B.A.J. 5, II, 279-295 (1999)

LONG-TERM CARE FOR THE ELDERLY

[Discussion Meeting held by the Faculty of Actuaries, 16 November 1998]

Four papers were available for discussion at the meeting:

(1) 'Continuing Care Retirement Communities — Attractive to Members, but what about Sponsors?' by R. A. Humble and D. G. Ryan, was previously presented to the Institute of Actuaries on 26 January 1998, and the paper and the discussion of it appear in *British Actuarial Journal*, **4,** 547-614.

(2) 'A Model for Projecting the Number of People who will Require Long-Term Care', by R. R. Ainslie, C. O. Daly, S. P. Laurie, B. D. Rickhayzen, M. A. E. Thraves and D. E. P. Walsh; and

(3) 'The Actuarial Modelling of NHS Data', by C. G. Orros, M. Iqbal, I. W. Lane, I. P. McKeever and M. R. Moliver, were both presented at the 1998 Health Care Conference, held at the University of Warwick. These papers are available in the Faculty and the Institute Libraries.

(4) 'The Elderly and Continuing Care', by Dr R. G. Smith, Chairman of the Geriatricians Committee of the Royal College of Physicians, commences on the next page.

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

THE ELDERLY AND CONTINUING CARE

BY R. G. SMITH

One hundred years ago the expectation of life at birth was around 45 years, but expectation of life at age 65 was 12 years for men and 16 years for women. In 1901, the 2.4 million in the United Kingdom over retirement age (age 60 for women and age 65 for men) constituted 6.3% of the total population. Now, the elderly over age 65 make up over 16% of the population, and expectation of life at birth has increased to age 75 for men and age 80 for women, increasing by 2 years every decade. Interestingly, expectation of life at retirement age has not increased so dramatically. The reason for this change was the eradication of tuberculosis and the other diseases associated with poverty and poor hygiene. The very high infant mortality of the 19th century has been dramatically reduced, leading to a marked increase in the number of people living to retirement age. It is not so much that people are living longer, but more are surviving to become elderly.

The significant increase is in those over the age of 75 and, in particular, those over 85 years of age. The percentage of the elderly over age 85 is estimated to increase from 3.3% in 1951 to 7.7% in 2011. Between 1971 and 1991 there was a less than 1% increase in the 65-74 age group, whereas there was a 46% increase in the over 85 years-of-age group.

The population 'pyramid' has changed its shape to a top heavy shape. The proportion of the population which supports the top (elderly) and the bottom (children) is proportionately increasingly less.

The effect of the Scottish Office Health Department's target on heart attacks, strokes and cancer, if successful, will have a greater effect on the population proportions.

Currently, about 5% of the elderly population are in some form of institutional care — residential homes, nursing homes or continuing hospital care. This figure has stayed relatively constant, and compares with 10% in the United States of America and many European countries. It is essential that we keep working to maintain this level. In Lothian, with approximately 100,000 elderly people, a 1% swing towards institutional care would require another 1,000 places — a building the size of the present Royal Infirmary!

The National Health Service (NHS) Departments of Geriatric Medicine are working closely with primary care colleagues in trying to provide a comprehensive service to the elderly population in this country. Admission to institutional care should be seen as a last resort, only when all other means of supporting elderly people in the community have failed. The Community Care Act of 1990 has identified this need, and has given guidance on keeping elderly people in the community. Through the use of active assessment and rehabilitation facilities, either as an in-patient or as a day patient in conjunction with increased

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

facilities in the large hospitals for the acute care of the elderly population and out-patient clinics, the proportion of elderly people in institutional care has remained fairly constant, despite the increasing numbers and workload. Between 65% and 75% of elderly people admitted to departments of geriatric medicine will return to their homes after treatment.

One of the reasons for encouraging elderly people to stay out of institutional care, if possible, has been the knowledge of the increased mortality in the first few months following transfer to institutional care. One study showed a mortality of 10% in the first 3 months of transfer to residential care, and 17% mortality in elderly patients transferred to NHS continuing care and 60% mortality by the end of the first year. This trend has been confirmed in other studies. The reasons for this high early mortality are not clear.

In an attempt to find out more, a study was set up at the Royal Victoria Hospital, Edinburgh, to follow patients requiring continuing care who were transferred either to a private nursing home or to NHS continuing care over a period of 18 months. Data were collected prior to the move and at 1, 6, 12 and 18 months, on functional status (the activities of daily living), mood (e.g. depression), mental function (cognitive impairment) and quality of life assessment. Unfortunately, due to the need for a full financial assessment of those recommended for private nursing home care, it was impossible to carry out a randomised controlled trial. The group transferred to NHS care were more dependent than those going to nursing home care, but otherwise were a fairly comparable group. Analysis of the outcomes showed no significant statistical difference in outcome between the two groups for activities of daily living, depression and quality of life. At the end of 12 months, only 40% of those transferred to NHS care were still alive compared with 60% of those in nursing home care. At the end of the study (18 months), the survival rates were 30% and 50% respectively. There is a marked mortality within the first 3 months following transfer, especially to NHS care (as noted previously). The only identifiable areas of difference for survival are the setting (i.e. NHS or nursing home) and mental function. When those patients who were mentally alert were grouped with those with very severe cognitive impairment, and compared with those having moderate impairment, there was a statistically significant lower survival rate in those with moderate impairment. This suggests that this group is less able to cope with the change of environment than those who are mentally clear and those who are totally unaware of their surroundings. It is likely that greater input will be given to this vulnerable group to help with the transition to continuing care, whether in NHS or private home care.

The differences in survival in each setting may be related to privacy and surroundings. NHS care is traditionally in old buildings, often in open wards, and with inadequate toilet facilities. It is like living your life in a public place. Even with the highest of nursing standards it is impossible to provide adequate privacy. What effect does this have on a person's will to live? On the other hand, private nursing homes are increasingly new, purpose-built buildings, with single rooms

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

and usually en-suite facilities. There are separate dining and sitting areas. Nursing homes are inspected twice yearly, and are required to meet very high standards. NHS continuing care wards are inspected once every 5-10 years, and do not have to meet the nursing home standards.

The move towards nursing home rather than NHS care will continue as application of the criteria for NHS continuing care is carried out and the number requiring this care reduces. Lothian Health aimed to reduce their NHS continuing care beds by 50% by the year 2000. Other areas have reduced much more while others in England removed all their continuing care beds (but have run into difficulties with placing very complicated patients). My personal estimate (and it is only an estimate) is that the NHS will require about 20-30% of their original total of continuing care beds. Assuming that the percentage of patients requiring continuing care remains static, and knowing the demographic trends over the next 40 years, it should be possible to estimate the required number of NHS beds and private nursing home places for the future. The difficulty may be in knowing the effect of improved health and reduction in heart, stroke and cancer deaths on the number of people surviving into retirement age, and, in particular, the over-85-year group, who will be the largest users of continuing care. The NHS team involved with care of the elderly is very willing and keen to work with organisations like the Faculty of Actuaries in planning for the future. We should not forget that we are actually planning our own future care.

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

ABSTRACT OF THE DISCUSSION

HELD BY THE FACULTY OF ACTUARIES

The President (Mr C. W. F. Low, F.F.A.): The subject of the meeting is long-term care for the elderly. This is a major problem facing society, and something which we can expect the Scottish Parliament to turn its attention to early in its sessions. Therefore, it is very timely that we have a discussion on this subject.

To aid us in that discussion, we have a panel whose contributions are varied: Mr Richard Humble and Mr Daniel Ryan, who are the authors of the paper, 'Continuing Care Retirement Communities — Attractive to Members, but what about Sponsors?' (Humble & Ryan, 1998); Mr Peter Gatenby, who is a member of the reference group of the Royal Commission on Long Term Care, Chairman of the ABI Long Term Care Committee and is connected with a commercial organisation which sells long-term care policies; and we particularly welcome Dr Roger Smith, who is Chairman of the Geriatricians Committee of the Royal College of Physicians, and is a Consultant Physician at the Royal Victoria Hospital in Edinburgh. He is the author of the supplementary paper, 'The Elderly and Continuing Care' [which appears immediately before this discussion].

Mr D. G. Ryan (*introducing the paper Humble & Ryan (1998)*): As we approach the Millennium and look further into the future, we are faced by a huge challenge that must be answered. How do we meet demands for long-term care from an ageing population, both in terms of finance and of resources? This is undoubtedly a complex question, and the Royal Commission on Long Term Care was set up to gather opinions and proposals from the whole spectrum of interested parties.

The diverse nature of the needs of our population means that we are unlikely to find a single all-encompassing solution, and, instead, we should be looking for a raft of interlocking answers. Continuing care retirement communities (CCRCs) could be one such answer.

It has now been almost a year since Mr. Humble and I presented our paper on the issues facing the management of a CCRC. I now bring you up to date. New CCRCs continue to be set up around the world. In the United States of America, the American Association of Homes and Services for the Ageing estimates that over half a million elderly Americans are members of CCRCs. Hartrigg Oaks, the CCRC developed by the Joseph Rowntree Foundation, and the case study in our paper, is fully operational now. Occupancy of the bungalows has reached 80%, with the remaining members expecting to take up residence over the next couple of months. The care centre is filling with paying customers, and the other facilities, such as the restaurant, library and swimming pool, are all in high demand. However, it is only when you look at the notice board at Hartrigg Oaks that you realise the true strength behind the concept of CCRCs. After only a couple of months a strong sense of community is building up, with a wide array of activities on offer, requested, developed and organised by members. Management involves members in the day-to-day running of the CCRC, and promotes the feeling that the role of management is in assistance rather than in direction. Guaranteed long-term care is only one of many benefits that CCRCs offer their members, and, as such, they provide a return on their investment, whether or not ill-health is part of their future.

So, where do actuaries fit into all this? A typical CCRC will involve 200 to 300 individuals, and offer care at a range of different intensities to successive generations of members. Actuaries are able to model this long-term future, and provide management with advice on a wide range of matters, from the on-going membership charge to the number of beds required in the central care centre. In many states in the U.S.A., actuarial involvement is a requirement of CCRC regulation, following insolvencies and bad publicity for the concept of CCRCs in the 1980s. Involving actuaries at an early stage may avoid a similar experience in the United Kingdom.

The concept of a community that meets all your needs sounds very attractive, and Hartrigg Oaks has been inundated with requests for more information from both individuals and commercial organisations alike. We need to remember that membership comes at a price, and will not be affordable by all. However, for a significant portion of our increasingly affluent elderly population, it

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

might be an attractive proposition. This potential demand should be borne in mind when we consider our solutions to long-term care.

Dr R. G. Smith (a visitor, introducing his paper): I think that it is important to realise that, when you are dealing with elderly people, you are dealing with quite a lot of variable functions. On average, we reach our peak at about age 30, and from then on it is downhill. If you look at the position of about 50% of your original function, for most people this is somewhere in the region of ages 65 to 70. You are still functioning very well, although you have stopped running for the bus and you prefer to wait for the next one.

There is also a group of people who do not reach the 50% level until much older. These are the fit 90-year-olds that we have in the population — the people who are going on to form the ever-increasing number of centenarians. On the other hand, there is the group who are at the other end of the scale, the elderly young; the 65-year-olds who, perhaps through mis-use of cigarettes and alcohol, have aged prematurely. Thus, if we look at things purely from an age point of view, we may make mistakes.

When we reach our peak we are aged about 20 to 30, and then, as we get older, we still have ample reserves. We can cope with everything. Even at ages 65 to 75 we are not too bad. When we get to about age 75, in the average person, there is a significant reduction. The area between zero reserves and significantly reduced reserves is where we, in geriatric medicine, are involved. The aim is to keep people as functional as possible. We are not curing. We are keeping people going.

There will come a time when people go through the zero reserve. This is the group of people, the very elderly, who, quite often, suddenly die, and we cannot find a reason for it. It is probably multi-system failure. They cannot cope with an insult such as a chest infection, heart attack or mild stroke, that somebody who was younger could cope with, normally, relatively adequately.

There has been a change in what we are trying to do. In 1900 functions tended to decline steadily as we got older. Now we keep people fitter for longer, with a steeper decline at the end. We are trying to prop people up to as old an age as possible before the years of disability. It is those with significantly reduced reserves who we are talking about, primarily, in this discussion. These are the people who need continuing care. As time goes by, we try to push the onset of this phase to ever older ages, and keep the numbers controllable.

There are a number of unknowns. We are looking to try to improve survival from cancer, from heart attack, from stroke and from mental illness. What is the effect of that on population demography? I do not think that that has been thought through fully enough. What are the effects of medical progress and technology, some of which we have no feeling for at the moment? I have a feeling that, within the next 40 years, the causes of both Parkinson's disease and dementia will have been found, and we will have some way of managing them more effectively than we do at the moment.

What effect does that have on planning for continuing care? What has nature in store? If you look through history, you will see that, somehow, nature has had a war or has had infection to keep populations under control. Are we going to see something like that crop up within the next 50 years? I do not know.

What is the attitude of people about ageing? Will people want to go to community residential centres? Would those at this discussion want to go to something like that, or should we be looking at something slightly different? I welcome the opportunity, from the medical point of view, of being able to work with actuaries in taking this area forward.

Mr P. L. Gatenby, F.I.A. (introducing the subject of long-term care): Starting towards the end of 1997, the profession, along with The City University, developed a new model for the demand for long-term care. This superseded the model built five years ago, that resulted in the paper 'Financing Long-Term Care in Great Britain' (Nuttall *et al.*, 1994). The idea was to produce a more complicated model to better reflect transfers between different levels of dependency.

Some numbers from the new model were presented at the 1998 Health Care Conference at Warwick (Ainslie *et al.*, 1998). Those numbers are the result of some initial work done by a team,

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

and not yet the published projections of the profession. We are planning to take the work forward and to have a new paper and a new set of projections. The reason for the delay is that we are finding it difficult to get good, underlying, credible data on how the incidence of disability is improving. The data that are used for the improvements in the incidence of disability have quite a large effect on the projections. For example, the numbers in the central assumption in the Ainslie *et al.* (1998) paper show about half as many people at a high dependency level at a future projection period than the numbers in the Nuttall *et al.* (1994) paper. That is quite significant, because, if it is true, then it will mean that there will be very different decisions about future policy.

We have been talking recently with officials from the Department of Social Security and from the Department of Health, to see if they have any data which will be of more relevance or of more use to us, but they are in the same boat as we are. From that meeting, I have found that the Royal Commission has a problem in coming up with some recommendations for the future, in that there is no clarity as to what the future may look like in terms of people in different levels of dependency. One of the things that we are going to get from the Royal Commission is the consideration of a few different scenarios of: "if this is what happens in the future, then this is how we could cope with it." It is important that we, as a profession, stay involved with the debate, and we certainly intend keeping close to the Department of Health and to the Department of Social Security. Some of the things that Dr Smith has covered are very relevant, and we ought to make sure that we are keeping in better touch with the medical profession and with the work that they might have done.

A very important piece of work that has been going on in the area of long-term care over the past year is the work of the Royal Commission. This is important to both future public policy-making around long-term care, and it is also important to us in the actuarial profession. We feel that we certainly helped start the debate on long-term care with the earlier paper that we produced. It is also very important to the insurance industry, because it will have an important role to play in helping people make adequate provision for long-term care.

I now express a few of my views of what is going to happen over the next few months, and what might come out from the Royal Commission. Everything is purely speculative, because its members are not sharing any of its recommendations with members of the reference group. It is due to report in January 1999, although it might be later.

Certainly, much of the report will cover improvements in the way that state money is spent on long-term care. We have already detected, in recent months, the bringing together of health and social security budgets, for example, because there does exist cost shunting between the two authorities. We also know that there are inconsistencies around the country in what local authorities will provide. The Commission is going to have to tackle those issues.

I also think that it is going to recommend improvements in support for carers. Everybody who gets involved with long-term care realises the important role played by informal carers — relatives and friends. Whatever happens in the future, whatever system we have for funding long-term care, it has to be done in a way that does not distort the role that informal carers play. Both public financing and the insurance industry and private funding of long-term care must take into account the role played by friends and relatives.

In terms of financing, the Commission may end up recommending a compulsory social insurance fund. It is certainly the preference of all of the major charities and many other organisations. The Rowntree Foundation, a few years ago, did a piece of work that recommended this as a way forward. However, I suspect that the Commission will not. I suspect that the view will be that there is no way that the Government would ever introduce a compulsory social insurance fund. Probably some commissioners are pushing for that as the way forward, and others are wanting to take, maybe, a slightly more realistic view. We will have to wait and see, but I would be very surprised if it is recommended at the end of the day. We have seen the Government, in recent months, backing away from compulsory second tier pensions, and so the thought that they might favour a compulsory long-term care fund is probably a bit unrealistic.

The Commission may recommend a formal link between provision for pension and provision for long-term care. It certainly seems to me that there should be a link between the two. It does make sense that, if younger people and their employers are paying into some sort of pension arrangement,

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

then that pension arrangement should be designed in such a way that it does not just cover income in retirement for when people are healthy, but also to cover income in retirement for when people need extra money to pay for care. It certainly would not be that difficult to construct pension arrangements to include elements to help pay for long-term care. I think that the Commissioners are fairly keen on recommending that. I do not think that they are going to come out with the answer, but I think that we may see them recommend this as something which should be looked at.

One of the disappointments has been that, whilst the Royal Commission has been doing its work, the pension review body has been doing its work in a totally disjointed way to the Commission, and that the work that has been done on ISAs has been done in yet another section. These different bodies are not talking to each other at the moment. It does not seem to make much sense to have all these different initiatives, which are all about people making provision for the future, and not actually bringing them together. I hope that the Commissioners have recognised that, and recommend that more work is done to integrate these different areas.

The Commissioners may recommend some sort of incentive for long-term care insurance, as lobbied for by the industry. I do know that many politicians, in the past, have thought that there are some grounds for helping to encourage people to take out insurance to make some sort of provision for themselves. I hope that they do. I recommend this, but I do not think that they will. I think that, because of the problems that pensions mis-selling has caused within the minds of certain political people, the Commissioners are probably a little wary about going as far as giving a seal of approval to what the insurance industry is doing. I think that they will talk about insurance in their report, and that they will talk about it as a vehicle that people can use to make provision, but I think that they might shy away from actually seriously considering any incentives, which will be a shame, but we will just have to wait and see. If they are at all positive about long-term care insurance, then they will be recommending regulation for long-term care insurance products.

I think that they may recommend some sort of tax break for equity release products. For many of the current retired generation, the only way in which they can pay for their long-term care is by releasing some of the money in their properties. We know that many people have to do that at the time of crisis. They end up having to sell their home or having to use part of the value of their home to pay for care. Certainly, there have been many submissions from people on different ways of constructing equity release mechanisms, and it may be that there is some money for a tax break for equity release. I know that, early on in the days of the Commission, the Commissioners were very interested in looking for solutions around equity release. More recently, I have detected them pulling away from it. So, perhaps, they have not found the right answer.

To summarise, much of the report is going to be about the system for how taxpayers' money is spent on long-term care. It will make it quite clear where people have to make provision for themselves. I think that it will list a number of different options that could be considered, and that more work could be done on in the future. I do not think that we are going to see one answer with very well thought through costed recommendations. I think that we are going to see a report which suggests a number of different areas of work — for example, working with the pensions review and maybe working with the insurance industry to come up with some new products.

Mr R. R. Ainslie, F.F.A. (opening the discussion): The President said that we were going to discuss the problem of old age. Being an actuary, I naturally like numbers and statistics, and I took a couple of these from one of yesterday's newspapers, which I thought were quite pertinent to the question that we will be facing. The first one is 99, which is the age of the world's oldest parachutist. The second one is 173, which is the percentage rise, in the U.S.A., of those over age 60 injured after taking up roller-blading, aerobics or weight training. Other people are also quoted in this article. One man said: "I am one of the 'ever-presents' who has run all 18 London marathons. I train for half an hour every day. That is about 2,000 miles a year. I don't consider it old to be 71". That sums up everything that we are facing here. We are facing ageing, but it is not clear whether it is benign or malign. Is ageing going to be something that threatens the economy, or will it be something that generates wealth and enriches us? It is to be hoped that, as actuaries, we can make a contribution to answering that question.

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

There has already been a very valuable piece of work done on long-term care (Nuttall *et al.*, 1994). In it, it was suggested that there are 11 areas where the profession could make a contribution to the debate on long-term care, for example: influencing pensions legislation and working with the authorities on incentives for forward planning.

The main challenge for us, as a profession, is finding our role in the debate on long-term care — a role where we can add value. It is important that we do not become a solution looking for a problem in long-term care, but we actually bring something of value to the table. The funding question is a natural area where we, as actuaries, can bring our financial skills and our knowledge of mortality and disability and financial risk.

We have some key skills that other professions do not have. Financial modelling is our unique selling point in the long-term care debate. However, we have a problem. The number of actuaries who work in long-term care is very small indeed. It is difficult to punch heavily when there are not many people talking or working in the area. It is not even clear to me that long-term care modelling is something that has a great future; that it is something that we need to be doing. We know that there is a funnel of doubt. For long-term care, the three key components are obviously: mortality; disability rates; and the cost of care. We are all experts in mortality, and anyone who has researched trends in mortality will have realised that there is a generation, who are now reaching their sixties, of 'super beings' compared to the previous generation. They are experiencing mortality rates much lighter than previous generations. As a profession, perhaps, we have not been able to predict trends in mortality rates accurately, particularly at the extreme ages. Even the Government Actuary's Department has had problems here.

On the morbidity side, as we live longer, will we live longer in a state of health or in a state of disability? There are two theories at the moment. One says that, if you live an extra five years, then those five years are all years of disability. The other theory says that, if you live an extra five years, then the years of disability at the end of your life are just tacked on at the end of the five years, so you have more healthy life. Which of these is correct will have a significant bearing on the costs that the economy has to bear. As actuaries, we can try and interpret the data that are available in these areas to provide some answers.

Then there is the cost side of delivering care. The paper Nuttall *et al.* (1994) included a range of projections done on a range of scenarios. Unfortunately, the press and many commentators picked up on the central projection, which was not helpful. There was a range of projections of different disability scenarios, and the projected cost of long-term care in the year 2031 ranged from £43.8 billion for the best case to £68.9 billion for the worst case, with a central figure of £61.5 billion. The group also did projections on trends in care costs. The worst projection was £102.5 billion and the best was just under £40 billion. It begs the question: are there too many variables to predict with any reliability here? Is it worth our while looking at mortality and morbidity issues when, perhaps, the message for the Government and the Royal Commission is that you have to be hard hearted and keep tight control on the unit costs of care?

One thing is certain; if we do not try to model in the area of long-term care, then we will not find out the limitations. Mr Gatenby mentioned some work that has been going on, but is being restricted by the data that are available. I believe that, as a profession, we should work to try and narrow the funnel of doubt. We should certainly continue to encourage, as the profession does, research by younger actuaries in this field. I think that it is very important that we find out if there is an answer and if we can go part of the way to help.

As actuaries, as well, we can make a contribution away from the global economic scale. We have to make a contribution at a product level. CCRCs are a classic example. I certainly agree with the authors when they say that actuaries must be involved in the funding calculations for CCRCs.

There are things that we should be looking to do, at this early stage, in the development of products. We need to make sure that we are involved in the design and pricing of sound products that genuinely meet the needs of people who will be, perhaps, aged 86 or 87 when they have to claim. In my own work, I have encountered some very difficult cases of people who have bought long-term care insurance. A particularly difficult one was a couple who both had products. The gentleman was going blind and the lady was suffering from progressive dementia. They both had genuine care needs,

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

but the products did not quite match their care needs at that stage, so they were not entitled to the benefits. Design is an area where we have to try and work and make sure that we are producing the top quality kind of products, and perhaps CCRCs are the perfect solution. If we are going to do that, then we need help from people like Dr Smith, and also from people from social services.

We need, as a profession, to think about public education issues. I was made particularly aware of this recently when reading an article in a newspaper about the Office of Fair Trading (OFT) report into care homes. The OFT report said that the current system of regulation about care homes was not working properly. The writer of the article mentioned that in the first paragraph, and then spent the rest of the article rubbishing long-term care insurance products. There was no link. Perhaps we need to redouble our efforts to educate on the limitations and strengths of the kind of financial solutions that we can advise on.

Perhaps, most importantly as a profession, we need to start thinking about the data collection issues for measuring the disability of people who buy the products that we advise on. If you have done long-term care pricing, you realise that the data sources are far from reliable — indeed, they are the most unreliable sources used for any mainstream products. It is important that the companies that are selling products, and the actuaries that advise them, think about a bigger picture, and try and collect reliable pooled data as early as possible. We need to filter it through to the products that we are involved with, to make sure that the prices are as low as possible and represent maximum value.

We need to consider working with other professions and other people who are interested in long-term care. There is too much in long-term care for actuaries to pick up on their own. There is not enough business coming to our employers that we can dedicate enough time to it to see the whole picture. We need to work with others, and there are many other professionals who are very interested in working with actuaries. The social services research unit at the University of Kent is very keen to work with the actuarial profession, and its members bring a unique perspective to some of the work, for example on trends in disability, that we are having problems understanding at the moment. The University of Leicester does similar things. As Mr Gatenby said, the Department of Health and the Department of Social Security are keen to bring actuarial skills on board, where relevant, and this represents a real opportunity for the profession.

Mr J. G. Wallace, F.F.A.: I refer to the paper 'The Actuarial Modelling of NHS Data' (Orros *et al.*, 1998). This is a field which is of great importance. The paper confines itself to the hospital services section of the National Health Service as distinct from the community health and the family health services sections, and rightly so, because I think that it is in this area that there is most scope for modification of procedures and for alteration of priorities. The paper is an attempt to see if any methods can be produced for helping the planners in their very difficult task of allocating resources, which are necessarily limited, in the most advantageous way for the users. In my view, the paper does show how planners could be helped by actuarial techniques of this type — a view which I have held for a very long time. I welcome this paper, and I look forward to seeing what the authors described as a 'robust' (a term I have never heard before) model.

I now make some elementary comments on CCRCs. It is a concept, not only of professional interest, but also of personal interest, because I am now in my mid-80s, living on my own in too big a house with too big a garden, too big a dog, and it is too big an effort to move from it! I do hope that the concept will be developed, because I feel that it could be of much interest to geriatrics in this country like myself.

I now refer to the property side of the CCRCs, confining my comments to the refundable section, where I understand that, on leaving the community, one receives the market value of the bungalow that one has purchased. If I entered such a scheme, I would have to sell my house and the land on which it stands, and I would buy the bungalow and, I hope, the land on which it stands. Perhaps I am already too old to join such a scheme, but, even if so, it is possible that a commercial organisation might very well find it advantageous to have a somewhat older average age for the community, because that would limit the period of risk for the very uncertain costs of long-term care and the amount of such long-term care. If I did enter this scheme, it might be thought that it was no different to buying a smaller house, which would be subject to the same market influences as my original

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

house. However, it is different because, if the bungalow is in the CCRC, its value would be subject to the financial viability of the CCRC itself. In other words, one would not want to buy a bungalow in a CCRC that was going to go bankrupt. So, I am very much in favour of having some sort of actuarial certification that one could examine over the years to confirm that the community has been well managed and is viable. I hope, if this concept is developed in the U.K., that we shall have some form of actuarial certification as a statutory requirement, as in the U.S.A.

Turning to the non-residential side of the property, what might be called the recreational and care area, I understood from the paper that this was to be repaid by a loan over a period of 30 years. I had some doubts as to the equity of this as between an entrant now and one, say, 29 years from now. I wonder if it might be useful to give the option of offering a non-interest bearing debenture as one's proportion of the costs of the care and residential section, repayable on leaving the community. This is quite common in sporting organisations, and there is the added chance that there are some generous people — as occurs with sporting organisations — who give up repayment of the debenture or part of the debenture. This might very well happen in a community of this type, particularly if there have been increases in land values and property values, and bearing in mind the effects of death duties.

As far as the running costs of the community are concerned, the proposal is to have an annual premium fixed at the outset, with a guarantee that, if costs to-date show the need for an increase, then that increase will not exceed 3% in real terms over the previous year. Many years ago I was Chairman of the Finance Committee of the Lothian Health Board, and I recall that, when planning any new scheme, we automatically included in our estimates of future running costs an annual increase of 2.5% in real terms. I wonder if, in the community, it would not be a good idea, at the outset, to include a fixed annual increase in real terms in the community charge. If it is not needed in any one year, one could set up a reserve. The benefit is that the new entrant knows at the outset where he stands.

If I were entering such a scheme, I would also like the actuarial certification to tell me on what terms previous entrants had come into this scheme. I would like to be assured that, if I came in and my terms reflected the present financial state of the community, then the practice would continue, and that future entrants would also have to pay according to the financial situation of the community at the time when they enter.

The big uncertainty in the scheme, however, seems to me to be the cost of long-term care. The authors refer to the possibility of utilising insurance against long-term care costs. This would very well suit a CCRC, either with a single premium contract or by an annual premium contract where the premium was included in the annual community charge to avoid the risk of a policy being lapsed.

Some time ago I effected a long-term care policy, and payment of the benefits depends on my ability to perform what are called the activities of daily life — ADLs. The authors point out, rightly, that there are some areas where there might be a difference in approach between the insurance company and the continuing care community, but if the policies are of the type that I have, then I agree with their conclusion, that these differences could be overcome with tolerance on all sides.

I am long out of touch with what is available in the U.K. statistics concerning morbidity and disability, and I was interested to hear the opener refer to this problem. I find it disappointing that we have to use U.S. statistics to guide us. If, in the U.S.A., as in this country, the diagnosis of the need for long-term care is going to be based on one's ability to perform a specified number of ADLs, then I think that there is not going to be much difference between U.S. statistics and U.K. statistics. When it comes to the incidence and number of these diagnoses, bearing in mind the very different methods of administering health care in the U.S.A. and in the U.K., I would have some doubts as to whether the curves of disability and morbidity according to age and sex would be similar in the two countries. I was glad to hear that there is going to be actuarial investigation into this area.

It seems to me that, at present, CCRCs in the U.K. would have a number of almost unquantifiable risks to undertake. Admittedly, a commercial organisation might be able to limit these risks, but, in doing so, it might discourage new entrants, and introduce an unprofitably low level of occupancy of their bungalows. Even if they did do this, I would doubt very much if we are yet at the stage where a commercial organisation would be able to see a reasonable chance of a return commensurate with the risks involved. As time goes on, and actuarial certification is introduced and improved, the

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

situation could change, but, at present, I would have thought that, as in the case described in the paper, sponsorship would most likely be undertaken by non-profit-making organisations of considerable financial strength. I wish the development of CCRCs all good luck in the future.

Dr A. S. Macdonald, F.F.A.: The opener said that our unique selling point was our ability in financial modelling. We ought to be trying to put that to use, not merely in the retrospective analysis of data sets collected for other purposes — for example, in the course of health service research — but by influencing the collection of data in the first instance. Many of the disadvantages, to which several speakers have referred, arise from the use of data that are not satisfactory for the actuarial purposes at hand, caused, broadly, because we have not had a chance to influence the design and direction of these studies (for perfectly good reasons) in the past.

To take an analogy from medical research, a great many interesting facts, or possible facts, may be thrown up in the course of retrospective medical research, but these are almost always confounded by possible interference from unknown sources. The most reliable studies are prospectively designed experiments, and these seem to be entirely lacking in the fields which give rise to the data which actuaries and others must use in health cost planning.

To date, and broadly speaking, the available types of data have been of two kinds: transition data and prevalence data. In particular, there is a large set of transition data available from a U.S. study, and a large set of prevalence data available from a U.K. study.

Making a technical comment, from the point of view both of analysis and of application to actuarial pricing, transition data are infinitely preferable to prevalence data. I note that in the paper Ainslie *et al.* (1998), the authors more or less had to work backwards to try to back out transition data from the available prevalence data. If a significant impact is going to be made on this field, and if collaborative studies are to be undertaken, I would urge, very strongly, that one of the first actions should be the design of a data collecting project suitable for the production of transition data.

My interest in this area arises from a project that I have been undertaking with colleagues into the effect of genetics on Alzheimer's disease, and the insurance costs related thereto, in which the production of a model for long-term care costs has been, not the central part of the project, but a peripheral part. However, it has become clear that one of the greatest difficulties in adapting the available data to actuarial use is the question of what happens if you try to factor in improved mortality (even improvements in mortality of the magnitude that we have seen in the recent past).

What these aggregate mortality improvements do not tell you is whether people will live longer with reasonable functions and then suffer a much steeper decline, in which case the care costs might be less, or whether people will be kept alive for longer with reduced function, in which case the care costs will be more. There really is no conclusive answer from the data, and yet the financial results emerging from any model are crucially dependent on it. I therefore wondered if it was wise of the profession, at this stage, to commit itself to one or other point of view on that question, and to come up with something that might be labelled as the profession's projections. That seems to be a path that we have been down once before with AIDS. I think that a little caution is necessary.

What we need are models that represent, in much more detail, states, or conditions of relevance to health costs, which would have been completely disregarded in the aggregate statistical exercises of the past. That amounts to disaggregating the aggregate mortality and morbidity and studying the heterogeneity relating to observables, such as life history and, possibly, also genetics. It seems to me that that sort of information is simply not going to arise from any aggregate studies. If we try to back it out from aggregate studies, we will always be left with unanswerable questions of whether the costs will increase or decrease in the states which are of relevance to the financial problem. That brings me back to my first point; that the most important role for the profession to play in the near future is in its participation in future data gathering exercises.

Mr M. D. Paterson, F.F.A.: Mr Wallace is the only person whom I know who is interested in buying the product that we have been discussing. He was obviously going for the refundable membership, rather than the non-refundable membership referred to in ¶3.6 of Humble & Ryan (1998). I would be interested to hear what the approximate difference in cost between the products is at ages 75 and 80.

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

One of the problems of extreme old age seems to be the reluctance of the elderly to spend their own money completely, that is using it up to look after their extreme old age. They still think that they should be able to pass their capital on to the next generation. There is a huge increase in the cost of the products by doing this. It is like deciding to boost your income by buying an immediate annuity at age 80, and then deciding that you wish 10-year protection added to the annuity, and being disappointed when the rate falls. The reality is that you ought to decide what the real problem is, and spend your money on solving it.

In the same way, I was surprised that the last Government felt that they must not raise too much taxation from people when they die. Personally, I have always thought the time when I would like to pay most of my tax was actually at that moment! It seems strange, politically, that it is not seen that that is the time to raise as much tax as possible. I am all for very heavy inheritance tax, certainly, perhaps, with relief for such as businesses and farms. However, for individuals this human desire to leave a lot of money to the next generation is a luxury that, as a community, we will not be able to afford, particularly considering the ages of the recipients of this largesse. What is the point of receiving a great deal of money at well past retirement age? It would surely be better all round if the consensus was that people who live to be very old had to spend their capital on care in their last years. This would bring the cost of insuring the risk within the scope of a much larger section of the community.

Mr P. A. C. Seymour, F.I.A.: Concerning Mr Gatenby's comments about the Royal Commission and the whole political debate as to how we might run things in the future, I was on the Rowntree Inquiry and I was also part of a group from the profession who went to see the Health Select Committee following the appearance of the paper that Mr Gatenby referred to (Nuttall *et al.*, 1994). I remember very well sitting in front of the Health Select Committee, and one of them saying: "We like this idea about the funnel of doubt, but we do not like it being so enormously wide". It really was enormously wide. It is probably on the record, but I think my closing comment was: "Well, the cost of this in cash terms" — which, of course, is what was interesting to the Committee at the time — "could go up by a factor of two". This is in constant pounds in 40 years, which, of course, would be easy to manage and not a big problem — £10 billion becomes £20 billion in today's money. "Alternatively, there are perfectly reasonable scenarios where it could go up by a factor of eight times". £80 billion in today's money is serious money — the NHS budget is about £40 billion a year. They said: "Well, you must be able to do better than that." The answer was: "No, we cannot", because, as the opener said, the variables are really almost imponderable and we have very limited data. So, I think that the profession's position on that — certainly the one that I recommended at the time — was that, if you have that degree of uncertainty in the system, what you need to do is to develop a robust funding mechanism that could stand up to either scenario.

More recently, as Mr Gatenby touched on, we are, perhaps, feeling more optimistic about how these costs might develop. Dr Macdonald is quite right to say that the real issue here is what data do you have to put in? As many of you will know, I am by no means a scientist in this, but I have had some discussions with those who do understand these things. One of the problems was touched on; if you have snapshot data — census data — and if you have a series of snapshots, how do you explain what is happening between this snapshot and the next snapshot and on to the one beyond? There are almost an infinite number of solutions that would give you those three points. So you can put an infinite number of assumptions into your model and get really wide funnels of doubt. What we really need are longitudinal studies, cohorts of the sort that we actuaries are accustomed to. We need to follow a group and see what happens, and capture the transition probabilities. The problem with that approach is that it takes a long time to get the data. We are in something of a Catch-22 situation. I am not sure what is the best way for us to take this forward, but I agree that getting the data is clearly a very important priority.

Putting all these alternative scenarios into the system is giving a funnel of doubt. However, the other element that I think is even more important is one that Mr Gatenby touched on; at the moment informal care is delivering three-quarters of the care being delivered. You can make some relatively modest changes to the assumptions as to whether society will want to continue doing that or not, and

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

finish with major changes in the projected cash costs. To my mind, that is the biggest variable of all. That is why I definitely agree with Mr Gatenby in that the Commission is very likely to try to come up with ways that will encourage that voluntary or informal care sector to continue.

We actuaries — not wrongly — focus on money; but in public places that is not a particularly popular position to take. It sounds inhuman, and I think we need to watch that. So we have to learn, in terms of working with other disciplines, not just to stick to the money, but to start understanding more about what is the real objective in all of this, which is to deliver the appropriate care that people need in the future. I was on the Rowntree Inquiry, and what finally got us together — some from the social side, some from the financial side, and so on, none of whom really communicated very well with each other — was: "We want to start with the definition of care that we want. Then we can work backwards from that because that is the common denominator for everybody. We can then think about how we can find the money to pay for it, we can think about how we can find the people to deliver it, and so on." So, start with the care and work backwards. Do not think of this as a simple exercise in money.

I support very strongly, from the profession's point of view, the criticism of these pockets of research that the Government is undertaking in separate places. We have the pensions review; we have the Royal Commission; we have welfare reform, and none of it is hanging together. We, the profession, in response to welfare reform, wrote in and said: "The most important thing we can say is that we want a coherent system, because if we do not have it, it will never work". The level of perverse incentives in the current system is quite major. For example, why would you take out insurance to cover long-term care when, if you had no money at all, the state would pay for it anyway. It is definitely not an incentive to do anything about it. So, the very simple things that come from this lack of coherence need to be fixed.

Turning to the CCRC paper, I support Mr Wallace's theory that a new CCRC really does like to have at least some entrants of advanced years, because it does mean that the risk that it is facing for the future is rather more predictable than it otherwise would have been. It also means that it starts with a population that is a good cross-section. One of my worries is that, if you start with 65-year-olds or 70-year-olds, let us say, all nice and fit when they join, then, as they age, the CCRC becomes less and less attractive to new members. We have to be careful to start with a cross-section that will reflect how it will be in what we actuaries would call a 'stationary state'.

Clearly, as others have addressed, the crucial issue is: are we going to be living longer, healthier lives or just longer, less healthy lives? That is the question that the data collection exercise needs to start to address, and it is a very multi-state model. Dr Macdonald presented a paper, 'The Death of the Life Table', to the Faculty of Actuaries Students' Society in 1994, and at least we actuaries have managed to move from a single decrement table now to recognising that we are dealing in multi-state models. However, dealing in multi-state models and having the data to fill the transitional probabilities across those states presents us with serious challenges in how to get these data collected in the first place. I would be interested if anybody knows where we should start in terms of whom we should approach to say what data we want and why they would collect it.

Mr P. L. Gatenby, F.I.A. (replying): I want to comment on what Dr Macdonald and Mr Seymour said about data collection. We had some involvement in moves by the Department of Health to start a longitudinal study on healthy life expectancy, and, for some reason, they got nowhere, which is unfortunate.

We need to get involved in setting up appropriate data collection, and if anybody has any ideas, they will be gratefully received by those of us who are involved in research into long-term care. There are quite a number of people within the profession who are now working in different groups looking at different areas in this field, but data collection is the one where we are not making much progress.

Dr R. G. Smith (replying): There has been a study in Gothenburg looking at various cohorts of 70-year-olds. It may be that, if it can be shown that Swedish lifestyle figures, etc. are more comparable with those in the U.K. than, perhaps, some of the American studies, then we could use those data to try to get some answers. I think, as geriatricians, that certainly we would be very interested in

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

working with the Faculty to look at data collection, because that is an area where we are weak.

I look forward to the Royal Commission's deliberations. I am getting a little bit cynical, and I am afraid that we may finish up with yet another fudged issue.

Mr R. A. Humble, F.I.A. (replying): Dr Smith raised the question as to whether enough people would want to go to CCRCs. I think that CCRCs can be made significantly attractive, so that different types of community would appeal to different people. In the U.S.A. some are strongly religious based; others are more like luxury hotels, with golf courses and all the rest. So they can be made attractive. A more fundamental problem is how many people could actually afford to go to them. It seems to me that CCRCs are very largely a retirement option which is available to the socio-economic ABs, but not to the population at large.

There were quite a few references by different speakers about the enormous problem of making good estimates of the need for care. I share the concerns that were expressed about the applicability of U.S. data to the U.K. situation. The only good thing that can be said about their data is that those are the only data that have well-founded transition probabilities. I totally support all those speakers who said that we have a critical need to establish surveys based on the U.K. experience in order to derive comparable transition probabilities in the U.K. I agree with Mr Seymour that these things take a long time to produce results, but that is no excuse for not trying to get them started. In fact, that is a very good reason for trying to get them started as quickly as possible.

I am less pessimistic than some speakers about whether or not long-term modelling is subject to so much uncertainty that it is hardly worth doing. I think that we are at the beginning of a process which needs very substantial refinement in order to produce the results that we need. However, we are getting to the point — certainly in the U.S.A., and possibly in the U.K. — where we are beginning to see trends which may indicate that the effect of longevity is accompanied by decreases in the need for care in disability. These are all very early signs, but let us hope that that initial optimistic scenario does become better supported by data. I think that, if that is the case, then it would provide a very significant stepping stone along the road to narrowing the funnel of doubt.

There was a reference to long-term care insurance products, and the need to ensure that these match the needs of the individual. This is a difficult, but terribly important, area. The opener referred to one instance of individuals who clearly, under most people's interpretation, would have had every right to suppose that they were entitled to benefit from long-term care insurance, but did not because of the policy wording. This sort of issue also came up in the discussions which surrounded the previous Government's proposals on the partnership scheme, where, in essence, the local authority decides whether or not an individual goes into nursing residential care, and, in so doing, would take into account issues such as whether or not they are resident with their family or whether or not they happen to live on the fifth floor of an apartment block, none of which translates into ADLs. I feel that the difficult process of getting people to buy long-term care insurance can only be undermined unless a better way of finding a match between the real need for care and the mechanism of making a claim to pay for it is achieved.

Mr Wallace raised a number of interesting points on CCRCs. In particular, he raised the issue of the equity of having the initial funding repaid over a 30-year period. This has also been raised by some other commentators, particularly in the U.S. context, on the grounds that, perhaps, too much of it was placed on the initial population. I can see the logic of that position. However, in the particular case of the Joseph Rowntree CCRC, or, indeed, of any other new CCRC that might be started up in the U.K., the financial uncertainties simply are a lot greater than in the U.S.A., where there are 50 to 60 years of experience. Hence, in terms of prudence, there may be a reasonable defence for wanting to repay the funding early.

Mr Paterson referred to refundable entrance fees and the desire of people to leave money to their children. From a rational point of view, I empathise entirely with what he said. However, it is a fact that many people, particularly of the generation who are now elderly, do regard this as very important, even if, from a rational point of view, it does appear a bit peculiar. I suspect that future generations may well have a very different view, and, perhaps, would be much more comfortable with the notion of using their accumulated wealth solely to provide for long-term care.

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

The President (Mr C. W. F. Low, F.F.A.): Nobody touched on what might be considered the macro-economic effects and the demographic effects, because, certainly, carers will be needed to provide care, whether in the formal sector as employees of a CCRC, or paid employees of the NHS, or as informal carers at home, who will not be contributing to GDP or paying taxes to the community on their earnings, and whom those of us who are paying tax, whether on earnings or pensions, will be supporting thereby. So, there is a great need to take this subject forward, and I would respond positively to Dr Smith's suggestion that the profession should work with him and his fellow professionals on this subject. I would ask our Wider Fields Board to take this matter up.

It is quite clear that better data are needed, and we can certainly help in the definition of what data should be collected and held for the future. However, it is also clear that answers will be required before those data become statistically significant. I think that many people here have come — like myself — from the life and pensions spheres, and are used to large volumes of statistically sound data upon which to work. I think that some of the solution may come from our colleagues in the general insurance field, who have been used to producing magnificent results from some very scratchy data indeed. It may well be that the medical profession can point us to sources, in the National Health Service or elsewhere, which, to us, might be unexpected, where there may be unknown data which you feel cannot be worked upon and from which we might just be able to do something. So, I look forward to our future collaboration.

Meanwhile, I thank you all for a very stimulating debate, which could not have been possible without our panellists. I would like you all to show your appreciation to Messrs. Ryan and Humble, for their paper; to Dr Smith for his paper and presentation; and to Mr Gatenby for his presentation.

POSTSCRIPT

ROYAL COMMISSION

Since the meeting held by the Faculty of Actuaries in November 1998 the Royal Commission on Long Term Care has published its report, in which the Commissioners have proposed a radically new approach to the funding of long-term care.

Summary of Relevant Recommendations

Main report

- The costs of care should be split between living costs, housing costs and personal care. Personal care should be available after assessment, according to need, and paid for from general taxation; the rest should be subject to a co-payment according to means.
- Government should establish a National Care Commission to monitor trends, represent consumers and set national benchmarks.
- The value of the home should be disregarded for up to three months after admission to care in a residential setting, and the oppotunity for rehabilitation should be included as an integral and initial part of any care assessment before any irreversible decision on long-term care is taken.
- The upper capital limit of the means test should be raised to £60,000, while leaving the lower limit and income tariff unchanged.
- Budgets for aids and adaptations should be included in, and accessible from, a single budget pool, and a scheme should be developed which would enable Local Authorities to make loans for adaptations for individuals with housing assets.
- The Government should consider a national carer support package.
- The Commission recommends that the Treasury and the FSA urgently begin work designed to bring all private long-term care insurance within the ambit of conduct of business regulation at the earliest possible date.

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press

Note of dissent

- Modify existing means test so that it is less harsh towards people with small amounts of wealth, and does not force elderly people to sell their homes.
- Make nursing care in nursing homes free.
- Create a genuine public-private partnership in the funding of care, with private savings and insurance making their contribution.
- Create better support for those who care for their elderly relatives and friends.

The Commission did consider the use of private sector financial products, but decided that they were unlikely to provide a universal solution. Long-term care insurance was seen as being too expensive for most older people, and a link between funding for long-term care and funding for pension at retirement was also discounted. The note of dissent, however, does recognise a role for both insurance and pensions, and recommends that the Government reviews the tax treatment of pensions so as to allow long-term care benefits to be provided out of a pension arrangement.

The most important next stage will be the Government's response. Of interest to all concerned will be both the timing and content of this response. One of the most important areas for the profession to get involved in will be the National Care Commission, if the Government decides to take this recommendation on board.

P. L. GATENBY

https://doi.org/10.1017/S1357321700000477 Published online by Cambridge University Press