expertise at the annual scientific meetings of the HKGS in the early 1980s. Yau-yung Ng, the second consultant geriatrician at PMH, visited Francis Caird and Brian Williams at Stobhill Hospital in 1982, and paved the way for future specialist training in geriatric medicine for medical staff of the new geriatric unit. Yau-yung Ng succeeded Sik Chan as the second president of HKGS in 1984, and became the first Honorary Clinical Lecturer in geriatric medicine at the University of Hong Kong (HKU) in 1979. Since then, geriatric medicine has been included in the undergraduate curriculum. Clinical bedside teaching in geriatrics for HKU medical students commenced at PMH in 1981 and in 1988 for the Chinese University of Hong Kong that appointed its first professor in geriatric medicine in 1994, Jean Woo. The HKU appointed its first clinical associate professor in geriatric medicine in 2014, Joseph Shiu-kwong Kwan, mentee of Professor Steven Allen of Bournemouth University who lectured under Professor John Brocklehurst of the University of Manchester in the mid 1980s.

Over the years, a steady stream of medical staff from Hong Kong has received higher training in geriatrics both locally and from overseas geriatric departments, mainly in the UK, but also in the US, Australia, New Zealand, and Canada. For the UK, centres of excellence in geriatric medicine in Glasgow¹¹ (under Dr Brian Williams, Professors Francis Caird and David Stott) and Manchester^{12,13} (under Professors John Brocklehurst, Raymond Tallis, and Michael Horan) have nurtured a significant number of geriatricians in Hong Kong. Other training centres in geriatric medicine in the UK to whom local geriatricians have been attached include those in Birmingham, Bournemouth, Cambridge, Cardiff, Edinburgh, Leeds, London, Newcastle, and Oxford.

Since the inauguration of the Hong Kong Academy of Medicine in 1993 to oversee structured specialist training in Hong Kong, the HKGS has been recognised by the Hong Kong College of Physicians (HKCP) as the professional society to advise on higher specialist training in geriatric medicine. In 1993, Ngai-sing Ng, the then President of the HKGS and Jean Woo, the Chairman of the HKCP Subspecialty Advisory Committee (renamed Specialty Board in 1996) in Geriatric Medicine, contributed the first framework for training guidelines in geriatric medicine in Hong Kong.^{14,15} The number of specialists in geriatric

medicine has grown from one in 1975 to 191 in 2017. In 2000, the HKGS and the HKU introduced the Postgraduate Diploma in Community Geriatrics to further the knowledge and skills of general practitioners and family physicians.¹⁶ The HKGS also facilitated the establishment of the first overseas centre for the Diploma in Geriatric Medicine (Glasgow) examination in Hong Kong in June 2005.

Hospital-based community geriatric assessment teams have been set up since 1994 to provide timely assessment of frail elderly people before residential placement, as well as to provide outreach support to residential care homes. Although most of the older geriatric units in Hong Kong developed separately from medical departments, integration of geriatric medicine with internal medicine has been the direction of the Hospital Authority so that new geriatric services operate under internal medicine. Structural reorganisation towards integration has

occurred for the older geriatric units since 1994. Integrated discharge support programmes with close collaboration between the hospital geriatric team and non-governmental organisation home support team have been rolled out since 2008. Their role is to enhance the function and quality of life of elderly individuals living at home after hospital discharge through early service coordination to address post-discharge support and provision of timely home care and geriatric services.

1.2 Epidemiology of Ageing and Its Impact

1.2.1 Global Ageing

The global elderly population (≥ 65 years) is projected to grow considerably in both absolute and relative terms in the coming three decades, primarily because of a historical decline in fertility and mortality.¹⁷ The gain in life expectancy since the early 1800s has

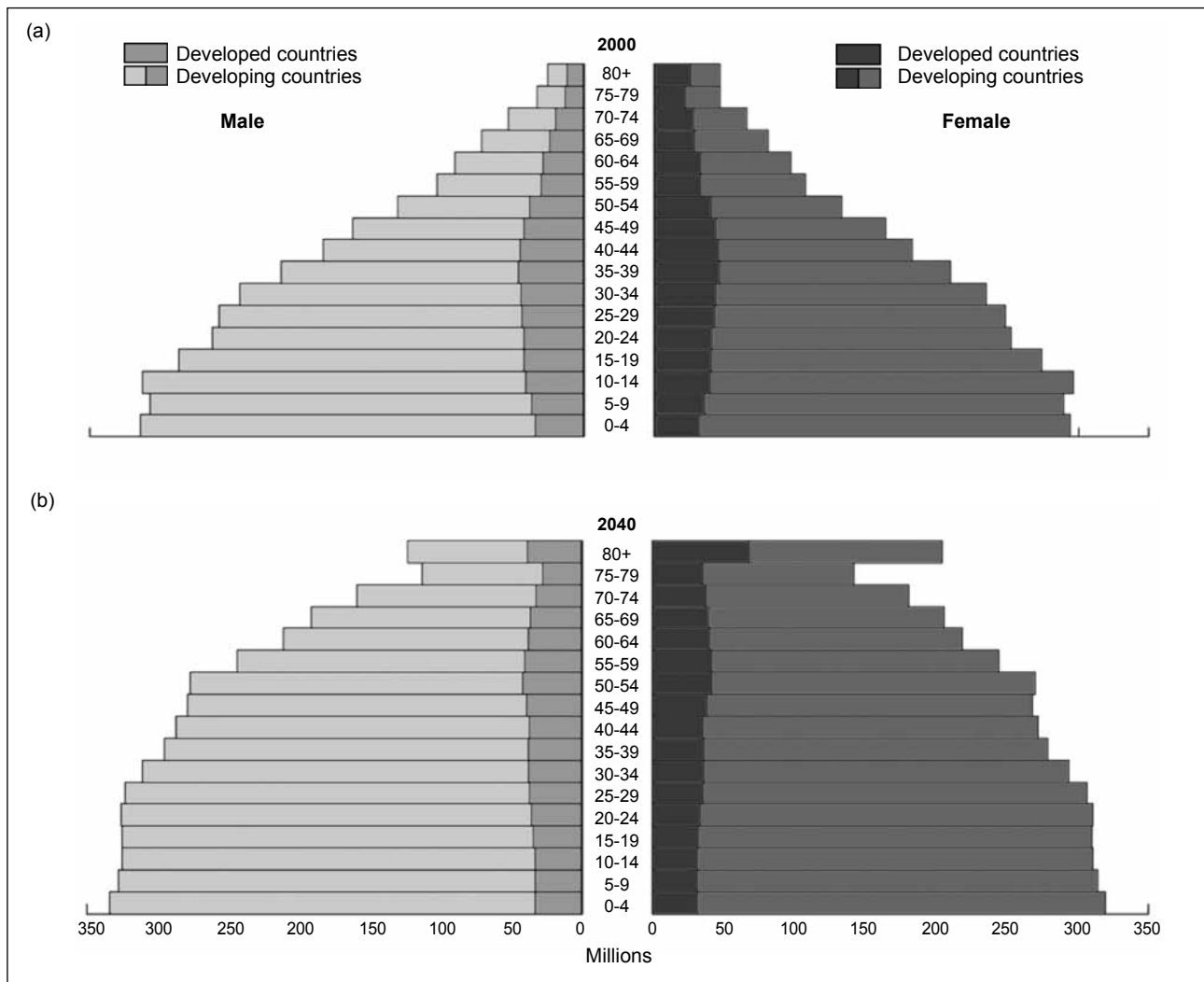


Figure 1.1 Pyramids of global population: (a) 2000 and (b) 2040, showing rapid growth for developing countries and higher growth rates at higher ages¹⁷

been attributed to advancements in nutrition, public health, medicine, socioeconomics, and education.

In 2008, the global elderly population was 506 million people aged ≥ 65 years, but is projected to increase rapidly to 1.3 billion by 2040. Similarly, the relative size of the elderly population is expected to double from 7% of the global population in 2008 to 14% by 2040.¹⁷ Growth of the elderly population is especially marked in developing countries (Figure 1.1¹⁷) and among the older age-groups (Figure 1.2¹⁷). Ageing impacts everything from a microscopic to a macroscopic level: genes, cells, organ systems, medicine, society, economics, and ethics.

1.2.2 Ageing in Hong Kong and Its Impact

In 2010-15, the global total fertility rate was 2.52

births per woman and the overall life expectancy at birth in 2015 was 71.4 years (73.7 years for female and 69.1 years for male)¹⁸; the corresponding figures for Hong Kong in 2016 revealed a much lower fertility rate of 1.205 births per woman, but a higher life expectancy at birth of 87.3 years for females and 81.3 years for males.¹⁹ The elderly population (aged ≥ 65 years) in Hong Kong has risen from 4.5% of the total population in 1971 to 14.6% in 2015 with a number of one million, and this is expected to rise further to 24% by 2031 and a population of two million (Figure 1.3¹⁹).

Contrary to a somewhat ageist misconception, those who have reached their birth life expectancy can still live for a further significant number of years; the life expectancy of a woman in 2016 at the age of 80 years was 12.25 years in Hong Kong, while the life expectancy of an 80-year-old man was, on average, 9.40 years.²⁰ Since the prevalence of illness and disability rises with age, the growth of elderly population, particularly those in the older-old group (≥ 75 years) has important implications for health and social services. As demonstrated in the figures for hospital utilisation in Hong Kong, elderly people are over-represented in hospital populations. In the year 2006, the ≥ 65 age-group, which constituted 12.4% of the Hong Kong population (Figure 1.4a¹⁹), accounted for 49.0% of patient-days utilised in public hospitals

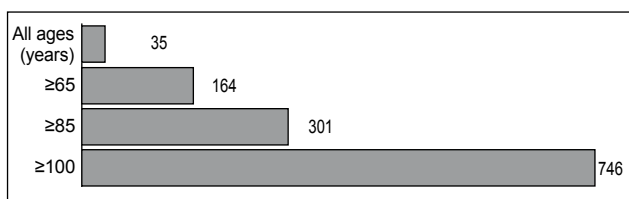


Figure 1.2 Percentage change in the world's population: 2005 to 2040¹⁷

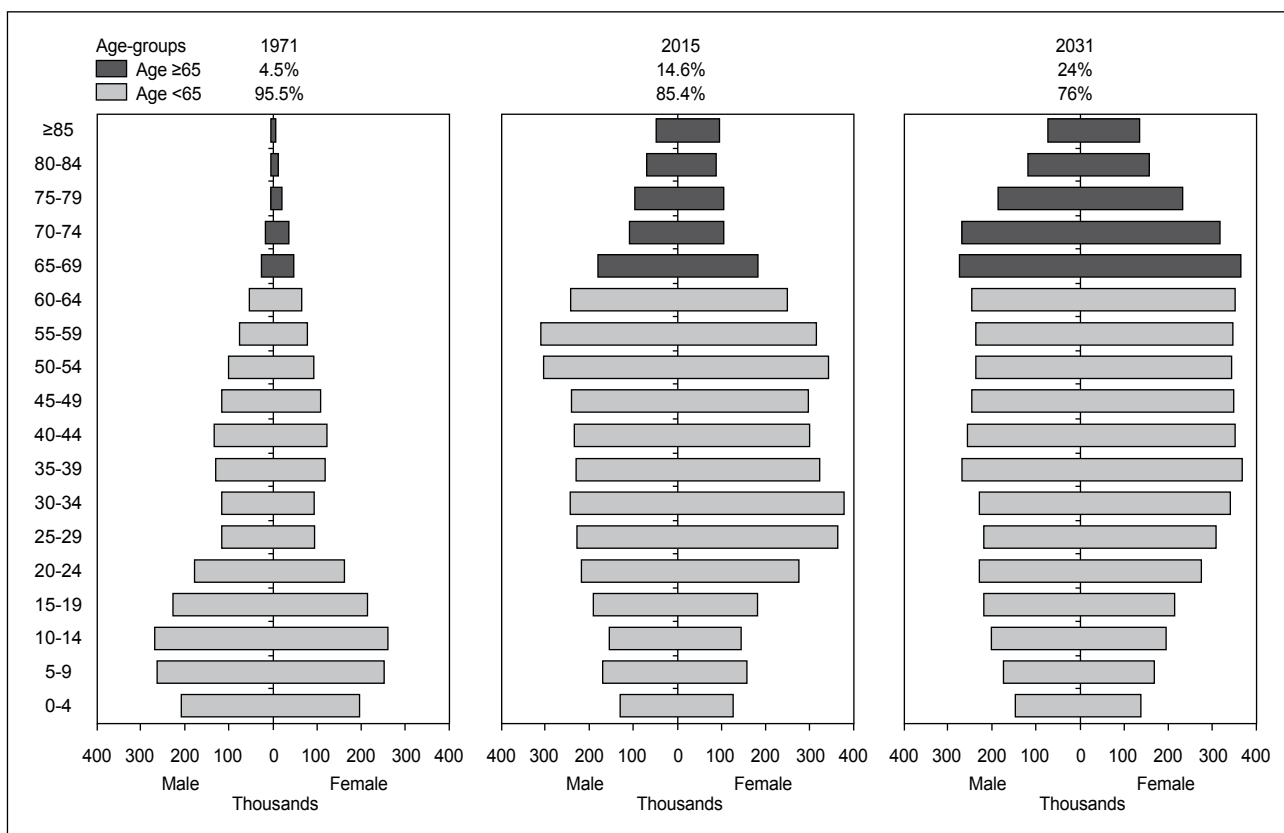


Figure 1.3 Hong Kong population age pyramids: 1971-2031¹⁹

(Figure 1.4b²¹). Within the ≥ 65 age-group, the hospital consumption per person per year rises rapidly with increasing age: those aged ≥ 85 years spend on average 10 days a year in hospital, compared with 4-5 days a year for those aged 75-79 years, and 2 days a year for those aged 65-69 years (Figure 1.4c). This contrasts sharply with the low hospital utilisation rate of under 1 day a year for adults aged <45 years.

Knowledge of these differential hospital service requirements of the age-sex distribution of elderly population is important when planning hospital utilisation, and draws attention to the rapidly expanding ≥ 75 age-group in future hospital planning for elderly services.^{22,23} The hospital bed-days consumed by the ≥ 65 age-group is estimated to rise from 4.79 million to 8.78 million (an increase of 83%) between 2015 and 2031, with a corresponding rise for the ≥ 75 age-group from 3.43 million to 5.85 million (an increase of 71%). By 2031, the ≥ 65 age-group is projected to consume 69.1% of patient-days in public hospitals while the ≥ 75 age-group will consume 44.1% (Figure 1.5), a challenge to the hospital services in Hong Kong.²¹

1.2.3 Ageing in Asia

As shown in Plate 1.1, the relative size of the

elderly population (aged ≥ 65 years) was largest in the developed countries in 2008, but by 2040, high proportions of elderly people are expected to be found throughout much of the less-developed world.¹⁷ Growth of the elderly population from 2015 to 2030 is projected to be faster in Asian countries, at an annual growth rate of 3.5-4%, more than double that in developed countries (1.5-2%).¹⁷ Ageing in Asia is particularly dramatic for China: between 2000 and 2050, the proportion of people aged ≥ 65 years is expected to rise from 7% to 23%. This grand demographic change poses a challenge to the healthcare of elderly people, who will number more than 332 million in 2050 in China, far greater than the combined elderly populations of North America, Europe, and Japan.^{24,25} In 2008, Japan became demographically the oldest of the world's major nations: 21.6% of all Japanese were aged ≥ 65 years. The top two countries in terms of the absolute size of the 65 years-and-over population in 2008 were China and India at 106.1 and 59.6 million, respectively.¹⁷

Although societies in geriatric medicine have been established in a number of countries in Asia, the development of geriatric medicine as a specialty is lagging behind, and out of pace with the ageing population in the region. In 1998, China, Hong Kong,

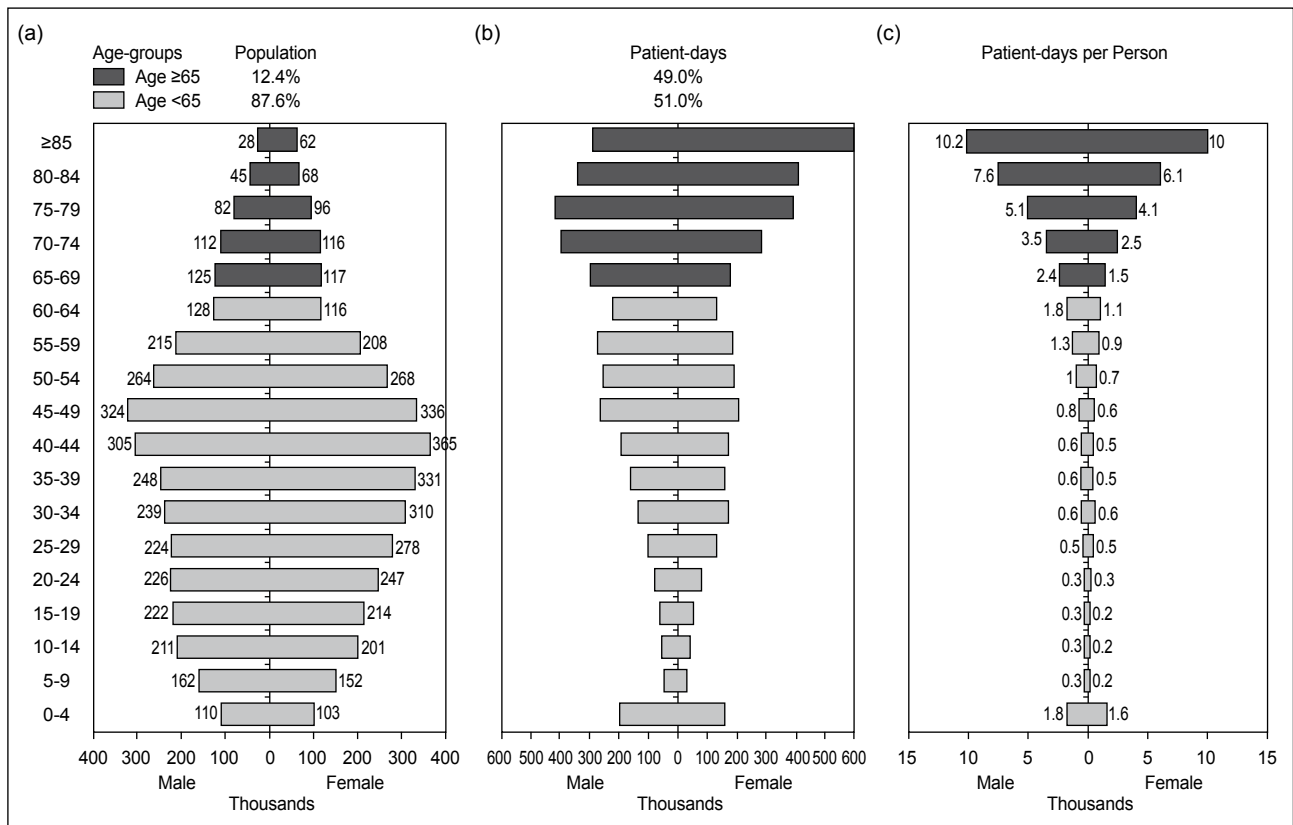


Figure 1.4 Hospital utilisation by Hong Kong population in 2006 by age-groups and sex. (a) Hong Kong population age pyramid 2006.¹⁹ (b) Patient-days consumed in public hospitals by Hong Kong population in 2006.²¹ (c) Patient-days consumed in public hospitals by each person in Hong Kong in 2006 (derived by dividing figures in Fig 1.4b by figures in Fig 1.4a)

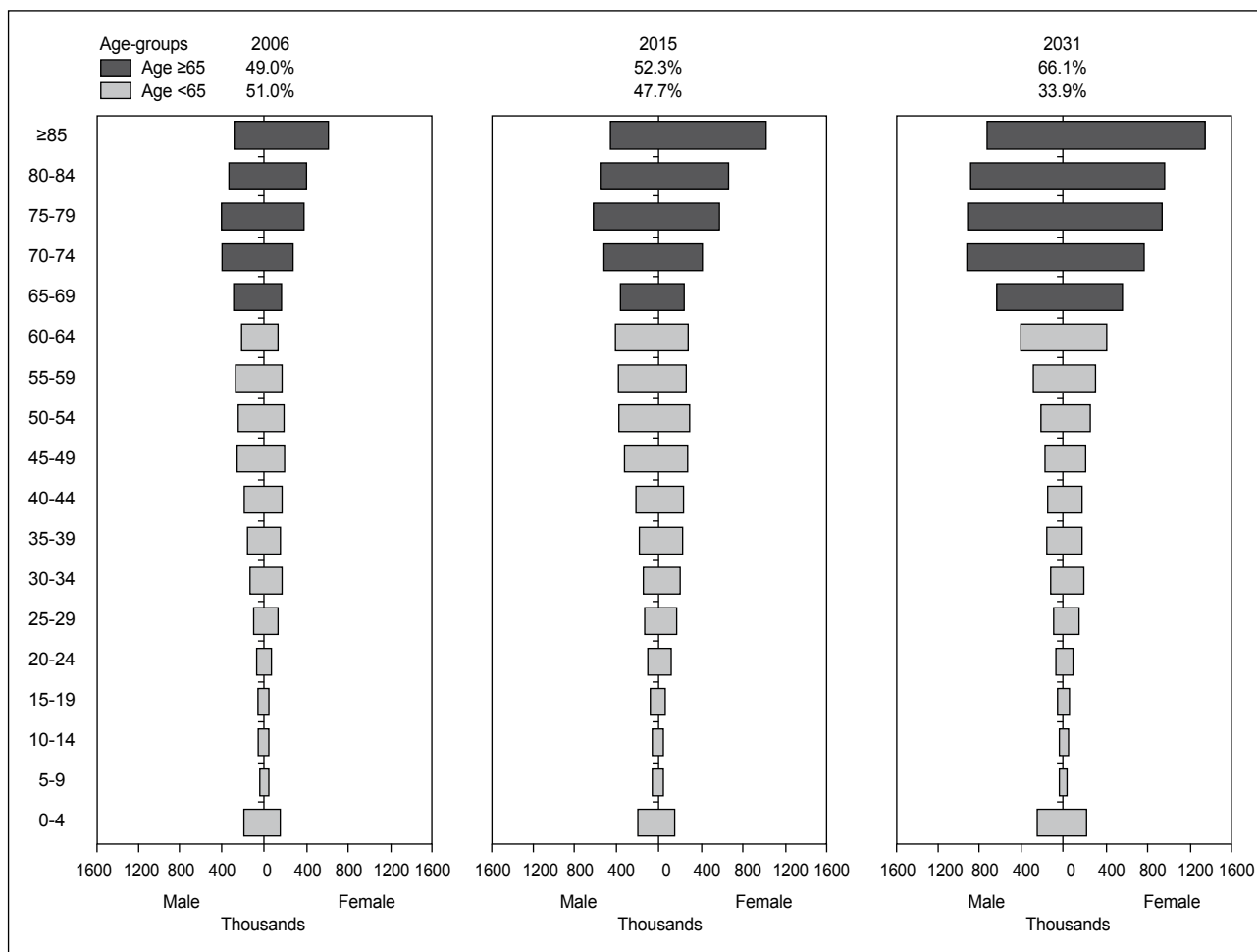


Figure 1.5 Hospital utilisation (patient-days) by Hong Kong population in 2006, and projected for 2015 and 2031²¹

India, Indonesia, Japan, the Philippines, Singapore, South Korea, Taiwan, and Thailand collaborated in a research study on the status of geriatric medicine in Asia. During the course of the study, the collaborators formed the Geriatric Medicine in Asia Working Group, with the objective to initiate and stimulate academic and collaborative activities among geriatricians / gerontologists in Asia, thereby promoting the development of geriatric medicine in Asia. The first informal meeting was held during the 6th Asia / Oceania Regional Congress of Gerontology in Seoul, South Korea in June 1999.²⁶ The collaborative study revealed that, except for a few countries, geriatric medicine was relatively underdeveloped in Asia. Important barriers to its development were identified: low perception, economic issues, and training issues. In 2005, geriatricians from Hong Kong, Malaysia, and Australia held an informal meeting in Hong Kong to prepare for the establishment of a network of geriatricians in the Asia-Pacific region. In 2006, the first Asia-Pacific Geriatric Conference was held in Kuala Lumpur, Malaysia. During the Conference,

a network of geriatricians in the Asia-Pacific region was set up with the aim of promoting development of geriatric medicine in the region. Australia, China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan, and Thailand have joined the network and regular Asia-Pacific Geriatric Conferences have been held ever since.

1.3 Biological Ageing and Its Clinical Implications

1.3.1 Frailty and Geriatric Syndromes

Demographic trends and the age distribution of illness make it unrealistic for one specialty, geriatric medicine, to care for all elderly people. The hallmark of ageing is heterogeneity, aptly described by Bernard Isaacs, "Most old people are young people in old bodies. Some young people are old people in young bodies." The spectrum of elders from the fit to the frail is illustrated in Figure 1.6, and the challenge of health and social care in the face of an ageing population is to minimise the conversion from fitness to frailty and

hence the proportion of frail elders.

What kind of elderly people, therefore, should geriatricians ideally manage? The best definition of a geriatric patient is one who exhibits the features of biological ageing.²⁷ The term “biological ageing”, in contrast to “chronologically ageing”, is emphasised because not all patients age at the same rate. Such biologically aged patients are characterised by frailty and complexity.

Frailty²⁸ is a failure to integrate responses in the face of stress, so that functions that require integration of higher brain processing, such as maintaining balance,

walking, and intellect, are more likely to fail when stressed by disease. This results in the four “I’s” of geriatrics — immobility, instability (falls), intellectual impairment (confusion), and incontinence — the “giants of geriatrics”, a term coined by Bernard Isaacs²⁹ to embrace the “common final pathway” of the clusters of acute and chronic diseases that frequently afflict very old people, with a gigantic impact and yet often ignored. These “I’s” of geriatrics have subsequently been expanded by geriatricians to include the geriatric syndromes³⁰⁻³³ commonly encountered in clinical practice; they share common social risk factors and clinical characteristics (Table 1.1). Early recognition of these geriatric syndromes by geriatric assessment will reduce the development of disability in elderly persons (see Chapter 2).³³

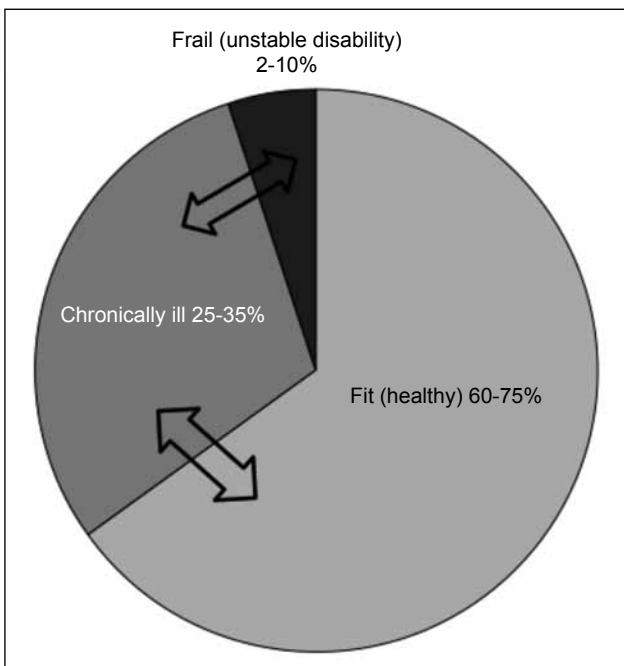


Figure 1.6 Heterogeneity in an elderly population

Because of declining homeostatic mechanisms and adaptive capacity, frail elderly persons readily lose equilibrium when stressed by illness, drugs, or adverse social factors and present with functional decline (Figure 1.7). The consequences of biological ageing are complex but the most important clinically relevant aspects are: atypical presentation of disease, multiple pathology and multiple aetiologies, disabilities, and adverse social factors.

1.3.2 Atypical Presentation of Disease

Although diseases in fit elders may present with classic features of a single system disease, similar to those of their younger counterparts and described in textbooks for younger adults, altered presentations are common among frail elders, often described as “atypical” when referenced to younger adults.

1.3.2.1 Geriatric Presentation

A disease in a frail elder may result in decompensation with onset of one or more of the major geriatric

Table 1.1 Geriatric syndromes: their social risk factors and common features²⁹⁻³³

Geriatric syndrome	Social risk factor	Common feature
Original geriatric giants ²⁹		
• Immobility	• Isolation	• Gigantic number
• Instability (falls and fractures)	• Ignorance	• Gigantic impact (loss of independence)
• Incontinence	• Impecunity (poverty)	• Complex (multiple causes, no simple care)
• Intellectual impairment (cognitive dysfunction, delirium, dementia)	• Informal care with inadequate support	• Inter-related and interacting
Subsequent additions ³⁰⁻³³		• Ignored (inverse care law)
• Iatrogenesis		
• Impaired vision / hearing		
• Immune deficiency		
• Ill-treatment (inadequate care, elder abuse)		
• Irritable colon		
• Insomnia		
• Impotence		
• Frailty		
• Sarcopenia (muscle dysfunction)		
• Failure to thrive (malnutrition, anorexia, weight loss)		
• Depression		

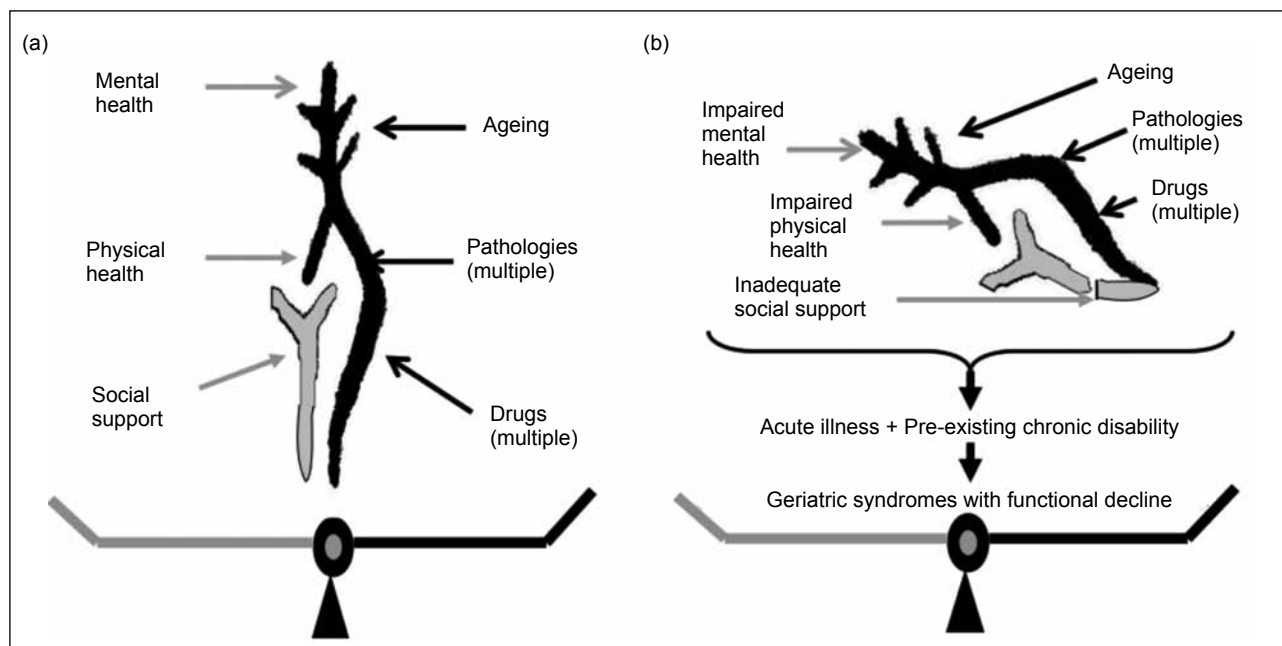


Figure 1.7 The frail elderly figureperson, represented by (a) the ancient Chinese character for “old”, is in unstable equilibrium, converting to (b) the biologically aged patient when stressed

syndromes (Table 1.1). The global manifestation, e.g. confusion, falls, may overshadow features of the focal disease, e.g. pneumonia, myocardial infarction, and divert the focus of the attending doctor from the probable diseases that underlie these global manifestations, e.g. ordering a computed tomographic brain for confusion, X-rays for injuries after a fall.

1.3.2.2 Silent Presentation

A depressed inflammatory response and impaired visceral pain perception — secondary to ageing, disease and drugs — may mean that infections in old age are associated with an absent, blunted, or delayed fever response; myocardial infarction and peptic ulcer can be painless. Nonetheless, Roy Fox has cautioned that “Illness is silent only because the physician is not listening. The patient may be screaming, ‘I have pneumonia’, but the physician is deaf. It is an acquired deafness from the influence of formal training and the society in which we live.”³⁴

1.3.2.3 Pseudo-silent Presentation

In the pseudo-silent presentation,³⁵ an elderly patient’s complaints and change in status are falsely attributed to ageing or social problems. Problems that require medical treatment are not entered into a careful diagnostic approach but managed with social measures, such as referral for institutional care. The fallacy of the prejudicial label “social problem” is best expressed in Bernard Isaacs’ words: “If a patient falls and breaks his femur, that is a medical problem. If a patient falls and does not break his femur, is that

a social problem? Elderly patients are admitted to hospital not because of social problems, but because of medical problems with social consequences, or social problems with medical consequences.”²⁹ Research has revealed the high prevalence of undiagnosed medical conditions among elderly people prior to entry to care homes.^{36,37}

1.3.2.4 Masked Presentation

Presentations of diseases may also be masked by the common occurrence of multiple pathologies in old age (e.g. diagnosis of tuberculosis masked by pre-existing lung cancer or heart failure), and the tendency to prescribe symptomatic treatment without an exact diagnosis, e.g. non-steroidal anti-inflammatory drugs—masked gout, culture-negative infective endocarditis, B₁₂ deficiency masked by symptomatic blood transfusions.

1.3.2.5 Missed Presentation

The altered presentation of diseases in old age accounts partly for the literature reports of very late diagnosis of common diseases in old age,³⁸ at autopsy,³⁹ or retrospectively after an infectious outbreak had occurred with disastrous consequences.^{40,41}

1.3.3 Multiple Pathologies and Multiple Aetiologies

Elderly people often have multiple pathologies, accumulated from a young age or developing in old age. Apparent inactive past medical problems can be relevant to an elder’s present illness, e.g. an elder

who adapted well to his past poliomyelitis would have coping problems after a stroke, intolerance to aspirin may result from the development of a stomal ulcer from previous gastrectomy. While multiple pathologies can result in multiple complaints, a single complaint may well be due to multiple aetiologies, e.g. dyspnoea due to the coexistence of anaemia, pulmonary tuberculosis, and heart failure. Ultimate improvement in dyspnoea thus requires diagnosis and treatment of the underlying multiple aetiologies. Organ system specialisation may mean that an elder with several pathologies is attended by several specialists, and prescribed multiple medications; the consequent drug-drug and drug-disease interactions may have unfavourable outcomes for a frail elder.

1.3.4 Disability

In addition to common disabling illnesses in old age such as arthritis, strokes, and fractured hips, the consequent geriatric syndromes often interact and result in further deprivation of independence and functional decline. Multiple pathologies and the global impact of focal disease add to the burden of chronic disabling disease in old age, while the presence of adverse social factors further increases the handicap.

1.3.5 Adverse Social Factors

Research by medical sociologists has shown that the presence of any one of isolation, ignorance, and poverty has an adverse effect on ageing. Geriatric syndromes may arise from the interaction of medical diseases with breakdown of social support systems. With the trend towards community care for elders, Challis et al³⁷ have warned that an emerging geriatric giant is “informal care”. Proper preparedness is much needed in community care support so that “informal care” is not replaced by another “new” geriatric giant, “inadequate care” or elder abuse.⁴²

1.4 Geriatric Approach

1.4.1 Limitations of the Single Organ-system Approach in the Care of Biologically Aged Patients

In contrast to the younger adult in whom presenting problems can often be explained by one single disease (the dictum “one patient, one disease”), the biologically aged patient characteristically has multiple causes for their presenting problems. Ageing, disease, and treatment interact with one another to modify the pattern of illness (Figure 1.8). Economy of diagnosis or trying to link all problems to a single aetiology cannot be the guiding principle when treating an elderly individual. Because of their complexity, geriatric problems are seldom amenable to a simple solution, and are often frustrating to those tuned to singular presentations capable of a single

diagnosis. Thus, a biologically aged patient may have multiple complaints without a single major complaint, and even a major complaint may not relate to the most overt or most serious identifiable disease. Pitfalls in diagnosis²⁹ (Table 1.2⁴³) and management are prone to occur if a geriatric perspective is not taken, resulting in abusive diagnostic labels like “senility” and “social problem” instead of exact diagnoses, as well as the tendency to prescribe symptomatic treatment instead of treatment targeted at underlying causes. Such symptomatic treatment may even carry the risk of iatrogenesis in acutely hospitalised elderly patients (Figure 1.9).

1.4.2 Model of Care for Biologically Aged Patients

The response to the complex situation of the biologically aged ill person (with multiple diseases, multiple needs, and a multifactorially determined state) must be correspondingly complex. It is not sufficient to identify acute illnesses and deal with them medically in a narrowly defined sense. The essence of geriatric medicine as a specialty is to assess and treat the medical and rehabilitative needs of older people. Every ill person deserves a diagnosis. This is carried out through a process known as CGA. In simple terms, CGA is the process of knowing a frail elderly person, whose health is a delicate balance (Figure 1.7) of factors that impair well-being (ageing,

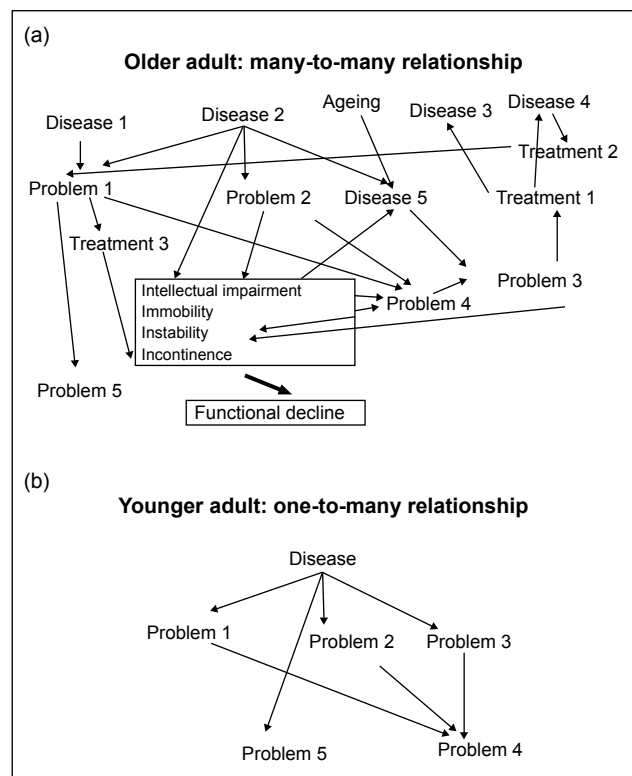


Figure 1.8 The complexity of illness in (a) the older adult compared with (b) the younger adult

Table 1.2 Diagnostic pitfalls in old age⁴³

History taking	<ul style="list-style-type: none"> • “Poor historians”⁴³ • Multiple “vague” complaints • Attempting to get a “typical history” • Ignoring geriatric syndromes • “Atrophy of the question mark” (doubt converted to certainty) • Ignoring old notes • Neglecting medication history • Ignoring functional assessment • “Social / placement” problem • Neglecting relatives / carers interview • Ignoring the elder and asking relatives / carers only
Physical examination	<ul style="list-style-type: none"> • Over-interpretation of normative changes of ageing (e.g. crepitations) • Areas infrequently inspected (e.g. pressure sores, napkin rash, toe nails, soles, mouth / dentures, eyes and ears, palpable bladder, rectal examination [for faecal impaction], scars) • Not examining the patient out of bed (gait)
Investigation	<ul style="list-style-type: none"> • Under-investigation (e.g. under-use of biopsy / histological confirmation) • Over-investigation <ul style="list-style-type: none"> ◦ Over-reliance on investigations (especially diagnostic imaging) ◦ Use of “screening” biochemical test battery • Interpreting tests in old age <ul style="list-style-type: none"> ◦ ? Normal for population ◦ ? Normal for individual (“comfort range”) ◦ False-negative finding may be due to faulty procedure ◦ Abnormal finding may not be clinically significant / relevant ◦ Age-related changes

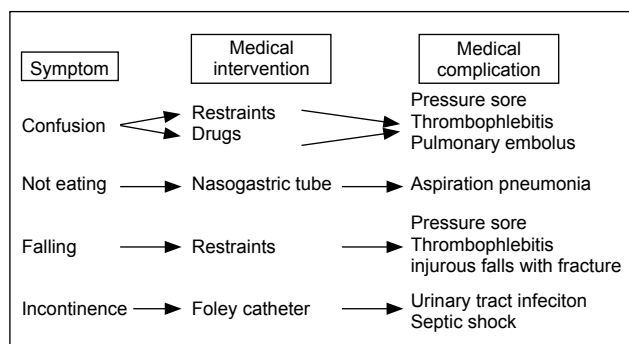


Figure 1.9 Complications of acute hospitalisation

multiple pathologies, multiple drugs) and those that promote well-being (mental health, physical health, and social support). CGA requires an assessment of the four domains of functional ability: physical health, cognitive and mental health, and socio-environmental factors (see Chapter 2).

Although geriatric medicine originated from the long-term care setting, its success in tackling the problems of frail elders led to the earlier involvement of geriatricians in the acute phase of their illness. In the progressive care model, separate acute / rehabilitation / long-term settings and facilities are made available for patients at different stages of their illness and treatment programme.⁴⁴

The acute geriatric patient can be defined on a need-related basis as²⁷: residents of residential care

homes for elders (signifying a degree of physical and / or mental frailty); acute presentation with confusion, poor mobility, falls or incontinence; long-standing confusion, poor mobility, falls or incontinence; presenting with specific conditions that require intensive rehabilitation, e.g. stroke; multiple pathologies and thus multiple medications; and those previously under the care of a geriatric specialist.

Effective CGA programmes in the acute care of a geriatric patient will require a multidisciplinary team, involving not only doctors and nurses but also therapists and social workers, working closely together, and tight coordination of hospital-based and community-based resources. This kind of organisation of services is rarely found in acute medical or surgical wards where the emphasis is, understandably, on the management of acute illness based on single organ resuscitative treatments and single interventions. The integrated medicine and geriatrics model, as practised in many local hospitals, will not work properly without a supportive ward environment and multidisciplinary team. Pooled or scattered beds are not the answer, as this will fragment the multidisciplinary team and undermine the close working relationships that are essential to the care required by geriatric patients.^{21,45}

1.5 Geriatric Medicine and Geriatric Services

Geriatric medicine is the branch of general medicine concerned with the healthcare of older people.⁴⁶ The Royal College of Physicians has defined geriatric

medicine as follows: “It is in the nature of illness in elderly people that several diseases may co-exist, interact, and manifest in non-specific and atypical ways, social and psychological problems may be prominent, functional handicap readily appears, and recovery may take longer than in younger people. The essence of geriatric medicine is to establish what the problems are, identify their causes, treat conditions that are treatable, correct deficiencies that can be corrected, and compensate for what cannot be corrected.”⁴⁷ As evident from above, the major reason for the establishment of the geriatrics specialty is not simply an increase in numbers of old people, but rather an increase in knowledge of old people, and the need for a special attitude and organisational skills.⁴⁸ Geriatric medicine emphasises a problem-based, rehabilitative, and holistic approach (Table 1.3); by caring for a whole person (not just his / her parts) interacting with his / her environment (physical as well as psychosocial) over a period of time (not just an acute episode in the hospital). The model of care in geriatric medicine shifts from diagnosis to functional assessment; cure to care; foretelling prognosis to evaluating goals; and from technology to the human touch with interdisciplinary team management. The expertise of geriatricians is therefore 3-fold: first, awareness of the different presentation, course, and management of the illness in the biologically aged person; second, the organisation of hospital-based services appropriate to such patients; and third, the coordination of health and social services. Because the model of care in geriatric medicine differs from that of general medicine, the audit mechanisms of a geriatrician should differ from those of a general

physician.^{49,50} In addition to an extra emphasis on the geriatric problems of falls, incontinence, memory impairment, and mobility, geriatricians must also focus on specific areas: failed discharge; death audit including identification of unexpected problems and sympathetic terminal care; long-term care and nursing home care; use of standardised assessment scales; and geriatric day hospital care.⁴⁹⁻⁵¹ A multidisciplinary team approach is required in the audit of these special areas of concern, since elderly patients have complex medical and social problems that demand long-term care and commitment.^{50,51}

The aims of a geriatric service are: maintenance of health in old age by continuing social engagement and avoidance of disease; early detection and appropriate treatment of disease; maintenance of maximum independence consistent with irreversible disease and disability; sympathetic care and support during terminal illness. The spectrum of geriatric service is outlined in Table 1.4 and the service components further discussed in other chapters. To match the principle of progressive care (acute / rehabilitation / long-stay) in geriatric medicine, Peter Millard has proposed a multi-compartment model to evaluate geriatric hospital services,^{52,53} by taking into consideration the dynamic interactions of the three compartments of geriatric care (acute, rehabilitation, and long-stay). It has also been emphasised that outcome evaluation should also take account of the different case-mix and functional levels of elderly patients, as heterogeneity is their hallmark.⁵⁴ Relevant outcome indicators for geriatric medicine and geriatric services include improved or

Table 1.3 Holistic approach in geriatric medicine

	Wholeness in	Interaction of	Special approach
• Person	• whole body	organ-system (not just her parts)	Need for a generalist approach / specialist knowledge
	• whole person	body (physical), mind (psychological), and soul (spiritual)	Need for special attitude, humanistic / maternalistic approach
• Space	• whole environment	person-environment (physical [spatial], social [human relationships], chemical [drugs])	Need for CGA / multidisciplinary approach Continuing care: from hospital to community
• Time	• whole life history	life events and illnesses	Progressive care: acute / rehabilitation / long-term care

Abbreviation: CGA = comprehensive geriatric assessment

Table 1.4 Spectrum of geriatric service

• Acute assessment and care (need-related, age-related, integrated)
• Rehabilitation (e.g. stroke, Parkinson’s disease, falls, arthritis, chronic lung disease, complex frail elders)
• Long-term care (infirmary)
• Liaison geriatrics (psychogeriatrics, orthogeriatrics, oncogeriatrics, liaison with emergency department)
• Geriatric specialist outpatient clinic
• Special services / clinics (e.g. memory, falls, continence, stroke)
• Geriatric day hospital
• Community geriatric services (community geriatric assessment service, integrated discharge support programme)

preserved function, home as the discharge destination (previous accommodation), and quality of care from the patients' perspective.

1.6 Issues and the Future of Geriatric Practice

The following issues must be addressed if optimal healthcare of the ageing population is to be provided: attitudes, capacity, needs matching, collaboration, and integration.

The prevailing reaction to ageing demographics has been negative, often seen as a burden or as a problem of intergenerational tension and resource competition rather than a blessing of intergenerational harmony. Negative attitudes and behaviour towards elderly patients in health and social care sectors have been exposed by the mass media as scandalous care and received much publicity. As geriatric medicine originates from neglect and a compassion for the "unfittest,"⁵⁵⁻⁵⁸ geriatricians should take the lead as role models to give loving care to elderly people and imbue all our staff and colleagues with a positive attitude towards their care.⁵⁹ Treating people as individual human beings and responding to their needs with compassion and sensitivity will enhance patient dignity.⁶⁰ Nonetheless, dignified care of elderly people in hospital is frequently compromised by systemic and organisational factors, including an intense focus on efficiency and timely discharge; continually moving elderly patients with multiple pathologies around multiple specialist wards; risk aversion without considering an appropriate balance between risk-taking and promoting individual autonomy.⁶⁰ From an elderly person's perspective, person-centred care for elderly people needs to be specifically related to communication, privacy, personal identity, and feelings of vulnerability.⁶¹

The results of good treatment such as reduced mortality from fractured hip, acute myocardial infarction, stroke and pneumonia, means more surviving patients with chronic problems such as heart failure, stroke, and chronic obstructive pulmonary disease. This, together with the ageing demographics, will increase the demands made on healthcare and hospital capacity (Figure 1.5), and is most felt during winter crises and flu outbreaks. Rockwood and Hubbard have criticised modern healthcare for a common error in addressing the needs of complex frail elderly patients who are acutely ill: instead of getting to grips with how service is provided, they want the frail old people to go away, to some more appropriate place.²⁸ The response to dealing with elderly people with complex problems is not to pack them into emergency rooms, or admit them straight to nursing homes, or to call them names, but to recognise that they have complex

problems and to understand and promulgate how to treat these problems,⁶² to embrace the complexity of the patients and their need for care.²⁸ Moving frail elderly patients quickly through the system without addressing their problems and needs will result in chaotic flow, the revolving-door phenomenon, and overcrowding.^{53,63} Peter Millard^{63,64} has advocated appropriate assessment and rehabilitation at critical time points to maintain a regulated and goal-directed flow between the acute, rehabilitative, and long-term care of complex elderly patients with the needs and goals of patients matched to appropriate staff-mix and environment (Figure 1.10⁶⁴). This science of tending the aged (Gerocomy) has been grounded on mathematical modelling of elderly patients flowing through acute, rehabilitation, and long-term care compartments.^{63,64} Getting the total bed capacity right will depend on appropriate division and allocation of beds to the three compartments.

The fact that younger and fitter patients have short stays in hospital and older, frailer and complex patients have longer hospital stays results in the predominance of older frail patients in the modern hospital inpatient population. A high proportion of these complex elderly patients have the geriatric giants of falls, immobility, confusion, impaired cognition, incontinence, and iatrogenesis, have multi-pathology and multi-morbidity illnesses, and are physically dependent with complex social problems.^{65,66} These geriatric conditions often contribute to their need for acute admission, and influence hospital course and discharge plans; but organ failure (e.g. heart failure, respiratory failure) is more readily diagnosed than high-order-system failure (e.g. balance failure [falls], acute brain failure [delirium]). The needs of these complex frail elderly patients can hardly be matched by a hospital system and environment based on specialties of organs and diseases.^{28,67} To achieve optimal hospital service provision for acutely ill frail elderly patients with

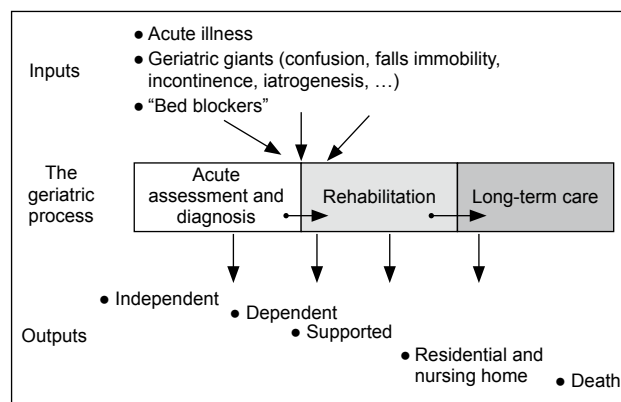


Figure 1.10 Regulated and goal-directed flow in geriatric service (adapted from Millard et al⁶⁴)
 Reproduced with permission from the Cambridge University Press

multiple conditions, a right balance needs to be struck between narrow specialism and broad-based geriatric holistic care. This translates to the practical issue of access to the expertise and care of a geriatrician and interdisciplinary team.⁴⁵ Future generations of doctors, nurses, and allied health professionals need to be prepared by adequate exposure and training in the core elements of geriatric medicine.

For elderly patients to have timely access to the expertise of a geriatrician, healthcare need to be geared towards close collaboration between geriatricians and family physicians in the community setting, and in the hospital setting, a joint working relationship between geriatricians and other hospital specialists, with liaison between geriatrics and orthopaedics, surgery and its subspecialties (e.g. urology, neurosurgery), psychiatry, oncology, and the emergency department.

Elderly patients are at high risk of receiving fragmented and disorganised medical and social care from multiple care providers because of their multiple medical conditions, social precariousness, and frailty. An optimal geriatric service should be able to connect and organise service provision across different service providers in an integrated manner, especially during the hospital-community transition, breaking down health-social barriers with seamless sharing of information about patient care.

In Hong Kong, a proposal paper for enhancement of future acute geriatric care to meet the needs of an ageing population was presented by the Geriatric Subcommittee representative and discussed in the Medical Service Development Committee of the Hospital Authority in 2004.²¹ In 2011, the Hospital Authority published its Elderly People Service Plan⁶⁸ and in 2012, the Strategic Service Framework for Elderly Patients⁶⁹: the directions for healthcare services for elderly people have been formulated from single specialty to cross-specialty / multidisciplinary; from variable quality care to agreed standards; from fragmented services in acute and community care to integrated services for patient transitions; from institutional episodic care to continuous care appropriate to individual patient needs; and from dependent patient to empowered patient.

In their lectures in memory of the early pioneers of geriatric medicine, Colin Powel and John Grimley Evans shared respectively their views on the challenges facing future geriatrics.^{70,71} To the first principles of geriatrics (adequate assessment, accurate diagnosis, appropriate treatment, aftercare, advocacy for patient and specialty) laid down by Marjory Warren, Colin Powel added two further principles for future geriatrics: alliance and

accountability.⁷⁰ Alliance refers to evolution from multidisciplinary teams to interdisciplinary teams, from solo practice to professional joint practice, and ultimately partnership with patients and an effective relationship with others, both inside and outside of geriatric medicine. Accountability refers to serving frail elderly people, moving towards a frail-friendly healthcare system, and ultimately being accountable to society.⁷⁰ John Grimley Evans concluded in his Ignatius Leo Nascher Lecture, "The first century of the specialty saw principles of clinical practice and service design for the specialty established throughout the developed world. The challenges for the second century are of a different order, and dominated by the ethics, politics and economics of ageing societies in which ageist prejudice is still firmly entrenched. In the tradition of advocacy for older people established by Nascher, geriatricians have a duty to encourage their nations to respond humanely and rationally to the new demography."⁷¹

REFERENCES

1. Eventide: A scene in the Westminster Union. 1878. Available from: <http://www.liverpoolmuseums.org.uk/picture-of-month/displaypicture.asp?venue=2&id=146>. Accessed 17 Aug 2005.
2. Kong TK. Dr Marjory Warren: The mother of geriatrics. *J Hong Kong Geriatr Soc* 2000;10:102-5.
3. Warren MW. Care of the chronic aged sick. *Lancet* 1946;1:841-3.
4. Warren MW. Care of chronic sick. *Br Med J* 1943;2:822-3.
5. Nascher IL. Geriatrics. *N Y Med J* 1909;90:358-9.
6. Mulley GP. Journals of geriatric medicine and gerontology. *Age Ageing* 1999;28:1-2.
7. Brocklehurst JC. Foreword. In: Tallis RC, Fillit HM, editors. Brocklehurst's textbook of geriatric medicine and gerontology. 6th ed. Philadelphia: Churchill Livingstone of Elsevier Science Limited; 2003: ix.
8. Brocklehurst JC. Unsung heroes. *British Geriatrics Society Newsletter* 2005;Mar:12-4.
9. Kong TK. Glasgow and the development of geriatrics in Hong Kong. *British Geriatrics Society Newsletter* 2005;Jul:10-1.
10. Au DK. Geriatric service in Hong Kong — the early days. In: Lee YC, editor. *The Hong Kong Geriatrics Society — 10 years on*. Hong Kong: Hong Kong Geriatrics Society; 1991: 18-9.
11. Mok FC. Post-membership geriatric training in Glasgow — my experience. *J Hong Kong Geriatr Soc* 1993;4:57.
12. Kong TK. A tribute to Professor John Brocklehurst from Hong Kong. *British Geriatrics Society Newsletter* 2013;Oct:31-3.
13. Ko PS. A personal experience of overseas postgraduate training. *J Hong Kong Geriatr Soc* 1996;7:42.
14. Ng NS. Training in geriatric medicine — local perspective. *J Hong Kong Geriatr Soc* 1993;4:47-9.
15. Woo J, Ng NS. Editorial: Higher specialty training in geriatric medicine in Hong Kong. *J Hong Kong Geriatr Soc* 1995;6:4-6.
16. Lam TP, Kong TK, Chan FH, Wong CP. A postgraduate diploma course in community geriatrics for primary care doctors: experience of first three years. *Hong Kong Pract* 2004;26:441-6.
17. Kinsella K, Wan H. U.S. Census Bureau, International Population Reports, P95/09-1, An Aging World: 2008. Washington, DC: U.S. Government Printing Office; 2009.
18. World health statistics 2017. World Health Organization, 2017. Available from: <http://apps.who.int/iris/bitstream/10665/255336/1/9789241565486-eng.pdf?ua=1>. Accessed 15 Sep 2017.

19. Census and Statistics Department, Hong Kong SAR Government. Population. 2017. Available from: <http://www.censtatd.gov.hk/hkstat/sub/so20.jsp>. Accessed 15 Sep 2017.
20. Census and Statistics Department, Hong Kong SAR Government. Population projections. Hong Kong life tables 2011-2066. Hong Kong: Hong Kong SAR Government; 2017. Available from: <http://www.censtatd.gov.hk/hkstat/sub/sp190.jsp?productCode=B1120016>. Accessed 15 Sep 2017.
21. Kong TK. An acute geriatric model to meet population needs. Medical Service Development Committee Discussion Paper MSDC-P200. Hong Kong: Hospital Authority; 2004.
22. Andrews K, Brocklehurst JC. The implications of demographic changes on resource allocation. *J R Coll Physicians Lond* 1985;19:109-11.
23. Kong TK. Hospital service for the elderly in Hong Kong — present and future. *J Hong Kong Geriatr Soc* 1990;1:16-20.
24. England RS. Aging China: the demographic challenge to China's economic prospects. Westport, Connecticut: Praeger; 2005.
25. Woo J, Kwok T, Sze FK, Yuan HJ. Ageing in China: health and social consequences and responses. *Int J Epidemiol* 2002;31:772-5.
26. Kong TK. Emerging perspectives on the development of geriatric medicine in Hong Kong. Gerontological approaches to care for the aged in the 21st Century. Proceedings of the 6th Asia / Oceania Regional Congress of Gerontology; 1999 Jun 8; Korea. Seoul, Korea: Asia-Oceania Region of International Association of Gerontology; 2000: 588-90.
27. Tallis R. Biological ageing, illness in old age and geriatric services. *J Hong Kong Geriatr Soc* 1993;4:4-11.
28. Rockwood K, Hubbard R. Frailty and the geriatrician. *Age Ageing* 2004;33:429-30.
29. Isaacs B. The challenge of geriatric medicine. Oxford: Oxford University Press; 1992.
30. Rubenstein LZ. Geriatric Research Education and Clinical Center. Sepulveda GRECC pocket guide to geriatric assessment. Washington, DC: Office of Geriatrics and Extended Care, Department of Veterans Affairs; 1975.
31. Inouye SK, Studenski S, Tinetti ME, Kuchel GA. Geriatric syndromes: clinical, research, and policy implications of a core geriatric concept. *J Am Geriatr Soc* 2007;55:780-91.
32. Morley JE. Frailty and sarcopenia: The new geriatric giants. *Rev Invest Clin* 2016;68:59-67.
33. Morley JE. Screening and management of geriatric syndromes in primary care. *Eur Geriatr Med* 2016;7:391-3.
34. Fox RA. Immunology and infection in the elderly. Edinburgh: Churchill Livingstone; 1984.
35. Fox RA, Puxty JA. Medicine in the frail elderly: a problem-oriented approach. London: Edward Arnold; 1993.
36. Brocklehurst JC, Carty MH, Leeming JT, Robinson JM. Medical screening of old people accepted for residential care. *Lancet* 1978;312:141-2.
37. Challis D, Clarkson P, Williamson J, et al. The value of specialist clinical assessment of older people prior to entry to care homes. *Age Ageing* 2004;33:25-34.
38. Terpenning MS, Buggy BP, Kauffman CA. Infective endocarditis: clinical features in young and elderly patients. *Am J Med* 1987;83:626-34.
39. Bobrowitz ID. Active tuberculosis undiagnosed until autopsy. *Am J Med* 1982;72:650-8.
40. Ijaz K, Dillaha JA, Yang Z, Cave MD, Bates JH. Unrecognized tuberculosis in a nursing home causing death with spread of tuberculosis to the community. *J Am Geriatr Soc* 2002;50:1213-8.
41. Varia M, Wilson S, Sarwal S, et al. Investigation of a nosocomial outbreak of severe acute respiratory syndrome (SARS) in Toronto, Canada. *CMAJ* 2003;169:285-92.
42. Kong TK. Are we prepared for community care? Hong Kong Geriatrics Society Newsletter 2004;Feb:1.
43. Isaacs B. Aphorism. "Patients are never bad historians; doctors sometimes are". *J Hong Kong Geriatr Soc* 1995;6:23.
44. Exton-Smith AN. Progressive patient care in geriatrics. *Lancet* 1962;279:260-3.
45. NHS Health Advisory Service. Services for people who are elderly: addressing the balance : the multi-disciplinary assessment of elderly people and the delivery of high quality continuing care. London: Stationery Office; 1997.
46. Role and work of the BGS. British Geriatrics Society, 2009. Available from: <http://www.bgs.org.uk/index.php/home-1/mnubgsrole>. Accessed 14 Jun 2015.
47. Ensuring equity and quality of care for elderly people. The interface between geriatric medicine and general (internal) medicine. Working party of the Royal College of Physicians. *J R Coll Physicians Lond* 1994;28:194-6.
48. Kong TK. Why geriatric medicine? Q&A. *Asian J Geriatr* 2013;8:54-6.
49. Woodhouse KW. A geriatrician. *Lancet* 1989;333:546.
50. Kong TK. Editorial. *J Hong Kong Geriatr Soc* 1993;4:3.
51. Brocklehurst JC. The research unit of the Royal College of Physicians: its work in geriatrics. *J Hong Kong Geriatr Soc* 1993;4:17-21.
52. Millard PH. Modeling hospital services. *J Hong Kong Geriatr Soc* 1993;4:22.
53. Millard PH. Modelling health and social care systems: opening the black box. *Nosokinetics News*, Issue 1.3, Jun 2004.
54. Findlay PF, Seymour DG, Primrose WR, Gibbons Y. Pictorial outcome measures for the hospital care of older patients — a suggested toolkit. *Age Ageing* 2001;30:27-32.
55. Howell TH. Nascher writes about geriatrics. *Age Ageing* 1988;17:137-8.
56. Warren M. The evolution of a geriatric unit from a public assistance institution, 1935-1947. *Proc R Soc Med* 1948;41:337.
57. Isaacs B, Livingstone M, Neville Y. Survival of the unfittest: a study of geriatric patients in Glasgow. London and Boston: Routledge & Kegan Paul Ltd; 1972.
58. Jefferys M. Recollections of the pioneers of the geriatric medicine specialty. In: Bornat J, Perks R, Thompson PR, Walmsley J, editors. Oral history, health and welfare. London: Routledge; 2000: 75-97.
59. Forsyth DR. Editorial. *CME J Geriatr Med* 2014;15:42.
60. Tadd W, Read S. Dignity on the wards: improving hospital care for older people. *Br J Hosp Med (Lond)* 2012;73:244-5.
61. Woolhead G, Calnan M, Dieppe P, Tadd W. Dignity in older age: what do older people in the United Kingdom think? *Age Ageing* 2004;33:165-70.
62. Rockwood K. Future of health care for frail older adults. *Geriatrics Today: J Can Geriatr Soc* 2002;5:5-6.
63. Millard PH. A case for the development of departments of gerocomy in all district general hospitals: discussion paper. *J R Soc Med* 1991;84:731-3.
64. Millard P, O'Connor M, McClean S. Measuring and modelling patients flows through rehabilitation and continuing care. *Rev Clin Gerontol* 1998;8:345-52.
65. Lee PG, Cigolle C, Blaum C. The co-occurrence of chronic diseases and geriatric syndromes: the health and retirement study. *J Am Geriatr Soc* 2009;57:511-6.
66. Kafetz K, O'Farrell J, Parry A, et al. Age-related geriatric medicine: relevance of special skills of geriatric medicine to elderly people admitted to hospital as medical emergencies. *J R Soc Med* 1995;88:629-33.
67. Tinetti ME, Bogardus ST Jr, Agostini JV. Potential pitfalls of disease-specific guidelines for patients with multiple conditions. *N Engl J Med* 2004;351:2870-4.
68. Hospital Authority. Elderly People Service Plan 2011-2016. Hong Kong: Hospital Authority; 2011.
69. Hospital Authority. Strategic Service Framework for Elderly Patients. Hong Kong: Hospital Authority; 2012.
70. Powel C. Whither geriatrics? Do we need another Marjory Warren? *Age Ageing* 2007;36:607-10.
71. Grimley Evans J. Ignatius Leo Nascher Lecture 2005: Geriatrics into its second century. *Eur J Geriatr* 2005;7:155-60.