The gifts reserved for age

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Many disciplines from the biological and social sciences are relevant to the study of human ageing. The unique contribution of epidemiology lies in defining the phenomenon of ageing and identifying the influences that determine its manifestations. With sadness we recognise, wherever we look in the world, that these influences include privilege, prejudice, and politics.

Ageing, in the sense of senescence, is characterized by progressive loss of adaptability of individual organisms as time passes. Such loss of adaptability is revealed by a rise of age-specific mortality rates. In the human being, mortality rates fall from infancy to a nadir at the age of ten or eleven. Thereafter with minor perturbations in early adult life due to deaths from accident and violence, senescence is manifest as a steady and approximately exponential rise in mortality rates for the rest of the lifespan. Perhaps more importantly, loss of adaptability is also declared in the prevalence of disability, which rises exponentially throughout adult life. Most ageing individuals fear disability, and the loss of independence and autonomy it may bring, more than death.

Age-associated loss of adaptability comes about through interactions of extrinsic factors in lifestyle and environment with intrinsic, genetically determined susceptibilities. Some interactions are specific; in genetically susceptible organisms a high dietary sodium intake will raise blood pressure. Genetically determined metabolic pathways may turn cigarette smoke into carcinogens. Some of the age-associated syndromes produced by such interactions are dignified with the name of diseases, usually because they have a characteristic pathology or because they can be benefited by treatment. Both in a public health and a biological context, however, attempts to draw some fundamental distinction between disease and ‘normal ageing’ are likely to hinder rather than help.

Extrinsic factors also modify the trajectory of human ageing through cohort and secular effects. The work of Barker and colleagues suggests that a powerful form of cohort effect may be generated during life in utero where the metabolism of the fetus adjusts to cues indicative of the sort of environment it is likely to be born into. This form of plasticity can be seen as one example of metabolic switches that may be available to organisms, of some species at least, in other contexts. Examples include the well known life prolongation effects of caloric restriction in rodents which may also prove to exist in primates and in the amenorrhoea precipitated by anorexia nervosa or starvation in women. The evolutionary significance of such switches presumably lies in the efficiency of reproduction, particularly in adjusting reproductive activity to the availability of food supplies. If such switches exist in the human, we might with profit seek how to trip them.

The potential importance of extrinsic factors emerges in the epidemiological evidence that the pattern of human ageing varies from place to place and time to time. The prospect of manipulating the trajectory of ageing is with us here and now; we do not need to await the elucidation of intrinsic molecular processes to improve the common experience of later life. Specific age-associated syndromes show a variety of patterns including the dramatic falls in cardiovascular disease in the US and the baffling rise in fractured hips in the UK. Far more important is the overall trend in wellbeing in later life, and the evidence from the US that recent increases in longevity have been accompanied by a fall in the prevalence of disability in the older population. There is no justification for assuming that such compression of morbidity is inevitable, and there is no evidence of comparable quality that it is happening elsewhere; the implication is that it could be made to happen elsewhere.

If we accept the US data as convincing, and they have been gone over by experts, we need to consider the underlying mechanisms. Cohort effects established in the births of the first two decades of the 20th century must be at the back of our minds, but more recent and manipulable influences should be at the front. Since disability lies in the ecological gap between what one can do and what one’s environment demands, less challenging domestic and urban environments, perhaps purchased by increasing wealth, may be one factor. One of the contributors to the prevention of disability in later life is the timely and appropriate deployment of disability-reducing interventions such as joint replacement and coronary artery surgery. Older people in the US are clearly privileged in this regard compared with some other countries. Published data for the population aged over 75 show rates of hip replacement surgery twice as high in the US as in the UK. For coronary artery bypass surgery American rates are five times the British, and for coronary angioplasty there is an eightfold difference. Prevalence rates of disability will be affected by waiting times for curative surgery as well as by its ultimate availability, and waiting times in the UK are a matter of national shame and international scorn.

There is however a more fundamental geratological mechanism that may underlie what has been happening in the US. An important implication of age-associated loss of adaptability is that the older one is when struck by a condition such as stroke or myocardial infarction the more likely one is to die rapidly rather than to linger in an unpleasant and expensive state of disability. This has the consequence that primary prevention, by delaying the onset of disease, will both increase longevity and reduce the prevalence and duration of disability. Although Americans are growing fatter, the ill effects of obesity may be outweighed by adoption of healthier lifestyles and informed uptake of preventive interventions such as blood pressure control, cholesterol reducing drugs and hormone replacement
therapy. In America, as elsewhere, one correlate of healthy and rational lifestyles is education. The relationship of education with longevity and lack of disability will partly reflect the benefits of wealth and the genetic and social advantages of higher class birth. However, the adoption of healthier lifestyles depends on the ability to appraise evidence, to discount future benefits and costs realistically, and a capacity for self-discipline—all benefits of education. Social policy can contribute further by providing opportunities and incentives for healthy living. Negative incentives in taxes on cigarettes and alcohol are known to be effective. Positive incentives, apart from discounts on life insurance for non-smokers, have been less explored.

There is another process, amenable to direct political action, which commonly makes ageing a more miserable and dangerous experience than it need be. This is the phenomenon of differential challenge. Many aspects of modern societies result in older people being presented with more severe challenges than face the young, but their poorer outcome is too easily attributed to ageing rather than loading of the dice against them. In many countries older people live in low quality housing as a consequence of social policy as well as poverty. More pervasive is the poorer quality of medical care provided for older people. Well-documented examples lie in the treatment of cancer in the US and the management of heart disease in the UK. The provision of second-rate care for older people is institutionalized where medical systems provide secondary care for patients over an arbitrary age in poorly endowed geriatrics units rather than letting them share the better quality ambience of the general medical services for younger ages. The prejudice against older people that underlies such policies and practice in health care is rationalized by economic thinking preoccupied with a ‘return’ on health resource investment in terms of some measure dependent on duration of mean survival such as quality-adjusted life-years. This reflects collectivist ethics in treating health services as a public health measure aimed at improving the health of the populace so that it can better serve the purposes of the state. In civilised countries, the purpose of health services is to enable individuals to realise their self-chosen life goals. This has always been accepted as the function of private medicine. It is the funding of health services, directly or indirectly from taxation or some other form of general levy, that has allowed the ethical situation to become confused. The confusion is convenient for politicians keen to maintain low taxes for their middle-class friends and sponsors.

Another theme contributing to poorer quality of care for older people is the widespread assumption among clinicians that treatments are ineffective at later ages. In fact, geratological theory predicts that treatments will often be more effective if given to older people than to younger. A treatment that reduces the probability of death by a constant percentage will save more lives if given to high-risk patients than to low. Because background risk of death from myocardial infarction increases with age, beta-blockers, ACE-inhibitors and statins save more lives if given to older people than to an equal number of younger people. Death is not the only benefit of interest. Beta-blockers have been shown to reduce the incidence of subsequent myocardial infarction, with its associated risk of disabling heart failure. Similar reasoning applies to the greater benefit for older people from anti-platelet agents for the secondary prevention of stroke. There is more than a hint in the literature that where older people do worse than younger from medical and surgical treatments, better quality care and monitoring may compensate for the loss of adaptability responsible. Newer and less physiologically challenging techniques of surgery and anaesthesia can be expected to be of disproportionate benefit for older patients.

A third determinant of politicians’ belief that longevity for other people is basically a bad thing, is the view that the costs of medical care in old age are inappropriately high and can be reduced by preventing the access of older people to advanced medical technology. Despite its anti-ageist posturing, it is easy to discern that a central target of the recently published National Service Framework (NSF) for Older People in the UK is to prevent the admission of older people to better class hospitals. However, to assume costs of health care for older people are avoidable may be mistaken as well as immoral. Cross-sectional data indicate that the mean annual cost of health care per head rises steadily from late middle age onwards. Longitudinal data demonstrate that at an individual level we incur most of our health care costs in being born and in dying. In three sets of longitudinal data, Zweifel has shown the high concentration of costs in the last four months of life. Mean costs in cross-sectional data rise because the proportion of the population going through the business of dying increases with age. Dying, other than in circumstances incompatible with civilised values, is an expensive business. In particular, good quality palliative care does not come cheaply. It is a repeated observation that dying at older ages is a less costly affair than dying earlier in life, not least because of the predictably futile and expensive care that is lavished on younger patients because they are young. But people should not be assumed to be dying simply because they are old. That assumption can be a conveniently self-fulfilling prophecy in keeping older people out of hospital—provided there are no autopsies and no litigious relatives. There is little money to be saved and much moral capital to be lost by limiting the access of older people to health care, but policies may be driven by health accountancy rather than economics. Part of the agenda of the British government in its policies for older people is to shift costs from health care, free at the point of delivery, to the means-tested social services budget.

These are matters affecting mainly the developed world where politicians have the resources to improve matters and older voters have the power, if they have the collective wit to use it, to change their politicians. But most older people live in the developing world, and their problems arise more from political neglect rather than conscious discrimination. Traditional patterns of life in rural areas of the developing world are disrupted by the industrialization and urbanization inseparable from Western-style economic development. Young people migrate from family smallholdings in the country to town, and even if intending to send money back to their older relatives find that wages are too low and urban living too expensive. Appeals to agencies such as the World Bank to link their grants to developing countries to the creation of social support systems to replace the traditions destroyed by development money fall on deaf ears. Capitalist aid agencies work to an agenda determined by calculation of Disability Adjusted Life Years (DALY) in which older people are economically disposable.
The sufferings of older people in developing countries are part of a larger economic picture. Wages are low in developing countries because the developed countries who provide the capital profit from the cheap labour. Unionization and withdrawal of labour are not options for large destitute populations, and their politicians who might drive harder bargains with international capitalism may have conflicting interests. Bland assurances from developing world politicians that the older people in their countries have no problems as they are looked after by their families do not convince the sceptical. Ignorance and wishful thinking may play a part, but the politics of denial has a long, complex, and tawdry history.

No amount of argument within the established economic framework will change all this. There needs to be a radical change in the moral basis of international aid—exploitation masquerading as charity to be replaced by partnership. Such a change is unlikely to be driven by politicians. It is a sad fact that the personal qualities necessary to attain political high office are those, which in a rational and moral world, would disqualify a person from holding such office. This principle prevails as strongly in democracies as in tyrannies.

The cultural consequences of economic change affect older people in developed countries too. The balance between income support and provision of medical services in Italy was set by a policy based on encouraging traditional patterns of care within families. This may have to change if women are to be increasingly recruited into the workforce to reduce the immigration otherwise necessary to meet the consequences of the falling birth rate. Japan is already responding to cultural changes. Traditionally, responsibility for the care of older people fell to the wife of a family’s eldest son. The son was expected to live close enough for his wife to carry a bowl of soup to her parents-in-law without it getting cold. This tradition has become unsustainable as young people need to be more economically mobile and women pursue careers of their own. Moreover, traditional care did not provide for older people who had no children, and for the poor life might end as ‘bedfast elderly’ in noisome nursing wards hidden from foreign eyes. For a long time this was either not recognised or not recognised as a problem. Once conditions in these long-stay institutions were perceived as unacceptable, the first reaction was to recruit more nurses to improve standards of care. Then it was realised, as it had been by UK geriatricians faced with a similar problem 40 years before, that the numbers of bedfast elderly could be reduced by well-designed rehabilitation services appropriately positioned in the system of health and social care. National plans are now in place to provide a range of rehabilitation and domiciliary services close enough for his wife to carry a bowl of soup to her parents-in-law. Yet one of the achievements of modern civilisation and medical science has been to provide for the many a longevity that was once the perquisite of the biologically and socially privileged. Old age is now a human right, to be enjoyed not endured.

Later life can never be a time of unalloyed happiness. The nights can be long and troubled by regrets for the past and fears of the future. Even for those with success in the world there may come a time when ‘fools’ approval stings and honour stains’. Yet one of the achievements of modern civilisation and medical science has been to provide for the many a longevity that was once the perquisite of the biologically and socially privileged. Old age is now a human right, to be enjoyed not endured.


