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Taiwan

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TRENDS

The tempo of population aging in Taiwan is one of the world's fastest. With its residents aged 65 years and older accounting for 7% of the total population, Taiwan stepped into an aging society in 1993. The percentage of elderly population moved up to 9.9% in 2006 (one senior citizen in every 10 residents) and is predicted to escalate to 10.5% in 2010, 16.1% in 2020, and 24.5% in 2030, due to the entry of baby boomers into old age and the global trend of baby bust. The absolute number of older adults in Taiwan, according to a forecast by the Council of Economic Planning and Development (CEPD), will rocket to 3.02 million in 2016, 4.75 million in 2026, and 6.86 million in 2036. By 2050, the percentage of the population who are elderly may be as high as 35.5% (Department of Manpower Planning, Council for Economic Planning and Development, 2002).

According to statistics from the Department of Health, the total number of deaths among people aged 0–64 years old increased by 6% over the past two decades from 1985 to 2005 (44,216 in 1985; 46,701 in 1995; and 47,026 in 2005). However, the growth in the number of deaths among people aged 65–79 during the same period is over 50% (33,556 in 1985; 46,005 in 2005; and 50,430 in 2005). Even more alarming is the number of deaths among people over the age of 80, which escalated from 13,349 in 1985 to 25,248 in 1995 and to 41,401 in 2005, with a growth of 211%. Moreover, the percentage of deaths of older adults in Taiwan climbed from

half of the total number of deaths in 1985 to nearly two-thirds in 2005. During those two decades, the percentage of older adults in Taiwan rose from 3.5% to 9.68%. To sum up, the older adults in Taiwan, while making up less than 10% of the country's total population, accounted for a third of the overall death toll in 2005. As Taiwan's population continues to age, its impact on health care and the entire society will become severe.

An aging population affects not only the number of deaths; growth in age also leads to an increased number of chronic diseases. More and more older people will find their quality of life seriously deteriorating as they suffer from chronic diseases and related complications. According to the CEPD study, the percentage of people aged over 75 is rising. They accounted for 40% of the total number of people aged 65 and over in 2004 and the figure is estimated at 54% in 2050. The growth in the number of older elders outpaces the increase in the number of younger elders. The continuous growth in elderly population is bound to trigger a corresponding rapid increase in the demand for long-term care. This demand is predicted to triple in the next 30 years (Wu, 2002).

Due to the trend toward rapid aging, the number of elderly patients is expected to sustain swift growth. Medical professionals will have to take care of elderly patients with multiple diseases who require greater attention and patience. As a result, gerontology and geriatrics have come to play an increasingly crucial role in Taiwan. In response to its rapidly aging population, Taiwan needs to build up an integrated, comprehensive eldercare system that relies to a great extent on the expertise and dedication of specialists and professionals in the geriatric interdisciplinary teams (Department of Health and National Health Research Institutes, 2008).

PROGRESS IN GERONTOLOGICAL AND GERIATRIC RESEARCH

A search using the key words "gerontology," "old age," and "Taiwan" led to 200–300 papers, most of which were related to long-term care and nursing. There were hardly any large-scale or full-fledged geriatric/gerontological studies performed in or for Taiwan prior to the establishment of the Division of Gerontological Research at the National Health Research Institutes in 2003. Founded with the mission to promote successful aging for the elderly people in Taiwan, the National Health Research Institutes (NHRI) Division of Gerontological Research strives to initiate and supervise a wide spectrum of gerontological and geriatric research based on various scientific models. Three recent research activities are summarized as follows:

1. Clinical assessment and treatment of common geriatric syndromes and diseases. With the development of a geriatric specialty, geriatric syndrome assessment and intervention have been emphasized at newly established geriatric clinics and services. Frailty, as a core pathophysiologic phenomenon of declining functions during the aging process, has triggered increased discussions and research in recent years. Major concepts and definitions of frailty currently in use encompass a variety of domains, such as physical characteristics and function, cognitive function, other psychological characteristics, and psychosocial factors. A potential clinical implication of frailty is that this syndrome can be detected early and treated. The consequent disabilities, comorbidities, and death could be prevented. Hip fracture, another common disease in elderly people associated with postoperative quality of life, has been examined and public education on fall prevention is being addressed.
2. Community epidemiological study of aging. In Taiwan, population aging is increasing the prevalence of chronic diseases and geriatric problems, including disability. Population-based long-term observational aging and functioning studies based on self-report and physical and biological measures of health have been carried out since 1989, such as the Taiwan Longitudinal Study of Aging (TLSA), the Social Environment and Biomarkers of Aging Study (SEBAS), and the National Health Interview Study (NHIS). A NHRI pilot community intervention study of frail elders with or without osteoporosis and depression is ongoing in a local community. Another new project, called Health Aging Longitudinal Study in Taiwan (HALST), plans to conduct a baseline examination on a sample of about 5,000 men and women aged 50 years or older, with the majority of these examinees drawn from the participants of the 2007 health survey conducted by the Department of Health. The proposed study will provide a unique opportunity to enhance our understanding of cardiovascular disease risk factors, physical and mental performance and functioning, quality of life, and morbidity and mortality in a representative cohort in Taiwan.
3. Development of novel biomarkers of geriatric syndrome in aging. A few basic studies on aging have been reported. With the development of geriatric medicine in teaching hospitals, early diagnosis and intervention of geriatric syndrome were studied. Frailty is a major clinical manifestation in aging, and sarcopenia is a leading cause of frailty. The severity of muscle wasting not only exerts a great impact on the effect of treatment, prognosis, and survival of elderly patients, but is also closely related to the quality of their life. It is commonly believed that a variety of cytokines produced by inflammatory cells jointly cause metabolic disturbances in older adults. In recent years, the medical community has gained more understanding of the mechanism of energy homeostasis. In addition to macrophage, adipose tissue is also able to secrete a variety of

adipokines to affect energy metabolism in humans. The detailed mechanisms for proinflammatory cytokines to disturb energy homeostasis are not known. Therefore, identifying biomarkers through understanding pathophysiology of sarcopenia is a very important issue. After preliminary studies with some potential biomarkers, further endeavors will be undertaken to elucidate the relationships between these markers and sarcopenia in animals and *in vitro* studies.

GERONTOLOGY EDUCATION AND TRAINING OF GERIATRICIANS

With the advent of an aging society, institutes related to gerontology and geriatric medicine have been established to promote the development of aging studies and eldercare in Taiwan. However, the need for these institutes to recruit teaching faculties and research specialists exposes Taiwan's failure to train and supply sufficient professionals in the field of gerontology and geriatrics. Not until recent years have substantial efforts in gerontology education and geriatrician training been initiated by the NHRI Division of Gerontology Research and the Taiwan Association of Gerontology and Geriatrics.

Although founded in 1982, the Taiwan Association of Gerontology and Geriatrics (TAGG) was not authorized to administer geriatrics specialist certification examination until 2001 because geriatrics was not recognized as an independent specialty when the Department of Health implemented the certification system for medical specialists in 1987. The NHRI Division of Gerontology Research, on the other hand, launched Taiwan's first formal geriatric fellowship training program in 2003.

In this fellowship program (July 2004–June 2007), fellows were trained in the practice of comprehensive professional geriatric services, including placing elderly patients in proper settings (outpatient clinic, acute care, hospitalization, nursing home, home care, etc.) in accordance with their individual needs for integrated, long-term care; providing interdisciplinary geriatric care; facilitating early diagnosis and treatment of common health problems of elderly people (such as falls, incontinence, delirium, osteoporosis, and other geriatric syndromes); helping elderly people avoid disability and achieve successful aging; and contributing to development in related fields like aging-related medical ethics, palliative care, hospice, and treatment of chronic illnesses (NHRI Division of Gerontology Research, 2007). Fifteen geriatric fellows have been successfully trained and serve as the pioneer physicians for promoting geriatric care at their hospitals. Ongoing efforts have led to the establishment of geriatrics

departments in seven leading teaching hospitals in Taiwan (three in 2007 and four in 2008), all of which have passed the TAGG accreditation to host their own geriatric fellowship training programs.

Though the NHRI geriatric fellowship program took the first step to trigger recognition of the importance of cultivating specialists in clinical geriatrics, the geriatrician training system in Taiwan is still in its infancy, and the general shortage of geriatricians and eldercare-related medical professionals poses a bottleneck in the development of geriatric medicine and studies in Taiwan. DOH and related government agencies should work together to provide local medical centers with sufficient support and resources to expedite and expand geriatric medical education and training. There are around 35,000 certified physicians practicing in Taiwan, only 700 of whom have passed the geriatrics specialist certification examination. It is simply impossible to expect these certified geriatricians alone to shoulder the huge load of taking care of the elderly people who need geriatric care in Taiwan. The best way to solve the problem at its roots is to incorporate gerontology- and geriatrics-related courses into the core curriculum of Taiwan's basic medical education. Students majoring in medicine and geriatrics-related fields (such as nursing, rehabilitation, pharmacy, and social work) should be given the opportunities to learn basic gerontology and geriatric knowledge and skills relevant to their individual specialties, just as medical students are required to study both internal medicine and surgical science regardless of their chosen specialties. Moreover, medical students receiving training in an area of specialization that may involve treating elderly patients (notably internal medicine and family medicine) should be required to learn essential knowledge and skills from the geriatrics/gerontology department. The same requirement should also be applied to medical interns. Implementation of these measures can be expected to activate rapid growth in the number of medical professionals capable of meeting the diverse and complicated needs of elderly patients. There would be no need to stake the development of Taiwan's gerontology and eldercare solely on the TAGG-certified geriatricians and geriatric fellows trained by medical centers.

In addition to facilitating gerontology education and geriatric training for medical and nursing professionals, basic eldercare knowledge should be included as an essential part of the health education at elementary, junior high, and high schools, to familiarize students with gerontology at an early age. Both the central and local governments should initiate comprehensive, national assessments on eldercare manpower requirements and work with related medical institutes and academic associations to train the needed eldercare professionals, such as nursing specialists, physical

and occupational therapists, pharmacists, dieticians, social workers and hospital volunteers.

CURRENT ISSUES IN SOCIAL POLICIES

Crucial issues and problems in the current status of geriatric care and long-term care in Taiwan are summarized as follows (Wang et al., 2005; Wu & Chou, 2006; Wu et al., 2003).

1. The two systems—social welfare and health administration—should be integrated. Health and social care of elderly people in Taiwan remains under the supervision of two separate administrative systems, and the failure of the two systems to agree in terms of missions, policies, and visions has resulted in the government's inability to allocate and optimize available resources and to deliver continuous and integrated eldercare services. Regulations concerning long-term care can be found scattered throughout the social administration system (Senior Citizens Welfare Act, Protection Act for Physically and Mentally Disabled Citizens, etc.), the health administration system (Medical Care Act, National Health Insurance Act, Nurse Act, Mental Health Act, etc.) and the veteran affairs administration system (Veterans' Assistance Act). Some of the administrative rules should be upgraded to regulations, and some are in need of official authorization by related laws. Moreover, regulations about the establishment of nursing homes and long-term care institutions are similarly in need of coordination and integration.
2. The capacity of home- and community-based care fails to reach one-third of the estimated demand. Day-care centers have been established as a model of providing local senior citizens with necessary nursing services. The current status of day-care centers, however, is marked by a serious imbalance between supply and demand for various factors. As for home-based care that serves mainly elderly people with lower income, major services remain focused on assistance in the so-called three-tube (Endo, Foley, and NG) procedures. The highly important home- and community-based rehabilitation and other health-care services are still at the trial stage. And respite care has not been able attract enough attention from its target users, in spite of active promotion by the central and local governments. Realization of aging in place, the ultimate goal of long-term care, thus still has a long way to go in Taiwan.
3. Potential impact of the new national health insurance payment system. With the case-based DRG (Diagnosis Related Group) payment system cited as one of the solutions to the serious financial problems facing the 12-year-old national health insurance system, the length of hospitalization is expected to be reduced. Comprehensive supporting measures thus need to be provided to help patients receive the quality treatment and nursing services necessary for restoring functions and sustaining full recovery after they are discharged from hospital. However, there are not enough nursing centers with sufficient and proper facilities, and the expenses spent on nursing home and home-based care are not covered in the national health insurance program. Moreover, there is no increase in the permitted amount of home-based care. Provision of different post-acute care models for different diseases remains an issue to be addressed; also to be designed is a prospective payment system for hospitals focusing on rehabilitation, chronic diseases, and other specialties. At present, most of the elderly patients in desperate need of post-acute care, notably those suffering from stroke or hip fracture, have to face the predicament of having nowhere to go. The Bureau of National Health Insurance therefore must design a set of comprehensive supporting measures about post-acute care before the case-based DRG payment system can be implemented.
4. Financial support needed for long-term care services. It is beyond the ability of an ordinary family to finance quality long-term care, no matter whether it is home care, community-based day care, or other forms of institutional health care. Providers in their turn entertain no interest in making investments to promote the quality of the cost-intensive and highly demanding eldercare services by hiring qualified professionals and introducing advanced equipment and facilities.
5. Professional geriatric interdisciplinary teams remain in short supply. An ideal geriatric interdisciplinary team, as previously stated, is composed of geriatricians, physicians in related medical specialties, geriatric nursing specialists, physical and rehabilitation specialists, respiratory specialists, psychiatrists, dieticians, social workers, and other supportive members so as to be able to perform comprehensive geriatric assessment, devise effective treatment plans, and conduct individual case management, follow-up, outreach, and other desirable services. However, as the government has yet to implement related incentives and supporting measures, geriatricians and the other members of the geriatric interdisciplinary team have not received proper attention from most local hospitals. The relatively poorer pay and greater responsibilities further aggravate the shortage of eldercare professionals in Taiwan. So far, hospitals with a geriatric interdisciplinary team remain a rare minority.
6. Service delivery and management systems have not yet been established. The "long-term care management centers" planned and established in local governments for nearly 10 years have not been able to fulfill their role as integrators and managers of local eldercare resources, due to discrepancies in the criteria of assessing eligibility, in the adopted assessment tools, in the standards for subsidy, in the degree of adherence to the assessment guidelines, and in the preparations for residents' discharge.

A set of standard assessment tools and uniform assessment criteria for evaluating applicants' eligibility for long-term care are needed, and the mechanism for preparing residents for discharge also needs to be standardized. The differences in the services provided between cities and counties should be eliminated; more education and training activities need to be provided; and a review and supervision system must be established to prompt local governments to improve their performance. The private sector should also be encouraged to help develop eldercare services in remote regions through strategic partnership or collaboration. Moreover, there is no mechanism for integrating medical and nursing resources. The city or county management center fails to integrate and optimize the resources available in the primary and community medical-care systems, and this failure in turn cripples the delivery of integrated and continuous medical treatment and nursing services.

7. Eldercare-related medical ethics are in need of further promotion. While it is important to provide the elderly with quality medical care, it is also imperative to respect elderly patients during the treatment. Any medical treatments or procedures that may compromise the quality of life and dignity of elderly patients, such as insertion of nasogastric tubes, tracheotomy, and subsequent use of ventilator, should be approved by either the patients themselves or their families. Related medical professionals should be thoroughly trained in the removal of unnecessary tubes or ventilators without considering factors other than the benefits to the patient. Both the number of applications and the amount of average expense for health insurance payment for tube insertion have increased with the growth in the number of respiratory wards. The idea of a peaceful death embraced by hospice/palliative care for terminally ill patients may merit active promulgation, especially to the medical professionals dedicated to eldercare.

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Thailand

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Aging issues, as in many other countries in the world, are increasingly important for Thailand, since the number of older persons is growing rapidly. This phenomenon is due to a rapid decline in fertility and an increase in longevity. The total fertility rate declined from over 6 children per woman in the early 1960s (Knodel, Chamratrithirong & Debavalaya, 1987) to 1.5 children per woman in 2008 (Institute for Population and Social Research, 2008). Life expectancy at birth increased from 58.0 for males and 63.8 for females in 1975 (National Statistical Office, 1997) to 70.2 for males and 76.9 for females in 2008 (Institute for Population and Social Research, 2008). As a result of such changes, the proportion of older persons increased significantly, from 4.6% in 1960 to 9.5% in 2000. Based on the population projections carried out between 2005 and 2025, the percentage of older persons will increase, while that of children and the working-age population will gradually decline (Institute for Population and Social Research, 2006). In 2025, the percentage of older persons will exceed that of children (Table 48.1). It should be noted that the elderly in Thailand are defined by the 2003 Elderly Persons Act as those 60 years and older, which is different from the age used in most developed countries.

Table 48.2 compares selected Asian countries in terms of their 60-and-over populations and shows that between 2000 and 2050, the number of older persons in almost all countries listed was projected to increase about three times or slightly more. Japan has shown the highest proportion of older persons among selected countries since 1950, while