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FINANCING HEALTHCARE FOR THE ELDERLY

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1. INTRODUCTION

THIS paper is about financial products which meet the healthcare costs of the elderly. It covers products that include elements of housing and healthcare provision, as well as insurance products with financial benefits that meet or reduce the cost of healthcare. It is hoped that the paper will be of interest to property developers and managers of retirement housing and nursing homes, as well as to the actuarial profession and the financial services community.

The paper introduces some of the areas that the author has researched and worked in over the past three years. During the same period, many insurance companies and developers are known to have researched the market for financial products which cover the cost of healthcare for the elderly. Demographic changes, coupled with more widespread home ownership and occupational pensions, have created a major opportunity for new products. Continuation of these trends, and political and cultural changes away from State provision, suggest that the need for new products will grow. In the U.S.A., similar trends have led to a rapidly growing market for many products combining finance and healthcare for the elderly. In the U.K., the market has been slower to respond to the opportunities.

The paper can be considered in two parts. In the first part, §§ 2 and 3, the factors that create the current market opportunity are examined. In the second part, §§ 4, 5 and 6, some of the products that can meet the needs of elderly consumers are analysed.

In § 2, the characteristics of the market are examined; its changing demographic profile, the financial status of the elderly and their healthcare needs. The State is a major influence on healthcare and § 3 reveals how State benefits create opportunities for financial products. The difficulties faced by the State in controlling its healthcare expenditure give the private sector important lessons in product design.

In §§ 4 and 5, the author considers insurance of acute healthcare and long-term care respectively. Acute healthcare is currently financed privately through private medical insurance. It has been mooted elsewhere that acute healthcare could be insured on a long-term basis with an element of pre-payment of future healthcare costs. In § 4 some illustrative premium rates are developed and used to discuss some of the product design issues. Long-term care includes care in a residential home or nursing home, as well as nursing care at home. Some of the

long-term care products developed by U.S.A. insurance companies, and the difficulties in pricing similar contracts in the U.K., are analysed in § 5.

Continuing care retirement communities ('CCRCs') are retirement housing developments including healthcare and financial guarantees for residents. In § 6 the characteristics of a CCRC are examined, and the need for actuarial skills in pricing and reviewing financial adequacy is explained.

This paper considers a variety of topics falling under the broad subject of "financing healthcare for the elderly". It will have achieved its aim if it encourages insurance companies and developers to work together to develop healthcare products for the elderly.

2. THE GREY REVOLUTION

"... the novel commonplaceness of old age and especially extreme old age poses massive problems for society and the aged ..." Professor Arie

2.1 *Background*

It is no longer news that the U.K. and many other developed Western nations are in the middle of a major demographic shift in the balance of power towards elderly people. This trend has been termed the 'grey revolution'. Already people over retirement age account for nearly 25% of the U.K. electorate, and this proportion is forecast to grow. Elderly people are also an important consumer group. As a group, retired people today are significantly more affluent than previous generations due to the growth in home ownership and the expansion of occupational pensions and personal savings. These are the key factors that create the market opportunity for products for the elderly. In this chapter these factors and the healthcare needs of the elderly are analysed in greater detail.

Businesses that have developed products to meet the needs of the elderly have been spectacularly successful. Sheltered housing is one of the best examples of this phenomenon. Small local builders were among the first companies to identify the need for purpose-built accommodation for the elderly and several of them have grown into major quoted companies. Sheltered housing has been the fastest growing area of house building, and land for sheltered housing commands some of the highest development values. The very growth of this market may be a potential source of problems in the years ahead; there are fears that groups of increasingly frail residents will be located in sheltered developments without adequate access to the caring services. In recognition of the potential problems, a number of new sheltered developments include an on-site private care home (i.e. a nursing or residential home).

Housing is not the only business to have been changed by the 'grey revolution'. Special products have been developed for the elderly in the transportation and leisure businesses. In the insurance industry, guaranteed issue life insurance has been developed, and motor policies for the over 55s are common. At present, and

in recognition of the growing numbers of 'old' old, the care home market for the elderly is changing from a collection of family businesses, to a corporate market with large chains of homes in the ownership of quoted companies.

Demographic trends have influenced Government policy in the area of pensions and healthcare. Rising fears over the long-term cost of State pensions has led to the substitution of price indexation for earnings indexation on pensions in payment, to reduced accrual rates for the State Earnings Related Pension, and to legislation encouraging personal pension provision. In the field of healthcare, there is increasing interest in personal pre-funding of future costs, rather than universal reliance on potentially unstable State pay-as-you-go finance. The Government is currently undertaking a major review of the National Health Service ('NHS'), and may be considering options for encouraging personal financing of healthcare costs after retirement.*

With increased private affluence, more elderly people are already financing a proportion of their own healthcare. This trend is being promoted by a number of factors:

- a limited supply of public healthcare due to the cash limits placed on the NHS,
- a means tested State benefit for individuals living in care homes,
- growth of products tailored to the needs of the elderly,
- increased acceptance that individuals must spend income and capital to secure a high quality of life in old age.

Research indicates that security is high on the list of priorities of the elderly—physical security in terms of living in a secure environment, financial security in terms of being able to maintain a reasonable standard of living, and health security in terms of knowing that care will be provided when needed. However, the costs of healthcare in old age are potentially extremely high, and few individuals would have the resources to finance a high level of costs on a fee for service basis. This creates the scope for financial products that include an investment element and which pool the healthcare and longevity risks of the elderly.

2.2 *The Elderly Population*

Improving standards of healthcare and safety at work have led to significant improvements in mortality over the last 70 years. Historically, this improvement in mortality has been due to great improvements in mortality rates for children and younger adults. Today, the most significant mortality improvements are those occurring at older ages.

* On 31 January 1989 the Government published its plans for reform of the NHS in a White Paper entitled 'Working for Patients'. The White Paper included the proposal that premiums paid for private medical insurance in respect of individuals aged 60 or over would be eligible for tax relief. The enabling legislation is contained in the Finance Act 1989 and came into effect April 1990.

At age 70, the expectation of life is now ten years for males and 13 years for females[1]. Medical advances, coupled with greater understanding of the role of diet and lifestyle in healthcare, are leading to continuing mortality improvements for the elderly. For example, the most recent population projections[2] are based (approximately) on a 25% reduction in mortality rates over the next 40 years. Others, taking a more optimistic view of future improvements in the rates of mortality from ischaemic heart disease and lung cancer, predict even greater reductions. Declining mortality rates for the elderly is one factor leading to continuing increases in the proportion of elderly people. The decline in birth rate over this century is another important contributory factor.

Growth in the proportion of elderly people is no new phenomenon—it has been happening for much of this century. In fact the proportion of over 65s is expected shortly to plateau for about 20 years at around 16% of the population, before increasing to over 20% of the population by 2041. Figure 1 shows in greater detail the components of population change among the elderly over the next 60 years. One key factor is that the total number of individuals aged over 85 is predicted to grow by 90% over the next 25 years; thereafter, the rate of growth of all sections of the elderly community increases. By 2046, 6·4 million people are predicted to be aged 75 or over and nearly 1·8 million people are predicted to be aged 85 or over. Such indicators suggest continuing growth in the demand for sheltered housing, care homes and other products aimed at the elderly.

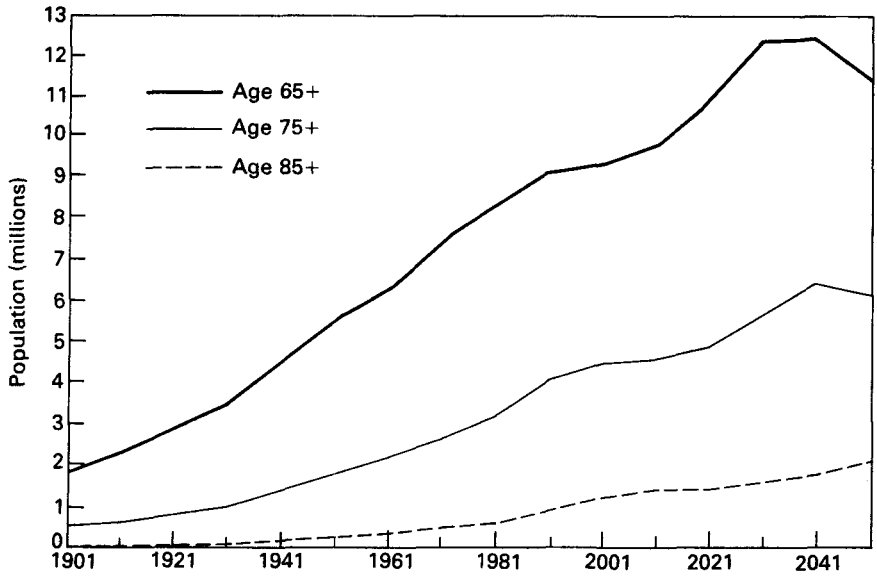

Figure 1. *Growth of population over age 65.*

2.3 *The Financial Status of the Elderly*

Despite increasing affluence, the elderly are typically viewed as being 'asset rich but income poor'. For the current elderly, this generality is often true. Home ownership is relatively widespread, but the penetration of personal and company pensions and other personal savings is still limited. Future generations of pensioners are expected to have higher levels of personal savings and pension provision, and more widespread home ownership. Table 1 shows the penetration of owner occupancy by age group of head of household.

A significant proportion of the elderly are house owners, and this proportion is expected to grow substantially. In the current 45–64 age group, approximately 70% of households can expect to be outright owners of their own house. A home represents a substantial asset—in London a typical semi-detached house is valued at £122,000, while in Yorkshire a similar property might be valued at £37,000[3]. Although an important asset, a house can also be a barrier which prevents an elderly person from obtaining long-term State supported residential care (see § 3). Many individuals will need to realize some or all of their housing asset in order to obtain the care needed in later life.

Research confirms that income levels among the elderly are currently relatively low. The Family Expenditure Survey 1986 indicates that only 2·9% of retired single person households had a gross income of over £200 per week, while 85·5% of the same group had a gross income of less than £100 per week.

Table 2, showing the variation in annual income by age of head of household, confirms that relatively few elderly households have an income of over £10,000 per annum—the cost of a year of care at one of the less expensive nursing homes. The table also shows that the newly retired are significantly more affluent than those retired for a number of years; the maturing of SERPS and increased coverage and improved benefits from personal and occupational pensions should see this trend continuing for many years.

Traditionally, elderly parents have often been cared for by their children either in their own home or their children's home. Changing social patterns, geographically dispersed families and working wives are leading to a reduction in the traditional model of care, and greater reliance on the welfare state and on

Table 1. *Owner Occupiers as a proportion (%) of all households*

Age	*Outright Owners*	*Mortgagors*	*Total*
25–29	1	13	14
30–44	8	51	59
45–64	39	30	69
65–74	30	1	31
75+	23	0	23

Source: General Household Survey 1985

Table 2. *Annual Family Income Distribution by Age Group*

Annual Income (£)	*51–60 (%)*	*61–70 (%)*	*71–80 (%)*	*81+ (%)*	*All ages (%)*
0–4,500	20	51	70	83	28
4,500–9,500	34	35	24	15	29
9,500–13,500	17	7	4	2	17
13,500–17,500	12	4	1	0	11
17,500+	17	3	1	0	15

Source: Financial Research Services 1988

private paid help. However, the family may often be a source of financial support for the old; anecdotal evidence suggests that many elderly are maintained in care homes in part by their children and grandchildren. Financial products to control the cost of care for the elderly may therefore be targeted at the general public, as well as the elderly themselves.

2.4 *The Healthcare Needs of the Elderly*

The Office of Health Economics[4] has estimated that, despite accounting for just 15% of the population, the over 65s account for 42% of NHS expenditure. The per capita cost of NHS care for the over 75 age group is over seven times the cost for the 16–64 age group. For 1984/85, the average cost of providing hospital and community health services was £942 per individual over age 75.

Utilization statistics for health services show a similar picture:

- individuals aged over 75 are five times as likely to be visited by a District Nurse as an adult aged less than 60[5],
- the average number of GP consultations per person per year is around 50% higher for the over 75s than for the 45–64 age group[6],
- the over 70s account for 55% of all non-maternity hospital days in England, despite accounting for less than 11% of the population[7],
- the proportion of the elderly resident in an institutional setting (in care homes and psychiatric/long stay hospitals) is particularly high, being estimated at 12% for males aged over 85 and 21% for females aged over 85 (see Table 3).

Table 3. *Proportion of Population Resident in an Institutional Setting*

Age Group (%)	*65–74 (%)*	*75–84 (%)*	*85+ (%)*
Males	1	4	12
Females	1	6	21

Source: OPCS[8]

There is evidence that the rate of institutionalization is increasing among the elderly, as the supply of privately run (but often publicly financed) care homes increases. However, rates of institutionalization remain low by international standards, suggesting that future growth in levels of provision is possible.

With no change in utilization rates, the demand for NHS services is expected to increase by about 1% per annum, as a result of the growing number of elderly people. Costs, in real terms, may increase even faster:

- staff costs are a major element of healthcare costs; the forecast shortages of school leavers to join the nursing profession, and increased demand from an expanding private healthcare sector, suggest that staff costs will rise,
- new medical technology will typically lead to improved diagnosis and treatment—and higher costs.

Historically, medical inflation has been significantly higher than retail price inflation.

Countering this are trends towards improved efficiency in the NHS, coupled with a more competitive environment and the use of performance indicators to compare District Health Authorities. The policy of community care, which facilitates the care of elderly people in their own home or in a care home rather than a hospital bed, should decrease the use of hospitals but may increase the rate of care in other institutions. Changing clinical practices are tending to lead to higher hospital referral rates but shorter lengths of stay. It remains to be seen how much these changes in healthcare practice can reduce the burden on society of an increasing number of elderly people.

2.5 *Summary*

The healthcare needs of the elderly are many and varied. The costs of this healthcare are high and must be financed either personally through payments on a fee for service basis or through insurance, or collectively through the different forms of State taxation. A proportion of healthcare costs for the elderly are already financed personally, and changing attitudes towards personal provision suggest that this proportion will increase. This trend is encouraged by the well publicized difficulties of the NHS, which is faced with increasing demand pressures due to demographic changes and rising public expectations, as well as significant short-term financial constraints.

Although the number of people aged over 65 is not expected to increase significantly for a number of years, increasing income levels and more widespread home ownership suggest that there is already a significant market that can afford to make some financial provision for future healthcare costs and that this market will grow. The number of people aged over 75 is expected to continue to increase markedly suggesting that the market for specialist products for this age group will become significant.

3. THE ELDERLY AND THE STATE

3.1 *Overview*

The previous Section suggested the existence of a significant market for financial products to meet the healthcare costs of the elderly. This section examines the extent to which the State provides healthcare for the elderly, since State policies can create or limit opportunities for the private sector to develop new products. For example, in the absence of a universal national health system in the U.S.A., a large private insurance market has emerged. In the U.K., an insurance market has developed to complement the State-provided acute hospital services. However, in the area of long-term care, a less comprehensive State service may offer even greater opportunities for insurance.

Acute care is provided essentially free of charge by the NHS and, to a limited extent, is now provided on a fee paying basis by the private sector. Individuals may elect to purchase private medical insurance, or to pay for private treatment as the need arises using one of the 'fixed cost surgery' products that now exist. These products provide a specified surgical procedure at a fixed cost, regardless of length of stay in hospital. Private supplementation of NHS acute services appears likely to continue and expand, unless the Government makes radical changes as a result of its review of the NHS.

Long-term care can include home care, care delivered in a care home and day care. The extent of national provision for long-term care is probably not well understood. Understanding the current situation is the key to understanding the need for long-term care insurance products; insurers are therefore likely to have to fulfil an educational role as well as a product development role. Long-term care falls under the area of government policy known as community care. In December 1986 the Secretary of State for Social Services asked Sir Roy Griffiths, the Deputy Chairman of J Sainsbury plc to undertake an overview of community care. The Griffiths Report[9], delivered in February 1988, highlighted the complex pattern of provision for the long-term care needs of the elderly and made recommendations for the future delivery of these services. If implemented, the report should lead to better delivery of State care services, but will not change the position whereby a large proportion of the elderly will need to finance long-term care themselves.

Home care is provided by a mixed bag of NHS, local authority, voluntary and private carers. There is no one body responsible for the delivery of this care. Inadequate home care is often a reason for obtaining institutional care; yet obtaining adequate home care is often a matter of luck or of personal circumstances. The cost of home care is often significantly less than the cost of residential care, and it is in the interest of all parties to see that appropriate home care is provided.

Residential care is provided in a variety of settings by many different organizations as shown in Table 4. Since the mid 1970s there has been a relative

Table 4. *Organizations providing Residential Care*

	Organization Providing Care		
Type of Care	*NHS*	*Local Authorities*	*Independent Sector*
Long stay hospital ward	Yes	No	No
Nursing Home	Yes	No	Yes
Residential Home	No	Yes	Yes

decline in the provision of residential care by the NHS and local authorities, and a substantial increase in the provision by private and voluntary organizations. This care is financed publicly through Income Support and also privately. Independent provision has developed through registered nursing homes and registered residential homes; each is governed under different legislation with different registering authorities. In this paper the term care home is used to describe both nursing and residential homes, and the term residential care is used to describe the care given in a care home.

A nursing home is defined, in the Registered Homes Act 1984, as "any premises used . . . for the reception of, and provision of nursing for, persons suffering from any sickness, injury or infirmity". In contrast, a residential care home is "any establishment which provides . . . residential accommodation with both board and personal care by reason of old age, disablement . . .". There is no clear definition of what constitutes "nursing" and what constitutes "personal care". Independent surveys have indicated that dependency levels in residential care homes can be very similar to those in nursing homes. In his report, Griffiths stated "it is a matter of chance whether a person needing long stay care finds himself in a geriatric ward or in a nursing home or residential home, with different costs and charging". Some of the issues raised by Griffiths in terms of assessing the need for different types of care are also relevant to any financial institution seeking to finance this form of care.

3.2 *Income Support*

Income Support was introduced from April 1988 to replace Supplementary Benefit. Like Supplementary Benefit, it is intended to help people who do not have enough money to live on, by bringing their income up to a minimum level. To use an emotive, but well understood, phrase, Income Support is 'means tested'. Individuals resident in a care home may qualify for Income Support benefit. Table 5 shows the current Income Support limits for the physically disabled over pension age.

In determining benefit amounts, most sources of income are taken into account and reduce the above limits pound for pound. A notional income is attributed to any capital assets of over £3,000. Individuals with capital assets of over £6,000 are not eligible for Income Support. For an individual in a care home, any property not occupied by their partner or by an elderly, sick or

Table 5. *Income Support Limits (per week)*

	From April 1988 (£)	*From April 1988 (£)*
Residential Care Home	130·00	140·00
Nursing Home	185·00	190·00
Supplement for Greater London	17·50	23·00
Supplement for terminally ill (nursing homes only)	45·00	40·00

disabled resident is taken into account. Assets held by partners, other than the family home, are also taken into account.

The majority of individuals moving into care homes are single women. Although income poor, any such person who is a house owner will not qualify for Income Support—the implication is that assets must be realized to pay for residential care. As assets are spent, so an individual may qualify for Income Support. Medicaid, the U.S.A. health insurance system for those on low incomes, has similar rules to qualify for long-term care benefits. This has given rise to a phenomenon in the U.S.A. known as 'spending down'—individuals disposing of assets to qualify for Medicaid benefits. There are signs that spending down is now happening in the U.K. Spending down needs to be implemented at an early stage to be successful; the guidance notes on Income Support state "you will be treated as having notional capital if you have disposed of capital in order to get Income Support—for example if you made a gift of capital to a relative".

While Income Support is 'means tested' it is not 'needs tested'—there are no set criteria to determine whether nursing or residential care is most appropriate. A needs test appears to be under serious consideration by the Government, apparently to limit Government funding of care homes. Some observers believe that a needs test would indicate substantially greater need for care home accommodation than suggested by current levels of provision. In many areas of the country, particularly in London and the South East, current limits are seen as inadequate and there is a shortage of care homes at Income Support levels. Care homes charge more than the limits in these areas and to obtain residential care Income Support benefits must be topped-up by the patients' own, often meagre, savings or by friends and relatives.

3.3 *The Griffiths Report*

Griffiths suggested that local authorities should "assess the need for residential care and, if they judge it appropriate, meet the costs of caring for people who cannot pay for themselves, in residential (including nursing) homes". Thus the report suggests that residential care should be privately financed where appropriate, confirming current trends and suggesting significant opportunities for financial care packages. The report also suggests that publicly financed care should be subject to a care needs assessment.

Griffiths recognized the changing financial circumstances of the elderly: "Future policy needs to be planned in the light of economic changes, in particular the significantly higher real incomes and greater wealth which today's middle-aged will have on reaching retirement." Griffiths also suggested a role for insurance and occupational pensions in the financing of long-term care: "I therefore recommend that central government should look in detail at a range of options for encouraging individuals to take responsibility for planning their future needs. This examination should include evaluating the potential of innovative service models, such as social maintenance organizations along the lines of the health maintenance organizations, which currently exist in the U.S.A., and the incentives available through taxation and insurance systems for encouraging individual and corporate planning in this area, perhaps through the extension of occupational pension schemes."

At the time of writing, the Government has not formally responded to the Griffiths Report.*

3.4 *The Future*

The future cannot be predicted with any certainty. The outcome of any changes to the NHS, or in the provision of community care, will be uncertain for many years. However, in this Section I give a personal view of the way healthcare services for the elderly may develop, and of the opportunities this creates for financial institutions.

The NHS is likely to continue to provide a comprehensive acute and emergency care service, essentially free at point of delivery, and in all likelihood available to all individuals regardless of income or assets. The trend towards short stay NHS services will continue, the majority of long stay services will be provided by the independent sector. For those that can afford it, the option of private acute healthcare will be available and will be utilized more frequently. Private medical insurance will be one financing mechanism, but a significant proportion of old people will choose to pay for private healthcare on a fee for service basis if a specific problem arises with which the NHS cannot deal.

The organization of home healthcare services will improve either as a result of the implementation of (part of) Griffiths, or merely because the various organizations in this field improve their joint working arrangements. Whether such community care services will be adequately resourced remains to be seen.

* In a statement to the House of Commons on 12 July 1989, the Secretary of State for Health outlined the Government's response to the Griffiths Report. It proposed that a single budget, to be held by local authorities, should be created for community care. Local authorities will be expected to act in an 'enabling' role rather than as providers of care. Changes to the Income Support system are also proposed. Claimants will be eligible for Income Support and Housing Benefit on a similar basis, whether living in their own home or in a residential or nursing home. The care element of costs will be met by local authorities and not by Income Support. Local authorities will be responsible for ensuring that multi-disciplinary assessment procedures are established to assess individual care needs. A White Paper detailing the proposals was published in Autumn 1989.

There is likely to be greater independent sector provision both on a private paying basis, and under contract to the statutory authorities. Greater availability of independent sector care and more widespread knowledge of services will encourage more private purchase of home care.

Residential care will continue to be needed by a significant number of elderly people who can no longer live independently in the community. However, better community care and more formal assessment of the need for residential care will tend to stabilize admission rates and perhaps lead to shorter lengths of stay. A large proportion of elderly people will finance residential care from private means; the cost of this care will be high and uncertain—some individuals with apparently high net worth will end up supported by the State. Demand will increase for financial products to make the costs of necessary residential care more affordable, and more predictable.

There will be continuing growth in the number of retirement communities which include a substantial element of healthcare provision. These will provide residential care and extensive home care services to community residents, should the need arise. Financial plans will be developed to make healthcare costs more predictable for residents of retirement communities.

3.5 *Summary*

Section 2 suggested that demographic and financial trends point to a significant opportunity for healthcare products for the elderly. In this Section the differing nature of State provision for long-term care and acute care has been highlighted; the lack of a comprehensive State long-term care service for all suggests that the need for financial products may be greatest in this area. However, in order to control claim costs any financial products will need not only effective underwriting, but also an effective assessment of the need for care, as proposed by Griffiths for the public sector.

In the following Sections a number of products which may meet the healthcare needs of the elderly are discussed.

4. FINANCING ACUTE CARE

"... surely it would make eminent sense to allow employers to fund for post retirement medical care? ..." Editorial, *FIASCO*, November 1988

This Section considers the development of long-term financial products to meet the cost of acute care. It has been suggested that long-term insurance products should be developed for acute care—with the aim of making acute care more affordable after retirement. A feature of these products is that premiums would not increase because of the age of the policyholder. There have also been suggestions that employers should be encouraged to fund for employees' post-retirement acute care costs through pension schemes with consequent tax

advantages. The section starts by reviewing existing private medical insurance products, which finance acute care through a short-term contract with no element of pre-payment (investment) to meet future claim costs. Illustrative premium rates are then developed for such contracts in order to examine some of the product design considerations.

4.1 *Current Insurance Products*

Around 11% of the U.K. population is now covered by private medical insurance ('PMI'). Penetration rates vary significantly by age group as indicated by Table 6. The same table indicates that the vast majority of those aged over 65 pay personally for PMI; while many employees are covered for PMI by their employer, few companies extend this cover after retirement.

Private medical insurance in retirement is not cheap; as a guideline, around £500 for an individual over age 65 for a traditional comprehensive product. Despite this relatively high cost, many people maintain insurance cover after retirement, even though this may mean paying for medical insurance for the first time. There is some evidence to suggest that individuals 'trade down' to lower levels of cover, or switch insurer before retirement in order to reduce premium levels. However, maximum entry age limits and medical underwriting restrict individuals' ability to shop around in later years.

The traditional comprehensive PMI product provides full cover for all acute in-patient and out-patient treatment costs, and gives individuals a wide choice of independent hospitals in which they can receive treatment. In recent years, insurers have developed a variety of lower cost PMI products, by restricting the nature of the cover provided. Some of the product developments have been aimed specifically at the elderly, and there are now a number of plans with a maximum entry age of 74 or higher.

The majority of PMI is priced on an attained age basis according to broad age groups; frequently there is just one age group for those aged over 65 and there can be a substantial premium rate increase (sometimes over 50%) on moving into this category. Newer products include age-related premium increases after the age of 65.

Table 6. *Penetration of Private Medical Insurance by Age Group*

Age Group	*Paid for by Employer (%)*	*Paid for by Self (%)*	*Payer Not Stated (%)*	*Total with Insurance (%)*
25–34	5·9	4·8	·7	11·4
35–44	7·9	6·4	1·1	15·4
45–54	6·1	8·3	1·1	15·5
55–64	3·6	9·0	1·0	13·6
65+	·5	4·3	1·3	6·1

Source: Target Group Index © BMRB 1986

Comparison of current PMI premium rates with published healthcare utilization statistics and the known costs of private healthcare suggests that premium rates for PMI are surprisingly low. One of the reasons for this is that PMI excludes many of the conditions particularly prevalent among the elderly. Insurance products are intended to cover acute episodes of illness and injury, and chronic conditions are excluded. For example, treatment eligible for reimbursement might be defined as: "surgical or medical procedures—the purpose of which is the cure of acute illness or injury and not the alleviation of long-term illness". Furthermore, this treatment must be given by or under the day-to-day control of a specialist (a consultant surgeon or consultant physician). Long-term care is often specifically excluded, for example: "benefits shall not be payable for . . . charges for accommodation and nursing in any nursing home . . . which for any reason is, or has effectively become, the place of domicile or permanent abode". Home nursing claims are usually subject to some form of limitation such that long-term claims would not be covered. Thus it is the clear intention of most PMI policies not to pay for any illness of a long-term nature.

4.2 *Medical Inflation*

No discussion of the possibility of funding for future healthcare costs can be complete without some reference to medical inflation. PMI premiums have increased rapidly over the last decade, at a rate significantly faster than both prices and earnings. For example, a typical annual premium rate for individual PMI has increased by over 200% since 1979.

Medical inflation is notoriously difficult to predict, but an analysis of recent premium rates is possibly not the best guide. Some factors affecting private healthcare represent relatively short-term trends rather than long-term trends, for example:

- the trend towards high quality independent sector hospitals and away from lower cost pay-beds in NHS hospitals,
- the trend towards higher utilization of the private sector by insured patients, accounted for by a greater range of procedures undertaken in the private sector and by higher medical intervention rates.

It can be argued that these factors are 'one off', and that with moves towards a managed care environment, with greater control over both charges and intervention rates, inflation in the private healthcare sector should move closer to healthcare inflation in the economy as a whole.

A publication by the OECD[10] gives some historic data for the U.K. on hospital cost levels and medical staff cost levels. Figure 2 shows the increase in costs relative to the Retail Prices Index over the period 1960–83. Using these indicators, the rate of medical inflation averaged around 2–3% per annum higher than Retail Prices Inflation in the period 1960–83. Technological advances, which result in more medical conditions being treated, and the high labour

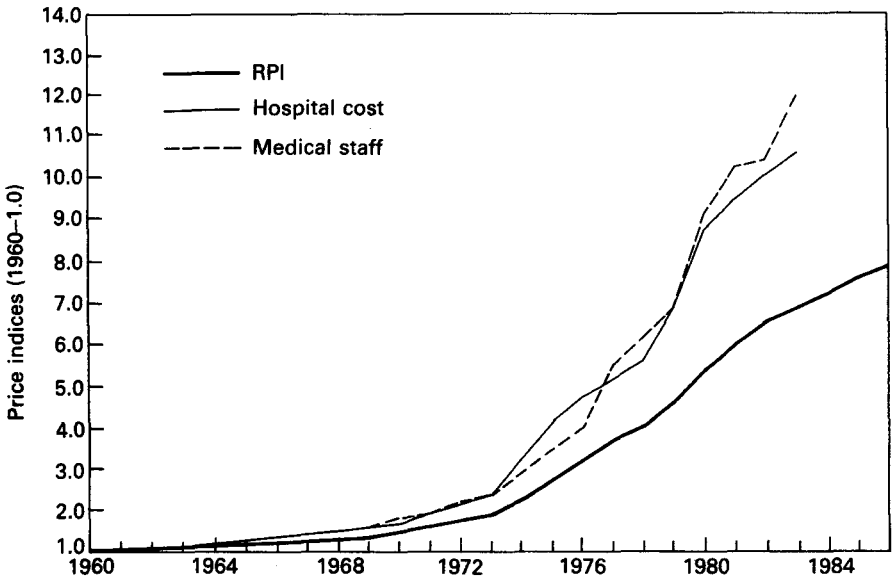

Figure 2. *Healthcare price inflation.*

content of healthcare are good reasons why healthcare inflation should continue to run ahead of prices inflation.

An illustrative interest rate for funding healthcare costs of 2% per annum has been used in subsequent sections. This is based on an assumed 'real' investment return of 4% per annum and a 'real' healthcare inflation rate of 2% per annum. This assumes that premium rates will increase by the rate of healthcare inflation, even if there are no age-related increases. Long-term healthcare costs are particularly sensitive to this choice of discount rate since healthcare is a long-term benefit—for example, 55% of the expected hospital days for a 40-year-old male will occur after the age of 70. Over the past 20 years the rate of healthcare inflation for the PMI insurers has been significantly greater than that in the economy as a whole. If the view is taken that insurers will not be able to control healthcare costs and utilization, then a higher rate of healthcare inflation should be assumed and a lower interest rate used for discounting future healthcare costs.

4.3 *The Cost of Hospital Insurance*

In §2 the average annual cost of NHS hospital care and community health services for the over 75s was quoted at £942 per person in 1985 terms. That sum is likely to be around £1,100 in current terms. If the same care were to be provided by the private sector, as currently constituted, the cost is likely to be significantly higher because of higher charges. Table 6 presents an assessment (albeit a

Table 7. *The Annual Cost of Hospital Insurance (£300 per night)*

Age Attained	*Males £ per annum*	*Females £ per annum*	*Both Sexes Average £ per annum*
25–29	81	108	96
35–39	93	135	114
45–49	159	189	174
55–59	303	279	291
65–69	618	576	594
75–79	1,554	1,557	1,557
85–89	3,084	3,801	3,624

simplistic one) of the rising cost of hospital care with attained age, based on an assumed cost of private healthcare of £300 per night, inclusive of all charges. This approach gives a reasonable indication of relative costs, although it tends to overstate costs for the elderly and understate costs for the young, since:

- younger people will tend to have a higher proportion of surgical cases, with higher costs per day, than medical cases,
- for the same treatment, younger people will tend to have a shorter length of stay than older people, with a consequently higher per diem cost.

The simple model used for Table 7 is used in subsequent examples. To avoid too much confusion with existing products, the underlying theoretical product is termed 'hospital insurance'—it represents payment of a fixed benefit for each night in hospital. The annual cost is taken as £300 multiplied by the average number of days in hospital per year for quinquennial age groups as shown in the Hospital In-patient Enquiry[7].

Existing PMI products are not comprehensive and Table 7 generally overstates the cost at higher ages. PMI insurance typically covers acute elective surgery only; some recent product developments have tended to reinforce this point by insuring only surgical procedures. There is no data available to suggest what proportion of hospital days might be due to 'chronic' rather than 'acute' care. As a first approximation, one can separate those cases with a surgical procedure from those classified as medical (i.e. no surgical procedure). It is reasonable to assume that the majority of surgical procedures are for acute conditions or for acute episodes of a chronic condition. It is less true to say that all medical treatment is for a chronic condition—for example, chemotherapy is one example of medical treatment for a possible non-chronic condition.

Figures 3 and 4, based on the Hospital In-Patient Enquiry[7], illustrate that while hospital days per year increase substantially with age, the majority of this increase is in days for medical cases. The increases in days for surgical cases for both sexes appear relatively low. In comparison to the cost of hospital insurance, the cost of insurance for surgical procedures only is relatively low as shown in Table 8.

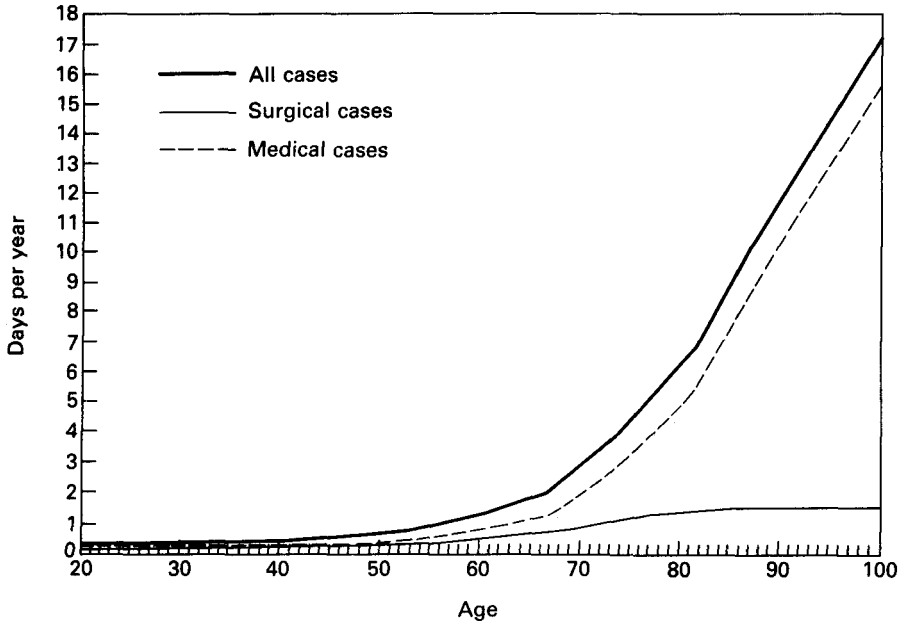

Figure 3. *Days in hospital per year—male.*

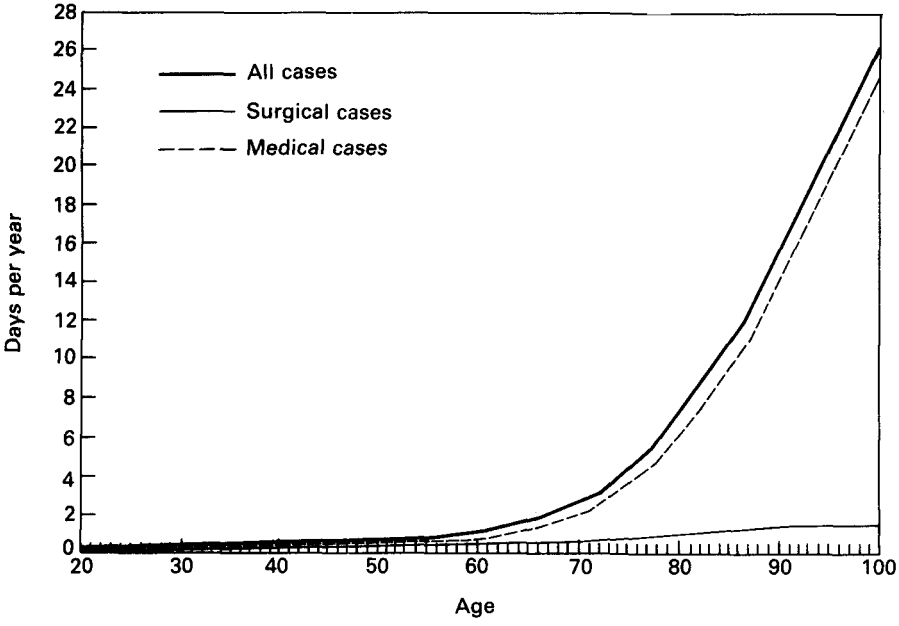

Figure 4. *Days in hospital per year—female.*

Table 8. *The Cost of Hospital Insurance (both sexes combined)*

Age Group	*All Cases (£ per annum)*	*Surgical Cases Only (£ per annum)*	*Surgical cases as portion of all cases*
25–29	96	54	56
35–39	114	66	58
45–49	174	90	52
55–59	291	120	41
65–69	594	201	34
75–79	1,557	336	22
85–89	3,624	456	13

To model a more comprehensive medical insurance plan, it might be appropriate to add in a proportion of medical cases to the surgical case load.

This Section demonstrates that comprehensive private hospital care for the elderly is likely to be very expensive. Few consumers or employers are likely to wish to purchase a truly comprehensive plan, when the NHS is free at point of delivery. However, if limitations can be placed on the cover provided, then costs become more manageable. Plans covering surgical cases only or waiting list only cases (which are mainly surgical) achieve this limitation. Pre-funding of these costs allows consumers to budget costs when they can best afford it, and helps employers to finance retirement costs over an employee's working life.

4.4 *Long-Term Medical Insurance*

4.4.1 *Illustrative Premium Rates*

A simple model has been constructed to demonstrate the potential cost of long-term PMI. The model is based on recent population mortality[1] and hospitalization statistics[7]. Illustrative premiums are based on an assumed cost of £300 per day in hospital, and a real investment return of 2%. Underlying this assumption is the principle that premiums will increase in line with healthcare inflation, but not because of increasing attained age. It is suggested that the resulting figures are treated as no more than a very broad indication of potential costs.

Using the methodology developed earlier, Table 9 shows the net annual premium for a 'whole of life' hospital insurance plan, analysed into the surgical and medical components. No allowance has been made for taxation, lapses or expenses.

The results suggest that if pre-funding were achievable, the cost of a comprehensive hospital insurance plan might not be prohibitive at younger ages. More restrictive plans might, with pre-funding, be affordable to a significant market at older ages. However, at advanced ages, pre-funding has little attraction over 'pay-as-you-go' insurance.

On the same basis, Table 10 shows illustrative annual premium rates for a plan

Table 9. *Net Annual Premium for Whole of Life Hospital Insurance*

	Males			*Females*		
Age	*Surgical Cost (£ per annum)*	*Medical Cost (£ per annum)*	*Total Premium (£ per annum)*	*Surgical Cost (£ per annum)*	*Medical Cost (£ per annum)*	*Total Premium £ per annum)*
25	100	185	285	124	273	397
35	123	248	371	144	362	506
45	162	350	512	167	500	667
55	222	524	746	202	740	942
65	307	855	1,162	262	1,195	1,457
75	410	1,536	1,946	349	2,132	2,481

Table 10. *Annual Premium for Post-Retirement Medical Plan*

	Males			*Females*		
Age	*Surgical Cost (£ per annum)*	*Medical Cost (£ per annum)*	*Total Premium (£ per annum)*	*Surgical Cost (£ per annum)*	*Medical Cost (£ per annum)*	*Total Premium £ per annum)*
25	44	124	168	70	282	352
35	67	188	255	110	445	555
45	116	324	440	206	837	1,043
55	275	766	1,041	704	2,859	3,563

providing post-retirement hospital insurance. Premiums are assumed to be payable to age 65 for males, and to age 60 for females. If developed on an individual basis, premiums might continue throughout life, which would reduce the cost, for example by about 20% for a male aged 45.

4.4.2 *Product Design*

Providing long-term PMI through an employer's pension scheme raises questions as to the appropriate accrual periods for post-retirement medical benefits, and the benefits, if any, to be given to employees with less than full service accrual. In the U.S.A. some experimentation has been done with defined contribution plans rather than defined benefit plans as a means of controlling employer costs.

Future medical costs are uncertain and no employer or insurance company can give guarantees on future benefits and/or premium rates. An employer may be able to meet cost increases from other revenues, and would be able to amend or discontinue a scheme if costs became unacceptable. An insurance company will need to ensure that premium rates are reviewable and, since future medical developments are unknown, that benefits are also subject to review. Some short-term rate guarantees might be feasible since a proportion of premiums are in respect of future claim costs.

Significant reserves would build up under these contracts and some form of surrender value might be considered; a death benefit might also be justified. Real or notional unit linking could apply, with annual risk costs met from nominal unit funds. However, surrender might lead to significant anti-selection—a surrender value of several thousands of pounds might be very attractive to an individual with no obvious need for medical benefits in the short-term.

The above risk cost model can be used to develop illustrative rates for many other variations of long-term insurance plans, for example, plans to age 65, or plans with return of premiums after (say) ten years in the absence of claims. In practice, to be useful a risk cost model must include more detail and should take account of:

- age specific incidence rates for different procedures,
- age specific duration of stay,
- costs that vary by classification of procedure and duration of stay,
- out-patient and other costs, as appropriate for the product design.

4.4.3 *Selection and Underwriting*

The nature of insurance is that products are always most attractive to those groups they are least intended for. Underwriting standards should be at least as strict as those for conventional PMI products, and arguably an insurer is justified in analysing family medical history to identify factors which could lead to high claim costs in future. Initial underwriting and, perhaps, selective lapses can be expected to lead to deteriorating claims experience over time, and should ideally be reflected in the pricing basis. Similar entry age medical insurance products are found in West Germany; experience in that country suggests that careful management is required if old premium rate series are to remain competitive with newer rate series.

4.4.4 *Technical Issues*

This section briefly considers some of the legislative and taxation issues associated with developing long-term insurance policies to finance acute healthcare. Existing short-term PMI products are most frequently written as accident and sickness business, that is general business classes 1 and 2 under the terms of the Insurance Companies Act 1982. As the legislation currently stands, long-term contracts covering similar risks would appear to fall under the same insurance classes. However, some might consider the form of supervision and legislation covering long-term business more appropriate for the types of product envisaged in this chapter. Contracts with fixed pecuniary benefits, for example some of the products considered in the following Section, might be considered as permanent health insurance, that is long-term business class IV.

There are also the taxation implications to consider. Long-term insurance contracts are based on the concept that an element of premium is retained in reserve for future claims costs; increases in reserve are generally excluded from taxable profits. The usual taxation basis for general insurance business does not recognize the need for a reserve in respect of future claims; with no change in this basis of taxation there might be a significant tax disadvantage in writing this business as general insurance.

General insurance benefits are usually free of tax to the policyholder. However, at present permanent health insurance benefits are considered taxable

income to the policyholder after payment for one complete tax year. Writing contracts as permanent health insurance might therefore leave a significant tax liability upon the policyholder if there was an ongoing income, for example in a long-term care plan.

This brief analysis confirms that current legislative and taxation regimes may be inappropriate for some of the new products discussed in this paper. It is suggested that potential underwriters will need to consider carefully the implications of the current position before launching new products.

4.5 *Summary*

The recent spate of product development by PMI insurers suggests that they have identified the opportunity presented by the elderly market. By offering reduced cover, PMI insurers have helped to make products more affordable for the elderly. However, the newer products include age-related premium increases after retirement which make the products most expensive when retirement incomes are likely to be at their lowest in real terms.

The media has presented a number of stories on the apparent 'injustice' of higher premium rates for the elderly, and more such stories can be expected as the number of elderly people increases and PMI becomes more widespread. There are obvious attractions to the concept of a long-term product with no age-related premium increases to fund acute care, and some insurers will wish to investigate the feasibility of such a product. Similarly, employers may be encouraged to fund for employees' acute care costs in retirement, although changes in pension scheme legislation are required before this can take place.

However, there are many difficulties associated with developing such contracts including:

- while it may be feasible to fund for future age-related increases in cost, it is unlikely to be feasible to fund for increases due to medical inflation. Premium rates may therefore still increase faster than the rate of retail prices inflation,
- the uncertain consumer appeal of a pre-funded contract in comparison to existing PMI contracts,
- the limited long-term guarantees that can be given to consumers,
- the uncertain legislative and taxation position of such contacts.

The illustrative premium rates developed in this chapter suggest that with good underwriting and claims control, long-term contracts could help to make acute care affordable to more people after retirement. Legislative changes may be one of the keys to developing both the employer sponsored group scheme, and individual arrangements. The ability of insurance companies to control the cost of private healthcare is another factor in the feasibility of these plans; decreasing the interest rate at which future healthcare costs are funded by 2% per annum increases premium rates for a whole of life plan by around 20% at age 45.

Similarly taxation on investment income on healthcare reserves would reduce the net interest rate used for funding future costs, and may limit the market attractiveness of these products. If the key factors of legislation, taxation and control over future costs can be satisfactorily addressed, then there should be significant developments in this area.

5. LONG-TERM CARE INSURANCE

"In keeping with our tradition of trying to best serve the senior citizens of not only the greater Los Angeles area but of the nation, I felt a personal obligation to bring an important breakthrough in the private sector to your attention." Promotional letter from U.S.A. insurance agent

5.1 *Overview of Products*

The promotional letter continues "As you must know, a devastating experience faces many retired individuals today in the continually escalating costs of Long-Term Nursing Home and Custodial Care." Forgiving the hyperbole, long-term care insurance products have grown up to meet the need of elderly U.S.A. citizens for help in financing long-term care costs. As discussed in § 3, elderly people in the U.K. are in a similar position to those in the U.S.A., since long-term care is increasingly provided by the State only on a means tested basis.

This Section considers the design and pricing of long-term care insurance contracts. It starts by reviewing the different product opportunities that exist and the types of care that can be included under a long-term care insurance contract.

The market for long-term care insurance consists of three different market sectors; different products are appropriate for each sector. The sectors are:

- individuals moving into a care home,
- retired or near retired individuals,
- individuals in middle age.

Individuals moving into a care home is a market that does not appear to have been adequately addressed, in the U.K. or overseas. Many people moving into a care home will finance this by the sale of a house, but there is no means of telling if this sum will be adequate to finance the care provided. An annuity type product could help to remove this fear of longevity, and ease the passing of free capital assets to subsequent generations of the family. Statistics suggest that such a product could be attractively priced in comparison to a traditional annuity. The obvious anti-selection problems could be mitigated with good product design.

For the second market sector, plans insuring the contingency of needing long-term care have been developed extensively in the U.S.A. Informal estimates put the new business market at around 300,000 policies or $150 million new annual premiums per year. Demand is growing rapidly and forecasters predict that there will be four million policies in effect by 1996. This expected growth in demand is

being matched by a growth in supply—around 80 insurance companies have entered this market.

For the 'middle-aged' market, U.S.A. insurance companies have developed the long-term care rider, sold in connection with a universal life plan. The rider benefit pre-pays a proportion of the face value of the insurance if the individual is confined to a nursing home; there are obvious similarities with dread disease insurance. A typical benefit is 2% of the face value per month, for up to 50 months. Since the rider merely pre-pays the death benefit, the incremental cost is relatively low—perhaps 5–15% of the base premium. This increases the marketability of the product to an age group which is becoming concerned over the cost of healthcare in retirement. Further variations on this theme are possible, for example a longer benefit period might apply, the benefit might escalate when in payment, or a savings or term assurance plan might include an option to take out a long-term care plan at a specific age without evidence of health.

The remainder of this section discusses product design and pricing for what is referred to in the U.S.A. as long-term care insurance covering the contingency of needing long-term care and marketed primarily to people of retirement and near retirement age.

5.2 *Types of Care*

Long-term care can include home healthcare, day care, residential care or nursing care in a residential setting. Originally, U.S.A. insurance plans covered just long-term skilled nursing care in a residential setting. However, newer plans are providing cover for a wider range of services. Some U.S.A. insurers have introduced stand alone plans covering home healthcare only. A further variation is to offer long-term nursing home cover as a rider to a home healthcare plan—the rider costs significantly more than the basic plan!

Benefit eligibility conditions in the U.S.A. are tied to three different types of long-term care. These are skilled nursing, intermediate nursing and custodial care. The type of care is linked to three different types of facility:

- Skilled Nursing Facility ('SNF'),
- Intermediate Nursing Facility ('INF'),
- Custodial Care Facility ('CCF').

A skilled nursing facility would provide patients with skilled nursing care or skilled rehabilitation services on a continuous basis following an acute illness or as a result of a chronic disease and/or disability. Care must be provided under the supervision of a registered nurse and daily medical records must be kept for all patients. An intermediate nursing facility is one providing skilled nursing services at regular or irregular intervals, but not on a 24 hours per day basis. It is intended for individuals requiring intermittent skilled nursing care, continuous personal care, and/or supervision in an institutional setting. Finally, a custodial care

facility provides board and accommodation, and personal assistance in feeding, dressing and other essential activities of daily living. It is primarily intended for individuals who cannot care for themselves, but do not require daily nursing care. It should be noted that an SNF might provide intermediate and custodial services as well as skilled nursing, and an INF might also provide custodial care services.

A CCF can be compared to a U.K. residential care home. A U.K. nursing home might include patients found in either an SNF or an INF in the U.S.A. Shorter lengths of hospital stay in the U.S.A. can mean that some SNF patients might be found in a hospital setting in the U.K. However, it should be remembered that in neither country are the differences between the types of institution well defined and with the combined medical and personal needs of the elderly, it is often a matter of judgement which type of care is appropriate.

5.3 *Product Design Considerations*

5.3.1 *Premium Rating Basis*

The level premium entry age premium rating basis is invariably used for pricing long-term care plans. However, premium rates are typically reviewable annually in order to reduce the long-term risk to the underwriter in pricing these relatively new plans. Plans are usually guaranteed renewable—regardless of age or state of health at renewal. An entry age pricing basis suggests a role for long-term business insurers in this area of healthcare insurance for the elderly.

The increase in long-term care risk with age is particularly steep, suggesting that pricing on an attained age basis might be unattractive—for example Table 11 suggests that the risk is nearly 10 times as high for the 90–94 age group as for the 70–74 age group. The risk of lapse by select lives, with no offsetting release of reserve, suggests that the attained age pricing basis may be less stable than an entry age pricing basis.

5.3.2 *Benefit Eligibility*

The eligibility conditions to be satisfied before qualification for benefit are at the heart of long-term care insurance. This raises the question of what types of long-term care are insurable risks and under what conditions.

Medicare, the U.S.A. health insurance system for the elderly, covers skilled nursing care, subject to the following eligibility criteria:

- skilled nursing is ordered by a doctor,
- prior hospitalization of at least three days due to the same cause,
- confinement in an SNF begins within 30 days of hospital discharge.

The earliest long-term care plans mirrored Medicare in many ways. Plans had an elimination period of 20 days or 100 days, and in some cases the plan would pay the Medicare deductible for days 21–100, and a higher amount thereafter. Eligibility conditions were the same.

The Medicare conditions are well defined and remove much of the elective element of care home admissions. However, the conditions also mean that many bona fide medical conditions do not qualify for benefit; typical of these are degenerative and chronic long-term disabilities such as arthritis and Alzheimer's Disease, where skilled nursing care might not be preceded by a hospital stay. Furthermore, skilled nursing care, rather than intermediate care, might only be required in the very final stages of such an illness.

Recent product developments have relaxed eligibility conditions. The latest generation of products, often sold on a group (employee pay) or affinity group basis, includes eligibility on the basis of need. Need might be assessed on the basis of certification by the insured's doctor, or on the basis of an independent assessment of functional disability or an inability to perform activities of daily living ('ADLs'). Medicare eligibility conditions are also changing—beginning in 1989 there is no prior hospitalization requirement for skilled nursing care.*

These different eligibility conditions (or 'gatekeeping mechanisms') have different levels of cost and premium attached to them. A prior hospitalization requirement is the easiest to control, but is the least likely to meet the real needs of the insured. A GP based gatekeeper system may prove difficult to control, because of inconsistent GP referral patterns to nursing homes and the increased scope that this introduces for elective admissions. There is little doubt that home circumstances play a big role in determining admissions to care homes in the U.K.; inappropriate living accommodation and lack of support from friends and/or relatives encourage individuals to move into care. An insurer must seek to keep elective admissions to a minimum, and ensure that medical need underlies all qualifying claims. This suggests a system of monitoring functional disability or ADLs should be adopted either as the main gatekeeping mechanism for a comprehensive plan, or as a basis for adjudicating claims where a GP's certification is in doubt.

5.3.3 *Covered Services*

Early U.S.A. plans covered only skilled nursing care. However, this can encourage extended lengths of stay in a high cost facility, since there is no coverage on transfer to a lower level of care. The majority of plans now include intermediate and custodial care and usually home healthcare, following a prior period of skilled nursing care. Pricing actuaries disagree over the extent to which the cost of these 'extra benefits' increases the plan cost, or can be met out of savings on skilled nursing costs.

The regime described above can be criticized on the grounds that it encourages conditions to deteriorate to the extent that hospital and skilled nursing care becomes necessary. The newer, more comprehensive, plans remove this requirement for prior skilled nursing care and prior hospitalization. The less intensive

* In 1989, the Medicare eligibility criteria for skilled nursing care is based on a need for daily skilled nursing or daily skilled rehabilitative therapy. Cover is provided for up to 150 days, with a co-payment for the first seven days.

the care provided, the more important the need for an effective gatekeeping mechanism. Some U.S.A. plans have detailed lists of conditions under which home healthcare, for example, is available (e.g., assistance with ambulation, appliances such as wheelchairs, etc.).

5.3.4 *Maximum Benefit Period*

The first long-term care plans had relatively short maximum benefit periods, often one or two years. This led to greater certainty when pricing the plan, but failed to meet the needs of the minority of elderly who might require a protracted nursing home stay. Today, maximum benefit periods of four, five or six years are the norm, and at least one plan has a ten year maximum benefit period. Unlimited maximum benefit periods will surely become common in time; although even in the U.S.A. there is very little data to price longer durations of claim.

Frequently the maximum benefit period for home care or custodial care is less than the maximum benefit period for nursing home care—perhaps a period of one or two years rather than four or five. This appears to be due to the difficulty of determining continuing medical need for these cases, rather than any assessment of the maximum possible need of the patient. More recent policies include one maximum benefit period covering all forms of care.

Plans in the U.S.A. often include an overall maximum lifetime benefit of a fixed monetary amount. This is for marketing purposes and also to co-ordinate maximum benefits for the different types of care. Usually the maximum lifetime benefit will be less than the sum of the implied maximum for each type of benefit.

5.3.5 *Elimination Period*

As stated in § 5.3.2, elimination periods were introduced to match Medicare benefits. However, there are many other reasons for including an elimination period in a long-term care plan, including:

- the plan pays for long-term care and not short-term stays for, for example, post-operative recovery and rehabilitation,
- a self-pay elimination period helps to reduce elective claims,
- the cost of the plan is reduced.

Elimination periods, together with the off period (claims are treated as being continuous if separated by less than the off period), also help to reduce utilization of long-term care policies for respite care. Respite care is a short period of residential care to relieve those caring for the patient at home, for example while the elderly person's children go on holiday.

5.3.6 *Benefit Amounts*

All plans to date have paid a fixed daily benefit, rather than a reimbursement of expenses incurred as found in medical expenses plans. Typically, a range of benefit amounts is available from, say, $40 to $100 per day. Individuals rarely

purchase adequate insurance to cover the full nursing home cost; between 50 and 75% of cost seems to be usual. Typically, the daily benefit reduces by 50% for home healthcare. Some plans also decrease the benefit payable for custodial care or intermediate nursing care. There is a case for limiting benefits to those expenses incurred by the insured to avoid over insurance, but this is rarely done and the problem is perhaps more apparent than real.

Introducing a product with a full reimbursement of expenses would price the product out of many pockets and would create significant pricing difficulties. Also, 100% coverage would tend to increase the 'moral hazard', encouraging elective admissions.

Optional inflation riders are available from some companies in order to offset the increasing cost of care. The two most common forms are:

- regular fixed increases (say 5% per annum) in the benefit from policy inception, regardless of the claim status of the individual,
- regular fixed increases once long-term care benefits become payable.

At least one plan in the U.S.A. includes an inflation rider under which both premium and benefit increase by 5% each year. Most plans include a waiver of premium once benefit is payable; this reduces the possibility that benefit might be denied to a care home resident who could not afford to continue premium payments.

In the U.K., appropriate levels of benefit might be £25–£60 per day; nursing home charges are typically between £200 and £500 per week.

5.3.7 *Underwriting*

Effective underwriting is one of the keys to developing successful long-term care insurance. Where there is weak underwriting, the potential for anti-selection against the insurer is enormous. Over-zealous underwriting might lead to very few policy sales, bearing in mind the target age groups for this product. A limited pre-existing condition exclusion, say for two years, as is found in medical expenses insurance, is unlikely to be successful. An individual can often deter date of entry to long-term care, to avoid any limited pre-existing condition exclusion.

Most plans in the U.S.A. are underwritten using a simplified underwriting form. The key underwriting questions generally include:

- Do you have any impediments, whether mental or physical, for which you need or receive assistance or supervision in performing everyday living activities?
- Have you ever had, been told you had or been diagnosed as having . . . ?; there follows a list of conditions which are likely to lead to future nursing home care (e.g. osteoporosis, Parkinson's disease, multiple sclerosis).
- Have you ever been confined to a nursing home or residential home?

- Have you been confined in a hospital or any other health facility within the last two years?
- Have you been seen or treated by a physician or any other medical practitioner within the last 12 months?

Proposers answering 'no' to the above questions would be covered subject to a limited pre-existing condition exclusion, for example conditions diagnosed, treated or cared for in the six months prior to the inception date would not be covered for a further six months. This type of condition is extremely limited and individuals are generally covered for benefit after six months even if the long-term care treatment commenced in the six months after policy inception. The legal environment in the U.S.A. makes it difficult for insurance companies to deny claims. A pre-existing condition exclusion may be included as a deterrent rather than an enforceable policy condition.

Proposers answering 'yes' to one or more of the underwriting questions would be considered on their merits. Underwriters aim to identify those factors most likely to result in a need for long-term care, either specific diseases or difficulties with ADLs. These cases would tend to be refused cover; extra premiums for substandard ratings are rare. Underwriters may also look at family circumstances in deciding on a particular case; a slightly more liberal view of health conditions may be taken for a married couple living in their own home with support from children, than for a single person living alone in rented accommodation.

Age limits are an important factor in reducing anti-selection against the insurer. Both young and old ages give cause for potential selection for different reasons. At younger ages, the incidence of nursing home care is very low and the product is not considered attractive, hence applicants may well be selecting against the office; a minimum entry age of 55 is common. The high cost of the product at older ages increases the potential for anti-selection, and a maximum entry age is common, this is generally between ages 74 and 84.

5.3.8 *Exclusions*

Common exclusions include:

- pre-existing conditions (discussed above),
- mental disease or disorder without demonstrable organic disease,
- acts of war,
- attempted suicide, or intentionally self-inflicted injury,
- confinement for chemical or alcohol dependency.

The exclusion of mental disease does not usually apply to Alzheimer's Disease. In the U.K., AIDS and related conditions might also be excluded; regulations prohibit an exclusion in many states in the U.S.A.

5.4 *Pricing Long-Term Care Plans*

5.4.1 *Methodology*

In the simplest case, the methodology for pricing a long-term care plan follows the inception rate and disability annuity rate approach used for pricing disability insurance. An inception rate for admission to a care home is developed, and an annuity value is derived from a table of continuation rates showing discharges from care homes by duration of stay. This methodology often includes hidden margins: for example, claimants may not be removed from the population at risk. This can be a significant margin, particularly at older ages where a significant proportion of the population may be receiving long-term care. For a more comprehensive plan, covering lower levels of care after a prior nursing home stay, a multiple state model is ideal. The key parameters for determining the annual claims cost are:

- incidence rate for nursing home confinement,
- continuation table for nursing home confinement,
- transfer rates to custodial care facility,
- transfer rates to home healthcare,
- continuation table for custodial care facility for transfers,
- continuation table for home healthcare for transfers.

For the most comprehensive plans, where a full range of care is provided on the basis of established medical need, a more complex model is needed. The model might take into account three different incidence rates, and multiple stage transfers between different care levels. If adequate data were available, this model might be workable. In practice, pricing usually allows for just the first transfer down between care levels (e.g. skilled to custodial care, custodial to home care).

5.4.2 *Rating Factors*

Age is the main rating factor used in the U.S.A., since most plans are rated on a unisex basis. Occasionally the proposer's medical rating is used as a premium rating factor in the U.S.A. Statistics suggest that female claims experience is likely to be heavier than for males, but unisex rates are justified on the grounds that the difference in recorded experience is small in comparison to the uncertainties of pricing these plans. The limited U.K. data that is relevant suggests that unisex rating may be less justifiable in this country.

As stated earlier, medical need alone can never be the only determinant of the need for residential care. The majority (but not necessarily all) of the elderly prefer to live at home for as long as possible; significant medical problems and disabilities can be cared for in the home with home healthcare and support from a spouse, friends and relatives. A single person may have little choice but to move

into residential care when faced with the same problem. This suggests other rating factors:

- marital status,
- age and medical condition of spouse,
- adequacy of residential accommodation (e.g. downstairs bathroom facilities, lift if not living on ground floor),
- geographic location (i.e. availability of care homes).

However valid, such rating factors are unlikely to be commercially acceptable, but this does not prohibit the use of proxies. For example, sex might be a proxy to marital status, since a large number of elderly females are single (widowed). Also, the lower utilization rates anticipated from married couples might suggest significant discounts for this group.

5.4.3 *Inception Rates*

The Society of Actuaries in the U.S.A. has published a variety of data relevant to the pricing of long-term care insurance. Leong[11] has developed a set of inception rates and continuance tables based on the U.S.A. 1985 National Nursing Home Survey; the tables are based on the crude data without adjustment. The underlying survey includes any home that provides nursing or custodial care; the admissions represented by the tables would therefore vary from some requiring U.K. hospital care to those requiring care in a U.K. residential home. The tables also make no attempt to exclude transfers between homes and multiple admissions in one year. The inception rates from this table are therefore likely to be higher than those for any underwritten long-term care plan, where benefit is provided in cases of medical need. Similarly termination rates, particularly at early durations, will tend to be overstated. The inception rates are shown in Table 11 and Figure 5. At the key ages for long-term care, inception rates for females are significantly greater than for males.

U.K. data relating to long-term care are very sparse and must be treated with considerable caution. Data relates to those resident in a nursing or residential

Table 11. *USA Nursing Home Annual Inception Rates (per 100)*

Age Group	*Male*	*Female*	*Female Rates as a proportion of Male Rates*
60–64	·48	·42	86
65–69	·76	1·02	133
70–74	1·80	2·08	115
75–79	4·07	4·30	106
80–84	7·85	9·50	121
85–89	12·09	14·08	116
90–94	16·90	19·53	116
95–99	28·67	20·89	73

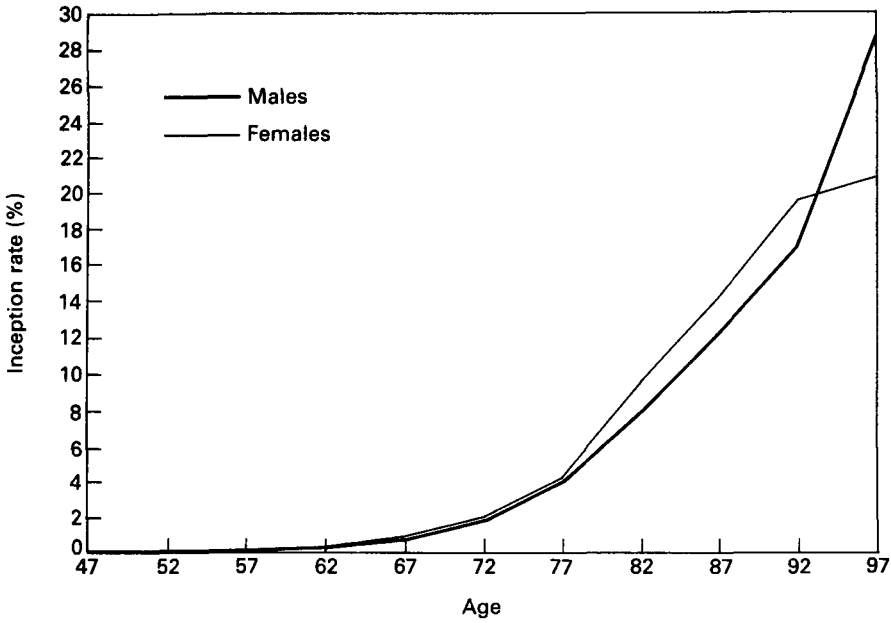

Figure 5. *Inception rates for nursing home care.*

home, rather than inception rates for long-term care. However, because of the relatively short lengths of stay in a home, and the fact that lengths of stay are not closely correlated with age, residence rates (adjusted for length of stay) may not be a bad guide to inception rates. Table 3 gives an indication of U.K. residency rates. The U.K. residency rates are surprisingly comparable to U.S.A. incidence rates.

5.4.4 *Termination Rates*

The average length of stay in a U.K. nursing or residential home is usually put at between two and three years, although there is little data to back this up. The survey of Challis and Bartlett[12] (shown in Table 12) recorded the length of stay of 4,791 nursing home residents according to residents' reported health status on admission. The rapid growth of private nursing homes, and the inclusion of new homes in the survey, suggests that the results will be biased towards shorter current lengths of stay.

The results show a remarkable consistency between the different health statuses on admission. The exception to this is for residents who are primarily fit on admission; these are elective admissions that should be excluded from benefit at the claims adjudication stage of any insurance policy.

Table 13 shows the average length of nursing home stay from the U.S.A. 1985

Table 12. *Distribution of Current Length of Stay by Health on Admission*

Health on Admission	Proportion of Residents (%)	Years Since Admission			
		1·0 (%)	1·0 to 1·9 (%)	2·0 to 3·9 (%)	over 4·0 (%)
Primarily fit	10·8	25·8	21·4	21·2	31·6
Primarily frail	24·8	44·0	22·9	20·2	12·9
Confused	18·5	41·6	23·4	18·9	16·1
Physically ill	27·1	41·1	24·3	21·7	12·9
Frail, ill and confused	18·8	46·2	23·1	18·5	12·2
Total	100·0	41·2	23·3	20·1	15·4

Table 13. *Average Length of Stay (years) in Nursing Home by Age*

Age	Male	Female	Both Sexes
65–69	1·24	1·35	1·30
70–74	·85	1·45	1·21
75–79	·93	1·19	1·09
80–84	·79	1·24	1·10
85–89	·79	1·20	1·09
90–94	·70	1·09	·99
95–99	·52	·88	·77
All ages	·90	1·24	1·12

National Nursing Home Survey. The table suggests that the average length of stay declines with age and is higher for females than males. The variation due to age is relatively small, and it is common to price products based on a uniform length of stay for all age/sex cells. Comparison between the U.S.A. statistics and U.K. information suggest that the more comprehensive U.S.A. data is a sound starting point for pricing U.K. products. The U.S.A. statistics provide a starting point for estimating the reduction in mortality cost if a long-term care rider is added to a universal life plan.

5.4.5 *Illustrative Premium Model*

Table 14 shows illustrative net level annual premiums for a nursing home care insurance plan with a weekly benefit of £200. The plan is assumed to have no elimination period, and no maximum benefit period. The illustrative premiums have been developed from the unadjusted U.S.A. long-term care experience, and ELT mortality with no allowance for lapses. The assumed interest rate is 8% per annum. A 90 day elimination period would reduce premium rates by around 20%. No allowance has been made for expenses, commission or taxation.

In practice, these rates must be adjusted for:

Table 14. *Net Level Annual Premiums for Nursing Home Insurance*

Age	*Males (£ per annum)*	*Females (£ per annum)*
55	89	121
60	132	187
65	205	291
70	339	451
75	557	702
80	867	1,071

- expected mortality rates under the plan,
- the effect of underwriting and initial selection,
- the effect of insurance on utilization rates,
- the coverage provided—nursing home, residential home, home healthcare—and the benefit levels for each,
- the eligibility conditions for benefit,
- expenses and commission,
- lapses,
- profit, contingency margins and the reserving basis.

The resulting premium rates are very sensitive to the assumptions made regarding lapses. The large reserves established under these products result in a significant surrender profit (since there is usually no surrender value); a higher lapse assumption therefore leads to lower premium rates. It is usual to assume 'realistic' lapse rates for the first two to three years, with a low lapse assumption thereafter. This phenomenon is also found with traditional permanent health insurance contracts.

Consideration could also be given to introducing some form of death benefit to increase the attractiveness to the consumer, and to reduce potential anti-selection. Packaging long-term care insurance with an annuity or pension product, or offering long-term care insurance with a decreasing life assurance benefit are other product variations to be considered. Such concepts should help reduce both anti-selection and the underwriting risk for the office and may also be attractive to the consumer concerned at the prospect of paying high long-term care premiums and never claiming.

5.5 *Summary*

In earlier Sections of this paper the need for financial products to finance long-term care has been explained. This Section has considered the design and pricing of long-term care contracts.

Experience from the U.S.A. suggests that despite some doubts, long-term care can be an insurable risk. Originally insurance products were designed conservatively, with tight benefit eligibility conditions and limited benefit payments. Several years' profitable experience with these earlier products has led to greater

confidence in the newer generations of products with more comprehensive benefit provisions. Profitable underwriting will depend on the ability of companies to control costs effectively and reduce the increased 'moral hazard' in this more liberal environment.

This Section has focussed upon just one product, but there are many other opportunities to offer a product to finance one or more forms of long-term care. The potential markets range from an age of say 40 to an elderly person entering a residential home. Data for pricing products in the U.K. are very sparse, and overseas information can only be of limited assistance. This suggests a need to offer products with reviewable rates, as in the U.S.A. The high costs of long-term care at advanced ages suggest that the majority of products will be developed by insurers of long-term business and will involve a significant pre-payment of future expenses by policyholders.

6. CONTINUING CARE RETIREMENT COMMUNITIES

6.1 *What is a CCRC?*

The term Continuing Care Retirement Community, or CCRC, originates in the U.S.A., and has found little popularity in the U.K. Here, a more popular name for a similar concept is 'sheltered housing with care' or 'continuing care community'. The concept is that on one site a range of living units should be available to cater for the changing requirements of individuals after retirement age. A CCRC is unique in that it offers long-term healthcare guarantees as well as housing and other services to its residents. This chapter reviews the characteristics of a CCRC, and the need for actuarial skills in pricing and reviewing financial adequacy.

A typical CCRC development might have three different types of living units:

- Sheltered accommodation for individuals maintaining an independent lifestyle but with the advantages of security, a warden call system and the other communal facilities available on campus.
- Extended care accommodation for individuals requiring periodic personal assistance or nursing care, and close proximity to the communal facilities on campus.
- Nursing home accommodation for individuals requiring constant attention for nursing or personal care.

A facility offering these services on one site can legitimately claim to offer prospective residents a 'home for life'. Similar developments exist in the U.K. The original U.K. developments were sponsored by charitable institutions, with substantial charitable support available to residents in need. More recently, commercial developers of sheltered housing have introduced schemes including care facilities. To date, all private U.K. sheltered housing with care developments have been financed on essentially a fee for service basis: the individual purchases

a long leasehold interest in the sheltered housing or extended care facility, and is required to pay for the increasing charges as his care requirements increase. If the individual has limited financial resources, then home mortgage plans or home reversion plans are available to increase income. Facilities financed on a fee for service basis are of limited interest to an actuary and do not meet the U.S.A. concept of a CCRC. One charitable institution in the U.K. is currently planning a community developed along the lines of the traditional U.S.A. CCRCs with pre-payment of long-term healthcare costs. The community is intended to be self-financing and not dependent on charitable support for financial viability.

In the major technical work on CCRCs Winklevoss and Powell[13] defined a CCRC as:

"... an organization established to provide housing and services, including healthcare, to people of retirement age. At a minimum, the community meets each of the following criteria:

- campus consists, at least, of independent living units; it may also contain healthcare facilities such as congregate living, personal care, and intermediate or skilled nursing care,
- community offers a contract that lasts for more than one year and guarantees shelter and various healthcare services,
- fees for healthcare services are less than the full cost of such services and have been partly pre-paid by the resident."

These last two minimum criteria provide more than a clue to the interest of U.S.A. actuaries in CCRCs, and the history of the development of CCRCs provides ample justification of the need for an actuarial involvement.

CCRCs should not be confused with the retirement village complexes being developed in some parts of the U.K.; the retirement village provides accommodation for the active 'young' old with a strong emphasis on leisure activities, and does not intend to provide accommodation and care for the frail elderly.

6.2 *Development of CCRCs in the U.S.A.*

In the U.S.A. non-profit organizations, often religious charities, have had a major role in providing accommodation and healthcare for the elderly poor. Religious groups also recognized the need to care for their elderly financially independent members and developed retirement communities providing healthcare as well as accommodation. By the 1920s there were a number of communities providing the range of services and ongoing continuing care contracts that might be offered by a CCRC today.

The number of CCRCs has grown steadily since the last war, helped in the late 1950s and early 1960s by a programme of federal assistance to encourage the development of rental housing for the elderly. In 1984, Winklevoss and Powell[13] identified nearly 300 retirement communities meeting their definition of a CCRC. The majority of these were in the ownership of non-profit organizations. More

recent estimates suggest that there may be around 700 retirement communities in the U.S.A., with perhaps 50 in the development phase. Retirement communities are expected to be a major growth area in the U.S.A. and the market has been estimated at about 50–100 new communities per year. Many of the newer communities, amounting to about one-third of all communities, offer long-term nursing services on a fee for service basis, and do not meet the original definition of a CCRC used by Winklevoss and Powell[13].

CCRCs are financed by a combination of a one-off entry fee and an ongoing monthly fee. Originally, some communities were financed on an entry fee only system; although superficially attractive to prospective residents, this pricing mechanism is clearly vulnerable to inflation, and has proven to be actuarially unstable.

While some CCRCs have run successfully for over 50 years, others have been less successful. This has left the industry with a mixed reputation in the eyes of prospective residents and investors. It has been estimated that at least 50 CCRCs in the USA went bankrupt or experienced serious financial difficulties in the period 1975–1985. Some communities were unable to fulfil the guarantees made to residents, leaving these people financially unable to take care of themselves. Some CCRCs were established without an understanding of the long-term financial costs, and others succumbed to the temptation to under-price to attract residents. In other cases, too high a proportion of entry fees were eaten up in developers' costs (and profits) and ongoing expenses, to meet the long-term financial guarantees to residents. These problems have led to legislation covering planning, marketing and finance—22 states have passed legislation covering CCRCs, and five have included requirements for actuarial studies. There is a growing interest in an actuarial approach to pricing and reserve setting. Many prospective financiers now insist on an actuarial feasibility study before supporting any new development. In recognition of growing actuarial involvement in this field, the American Academy of Actuaries has developed standards of practice relating to CCRCs[14].

6.3 *Characteristics of a CCRC*

Winklevoss and Powell[13] include the results of a survey of 207 CCRCs conducted in 1982. Another useful source of data is the annual survey conducted by Laventhol and Horwath[15] of the retirement housing industry. Some of the key characteristics are as follows:

- the median number of residents in a CCRC was 245 in 1982,
- newer developments are likely to be larger than older developments; for developments since 1970 the average number of residents was 305,
- around 75% of residents will be female,
- the average age of new entrants is 78—this age is increasing,
- the average age of residents in independent units is over 80, and the average

age in the nursing home is around 85. Average age of residents depends significantly on the age of the CCRC.

Entry requirements are that residents have attained a minimum age (say 65), are in reasonable health and have adequate financial resources. Fees do not usually vary by age of resident. About 50% of CCRCs provide a refund on death, although in only 50% of these cases is there any refund on death after one year of residence. On withdrawal from the contract, about 70% of CCRCs provide a partial refund to the individual. To reduce financial exposure, refunds are often contingent upon re-sale of the apartment.

Entry fees vary according to real estate variables such as type and size of apartment, age of apartment and location. A small additional fee is often payable for dual occupancy. The median fees reported by Lanventhol and Horwath[15] vary from $28,000 for a studio apartment in a rural location to $110,000 for a three-bedroom apartment in a suburban location. Monthly fees also vary according to type of apartment, but depend in the main on the services provided by the community. Median fees for one person in a one-bedroom apartment were reported to be $740 per month; the median increase for a second resident was $390 per month. These figures indicate that CCRCs are appropriate for the relatively affluent middle classes and are not a universal solution to the problems of retirement living.

The services provided by a CCRC might include:

- security,
- housekeeping,
- home care,
- linen,
- emergency nursing,
- meals (one to three per day),
- heating and utilities,
- therapy,
- maintenance of property,
- personal laundry service,
- car parking, amenities, gardens, etc.,
- nursing and personal care.

The type of facility can vary from a high rise apartment block to a parkland campus setting with physically separated living units.

6.4 *An Actuarial Model of a CCRC*

6.4.1 *Need for a Model*

An actuary advising a CCRC may be asked to undertake a number of studies, such as:

- projection of population, including a projection of nursing care requirements,

- projection of cash flows,
- developing and pricing continuing care contracts,
- reviewing pricing and projecting actuarial surplus,
- feasibility studies for new CCRCs.

A detailed actuarial model is required for each of the above areas of study. The key to the model is a population projection taking into account residents in each type of apartment.

6.4.2 *Population Projection*

Table 15 shows the results of a deterministic population projection for a CCRC with two different apartment types and a nursing care centre. The apartments include apartments for one resident only (Type A) and for dual residency (Type B). Since fees may vary according to the number of residents and the apartment type, it is important to maintain results for each marital status and apartment type separately. Nursing home residents are made up of two groups:

- permanent residents who have vacated their apartment; and
- individuals who have transferred on a temporary basis for rehabilitation/recovery prior to returning to their apartment.

The continuing care contract would often have a minimum period after which a transfer to the nursing home is considered permanent, and the apartment must be vacated.

The projection in Table 15 is for a closed group (i.e. excluding new entrants) as might be used in a review of reserve adequacy. The assumptions required for this projection are:

- mortality rates for the apartments,
- mortality rates for the nursing home,
- morbidity rates for temporary transfer to the nursing home (i.e. days of nursing care per year),

Table 15. *Population Projection for CCRC*

	Apartment Type				*Nursing Home*		
Year	*Type A*		*Type B*				
End	*Occupied*	*Residents*	*Occupied*	*Residents*	*Permanent Residents*	*Temporary Transfer*	*Total Residents*
0	90	90	30	48	0	2	138
1	85	85	30	45	4	2	134
2	81	81	29	43	8	2	132
3	77	77	27	40	11	2	128
4	72	72	27	38	14	2	124
5	68	68	26	36	16	2	120
6	63	63	25	33	18	2	114
7	59	59	24	31	20	3	110
8	55	55	23	28	21	3	104
9	51	51	22	26	22	3	99
10	46	46	19	24	22	3	92

Note: Temporary transfers to the nursing home represents the average number of residents in the nursing home on a temporary basis over the subsequent year.

- morbidity rates for permanent transfer to the nursing home,
- apartment transfer rates,
- withdrawal rates.

The model can be further expanded to allow for personal care delivered in the individual's apartment. Voluntary withdrawal rates are often low if the CCRC has significant initial entry fees; if a refund is given on early withdrawal, the financial consequences of withdrawal to the community will be limited. In this situation, withdrawals may be excluded from the analysis. Similarly the rate of transfer between apartments may be low and excluded from the model.

It may be appropriate to use a select period following initial acceptance into the CCRC, since it is known that the resident must initially be in generally good health. Also, mortality rates in the nursing home may be more dependent upon the duration since admission to the home than on age attained. Much will depend on the CCRC's nursing home admissions policy.

While deterministic approaches are commonly used for pricing and for reviewing reserve adequacy, stochastic simulations also have a role to play. The small number of residents in a typical CCRC makes stochastic simulations particularly important in reviewing the stability of the community's finances.

6.4.3 *Projection of Cash Flows*

The projection of cash flows based on the population projection is the fundamental building block for feasibility studies, pricing reviews and many other actuarial studies. Table 16 shows the development of a typical cash flow for a new entrant pricing study. The key assumptions are:

- cost levels for apartment residents,
- cost levels for nursing home residents,
- fee increases,
- cost increases,
- earned interest rate.

Pricing for one member is done on a closed group basis, with three key underlying assumptions: that new residents will be found to fill existing vacancies, that these new residents will pay actuarially adequate fees and that any spare capacity in the nursing home will be filled by patients from outside the community.

When projecting populations and cash flows, it is common to use an open group valuation method. Under this method, assumptions must be made as to the number and characteristics (age, sex) of the new residents who will fill the apartment vacancies created by death, withdrawal or transfer to the nursing home. Table 17 gives an example of an open group projection for a feasibility study. Note the following features of this projection:

- the lower monthly fees and operating costs over the start-up period in Year 1 and Year 2,

Table 16. *New Entrant Pricing Projection*

Probability of Survival (%)				*Costs (£)*					
Year	*Apartment*	*Nursing Home*	*Fees*	*Apartment*	*Temporary Nursing*	*Permanent Nursing*	*Total*	*Interest £*	*Fund £*
0	100·0	0·0	25,000	—	—	—	—	—	25,000
1	95·3	3·1	4,522	5,366	131	141	5,638	2,933	26,817
2	90·5	5·9	4,884	5,616	151	457	6,223	3,138	28,616
3	85·8	8·6	5,263	5,862	172	811	6,845	3,339	30,373
4	81·1	11·0	5,656	6,102	203	1,203	7,508	3,534	32,055
5	76·4	13·1	6,060	6,336	235	1,630	8,200	3,718	33,632
6	71·9	14·9	6,474	6,564	269	2,085	8,918	3,889	35,077
7	67·4	16·5	6,894	6,780	304	2,574	9,658	4,043	36,356
8	62·8	17·9	7,311	6,971	340	3,099	10,410	4,177	37,434
9	58·3	19·0	7,717	7,132	400	3,653	11,185	4,284	38,250
10	53·6	19.8	8,099	7,250	460	4,229	11,938	4,360	38,770
11	49·1	20·3	8,447	7,322	518	4,813	12,653	4,400	38,963
12	44·6	20·6	8,754	7,343	574	5,400	13,317	4,402	38,802
13	40·2	20·6	9,010	7,310	625	5,977	13,911	4,362	38,262
14	35·9	20·3	9,206	7,220	697	6,525	14,422	4,277	37,303
15	31·7	19·7	9,322	7,057	759	7,035	14,851	4,145	35,919
16	27·7	19·0	9,344	6,817	808	7,483	15,109	3,964	34,118
17	23·8	17·9	9,259	6,501	842	7,845	15,188	3,738	31,928
18	20·2	16·7	9,067	6,118	860	8,101	15,079	3,471	29,387
19	16·9	15·3	8,763	5,675	802	8,228	14,705	3,170	26,614
20	13·9	13·7	8,340	5,177	736	8,210	14,122	2,847	23,679

Present Value of Fees = £80,309

Present Value of Costs = £79,789

- the inclusion of fees from nursing care for non-residents,
- the inclusion of finance charges and capital repayments in the cash flow projection (finance charges include mortgage payments),
- allowance for the replacement of fixtures and fittings.

6.4.4 *Setting Assumptions*

In setting assumptions for the future morbidity and mortality of residents, the historic experience of a 250 unit CCRC will not be a fully credible guide to future experience. Yet investigations have shown that CCRC management has a major impact on mortality and morbidity rates. For example, a CCRC with a strong case mangement approach to healthcare may have low rates of permanent transfer to the nursing home, but perhaps higher rates of personal care and temporary transfer to the nursing home. It is usually found that healthcare utilization rates are lower in CCRCs than in the population at large, again reflecting the advantages of providing good preventative healthcare and case management. Utilization rates will also be affected by bed availability and by the availability of home healthcare. Healthcare management plays an important role in controlling the total costs of a CCRC and ensuring that the financial equation remains in balance; for example, a CCRC looking to reduce costs may have to improve its home healthcare services and fill more nursing home beds with fee paying non-resident patients.

In the best CCRCs, good healthcare practices and good management lead to relatively low mortality rates. Mortality rates are typically lower in a CCRC than

Table 17. *Open Group Feasibility Study Projection*

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Income (£'000):										
Monthly fees for residents	281	2,304	3,518	3,717	3,951	4,215	4,483	4,753	5,024	5,298
Nursing home fees for non-residents	295	1,206	1,393	1,420	1,308	1,121	922	766	0	0
Entry fees—refunds	5,748	7,862	3,120	563	706	1,035	1,305	1,451	1,542	1,650
Interest income	413	703	969	293	313	349	398	454	494	520
Total income	*6,737*	*12,074*	*9,000*	*5,993*	*6,277*	*6,721*	*7,108*	*7,423*	*7,061*	*7,468*
Outgo (£'000):										
General and administrative	523	840	951	999	1,049	1,101	1,156	1,214	1,275	1,339
Plant maintenance	255	598	733	770	808	849	891	936	983	1,032
Food service	237	865	1,131	1,187	1,246	1,309	1,374	1,443	1,515	1,591
Housekeeping and laundry	115	222	248	260	273	287	301	316	332	348
Nursing home	386	825	866	909	955	1,003	1,053	1,105	1,161	1,219
Total Operating Cost	1,516	3,349	3,929	4,125	4,332	4,548	4,776	5,014	5,265	5,528
Finance charges	2,812	2,812	2,812	2,812	1,612	1,612	1,612	1,612	1,612	1,612
Capital repayment	0	0	0	12,000	0	0	0	0	0	0
Fixtures and fittings	0	93	98	102	108	113	119	124	131	137
Total outgo	*4,328*	*6,254*	*6,839*	*19,039*	*6,052*	*6,073*	*6,507*	*6,750*	*7,008*	*7,277*
Change in cash balance	2,409	5,820	2,161	(13,046)	225	448	601	673	53	191
Beginning of year cash balance	5,000	7,409	13,229	15,390	2,344	2,569	3,017	3,618	4,291	4,344
End of year cash balance	7,409	13,229	15,390	2,344	2,569	3,017	3,618	4,291	4,344	4,535
End of year capital outstanding	31,788	31,562	31,320	19,061	18,784	18,487	18,169	17,829	17,466	17,077

in the population at large; in aggregate, annuitant mortality is often assumed. However, adjustments are needed to reflect the higher mortality rates in nursing homes, and the lower mortality rates for apartment residents. Assumptions on morbidity and mortality are usually obtained by reference to a database of experience for many CCRCs, and adjusted judgementally to reflect, in part, the experience of the CCRC in question.

Cost assumptions will be derived from the experience and business plans of the CCRC, which must be reviewed for reasonableness. Total costs will usually be identified under one of three headings: nursing home, personal care and general costs. From these, per capita costs or per diem costs are derived as appropriate. Apartment costs will vary with type of apartment, to reflect the elements of maintenance and property costs, and with number of residents, to reflect service costs such as food and laundry. Projected costs must include an allowance for capital costs as well as revenue costs.

The financial security of a CCRC is dependent upon it remaining a 'going concern'. Inadequate allowance for capital replacement will damage the ability of a CCRC to finance maintenance and improvements, and to attract new residents. Lifecare agreements allow for periodic fees to increase; it is usual to assume that these increase at the rate of cost inflation. In setting assumptions the actuary must be mindful of the effect on CCRC members; over-conservative assumptions may lead to cross subsidies from current residents to future generations of resident, while over-optimistic assumptions may result in a need for future members to subsidize current members. This latter situation is, of course, potentially unstable and can damage the ongoing viability of the CCRC.

6.5 *Summary*

Developments providing independent living accommodation as well as home care services and, if necessary, a residential home on one site can be an attractive option for many elderly people. Through providing comprehensive support services to individuals living independently, much of the need for residential care can be removed. Such developments are already appearing in the U.K., and more can be anticipated.

It is probably only a matter of time before some of these developments move from offering a strictly fee for service approach to healthcare, to introducing a system of risk pooling and pre-payment of costs. This can reduce the adverse impact of catastrophic long-term care costs on an individual and on the retirement community. Experience from the U.S.A. suggests that actuaries are likely to play a significant role in determining appropriate fee levels and reviewing ongoing financial adequacy for these communities.

7. OTHER DEVELOPMENTS

7.1 *Other Long-Term Care Products*

The main products considered in this paper, long-term care insurance and continuing care retirement communities, are only two of the potential products that can meet the care needs of the elderly. CCRCs have the advantage of a strong managed care element of service to reduce healthcare costs. The main disadvantage of these communities is that individuals must leave the family home to enter the retirement community; this is unlikely to be attractive to all elderly people. In contrast, long-term care insurance can enable individuals to live in their own home. The market for elderly care products is in its infancy, even in the U.S.A., and new products are still emerging.

One product is the so-called 'life care at home' model providing the different levels of care associated with a CCRC, but without the bricks and mortar. As in a CCRC, a system of managed healthcare is used to reduce utilization rates and enable individuals to live independently for as long as possible. However, once independent living is no longer feasible, a life care at home contract includes residential care. This model might be developed around a local community of elderly people, using a local nursing home as the focal point of service delivery. It has been estimated that around 1,000 lives would be needed to make life care at home feasible.

Another experimental model in the U.S.A. is the social Health Maintenance Organization (HMO). In addition to the usual primary and acute care services provided by an HMO, a social HMO complements this with a comprehensive package of institutional, home and community care. However, none of the existing social HMOs covers long-stay residential care. Social HMOs are pre-

paid healthcare systems financed by payment from Medicare and Medicaid and additional premiums from the insured. The additional premiums have been set at a relatively low level to aid marketing of the plans. It is hoped that comprehensive community care services will significantly reduce hospital stays and hence, in part, prove self-financing. The lack of long-term residential care provided by social HMOs is believed to be one of the reasons why these schemes have proved difficult to market. A further disadvantage is that social HMOs are currently required to cover a proportion of impaired and seriously impaired lives; this reduces the organizations' ability to compete against underwritten insured plans. As with a life care at home facility, a social HMO would provide a service to a defined catchment area.

These developments suggest that one of the most successful models might be a service based organization with strong utilization controls, based on a given geographic area. This is not dissimilar to the public sector model suggested for the U.K. by Griffiths. The main differences are likely to be in the availability and quality of the independent services, and that some pre-funding of care may take place by private consumers. It is quite conceivable that one organization might provide care to both public and private sector bodies.

7.2 *Financial Screening*

Nursing home proprietors are taking on a long-term commitment when accepting a new resident. While legally a nursing home proprietor may be able to evict a resident who cannot pay the bills, this may be an extremely difficult decision administratively, ethically and from a moral viewpoint. At least one home has given a guarantee that any resident admitted would be looked after for life. In a CCRC costs will extend over many years, and the problem of potential financial hardship is even greater. Financial screening to ensure that residents, or their relatives, can afford fees is often carried out. If the income top-up is £20 per week in addition to Income Support, informal screening may be appropriate. At an expensive nursing home a more formal, if discreet, assessment of financial circumstances is common.

As the market develops, there will be a need for a scientific evaluation of financial status. The assessment will be based on projections of income and outgo. Outgo will depend upon:

- age,
- sex,
- level of dependency,
- living unit (e.g. sheltered, residential home, nursing home),
- cost for different levels of care.

Income will depend upon:

- state pensions,

- occupational pensions,
- annuity plans,
- assets—income or non-income producing,
- family support.

The result is an actuarial model with a large number of variables, which can be developed on a desktop personal computer to produce an assessment of individual financial status. Almost inevitably, some residents will require financial assistance at some stage in the life of a home or community. By changing the financial standards for admission to a home or community, the financial assistance required by future residents will also change. An estimate of the amount and timing of the total amount of this financial assistance gives an indication of the effect on the organization's future finances. If this effect is significant, then it may be prudent to build the cost of establishing a 'hardship fund' into ongoing costs and prices.

8. SUMMARY

The purpose of this paper has been to review the trends which have led to substantial commercial interest in the healthcare of the elderly. Briefly, these are:

- demographic changes which are leading to a large increase in the proportion of elderly people,
- the increasing affluence of society which, through more widespread home ownership and higher occupational pensons and personal savings, is leading to increased affluence among the elderly,
- the increasing concentration of NHS resources on the acute and primary care services, and the resulting trend towards private provision for long-term care. For many people, this care will only be provided on a private fee paying basis,
- the growing cost of support services to the elderly, coupled with a declining working population, leading to distrust of pay-as-you-go social security systems and greater interest in personal funding for retirement.

Despite the cultural and political differences, the trends in the U.S.A. are surprisingly similar to the U.K., particularly in the field of long-term care. Yet in the U.S.A., greater awareness of the problems faced by elderly people has led to a vibrant insurance market. In the U.K. the major innovations in healthcare insurance have come from the provident insurers of acute healthcare; yet these products fail to recognize the difficulties of the elderly in meeting the high cost in later life of premiums which increase with age. Existing products also fail to meet the long-term care needs of the elderly.

There are many indications that the time is right for innovation on the part of financial services companies in new areas of healthcare insurance. Some product innovations will challenge traditional views of insurance in the U.K., but product

developments are likely to be welcomed by many sectors of society. Other opportunities exist for developers and retirement housing managers to develop financial products, possibly in conjunction with financial services companies, to encourage both risk sharing and pre-payment of healthcare costs.

New product ideas will be developed, some based on new concepts, others based on product ideas developed elsewhere. Some of the possible products considered in this report are:

- long-term health insurance contracts providing for acute care needs,
- insurance contracts to provide for long-term care, including one or more of home healthcare, residential care and nursing care,
- contracts to cover the risk of longevity on moving into a care home,
- continuing care retirement communities encompassing comprehensive service benefits with risk sharing and pre-payment of healthcare costs,
- life care at home, providing the services of a CCRC, to a community of people living in their own homes.

The difficulties involved in developing such new contracts should not be underestimated, but experience from the U.S.A. suggests that care of the aged can be insurable. Product developments can be expected to proceed cautiously in terms of the pricing basis, underwriting, covered services and guarantees given. As confidence is gained in this new market, product developments will proceed more swiftly and products will move closer to offering a comprehensive service for elderly people. Developers looking to offer financial guarantees to the elderly are advised to take actuarial advice; experience from the U.S.A. indicates that the lack of an adequate pricing basis for recognizing long-term costs has been a major source of financial difficulties for retirement communities.

The market for services to the elderly is growing swiftly. It is to be hoped that the financial services industry, and the actuarial profession, will together help to offer elderly people some hope of financial and healthcare security through independent provision.

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