Welcome to **Age-Related Health Care**! This is the first AgePage supporting tutorials related to the assessment and management of medical rehabilitation problems of older people. Population ageing (the demographic bounty) is one of the great achievement so of the 20th century, but ageing brings a new complexity to health care, which we address in this module.

Geriatric Medicine, one of the components of Age-Related Health Care, is the largest medical speciality in Ireland, with nearly 55 specialists. The speciality dates effectively from 1945, when an English doctor, Marjorie Warren, cleared out a huge workhouse by diagnosing, treating and rehabilitating the patients to return home: ie a *diagnostic* rather than *prosthetic* approach to loss of function in later life. It is very effective: older people admitted as medical emergencies under geriatric medicine are 25% less likely to die or suffer serious disability (W1).

Unless you become a paediatrician or obstetrician, you will spend a great deal of the rest of your professional life dealing with older people: while 11.3% of the population of the United States are >65, older patients consume 52.3% of public health expenditure (appropriately enough!). Controlled studies have demonstrated that the acquisition of specialized skills and knowledge will help in effectively treating these patients. At an international level, the largest number (and the greatest rate of increase) of older people is in the *developing world*.

Facts

i) the older population in Ireland is increasing rapidly, from 467,296 (2003) to 553,000 (2021).
ii) 95% of older people live at home
iii) older people are not dependent: some work, many have provided their own pensions, many perform child-care and 40% of carers spending >50 hours a week caring for a sick older relative are themselves >60.
iv) Ageing means growth and development, as well as loss, at all ages. Artistic creativity in later life is remarkable: the late paintings of Titian, Rembrandt and Monet, the writings of Goethe and Tennyson, the music of Haydn, Wagner and Verdi.
v) older people often present with multiple illnesses, multiple medications (and side-effects!) and complex rehabilitation needs.
vi) access to a combination of specialized assessment and high-tech medicine is especially important for this group: thrombolysis after heart attack is more effective in older than in middle-aged people, elective hip replacement results in a major net gain to society. Development in anaesthesia have reduced mortality rates for elective procedures in older people to a reported low of 0.7% within 48 hours of elective surgery for those older than 90.

Ageing and society

Society and medicine show many biases against older people, a phenomenon called ***ageism***. Negative attitudes are common, ranging from discrimination against the older worker to unfair discrimination in access to chemotherapy, CCU and rehabilitation. If a 40 year-old women came to A/E who was immobile, incontinent and confused, would she be classed as a social admission, a phrase often used for older people who present with these symptoms caused by illness? Patients presented to us as "social admissions" have had lung tumours, strokes, Parkinson's disease and various infections. In a wider sense, we need to guard against ageist thinking that has created the 'myth of the burden of ageing' (W2).

Ageing vs Age-related diseases

The two major characteristics of ageing are:
i) reduced reserve
ii) increased interindividual variability
The reduced reserve means that the older person can still walk to the shops, etc, but cannot run for the bus as before. This reduced reserve is one of the reasons why older people may have transient organ dysfunction during critical illness, ie brain, heart or kidney. The increased interindividual variability is one of the factors that makes medicine in older people so interesting: prediction of the effects of disease or medications have to be cautious in the extreme.
Ageing by itself does **not** cause loss of everyday functions, ie incontinence, immobility, confusion: these are caused by age-related diseases or by lifestyle, occupational or environmental factors. For example, high-tone hearing loss, often quoted as an inevitable part of the ageing process, does not occur to the same extent in Polynesia, perhaps as a result of reduced environmental noise. Reduced quadriceps function may relate to exercise and/or dietary factors.

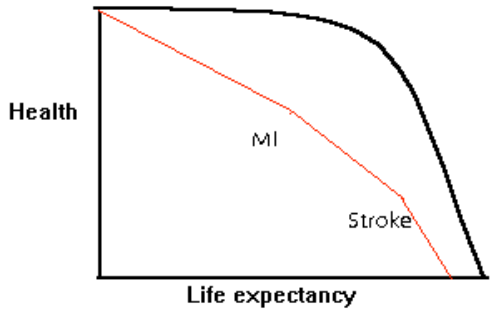
What underlies the process of ageing?

Rich abundance of candidates: multiple factor theory likely. Main types:
i) *DNA-based theories*: Protein synthesis error, catastrophe theory, inappropriate shifts of gene expression, redundancy failure or large scale chromosomal mutations: Werner's syndrome (progeria), the syndrome of premature ageing , involves large deletions on chromosome 8.
ii) *Biochemical*: a) free radical theory. Several lines of defence against free radicals, including the cytochrome P450 system, superoxidases, catalases, but are not 100% efficient. This leads to gradual accumulation of oxidative damage; b) reducing sugars, abnormalities in protein synthesis
iii) *Organ failure*: immune and neuroendocrine.
iv) *Decline in proliferative homeostasis*, with a gradual loss of proliferation in most cases (leading to tissue atrophy) or occasionally to one of the multifocal arrays hyperplasia seen in old age (ie leukoplakia). Postulated

mechanisms underlying these changes include receptor changes in cells to cell-cycle inhibitors and mitogens or alteration in cell-cell communications.

Will increasing numbers of older people mean increased disability?

Active life expectancy will be a measure of this. The most optimistic view is the theory of the compression of morbidity (Fries, 1980). This states that life expectancy has a finite limit, and that there will be a rectangularization of the survival curve. Improved nutrition, social intervention and medical advances will lead to the postponement of morbidity, shortening the total period of sickness in old age.



If true, man would live longer in a state of fitness, before expiring rapidly from the processes underlying the fixed average lifespan. There is good evidence that this process is happening, with disability falling at 1.5% / year among older Americans. Even neurodegenerative disorders such as Alzheimer's disease seem to be amenable to improved life-styles and vascular risk factor control.

In the context of costs, a total hip replacement for a person over the age 70 may not return a worker to the workplace, but will save the community a considerable amount of resources by deferring institutional care. Interventions based on research into life-extension or the application of new techniques such as growth hormone treatment in later life may extend the active life expectancy in the future .

Social background

- Increased proportion of older people in rural areas, but highest numbers in eastern Ireland.
- 60% women
- 30% live alone
- Three-quarters of women over the age of 85 are likely to be widowed.
- Despite the popular image of the lonely old person, the majority of those over the age of 65 have frequent social contact with family and neighbours
- Only a small minority of older people report constant loneliness.
- While people aged 65-74 in the United States and several northern European states enjoy incomes which represent 94% of that of the population average, the corresponding figure for Ireland is 72%. However, many older people live below the poverty line, and those at most risk for significant poverty include those over the age of 80, women, those living alone and the disabled
- Obesity is the most common nutritional abnormality among older people in developed countries. However, in frail or ill older patients, malnutrition and sarcopaenia can be common and is often underdiagnosed or misdiagnosed
- Depression is less common in healthy older people and more common in frail or ill older people: doctors classically recognize but omit to treat depression in older people (ageism again?)

Principles of working with older people

- Develop a positive attitude to older people, and work on the basis that all loss of function is related to disease, and can always be managed, and often be treated
- Holistic assessment with emphasis on function (AgePage 2)
- Diagnosis and treatment using the

Disease --- Disability --- Handicap

Triad, now rephrased (WHO, ICF) as

Health – Activity –Participation

- Develop expertise in interdisciplinary working: commonly we work with:
  - Specialist nurses
  - Physiotherapists
  - Occupational therapists
  - Social workers
  - Speech/language/swallow therapists
  - Nutritionists

  and liaise with other sub-specialties
  - Community services
  - Psychiatry, (esp) psychiatry of old age
  - Pastoral care
- Develop expertise in common disease and syndrome complexes (AgePages): examples include:
  - Stroke disease
  - Primary neurodegenerative disease
  - Falls and immobility
  - Cognitive impairment
  - Incontinence
  - Respiratory diseases
  - Cardiac disease
- Develop expertise in the alterations in prescribing required for this agegroup
- Develop skills in planning rehabilitation and discharge from day one