Establishing the extra in Extra Care

Perspectives from three Extra Care Housing Providers

Dylan Kneale

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ILC–UK
11 Tufton Street
London
SW1P 3QB

Tel : +44 (0) 20 7340 0440
www.ilcuk.org.uk

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Executive summary

Extra care housing is a model that combines purpose-built and ergonomically designed housing for older people with onsite flexible care that adapts to residents' changing needs. This research draws on the data collected from three providers of extra care housing and examines the outcomes for residents. It explores some of the factors associated with more successful outcomes among the residents, and also compares some of these outcomes with those of residents who share similar characteristics but who reside in general-purpose housing in the community. This is one of the first studies to examine the outcomes for extra care residents using longitudinal data, tracking the outcomes for residents who in some cases moved into extra care housing as long as 15 or more years ago up to the present day. In this study, we focus upon outcomes related to health status, usage of health services and usage of institutional accommodation, and we highlight the following key findings.

Key findings

1. Extra care housing is a home for life

About 8 per cent of residents in extra care housing in this study enter institutional accommodation from extra care housing after five years of residence. Compared to those living in the community in receipt of domiciliary care, those in extra care housing are less likely to enter institutional accommodation. Among a matched population aged 80+ we would expect about 19 per cent of those living in the community in receipt of domiciliary care to enter institutional accommodation, compared to just 10 per cent of those in extra care housing. This highlights the efficacy of extra care in supporting people with a diverse range of support needs. Furthermore, this can represent substantial savings in social care budgets.

2. Extra care is a healthy home for life

About a quarter of residents who enter extra care housing with additional social care needs, or who develop additional social care needs within extra care housing, later go on to experience an improvement; for example, moving from a high intensity social care package to a low intensity social care package. In addition, many more experience stability in care needs and do not exhibit the diminution in abilities that usually necessitates higher levels of social care.

3. Extra care housing is associated with a lower uptake of inpatient hospital beds

Residence in extra care housing is associated with a lower likelihood of admittance to hospital for an overnight stay compared to a matched sample living in the community. However, among those admitted, extra care housing residents were likely to stay longer. This finding seems to demonstrate an overall tendency for extra care residents to be less reliant on hospital inpatient beds for minor procedures, and for extra care housing residents to utilise inpatient services only in times of crisis. Nevertheless, overall those in extra care housing had a lower incidence of overnight hospitalisation than a matched group living in the community. For example, we would expect an average person aged 80 and above in receipt of domiciliary care in the community to spend around 6 nights of the year in hospital, while a resident in extra care housing with similar demographic characteristics would spend around 5 nights. These findings suggest a substantial fiscal benefit to residence in extra care housing in terms of hospital expenditure and also in terms of residents' quality of life. In

addition, we also present the argument that our estimates may overstate the case of longer stays in hospital for extra care housing, and we therefore would simply emphasise that those in extra care housing have a lower probability of entering hospital than a matched sample in the community.

4. Extra care housing translates into fewer falls

A lower than expected number of falls was recorded in a small sample of extra care housing residents than in a matched comparison group living in the community. This can translate into substantial budgetary savings by lowering reliance on health services as it also potentially demonstrates that extra care residents exhibit a lower likelihood of moving to institutional care.

5. Extra care housing supports some of the oldest and frailest members of society

The average age of extra care residents is in the very late 70s and early 80s across all three providers included in this research (Audley Retirement, Extra Care Charitable Trust and Retirement Security Limited). Not only were extra care residents older, but other factors also suggested that extra care residents had higher support needs than would be expected among a population of similar age living in the community. The number of people living with dementia, the aftermath of a stroke or Parkinson's disease was higher in extra care residents than in the general population. Residents of one extra care housing provider included in this study were also more likely to be claiming Attendance Allowance, a benefit reflective of personal care needs, than those in the population.

6. The benefits of residence in extra care housing could translate into substantial cost savings, particularly in the long-term

Assessing the costs of different models of care is challenging. In this research we speculatively outline that there is likely to be a higher individual and societal cost to delaying movement into specialist retirement housing for some older people. This is due to the higher transition rates into institutional accommodation than those in community settings are likely encounter. Furthermore, we also highlight that there are fiscal benefits to be observed from the lower rate of hospitalisation, the lower rate of falls and decreases in social care packages received. These benefits are also likely to signal benefits to the quality of life of older people.

7. Expansion of the extra care housing sector, as part of the retirement housing sector more generally, could help to alleviate housing challenges facing people of all ages

Older people are now more likely than ever to be resident in housing that may not best fit their needs. Part of the reason for this may be due to the lack of adequate housing available, and the lack of information on the available options. Expanding the extra care housing sector, as part of an effort to grow and diversify the older people's housing market, could help alleviate the housing shortage facing young people and families through freeing up family sized housing.

Background

Extra care housing represents a relatively new model of housing with care for older people that has developed as part of the changing housing landscape. Several distinct trends have emerged in the housing patterns of older people in recent years. Our analysis of the Survey of English Housing reveals that by 2007/8, almost a quarter of older people (24 per cent aged 65+) had lived in their homes for 40 years or more, compared with 17 per cent in 1993/4. Arguably, the housing needs of

such long-term residents will have changed over their life course. This is evidenced by an increasing trend towards under-occupancy among households headed by persons of pensionable age, with the ratio of bedrooms per person growing over time. Moreover, older people are increasingly likely to be owner-occupiers. Substantial implications follow from the deceleration of the older persons' housing market for older people themselves and the housing market more widely.

We also present figures from the British Household Panel Survey (BHPS) that show a small increase in the number of older people in the community who report difficulties in carrying out day-to-day activities such as shopping, housework or walking short distances (from 32 to 35 per cent). However, among those who report such difficulties, the proportion of those receiving domiciliary care (such as home help or meals-on-wheels) declined from 24 to 13 per cent. Therefore, not only does the evidence indicate that older people are more likely to be living in accommodation that no longer best meets their needs, but they may also be more likely to experience an unmet need for care at home while they remain in general needs housing.

One possible reason for the apparent slowdown in movement in the older people's housing market is a lack of purpose-built retirement housing (Ball 2011, Porteus 2011). Construction of specialist retirement housing has been on the decline since the mid-1990s, despite the ageing population. Construction of extra care housing has mirrored this trend, declining in recent recession years. About 1 per cent of households headed by a person of pensionable age currently lives in extra care housing, although demographic trends suggest that demand will be growing. A substantial proportion of extra care housing, as well as retirement housing more generally, has been offered on a rental basis, despite the fact that most older people in general-needs accommodation are owner-occupiers.

Extra care: the evidence base

While extra care, in the broadest sense, is defined as ergonomically designed independent housing units for older people with the provision of onsite flexible care, some ambiguities exist in terms of the essential components needed to classify retirement housing as being 'extra care' housing. Generally, most extra care housing appears to reflect the three tenets of: (i) flexible care, (ii) independence, and (iii) homeliness. In addition, there is some uncertainty in the literature as to whether extra care fulfils a role as:

(i) a direct alternative to a care home (or other institutional setting) for those with moderate-high care needs; or

(ii) prolonging a period of independence for those with low or no care needs; or

(iii) a form of housing for older people who anticipate future care needs; or

(iv) simply an alternative form of housing for those older people regardless of current or anticipated care needs.

Evidence collected in this project suggests that residents of extra care housing may move for reasons relating to all four scenarios. However, much of the literature has compared the outcomes for extra care housing residents only with those for residents of residential homes. Similarly, the literature has focused disproportionately on extra care housing that has been funded in part or in full by the state, leaving some evidence gaps in terms of the outcomes of extra care residents in private developments.

Some studies have concluded that extra care housing is associated with a diminution in functional ability usually associated with older age (for example, Bäumker et al 2008). Similarly, some studies have also concluded that social well-being is also higher following residence in extra care housing (Callaghan et al 2009). Studies of the cost-effectiveness of extra care have also highlighted that extra care housing can be associated with a reduction in social care spending (for example, Garwood 2008).

However, the applicability of several studies is limited because they either focus on single developments and/or have excluded private sector extra care housing. Furthermore, we argue that there remains a lack of consensus on some of the fundamental issues and claims associated with extra care housing. This has resulted in a lack of evidence on some of the most basic indicators of the extra care experience, including the length of stay and the maintenance of health and social care needs. In particular, there is little unanimity in the existing literature as to whether extra care housing could be considered a 'home for life' – a home that can support older people regardless of their care needs. The object of this study is to address some of these evidence gaps using data from three providers of extra care housing.

The study

We use longitudinal data on almost 4,000 residents of extra care housing supplied by three extra care providers. We examine the characteristics of extra care residents, the length of stay and whether extra care housing can be considered a 'home for life', the changing health characteristics of residents, falls among extra care housing residents, and patterns of inpatient hospital stays among residents. We also employ data from two nationally representative studies – the British Household Panel Survey (BHPS) and the English Longitudinal Study of Ageing (ELSA) – in order to compare the outcomes for similarly matched residents in extra care with those living in the community, and, in particular, those in receipt of domiciliary care. We make this comparison under the assumption that living in the community in receipt of domiciliary care closely matches some of the tenets of extra care in terms of independent housing, flexible care and homeliness. We employ various forms of regression analysis, specifically those most tailored for use with count and time data, to illuminate the outcomes of extra care residents. We also employ a method of matching to understand how the outcomes of those in extra care may differ from those in the community based on their observed characteristics.

Who lives in extra care housing?

We find evidence that extra care housing, on the whole, supports some of the oldest and frailest members of society, and a population that appears older and frailer than found living in other forms of independent housing in the community. The average age of residents entering extra care housing tends towards the high 70s, although population ageing can mean that the average age of residents living in these properties can reach as high as 85. Some two-thirds of residents are women, and about three in ten residents enter as part of a couple.

Most residents who enter extra care housing do not require an additional care package on arrival, beyond that provided as part of the minimum standard package (for example, 67 per cent of residents of one extra care housing provider). However, additional information from one provider also showed that over three-fifths of residents were in receipt of Attendance Allowance (a good

measure of social care needs). This level of receipt of Attendance Allowance is substantially higher than is found among those living in the community; for example, 68 per cent of those living in extra care housing aged 80–84 were receiving Attendance Allowance, compared to 16 per cent aged 80–84 living in other forms of housing.

Although the findings relating to receipt of additional care package and Attendance Allowance appear contradictory at first, we interpret this finding as symbolising that the minimum level of formal and informal care provided as standard in the extra care housing environment allows older people with difficulties in carrying out the activities of daily living to remain independent. Receipt of Attendance Allowance, as well as receipt of Pension Credit for a substantial minority of residents, is therefore an essential part of helping older people remain independent through financing residence in extra care housing. Based on a small sample of residents from one extra care housing provider, we found elevated rates of dementia, stroke and Parkinson's disease among residents. These may give an indication of the type of health 'shocks' that can predict entry into extra care housing.

Extra care housing as a 'home for life'?

As discussed above, a recurring debate in the literature is whether extra care housing should be regarded as a 'home for life'. This is important, as it challenges the fundamental concept of extra care housing as a form of housing that can adapt to a resident's changing care needs as they age. To address these issues we first look at the typical length of a resident stay and the probability of a move to institutional accommodation, and we then compare this probability with that of a similar person living in the community.

We find that the median length of stay in extra care housing is 6.5 years, using data from two partners (Extra Care Charitable Trust and Audley). This was moderated by resident characteristics: men, older residents, and residents with higher care needs had shorter stays in extra care housing. When directly examining the 'home for life' issue, we find that after five years about 8 per cent of residents will have moved into institutional accommodation. The ratio of exits to institution and exits because of death within five years is about 1:3. At ten years, we would expect some 14 per cent of residents to have moved to institutional accommodation.

Regression results suggested that the care package on entry to extra care housing was the single most important factor in predicting exit to an institution. When we examine whether the low rates of moving to institutional care for the extra care housing sample are lower than would be expected within the community setting, we find indications supporting this, albeit with a number of caveats. We find that if we compare the outcomes of older extra care housing residents with those of a matched community sample in receipt of domiciliary care, the probability of a move to an institution within the first five years is 37–50 per cent lower for residents of extra care housing (50–70 per cent over the first two years).

Our results suggest, based on the low numbers entering institutional accommodation, particularly when compared to a community population, that extra care housing is a 'home for life' for the majority.

Extra care housing as a healthy 'home for life'?

In addition to the issue of whether extra care constitutes a 'home for life', we are also interested in whether residence in extra care housing can improve a resident's health. We find plenty of evidence to support this assertion through examining changes in social care package received, as a proxy for health status, as well as through examining the rate of falls.

We find that among those who enter extra care housing with additional care needs or who later develop additional care needs – 24 per cent of extra care residents experience an improvement over the first five years. This represents measurable fiscal benefits as well as benefits to the quality of life of older people.

Based on a small sample of residents in one extra care housing scheme, evidence shows that these residents are significantly less likely to experience a fall than those in receipt of care at home and who are of similar social background. While the fall rate in our extra care housing population was 31 per cent, the fall rate in matched sample drawn from a community survey was 49 per cent.

Extra care but fewer hospitalisations?

Given that our findings suggest that residence in extra care housing is associated with a substantial degree of improvement in social care status, and with a lower propensity for experiencing a fall, we would expect that this form of accommodation could also reduce the use of hospital services. In this study, we focus on the rate of overnight hospitalisation.

We found that the incidence of extra care residents occupying hospital beds is an estimated 5.5 nights per year of residence in extra care. However, in a typical year some four-fifths of residents do not spend a single night in hospital, and we also found evidence that the hospitalisation rate has fallen in recent years. A number of factors were found to moderate patterns of overnight hospitalisation: older residents were likely to have elevated rates of overnight hospitalisation, as were those in receipt of Attendance Allowance, which was found to be the single most influential factor in predicting incidence and length of stay.

Despite some caveats, our evidence suggests that residence in extra care housing is associated with a reduced number of nights in hospital than may be expected in an equivalent population living in the community. However, the differences are mainly attributable to a lower propensity for being confined to hospital initially, and not through necessarily shorter lengths of stay. Nevertheless, we find that this still translates to a lower level of hospitalisation for older extra care residents, with an estimated incidence of annual hospitalisation of 4.8 nights per year per person among those aged 80+ compared to 5.8 nights for those matched and living in the community.

We posit that the underlying mechanism behind this effect is that those in extra care are admitted overnight to hospital only for serious conditions, and may be treated as outpatients for less serious conditions, whereas those in the community may be more likely to be admitted overnight and not discharged for minor procedures. In addition, there may be reason to suspect that those in the BHPS control group who had prolonged lengths of stay in hospital were more likely to be absent from the study; for the extra care housing data this is not a concern, and may mean that longer lengths of stay in hospital are comparatively overstated for our extra care housing sample.

Possible explanations

In this research, we find that the characteristics of those in extra care generally reflect the notion of extra care housing supporting those with extra care needs. However, for a significant proportion of residents who are newly retired, with no additional care needs and not living with specific health issues, extra care ostensibly remains a lifestyle choice. Nevertheless, the presence of the newly retired may enrich the community balance in extra care schemes, and indirectly help to allow those with additional care needs to live independently. In fact, we posit that many of the mechanisms underlying the findings outlined above relate to the maintenance of a balanced community, and the informal and formal care mechanisms that operate within the extra care housing setting.

We hypothesise that this peer and community support helps older people to remain active, and in turn reduces their social care needs. This is coupled with the more formal aspects of care within the extra care setting which help older people to build continuous relationships with care staff, and which can allow care staff to better understand the needs of residents. Finally, the 24-hour crisis care that is available on demand also means that social care and health crises can be dealt with immediately onsite.

Fiscal implications

These findings have clear implications in both fiscal terms and, more importantly, for raising the quality of life of some of the oldest and frailest people in society. While it is beyond the scope of this research to provide a full cost-benefit analysis, we do present some evidence based on our earlier results that indicate substantial savings resulting from residence in extra care housing.

First, we take our results from looking at the risk of moving into institutional accommodation and the unit costs of social care calculated by PSSRU, and compare them with a synthetic cohort of older people living in extra care housing and a synthetic cohort of older people in receipt of domiciliary care (for 2010 data see Curtis 2010). Looking at the social care costs alone, we show that the upfront social care costs for residents of extra care housing may be higher. However, when we take a longer-term approach the pattern switches, and after nine years the social care costs within the domiciliary care sample are higher, as there is a greater likelihood that residents within this population will have entered institutional care.

Second, we look at the financial impact of a lower incidence of hospitalisation, and show that the savings in terms of hospital beds could reach up to £512 per person.

Policy recommendations

1. Policy-makers need a co-ordinated response to providing housing, health care and social care for our ageing population. Older people appear to be increasingly living in accommodation that is unsuitable for their current needs. Those living in the community who have social care needs are less likely to be receiving assistance at home with these needs. Construction rates of specialist retirement housing have declined, while at the same time younger people struggle to become home owners. This context shows a substantial lack of co-ordinated planning, and the situation is unlikely to improve without a co-ordinated response from central government.

2. Policy-makers should make specific pledges to increase the level of provision of extra care housing. Currently, extra care housing is estimated to account for about 1 per cent of the

housing of those aged 65+. This market share, particularly in the context of an ageing population, is unlikely to waver without specific policy commitments to raise the profile of housing with care. The recent proposals put forward by the Dilnot Commission (2011), for example, will if implemented place a cap on the expected individual contribution for social care. The commission specifically expressed the hope that more people would opt for extra care housing once levels of awareness had increased, and once people were more certain of the likely total costs of social care they may require. However, without specific policy commitments, the extra care housing model is unlikely to fully meet the needs of an ageing population that is diversifying in terms of demography, health and housing equity. We would urge policy-makers to develop housing policies for older people that include specific details on the number of housing units to be constructed, including extra care housing units.

3. The proposed National Planning Policy Framework should champion far more robustly the housing needs of older people. The framework in its current state calls on local planning authorities to prepare a Strategic Housing Market Assessment (SHMA) to assess their full housing requirements, taking account of migration and demographic change, and addressing the need for all types of housing, including affordable housing and the needs of different groups in the community (such as families with children, older people, disabled people, service families and people wishing to build their own homes). However, this statement could clearly go much further and the terms of the SHMA should be clearly drawn out to ensure consistency between local authorities. Without clearer guidance, there is little to ensure that local authorities provide housing for different sections of the older population, and different models of housing, including extra care housing.

4. Policy-makers should recognise and encourage private sector development of extra care housing. This report cites statistics from the Elderly Accommodation Counsel (2008) that showed that construction rates of retirement housing declined precipitously since the 1990s, and speculated that much of this effect was due to the withdrawal of the public sector in constructing older person's housing. Given that the private sector has been unable to match this provision, policy-makers should develop ways of assisting private sector developers to fill the void, although not at the expense of housing quality. In addition, policy-makers should research and evaluate the work of private sector extra care housing providers. This current study represents only one of a handful to assess the work of private sector extra care providers. Although policy-makers justifiably pay greater attention to state funded endeavours, some focus on the private sector is needed, given recent policy recommendations on funding long-term care.

5. The Health White Paper (Equity and Excellence: Liberating the NHS) in its current form does include some mention of housing, although this is in the context of Lifetime Homes and the Warm Front schemes, both of which have fallen by the policy wayside in recent months. The Health White Paper conspicuously fails to mention housing with care for older people. The findings in this report suggest that policy-makers drafting the **Health White Paper should explicitly consider and make specific pledges to increase the role of housing with care.** The Health White Paper implicitly assumes that decentralising health policy to local authorities will mean greater cohesiveness in local housing and public health policies. However, without central direction this can only happen, if at all, on a haphazard basis and, as our recommendations above suggest, we are concerned that cohesive policy-making will not happen without further clarification and guidance.

6. Policy-makers should enhance programmes of education and information for those who are retired and newly retired to plan their housing and financial futures. Furthermore, consumers need reassurance that policy changes will not negatively impact their retirement decisions. We express concern that recent developments, such as the collapse of Southern Cross, are likely to have a knock-on effect on the perception of retirement choices across the sector. Such developments are likely to negatively impact the perceptions held by current and future consumers of retirement housing on the quality of choices available. This could further decelerate the older person's housing market, and lead to greater numbers of people avoiding retirement housing, or choosing retirement housing when it is too late. Instead, we would call for the sustainable funding of co-ordinated programmes of action, such as 'First Stop' to inform consumers how to make the right choice at the best time. Our results suggest that an opportunity cost may exist in the failure to move to suitable retirement housing in good time – while retirement housing may be a more expensive option in the short term, these short-term savings should be balanced against the beneficial outcomes experience in the long-term that equate to fiscal savings.

Furthermore, consumers of retirement housing need reassurance that policy changes will not negatively impact on their retirement decisions. For example, changes to the benefits system or state funding streams could negatively impact extra care housing residents, and make residence in extra care housing unsustainable for some. Prospective residents and consumers need reassurances that the decisions they make, based on the current state of play in terms of state funding, also have guaranteed long-term stability.

7. Any National or Local Falls Prevention Strategy **should include housing** as a key component of preventing further falls. We demonstrate that housing with care has a beneficial effect in reducing the incidence of falls, and outline the likely mechanisms that underlie this, and call for strategies on falls to include housing and design as key components. Our results on social care needs and hospitalisations could also indicate the role of housing and care may play in the efficient management of falls.

8. Receipt of Attendance Allowance opens a gateway for many older people to access extra care housing, through helping to finance monthly care costs and to help access other benefits. However, many older people included in this research, including around a fifth of centenarians and nonagenarians in 2010, did not access these benefits, and financed their stay in extra care housing without this support. It could be expected that the vast majority of this age group would need some help in carrying out the activities of daily living. Helping older people access Attendance Allowance and other benefits to support residence in extra care housing could help reduce social care and health care spending in other areas. **We would urge policy-makers to ensure that all who are eligible to claim Attendance Allowance do so** which could enable greater numbers of older people to support a stay in extra care housing.

9. Further research is needed into the extra care housing sector, and particularly the contribution that housing with care can make in improving quality of life of older people and reducing the fiscal burden. However, this also involves strengthening the research base. We would call on policy-makers to fund the design and delivery of standard data collection across the sector to allow researchers to fully quantify costs and benefits of different social care models.

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Chapter 1: Health, Housing and Care among Britain's Ageing Population

Chapter 1 Executive Summary

Description

In this chapter, we present new descriptive analyses highlighting Britain's ageing population and explore some of the challenges that this presents in terms of housing, social care and health care. We outline that despite an ageing society, with greater numbers requiring social care, the level of unmet need has increased substantially in the provision of older persons housing. Despite this growth, extra care housing has had only a minor impact in terms of market penetration.

Highlights

Britain's population is ageing, with particular gains being made in life expectancy after 65. The population of oldest old (85+) is expected to quadruple from current levels by 2051. The older population is also exhibiting compositional differences over time, with a female advantage in older age life expectancy declining, equating to a greater number of older men and couple households among the future older population.

Gains in longevity are not ostensibly being matched by gains in disability free life expectancy, leading to a greater absolute number of older people who may need care. Additionally, non-communicable diseases associated with old age, for example dementia or stroke, are becoming a greater demand on health and social care services.

We present evidence from our analyses demonstrating that older people living in the community who report difficulties in carrying out activities of daily living (such as shopping or cleaning) are less likely over recent years to be receiving care at home, such as home help or meals-on-wheels services. Among older people reporting that their health hindered daily activities such as housework and shopping, 24% reported that they received some domiciliary care in 1991 compared with 13% in 2008.

The consequences of population ageing are putting pressure on the funding of social care services, which, unlike health care, have not been universally free at the point of delivery. Social care funding and delivery has traditionally been siloed from integrated health and housing solutions, particularly in the state funded sector. New funding proposals put forward by the Commission on Funding of Care and Support (Dilnot) have promised to develop solutions that respond to an integrated approach. Specifically the Commission expressed the hope that more people will be able to consider moving into extra care housing in the future.

Among those living in the community, newly retired older people (65-74 years) are more likely to be owner occupiers than people of working age. The proportion of owner occupiers appears to be growing over time. Successive waves of owner occupiers are showing increasing heterogeneity in terms of ability and willingness to free housing equity through downsizing. However, older people

among all housing tenures are increasingly likely to underoccupy properties – to be living with a higher ratio of bedroooms per person.

Construction rates of specialist retirement housing have declined precipitously since the late 1980s. Older people exhibit poor levels of knowledge about housing options – notably an absence of knowledge of extra care housing. Around 1% of households of pensionable age currently live in Extra Care housing. While the majority of older people in general needs housing are owner occupiers, there are some indications of a mismatch in the type of tenure available in specialist retirement housing.

Significance

The increasing need for housing with care as a consequence of rising longevity in the absence of a visible compression of morbidity is unlikely to be met without a substantial increase in construction rates of specialist retirement housing. Despite indications of a growing need for housing with care, extra care housing currently has low market penetration. This reflects the widespread failure to account for the specialist housing needs of people. In addition to having an effect on the quality of life of older people, a failure to provide specialist housing for older people has direct consequences on the fluidity of the housing market; in turn, this has implications on the level and type of housing stock available in the wider housing market and on the flow of traditional intergenerational transfers of housing wealth.

Britain's Ageing Population

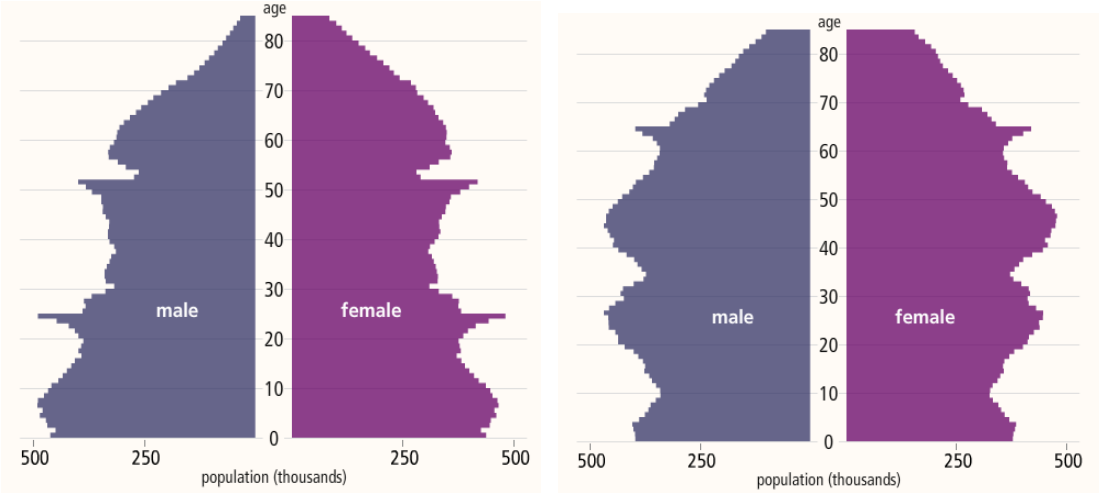
Trends in Longevity

The UK's ageing population needs little introduction. Historically, falling rates of infant mortality, and higher standards of medical care, technological innovations, and improved nutrition throughout the life course, have resulted in unprecedented gains in life expectancy and swelling numbers of older people in the UK. This effect has been replicated across Western Europe as the full effects of the Second Demographic Transition – the continuing decline of fertility to levels substantially below 'replacement level' and rising older people dependency ratios – come to fruition (Kneale, Coast & Stillwell, 2009). The over 85s now constitute the fastest growing age group in the UK, with the number projected to quadruple by 2051 (Wright et al 2010). In only seven years between 2002 and 2009, while the UK population grew by 4.2%, the numbers of people aged 85 and above grew by 21.5% (Office for National Statistics, 2010a). Today, a 65 year old male can expect to live on average a further 17.6 years and a 65 year old female a further 20.2 years (Office for National Statistics 2009).

Had the growth in the numbers of older people occurred at a commensurate rate with an increase in birth rates, then the effect of population ageing would be less visible – it is both the growth in the absolute numbers as well as the proportional growth of older people that results in Britain's ageing population. Figure 1a shows the population pyramid for 1971, which roughly conformed to a pyramid shape, being heavier at the base than any other point; figure 1b on the right shows the change by 2011, where the pyramid begins to take a more top heavy form representative of an ageing population. This change is reflected in the population of pensionable age (60 for women, 65

for men) becoming larger than the child population for the first time in history in 2007 (Office for National Statistics, 2010b).

Figure 1a and 1b: UK Population Pyramids (1971, left; 2011. Right) (Office for National Statistics 2010b)



The changing demography of older people

The Second Demographic Transition theory, however, does not solely encompass changes to the population structure. Among many of the factors associated with falling fertility rates, including postponed age at first birth and increasing voluntary childlessness, are: a move towards cohabitation and lone parenthood; increases in divorce rates but also of repartnering; a weakening of family ties; and an increasing plurality of household types (van de Kaa, 1987, Lesthaeghe and Neels, 2002). Increased longevity and spousal survival also mean that couples entering older ages now are more likely to remain intact for longer. Among the population aged 65 between 1991-2008, the proportion of females living alone dropped by 3%, although proportion of males living alone increased by the same amount, while the overall proportion of intact couples grew by 4% (based on analysis of the British Household Panel Survey, Table 2). This follows a narrowing of the life expectancy gap between males and females. An average female aged 65 in 1991 would expect to live 3.8 years longer than an average male; by 2008 this gap had narrowed to 2.6 years (Office for National Statistics 2009). In addition to changes in household composition and the gender balance, other changes have also occurred within the older population. Among respondents to the British Household Panel Study aged 65+ in 1991, just 0.7% of the population were non-white; by the 2008 sweep, this had increased three-fold to 2.3%.

Table 1: Household composition among older people (65+) among British Household Panel Study respondents

	1991			2008		
	male	female	all	male	female	all
single elderly household	22.1%	50.5%	39.2%	25.0%	47.1%	37.6%
couple no children	62.9%	35.0%	46.1%	65.6%	42.7%	52.6%
couple: dependent children	1.5%	1.0%	1.2%	0.8%	0.4%	0.6%
couple: non-dependent child	8.2%	4.1%	5.7%	5.2%	3.5%	4.2%
lone par: dependent children	0.0%	0.4%	0.3%	0.2%	0.5%	0.3%
lone par: non-dependent child	1.8%	6.2%	4.4%	1.0%	4.2%	2.8%
2+ unrelated adults	1.1%	0.8%	0.9%	0.2%	0.4%	0.3%
other households	2.4%	2.0%	2.2%	2.0%	1.2%	1.6%
Total	100%	100%	100%	100%	100%	100%

Notes: Using cross-sectional weights among respondents aged 65+ for British Household Panel Survey

Today's population of older people differs substantially from that of the recent past, both in numbers and compositionally. We can expect a greater gender balance in older UK population, an ethnically more diverse older population who may also have differing needs, as well as greater heterogeneity in the living arrangements of older people. For the first time, the population of pensionable age outweighs the child population, while the population of centenarians is predicted to grow by 8% a year (Office for National Statistics 2010c). Many commentators have speculated that this trend of rising record life expectancy unlikely to waver (Wilmoth et al. 2000, Oeppen & Vaupel 2002). While such developments are, on the one hand, a testament to human endeavour, they nevertheless pose a great many societal challenges. The fiscal challenges of a growing older age dependency ratio (the ratio of older people to people of working age) are becoming embedded in public policy, with one outcome being a planned rise in state pension age. Other challenges gaining prominence include providing housing, health care and social care for a continually changing ageing population - challenges which in themselves have substantial fiscal consequences if left unchecked. Extra care housing can be thought as one solution addressing all three challenges of health, housing, and social care, and is the subject of this report. We examine some of the challenges an ageing population presents in the proceeding sections, and the role that integrated housing and care may hold in resolving these challenges.

Health among an Ageing Population

Rises in longevity and improvements in the understanding of chronic diseases have led some to hypothesise of the occurrence of a compression of morbidity (Fries, 1980). A compression of morbidity occurs when, in the context of rising life expectancy, the onset of chronic disease occurs later, so that the proportion of time spent in poor health or disabled across the lifecourse declines (Fries 1980, Zaninotto 2010). A number of international studies support this hypothesis, although evidence for the UK is mixed, and appears to show negligible or even negative movement in rates of disability and ill-health (Robine et al. 2011). Recent evidence from the English Longitudinal Survey of Ageing highlights this ambiguity, in that disability rates among older people appear to

have remained relatively stable throughout the bulk of the past decade, therefore representing a growth in the absolute numbers of older people with a disability (Zaninotto et al 2010), who are themselves likely to be living longer.

Dementia is one disease associated with old age that is increasing in prevalence among the older population. Current estimates place the number of people in the UK with dementia at over 820,000 (Luengo-Fernandez et al, 2010), although the numbers are set to rise proportionally with population ageing (Bamford & Taylor 2011). Dementia places substantial financial demands on health and social care services, as well as financial and care demands on families. Other diseases and conditions of older age are also associated with equal or greater financial burden on health and social care systems including stroke, heart disease and fractures. For example, although the age specific mortality rate for stroke is declining over time, the prevalence of those who had suffered a stroke among the older population (aged 75+) rose from nine per cent to thirteen per cent for men and from eight per cent to eleven per cent for women between 1994 and 2006 in England (Scarborough et al 2009). Therefore, the numbers living with the aftermath of stroke and potentially in need of care are increasing, both through an increase in prevalence among the older population and an increase in the size of the older population. Similarly, over 70,000 people suffer a hip fracture each year, only half of whom are able to walk unaided after recovery, with the number of fractures set to rise as a consequence of population ageing described earlier (ILC-UK et al 2010). The trends outlined above, and those of other diseases and conditions, emphasise the need for housing, health, and social care solutions that not only accommodate the needs of those suffering from their aftermath, but can also help slow the onset or decline associated with these conditions.

Additionally, preserving mental health and wellbeing is also important among older people, not least given that good mental health is an important predictor of good physical health and functional capabilities (for example Garber et al 2010). However, between 2004/5 and 2008/9, while rates of clinically diagnosed depression appear to remain constant, levels of life satisfaction and subjective wellbeing appear to have declined, while levels of loneliness have increased, among those over 50 (Demakakos et al 2010)[1]. A growing body of evidence has highlighted some of the factors associated with preventing loneliness and social isolation among older people, highlighting the importance of group and educational activities and social interaction (for example Cattan et al 2005). In turn, health, housing and neighbourhoods are all factors that are associated with social interaction and community engagement among older people (Kneale 2011).

Rises in disability and the numbers living with non-communicable diseases of old age will add pressure to healthcare services. This is set against a backdrop of dwindling resources. The number of available hospital beds, for example, has dropped continually since the late 80s from almost 300,000 in 1987/8 to 160,000 in 2007/8, representing a 61% drop in beds available for geriatric medicine (Department of Health, 2009). While this drop may be representative of a change in models of health and social care provision, there are also some indications of a growing unmet need in terms provision of services received by older people living in the community. Among older

[1] While part of this effect may be attributed to the financial crash at the end of the last decade, the effect took place among all social groups even those expected to be cushioned from the effect; furthermore the 2008/9 sweep took place at a point where the effects of the financial crash were only beginning to set in.

people aged 65 and over, reports of poor health limiting daily activities such as doing housework or walking short distances increased slightly from 32 to 35% between 1991 and 2008; over the same period, receipt of services including home help and meals-on-wheels declined from 10.% to 6.2%[2]. Among those reporting activity limitations this drop was particularly precipitous, with 23.7% reporting receipt of home help or meals-on-wheels services in 1991 compared with 12.6% in 2008. In addition to the level of provision, concerns have also been raised recently about the quality of domiciliary care provided in the community (EHRC 2011).

Recent health trends reveal that gains in longevity and lower mortality rates appear to be accompanied by rises in levels of non-communicable disease. Certainly, the evidence for the UK is ambiguous in terms of the compression of morbidity hypothesis, with evidence generally suggestive of a growth in the absolute numbers of older people with disability or activity limitation. However, it is also important to note that this may constitute an overly negative depiction of the consequences of an ageing population, and may not represent the case for all non-communicable diseases (see examples in Taylor, 2011). Nevertheless, the evidence is suggestive that while the need for health and social care solutions may be rising, the availability of services that older people traditionally received, such as home help or receipt of geriatric care in a hospital setting, may be declining. Part of this effect may be reflective of innovations in the delivery of health and social care. Nevertheless, in the context of extra care, the evidence suggests that future housing for older people should accommodate a diversifying set of health and care needs.

Social Care among an Ageing Population

The boundary between social care and health care for older people has remained distinct since the inception of the NHS in 1949, notably in the way that long-term care is financed (Howse, 2007). Here, we refer to social care as including services aimed at aiding older people with the functions of daily living, such as washing, feeding or dressing. Social care for older people has traditionally referred to residential and nursing home care packages, as well as a variety of domiciliary care packages; other packages include voluntary day care packages (delivered outside the home) as well as services delivered in nursing-led inpatient units. More recent innovations from not-for-profit and profit-making organisations working in the sector have included an integrated approach to independent housing and social care through extra care housing.

While health care for people of all ages has generally remained free at the point of delivery, social care for older people on the other hand, is not a universal entitlement and has resulted in something of a mixed economy of care provision, with the majority of services now being run by private enterprise (Howse, 2007). Financing social care has become a pressing issue in recent years, as demonstrated by the government's formation of the Dilnot commission to investigate to review funding for care and support in England. Current arrangements, and particularly the distinction between social and health care services, are said to result in the service received by older people with intermediate care needs in particular falling short of expectations on either side of the health and social care barriers (Lewis, 2001). As the population ages, ostensibly in the absence of a

[2] Based on analysis of the British Household Panel Survey using cross-sectional enumeration weights for 1991 and 2008 sweeps.

distinguishable compression of morbidity, many analysts have forecast a care funding crisis (for example Berry, 2011). Some emphasize that the crisis is both a fiscal crisis and a structural crisis, and that at the heart of the debate is a lack of vision on how the current long-term care system should be reformed, and the steps needed to implement this reform (Lloyd, 2011). This is echoed by calls for reform to provide a more integrated approach to the provision of health and social care (Harvey et al, 2011, Berry 2011).

The Commission on Funding of Care and Support (also known as the Dilnot Commission), an independent body set up to review social care funding arrangements, outlined a vision of care funding that will integrate a maximum individual funded lifetime social care contributions (of £35,000) with additional care costs being paid for by the state (Commission on Funding of Care and Support 2011). The commission had originally vowed in their terms of reference that any solution will be compatible for packages that integrate social care with other services such as health and housing (Commission on Funding of Care and Support 2010), and in the full report this was reiterated. Specifically, the commission called for people to prepare earlier for social care arrangements in old age, and highlighted the benefits on health and overall welfare that moving to more suitable accommodation earlier could hold. Some have speculated that the extra care housing model is ideally placed to take the mantle of this challenge and to expand in an era of policies directed at personalisation, choice and individual budgets in the delivery of health and social care (Brown 2011). This was a view shared by the Dilnot Commission, who hoped that 'more people will be able to consider extra care housing in the future, if they are more aware of this type of provision and can be more certain over their financial planning' (Commission on Funding of Care and Support 2011, pp61). However while these are encouraging sentiments, specific policy commitments are needed if extra care housing is to develop from representing a small section of the market, and to become available to recipients from a more widespread distribution of socioeconomic backgrounds. In order for this to happen, however, greater cooperation is required between the statutory bodies representing housing, health and social care, given that the extra care model transcends these siloes. For example, it is noteworthy that although the Department of Health website included references to the recommendations of the Commission, the Department of Communities and Local Government website, which holds responsibility for housing and planning policies, did not.

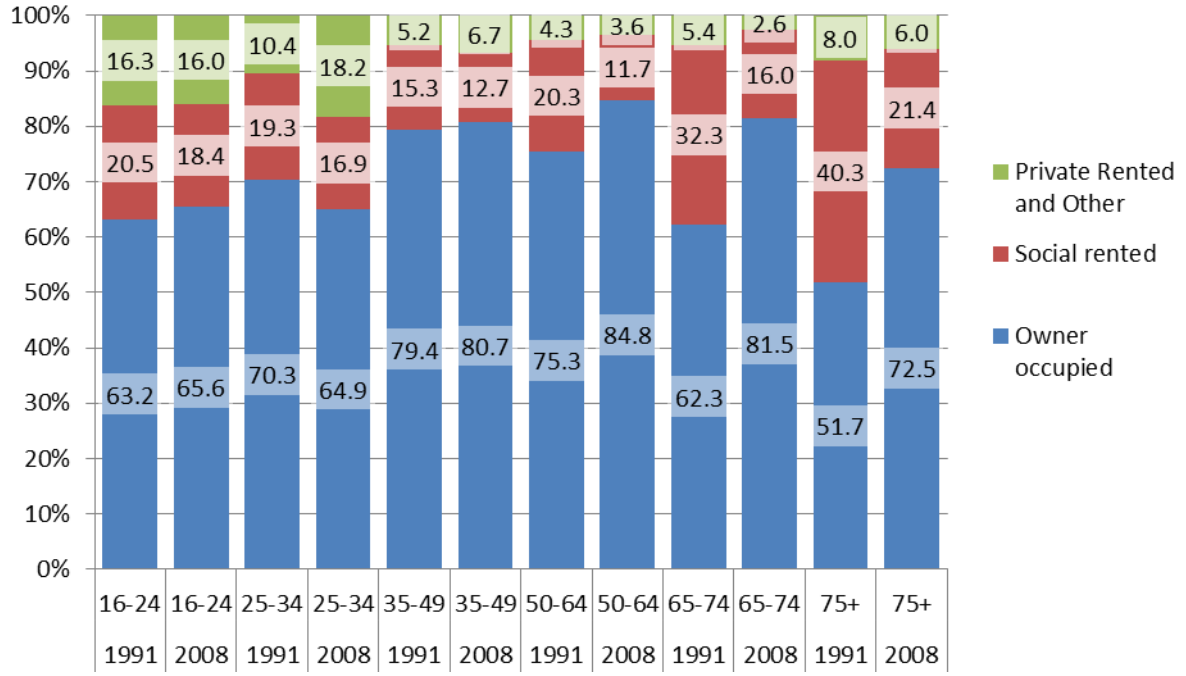
Housing an Ageing Population

Current housing trends among older people: older people and the housing market

A growing population of older people, changing in socio-demographic profile, health and social care needs, inevitably leads to an increased demand for suitable housing. Currently, almost a third of housing stock is headed by a person of retirement age (Sutherland, 2011). Of these households around 10% live in specialist retirement accommodation while 90% live in general purpose housing (Sutherland 2011). Older people are associated with substantial levels of housing wealth, and are said to express a preference for owner occupation (Ball et al 2011). There are indications that successive waves of younger cohorts of pensionable age will possess greater housing wealth (figure 2); where older people 20 years ago were among the most dependent of any age group on social housing, more recent estimates show that this picture is changing, particularly among the

newly retired cohorts (see also Chiuri & Japelli 2010). As the number resident in social housing has declined, the composition of those remaining in social housing has also moved towards a more disadvantaged social profile (for example Lupton et al 2009), which could equate to greater heterogeneity in the social profile of owner occupiers. In turn, this may also represent greater diversity in the equity release preferences and capacity among those who are home owners (Sutherland 2011).

Figure 2: Housing Tenure Changes 1991-2008 by Age Group: Respondents to the British Household Panel Study

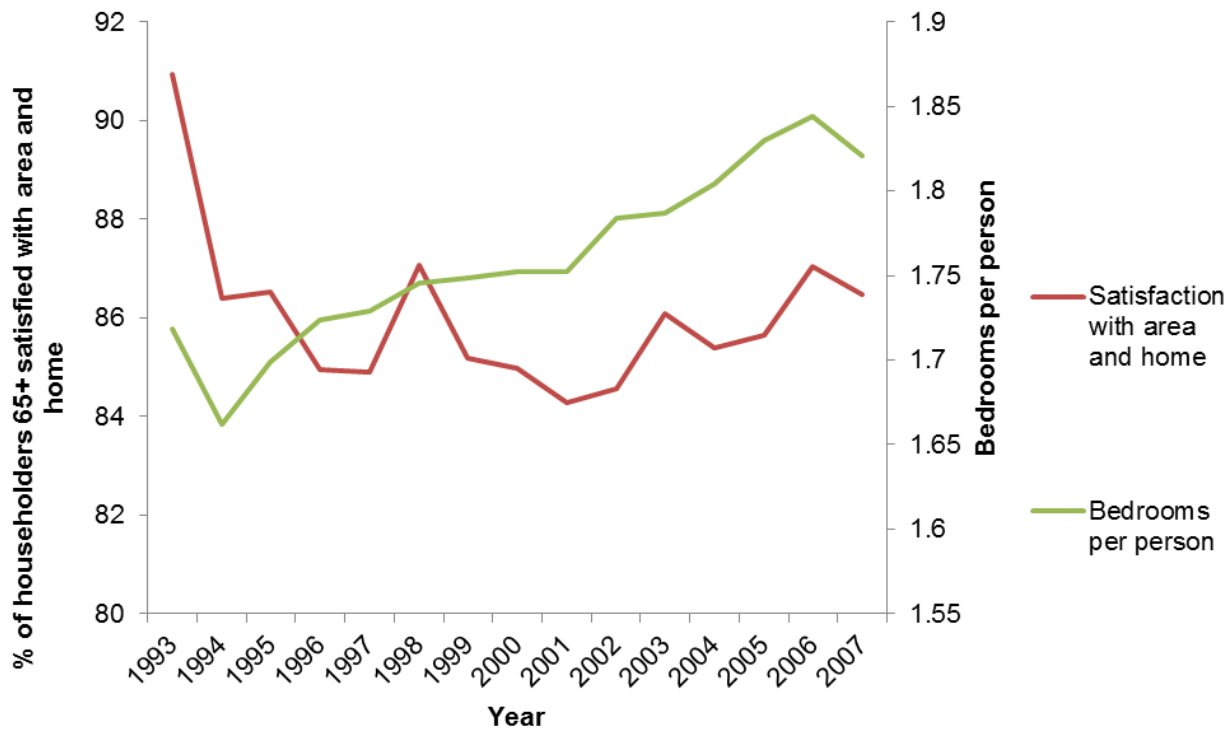


Notes: ILC-UK analysis of the British Household Panel Survey 1991 and 2008 waves, cross-sectional weights used

Many older people regard housing wealth as a form of insurance against financial and lifecourse shocks, as opposed to a resource to be actively usitilised in retirement (Munnell et al 2007). Increasing longevity is also a disincentive for freeing housing equity among those who are newly retired (Appleyard & Rowlingson 2010). Recent stagnation in the increases in housing wealth among older people previously witnessed over the last decade (for example Muriel and Oldfield 2010) reduces the potential gains from equity release, and further incentivises older people to remain in the same property until house prices recover. Furthermore, for older people on low incomes who owner occupy low value housing, there may be even greater disincentive to move, given that the level of housing wealth that could be freed through an equity release scheme is unlikely to meet the cost of long-term care for any substantial length of time (for example Hancock 1998), although recent proposals from the recent Dilnot Commission may mitigate this concern if implemented (Commission on Funding of Care and Support, 2011). However, while the perceived gains to be made in releasing equity, through either embarking on an equity release scheme or downsizing to smaller property, may have decreased in recent years, the need to keep the older people's housing market buoyant is greater than ever (see Porteus 2011 for a recent review of the issues). Older people are net sellers in the housing market (Myers & Ryu 2008), holding an

estimated £1 trillion of housing equity (Ball 2011), and a deceleration in the older persons housing market will have implications for the availability of family sized housing available in the wider market. Figure 3 charts recent aspects of housing trends among older people using data from the Survey of English Housing, and shows a trend towards underoccupancy among households headed by those aged 65 and above, and a less distinct trend towards falling levels of satisfaction with either or both homes and neighbourhoods; these are trends that hold for both owner occupied and socially rented homes. Figure 3 shows that by 2007, there were almost two bedrooms per person in households headed by a person aged 65 or over; in contrast, among those aged 16-29 years, this stands at around one bedroom per person, and less than one among social renters. Furthermore, initiatives that could have helped older home owners adapt their properties to meet their changing physical needs (notably the Lifetime Homes initiative) appear to have fallen to the policy wayside, or have at least lost momentum in the face of recent spending cuts (Kneale & Sinclair 2011); this is coupled with earlier evidence that showed falling levels of domiciliary care provision among those living with limiting conditions.

Figure 3: Satisfaction with Home and Area and Persons Per Room Among Householders 65+



Notes: Weighted estimates using data from the Survey of English Housing

While home suitability, home satisfaction, and equity release, are clearly strong motives for moving home at older age, there are indications that the level of housing moves among older people may be declining. Among households headed by an older person (65+), the proportion who had been

resident in the same property for 40 years or more rose from 17% to 24% between 1993/4-2007/8[3]. Over the same period, there was little change in the proportion who had recently moved, with just 7% of those aged 75 years and above and 9% of those aged 65-74 in 2007/8 moving within two years of the responding to the survey; this compares to 85% of young people aged 16-24 and 60% of people aged 25-34 years. Arguably, the housing needs of long-term residents will have changed over their lifecourse. Although changes in employment, education, and family composition are stronger motives for movement among younger generations (see Kneale et al 2010), the low levels of housing movement among older people is thought by some to reflect the lack of purpose built retirement housing (Ball et al 2011). There is little doubt that attaining independent housing is increasingly challenging for successive cohorts of young people (Kneale et al 2010), and this may in part reflect the lack of fluidity in the housing market, which limits the availability of suitable property as well as disrupting traditional flows of intergenerational housing wealth. However, while several of the 'push' factors outlined above should encourage frequent movement, the absence of a diverse range 'pull' factors (discussed below) is thought to limit this potential (Ball et al 2011).

Current housing trends among older people: specialist older people's housing and extra care

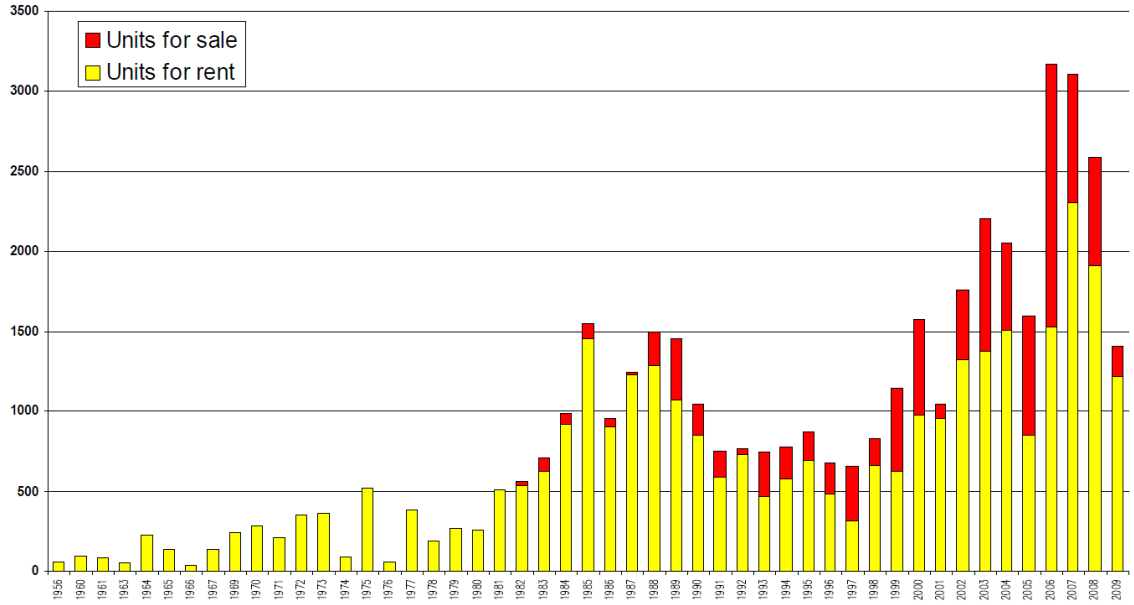
Currently an estimated 12% of households with members of pensionable age live in specialist retirement housing (HAPPI 2009). The bulk of households living in specialist housing do so in sheltered housing (65%) - traditional institutional accommodation accounts for less than a quarter of specialist housing, and less than 3% of the housing circumstances of pensioner households overall. Extra care housing (including extra care, very sheltered and closed care) accounts for a small proportion of specialist housing (10%) and around 1.3% of all pensioner households. Despite the demographic changes outlined earlier, the rate of construction of sheltered and specialist retirement housing has been in decline since the late eighties, when up to 30,000 units were being constructed annually in England - since 1994, the construction rate has remained under 8,000 units a year (EAC 2010). This fall has been attributed to the decline in government provision of subsidised housing and the growth in the private market (Ball et al 2011). As such, the proportion of older people resident in sheltered housing and other forms of retirement housing has declined, despite evidence highlighting the importance of a diversity of retirement housing for older people (Nocon & Pleace 1999; Ball et al 2011).

In recent recession years, the rate of construction of specialist older persons housing has declined further, mirroring construction trends more widely. Up until the 2008 financial crisis, the number of extra care housing units was growing year on year – over 3,000 units were being completed annually in 2006-2007; since then, the numbers have declined markedly (EAC 2008). There was also marked shift in the tenure type over time, with a movement towards owner occupied and away from rental extra care housing in recent years. Nevertheless, rental remains the dominant form of tenure among residents of extra care housing (Figure 4), despite the fact that the majority of older people in general needs accommodation are owner occupiers. Similarly, our own analysis of households headed by persons aged 65+ in the 2007 Survey of English Housing shows that while

[3] Based on analysis of the Survey of English Housing using survey weights. Equivalent numbers for the devolved administrations were not available at the time of writing.

12% of those in sheltered housing are owner occupiers, 79% of those in general purpose housing are owner occupiers. This could be indicative of a mismatch between the type of tenure available in specialist retirement housing compared to the tenure of general purpose housing that older people occupy.

Figure 4: Extra care housing units completed by year for England



The decline in the construction of specialist housing for older people have led to calls for a rethink in government policy in planning and constructing homes and communities for older people (Ball et al 2011, Kneale & Sinclair 2011, Porteus 2011). In particular, while the Localism Bill offers several opportunities for tailored provision and planning of housing for older people, this is likely to be on a highly uneven basis in geographical and social terms without additional safeguards (Kneale & Sinclair 2011). Older people may face several factors that serve to deter home movement in later life; for example the complexity of localised caring relationships, moving away from neighbours and neighbourhoods, moving away from access to services and amenities, and poor health and wellbeing, have all been identified as latent causes preventing housing movement among older people (Croucher 2008). However, enhancing the choice and availability of housing options for older people can help to mitigate these reasons. The need for older people to release housing equity, the growing unmet need in the provision of domiciliary care, and the growing levels of underoccupancy are all powerful motives for expanding the sector (Sutherland 2011). However, such is the current level of unmet need that even a modest growth in the proportional provision of specialist housing would equate to a huge programme of construction in real terms (Ball et al 2011). The level of unmet need is also expressed in another way through the levels of knowledge and information available to older people. Many older people are simply unaware of the housing options that are open to them, and equate retirement housing solely as sheltered housing (Croucher 2008). In particular, many older people across a variety of social groups and geographies have never heard of extra care housing (Croucher 2008).

Recent calls have focussed on expansion of the owner occupied retirement housing market (for example Ball et al 2001). The evidence presented in this section also suggests that expansion of retirement housing should be multifaceted and create a diversity of options in terms of types, tenures and target client groups. Housing provision should reflect the reality of an ageing population, changing in demography, with a diversity of care needs, although likely with increasing levels of housing equity; this includes expansion of the owner occupied retirement housing sector in line with the changes in tenure patterns observed among older people, particularly in recent years. Extra care housing should be one option available to all, and in the next chapter we analyse existing evidence to examine case for developing this form of housing.

Chapter 2: Defining and Evidencing the Extra in Extra Care Housing

Chapter 2 Executive Summary

Description

In Chapter 1, we reviewed evidence highlighting the need to develop integrated housing and care solutions for an increasing population with care needs. In this chapter, we review the extant evidence on the effectiveness of meeting this challenge. Having reviewed a number of studies, we present issues where there exists ambiguity in the evidence and outline research questions that will address some of these issues.

Highlights

Extra care housing is used to describe a number of different situations where housing with care is provided. Some guiding principles exist in terms of an aim to build and maintain the independence of residents. Nevertheless, there exists a lack of clarity about the role of extra care housing, particularly the relationship between extra care housing and residential care.

One source of ambiguity is the social profile of residents. While some extra care housing developments support some of the frailest members of society, others support those with better health than would be expected in the community setting. Extra care housing developers themselves endorse the notion of a mixed-dependency community, and actively seek to create a balance of dependency needs. Restrictions are often placed on the admission of those with severe dementia.

The substantial variation in the social profile of residents has also corresponded to variation in the motives for choosing extra care housing. Regardless of their care needs, residents are more likely to cite the independence and quality of accommodation as motives for choosing extra care housing, as opposed to the provision of flexible care. It is therefore questionable to compare the outcomes of those in extra care housing with those in residential homes.

There is sporadic evidence that residents of extra care housing experience a decrease in their social care needs. However, this is also tempered with negligible effects in some cases in terms of self-perceived health status. Similar effects are also observed in terms of mental health. Small-scale studies have reported beneficial effects associated with residence in extra care in terms of health service usage.

The extra care housing setting has recently become a platform for new innovations in providing extra care for those with dementia.

The evidence on the cost-effectiveness of extra care housing is mixed. The unit cost of providing extra care housing appears similar to forms of community care package in some cases. Single-development evaluations have generally found that health care costs have reduced after movement into extra care, although some have found that social care costs rose after movement due to the provision of care that previously constituted unmet need, especially older people who previously

lived on their own and were unknown to statutory services. Furthermore, some have questioned the cost-effectiveness of extra care in light of evidence that those with low care needs essentially subsidise those with higher levels of need.

A recurring debate within extra care housing is whether it constitutes a ‘home for life’. There remains a lack of consensus on this issue within the literature.

Significance

Several evidence gaps were identified within the course of conducting the literature review. These led to the formulation of the following research questions:

1. What is the social profile of extra care housing residents and how does this compare with residents in the community setting?

2. Can extra care housing be considered a home for life for older people?

3. Does residence in extra care housing facilitate older people to stay healthier and more independent?

4. What impact does residence in extra care housing have on the uptake of overnight hospital beds?

5. What inferences can be made about the costs and benefits of extra care housing?

Extra care housing: defining the extra

Defining extra care

‘Extra care’ housing is the term used to describe many forms of housing for older people (Riseborough & Fletcher 2008). Allied terms also include ‘very sheltered housing’, ‘care plus’ housing, ‘assisted living’ housing and ‘category 2.5’ housing (Wright et al 2010). As a general principle, extra care housing can be described as ergonomically designed independent housing units that usually feature common spaces, facilities and care services. Hanson and colleagues (2006) explored heterogeneity in defining extra care housing among extra care housing providers and health planners and discovered some unanimity in terms of the three elements critical in extra care housing: flexible care, self-contained dwellings and homeliness. Flexible care in this sense represented a person centred approach, a feature common to all three extra care housing providers included in this current research. A ‘home from home’ feel is said to be a key tenet of the ethos of extra care housing (Wright et al 2010) and heavily influenced by layout and spatial configuration factors (Wojgani and Hanson 2007); resident empowerment and independence is also another frequently cited ethos of extra care (Dutton 2009), expressed through the self-contained design of the housing units, as well as resident participation on management committees.

In terms of the physical design, extra care housing occupies a spectrum of purpose built and remodelled developments including: remodelled continuing care and retirement villages, remodelled sheltered housing or care homes, other purpose built schemes with or without community resources, housing that is linked to a care home, specialised housing groups in a wing or cluster of a larger development, core and cluster designed housing (housing with a central core building

although dispersed housing units), or moderately sized independent living houses with shared living space (Dutton 2009). Most of the extra care housing schemes included in this research consisted of purpose built developments styles as either a larger village style (core and cluster) design, or a smaller integrated 'courtyard' design. One scheme featured a remodelled historical central unit that mainly housed community facilities with a number of surrounding satellite residential blocks and units. All of the extra care housing schemes in this study include common areas with catering or recreation facilities, although this is not necessarily identified as a key element of extra care housing among other providers in the sector (Hanson 2006). While the ethos of extra care housing is generally unanimous among providers, and revolves around building and maintaining the independence and quality of life of residents, there is substantial ambiguity in the literature as to the role of extra care and the social profile of residents. Wright and colleagues (2010) outline two further distinctions in the delivery of extra care housing. Firstly, a primary distinction among extra care housing schemes is whether care is delivered by a separate organisation to the housing management (see Garwood 2010a). Secondly, two forms of eligibility exist in terms of schemes that either have residents with mixed dependency needs or schemes that only accept residents with dependency needs.

The extra care model embodies several of the features described as an integrated approach to older people's care. These include the provision of long-term care services, social care, housing, supportive services, physical and cognitive aids, and health promotion and maintenance (see Nies 2004). In addition, while most developments do not directly deliver short-term health care onsite, good links with local general practitioners and other health professionals are sought out and forged in most cases; for example extra care developments may be deliberately sited nearby local surgeries and general practitioners are usually involved in the consultation and development process of a new extra care housing site from an early stage[4].

Role of extra care housing

One of the main roles of extra care housing is said to be to keep older people independent for longer, and to provide an alternative to residential or institutional care (which is potentially more expensive and less popular) (Riseborough & Fletcher 2008, Wright et al 2010). However even within this broad distinction, there are ambiguities as to the role of extra care housing and whether it:

(i) provides a direct alternative to a care home (or other institutional setting) for those with moderate high care needs, or

(ii) whether it prolongs a period of independence for those with low or no care needs, or

(iii) is a form of housing for older people who anticipate future care needs, or

(iv) is simply an alternative form of housing for those older people regardless of current or anticipated care needs.

[4] Based on qualitative interviews with providers.

Anecdotal evidence collected in this project suggests heterogeneity in the experiences and movement of residents into extra care housing, demonstrative of all four scenarios. Wright and colleagues (2010) define a subjective test for whether a development constitutes extra care housing as being whether it provides an alternative for those preparing to enter a care home. Others also view the extra care model as being designed to keep older people with relatively high support needs out of more formal institutional care (Riseborough & Fletcher, 2008). In turn, several studies have focussed on the outcomes of extra care residents and compared these against the outcomes of residents who entered residential care (for example Netten et al 2008). In an evaluation of a number of new extra care housing schemes constructed across England during 2006/7, and funded by the Department of Health, the majority of those entering extra care housing did so with a care need, although their health was in a better state than those entering residential care homes (Darton et al 2008).

However, evidence presented later in this report suggests that among some extra care housing schemes included in this research, the majority of residents enter with little or no formal care needs (over 75% of residents in some developments), and remain in the same state for a number of years. Certainly in this case, rather than forming a mixed dependency community, many extra care housing residents move in pre-emptive of requiring care, and some extra care housing developments may be relatively homogeneous in terms of profile of residents with low care needs. This is also supported by evidence from a study of Welsh extra care residents, which found that older extra care residents had higher levels of mental and physical health than those in the community receiving a care package or those in residential care; older people in the community setting were the most physically frail (Burholt et al 2009). Similarly, Bäumker and colleagues (2008) show that the majority of residents in one extra care housing scheme were classed as having very low dependence using the Barthel Index of Activities of Daily Living. Other research on one English extra care scheme has found that while 7 in 10 residents did not receive any formal additional care package, residents nevertheless had elevated levels of limiting long-term illnesses compared to those in the community (Bernard et al 2007). This latter evidence adds to the notion of extra care housing primarily supporting those with anticipated care needs. In later work, Darton and colleagues (2010) also support this assertion through concluding that extra care housing was not a direct alternative to a care home, partially based on the differential characteristics of those in care homes compared to extra care residents. However, on the other hand, it should also be noted that a number of residents of the extra care housing schemes involved in this project were reported to have arrived from residential care. Many of those moving from residential care to extra care housing may have recovered from a period of ill-health, although some may have been inappropriately placed in residential care.

Developing a community

Policy-makers and developers alike are said to endorse the notion that extra care housing is suitable for ‘fit’ and ‘frail’ older people (Bernard et al 2007), and developers will often highlight a mixed-needs community as a selling point. Qualitative studies highlight the importance of maintaining a balance of care needs. Older people without care needs are often on hand to provide informal care and voluntary support to more infirm neighbours. Maintaining a balance of care needs

is therefore crucial for staff and other residents to be able to function effectively. Population ageing within schemes is a challenge for maintaining a balance of social care needs. Healthier residents with lower social care needs can be vocal in voicing their concerns about the care profile of new residents, and are often concerned that large numbers of high dependency residents may negatively affect the perceptions of prospective healthy residents (Garwood 2008a). To maintain a balance, limitations are often placed on the admission those with the most substantial care needs, particularly those whose limitations were mental and cognitive. Some have stressed, however, that while many providers may present extra care as an alternative to residential care, the imposition of admission restrictions across much of the sector, particularly on those with the most severe dementia, invalidates this assertion (Institute of Public Care 2007); referrals of high support needs residents from extra care housing to residential and nursing care also do so (discussed later).

In this research, members of staff from all three partners involved cited admission restrictions placed on those with severe dementia, although those who developed dementia as an existing resident would be cared for as long as this remained feasible. Furthermore, innovations in the sector have seen the creation of specialist units of extra care housing (see Garwood 2010b, Vallelly et al 2006, Burns et al 2009), which have been shown to provide residents with a good quality of life (Dutton 2009). The managers of extra care housing schemes interviewed in this research spoke about the importance of creating a balanced mixed-dependency community, although did not specifically impose any restrictions on new entrants (with the exception of those mentioned above); the creation of a mixed dependency community was instead more of an organic process. Among new residents, the suitability of a move to extra care housing was discussed extensively with applicants and their families, and an assessment of the suitability of a potential resident for extra care housing would be given openly at this point. However, with the exception of prospective residents with severe dementia, this assessment was not binding – residents who wished to pursue a move into extra care housing were usually free to continue. In this respect, although the providers included in this research achieved their goal of developing a mixed-dependency community, this was only through indirect measures and not explicit restrictions. For the one extra care provider included in this study accommodating substantial numbers of referrals of older people from local authorities, the increasing care needs among referrals was a cause for concern in terms of maintaining a balance of needs. Furthermore, as extra care housing schemes aged, and the composition of existing residents grew older and frailer. This also appeared to reflect the social profile of new residents joining schemes – this is discussed in a further section.

Choice of extra care housing

Establishing the motives for movement into extra care housing is challenging. Studies that have examined the motives of those moving into extra care housing have identified anxiety about health, a lack of services available in the current location, difficulty in carrying out daily tasks, and mobility problems at home as reasons for moving among those residents who subsequently receive care packages within extra care (Darton et al 2008). Darton and colleagues (2008) also find high levels of unmet need in terms of domiciliary care prior to movement into extra care housing with 60% of residents with care needs reporting a lack of services in the community to help them with the functions of daily living. However, among those who move into extra care and don’t receive a care

package the reasons for moving from the current accommodation are much more disparate, with fear of crime and problems with garden maintenance being the two most common reasons (accounting for 33% and 31% of responses respectively)[5].

In terms of the active choice of moving to extra care, as opposed to another option, Darton and colleagues (2008) find greater congruity between the responses of those who move and receive care packages and those who move and don't receive care (Table 2).

Table 2: Reasons for choosing extra care by receipt of care on entry (percentage reporting as very important).
Source: Darton et al 2008.

	With care needs	Without care needs
Tenancy rights/ own front door	76.2%	85.0%
Accessible bathroom	77.0%	65.6%
Care support on site	75.4%	62.5%
Size of flats/bungalows	70.7%	60.6%
Communal/dining facilities	71.1%	70.0%

This suggests that the individual property design is a primary motive for choice among both groups, with care and sociability being secondary reasons. Nevertheless, it is noteworthy that the availability of care was still cited as a reason for choosing extra care for almost two-thirds of those who did not receive a care package, adding weight to the argument that extra care housing functions as a home for those in anticipation of future care needs. Furthermore, the proportion who chose extra care housing as a direct alternative to a residential or nursing home was at an almost identically low level among those who did (16%) and did not receive a care package (17%), throwing into question the validity of only comparing the outcomes of those who entered extra care housing with those who enter residential homes. For the smaller proportion of residents who move directly from formal residential care, as opposed to community care settings (see Garwood 2008a, Bäumker 2008), the motives for choosing extra care housing would ostensibly be revolved around the independence that the extra care model affords and the desire to exercise a personal housing choice. In analysing motives for moving to general needs retirement housing, Ball and colleagues (2010) show that the characteristics of the individual property, having a warden present, and features relating to the community feel and sociability were important factors in facilitating a move at older age.

[5] It should be noted that the incidence of those moving into extra care and not receiving an additional care package was much lower in this study than has been found to be the case elsewhere (for example Bernard et 2007; Burholt et al 2009).

Does extra care housing affect health?

Physical Health and Social Care Needs

As highlighted earlier, residents arrive in extra care housing with a diverse set of care needs. On aggregate, there is mixed evidence that the health status of those in extra care housing is significantly worse than the general older population (Croucher et al 2006), with some studies suggesting that extra care housing residents possess better health than those in the community (Burholt et al 2009) and others presenting evidence to the contrary (Bernard et al 2007). However, there is generally consistency across the literature that extra care residents have better health on admission than those in residential care (Darton et al 2008; Burholt et al 2009).

There is also mixed evidence in the literature that the care needs and health status of residents improves after movement into extra care. Studies that have examined health within age-segregated developments have highlighted that relative to the general population, those in age-segregated developments report higher levels of quality of life, physical health, and lower levels of mental health problems compared to the general population (Kingston et al 2001; Walker et al., 1998; Van Bilsen et al., 2008). Some studies identified the mechanisms underlying these positive results as stemming from an ethos of 'autonomy with inclusion' together with community fostered peer support (Kingston et al 2001); these mirror some of the tenets of extra care housing discussed earlier. Looking specifically at the case for extra care housing, Garwood (2008a) concluded that residence in one scheme was associated with an improvement in the social care residents needed, more so than might be expected from a traditional care home setting. Residents in this study also judged that the quality of care was higher than in a residential home setting (Garwood 2008), although other studies have questioned the flexibility of onsite care staff in performing ad-hoc duties in extra care (Dutton 2008). Bäumker and colleagues (2008) also concluded that residence in one extra care housing scheme was associated with improved social care outcomes and a reduction in health service usage, and in particular a reduction in nursing consultations and hospital inpatient stays[6]. However, this was tempered with a negligible difference in self-perceived physical health among residents, also a conclusion of other studies (see Institute of Public Care 2007). Nevertheless, Bäumker and colleagues' (2008) concluded that one effect of extra care housing was the deceleration of diminution in functional ability. These benefits were also felt more widely, with substantial beneficial effects also observed on the health and wellbeing of informal carers (Bäumker et al 2008). These effects were mainly attributed to the higher levels of formal support received in extra care and a reduction in unmet need among those previously in receipt of community care packages (Bäumker et al 2008). For those older people referred by local authorities in particular, who may have experienced unmet domiciliary care needs as well as substandard housing, improvements in health may also follow from improved housing conditions.

[6] Both Garwood (2008a) and Bäumker (2008) and colleagues focussed on one development alone; this research attempts to examine the outcomes across three partners – a total of forty-five sites.

Mental Health and wellbeing

In terms of mental health and wellbeing, a number of reviews suggest that the majority of extra care housing residents report good quality of life and social wellbeing (Dutton 2009, Croucher et al 2006, Callaghan et al 2009, Housing LIN 2004, Bäumker et al 2008). A number of studies cite the design of the extra care housing model as being conducive to a reduction in social isolation and loneliness through offering greater opportunities for social contact, neighbourliness and mutual support (Institute of Public Care 2007), with some studies quantifying a positive effect. For example, Callaghan and colleagues (2009) find that two-thirds of residents reported good quality of life. Much of this effect was hypothesised to be attributable to the physical design of extra care housing schemes, the presence of communal leisure facilities, regular social activities and resident-led social activities. The importance of communal facilities in maintaining levels of mental health appears to contradict earlier evidence which found communal areas to be relatively unimportant as an essential feature of extra care housing schemes (Hanson 2006). Other evidence also lends weight to the argument that some of the improvement in mental health may also be attributable to improvements in physical health, reviewed above. Callaghan and colleagues (2009) also report differences between social wellbeing in villages and wellbeing in smaller schemes, reflective of differences in the social profile of residents and the design of developments; they also note the maintenance of strong community links in preserving good mental health. US evidence also shows that the social support networks developed in extra care settings are vital in maintaining levels of life satisfaction and reducing levels of depression (Cummings 2002). However, while residents in extra care may experience higher quality of life and improvements in social care outcomes, this does not necessarily correspond to improvements in self-perceived health and psychological wellbeing (Bäumker et al 2008). Furthermore, some evidence suggests that extra care housing may struggle to meet the mental health needs of male residents (for example Croucher et al 2007), residents with severe health issues (Bernard et al 2007), and residents from minority ethnic groups (Holland and Katz, 2010).

Dementia

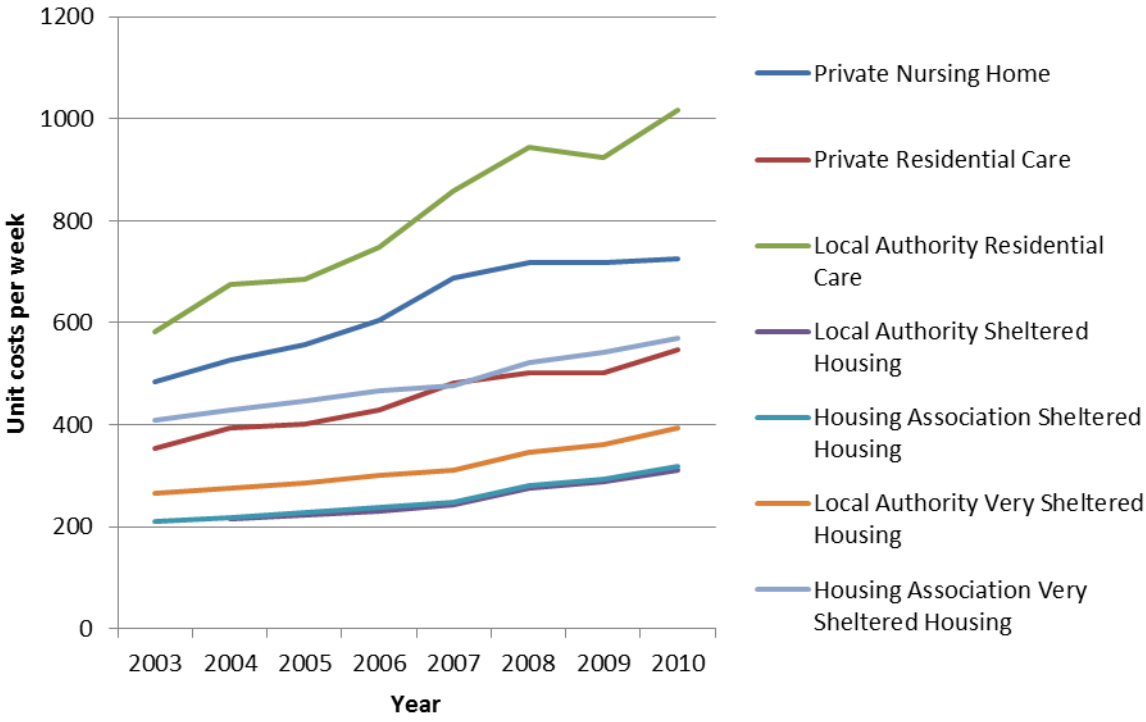
Extra care housing is considered a particularly favourable option among older people with mild-moderate dementia and their families and carers, who are still able to maintain involvement in the delivery of care, although, are removed of the main burden (Riseborough & Fletcher, 2008). The heterogeneity of the sector as a whole is reflected in the different facilities available for older people with dementia. While some developments may integrate those with mild dementia across all units, others may house those with dementia in specific wings of schemes; others still may provide a specific on site home for those with severe dementia (see Garwood 2010b for the facilities needed to house those with dementia in extra care housing). As discussed earlier, a number of extra care developments will refuse to admit those with severe cases of dementia. Extra care schemes have recently been the setting for a number of innovations aimed at improving the mental health of residents, including those with dementia (Brooker et al, forthcoming 2011, Brooker & Wolley 2006, Dutton 2009, Vallelly et al 2006). These have included the Enhanced Opportunities Programme which allocated a specific case worker termed a ‘locksmith’ to vulnerable residents who had been diagnosed with dementia, or residents with dementia type symptoms. A ‘locksmith’ in this case is a

senior member of the care team tasked with unlocking the potential of vulnerable residents through a programme of leisure activities as well as helping residents take charge of functions of daily living that they may otherwise have struggled with (Brooker & Wolley 2006); this service is available in one of the partners involved with the current research. Brooker and colleagues (2011) show that the presence of a locksmith has a significant effect on the quality of life and depression of those with dementia; furthermore, admissions to hospital are also lower among those residents randomly allocated the services of a locksmith. A recent report from the National Audit Office (NAO 2010) found that if the Locksmith programme was rolled out to all existing extra care settings in England, that the net savings through decreased usage of nursing homes and hospitals equated to a £21 million saving over two years, and £89 million over ten years. Residents with dementia in other studies have also been shown to enjoy good quality of life through the provision of individualised activities, maximisation of dignity and independence, and meaningful social interactions in the extra care setting (Dutton 2009). In another study, residents with dementia were found to maintain their quality of life and stayed almost as long those with general needs before exiting extra care housing (Vallelly et al 2006). However, there is also evidence that residents with substantial care needs, including severe dementia, placed in schemes without the presence of specific interventions are at greater risk of social exclusion and isolation (Bernard et al 2007).

Extra care housing and costs

Much of the extant evidence suggests that the benefits associated with living in extra care housing, such as an improvement in social care outcomes and the reduction in health service usage, could equate to substantial fiscal savings. Furthermore, maintenance of independence and other quality of life factors can allow those at risk of entering more institutionalised forms of care to maintain a degree of independence. Residential care can be unpopular with residents and families because of the institutionalised feel and the higher costs (Wright et al 2010, Bäumker et al 2008), with the higher cost of institutional care also a concern for policy-makers and local authorities.

Figure 5: Unit costs for housing with care (see notes)



Notes:*Based on the full cost for a permanent resident **These data are based on a series of reports published by the Personal and Social Services Research Unit (University of Kent): Curtis (2007-2010), Curtis & Netten (2004-2006), Netten & Curtis (2003)

In Figure 5, we chart the rise in unit cost of various forms of housing with care by type of accommodation (based on data from Curtis and Netten, see notes for chart). In the Local Authority case, in addition to being around 40% of the unit cost of local authority residential care (in 2010), the cost of local authority extra care housing (marked as very sheltered housing in figure 5) also rose at a slower pace than residential care between 2003 and 2008 (30% versus 62%) and overall between 2003 and 2010 (49% versus 74%). However, the numbers also show little differentiation between the cost of residence in very sheltered housing run by Housing Associations and residence in a residential care run by the private sector, both of which are also presumably destinations for client referrals from local authorities. Other figures, not presented in Figure 5, show that the total cost of Local Authority run extra care housing (£393 in 2010 per week for a client of average needs) is comparable to the total costs of Local Authority provided community care. These range from a total cost (including accommodation) of £372 per week for clients in receipt of a very basic care package consisting of minimal home care and meals-on-wheels, to a total of £918 per resident with very high care needs (in receipt of up to 30 hours a week of home care, meals-on-wheels and an hour a week of community nursing care). While these estimates are very comprehensive, provide a basis for most other cost estimates of social care in the field, they do not necessarily account for other broad societal costs which could include informal care, hospital visits (although they do include GP costs). They also do not necessarily account for other health differentials including levels of falls and accidents. Furthermore, without knowledge of some of the basic components of

these experiences such as the length of stay in various forms of accommodation, it is difficult to evaluate the main costs and benefits of various housing with care options.

However, a growing body of literature is beginning to account for these issues. Bäumker and colleagues (2008) presented comprehensive evidence from twenty-two residents of one extra care scheme that highlighted that the total societal costs of moving from the community setting to extra care housing increased from £430 per week to £490. Underlying this rise was the provision of additional personal care that had previously constituted an unmet need in the community setting, and particularly the high cost of overnight care in some cases, which is not provided as standard. However, the cost of health care dropped substantially with the single largest component drop being in nurse consultations – there was also a small drop in the proportion of residents accessing hospital services for overnight stays, a possible reflection of the ergonomic design of extra care housing and the absence of unmet need in other areas of residents' lives (Bäumker et al 2008).

Similarly, Garwood (2008a) found that from a societal perspective that the extra care housing scheme that was the subject of her evaluation offered good value for money for local authority commissioners. Had the local authority commissioning extra care housing services have had to pay for the same level of domiciliary care in the community, this would have equated to an additional £46,000 annually; should the cost of meals and other costs also have been borne by the local authority, this total would have risen to £70,000. Garwood (2008a) also concluded that the gross cost to the local authority of caring for those with the highest dependency needs in the extra care housing setting was around £65,000 less than would be the case had they entered residential care and £11,000 less than had they entered nursing care. However, her findings also suggest that the cost effectiveness of extra care housing is primarily observed among those with the highest care needs, and that those with no or low additional care needs were effectively subsidising the residence of those with high care needs in the absence of more individualised budgets – in this case this could be interpreted as an example of cost shunting between clients with differing social care needs. Bäumker and colleagues (2008) also encounter difficulties in establishing the level of societal cost-effectiveness of extra care in their study. They present the example of funding streams for extra care housing and care homes – while social services would pay the full cost of a stay in a care home, in the extra care housing setting this cost would appear to reduce as social services would pay only for the care element of a stay in extra care alone, and housing benefit or other personal income would pay for the accommodation cost, giving the impression of a reduction in social care spending (Bäumker et al 2008), although such transferring of costs between budgets does not in itself represent cost-effectiveness (Croucher et al 2006). Similarly, in assessing the impact of sheltered housing, Van Bilsen et al (2008) also encountered individual-level examples of costs shunting and discovered that although those in the general population (not in sheltered housing) made less use of individual nursing care, an ostensible reduction in cost, they instead made greater use of day centres and the care services offered in other settings.

The evidence presented here is suggestive of tangible fiscal cost-benefits of commissioning extra care housing services, although this evidence is justifiably presented with some caveats as to the applicability of the findings and the transparency of costs. Moreover, much of the evidence derives from evaluating extra care housing that is partially or fully funded by public monies, with much

smaller evidence base from private sector or owner occupied extra care housing. Of particular relevance for extra care housing is the balance of a home from home feel with the small size of some extra care housing developments, which can limit their cost-effectiveness. Garwood (2008b) highlighted this issue through an evaluation of a small extra care housing scheme and concluded had the scheme been slightly larger (twenty units instead of fourteen); economies of scale would have meant that care funding would have been cost effective, and that the scheme would have retained its home from home feel[7].

What is generally consistent in the literature is that the mechanism behind any cost-benefit is derived from the provision of flexible care. While it is beyond the direct scope of the current research to fully establish the cost-effectiveness of the schemes involved, our findings, presented later, do contribute to highlighting the benefits, and potential fiscal benefits, that extra care housing can offer. In particular, we are interested in comparing the outcomes in extra care housing with those experienced by residents in other settings, particularly residents receiving care in the community. While this has been described by others as seeking to find the opportunity cost of extra care housing – the cost incurred by choosing one option (extra care) over an alternative that may be equally desired (Bäumker et al 2008) – we avoid this terminology because of the difficulty in establishing the selection process of moving into extra care housing (see Chapter 3 and earlier section on 'Choice of Extra Care').

Extra care housing as a 'home for life'

A recurring debate within the extra care housing literature is whether extra care housing should be considered 'a home for life' (see Croucher et al 2006; Institute of Public Care 2007). A home for life in this sense could mean one that is suitable for a changing profile of care needs that may be encountered during a resident's time in extra care housing; an instance where extra care housing did not constitute a home for life would be one where a resident moved to an institutional care setting. It is also questionable whether extra care housing could be considered a home for life in instances where residents move to other forms of retirement housing or move in with family or independently – this is particularly relevant given the perceived obstacles to housing moves at older age identified in Chapter 1. However, the literature is divided as to whether extra care housing does represent a home for life, despite this being a prospective selling point to older people (Wright 2007, Institute of Public Care 2007).

In a small longitudinal study of 130 very sheltered housing units, Phillips and Williams (2001) observed the end of 26 tenancies in an eighteen month period. Two-thirds of these ended through death, while the other third ended through the departure of the resident into institutional care. This led the authors to conclude that extra care housing could be largely considered a 'home for life', although this was later disputed by others in the field considering the high number of tenancies ending with movement into residential care (Croucher et al 2006, see also Institute of Public Care 2007). Others have supported the arguments presented by Phillips and Williams after comparing these numbers with similar numbers for ordinary sheltered housing, noting the higher numbers of

[7] However, this study represents an exception to the rule, as most extra care housing schemes operate on sites of at least 40-60 units.

tenancies ending in death in ordinary sheltered housing (Institute of Public Care 2007). Other studies have also added weight to the claims of extra care housing being a 'home for life'. In a study focussed on those with dementia, Vallelly and colleagues (2006) found that half of tenancies that ended were due to death and half due to movement to institutional care. However, the comparable survival times between those with and without dementia led them to conclude favourably on the role of extra care as a home for life for those with dementia. Vallelly and colleagues' study highlighted the provision of flexible care packages as essential in aiding residents to experience extra care housing as a 'home for life'.

Dutton (2009), however, presents the view that for a small proportion of those with severe dementia, extra care housing cannot be considered a home for life due to the inevitability of referrals to residential care. Within this current research, while we present evidence on these issues in a later chapter, most extra care housing management staff did acknowledge that occasions did arise where those with the most severe dementia could no longer be cared for within the extra care setting. This occurred under a variety of conditions including that residents with severe dementia posed a risk to themselves or others; that residents with severe dementia had a disruptive influence on the day to day running of the scheme; that the additional care costs meant that extra care housing was no longer an economical option for the resident and served as a restriction on a home for life, even when the facilities to keep caring for the resident were available; or that it was perceived by the family or friends of residents that the social benefits of being in extra care housing were no longer being recognised by the resident. However, as found elsewhere in the literature, scheme managers only saw movement to residential or nursing care as a last resort and attempted to accommodate the needs of residents with severe dementia where possible – the introduction of innovations within the sector, as discussed earlier, are also likely to influence the status of extra care as a home for life in the future.

In a midlands extra care village for those with general needs, while nine-out-of-ten residents were confident that help would be available if they needed it in the future in the face of deteriorating health, a fifth could also envisage a change in health circumstances that would mean that the village could no longer support them (Bernard et al 2007). A dearth of larger scale longitudinal studies hampers the investigation of whether such expectations held by residents are realised. In a review of extra care housing, the Institute of Public Care (2007) concluded that the 'jury was out' as to whether extra care housing could be considered a 'home for life,' and that the available evidence was more in line with extra care housing as a home for 'prolonged residence' (p4). It is hoped that the analysis presented later in this report can help to inform this debate.

Extra care housing, gaps in the evidence, and research questions

Extra care housing is receiving greater focus from academic and policy-makers alike. For example, a Google Scholar search revealed that 141 papers published in 2000 examined extra care housing directly or indirectly, which rose to 399 in 2010; the equivalent numbers for sheltered housing reveal a growing disparity (222 and 349). Despite this growing interest, and the growing number of online resources exploring extra care housing such as the Housing Learning and Improvement Network, it is generally accepted that research into extra care housing is still in its infancy. New challenges such as prolonged increases in life expectancy, changing composition of older people, and the absence of a visible compression of morbidity and increasing prominence of dementia, mean that interest in the effectiveness of housing with care is growing and diversifying. Systematic reviews of the extra care housing literature are generally in agreement that there exists a dearth of quantitative and longitudinal evidence on extra care housing (Dutton 2009, Croucher et al 2006; CPA 2010); others see major gaps in the literature on the financial implications of extra care (for example Bäumker et al 2008), the outcomes of those with dementia (Dutton 2009; O'Malley and Croucher 2005); and, end-of-life care within extra care housing (O'Malley and Croucher 2005). There are also gaps in the evidence reviewed in this chapter on the experiences of men compared to women, the applicability of findings across different types of extra care settings, and the outcomes of residents from various minority groups including Black and Minority Ethnic (BME) and Lesbian, Gay, Bisexual and Transgender (LGBT) residents.

Fundamentally, as discussed above, there remains a lack of consensus on some of the basic issues and claims on extra care housing. Much of this may stem from the heterogeneity in defining the concept and role of extra care housing. This has resulted in a lack of evidence on some of the most basic indicators of the extra care experience, including the length of stay and the maintenance of health and social care needs. There has also been less focus on private sector extra care housing. O'Malley and Croucher (2005) noted a dearth of literature across the board, and in particular in terms of comparing outcomes across different modes of housing with care. Since then, a number of studies have examined differences between those in care homes and those in extra care housing. However, much of the evidence presented in this chapter refutes the validity of this direct comparison, or at least suggests that for non-trivial numbers of extra care residents, the choice of movement may not be a direct reflection of current care needs. Extra care housing, for a large proportion of residents, is ostensibly an alternative form of retirement housing that is chosen in anticipation of future care needs. While we examine the validity of this assertion further in the next chapter, this is a theme that guides much of the analysis in this report. In particular, we are interested in how the outcomes of those in extra care housing differ from a population in the general community with similar socio-demographic characteristics. We are particularly interested in the aspirational notion of extra care housing as a home for life, the profile of residents, and their health outcomes. Using data from three providers of extra care, each with different profiles and services, we set out to address the following research questions:

1. What is the social profile of extra care housing residents and how does this compare with residents in the community setting

2. Can extra care housing be considered a home for life for older people?

3. Does residence in extra care housing facilitate older people to stay healthier and more independent?

4. What impact does residence in extra care housing have on the uptake of overnight hospital beds?

5. What inferences can be made about the costs and benefits of extra care housing?

In the next chapter, we describe the data and methods we use to investigate these questions.

Chapter 3: Extra Care Housing Delivered Across Three Providers, Data and Study Approach

Chapter 3 Executive Summary

Description

In this chapter, we outline the provision of extra care housing across three providers included in this research. Although all three providers cater to different groups of older people, several common themes in the facilities available to residents. We also provide a description of the overall approach adopted in the remainder of the research.

Highlights

We outline the factors that contribute to the resident experience of extra care housing across all three providers of extra care housing included in this research: Audley, Extra Care Charitable Trust and Retirement Security.

All three providers cater to different segments of the older population in terms of cost and tenure options, although all three are consistent in providing independent housing with care.

In addition to the availability of flexible and adaptive care packages, residents can expect to access a number of other services and facilities including meals; housekeeping services; communal areas including lounges, libraries, and function rooms; laundry services; as well as sensor and alarm packages and ergonomically designed housing units.

Despite sharing an overall goal, all three providers collect data on resident experience in different ways. While this adds to the breadth of outcomes researched in the remainder of the study, it does also mean that comparisons of extra care housing between providers are impeded.

We outline some of the challenges in establishing a counterfactual to movement into extra care housing. Given that independent housing and the provision of flexible care are underlying themes between extra care housing providers, we argue that comparing the extra care housing experience only with the experience of residents in institutional accommodation does not provide an adequate assessment. Instead, we argue that comparisons between the outcomes of those in extra care housing and those in a community setting in receipt of domiciliary care may provide an alternative and accurate assessment.

We describe two datasets – the British Household Panel Survey and the English Longitudinal Study of Ageing – that we use to form a comparison group to match to extra care residents. We outline the use of Extra Care Charitable Trust data to examine the notion of extra care as a home for life and a healthy home for life, Audley data to examine the level of falls, and Retirement Security data to examine levels of hospitalisation. Data from all three providers are used to examine the profile of extra care residents.

Significance

Variations in the collection of data across all three partners suggest that there is room for greater standardisation across the sector to facilitate future research and to help extra care housing providers demonstrate the value of their work.

Extra care housing across three different providers

Although research examining extra care housing is still in its infancy, reflecting the history of the extra care housing model[8], it is becoming an increasing focus for researchers, academics, and policy-makers alike. Chapter 2 outlined several evidence gaps in the extant literature – many of these were based on the dearth of quantitative information on extra care housing. Quantitative data on the outcomes of extra care housing residents is rarely available with sufficient sample size to enable robust analysis; furthermore there exists a lack of longitudinal data in particular. In this current research we aim to utilise information that is routinely collected by extra care housing providers; because of the absence of extra care residents in several large scale datasets, this information therefore offers a unique snapshot into the lives of extra care residents. In this chapter, we outline the data and approach we use to address the research questions set out in Chapter 2, as well as giving an overview of the delivery of extra care across the three providers included in this research. Our aim here is to give a balanced overview of the strength and limitations of our data and approach. This research uses data from Audley, Extra Care Charitable Trust and Retirement Security and we briefly describe the nature of extra care housing across these providers below.

Audley Retirement

Audley Retirement describe their extra care housing schemes as 'luxury retirement villages'. The six schemes currently operated by Audley are based in Derbyshire (1), Yorkshire (2), West Berkshire (1) and Kent (2), with an additional four new villages under development. The company has a long history of providing housing with care for older people. However, its first self-defined extra care housing scheme opened in 1999/2000 with the opening of Willicombe Park in Tunbridge Wells, Kent. All of Audley's developments are situated in areas that are regarded as affluent, with most situated in Local Authorities that were among the least deprived in the country[9]. Most residents were themselves or were partnered with residents (or widowed) who would likely belong to the top two social classes based on previous occupations[10]. Audley also directly markets its services as a luxury brand to prospective residents, and emphasises the economic value of its services compared to those of a residential home. Most residents are owner occupiers on a leasehold basis, and properties sell from approximately £125,000 to £400,000. Owner occupiers pay a monthly management charge while a smaller number (less than 3%) occupy properties on a rental basis. All residents are self-funded, although interviews with management staff did reveal that a small number of exceptional cases received Local Authority funding for their home care service. There was also a mixture of profiles in terms of those who received state benefits, particularly Attendance Allowance

[8] Extra care housing appears to have been developed from the mid-eighties. Assisted living housing in the US started later in the mid-nineties.
[9] Based on the Index of Multiple Deprivation 2010 (DCLG 2011). The one exception was a development near Ilkely in West Yorkshire that technically fell within the borough of Bradford, one of the most deprived in the country.
[10] These included, for example, belonging to the Diplomatic Service, Hoteliers, Lawyers and Teachers.

and as a number of residents declined to provide further information, this data was consequently unavailable for this study. Given that Audley targets those from the higher income brackets/socioeconomic class, it is unsurprising that Audley represents the smallest of the three partners involved in the current study. It currently operates in excess of 500 units of extra care housing consisting of predominately two bedroomed properties. All Audley developments operate as a core and cluster design, with a number of independent units and blocks centred around a single remodelled building. In the example of Tunbridge Wells, the most established extra care housing development and the main focus of this analysis, a converted Georgian villa operates as an attractive core building and within the mature grounds there are a range of terraced cottages, bungalows, detached houses and an apartment block comprising of one, two and three bedroomed apartments.

All residents have access to emergency care on a 24 hour basis. Home care is available for all residents, though residents are at liberty to select a care provider of their own choice. However in reality this rarely occurs as the care staff is all well known to the residents. Home care including night care is available on a flexible basis and services can be increased and decreased as required. Unlike Retirement Security, the management costs do not include housekeeping as standard. However, housekeeping is among a range of services available to residents, some of which are offered at no charge, including: exercise classes, a community emergency alarm service; housing support service (Supporting People defined tasks); domestic assistance; light domestic cleaning; shopping; housework; personal laundry service; hairdressing on site; chiropody; a range of meals; and physiotherapy. Audley developments also offer a range of weekly activities and communal facilities including: a lounge; restaurant; dining room; bar; library; treatment rooms; salon; swimming pool; and gym. Some of these facilities are open to the public, facilitating interactions between residents and the wider community; for example, the Audley club is a health and wellbeing membership programme open to non-residents over the age of 55. While residents are not directly involved in management decisions, a residents group does provide a forum for discussing residents' concerns. A care forum too has been established to discuss to facilitate resident input in care services provided.

Extra Care Charitable Trust (ECCT)

Extra Care Charitable Trust operates several larger village and smaller courtyard schemes across a wide section of the East and West Midlands, with schemes also located in Buckinghamshire, Cheshire, Gloucestershire, Merseyside and Yorkshire. The trust currently operates thirty-one extra care housing schemes, although only nine of these are included in this research due to data constraints and because some of these have only been developed very recently. Those included in this study are located in Staffordshire (2), Wolverhampton (2), Cheshire (1), Merseyside (1), Nottinghamshire (1) and Worcestershire (2) and include four villages with up to 400 residents each and five courtyard developments with as few as 40 residents. Courtyard developments tend to house a higher proportion of older people with substantial care needs, although both types support a range of residents.

ECCT schemes are located in a variety of locations – while some are located in areas that fall within the most deprived 10%, others are located in more affluent areas[11]. ECCT schemes therefore attract residents from a variety of socioeconomic backgrounds, although no data is routinely collected where this can be assessed. Residents can occupy ECCT properties on a rental or leasehold basis, with shared ownership options also available. Unlike Retirement Security, the management costs do not include housekeeping as standard. While the Trust has historically offered a mix of rental and leasehold schemes, new schemes tend to towards a higher proportion of owner occupied accommodation. This is actively encouraged by the Trust, who are investigating further equity release and shared ownership options; these innovations may assist owner occupiers within community settings who may only have low levels of housing equity to remain owner occupiers in a retirement home setting (see Ball 2011). The Trust accepts a number of residents who are referred directly from Local Authorities, although the split between self-funded residents and state-funded residents differs substantially between developments.

Residents receive a variety of care packages within ECCT settings. ECCT use an internal social care needs assessment tool validated by Keele University to assess the care needs of residents. This tool assesses a number of domains including mobility, functions of daily living, sensory ability, superficial health and psychological health (describe in greater detail later). Residents are then classed as having no additional care needs or are assessed as needing one of five levels of care. Once a needs assessment of social care has been conducted, this care is usually delivered by ECCT staff with the exception of nursing care, which is only provided by ECCT staff in village developments. Both other partners included in this research also conduct a needs assessment of residents, although this data was not available for this study. ECCT extra care housing schemes were also the setting for an innovative intervention programme aimed at raising the quality of life and unlocking the potential of residents with dementia (see Brooker and Wolley 2006).

ECCT schemes vary in the facilities available, reflecting the variation in size. Typically, ECCT schemes can include facilities such as a lounge; community restaurant; residents' dining room; community/day centre; laundry; guest suite; conservatory; TV lounge; café; gym; arts and craft space; storage for wheelchairs/scooters; library; hairdressers; computer/IT room; assisted bathroom. The services available to residents include an alarm to call on-site staff; housing support service (Supporting People[12] defined tasks); domestic assistance; light domestic cleaning; housework; personal laundry service; hairdressing on site; chiropody; sensors (detectors) and monitors; personal sensors; resident activities (open to the public); and meals. Some of these services may be included in the care package received by residents, although others will incur an additional charge. A number of the facilities are open to the public, and in some schemes places are purchased by the Local Authority for external clients. These help to integrate extra care housing schemes into the community. While residents are not directly involved in management decisions, a residents group does provide a forum for discussing residents' concerns.

[11] For example, Broadway Gardens in Wolverhampton is located well within the 10% most deprived Lower Super Output Area in England (see DCLG 2011 for original data). Other developments, such as those based in Evesham or Wellingborough are located in more affluent areas.
[12] Supporting People funding in its current form is being largely phased out in this financial year to be replaced by a grant distributed by individual Local Authorities.

Retirement Security Limited (RSL)

Retirement Security is a large operator of extra care housing that began operations during the 1980s. It is one of the oldest providers of extra care housing in the sector. It currently operates 32 schemes based in: London and the South East [London (2), Buckinghamshire (1), Bedfordshire (1), Berkshire (2), East Sussex (3), Cambridgeshire (1)], the South West [Dorset (1), Wiltshire (1)], the North West [, Cheshire (2), Manchester (1) Merseyside (5)], the Midlands [Lincolnshire (1), Leicestershire (1), Northamptonshire (1)], Warwickshire (2), Worcestershire (1)] West Midlands (5)] and North Wales (1). Data from all 32 schemes are included in this research. As is the case for ECCT, Retirement Security developments take the form of either larger style developments (of up to a 90 units) or smaller developments (of around 40 units). However, Retirement Security schemes, regardless of size, tend to be built in courtyard style and consist of a purpose built central core with units leading directly from this, usually as part of the same building.

Retirement Security schemes are almost invariably offered on a leasehold basis alone, with an upfront purchase price and monthly charge thereafter paid to the leaseholders' management company. RSL can assist prospective owners in understanding how best to finance their move. Unlike ECCT, Retirement Security is only limited to geographical areas with high levels of owner occupation, which may nevertheless be quite modest, but the model will not operate in areas which consist largely of social housing. As a result, the social profile of residents is unlikely to be as varied as is the case for ECCT. Furthermore, Retirement Security properties are priced to reflect the additional communal facilities essential in an extra care housing scheme, such as a communal dining room and a full catering kitchen. As a guide, the price of a two bedroom Retirement Security apartment is roughly the same price as a three bedroom semi-detached house in the same area. Retirement Security leaseholders are practically never referred directly from Local Authorities. However, apart from almost all having been homeowners, there is a very considerable range of income. Approximately 15% are in receipt of Guarantee Pension Credit, which may include mortgage interest and help with the service charge.

One of the features of the Retirement Security schemes is that great care is taken to ensure that the leaseholders receive the maximum welfare benefits to which they are entitled, so that it is generally not necessary for leaseholders to have to take out equity release to cover their monthly charge. Approximately 65% are in receipt of Attendance Allowance, which is also a door to much higher means-tested benefits which can cover the service charge, mortgage interest and exemption from Council Tax. Another unique feature of the Retirement Security developments is they each have their own management company, which is a not-for-profit operation, and is wholly owned by the leaseholders. Retirement Security provides a management service for which it receives a fee, but the agreement can be terminated by the management company. The owners' management companies are responsible for the employment of the staff that is more numerous than in standard sheltered housing. A typical scheme would have about 20 employees (14 full-time equivalents) including a sleeping-in service for emergencies, every night. The Owners' Company also has to approve any increase in the service charge, year by year.

Each of the management companies has had to decide whether they will seek registration as a domiciliary care agency and unless that happens, the management company is not allowed to

provide personal care, but definitions are extremely vague and this is a policy area which is in urgent need of clarification. For those developments which are registered, care is generally delivered on site by the staff of the management company, which has the great advantage that care is delivered on a 'not for profit basis' at approximately half the cost of an external agency and by staff who are well-known to the leaseholders and is altogether more flexible. However, where the management company has chosen not to register, then the staff is not allowed to give personal care. A number of residents also continue to receive informal care from friends or family. As part of the service charge, each resident pays for 1.5 hours per week of domestic help in their own dwelling and a further hour for the upkeep of communal areas.

In addition to full ergonomic adaptations throughout their home and the development, typically, extra care housing residents can expect to find the following communal facilities: lounges; dining room (residents only); community/day centre; laundry; guest suite; conservatory; hobby room; library; and a function/games room. These facilities may be open to the public in some developments, although this is not usually the case. Residents can also expect to receive the following services, some of which are included in the monthly charge: community alarm service; alarm to call on-site staff; housing support service (Supporting People defined tasks); domestic assistance; light domestic cleaning; shopping; housework; personal laundry service; sensors (detectors) and monitors; personal sensors; property-based sensors; meals; and a full range of social and cultural activities.

Description of data from three providers of extra care housing

A central aim of this research is to utilise data that is routinely collected by providers of extra care housing to address the research questions set out in Chapter 2, and in this section we provide an overview of the available data.

Data on extra care housing from Audley Retirement is mainly based on the Willicombe Park development, located in Tunbridge Wells. The development opened in the 1999/00 with records of residents dating from this time. The data includes a detailed depiction of the date of entry and exit of residents, the main health care challenges that they faced on entry and the destination of their exit. In addition, basic socio-demographic data on age, gender and whether the residents started as part of a couple are also available. In total, a potential 165 records were available on residents in the 67 units included in the development. Of these, 140 records had complete information and were used in the remainder of the analysis. Some of the 140 records of length of residence were imputed based on the move in dates of subsequent residents, with an allowance for a period of vacancy – this was discussed with the manager and appeared an accurate reflection. In total, 24 records were dropped because of incomplete or incompatible information, or in rarer cases where a resident had purchased a property but did not complete the move. We are unable to comment on the direction of bias associated with incomplete records for the Audley data, although did attempt to minimise the effect of missing data through minimal imputation processes[13]. Data reflected residents in Willicombe Park from 2000 to February 2011. We were also able to access data on the fall histories of residents for 2007 and 2008, corresponding to the number and reason for falls during this period.

[13] In addition to basing the move in dates on those of subsequent residents in a minority of cases, other imputation techniques included adjusting a missing month of birth to June in cases where a valid year was present.

Full socio-demographic and health data from another thirty-eight residents are also available from sites in Derbyshire (11), Yorkshire (13) and Kent (14).

Extra Care Charitable Trust data was supplied on the original residents of each unit across nine schemes. Unlike the data for Audley and Retirement Security, no data was available on the outcomes and profile of subsequent residents (residents who joined after original residents exited). The data included original residents who moved into ECCT schemes from 1995-2007 and were observed up to the end of 2010. Information included date of entry and exit, destination of exit, social care needs on entry using the ability profile and subsequent changes in the care package received. Data were originally supplied on 1,223 residents although 44 observations were dropped because of incomplete information on dates of entry or exit, destination of exit, age, gender, living arrangements[14], care level on entry or change in care level with 1,189 cases remaining for analysis.

Care level for each resident entering ECCT was assessed using an ability profile, and these data were made available to this research. The ability profile is a multidimensional needs assessment tool that assesses each resident's competency on the following: mobility, functions of daily living, sensory ability, superficial physical assessment and psychological assessment. Mobility includes, for example, whether a resident required assistance in climbing stairs, standing, or getting out of bed – ranging from needing no assistance (0) to needing the assistance of two people (5). Sensory ability referred to a person's sight, speech or vision; functions of daily living included bathing, washing, using a toilet; superficial physical assessment referred to, for example, the appearance and function of teeth, skin, and continence. Finally, the psychological assessment included, for example, an assessment of memory, depression and sleep. Each domain consists of a series of questions measured on a five point scale, and each is assessed by ECCT care staff. The total score for each domain is then matched to a level of care that the resident is assessed as needing, and this is then agreed directly with residents. A zero level indicates that the resident has no additional care needs while a level 5 indicated that the resident needed a substantial amount of care and nursing, possibly round the clock. However, there is some flexibility and personalisation in this assessment; for example a resident who has only recently developed severe visual impairment will be assessed differently and may be allocated a different care level compared to a resident who has been living with severe visual impairment for a considerable time, despite scoring similarly in terms of the ability profile. Care status was reviewed on a flexible basis when there were grounds to suspect a change in a resident's ability to function independently, for example, following a fall, or when residents were showing progress in functional ability.

Retirement Security data was supplied as a number of snapshot census reports. Summary information was available for schemes stemming back as far as 1989 although, individual level data could only be obtained for the years 2002-2010. Data was collated on the 31st of December in each census year. The information was not supplied in a longitudinal format - we created a longitudinal dataset based on changes in the characteristics of residents (date of birth and gender) in each extra housing unit. While this was the most accurate way available of matching data between census

[14] Although, 'couples' refers to units supporting two people and not necessarily 'couples' per se. While the vast majority were couples composed of a man and a woman, we also found examples of same-sex dyads, some of whom were identified siblings. We keep the couple distinction in order to examine whether living with another person had an impact on the results. Furthermore, couples refers to two people sharing accommodation at the beginning of the stay – it does not change in these analyses to reflect instances where one partner exited the accommodation.

years, some inconsistencies were encountered in the matching process[15]. We therefore analyse Retirement Security as a series of cross-sectional datasets as well as forming a longitudinal dataset. Data were collected in each census year on the socio-demographic characteristics of residents (age, gender and whether they were in a couple household), as well as information on benefits received (Pension Credit, Attendance Allowance, Disability Living Allowance (Mobility and Care elements)), and additional hours of care received (from care staff within the development as well as from external paid and informal care). Additional information on applications for attendance allowance and disability living allowance were also supplied, but were not utilised in this research. Retirement Security were also the only partner in this research to provide information on overnight stays in hospital. Data were not collected on the exit date of residents, and we were therefore unable to ascertain lengths of stay with accuracy. Each census collected data from 1,300-1,400 residents, with a total of 2,610 unique records identified. Data quality was high in these data, and less than 1% of cases were dropped due to missing data on the variables named above.

Issues in data collection across three extra care housing providers

It is clear from the descriptions of extra care housing provided across all three partners included in this research that a number of commonalities are shared in terms of the aims of extra care housing and the facilities and services residents can hope to expect. Each provider aims to house older people in homes with services that are designed to adapt to the changing needs of residents, although the providers do tailor these services to clients of differing socioeconomic means and backgrounds. Despite sharing these commonalities, each provider collects data in substantially different ways, meaning that data from all three providers cannot be pooled in later analysis (see Table 2 in this chapter). Furthermore, some of the basic information on residents that would be useful in terms of comparing outcomes across different client groups, such as main career occupation or ethnicity, are not collected as standard across any of the three providers. This not only hampers the applicability of findings across different extra care housing providers, it also means that vital messages on the efficacy of extra care housing may be overlooked because of a lack of a small sample size in either an extra care sample or a comparison sample. A key recommendation on the basis of this heterogeneity in data collection is for the development of standard guidelines on the collection of data measuring the initial profile of extra care housing residents, as well as the collection of longitudinal information. This should include a full depiction of initial the socioeconomic and socio-demographic profile of residents, their health and care needs and their previous accommodation circumstances. Longitudinal information should include the date and destination of exits, changes in health and social care needs, as well as measures of resident wellbeing and social participation. Such moves would aid future research immensely and help extra care providers evidence their work and inform policy-makers on the costs and benefits of extra care housing.

[15] In a very small proportion of cases, different days or months of birth were encountered for otherwise identical residents. This suggests that data were not linked internally between census years, but were collected anew

Researching extra care housing: establishing a counterfactual

While this research is focussed on establishing trends within extra care housing, we are also interested in establishing the magnitude of these trends in comparison with other housing and care options. Establishing an alternative scenario, or an appropriate counterfactual, for extra care housing is challenging for many reasons. Firstly, establishing what is an alternative to extra care is in itself tricky, partly due to the heterogeneity in the extra care market. Extra care is often promoted as an alternative to institutional care (Riseborough & Fletcher, 2008, Wright et al 2010). As discussed earlier in the report, however, this has led to several studies to focus solely on the comparison of the outcomes of those in extra care housing directly with those of residential care. However, this comparison does not appear to be straightforward for a substantial proportion of cases. Clearly, based on client characteristics (presented later), a significant proportion enter extra care housing with no additional care needs. In literature examining the motives for choosing extra care housing, the choice of extra care housing as an alternative to institutional care is only applicable to a minority of residents in some studies (Darton 2008); however, conversely other studies find the principal reason for choosing extra care are considerations about health and care needs (Bernard et al 2007), even if this is not necessarily observed in the actual care needs of residents. Selection into extra care housing for many is likely to be a pre-emptive move in anticipation of deterioration in health, a lifestyle choice, or in the case of couples may reflect the health of the partner. These selection processes in the UK represent a different model of movement into older people's accommodation than is the case elsewhere (for example Nygren and Iwarsson 2009).

Despite the difficulties associated with establishing a counterfactual, or comparison, to extra care housing, it is necessary to do so in order to establish the costs and benefits of extra care. Based on the literature, if we take extra care housing as the 'treatment', two main alternatives are therefore either: i) living in institutional care (residential or nursing home), or; ii) living in the community (and receiving any necessary care at home). However, we know selection into extra care housing is likely to be a non-random event – some residents and families self-select into extra care housing based on a wide variety of circumstances while others are referred or nominated through a social services management approach. While the ideal design to assess the holistic impact of extra care housing is a randomised control trial (see Bernabei et al 1998 for a classic example involving care in the community), this design is not possible to execute in our study, and is unlikely to be feasible in a wider context because of the difficulty in allocating a 'treatment' which often is reliant on a residents' own financial means.

Hanson et al (2006) suggest that the extra care housing model needs to be evaluated against alternative models of support such as telecare and telehealth delivered in the community setting (see Barlow et al 2007 for a review on the benefits of telecare on health), as well as with regard to the more traditional models of support such as sheltered housing, retirement housing, residential care homes, and nursing homes. However, we would argue here that the outcomes of residents in extra care housing should be evaluated against models of housing that afford independence to

residents, as well as providing care where this is needed – this would not necessarily encompass those in residential care. In this case, a natural comparison group to extra care housing would be older people in the community who are in receipt of a care package. However, due to the majority of extra care housing residents not actually receiving any additional care (beyond informal contact and having care on hand on a 24 hour basis in the event of an emergency), a natural comparison group may simply be those who share observable characteristics and are living in the community. Those in sheltered housing or in receipt of telecare at home may also likely to form a natural comparison group, although not at the expense of comparisons with those in other private housing who may or may not be receiving care. As the selection process into extra care housing is largely unknown and heterogeneous, a broad-based community-setting comparison may be one valid comparison (among others) that can be made. Therefore, in this research, we use data from two large scale surveys described below to compare the outcomes of older people in extra care with those in the community setting. While such comparisons with the community setting are rarely made in the literature, new research is beginning to support the validity of this approach through looking for alternatives to direct comparisons with residential care (Darton et al 2010) and embracing comparisons with the community setting (Burholt et al 2009).

British Household Panel Survey (BHPS)

The British Household Panel Survey (BHPS) is a longitudinal representative study of all adults within a sample of private households drawn from across UK. It began in 1991 with 5,500 households and 10,300 individuals and has continued to track many of these households through to the latest available wave of data collected in 2008/9 (Taylor et al 2010). Children in households join the survey at 16, while individuals leaving household continue to be tracked in their new household, with other members. The survey aims to understand social and economic change at the individual and household level in Britain and to understand the nature and causes of this change and predict future change. As such, the survey collects a full range of variables on the socioeconomic, demographic, health, occupational and cultural characteristics of individuals and households. The sample size of the study allows for the study of specific populations – older people being one group. Of particular interest in this research is the information that the study contains on movement into institutional accommodation, death and rates of overnight hospitalisation, as well as other information on the characteristics of older people. In the latest 2008/9, 19% of the 14,400 respondents were aged 65+ (2,942). The study is also particularly insightful for this research as unlike other studies (including the English Longitudinal Study of Ageing), the actual age of those aged 90+ is available, as opposed to having been grouped. In 2008/9, 310 people were interviewed aged 90 and above, including a centenarian aged 101.

English Longitudinal Study of Ageing (ELSA)

The English Longitudinal Study of Ageing (ELSA), as the name implies, is a longitudinal study of older people living in England that began in 2002 and has continued to survey a cohort of older people aged 50 and above, and their partners, biannually since. Refreshment respondents were added in 2006 and 2008. The study is designed to be nationally representative of English older people and their households. It collects data on a range of multidisciplinary issues including the health, life history, economic position, social wellbeing, demography, social engagement, and social

care among others (see Banks et al 2010 for more information). In the latest 2008 sweep, 5,178 older people aged 65+ were part of the study, including 137 older people aged 90 and above. While often taken to be representative of older people across the population, and despite its focus on later life circumstances, the study does not routinely include those in communal establishments, including residential and nursing care. The study is of particular interest in this research for the information collected on accidents and falls, as well as the demographic and health characteristics of older people.

Usage of data

In this report, we approach the issue of assessing the costs and benefits of extra care housing and establishing a comparison group from three perspectives. Firstly, we examine how the characteristics of extra care housing residents differ from those in the community setting using data from all three partners and both the BHPS and ELSA. Secondly, if extra care housing is an alternative to institutional care, or is an alternative to care in the community, then we establish some of the baseline data needed to establish this cost, namely the duration in which people stay in extra care housing. Even this baseline information is largely absent from the literature. To do this we use data from ECCT and make comparisons with the BHPS. Thirdly, if living in extra care housing or living in the community[16] are both situations where there is a risk of moving into institutional care, then we ask whether living in extra care housing can prolong the time it takes before this outcome occurs – whether extra care housing does constitute a home for life - again using data from ECCT and BHPS. Fourthly, we examine the notion of maintaining health status: if movement into extra care housing is triggered by a pre-emptive concern of deteriorating health and a need for assistance both in terms of functions of daily living or other health concerns, then we ask whether living in extra care housing can prolong the time it takes before older people experience a deterioration in their health/care status using ECCT. We also address this question through examining the rates of falls in Audley and compare the results with ELSA. Finally, we examine whether the perceived health benefits and the decreased usage of healthcare services observed in smaller studies are applicable to a larger sample, expressed through the number of nights spent in hospital. To do this, we use data from Retirement Security and compare the results with the BHPS. The results from all questions addressed in this report are subject to heavy caveats and measurement errors, which are discussed in individual chapters. Chapters 4-7 present the results for each section of the research; each chapter begins with a briefly discussion of the methods used to address our research questions.

[16] Possibly in receipt of some care services, although there is also a much higher likelihood of experiencing unmet care needs in the community.

Table 3: Overview of data sources and methods used

	Chapter - 1 descriptive information	Chapter - 4 resident characteristics	Chapter 5 - extra care as a home for life	Chapter 6 – extra care as a healthy home for life	Chapter 7 – extra care and less hospital beds
Audley Retirement		✓		✓	
Extra Care Charitable Trust		✓	✓	✓	
Retirement Security		✓			✓
British Household Panel Survey	✓	✓	✓		✓
English Longitudinal Study of Ageing		✓		✓	

Chapter 4: Extra care housing for extra care needs: Who lives in extra care housing?

Chapter 4 Executive Summary

Description

This chapter provides a descriptive account of the socio-demographic characteristics of extra care housing residents as well as summary measures of socioeconomic status and health and social care needs. We also make some comparisons between the characteristics of extra care housing residents and the characteristics of older people living in the community.

Rationale

Extra care housing is often presented as an option for some of the frailest members of society. However, there is mixed evidence in the literature as to whether this is actually the case. In this chapter we explore this theme further.

Data and Methods

We use descriptive methods only to provide an account of residents' characteristics. We use a combination of pooled longitudinal data and cross-sectional data from three providers of extra care housing. We use data from the English Longitudinal Survey of Ageing to make some comparisons.

Findings

The descriptive accounts of the residents of extra care housing presented in this chapter appear to follow a blueprint established in the literature for many characteristics. Across all three of the providers featured here, women outnumbered men by a ratio of 2:1 or greater and a similar ratio was found in terms of single to couple households. Likewise, across the pooled data of our partners, the average age on entry to extra care housing was in the mid-late seventies, although cross-sectional data from Retirement Security showed substantial levels of population ageing, with the average age in the 2010 sweep reaching 85 years.

Most residents entered extra care housing without being in receipt of an additional care package (where this information was recorded). However, we also found that among the residents of one extra care provider, that the majority of residents were in receipt of attendance allowance, a non-means tested benefit that supports people with defined social care needs. Extra care residents of all ages in one provider were over twice as likely to be claimants as those in a community sample drawn from ELSA, although we caveat this through raising the possibility that this may be partially due to the work of support teams operating within extra care. Based on a small sample of extra care housing residents, the numbers living with dementia and the aftermath of a stroke appeared particularly elevated compared to the older general needs population living in the community.

Significance and Mechanisms

The characteristics of those in extra care do generally support the notion of extra care housing supporting those with extra care needs. However, for significant proportion of residents who are

newly retired, with no additional care needs and not living with specific health issues, extra care ostensibly remains a lifestyle choice. Nevertheless, their presence may enrich the community balance of extra care schemes, and indirectly help to allow those with additional care needs to live independently.

Introduction

Despite examining different schemes across different providers of extra care housing, the literature presents many commonalities in terms of the characteristics of residents in extra care housing. Generally, most studies find that around two thirds of residents are women and around a quarter of residents reside in couple units (for example Bernard et al 2007, Bäumker 2008, Garwood 2008a, Callaghan et al 2009). Such a gender balance is not typical of the older population; although women outnumber men at older ages, it is only amongst those aged 85-89 and 90 and above does the gender balance among older people resemble that of extra care housing (men account for 35% and 28% of these age groups respectively based on Office for National Statistics data (2010a)). Most studies find that the average age of residents on entry is in the mid-late seventies (for example Darton et al 2010, Bernard et al 2007), although a number of studies find that extra care housing supports some of the very oldest in the population, including a number of centenarians (for example Darton et al 2010, Callaghan et al 2009). In comparison to residents in extra care housing, entrants to care homes tend to be older and with a less equitable gender balance (Darton et al 2010, Burholt et al 2009). The socioeconomic characteristics of residents are rarely collected in studies, including information on the benefits they may receive and their previous occupations. Studies vary in the assessment of care needs, with some studies presenting evidence suggesting that the majority of residents enter without receiving an additional care package (Bernard et al 2007). New evidence from Darton and colleagues (2010) suggests that around 58% of residents across a number of schemes entered with a high score (15+) on the Barthel Index of Activities of Daily living, and over a fifth scoring the maximum of 20, suggesting a relatively high degree of autonomy. However, Darton and colleagues also find that around one-in-ten new residents to extra care housing moved directly from a care home and almost one-in-twenty moved from a hospital, indicating the wide degree of care needs supported in the extra care setting. Information on specific health challenges that older people in extra care housing face is rarely found in the literature, although often the numbers with dementia are sometimes presented. For example, Dutton (2009) cites research from Hanover Housing where 9% of residents were found to have dementia and a further 15% were believed to have a form of undiagnosed dementia - other studies have also quantified the numbers with dementia in specialised housing (see, for example Vallelly et al 2006).

A number of areas remain unexplored in examining the characteristics of extra care residents housing. However, establishing these characteristics is important to help unpack some of the selection processes into extra care, discussed in Chapter 3. In particular, objective accounts of the health and socioeconomic characteristics of residents are lacking in the literature. In this chapter we partially address this issue through concentrating on describing patterns of the uptake of benefits of extra care housing residents, and some of the specific health issues facing a small number of residents, as well as presenting further explorations of the socio-demographic characteristics of extra care housing residents.

Methods

We use descriptive methods only in this short chapter to present summary information on residents across the three providers of extra care included in this research. We also present data from the English Longitudinal Survey of Ageing and use these data to compare the characteristics of those living in extra care with those living in a community setting.

Results: Descriptive Analyses of Extra Care Housing Residents

Characteristics of Retirement Security Residents

We include the data from a total of 32 sites over nine years in our analyses, with an average of 1,395 residents per year and 2,610 unique resident records identified. We present cross-sectional data from 2002-2010 in table 3, with the last column showing the pooled data reflecting residents' characteristics at the beginning of their residence. Just over a quarter of residents were male, and just under a third of residents lived in couple households. Consequently, a greater proportion of male residents lived as part of a couple household; for example half of male residents in the 2008 sweep were part of a couple while just a fifth of female residents were. Women were slightly older than men; for example in the pooled data[17] the average age of women was almost a year older at 79.4 compared to 78.5 for men – in the 2010 cross-sectional data the age gap between genders had narrowed so that the average age of men was 84.7 and for women 85.3 years. The average age in the cross-sectional datasets ranged from 82 in the earlier years to 85 in the more recent years, suggesting a substantial degree of population ageing across schemes.

Older residents were more likely to receive additional care; in our pooled dataset, the average age[18] of those with no additional care needs was 78.8 years, while the average age of those who received under two hours of additional care was 81.3 years and the average age of those who received over two hours (and up to 42 hours) was 81.7 years. Despite the increasing age across the cross-sectional datasets, there was no perceptible increase in terms of the mean hours of additional formal care that residents received, as might be expected. Overall, few residents were in receipt of formal additional care (14%) with around 7% in receipt of up to two hours and 7% in receipt of two hours or more in the pooled data; in the latest cross-sectional data from 2010 this had changed little. The receipt of additional care varied significantly by site; for example among Retirement Security residents in 2010, no residents in Blake, King Richard, Margaret and Marlborough Courts were reported as receiving additional care, while 36% of those in Ashby Court were reported as having some amount additional care. Some residents may purchase additional care from external sources, which may not necessarily be recorded in these data. In addition, informal care provided from friends and family is also recorded for a small number of residents.

[17] For Retirement Security, we term pooled data as a dataset comprised of longitudinal records of residents. Resident characteristics are those at 2002, or for those who moved in after 2002, those at the beginning of residence.
[18] Average age in the pooled dataset refers to age at first observation.

An increasing proportion of extra care housing residents were in receipt of attendance allowance over time; this may reflect the increasing age across time. Half of those across all schemes in 2002 were in receipt of attendance allowance, although by 2010 this had climbed to 63%. Women and older residents were significantly more likely to be in receipt of Attendance Allowance. In these data, receipt of attendance allowance serves as a good indicator of care needs. Attendance Allowance is provided for those over the age of 65 who are in need of assistance with the activities of daily living or who are in need of supervision or assistance in conforming to a medical or dietary regime. Two rates of Attendance Allowance are paid – the lower rate is provided for those in need of day-care alone while the higher rate is provided for those in need of day and night care. In more recent years, the rise in the proportion in receipt of Attendance Allowance reflected a rise in residents in receipt of the higher rate of Attendance Allowance. For residents who are not dependent on the local authority to meet their social care needs, a situation applicable to most Retirement Security residents, Attendance Allowance is paid direct to residents in full, and can be used to contribute to the costs of living in extra care housing. This is also the case with payment of Disability Living Allowance (DLA), although far fewer residents are in receipt of DLA than in receipt of attendance allowance[19]. Finally, a decreasing proportion of Retirement Security residents are in receipt of Pension Credit. Pension credit is a means tested benefit intended to provide a minimum income for older people whose incomes are below a threshold amount (£132.60 for single people and £202.40 for couples), replacing the minimum income guarantee which was in place prior to 2004. Pension Credit can be equally as important to residents in covering the cost of a stay in extra care housing, and can open up the opportunity for support in covering mortgage interest payments. The majority of residents in receipt in of pension credit were also in receipt of attendance allowance (83%). A decreasing proportion of residents in receipt of pension credit suggests that the socioeconomic profile of residents may be becoming more advantaged over time. However, other studies have also found that older people are likely to under-claim benefits to which they are entitled (Citizen's Advice Bureau 2003), which may partially explain this trend, and could indicate that current benefit take-up activities organised by providers could be expanded.

[19] Given that DLA applies to those under the age of 65 years, unless they were being paid DLA before the age of 65, this is an expected trend.

Table 4: Characteristics of Retirement Security residents

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Pooled sample
Number of residents[1]	1,442	1,471	1,430	1,379	1,325	1,329	1,398	1,295	1,398	2,610
Number of sites	28	29	28	28	26	26	29	29	30	32
(size range in brackets)	(5*-100)	(7*-98)	(12-102)	(24-91)	925-100)	(26-100)	(24-94)	(23-89)	(25-81)	(16-173)
Gender: Male	26.5%	26.4%	27.3%	27.4%	26.6%	27.1%	28.5%	27.3%	27.6%	29.0%
Female	73.5%	73.6%	72.7%	72.6%	73.4%	72.9%	71.5%	72.7%	72.4%	71.0%
Couples	32.3%	31.8%	31.8%	30.0%	28.2%	27.2%	29.1%	28.7%	28.9%	27.9%
Age Mean	82.3 yrs	81.7 yrs	83.7 yrs	83.7 yrs	84.2 yrs	84.3 yrs	84.6 yrs	85.2 yrs	85.1 yrs	79.2[$$] yrs
(range in brackets)	39.5-102.6	40.5-102.8	41.5-103.8	42.5-104.8	(43.5-105.8)	(44.5-106.8)	(45.5-105.3)	(46.5-106.3)	(47.5-107.3)	39.5-104.3
Recipients of Disability Living Allowance (Mobility Component): None	96.2%	96.6%	96.9%	96.4%	96.4%	96.7%	96.3%	95.8%	95.6%	97.5%
Lower Rate	1.5%	1.2%	1.1%	1.4%	1.6%	1.5%	1.7%	1.7%	2.1%	1.3%
Higher Rate**	2.3%	2.2%	2.1%	2.2%	2.0%	1.8%	2.0%	2.5%	2.3%	1.2%
Recipients of Disability Living Allowance (Care Component): None	96.6%	96.7%	96.5%	95.7%	95.8%	96.1%	96.1%	95.4%	95.3%	97.3%
Lower Rate	1.3%	1.1%	1.1%	1.9%	2.1%	2.1%	1.8%	2.1%	2.3%	1.4%
Higher Rate**	2.1%	2.2%	2.4%	2/5%	2.1%	1.8%	2.1%	2.5%	2.4%	1.2%
Receipt of Attendance Allowance: None	50.0%	49.5%	49.3%	46.6%	43.5%	38.9%	32.4%	32.7%	37.1%	53.2%
Lower Rate	25.4%	24.3%	24.8%	25.4%	26.9%	29.2%	28.8%	27.1%	24.1%	22.4%
Higher Rate**	24.6%	26.2%	25.9%	28.1%	29.7%	31.9%	38.8%	40.2%	38.8%	24.4%
Receipt of Pension Credit***	18.1%	17.1%	16.0%	15.1%	14.2%	14.2%	12.9%	12.1%	10.7%	11.2%
Hours of Additional Housekeeping per week (provided by site staff, mean)	0.7 hrs	0.6 hrs	0.6 hrs	0.4 hrs	0.5 hrs	0.5 hrs	0.6 hrs	0.7 hrs	0.7 hrs	0.5 hrs
Hours of Additional Housekeeping per week (provided by family etc, mean)	0.9 hrs	0.8 hrs	0.9 hrs	0.3 hrs	0.6 hrs	0.6 hrs	0.4 hrs	0.4 hrs	0.3 hrs	0.6 hrs
Overnight hospital admissions (mean)	4.3 nights	3.8 nights	4.5 nights	6.2 nights	7.4 nights	6.4 nights	4.3 nights	4.2 nights	4.1 nights	5.04 nights
Percentage at end of year resident for full year	96.3%	91.4%	93.5%	91.2%	89.6%	89.7%	93.7%	95.8%	91.8%	4.2[$]

[1]We present data only for complete cases (those cases with information across all variables)
* This site had opened at the end of 2002
**Includes those defined as being on medium and higher rates; those who were reported as being in receipt of the benefit but no record of the level was made were assumed to be on the lower rate
***Represents Minimum Income Guarantee prior to 2004
N/C = Not collected
[$]Average number of years observed
[$$]Age at beginning of exposure period

Characteristics of Extra Care Charitable Trust Residents

The data from the Extra Care Charitable Trust conforms to a number of depictions of the characteristics of extra care housing residents in the literature. In these data, the gender balance stood at approximately a third of resident being male and two-thirds being female. This varied by site, an in particular, village schemes had significantly a higher proportion of male residents than courtyard developments. Over half of male residents were in couple households at the beginning of residence, compared to just over a quarter of female residents. Consequently, village schemes also had a higher proportion of couple households than courtyard schemes.

Residents ranged in age on arrival from 50-100 years, with a mean age of 75.8 years. Of the two cases aged 100 or more on entry, one stayed for 6 months while a second stayed for over 6.5 years. As is the case in the older population in most settings, women were, on average, older than men; residents in courtyard schemes had a higher mean age of 76.7 compared to 74.1 years in village schemes. Age was also significantly patterned by care needs on arrival, with less than a fifth of those aged under 65 requiring additional care and over three-fifths of those aged 85 and above needing additional care. Overall, however, around two-thirds of residents in these data enter with no additional care needs. Courtyard developments had a significantly higher proportion of residents entering with some form of additional care needs than village schemes (56%) compared to village schemes (25%), suggesting that movement to village developments may be based more on a lifestyle choice than a need for extra care housing.

Table 5: Profile Characteristics on arrival of Extra Care Charitable Trust residents

Characteristic		Percentage
Gender	Male	34.1%
	Female	65.9%
Health Status/Care Needs on Arrival	No support needs	67.2%
	Level 1 (very low support needs)	7.7%
	Level 2 (low support needs)	12.1%
	Level 3 (moderate support needs)	5.0%
	Level 4 (high support needs)	6.5%
	Level 5 (very high support needs)	1.6%
Number in Household	Single Person Household	63.9%
	Couple Household	36.1%
Age Group	50-64	11.2%
	65-69	13.0%
	70-74	19.5%
	75-79	21.1%
	80-84	17.8%
	85+	17.4%
Year moved into Extra Care	1995-1998	17.8%
	1999-2002	41.1%
	2003-2007	41.0%
Site	Number	9
	Mean (range)	132.1 (47-283)
Village or Court	Court (mean number of residents)	24.2% (57.6)
	Village (mean number of residents)	75.8% (225.3)
N		**1,189**

Characteristics of Audley Residents

Audley data, presented in table 5 reflect the pooled histories of 140 residents from Willicombe Park (Kent) who entered from 1999 to 2011 as well as the characteristics of 38 residents from Ilkely, Mote and St Elphin's schemes that moved in 2008-2010. These data exhibit many of the trends observed across Extra Care Charitable Trust and Retirement Security schemes: women outnumber men and the majority of residents do not require additional care on arrival. The average age of residents was 79.9, with women being older on average. Around three-in-ten residents begin their stay in Audley as part of a couple. Although we do not have data on the income or socioeconomic means of residents, the marketing of Audley as luxury retirement homes allows us to conclude that the majority of residents were socioeconomically advantaged. This is reinforced by information we receive on the previous occupation of residents in Willicombe Park. Among female residents, almost half (47%) were housewives, with 7% in self-employed businesswomen, 9% in medical/scientific/engineering roles, 17% in education or higher education, 8% in the civil service, and 11% in other occupations. Among male residents, almost a third (32%) were self-employed businessmen, 24% were in medical/scientific/engineering roles, 11% in education or higher education, 19% in the civil service, and 14% in other occupations. Audley data are the only data

supplied with specific named health conditions that residents were living with on entry to extra care housing. Here we can see that around 14% of residents were living with some form of Dementia, and 21% were living with the effect of Stroke/CVA (Cerebrovascular Accident). In these data, 40% of residents were free of the effects of Stroke/CVA, Cardiac Problems, Diabetes, Dementia, Osteoporosis, Parkinson's disease or Mental Health problems.

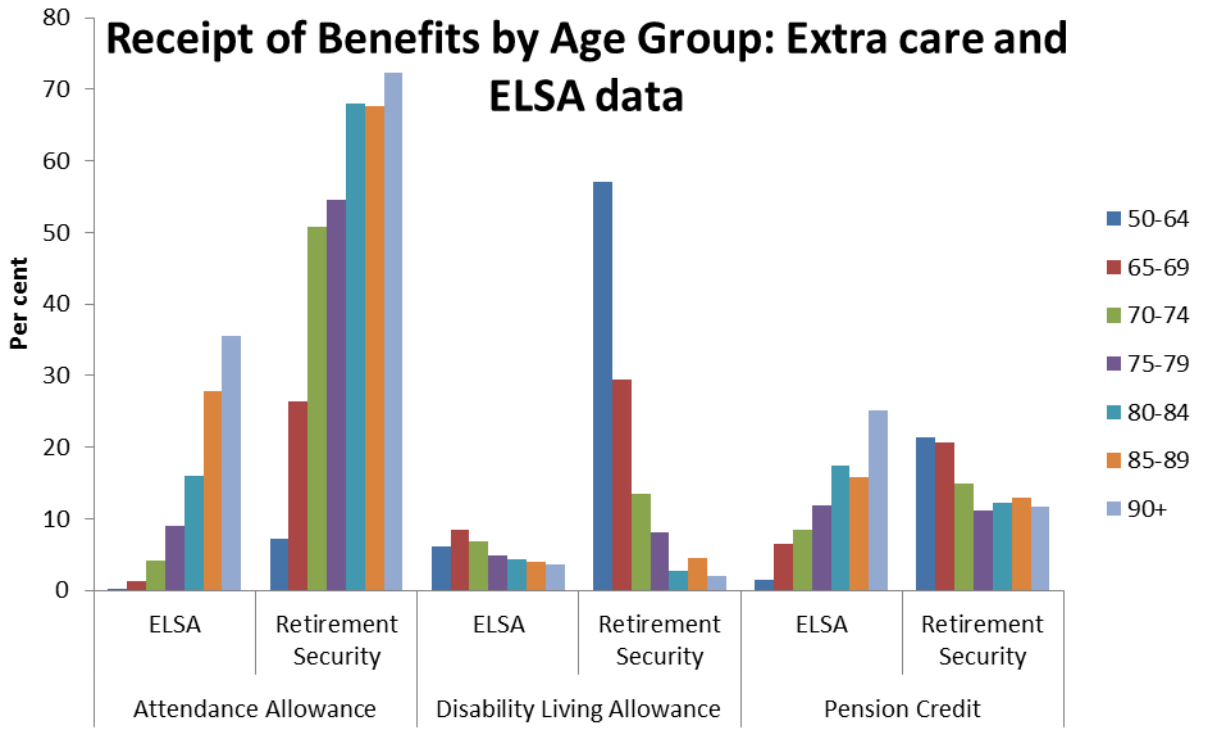
Table 6: Profile Characteristics on arrival of Audley residents (Pooled data 1999-2011)

Characteristic		Percentage
Gender	Male	27.5%
	Female	72.5%
Health Conditions on Arrival	Cardiac Problems	20.3%
	Dementia	13.5%
	CVA/Stroke	21.3%
	Parkinson's Disease	4.5%
	Osteoporosis	5.1%
	Mental Health Problems	9.0%
Required Additional Care	Required additional care on arrival	27.5%
Number in Household	Single Person Household	71.3%
	Couple Household	28.7%
Age Group	50-64	2.2%
	65-69	5.1%
	70-74	14.0%
	75-79	23.6%
	80-84	30.9%
	85+	22.5%
Year moved into Extra Care	1999-2002	42.1%
	2003-2007	24.7%
	2008-2011	33.1%
N		**178**

Results: Extra Care Housing Residents and Community Setting Residents

Benefits: Retirement Security Residents

Figure 6: Proportion of respondents in receipt of benefits by age group and dataset: Retirement Security data 2008 and English Longitudinal Survey of Ageing (ELSA) data 2008 sweep



Notes: Cross-sectional weights used for ELSA. ELSA n=9,285; Retirement Security n=1,397

Figure 6 shows the distribution of older people by age group and benefit type for respondents to the English Longitudinal Survey of Ageing (ELSA) and residents of Retirement Security extra care housing in 2008. Receipt of Attendance Allowance varies substantially by residence type and age group; among both the community sample[20] and the extra care housing sample the proportion in receipt of Attendance Allowance rises with age. However, receipt of Attendance Allowance within the extra care housing sample is much higher than the comparison ELSA data for all age groups, typically double the proportion. For example, 68 per cent of 80-84 year olds in the extra care data were in receipt of Attendance Allowance compared to sixteen per cent of those in the ELSA data. This may be indicative of the poorer health status and higher social care needs of residents in extra care housing. Another explanation may be found in the assistance that extra care housing residents may receive from scheme staff in accessing the benefits to which they may be entitled to, and in representation to appeal or at tribunal cases. While such services may be available to older people in the community through the work of organisations such as the Citizen's Advice Bureau and Age

[20] We drop observations who are in institutional accommodation or who are in receipt of services included with their accommodation to ensure that our comparison group represents those living in the community not in residential homes or in accommodation that may include, or be similar to, extra care housing.

UK, these are unlikely to be as easily accessed by all older people, particularly those who may be most disadvantaged. In reality, it's likely to be a combination of both factors. Extra care housing residents are likely to have greater underlying health and social care needs that influence their choice of extra care housing and their eligibility for Attendance Allowance (a good indicator of care need); these needs may be met through the care, both formal and informal, provided as part of the standard minimum package. However, extra care residents are also likely to have greater access to advocacy service that help to meet their entitlement to access benefits that help cover the costs of extra care. Nevertheless, despite earlier evidence that the majority of extra care residents enter extra care with few additional care needs[21], the evidence here suggests that an increasing majority of residents fulfil the eligibility criteria of having care needs to carry out the activities of daily living such as shopping or housework. For a large proportion of these residents, Attendance Allowance may be critical in meeting the costs of living in extra care housing.

Younger age groups resident in extra care are also substantially more likely to be in receipt of Disability Living Allowance (DLA) than may be expected among a comparison sample resident in the community setting (combining the mobility and care components in Figure 6). For example, among those aged 65-69 (extra care n=34), 29% of extra care housing residents were in receipt of DLA compared to 9% in ELSA. However, among all three oldest age groups, the effect reversed and those in extra care housing had lower proportions in receipt of DLA. Nevertheless, the results support the earlier notion of movement in to extra care housing being associated with some form of care needs that may be met through the standard minimum extra care housing package, but not necessarily an additional care package. Finally, a higher proportion of those in extra care appear to be in receipt of pension credit than those in the community sample in younger age groups, although the effect reverses again in the oldest age groups (above 80). As pension credit is a means tested benefit, and the majority of extra care housing residents are aged 80 and above (78%), as a population we can infer that although a greater proportion of (Retirement Security) extra care residents have health needs, they are may be slightly more socioeconomically advantaged. Of those aged 80+, 13% of the extra care housing sample was in receipt of pension credit compared to 18% of the ELSA sample. This overlooks levels of housing wealth, with all Retirement Security residents aged 80 and above being owner occupiers, compared to 78% of those in the ELSA community sample aged 80 and above.

Health: Audley Residents

For those residents in Audley extra care housing at some point between 2006 and 2008, we examine the prevalence of selected health conditions by broad age group. We also present the same prevalence of health conditions in data from the English Longitudinal Survey of Ageing from 2008. Although the data from Audley represents the picture for one scheme in the South East, and ELSA data is representative of individuals from across England, we use the ELSA data to descriptively examine the prevalence of older people living with the same selected health conditions in the community. We see that those older people living in the community have higher levels of living with cardiac problems, osteoporosis and diabetes than those in the small sample of extra care

[21] Additional care needs in this sense represents care needs that are beyond the standard minimum package of care provided in the monthly charge and/or additional informal care provided by staff working in the extra care scheme.

housing residents. However, similarly, we see that the numbers of older people living with dementia and the effects of a stroke are much higher in the extra care housing sample than in the community sample; there is also evidence that the level of residents with Parkinson's disease is also higher in the extra care setting than may otherwise be expected. Although based on a small sample these data give an indication of the type of health 'shocks' that may predict entry into extra care housing. In light of the predicted growth in numbers of older people living with dementia and stroke described in Chapter 1, extra care housing developers may see an even greater proportion of residents in current schemes entering with living with long-term debilitating health conditions, without commensurate expansion of the sector. It is also worth noting that of the small number in ELSA living in the community with dementia included in Table 6, 10% reported receiving no regular help from any source with mobility or the activities of daily living; similarly 38% of those living with the effects of a stroke did so and 34% of those living with Parkinson's disease.

Table 7: Proportion of older people living with selected health conditions by age group: ELSA 2008 sweep and Audley Willicombe Park data 2006-2008

	Audley Willicombe Park residents (2006-2008)		ELSA (2008 sweep)	
	70-79 yrs	80+ yrs	70-79 yrs	80+ yrs
Cardiac Problems[$]	20.0%	16.7%	24.8%	34.2%
Dementia	17.5%	18.8%	0.8%	3.8%
Stroke	17.5%	25.0%	6.7%	12.7%
Parkinson's disease	2.5%	8.3%	1.3%	1.2%
Diabetes	2.5%	0.0%	14.2%	12.7%
Osteoporosis	2.5%	2.1%	6.4%	11.1%
N	40	48	2,017.9	1,126.1

Notes: Numbers represent weighted cross-sectional count for ELSA sample. ELSA sample excludes those with missing data and those who completed an institutional interview and those who lived in accommodation that included a number of services. Audley data includes any resident with valid information who was present at some point between 2006 and 2008. [$]Cardiac problems are defined as living with the effects of a heart attack, heart murmur, problems with heart rhythm, heart diseases or congestive heart failure in ELSA; the definition in Audley may be narrower in that it represents those who may need assistance in managing a cardiac problem.

Summary and Conclusions

The descriptive accounts of the residents of extra care housing presented in this chapter appear to follow a blueprint established in the literature for many characteristics. Across all three of the providers featured here, women outnumbered men by a ratio of 2:1 or greater and a similar ratio was found in terms of single to couple households. Likewise, across the pooled data of our partners, the average age on entry to extra care housing was in the mid-late seventies, although cross-sectional data from Retirement Security showed substantial levels of population ageing, with the average age in the 2010 sweep reaching 85 years. However, as was noted in the introduction, the gender balance of extra care housing is perhaps skewed towards women more than may be expected among the population as a whole. Furthermore, the population ageing described in Chapter 1 may alter these patterns, with a rising average age, but also increasing the need for two-person/couple households and services, as well as services within extra care housing that are specifically targeted towards older men.

Most residents entered extra care housing without being in receipt of an additional care package (where this information was recorded). Although we reemphasise here that we refer to this as an additional care package – informal care and supporting people services are routinely provided to residents by staff without being part of a formal care package per se. However, we also found that among the residents of one extra care housing provider, that the majority of residents were in receipt of Attendance Allowance, a non-means tested benefit that supports people with defined social care needs. When we compared the receipt of Attendance Allowance with the levels expected in the general community population, we found evidence that extra care housing does support some of those in with the highest levels of care needs. Extra care housing residents of all ages were over twice as likely to be claimants of attendance allowance as those in a community sample drawn from ELSA, although we caveat this through raising the possibility that this may be partially due to the work of benefit take-up support teams operating within extra care housing. Based on a small sample of residents, we found mixed evidence as to whether extra care housing supports the most vulnerable in terms of the specific health conditions facing residents. However, the numbers living with dementia and the aftermath of a stroke appeared particularly elevated compared to the older general needs population living in the community.

Chapter 5: Extra care as a home for life

Chapter 5 Executive Summary

Description

This chapter examines the notion of extra care housing as a home for life. Here we present evidence on how long residents stay in extra care housing, the frequency of exits from extra care housing into institutional care, as well as comparisons between extra care housing residents and a community-based sample.

Rationale

Extra care housing is often marketed as a home for life by providers of extra care housing. However, the validity of this claim in largely untested and contested in the literature. More fundamentally, there also exists a lack of evidence that summarises the typical length of residence in extra care housing. In this chapter, we aim to address these issues. There is also little comparative evidence that examines the experience of extra care housing residents with residents in the community setting. Earlier, in Chapter 3, we presented the argument that receipt of domiciliary care in the community is one model that partially replicates the conditions of extra care housing through representing an independent home with flexible care.

Data and Methods

We present data from a large provider of extra care housing that includes longitudinal information on the residents of 1189 properties who moved into extra care between 1995 and 2007. We also supplement this analysis through analysis the trends within one scheme of a second extra care housing provider. Within these data, information on care needs on entry, age, gender and living arrangements are collected. We employ Kaplan-Meier and Lognormal Accelerated Failure Time models to examine typical lengths of stay. In disaggregating exits by death and movement into an institution, we identified that death was a competing risk to movement into an institution. As such we employed a competing risks framework to examine transitions to an institution, and constructed competing risks regression models to simultaneously examine different resident characteristics that may moderate the probability of moving to an institution. Finally, we employed a matching strategy to examine how the experience of those in extra care housing differs from those in a community based setting.

Findings

We find that the median length of stay in extra care housing is 6.5 years using data from two partners (Extra Care Charitable Trust and Audley). This was moderated by resident characteristics – men, older residents, and residents with higher care needs had shorter stays in extra care housing.

Moving on to examine the issue of a home for life more explicitly, we find that after 5 years, we would expect around 8% of residents to have exited into institutional accommodation. The ratio of exits to institution and exits because of death at five years is around 1:3. At ten years, we would expect around 14% of residents to have exited to institutional accommodation. These results were

moderated by resident characteristics, although regression results suggested that the care package on entry to extra care housing was the single most important factor in predicting exit to an institution. Perhaps unexpectedly, those with only low care needs on arrival (level 2) were most likely to exit to an institution after 5 years. Other differences were also detected in outcomes based on the type of development.

When we examine whether the low rates of moving to institutional care for the extra care housing sample are lower than would be expected within the community setting, we find indications supporting this, albeit with a number of caveats. We find that if we compare the outcomes of older extra care housing residents (aged 75+ and 80+) with those of a matched community sample in receipt of domiciliary care, that the probability movement to an institution within the first five years is between 37-50% lower for residents of extra care housing (50-70% over the first two years). Based on the level of growing unmet need for domiciliary care identified in chapter 1, we investigate this further and select and match only those in extra care housing who received an additional care package on entry. The results hold for those aged 80 and above, with those in extra care around half as likely to enter an institution in the five years after entry compared to those in the community setting.

Significance and Mechanisms

Given that institutional accommodation can be considered unpopular and expensive, the evidence presented here suggests that extra care housing presents an alternative housing option to those who wish to avoid residence in institutional accommodation, and in particular to those aged 75 and above in receipt of social care services in their own home. The circumvention of institutional accommodation can also have substantial fiscal implications for policy-makers.

The mechanisms underlying the finding that extra care housing constitutes a home for life for the majority is consistent with the assumption that extra care housing provides flexible and adaptive care. However, the evidence presented here that those with low care needs on entry are more susceptible to movement into an institution than those with no or high care needs suggests that adapting to a change in resident needs from low-high care needs may be more pragmatically difficult for extra care housing providers, than accepting residents with initial high care needs. This suggests that there may be greater scope for improving resident outcomes and the aspiration of a home for life, with better management of changing care needs from low to high care; the affordability of changing care needs however may be the critical issue underlying this trend.

Nevertheless, we conclude that extra care housing does represent a ‘home for life’ for the majority.

Introduction

In this chapter, we investigate the notion of extra care housing as a home for life. Extra care is often presented as independent housing for older people with the provision of flexible care. Flexible care, in this instance, signifies care that adapts to the changing profile of care needs of older people. The adaptation of care packages to suit older people should preclude the need to move to institutional accommodation if care needs increase. This is an important issue for older people themselves, who may regard institutional accommodation with reservations because of the lack of independence and perceived quality of life residential and nursing care settings can afford (for example Wright et al 2010). For both older people and policy makes, residential care can also be associated with higher costs. However, the issue of extra care housing as a home for life is without consensus in the literature. Some view extra care housing positively as a home for life (Phillips and Williams, 2001), others with scepticism (for example Dutton 2009), and others with restraint due to a lack of evidence (for example Institute of Public Services 2007). Here in this chapter we examine this issue in depth, mainly using data from Extra Care Charitable Trust (ECCT), but also some data from Audley. We begin with an exploration of how long people stay in extra care housing, regardless of destination. We then progress to quantifying the extent to which extra care housing can be regarded as a home for life. Based on the discussion in Chapter 3, we then move to compare the notion of extra care housing as a home for life with a community-based sample. In doing so, we investigate whether residence in extra care housing is associated with a lower probability of entering extra care compared to remaining in the community. In the following sections, we describe our methods in detail.

Methods

Event History Analysis: Lognormal and Competing Risks Regression

In this chapter we rely heavily on event history methods. Event history analysis (also known as survival analysis) describes a group of techniques used to determine the time taken to experience an event (for example death or moving to an institution) and includes the analysis of factors that moderate this time. Commonly, in studies, the event may not be observed within the study time (not all residents will die or move to an institution within the study time), or cases may drop out (for example residents may move out of extra care for reasons other than moving to an institution or death), and the cases are termed ‘censored’ (right censoring). Event history modelling, including the Kaplan-Meier estimator which used frequently in this research, can make adjustments to handle censored data (see Jenkins, 2004, and Singer and Willett, 2003 for more information on event history analysis and McCann el al (2009) for a similar approach in analysing information on care homes and residential care). Given that we may not observe all times to event (referred to as survival times from this point forward) because of censoring we present median survival times from our descriptive analyses (as opposed to mean survival times) – the median time represents the point at which 50% of the sample will have experienced an event. For analytical reasons[22], we

[22] The main analytical reason is to boost our sample size to help reduce the size of our standard errors, which means that we are less likely to reject significant trends due to an inadequate sample size.

frequently pool all the histories of extra care residents together in this chapter, regardless of the site or the year of entry, although we stratify these results by a number of factors in presenting our descriptive evidence.

We also develop our event history models to account for factors that moderate survival time simultaneously and to examine their influence on survival time using regression models. We use lognormal accelerated failure time models to do this (see Cleves et al 2008 for an overview of the method). Our choice of lognormal models reflects the fact that the hazard of exiting extra care housing increases with time, as the underlying risks of death or ill-health leading to institutionalisation increase with time, although the specification allows this risk to follow a non-monotonic distribution. We also choose lognormal models here as they allow for the examination of survival times, and allow us to comment on the effects of covariates on the duration of stay, as opposed to the hazard of exit, as would be the case for Proportional Hazards Models. As there may be underlying unobserved differences that make residents in one site more similar to each other than residents in other sites, we also examine the effect of a parameter to account for this (frailty)[23]. The effects of different factors are expressed as time ratios – a time ratio above one indicates that the characteristic is associated with a longer stay in extra care relative to another, while a time ratio below one indicates that the factor is associated with a shorter stay in extra care.

The above methods describe the case for examining exits from extra care housing of any form, and form the basis for later analyses. However, in this chapter, our focus is on the notion of extra care housing as a home for life. A home for life in this case would be one where the effects of ill-health and functional decline are managed within the extra care setting, precluding the need to move for more institutionalised care. In this sense, a home for life is where a resident would expect die. For the purpose of this analysis, we treat those who move from extra care to other accommodation as censored (lost to follow up) – this population are likely to move for a variety of reasons, some of which may be related to health, although is likely to be diverse in motives[24]. Our focus then is either on moving to an institution or death. These can be interpreted as competing risks to extra care housing residents. If we were to apply the methods described above to analyse patterns of moving to an institution without accounting for death as a competing risk, this would be analogous to examining the risk of exiting to an institution when the risk of exit because of death does not exist. This latter situation is not practically meaningful; because of the actuarial nature of the Kaplan-Meier estimator, for example, failure to treat the risk of death and the risk of institution as competing risks in this case could lead to inflated estimates of the risk of institutionalisation (see Satagopan et al 2004 for an applied example). Therefore, in analysing patterns of residents moving to an institution, we present the results as cumulative incidence functions from competing risks models (using software developed by Coviello and Boggess 2004). The cumulative incidence function, which can

[23] However, we are unable to fully account for extra care site level frailty in later models comparing extra care outcomes with the community population in the BHPS. Furthermore, we are unable to account for this potential shared variance in later competing risks models.

[24] This population actually constitutes a small minority of moves. If we set a competing risk scenario of death, institutionalisation or moving elsewhere, by 5 years, the cumulative incidence of moving elsewhere would only reach 7.5%. Further research may disaggregate the motives for exiting. In terms of observed characteristics, this group had a similar gender balance although were more likely to be resident in courtyard schemes, to be in receipt of a care package, to be older and to be less likely to be part of a couple than those who remained within extra care housing in the observation period. However, the reverse was true when comparing with those who experienced death or a move to institutional accommodation, so that those who exited for another reason were less likely to be in courtyard developments, were more likely to have entered as part of a couple, were younger and were less likely to be in receipt of an additional care package than those who had died or moved to an institution within the observation time.

be interpreted as the probability of observing institutionalisation (or death) among those at risk of institutionalisation (or death) before a given point in time; typically, we examine the case of having experienced an event at 2, 5 and 10 years. To analyse patterns while accounting for several factors simultaneously, we employ competing risks regression. This method is similar to Cox's Proportional Hazards regression, although instead of modelling the effect of covariates on the hazard of experiencing an event, we model the relative effects of covariates on the hazard of the subdistribution for the failure event of interest (either death or moving to an institution), and present the results as sub-hazard ratios (see Fine & Gray 1999 for further methodological details). A sub-hazard ratio above one can be interpreted as the elevated hazard of having experienced a given event (death or institutionalisation) relative to another factor. A sub-hazard ratio below one shows a decreased hazard of having experienced a given event relative to another. The model is dependent on the assumption that the covariates act upon the subhazard distribution proportionally over the observation time – while there is no way currently of testing this assumption in a competing risks framework using our software of choice (STATA 11), we infer this from a non-competing risks Cox Model and adjust this where appropriate.

Propensity Score Matching

Finally, we also wish to make comparisons of our extra care housing sample with a suitable control group. To do so we use a sample from the British Household Panel Survey and use Propensity Score Matching (PSM) as a technique by which we match those in our extra care housing sample (our treatment group) with an individual in the BHPS who is the closest match (the control group). We use the 'nearest neighbour' method to form a matched control group, although with a very low caliper tolerance (an indicator of how close a match is to a control subject through which we only allow very close matches) to select suitable controls; see Guo et al (2006) and Ryan et al (2008) for more information on PSM and applied examples combining PSM with Event History Analysis. We then analyse the effect of extra care housing on the matched sample. More details on our matching procedure, and the variations we tested, are given in later in the chapter.

Methodological Issues and Limitations

PSM is usually applied in cases where a number of observed variables can be used to predict 'treatment' and ultimately construct a comparison group. In this analysis, we match only on gender, age, living as a couple, and year of observation. It is unusual to match upon such a small number of variables. To partially compensate for this, we use a very small caliper value of 0 or 0.01 (the tolerable threshold of difference in the propensity to receive treatment [move into extra care]). In addition, as explained later, we select specific members of the control group who share other characteristics that mirror the extra care housing experience. We match one BHPS control per extra care housing resident but randomly sort the control group first before matching. We avoid exact matching because we want to preserve as many extra care housing cases as possible in our sample, although inevitably, a large proportion of matches are exact matches nevertheless because of the limited range of characteristics used to match. Despite these cautions, PSM is often used as a basis for attempting to model selection processes into a treatment. In this analysis our use of PSM is more rudimentary and we use PSM to construct a treatment group that resembles our control group on the basis of socio-demographic characteristics. While this is a limitation of our strategy, it

should also be noted that this approach is novel in the literature examining the outcomes of those in extra care housing.

Results: How long do people stay in extra care?

The median length of stay for those in extra care housing using the pooled Extra Care Charitable Trust (ECCT) data was 6.5 years (table 8). Therefore, based on resident histories for those entering between 1995 and 2007 therefore, we would expect half of new residents to remain in extra care housing for over 6.5 years, and for half to exit before this time. Similarly, we would expect three-quarters of new residents to stay over 3 years, and for a quarter to exit before this date. This varies substantially by resident characteristics. Those who are older, or who have higher care needs, have shorter spells of residence in extra care housing. For example, those aged 50-64 years have a median length of stay of 12 years, while those who are in the oldest age group (85 years and above) have a median length of stay of less than 4 years. Those with no additional care needs[25] on commencing residence in extra care housing had a median stay of almost nine years while those in receipt of a high care package had a median time of 3 years (figure 7); there was also a large distinction in the experience of those in receipt of a low-level care package compared with those not in receipt of an additional care package. However, figure 7 also shows that just under a fifth of residents who enter extra care housing and don't receive an additional care package stay for up to fifteen years.

Reassuringly, there were no significant differences when examining the length of stay by the year in which the resident moved in, providing additional justification for our strategy of pooling the data. Perhaps unexpectedly, those who moved into extra care initially as part of a couple had significantly longer stays than those who moved as single person household. In addition, residents in village style developments had longer spells in extra care than those in courtyard style developments, a possible reflection of care needs. Many of the factors featured in table 8 are related to one another. For example, age and the care package people receive are likely to be confounded, with older people more likely to receive a higher level care package than younger people; similarly the effect of age and gender are likely to be confounded. In order to understand, for example, the effect of age on duration of residence, while holding constant the effect of care package, gender and other factors, we construct a lognormal accelerated failure time regression model.

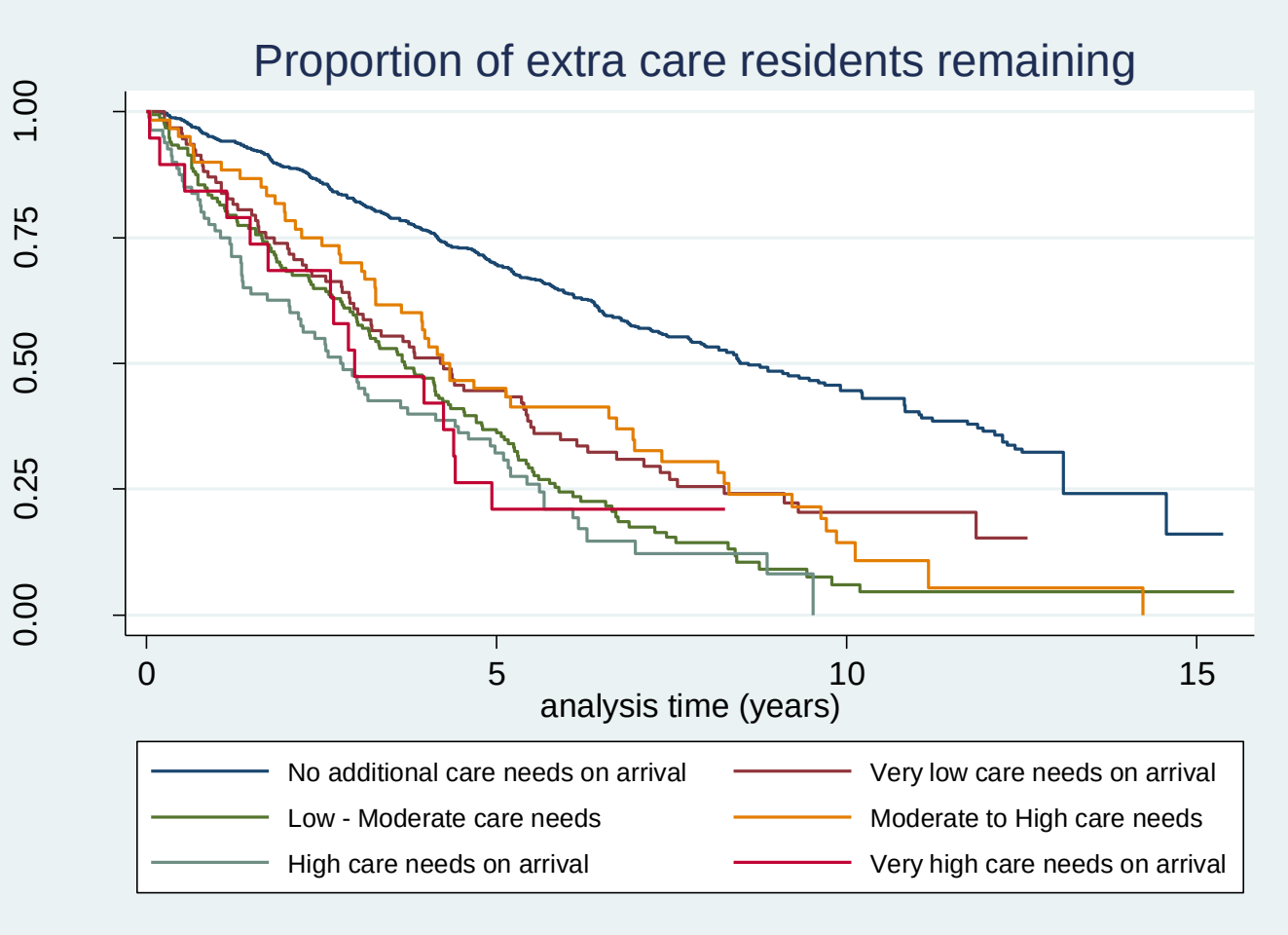
[25] We term this group no additional care need (support package) as opposed to no care needs because of the informal support that this group may receive in extra care – for example through purchasing meals or informal social contact, advice or assistance that they may receive as part of living in extra care. In addition, meals will be available to this group, as well as light housekeeping tasks.

Table 8: Median time (in years) until exit by selected characteristics

		Length of time until exit (all exits)	
		First quartile of exits (25%)	**Median (50%)**
All residents		3.1	6.5
Gender	Male	2.6	6.0
	Female	3.4	6.7
Health Status/Care Needs on Arrival	No additional support package	4.3	8.9
	Level 1 (very low package needs)	1.7	4.3
	Level 2 (low support package)	1.8	3.8
	Level 3 (moderate support package)	2.5	4.3
	Level 4 & 5 (high or very high support package)	1.2	3.0
Number in Household	Single Person Household	2.7	5.7
	Couple Household	3.9	9.3
Age Group	50-64	5.1	12.1
	65-69	4.9	-
	70-74	3.8	6.9
	75-79	2.6	7.4
	80-84	3.1	6.1
	85+	1.8	3.6
Year moved into Extra Care	1995-1998	2.8	6.4
	1999-2002	3.0	6.3
	2003-2007	3.3	-
Village or Court development	Court	3.0	5.7
	Village	3.1	6.8
N		**1,189**	**1,189**

Notes: Because of the small size of the group with very high support needs we collapse those with level 4 (high) and 5 (very high) into a single category. Dashes represent groups where the median or first quartile level has not been reached.

Figure 7: Results of Kaplan-Meier estimates of time to exiting ECCT housing (pooled sample)



Regression results

As described earlier, we construct a Lognormal Accelerated Failure Time model[26] to model the effect of the factors included in Table 5 on length of stay in extra care housing. We fitted a model with a term to control for site level unobserved heterogeneity, although the estimates suggested that this was at a negligible level, and we present the more parsimonious set of results below in table 5. The results show that the care package received on entry to extra care housing remained a significant predictor of length of stay after accounting for other observed characteristics. Those in receipt of any form of care package were predicted to stay in extra care housing for a between 50-70% shorter time than those who did not receive a form of additional care package on entry to extra care; for example the time ratio of 0.307 for a resident who entered on a Level 3 care package indicates that, controlling for other observed characteristics and relative to residents entering with no additional package, that the duration in extra care would be expected to be approximately 70% shorter ((1-0.307)*100). Female residents were associated with a longer length of residence in the

[26] We tested other AFT specifications, although inspection of the hazard and the AIC and BIC statistics of a range of models suggested the Lognormal was the best fit. Our choice of AFT as opposed to

region of 40% compared to male residents, while those who were older were associated with a shorter residence of around 3% per additional year of age on moving into extra care housing.

Unusually, those in villages actually had a predicted length of stay that was around 20% shorter in extra care housing compared to those in courtyard developments, once socio-demographic and care factors had been accounted for, a reversal of the earlier results presented in Table 4. This reversal in signs would suggest that these controlling factors (age, gender, care status on arrival and living arrangements) are quite efficient in capturing scheme-type differences[27]. Finally, the year in which the resident moved into extra care housing was significant in this model, with residents in developments constructed more recently having longer expected lengths of stay. When we investigate these latter findings further by replacing development (village or courtyard) and entry year variables with a variable simply reflecting site, we find that the Berryhill (village scheme, Stoke-on-Trent, opened 1998) and Ryfields (village scheme, Warrington, opened 2002) sites were associated with shorter resident stays relative to other sites after controlling for observed resident characteristics. A number of factors could underlie this trend – both sites were located in the top quintile of deprived areas in England, and were on the cusp of falling within the most deprived decile of areas in terms of health inequalities and disability - underlying health inequalities or a more socioeconomically deprived profile of residents could lead to shorter spells in extra care housing. The relatively small number of sites included in this study precludes further investigation of site level effects; however, the next section of the analysis examining the risk of death and moving into an institution as competing risks may illuminate the issue of extra care housing as a home for life further.

[27] This may explain the negligible site level heterogeneity discussed earlier.

Table 9: Lognormal Regression results for exit out of ECCT housing (pooled sample) Results displayed as Time Ratios with standard error in brackets (see text)

Resident characteristic	Time Ratio
Care Needs	
Baseline: No additional care needs	
Level 1 (very low package needs)	0.543*** (0.08)
Level 2 (low support package	0.415*** (0.05)
Level 3 (moderate support package)	0.532*** (0.09)
Level 4 & 5 (high or very high support package)	0.307*** (0.04)
Gender	
Baseline: Male	
Female	1.398*** (0.12)
Age	
Additional year	0.967*** (0.00)
Living Arrangements	
Baseline: Single Household	
Couple	1.186 (0.11)
Village or Court	
Baseline: Court	
Village	0.792* (0.08)
Move in date	
Baseline:1995-1998	
1999-2002	1.194 (0.13)
2003-2007	1.415** (0.16)
N	1188

Notes: $p<0.10. *p<0.05; **p<0.01

Audley data

We also analyse the pooled histories of 145 residents of Willicombe Park. The overall median duration in extra care housing was almost identical to the ECCT data at 6.5 years. Here, the median spell in extra care was almost twice as long for women at 9.2 years compared to men at 4.6 years – such a large gender differential was not observed in ECCT. Also, unlike ECCT development, living as a couple on entry was associated with a shorter spell compared to entering as a single household (5.8 compared to 7.8 years median time), although this is likely a reflection of the earlier gender differential. Age is also associated with a shorter spell in extra care housing, although residents aged 85 and over still experienced a median spell of over five years before exit (though either death or moving to an institution). We also replicated the regression model presented in table 5, and found that gender and age remained independent predictors of length of stay in extra care housing. Women remained at Audley around 80% longer than men, while each additional year of age was associated with an 8% reduction in the length of stay. Any comparison between Audley

and ECCT resident outcomes should be interpreted with caution due to the different social profile, data available and data collection methods in operation in the two companies. While the similarity in the median time of overall length of stay between both extra care housing providers is surprising, it should also be borne in mind that the Audley data represents a small sample size and may be distorted by some very frail people moving into extra care housing (see Chapter 4).

Results: Competing risk models for death and moving to an institution; can extra care housing be a home for life?

In Table 10 we present the results for the expected cumulative incidence at 5 years of moving to an institution with death as a competing risk, and vice-versa. Here, a move to an institution includes moving to a residential home, nursing home, hospital or hospice; however, most moves under this banner were either to a residential or nursing home. By five years, among the ECCT sample, we would expect the proportion to have moved into an institution to be around eight per cent of the total population. We would also expect the proportion to have died in extra care housing to be around three times higher than the proportion to have moved to an institution (25.2%). Even with the substantially longer observation time, the overall expected incidence of moving to an institution is also lower than is found in the literature (for example Phillips and Williams 2001). When we expand the model and examine the picture at ten years, the equivalent numbers are 13.6% expected to have moved to an institution and 46.5% expected to have died.

The cumulative incidence of moving to an institution was heavily patterned by a number of characteristics. While those in the oldest age group were the most likely to have experienced death (49.0%) or moved to an institution (12.7%), as might be expected, those in the highest care need group were the least likely to experience having to move to an institution (9.9%) and among the most likely to die in extra care housing (56.9%). While this group would usually require substantial amounts of care, and would be expected to be those most at risk of moving to an institution, the results suggest that this group may be among those who the notion of extra care housing being a ‘home for life’ would be most applicable. Conversely, those with low care needs (Level 2) were those most at risk of moving to institutional accommodation (17.5%), but were also at a relatively high risk of death (39.8%). In Figures 8 and 9, we show the results for the cumulative incidence of experiencing a move to an institution or death by selected age and care groups at 10 years. These results show that by 10 years, it would be unlikely that those who entered extra care aged 85 or above, or those who entered with high care needs, would remain; however, among both groups, death accounted for around four-fifths of exits. We investigate these results further through the construction of a competing risks regression model presented in table 11, where we show the relative magnitude of the factors contained in table 10.

Table 10: **Cumulative incidence of competing risks of moving to an institution or death by selectedcharacteristics at 5 years for pooled ECCT data (confidence intervals in brackets)**

		Risk 1: moving to an institution[$]	Risk 2: death[$$]
All residents		8.2% (6.7-9.9)	25.0% (22.4-27.5)
Gender	Male	6.4% (4.3-9.1)	30.6% (26.0-35.3)
	Female	9.1% (7.2-11.3)	22.0% (19.2-25.1)
Health Status/Care Needs on Arrival	No additional support package	5.5% (4.0-7.3)	16.8% (14.2-19.6)
	Level 1 (very low package needs)	12.8% (6.8-20.8)	29.6% (20.0-39.7)
	Level 2 (low support package)	17.5% (11.7-24.4)	39.8% (31.6-47.6)
	Level 3 (moderate support package)	11.9% (5.2-21.5)	41.0% (28.3-53,1)
	Level 4 & 5 (high or very high support package)	9.9% (4.9-17.1)	56.9% (46.1-66.3)
Number in Household	Single Person Household	9.7% (7.7-12.0)	28.7% (25.4-32.0)
	Couple Household	5.4% (3.5-7.9)	18.3% (14.7-22.2)
Age Group	50-64	6.8% (2.8-10.9)	10.2% (5.8-16.3)
	65-69	6.2% (3.1-11.0)	13.0% (8.2-19.1)
	70-74	6.0% (3.4-9.8)	18.2% (13.3-23.7)
	75-79	9.0% (5.8-13.0)	24.6% (19.4-30.2)
	80-84	8.0% (4.8-12.3)	27.2% (21.3-33.5)
	85+	12.7% (8.5-17.7)	49.0% (41.8-55.8)
Year moved into Extra Care[28]	1995-1998	7.0% (4.0-11.0)	27.1% (21.0-33.5)
	1999-2002	12.1% (9.4-15.2)	25.0% (21.2-29.0)
	2003-2007	4.6% (2.9-6.8)	24.1% (20.2-28.1)
Village or Court development	Court	9.2% (6.1-12.9)	29.0% (23.8-34.4)
	Village	7.9% (6.2-3.8)	23.7% (20.9-26.6)
N		**1,189**	**1,189**

Notes: Because of the small size of the group with very high support needs we collapse those with level 4 (high) and 5 (very high) into a single category. [$]Risk 1: Cumulative incidence of moving to an institution where death is a competing event; [$$]Risk 2: Cumulative incidence of death where moving to an institution is a competing event

[28] While the year of entry is presented in granular form here, in later matching analyses with the BHPS we match on exact year.

Figure 8:: Cumulative incidence of competing risks of moving to an institution or death for two age groups up to ten years - pooled ECCT data

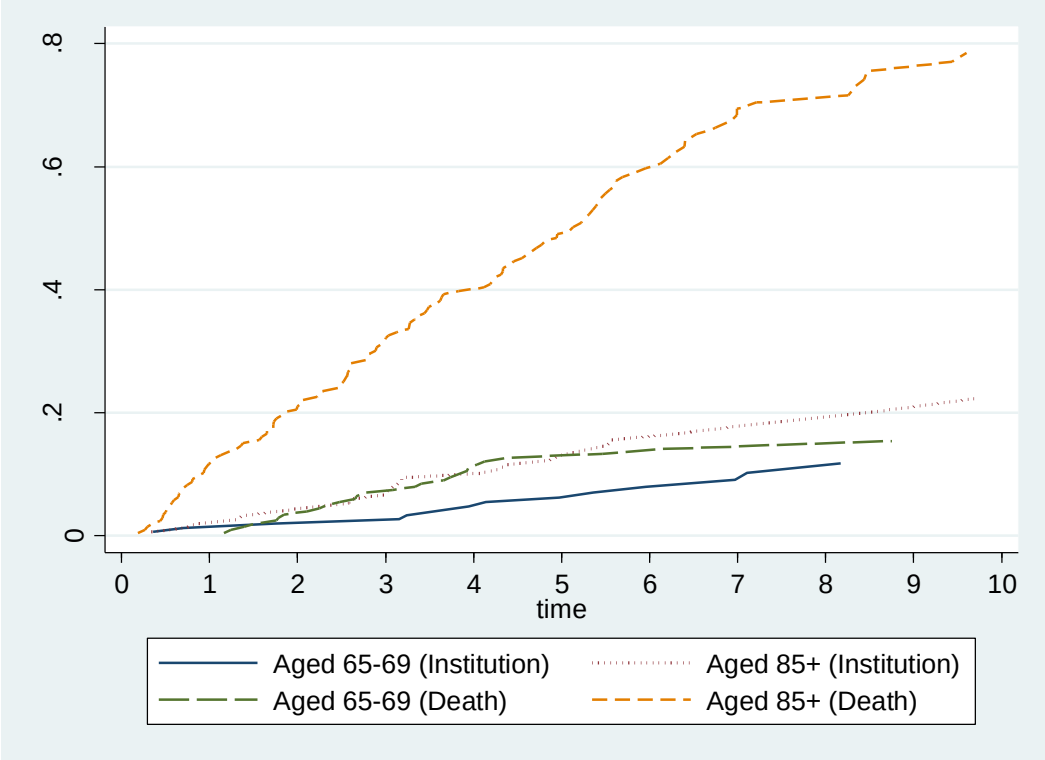
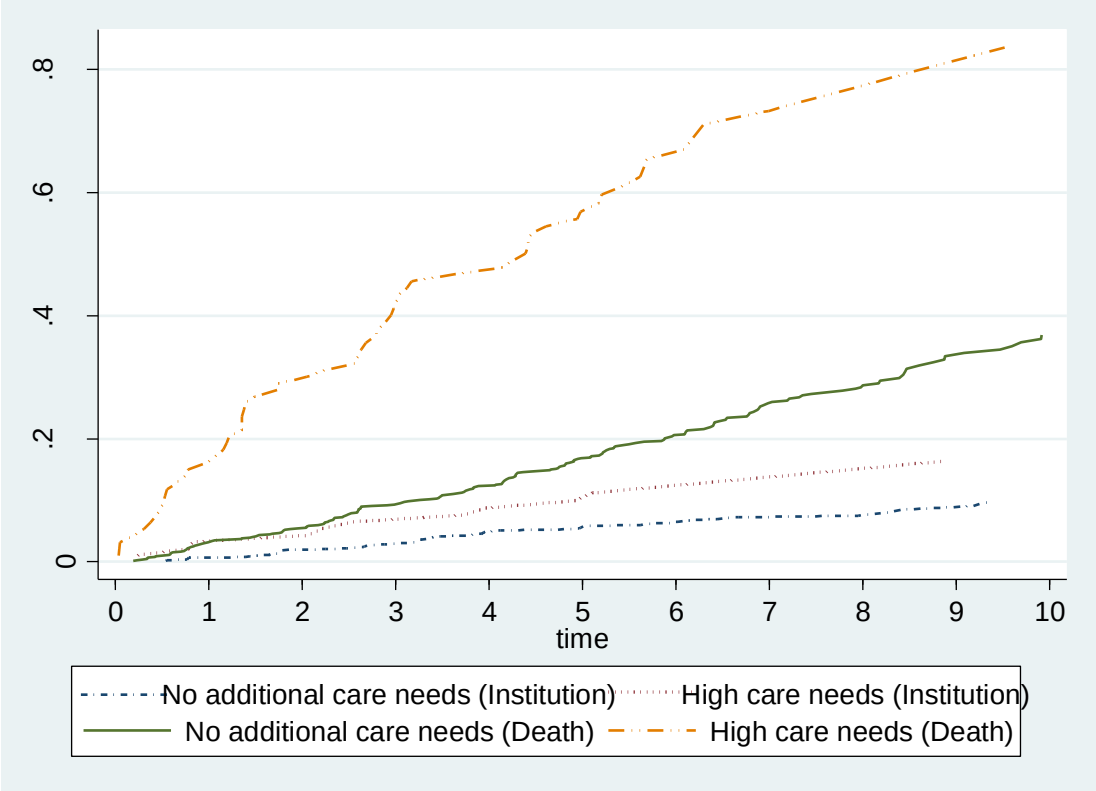


Figure 9: Cumulative incidence of competing risks of moving to an institution or death for two social care needs groups up to ten years - pooled ECCT data



When we examine the impact of the factors simultaneously on the cumulative incidence of moving out of extra care housing to an institution, we find that the care package that older people received on moving into extra care housing, as well as whether the resident moved into a village or courtyard development, were most significant in predicting movement. Table 11 displays the results as sub-hazard ratios, which differ in their interpretation compared to the results in table 9; these are interpreted as the relative probability of a resident with a particular characteristic leaving extra care housing and moving to an institution within the first five years, compared to a resident with a different characteristic. A sub-hazard ratio above one indicates that a resident is at increased risk of moving to an institution compared to a resident with another characteristic (set as the baseline); a sub-hazard ratio below one suggests that the resident is at a decreased risk. Table 11 shows that the probability of moving into an institution from extra care in the first five years of residence was over three times higher for those in receipt of a level 2 care package compared to residents who did not receive a care package, after accounting for other factors. As with the earlier results in table 10, those in receipt of a level 2 care package were those most at risk of moving to an institution.

Those in village schemes were also twice as likely to move into an institution compared to those in courtyard style developments after accounting for other factors. From these analyses, it is apparent that compositional differences in the care needs of residents accounted for the differences observed earlier in table 10, where those in village style developments had a lower incidence of moving to an institution. The year in which the resident moved into extra care housing was only weakly related to the risk of moving to an institution. It is noteworthy that age and gender were not significant predictors of having moved into an institution once other factors had been accounted for, for parsimony we remove the age term from the model presented in table 11[29]. We also tested the model for the hazard of moving to an institution up to ten years after entering extra care, and found similar results to table 11 (not shown). Overall, the results suggest that care package and type of development were most instrumental in predicting movement to an institution. We also tested an interaction term between these variables to examine if care package received exhibited a different pattern within villages compared to courtyards, although found no significant effect.

We also show the results for modelling the risk of dying in extra care (the sub-hazard ratio of death). Here, we see some expected results, with being male and being older both associated with an elevated risk of exiting extra care through death. Women were around half as likely to die in extra care in the first five years, while each additional year of age was associated with a 6% increased chance of death. The care package received on entry to extra care housing was also a significant predictor of the risk of death, with those receiving the most substantial care packages around four times as likely to die in the first five years compared to those receiving no additional care package. The type of development or the year in which the resident moved were not predictors of death, unlike movement into an institution.

[29] In removing the age term, we are also able to satisfy the proportional hazards assumption that is critical for the model.

Table 11: Results from competing risks model: Sub-hazard ratio of exiting extra care through moving to an institution and sub-hazard ratio of dying in extra care over first 5 years for pooled ECCT data (standard error in brackets)

Resident characteristic	Sub-hazard ratio of moving to an institution	Sub-hazard ratio of death
Care Needs		
Baseline: No additional care needs		
Level 1 (very low package needs)	2.464** (0.85)	1.400 (0.33)
Level 2 (low support package	3.244*** (0.88)	2.316*** (0.42)
Level 3 (moderate support package)	2.455* (1.06)	2.323*** (0.56)
Level 4 & 5 (high or very high support package)	1.969 (0.74)	3.980*** (0.74)
Gender		
Baseline: Male		
Female	1.249 (0.30)	0.512*** (0.07)
Living Arrangements		
Baseline: Single Household		
Couple	0.786 (0.21)	0.846 (0.13)
Village or Court		
Baseline: Court		
Village	2.031** (0.54)	1.319 (0.21)
Move in date		
Baseline:1995-1998		
1999-2002	1.873* (0.55)	0.803 (0.14)
2003-2007	0.607 (0.21)	0.741 (0.14)
Age (additional year)		1.060*** (0.01)
N	1188	1188

Notes: $p<0.10. *p<0.05; **p<0.01

The evidence from the model presented in table 11, as well as the cumulative incidence frequencies presented earlier in table 10, are strongly suggestive of extra care housing being a home for life for the majority. At five years, around a quarter of exits are predicted to be movements into an institution; at ten years this was closer to a fifth and represented only 14% of all extra care housing residents. This is encouraging evidence, and broadly supports the claims made by providers of extra care housing. However, table 11, above, also shows which residents are least likely to experience extra care housing as a home for life. In particular, while those in villages show no significant differences in the likelihood of exiting extra care through death, they are more likely than residents in courtyards to exit through movement to an institution. This could suggest that referral or assessment practices in assessing resident suitability and continuity differ between village and courtyard developments. It was also striking that those with moderate care needs are more likely to exit to an institution than those with substantial care needs. One explanation could be that those

with moderate care needs are those most likely to experience further diminution in functional ability and a further increase care needs – an issue we examine in Chapter 6. In the next section, we examine how the experience of extra care housing as home for life differs from the experience of living in the community for life.

Results: Is residence in extra care housing associated with a reduced risk of entering institutional accommodation?

Earlier in Chapter 3, we set out the case for examining the outcomes of extra care housing residents and comparing these with the outcomes of those living in the community. This was under the assumption that older people living in the community could closely resemble those in extra care housing in terms of living independently with or without a care package. Extra care housing is marketed as a home for life, where the majority of residents move from the community into extra care housing in the expectation that this would constitute a final housing move, or at least would preclude the need to move to more unpopular institutional accommodation at later date. Earlier results presented in this chapter have quantified the patterns for those residents in extra care housing – levels of movement into institutional accommodation were ostensibly low – and extra care housing did appear to constitute a home for life for the majority. However, in this section, we directly compare the results with those living in the community. We use data from the British Household Panel Survey (BHPS) to form a comparison group, and use the methods described earlier (including Propensity Score Matching (PSM)) to describe the differences.

Data from the British Household Panel Survey (BHPS): methods and considerations in creating a comparison group

In these analyses we utilise data from the BHPS in order to facilitate comparisons with our extra care housing data. To do this, we make a number of assumptions. To obtain a date of death, we examine the date of leaving the study where the reason given was death. In the absence of a valid month of death, we make the assumption that this occurred mid-way between the previous observed interview and the mean interview date for successful responses to the next sweep[30].

To establish the date on moving to an institution, we use two methods. Firstly, we examine those whose accommodation is classed as institutional accommodation, and use the date in which the respondent moved to this accommodation as the date of moving to an institution. Older people who enter institutions are traced and interviewed where possible, or basic information is obtained by proxy (see Scott et al 2001 and Evandrou et al 2001 for further information on the using BHPS data to trace moves into institutional accommodation). However, the BHPS does not usually include those in institutional accommodation in its initial sampling frame, such as residential and care homes, and a small number of those moving into institutional accommodation would be considered ineligible for interview and lost to follow-up. As such, for a smaller number of those who move to institutional accommodation, we impute a date of moving to an institution as being mid-way between the previous observed interview and the mean interview date for successful responses to the next

[30] This applied to a small subset of death dates – for example for the 2005 records, 6% were imputed in this way.

sweep.

In order to match extra care housing residents with a sample from the BHPS, we initially use age, gender, living arrangements (couple) and entry year; for the extra care housing sample, entry year would indicate the year of movement into extra care housing while for the BHPS sample, the entry year would indicate the beginning of the observation time. Initially, we adopt a strategy of creating duplicate observations in the BHPS (analogous to the pooling technique used by Evandrou et al 2001), so that for each successive year a panel member remains in the study, a new record is created. For example, if an 80 year old woman joined the BHPS in 2000 until she died in 2005, we create five records: one for an 80 year old woman with five years of follow-up; a second for an 81 year old woman beginning in 2001 with four years of follow-up; and so on. We adopt this strategy in order match the extra care sample on different follow-up periods. However, as we do not wish to include duplicates in our matches, which may induce bias through overly-influential observations, we randomly sort the duplicates across the dataset and then drop all but the 'first' randomly occurring duplicate record. A similar process actually takes place in the Propensity Score Matching using the nearest neighbour method, where in the presence of tied propensity scores, the dataset is randomly sorted and the first neighbour is selected as a control[31].

We explicitly drop those older people in the BHPS who live with their children (or children-in-law) to try to eliminate the possibility that these people are receiving formal or informal care from children in the home. Receipt of this type of care would likely influence transition to institutional accommodation and/or death. Despite this adjustment, those who are in the BHPS data may still be receiving care from a spouse or other family member, although this is equally a possibility for the extra care housing sample. We also attempted to match older people on the basis of region, although this resulted in too small a comparison sample being drawn, particularly when we narrowed the sample based on care criteria, and it was deemed more important to form an adequate match on the basis of socio-demographic and care criteria than on the basis region. In addition, we also considered selecting older people in the BHPS who suffered from poor health as a comparison group, although we deemed this strategy inappropriate due to the different ways of measuring illhealth between datasets, and due to the incompatibility of the measures of social care need in the ECCT data and health measures in the BHPS.

A further consideration is that these analyses are based on the assumption that the measurement of moving into an institution or death is similar between both datasets. However, this may not necessarily be the case. On the one hand, there may be more grounds to assume in a community based sample that the definition of institution is likely to be more diverse than is the case among the extra care housing sample and include, for example, movement into prison. This could lead to a slight overestimate of 'institutional' in the sense of moving to an institution delivering social or health care. On the other hand, there may more grounds in the BHPS data to suspect that movement into institutional accommodation may be underestimated, particularly if movement into an institution represents a relatively short spell before death. Equivalently, the death rate may represent an

[31] We do not include any weights for the BHPS data, as we are unable to replicate these weights in the extra care housing data. Therefore, our BHPS data and estimates do not reflect a representative picture of Great Britain or England per se, but a representative control group for the extra care housing sample.

overestimate for the purposes of this study, particularly if death was preceded by a short spell in an institution. However, there is also feasibly a greater risk in the BHPS data that death may also be misclassified as simply lost to follow-up. Finally, the latest sweep of BHPS data available at the time of conducting this research tracked respondents up to 2008/9, therefore both datasets are consistent in including new starts up to 2007, albeit with different follow-up times. As such, our analyses here focus on outcomes at 2 and 5 years. These factors represent caveats to the results, presented below.

Results: comparisons of extra care housing with a community sample

We apply propensity score matching (PSM) to match the extra care housing and BHPS samples using the nearest neighbour method with no replacement and a caliper value of zero. As we only match on a few observed variables, we randomly sort the data before undertaking the matching process[32]. We present a total of six different specifications for forming a comparison group reflective of hypothesised differences and similarities in the BHPS and extra care samples. Firstly, we match both datasets simply on age, gender, living arrangements and the year in which the follow-up period began[33] – once with the whole population aged 65 and above, again with the population aged 75 and above, and a third time with the population aged 80 and above. Next, because we know that movement into extra care, particularly using the ECCT sample, also corresponds to a movement into accommodation where meals and housekeeping services are available as standard (regardless of actual care package received, if one was received at all), we match the extra care sample with a community sample that was in receipt of light domiciliary care. This included those respondents who received any form of meals-on-wheels and home help (regardless of frequency). In doing so, we hope to match on a sample that resembles the conditions in extra care housing more closely – again we do this three times for the population aged 65 and above, 75 and above, and 80 and above[34]. The results are presented in table 12, as the sub-hazard ratio of moving to an institution with death as a competing event. Our results also feature an additional covariate for the effect of living in extra care housing compared to the BHPS.

[32] We also conducted sensitivity tests as to the stability of the results using the one-to-one matching method through testing a number of different seed values for randomly sorting the data – finding consistency across different variations. We tested a number of different variations of our matching strategy, including allowing for ties, although settled with the one-to-one nearest neighbour method because of the stability and consistency in the results we obtain. It should be noted that while this method matches on close matches, it will not necessarily produce exact matches.

[33] See earlier notes for exact methodology.

[34] We also attempted two further comparisons. Firstly, because we know that older people who move in later life are likely to move for a variety of reasons, some of which are likely to resemble motives for moving into extra care such as downsizing, freeing equity or moving to be closer to family or carers, we compare the outcomes of extra care residents with those who recently moved in the BHPS. We defined recently moved as moving within a year of the beginning of the follow-up period. We also tried this with the whole population aged 65 and above and a second time with the population aged 75 and above. Additionally, we replicated the strategies outlined above, but compared those in extra care with the small number in sheltered housing in the BHPS. In both cases, we were unable to form sample sizes of adequate size and representativeness and we do not present the results here.

Table 12: Results from competing risks model on matched sample: Sub-hazard ratio of exiting extra care through moving to an institution with death as a competing risk over first 2 years for pooled ECCT data and BHPS comparison (standard error in brackets)

	All community match sample			Domiciliary care match sample		
	Age 65+ Model 1	Age 75+ Model 2	Age 80+ Model 3	Age 65+ Model 4	Age 75+ Model 5	Age 80+ Model 6
Resident characteristic	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**
Model with sample status only						
Sample Baseline: BHPS						
Extra care housing	1.846$ (0.672)	1.208 (0.458)	0.896 (0.450)	0.769 (0.216)	0.537* (0.162)	0.322** (0.123)
Adjusted models						
Sample Baseline: BHPS						
Extra care housing	1.776 (0.659)	1.216 (0.471)	0.905 (0.463)	0.694 (0.207)	0.532* (0.167)	0.316** (0.121)
Gender Baseline: Male						
Female	1.149 (0.431)	1.064 (0.472)	1.1216 (0.776)	0.738 (0.244)	0.744* (0.281)	0.821 (0.431)
Living Arrangements Baseline: Single Household						
Couple	0.292 (0.144)	0.097* (0.102)	0.000** (0.000)	0.434 (0.180)	0.294* (0.174)	0.413 (0.305)
Age						
Each additional year	1.019 (0.017)	0.994 (0.031)	1.014 (0.050)	1.050 (0.018)	1.008 (0.027)	1.003 (0.044)
N	1714	1033	623	1630	1028	633

Notes: $p<0.10. *p<0.05; **p<0.01

When looking at a full community sample of all over 65 as a comparison group, those in extra care housing were more likely to exit into institutional accommodation than those in the community. This may be expected; those in extra care housing are more likely to have moved into extra care either because of deteriorating health, the anticipation of deteriorating health, or an unmet need in terms of receipt of assistance with daily household tasks. In fact, when using a general comparison group over the age of 65, those in extra care housing were over 65% more likely to move into institutional accommodation after five years than those in the community setting, although this effect attenuated to insignificance once we selected only those age 75 years or above. Given that two-thirds of residents within these data move into extra care aged 75 or above (see Chapter 4); this group would form the majority target market for the developers of extra care. However, even when imposing this age restriction, there is still motive to suspect that those in extra care housing differ from the community setting sample - certainly age, gender and living arrangements alone are not full predictors of residence in extra care housing.

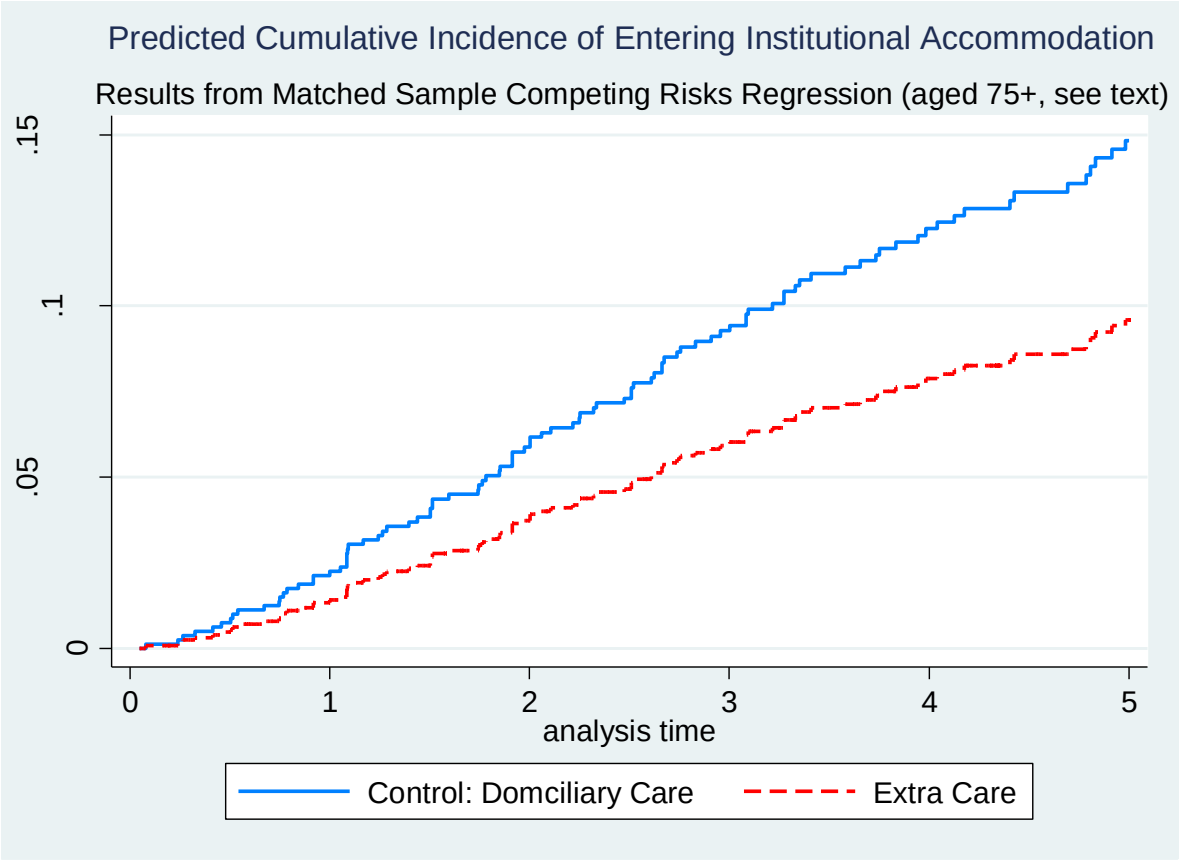
To partially address this issue, we select only those who are in receipt of light domiciliary care in the community, reflecting that meals and housekeeping services are generally available as standard in the ECCT extra care setting, regardless of the actual care package received. Compared to a sample of those over the age 65 in receipt of domiciliary care, the hazard of an extra care housing resident moving to an institution in the first two years was 23% lower (Table 12), and 14% lower in the first five years (Table 13), although neither effect was statistically significant. However, when we restrict our focus to those aged over 75 in the community receiving domiciliary care, we find a statically significant effect. Over the first two years, those in extra care are 47% less likely to experience a move into institutional accommodation relative to the matched community setting sample, and 35% less likely over the first five years; in figure 10, we show this graphically. The relative association of extra care in reducing movement into an institution appears to strengthen with advancing age. Among the population aged 80 and above, those in extra care housing were around half as likely to move into an institution compared to those in the community in receipt of domiciliary care after five years of observation, and almost 70% less likely to have moved into an institution at two years. We also investigate the trend for exiting extra care housing through death. Reassuringly, given that extra care makes no claim to enhancing longevity, there is no significant effect of living in extra care housing in reducing the predicted hazard of experiencing death in the first two or five years (not shown).

Table 13: Results from competing risks model on matched sample: Sub-hazard ratio of exiting extra care through moving to an institution with death as a competing risk over first 5 years for pooled ECCT data and BHPS comparison (standard error in brackets)

	All community match sample			Domiciliary care match sample		
	Age 65+ Model 1	Age 75+ Model 2	Age 80+ Model 3	Age 65+ Model 4	Age 75+ Model 5	Age 80+ Model 6
Resident characteristic	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**
Model with sample status only						
Sample Baseline: BHPS						
Extra care housing	1.780* (0.421)	1.021 (0.246)	0.809 (0.232)	0.859 (0.162)	0.646* (0.136)	0.508** (0.127)
Adjusted model						
Sample Baseline: BHPS						
Extra care housing	1.659* (0.401)	0.998 (0.242)	0.801 (0.231)	0.780 (0.153)	0.623* (0.135)	0.496** (0.124)
Gender Baseline: Male						
Female	1.356 (0.334)	1.206 (0.340)	1.588 (0.600)	1.078 (0.242)	1.096 (0.301)	1.347 (0.508)
Living Arrangements Baseline: Single Household						
Couple	0.572* (0.160)	0.597 (0.205)	0.552 (0.265)	0.590 (0.150)	0.570$ (0.188)	0.610 (0.270)
Age						
Each additional year	1.043** (0.137)	1.042 (0.019)	1.024 (0.027)	1.045 (0.012)	1.032$ (0.188)	1.007 (0.029)
N	1714	1033	623	1630	1028	633

Notes: $p<0.10. *p<0.05; **p<0.01

Figure 10: Predicted cumulative incidence of entering institutional accommodation; results from competing risks regression for those aged 75+ using those in BHPS receiving domiciliary care as a control. Pooled BHPS & ECCT data – see earlier text for notes on sample derivation.



We probe these results further. Earlier analyses that reveal: i) that the majority of those entering extra care do so without receiving a full care package; and ii) that there is a growing unmet need for domiciliary care such as meals-on-wheels and home-help in the community setting. With this in mind, it may be possible that the results in model 5 and 6 in tables 12 and 13, which compare the outcomes of all those in extra care with those in the community receiving domiciliary care constitutes something of a biased comparison. Those in the community who receive domiciliary care, in a climate of growing unmet need, may be naturally more susceptible of entering institutional care. In a final set of models, we compare those in extra care who enter extra care in receipt of an additional care package of Level 1 and above (approximately a third of new extra care residents) with those in the community setting receiving domiciliary care. Looking again at the population aged 75+ (model 2, table 14), at five years, the effect has attenuated once again, and there is no discernable effect. However, if we examine a slightly older population aged 80+ (model 3, table 14), the results suggest that for extra care residents in receipt of a care package on entry, those in extra care are around half as likely to move into an institution after five years compared to those in the BHPS in receipt of a domiciliary care[35]. This latter finding is also presented graphically in figure 11, which shows that the expected cumulative incidences of movement into an institution with death as

[35]This was also tested at 2 years. Although the effect was consistent, it was not statistically significant. We also replicated the results looking at death, with movement into an institution as a competing risk; no significant Extra Care effect was detected.

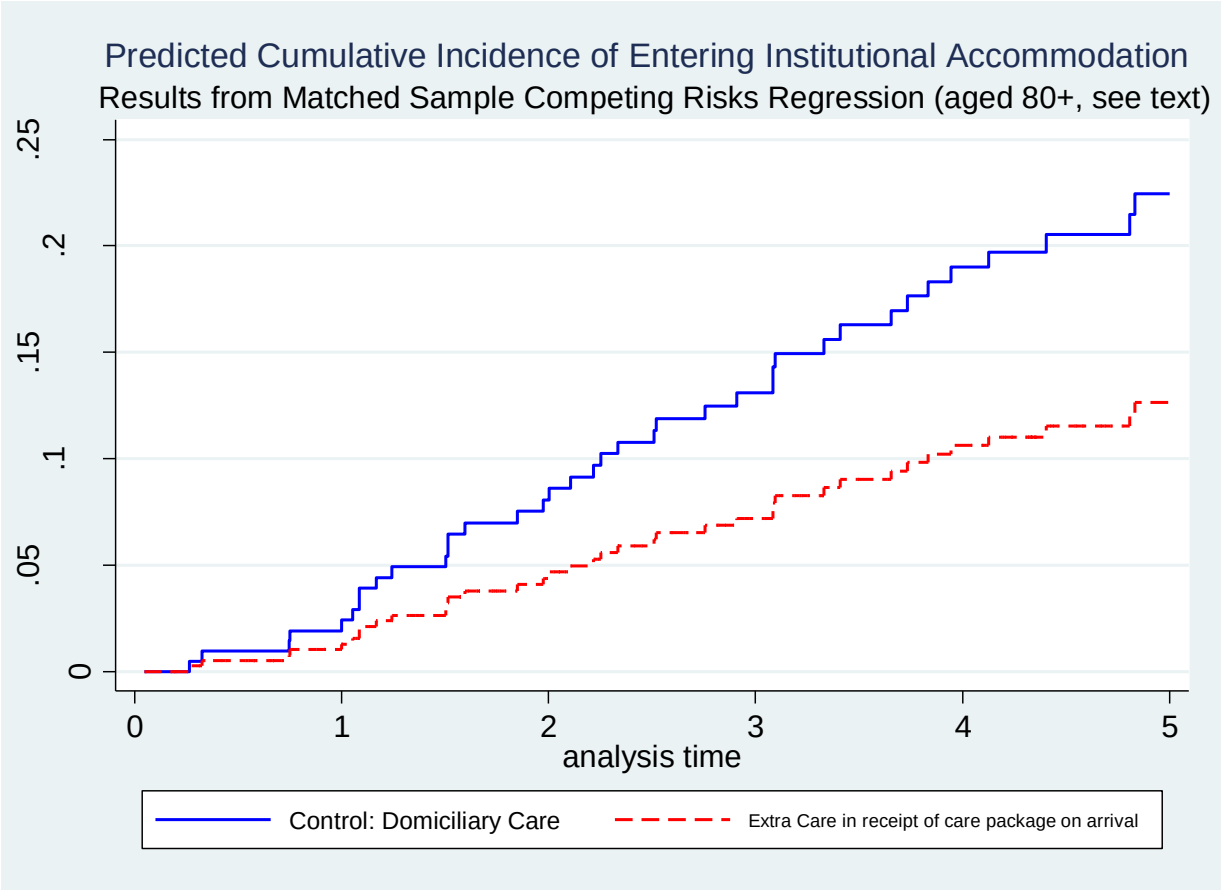
a competing risk. This shows that while the cumulative incidence of those in the community sample aged 80 and above expected to have entered institutional accommodation after five years stood at 22.5%, the equivalent numbers for the extra care sample stood at approximately 12.5%. In the following section, we discuss some of the limitations of our results before summarising their implications.

Table 14: Results from competing risks model on matched sample: Sub-hazard ratio of exiting extra care housing through moving to an institution with death as a competing risk over first 5 years for pooled ECCT data in receipt of a care package on entry to extra care and BHPS comparison sample (standard error in brackets)

	Domiciliary care match sample with sample in receipt of a care package in extra care		
	Age 65+ Model 1	**Age 75+ Model 2**	**Age 80+ Model 3**
Resident characteristic	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**	**Sub-hazard ratio of moving to an institution**
Model with sample status only			
Sample Baseline: BHPS			
Extra care housing	1.048 (0.273)	0.992 (0.298)	0.520* (0.171)
Adjusted model			
Sample Baseline: BHPS			
Extra care housing	0.997 (0.279)	1.005 (0.323)	0.532$ (0.181)
Gender Baseline: Male			
Female	1.020 (0.324)	1.034 (0.401)	1.000 (0.476)
Living Arrangements Baseline: Single Household			
Couple	0.808 (0.316)	1.023 (0.455)	0.870 (0.511)
Age			
Each additional year	1.022 (0.016)	0.993 (0.023)	0.980 (0.034)
N	535	436	306

Notes: $p<0.10. *p<0.05; **p<0.01

Figure 11: Predicted cumulative incidence of entering institutional accommodation; results from competing risks regression for those aged 80+ in receipt of care package on arrival using those in BHPS receiving domiciliary care as a control. Pooled BHPS & ECCT data – see earlier text for notes on sample derivation.



Limitations in comparisons of extra care housing with a community sample

We attempted to examine whether residence in extra care housing was associated with a decreased probability of entering institutional accommodation compared with living in the community. To do this, we examined data from the British Household Panel Survey (BHPS). We used propensity score matching (PSM) to form a comparison group. As we know that selection into extra care housing is likely to be non-random, and that the extra care housing sample will differ on a number of characteristics, use of the PSM should mean that we are able to form a comparison group that resembles the extra care housing group on these characteristics. We use age, gender, entry year and living arrangements as predictors of entering extra care housing, or not, and then match those with the same, or a very close, predicted probability of entering extra care housing with the community sample. Clearly, however, several other factors also influence the decision to move into extra care housing that are not captured by our predictor variables. As discussed earlier, matching on the basis of region resulted in too small a sample size that lacked statistical power to detect statistically significant differences, although the coefficients were of the same direction and magnitude. These unobserved characteristics do threaten the validity of our results and introduce the possibility of endogeneity in our results – our observed extra care 'effect' may still be the artefact of an unobserved characteristic shared by those in extra care that is not shared equally by those in

the BHPS. Earlier literature reviewed in Chapter 2 suggested some of the motives for moving into extra care housing revolved around the provision of independent housing with care. Our choice of a comparison group living in the community partially addresses the first of these motives. Refining our sample and comparison groups in terms of care received may partially address the second of these motives. While these are steps taken towards minimising concerns as the equity of our comparison groups, and establishing an extra care housing effect, the possibility that other unobserved characteristics may be responsible for the observed difference between the extra care and BHPS comparison group remains a caveat of these results. These unobserved characteristics could include socioeconomic status, which is likely to influence health and social care needs, which in turn could influence propensity to move to institutional accommodation. Given that ECCT clients are likely to cover a spectrum of socioeconomic backgrounds, it is not possible to comment on the direction of bias, if any, that this omission in matching could lead to. Underlying health status is also likely to be influential, and although we have two measures of health in both datasets, they were deemed incompatible in terms of measurement. Health is likely to be a key factor predicting movement to institutional accommodation, although the high number of residents who do not receive an additional care package on entry also makes commenting on the direction of bias, if any, that this omitted variable may cause challenging. Other factors, including motives for moving and how the stay in extra care housing is financed, are also likely to be lead to important (unobserved) differences between datasets, although were unavailable for this research; future research should seek to fill these omissions.

Further refinement based on recent moves, or comparisons with those in ordinary sheltered housing, were not possible because of the small comparison group sample size. We are therefore cautious in terms of attributing the results to the 'effect' of extra care housing per se. While we can make inferences that residence in extra care is associated with a decrease probability of moving to institutional accommodation among older people in receipt of some form of care compared to a sample matched on socio-demographic characteristics, this is only against the caveats set out above. Other limitations also apply, including our earlier discussion of potential differences in the method of measurement, although we speculated that those in the BHPS may be subject to the underreporting of movement into institution if this was followed by death a few months later; such underreporting would could mean that we actually underestimate the association between extra care housing and a reduced likelihood of moving to an institution[36]. Finally, as was the case earlier, the competing risks regression used here is dependent on the assumption that the relative hazard (of entering institutional accommodation) remains proportional throughout the observation period, and we infer this from examining the results in a non-competing risks Cox model.

Summary and Implications: Extra care housing as a 'home for life'?

In this chapter we examined the case for regarding extra care housing as a home for life. This was on the basis of two arguments associated with extra care housing:

[36] However, other studies do successfully use the BHPS to track movements into institutional accommodation (see Scott et al 2001, Evandrou et al 2001).

(i) Firstly developers of extra care housing often cite extra care housing as a home for life which precludes the need for later movements into institutional accommodation

(ii) Secondly, with reference to the above argument, within the extant body of literature, evidence from small scale studies exists which suggests that extra care housing is associated with improvements in health and social care needs. If this is the case, one way in which this could be reflected is in a lower likelihood of extra care housing residents becoming reliant on institutional accommodation.

In this chapter we quantified both arguments from two approaches. Firstly, we were interested in quantifying the patterns within extra care in terms of the likelihood of moving to institutional accommodation, and how this may vary by site or resident characteristics. Next, we were interested in comparing the extra care housing experience with the experience of older people who were also living in independent accommodation with care. To form this comparison group, we focussed on those in the community in receipt of domiciliary care of some form. However, we began through presenting analysis that quantified the time spent in extra care. Using data from the Extra Care Charitable Trust, we showed that the overall expected median time in extra care housing was around 6.5 years. This time varied substantially by age and care needs. Those with no care additional needs on entry to extra care housing, who reflect around two-thirds of the residents, stayed for a median time of 8.9 years.

Moving on to examine the issue of a home for life more explicitly, we find that after 5 years, we would expect around 8% of residents to have exited into institutional accommodation. The ratio of exits to institution and exits because of death at five years is around 1:3. At ten years, we would expect around 14% of residents to have exited to institutional accommodation, with the institution:death exit ratio standing at around 1:4. These results show that extra care housing is not a home for life for a minority of residents. However, these results present a stronger case for regarding extra care housing as a home for life than has previously been given in the literature (see Phillips & Williams 2001, Institute of Public Care 2007). Furthermore, the results in table 10 that disaggregate expected cumulative incidence are also significant in that they show that those in receipt of low-moderate social care packages (particularly level 2) are at particular risk of moving to institutional accommodation, but that those in receipt of high support packages are particularly likely to exit through death. This suggests that it is the change in care needs, as opposed to the level of care needs that is associated with exit to institutional accommodation – this is further investigated in the next chapter. However, this distinction suggests that those with high support needs on entry to extra care housing may be monetarily prepared and have established support networks both within and beyond the extra care housing setting to facilitate the role of extra care housing as a home for life. Changing and adapting to a new care package, on the other hand, may be more difficult once a resident is in place in the extra care setting. This may be an avenue for further enquiry. Other differences were also found between the type of development, with those in village schemes more likely to enter an institution than those in courtyard developments.

Despite the discussion above, when we examine whether the low rates of moving to institutional care for the extra care housing sample are lower than would be expected within the community setting, we find indications supporting this, albeit with a number of caveats. We find that if we

compare the outcomes of older extra care residents (aged 75+ and 80+) with those of a matched community sample in receipt of domiciliary care, that the probability movement to an institution within the first five years is between 37-50% lower for residents of extra care housing (50-70% over the first two years). This comparison is made under the assumption that the availability of meals and housekeeping services as standard within the extra care setting is a close match to receipt of meal-on-wheels and home help within the community setting. However, we investigate this further, based on the level of growing unmet need for domiciliary care identified in chapter 1[37], and the possibility that domiciliary care is only provided to those at greatest need which would mean that the observed results may be due to the underlying poorer health conditions of those in the community sample. To address this, we selected only those in extra care who received an additional care package on entry. The results hold for those aged 80 and above, with those in extra care around half as likely to enter an institution in the five years after entry compared to those in the community setting observed for the same amount of time.

Overall, these results suggest that extra care housing is a home for life for the majority, although there are certain groups where the evidence is stronger to support this assertion than others. Comparisons with a sample in a community setting suggest that the benefit of extra care housing as a home for life is most acutely observed among the oldest old – those aged 75 and particularly 80 and above who may otherwise live in the community in receipt of domiciliary care; although, these results should be considered in light of caveats outlined throughout this chapter, and we have hypothesised that these results could err towards a conservative estimate of the effect of extra care reflecting possible underreporting in our comparison data. Given that institutional accommodation can be considered unpopular and expensive (Wright et al 2010), the evidence presented here suggests that extra care housing presents an alternative housing option to those who wish to avoid residence in institutional accommodation, and in particular to those aged 75 and above in receipt of social care services in their own home. The circumvention of institutional accommodation can also have substantial fiscal implications for policy-makers, and we discuss this in our concluding chapter. The recent policy context against which these results should also be borne in mind: we have already presented evidence in Chapter 1 of a possible increase in unmet need in the receipt of domiciliary care, and the cuts outlined as part of the 2010 Spending Review effectively further threaten the continuation of these services for many people. However, cuts in the funding of social care may have implications for increased spending elsewhere. Our next two chapters outline some of the mechanisms that underlie the findings showing extra care as a home for life through examining health and health service usage. These results of this chapter and the following chapters implicitly suggest on a broad level that savings on social care funding may be offset by higher spending elsewhere. Policy approaches that examine housing, health care, and social care as issues in isolation should therefore be avoided.

[37] We are unaware if this growing unmet need for formal domiciliary care is being met instead by growing informal care provision.

Chapter 6: Health and care needs in later life among extra care housing residents

Chapter 6 Executive Summary

Description

This chapter examines the extent to which older people in extra care housing experience extra care as a healthy home for life. To do this, we examine changes in the social care needs of residents as a proxy for changes in health status. Additionally, we also examine the propensity of extra care housing residents to experience a fall, and question how this risk may differ compared to older people living in the community.

Rationale

We explore the theme of extra care housing as a healthy home for life as the literature presented in Chapter 2 presented a favourable picture of residence in extra care being associated with a deceleration in the diminution of functional capabilities usually associated with advancing age. In terms of falls, some of the facilities and services available to residents of extra care housing presented in Chapter 3 have also been linked with declines in the rates of falls when trialled in interventions. Consequently, we could expect residents of extra care housing to be less likely to experience a fall than older people who share the same characteristics and are resident in the community.

Data and Methods

We present data from two providers of extra care housing in the analyses presented in this chapter. To investigate extra care housing as a healthy home for life, as reflected in changes in the care package received, we use data from a large provider of extra care housing that includes longitudinal information on the residents of 1189 properties who moved into extra care between 1995 and 2007. We employ a competing risks framework to examine two sets of health transitions, with health related exits as competing risks. In this first set of analyses, we examine the first change in health and therefore treat an improvement and a decline in health as competing risks. In a second set of analyses, we examine the incidence of experiencing an improvement in health, regardless of whether this follows a previous decline in health; again this is measured by proxy through examining changes in the care package received. In the second part of the chapter, we progress to examine the likelihood of experiencing a fall in extra care housing using data from one scheme run by a second provider of extra care housing that specifically markets its homes to the luxury market. Finally, we employed a matching strategy to examine how the likelihood of falling within the extra care housing setting differs from those in a community based setting.

Findings

In terms of examining the first change in care package, extra care housing residents were more likely to first experience an increase in care needs, as opposed to a decline in care needs. However, we find that among those at ‘risk’ of experiencing an improvement in health, that 24% of

extra care housing residents experience an improvement over the first 5 years, measured by proxy through the care package received. This varied by site characteristics in particular, with those in larger village style schemes having a greater preponderance of experiencing a reduction in the care package received (improvement in health). We find evidence that compared to a population in receipt of care at home and who are also socioeconomically advantaged, those in extra care housing have a significantly lower level of falls than might be expected. While the fall rate in our extra care housing population stood at 31%, that of a similar advantaged population in receipt of care in the community stood at 49%. This latter finding is accompanied by several caveats.

Significance and Mechanisms

For providers of extra care housing, these results highlight potential differences in the way that care packages are assessed across different types of schemes. For policy-makers and residents alike, the results show the potential fiscal benefits that could result from a reduction in care needs with, for example, a movement from Low (Level 2) support needs to Very Low (Level 1) support needs equating to a potential saving of over £5,000 annually. However, we are unable to examine whether the patterns in changes in care package received in extra care housing mirrors the patterns in domiciliary care in the community, for example. Nevertheless, we hypothesise that there are reasons to suspect that positive changes in the care package received may be more likely to occur in the extra care housing setting, as opposed to elsewhere because of the flexible and adaptive nature of the care provided. Similarly, we also posit that the provision of group exercise classes and adaptations to the living environment could be one mechanism underlying differences in the propensity of residents to experience a fall. Within extra care housing, the significantly higher likelihood of men to experience a fall, resulting from a loss of balance, points to an obvious group for inclusion in any intervention aimed at reducing the level of falls.

Introduction

Bouncing back

An emerging body of evidence highlights some of the positive effects associated with residence in extra care housing on the health of older people. Bernard and colleagues (2007) cite anecdotal evidence where residents had moved from nursing homes in poor health, and had since improved considerably since beginning their residence; a review by the Institute of Public Care (2007) also cites literature that shares this standpoint. Later evidence by Garwood (2008a) supports this assertion, finding improvements in the care needs of residents that would not be expected within a residential care setting. This argument is also supported by Bäumker (2008), who associate residence in extra care housing with a deceleration in the health status of residents. However, the latter also attribute this effect to meeting the unmet care needs of residents. This could suggest that those in extra care housing may experience an increase in the care package received shortly after arrival in extra care, although will progress to experience a decrease in the intensity of the care package needed. In this chapter, we add to the evidence on the changing health of extra care housing residents through examining changes in the care package received as a proxy measure. In this sense, we are complement the approach taken in Chapter 5 which examined extra care as a home for life through examining the extent to which extra care can be considered a healthy home

for life. The implications of extra care housing being a healthy home for life are transparent in their effect on the quality of life of residents, as well as having large fiscal implications for residents and policy-makers. We examine this issue using data from the Extra Care Charitable Trust which includes data on 1,189 residents of extra care.

Falls and Extra care housing

Baumker et al (2008) and Garwood (2008) both find evidence that residence in extra care housing is associated with a deceleration in the decline associated with older age and the commensurate increase in social care needs. One way in which this may be expressed is through a decreased level of falls experienced by residents. Falls and falls related injuries contribute significantly to the burden of illhealth on older people (McClure et al 2005, Cameron et al 2010, Gillespie et al 2009). Falls are a direct cause of hip fractures, which along with stroke, cardiac disease and dementia are one of the main fiscal burdens on the health service (ILC-UK 2010). In the community, around 30% of those over the age of 65 fall each year (Gillespie et al 2009) – we find a similar proportion in our data (below). For those in the community, some of the most effective interventions aimed at reducing falls have been those aimed at improving the fitness, balance, flexibility and endurance – while the evidence for the efficacy of home adaptations in reducing the rate of falls is more ambiguous. Effective drug treatment management, treatment for depression, and the allocation of visual aids have also been shown to reduce the rates of falls among those at risk of adverse outcomes based on these risk factors (Gillespie 2009).

Within the extra care housing setting, we may expect the level of falls to stand at a reduced level relative to the community as those in extra care housing will reside in ergonomically adapted properties. Moreover, their properties will also be located on sites that are, to various levels, self-contained developments that include shops, communal leisure facilities such as restaurants and games rooms, as well as other essential services such as launderettes. This immediate environment will also be ergonomically designed with older people in mind and will feature, for example, tactile paving and the provision of rest areas. A growing body of evidence highlights how ergonomic adaptations made to the immediate neighbourhood can aid the mobility of older people (for example Burton and Torrington 2007) which in turn could help to reduce the fall rate; the evidence for within home adaptations in reducing falls is ambiguous (Gillespie 2009). Furthermore, programmes designed to help older people exercise and maintain their balance, including Tai Chi, are available to older people on most extra care housing schemes. However, there are also reasons to suspect that those in extra care housing may be more susceptible to falls. Choice of extra care housing may reflect concerns about mobility issues – a fall itself may precede entry into extra care – although, as has been discussed at length in earlier chapters, these selection effects are relatively unknown.

In terms of fall management, the incorporation of personal alarms in properties could reduce the severity of the consequences of a fall in extra care housing, relative to the community setting, as there is a greater likelihood of early treatment by care staff; however, the outcomes of those who experience falls are not analysed here. Instead, we focus on the level of falls. We describe patterns of falls in the extra care housing setting and in the community using data from the English Longitudinal Survey of Ageing (ELSA). Later, we attempt to form a comparison group and compare

the level of falls within extra care housing compared to the community, with any comparison subject to many of the caveats applicable to the results presented in Chapter 5. We first discuss the method used in this chapter in greater detail below.

Methods and Data

In this chapter we adopt several of the methods outlined earlier in Chapter 5 in order to examine the effect of extra care in deceleration of diminution of functional ability and increasing care needs. We use event history models, analogous to those used in Chapter 5, to examine the time until a change in care needs is reported. In this case, both death, movement into an institution and a change in care needs are competing risks – death and movement into an institution do not constitute uninformative censoring in this case as those who experience a decline in care needs are at greater risk of death and movement to an institution. In particular in the latter case, movement to an institution may proxy for a decline in care needs. As such, we adopt a competing risks framework, described earlier in the methods section of Chapter 5, in order to predict cumulative incidence of a change in care needs. In this case we examine a decline in health (increased care needs) and improvements in health (decreased care needs). These issues are examined using data from Extra Care Charitable Trust (ECCT), which provides longitudinal data on changing care needs since arrival of all original residents of ECCT schemes. Our assessment of care needs is based on a measurement tool developed by ECCT (see Chapter 3 for details). We also examine the propensity of extra care residents to experience a fall over the course of two years in 2008 using data from Audley. We progress to compare the level of falls in Audley with the expected level of falls in a community setting using comparison data from the English Longitudinal Survey of Ageing (ELSA) for the same period. To form an appropriate control group based on socio-demographic data, we use Propensity Score Matching (PSM: a method described earlier in Chapter 5), but make allowances for the socioeconomic composition of Audely residents through selecting those from the top two social classes in ELSA. Despite the use of a socioeconomically advantaged control group, other unobserved difference are likely to remain between the community and extra care housing samples – this caveat is discussed in greater detail as we present the results. Other information about the Audley and ECCT data is given in Chapters 3 and 4.

Results: Extra Care housing as a ‘Healthy Home for Life’

First change in care status

Initially, in our first model, we examine the propensity of first experiencing a decline or an improvement in care package. We use the receipt of care package here as a proxy for an objective measurement of health status. We treat first improvement (a reduction in care needed) or first decline as mutually exclusive competing events. We also treat health related movements – movement to institutional accommodation or death – as competing events as neither of these movements represent uninformative censoring in this model. As only those who enter extra care housing in receipt of some form of care package are eligible for an improvement in health, and those who are not in receipt of the highest care package are eligible for a decline in health status, we include only those in receipt of a Level 1 (Very Low) to Level 4 (High) care package in these

initial analyses. This produces a sample size of 370 residents. Of those included in our sample, the cumulative incidence of first experiencing an improvement in health status over the first five years stands at fifteen per cent, while the risk of first experiencing a decline in health status is over twice this level at almost a third (32.9%). In other words, among those who enter with Low-High care needs, over the first five years we would expect over twice as many to experience a decline in health (reflected in the care package received) compared to an improvement. This is patterned by resident characteristics, although none of these statistically significantly predict first change in health as specified by our model. However, the characteristics of the scheme do appear to predict first health movement. Those in schemes built at a later date (using the year in which the resident moved to the development as a proxy measurement) appear to be at almost equal risk of experiencing a decline or an improvement in health. This is a contrast to those resident in schemes built at an earlier time, particularly over 1999-2002, who appear to be at greatest risk of experiencing a decline in care needs. Similarly, those in courtyard developments appear to be at a low risk of experiencing an improvement in health, while among those resident in village style schemes, almost a quarter first experienced an improvement in health, as expressed by a decrease in care package, compared to over a third who experienced a decline; overall, those in the smaller courtyard schemes were more likely to exhibit stability in care needs than those in village style schemes.

We examine the differences in patterns of changing social care needs by scheme type in greater depth in the next section. In this next set of results, the focus changes from examining first improvement in health status to any improvement in health status. This latter distinction means that those who first exhibited a decline in care needs but subsequently experienced a partial or full recovery, or even an overall improvement, would be treated as having experienced an improvement in the same way as a resident who only exhibited an improvement in health. In this case, as we do not treat declines and improvements in the health of residents as mutually exclusive events, they are not recognised as ‘competing’ events, although health related exits remain a competing event. As those who enter extra care housing with no care needs and do not change this status before the end of the observation period or before exit are not at risk of an improvement, we exclude this group, leaving a sample of 630 residents.

Table 15: Cumulative incidence of first change in health status (improvement or decline) with health related exits as competing risks by selected characteristics at 5 years for pooled ECCT data (confidence intervals in brackets): Residents entering with Level 1 (Very Low) to Level 4 (High) care needs

		Risk 1: improvement in health (decrease in care needs)[$]	Risk 2: decline in health (increase in care needs)[$$]
All residents		15.1% (11.7-19.0)	32.9% (28.1-37.9)
Gender	Male	17.2% (10.8-24.7)	28.0% (19.9-36.7)
	Female	14.2% (10.3-18.9)	35.1% (29.2-41.0)
Health Status/Care Needs on Arrival	Level 1 (very low package needs)	12.4% (6.6-20.1)	47.1% (36.0-57.4)
	Level 2 (low support package)	20.3% (14.1-27.2)	34.1% (26.4-41.9)
	Level 3 (moderate support package)	11.9% (5.2-21.6)	32.3% (20.8-44.3)
	Level 4 (high support package)	10.8% (5.0-19.0)	15.0% (8.0-24.1)
Number in Household	Single Person Household	15.1% (11.4-19.4)	34.1% (28.8-39.4)
	Couple Household	14.9% (6.9-25.6)	25.6% (14.6%)
Age Group	50-64	15.0% (3.7-33.4)	5.0% (0.3-20.5)
	65-69	27.8% (13.1-44.7)	11.4% (2.9-26.4)
	70-74	14.8% (6.5-26.4)	28.7% (16.4-42.1)
	75-79	18.9% (11.0-28.5)	35.6% (24.8-46.5)
	80-84	15.8% (8.4-25.2)	30.6% (20.2-41.6)
	85+	9.7% (5.3-15.7)	43.4% (34.5-52.0)
Year moved into Extra Care	1995-1998	9.2% (3.7-17.7)	25.1% (15.2-36.3)
	1999-2002	10.4% (6.5-15.3)	37.8% (30.7-44.8)
	2003-2007	26.8% (19.0-35.2)	29.5% (21.4-38.1)
Village or Court development	Court	3.2% (1.2-6.8)	29.8% (22.8-37.1)
	Village	24.4% (18,8-30.6)	35.3% (28.8-42.0)
N			**370**

Notes: Because of the small size of the group with very high support needs we collapse those with level 4 (high) and 5 (very high) into a single category. [$]Risk 1: Cumulative incidence of first experiencing an improvement in health (increase in care needs) where a decline in health and health related movements out of extra care are competing events; [$$]Risk 2: Cumulative incidence of first experiencing an decline in health (increase in care needs) where an improvement in health and health related movements out of extra care are competing events

Any improvements in health

At five years, almost a quarter of the eligible sample[38] of Extra Care Charitable Trust residents experienced an improvement of some form in their health, as reflected in the reduction in the care package received. This is based on the predicted cumulative incidence at five years, with health related exits as a competing risk. Age, gender and living arrangements were not significant predictors of experiencing an improvement in health. However, care needs on arrival was a significant predictor of an improvement in care needs, with residents who arrived with no care needs

[38] The eligible sample here is all those at risk of experiencing an improvement in health as expressed by a reduction in social care package received. This includes those who enter with care needs, or who enter with no care needs but subsequently develop care needs.

most likely to experience an improvement in care needs (after first experiencing a decline). Almost a third of those who arrived with no care needs experienced an improvement in their health, having first experienced a decline. This could suggest that a relatively high proportion of extra care housing residents are able to recover after a health crisis; furthermore, this does not account for the substantial numbers who maintain their health status through entering with no care needs, as we are interested only in those who are at 'risk' of experiencing an improvement in their health in table 16 below. As with table 15 earlier, we note a number of scheme related trends – with those in the courtyard developments significantly less likely to experience an improvement in their health compared to those in village style schemes; similarly those who moved into extra care housing earlier were also less likely to experience an improvement in their social care needs.

Table 16: Cumulative incidence of <u>any</u> change in health status (improvement) with decline in health and health related exits as a competing risk by selected characteristics at 5 years for pooled ECCT data (confidence intervals in brackets)

		Risk: improvement in health (decrease in care needs)[$]
All residents		24.0% (20.6-27.5)
Gender	Male	25.7% (19.5-32.3)
	Female	23.8% (19.3-27.5)
Health Status/Care Needs on Arrival	No additional support package	30.8% (24.7-37.1)
	Level 1 (very low package needs)	16.3% (9.4-24.8)
	Level 2 (low support package)	26.0% (19.1-33.5)
	Level 3 (moderate support package)	15.3% (7.5-25.6)
	Level 4 & 5 (high or very high support package)	14.9% (7.9-24.0)
Number in Household	Single Person Household	23.4% (19.7-23.7)
	Couple Household	26.4% (18.8-34.6)
Age Group	50-64	16.3% (6.6-29.8)
	65-69	35.4% (21.5-49.7)
	70-74	30.2% (20.5-40.5)
	75-79	26.1% (18.9-33.9)
	80-84	21.7% (15.1-29.1)
	85+	19.9% (14.2-26.3)
Year moved into Extra Care	1995-1998	11.9% (6.7-18.7)
	1999-2002	20.5% (15.9-25.4)
	2003-2007	35.3% (28.8-42.0)
Village or Court development	Court	9.2% (5.8-13.7)
	Village	32.1% (27.4-36.8)
N		**603**

Notes: Because of the small size of the group with very high support needs we collapse those with level 4 (high) and 5 (very high) into a single category. Risk[$]: Cumulative incidence of experiencing an improvement in health (increase in care needs) regardless of previous health where health related movements out of extra care are competing events

We explore the effect of site and resident characteristics in greater depth in table 17, where we show the results of a competing risks regression model, expressed as sub-hazard ratios. These express the probability that a resident with one characteristic will experience an improvement in care need relative to the probability that a resident with a different characteristic will do so over the first five years[39]. Table 17 shows that residents at village schemes are almost four times (3.75) more likely to experience an improvement in social care needs than those in courtyard developments after controlling for resident characteristics. We run a separate model (not shown) that substitutes the style of scheme and the date in which the resident moved in with a covariate for the individual site, with other resident characteristics included. As expressed in Figure 12, we show that residents of Bushfield, a courtyard style development located in Wolverhampton are at a substantially lower 'risk' of experiencing an improvement in their health needs compared to those in Reeve Court, a large village style scheme located in St Helens, Merseyside. A number of factors are likely to account for this trend, including unobserved site level factors such as local health services or underlying health differences between residents that are not accounted for in the observed characteristics. An alternative explanation may lie in different record keeping procedures between sites, although explorations of residents experiencing declines in health suggest that this is unlikely. Finally, it would be unwise to regard residents in sites that exhibit low levels of improvement in social care packages as not experiencing any improvement or decline in health needs. The care package levels analysed here are likely to include a broad range of needs, and residents are likely to exhibit changes in care needs, although remain within the same range of care package received.

Nevertheless, despite these limitations, the contrast in the improvement in social care package offered between scheme types is significant and worthy of further qualitative investigation. Despite the propensity of residents in village schemes to experience an improvement in health expressed through a change in social care package, Chapter 5 earlier also showed that village residents were more likely to experience movements into institutional care. These two findings, at first, appear contradictory. However, earlier evidence in table 15, also showed that those in larger village developments were also at greater risk than those in smaller courtyard developments of experiencing a decline in health (increase in social care needs). Further investigation is needed to explore this issue in depth. However, the evidence ostensibly suggests that residents in larger village schemes are more likely to experience a change in health status, and that this change is more likely to result in movement into an institution than is the case for residents in smaller courtyard developments. This may not necessarily be a negative reflection of village schemes – village schemes may have a different process of assessing changes in care packages, and of appropriately dealing with these changes. Alternatively, those entering village schemes may have greater levels of unmet need which may become apparent; given that those entering courtyard schemes tend to have higher levels of additional support needs on entry, this may be a plausible explanation. A more robust account of the underlying mechanisms behind these differences may only be assessed through further qualitative investigations. Nevertheless, one overriding finding from these analyses is the observation that a relatively high proportion of residents who experience an improvement in care needs. Whether such improvement would be observed in domiciliary

[39] As earlier, we examine the proportional hazards assumption by proxy through a Cox's Proportional Hazards model.

packages received at home is unknown at this point and beyond the scope of these analyses[40]. Certainly, the provision of flexible care services and continuous interaction with the same care staff that takes place within the extra care housing setting is a transparent facilitator for reporting an improvement in care needs, and this is something that has been found to be lacking in recent investigations into domiciliary care (EHRC 2011).

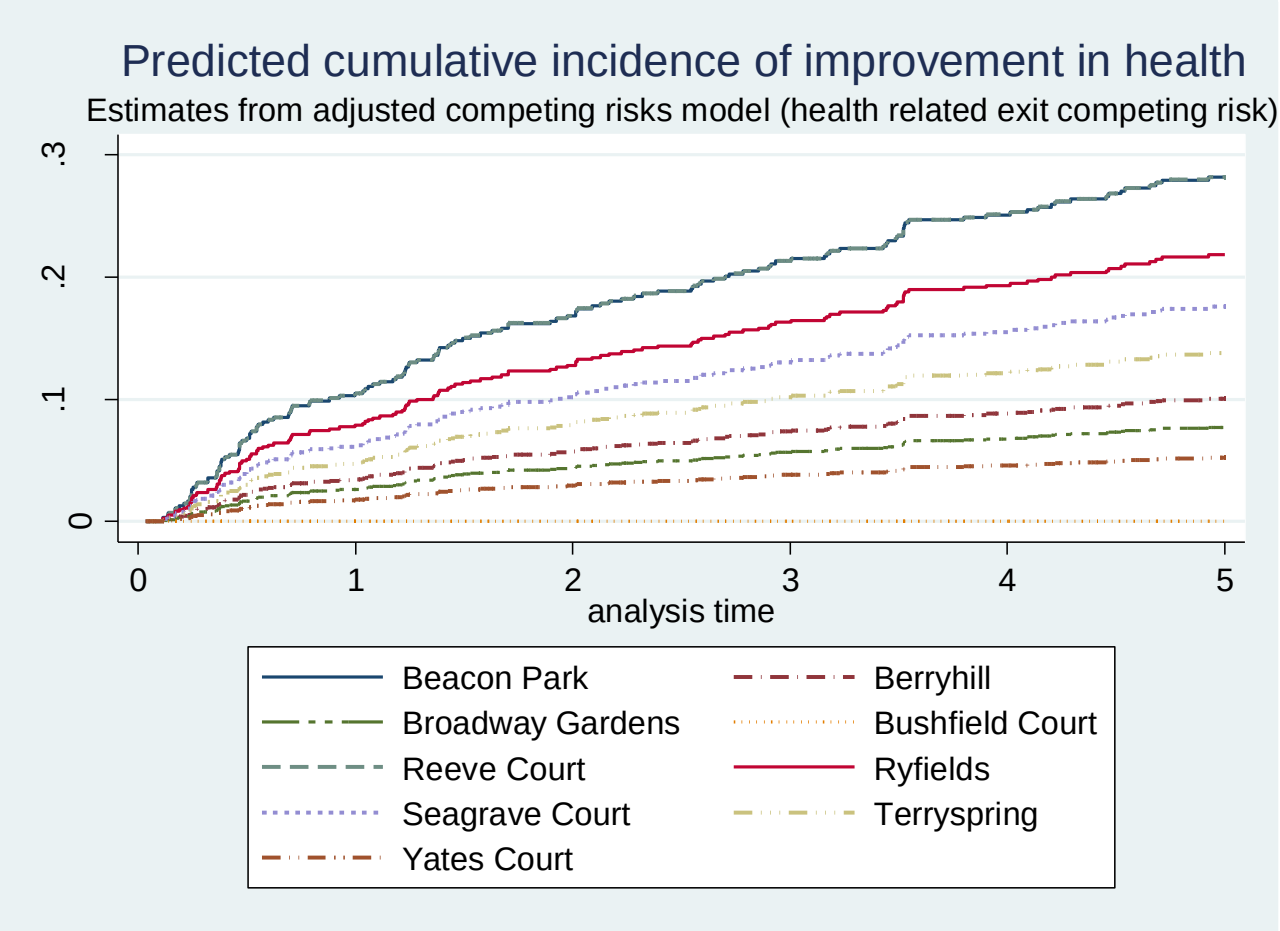
Table 17: Results from competing risks model: Sub-hazard ratio of experiencing an improvement in social care needs in extra care over first 5 years for pooled ECCT data (standard error in brackets), with health related exits as a competing risk

Resident characteristic	Sub-hazard ratio of experiencing improvement in health
Care Needs	
Baseline: No additional care needs	
Level 1 (very low package needs)	0.740
	(0.23)
Level 2 (low support package	1.046
	(0.23)
Level 3 (moderate support package)	0.681
	(0.25)
Level 4 (high support package)	0.495*
	(0.17)
Level 5 (very high support package)	0.583
	(0.27)
Gender	
Baseline: Male	
Female	0.905
	(0.17)
Living Arrangements	
Baseline: Single Household	
Couple	0.840
	(0.19)
Village or Court	
Baseline: Court	
Village	3.754***
	(1.01)
Move in date	
Baseline:1995-1998	
1999-2002	2.545**
	(0.84)
2003-2007	3.027***
	(0.97)
Age (additional year)	
N	630

Notes: $p<0.10. *p<0.05; **p<0.01 Risk 1: Sub-hazard of experiencing an improvement in health (increase in care needs) regardless of previous health where health related movements out of extra care are competing events

[40] We do not compare the results here with the community setting because of the differences in measurement instruments.

Figure 12: Predicted cumulative incidence of experiencing improvement in health over first 5 years by site; results from adjusted competing risks regression for pooled ECCT data with health related exit as a competing risk.



Results: Taking extra care to avoid falls

Earlier analyses showed that a number of extra care housing residents experienced a positive movement in terms of care needs: twenty-four per cent of residents experienced an improvement in care needs at some point within the first five years of residence. Improvements in health may also be expressed through a decline in the level of falls. We investigate this through measuring the level of falls occurring in 2008 within one site managed by Audley Retirement, and find that among a small sample of 63 residents (those resident for the whole of 2008), that 30% of residents experienced a fall within this period. Of those who experienced a fall in this period, over half fell once, with the remainder falling between twice and nine times (Table 18). Accident records showed that falls were typically caused by a loss of balance. For example, some those who had fallen were recorded as having “lost balance while turning around to talk to someone” or “lost balance while picking up a remote control”. Some of those with a high frequency of experiencing a fall also had underlying conditions, including alcoholism, that were known to staff an attributed as the direct cause.

Half of men had fallen at least once within the year compared to a quarter of women[41]. As would be expected, older people were more likely to fall than younger (38% of those aged 85 and above compared to 25% of those under 35). When we construct a logistic regression model (not shown) predicting the odds of experiencing a fall versus not for Audley residents in 2008 using age, gender, and living arrangements as predictors, we find that the effect of gender remains borderline statistically significant ($p<0.07$): men were over 3.5 times (Odds ratio: 3.78) more likely to experience a fall than women after accounting for age and living arrangements.

Table 18: Number of falls among Audley residents 2008

Number of falls	Number of residents	Percentage
0	44	69.8%
1	11	17.5%
2	3	4.8%
3	2	3.2%
6	1	1.6%
7	1	1.6%
9	1	1.6%
Total	63	100.0%

Extra care housing and fewer falls?

When we examine the number of falls among those living in the community and aged over 65 using data from the English Longitudinal Survey of Ageing (ELSA) and excluding the small number of respondents in care home settings, we find that 28.5% of respondents reported a fall of some sort in the previous year[42]. This is comparable to the extra care housing results presented above. We also match the small number of extra care housing residents with a comparison group in the community based on age, gender and living arrangements. We do this through propensity score matching (PSM), on a one-to-one no replacement specification[43]. We match the extra care housing sample to four comparison groups based on our pre-existing knowledge of the extra care housing sample. Firstly we match to the community simply based on age, gender and living arrangement. Here we see that the proportion of falls in the community sample is very similar to the extra care sample. When we restrict the community sample to include only those in the top 30% based on income, we find that a non-significant difference emerges, with the proportion of falls in the community sample reaching 44.3% compared to 31.1% in the extra care housing sample. We select those in the most advantaged groups based on the descriptions of the providers outlined in Chapter 3, which highlighted Audley's strategy of marketing its homes as a 'luxury' brand. When we probe the comparison sample further and restrict this to include only those in receipt of domiciliary care and

[41] Despite the small sample size, this was a borderline statistically significant difference ($p<0.10$).
[42] Weighted with wave 4 cross-sectional weight. Matched analysis does not use sample weights but does use weights from the PSM procedure.
[43] Before running the PSM, we randomly sorted the data. We also run PSM allowing for ties, and obtain similar results.

who are within the top 30% of the population based on income, we find that the level of falls within the matched sample reaches 49.2%, which is statistically significantly higher than the extra care housing sample. Our definition of care needs includes those who report receiving any form of assistance, whether formal or informal, in carrying out the activities of daily living.

Table 19: Comparison in level of falls between extra care housing residents and comparison data using ELSA (see text for further detail)

	Proportion of falls in extra care	Proportion of falls in community sample	T-statistic
PSM 1: Whole sample match	31.1%	32.2%	-0.19
PSM 2: Top 30% income decile sample	31.1%	44.3%	-1.50
PSM 3: Receipt of care sample	31.1%	49.2%	-2.05*
PSM 4: Top 30% income decile and in receipt of care sample	31.1%	49.2%	-2.05*

Notes: $p<0.10. *p<0.05; **p<0.01

While these results do show a significant difference in the level of falls between the extra care housing and community sample, a number of other factors may also explain these trends, and the difference cannot be attributed to living in extra care housing alone. For example, differences in geographical area, unobserved health characteristics, or reporting procedures may account for the difference. For example, we know that falls are self-reported in ELSA, but are collected through accident records in the extra care housing sample. Furthermore, records of falls in the extra care housing sample are based only on falls occurring within the home or immediate neighbourhood, although for the ELSA sample will include falls occurring outside the immediate neighbourhood. Conversely, we may expect that reports of falls in the extra care housing sample may be higher due to the absence of recall error, which may bias the ELSA sample. Despite these caveats, the observed differences do indicate that based on age, gender and living arrangements alone, that the level of falls within extra care housing does appear to be lower than may be expected in the community. Possible underlying mechanisms that may account for these trends may be the organisation of group exercise activities and age friendly homes and immediate neighbourhoods in the extra care housing environment, which will be available on a more haphazard basis in the community sample. These results are suggestive of a positive effect, although further work is needed to understand whether the differences can be attributed to living in extra care housing alone.

Summary and Discussion

In this chapter we present evidence on extra care housing as a healthy home for life. We find evidence that compared to a population in receipt of care at home and who are also socioeconomically advantaged, those in extra care housing have a significantly lower level of falls than might be expected. While the fall rate in our extra care housing population stood at 31%, that of a similar advantaged population in receipt of care in the community stood at 49%. This conclusion is accompanied by several underlying caveats, and we are careful not to overstate the effect of extra care housing. However, the services offered as standard in extra care housing including group exercise classes and mobility adaptations, which may only be offered at best on a haphazard basis in the community, would support the plausibility of this finding. Within the extra care housing sample, the significantly higher likelihood of men to experience a fall, resulting from a loss of balance, points to an obvious group for inclusion in any intervention aimed at reducing the level of falls. In particular, interventions aimed at improving flexibility, fitness and balance are likely to be met with success (see Gillespie et al 2009).

Furthermore, we find that a significant proportion of those who enter extra care housing with care needs, or those who enter with no care needs but subsequently experience a decline in health, will go on to experience an improvement in their health corresponding to a reduction in the care package received. For residents and policy makers, a positive movement in terms of care needs can equate to a substantial saving. Using the costs of a typical scheme in the Extra Care Charitable Trust (and one included in these analyses), even a moderate movement from a Level 4 support package to a Level 3 support package can equate to an annual saving of £3,572.92 for privately funded residents should this positive movement last for a year. Of particular relevance for policy-makers, where a block amount is charged for care provided at Levels 2-5, we find that 26% of those who enter on a Level 2 support package experience a decrease in care needs within 5 years. This equates to a potential annual saving for residents who rely on social services contributions, and who move from a Level 2 to a Level 1 care package, of £5,432.60[44]. However, we also find that in terms of first health change, residents are at a greater risk of experiencing a decline rather than an improvement in health as expressed by care package, with the ratio of those first experiencing a decline relative to an improvement standing at around 2:1 within the first five years (although a substantial proportion also experience no change).

While the evidence here is partially supportive of the notion of extra care housing being a healthy home for life, it does open a set of questions for both policy-makers and providers to address in thinking about future social care planning. While the analysis here on changes in care packages does suggest substantial benefits for a number of clients, both in fiscal terms and in terms of implications on quality of life, we are unable to comment here on whether such changes are observed and expected for clients living in the community. This is mainly because we are unable to apply the criteria used in measurement tool for care package to community setting data. In addition, we are also unable to comment on whether similar changes could be observed among those in other settings such as care homes or sheltered housing – the small number of studies that have

[44] Based on costs for Broadway Gardens as of April 2011.

examined these questions tend to suggest that this effect is especially prominent in the extra care housing setting. For policy-makers, there exists a need to understand some of these trends in the community setting, which will only follow from the provision of increased funding for research. However, the extant programme of continuous and flexible adaptations to a client's care needs in extra care housing, delivered by a stable team of care staff, is a plausible mechanism for explaining why we would expect the trends in terms of health improvement to be most prominent among residents of extra care housing. The results also pose questions for developers of extra care housing, which again can only be addressed through further research. In particular, the differences in the way in which care packages change among residents of village style schemes compared to courtyard schemes is a noticeable difference in our results. Residents in smaller courtyard style developments are more likely to report stability in care needs, while those in larger village style developments are likely to experience a change in care needs, and are also more likely to report movement into institutional accommodation; however, this distinction may be explained by unobserved resident characteristics as opposed to true scheme-type differences. For developers of extra care, further research should unpack the mechanisms behind these differences. We discuss these results in greater detail in our final chapter.

Chapter 7: Taking extra care but taking less hospital beds?

Chapter 7 Executive Summary

Description

This chapter examines the relationship between residence in extra care housing and the incidence of inpatient (overnight) stays in hospital. Here, we present information on the incidence of overnight hospital admissions, the factors that moderate the incidence and length of stay in hospital among extra care housing residents, and the way that the use of overnight hospital beds may vary between the extra care housing population and the general community population.

Rationale

We explore the theme of incidence of inpatient stays because of the evidence presented in chapter 2 that suggested residence in extra care housing was associated with a deceleration in the diminution of functional capabilities that help older people retain independence. Evidence presented in chapters 5 and 6 of this report also lends weight to this argument, through presenting data on the length by which older people retain their care status, that suggested not only was extra care housing a ‘home for life’ but was also a ‘healthy home for life’ for the majority. One outcome of maintaining good health status we would expect is a lower reliance on hospital beds overnight.

Data and Methods

We present data from a large provider of extra care housing that includes longitudinal information on the residents of between 1400-1600 properties collected as part of an annual census between the years 2002-2010. Within these data, information on overnight hospitalisations as well as other characteristics is collected. We attempt to model this data testing a number of specifications before selecting a zero-inflated negative binomial model. We explore multilevel modelling to examine shared variance between extra care home site. Finally, as with previous chapters we move to compare the outcomes of those resident in extra care housing with those resident in the community population, although outline several caveats to this comparison.

Findings

We find that the incidence of extra care housing residents occupying hospital beds stood at an estimated 5.5 nights per year of residence in extra care housing in pooled data. A number of factors moderated this pattern –older residents were likely to have elevated rates of overnight hospitalisation. We also found that hospitalisation overnight differed significantly by receipt of Attendance Allowance; with those in receipt of Attendance Allowance being at higher risk of inpatient stays as well as among those who are predicted to experience overnight hospitalisation, a longer length of stay. Against a number of caveats, we present evidence that suggests that residence in extra care housing is associated with a reduced level of expected nights spent in hospital than may be expected in an equivalent population living in the community, matched on demographic and selected socioeconomic characteristics. However, the differences are attributable

to a lower propensity of being confined to hospital initially, and not through necessarily through shorter lengths of stay. In fact, when admitted, we find that those in extra care housing are more likely to stay for longer than those matched on observed characteristics living in the community. However, while we are able to say with a certain degree of certainty that those in extra care were less likely to be admitted to hospital than those in the community, we also present the argument that individuals with protracted stays in hospital were less likely to participate in the survey in our comparison data, and our finding on longer stays in hospital for extra care housing residents should be interpreted with a certain degree of caution.

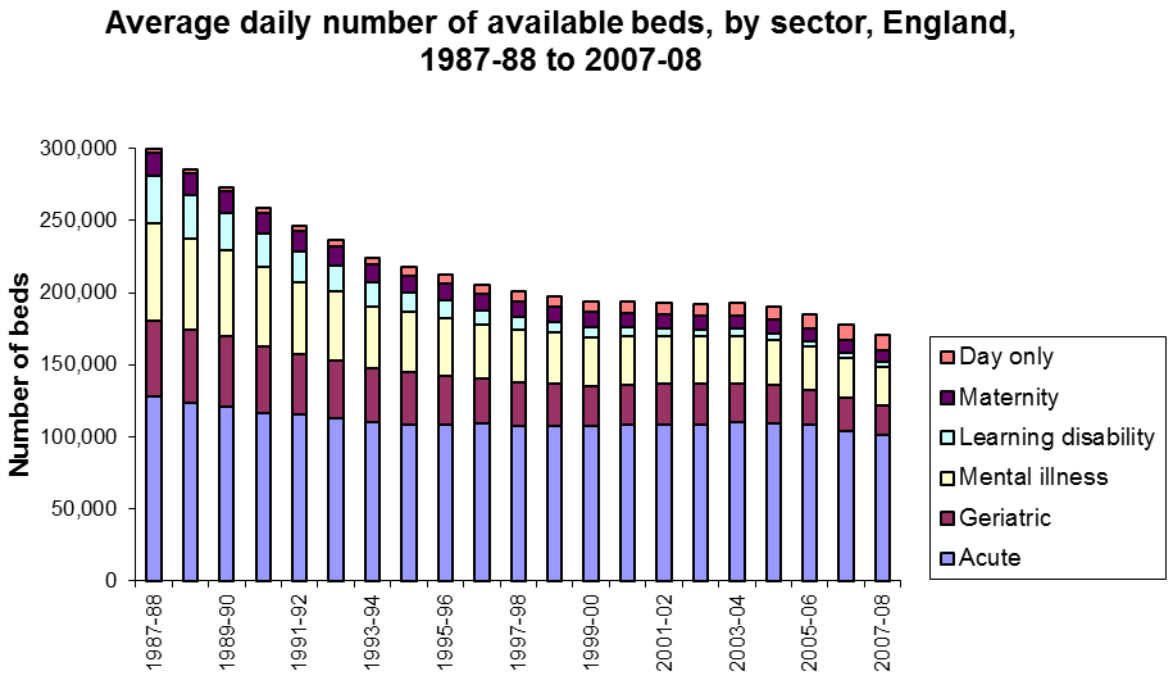
Significance and Mechanisms

We posit that the underlying mechanism behind this effect to be that those in extra care housing are only admitted overnight to hospital for serious conditions, and may be treated as outpatients for less serious conditions, whereas those in the community may be more likely to be admitted overnight and not discharged for minor procedures. Based on the national average cost of inpatient elderly hospital attendances (see Curtis 2010) our findings could equate to a potential saving of up to £512 from hospital budgets per person per year in some cases. Although it is important to note that further research is needed to establish this effect more concretely. We identify some of the mechanisms that may explain these findings to include the greater surveillance and prevention offered as part of formal and informal social care within the extra care housing setting. The ergonomic adaptations included in extra care housing schemes may also prevent accidents and falls which may also reduce levels of hospitalisation.

Introduction

In Chapter 2, we presented evidence from the literature that suggested that those in extra care housing had better health and social care outcomes after entry than before. Bäumker and colleagues (2008) concluded that residence in one extra care scheme was associated with improved social care outcomes and a reduction in health service usage, and in particular a reduction in nursing consultations and hospital inpatient stays. Garwood (2008a) supports this assertion, finding improvements in the care needs of residents that would not be expected within a residential care setting, although did not explore hospitalisation rates per se. In this chapter, we explore levels of overnight hospitalisation episodes across 32 sites over a 9 year period using data from Retirement Security which includes information on 2,600 individuals. As in earlier chapters, we form a comparison group based on a population of older people living in the community. This analysis represents one of the first analyses to take this approach and to investigate levels of hospitalisations among such a large longitudinal sample.

Figure 13: NHS hospital beds available by specialisation 1987-2008 (taken from Department of Health (2009))



Earlier analyses in Chapter 1 suggested that levels of domiciliary care for older people living with limiting health conditions had declined in recent years. This mirrors a wider trend of a decline in recent years of specialist hospital beds available for older people for carrying out routine geriatric medicine. While the average number of daily beds available for all types of medicine has declined since the later 80s; with the exception of hospital beds available for people with learning difficulties, this decline has been most precipitous for geriatric medicine. From1987-2008 the number of available beds for geriatric medicine declined by 61% and even in the 8 years from 2000-2008, the number declined by 25%. Such declines, in light of the population ageing described in Chapter 1, inevitably put pressure on health care services. This has been compounded by the utilisation of hospital beds by older people whose needs are best served through social care services, so called bed blocking. Improving social care services has been variously found to be associated with a reduction in hospitalisation costs, with a transfer of resources away from hospitals to social care for older people found to have substantial fiscal benefits (for example Forder 2009). Part of this transfer may explain the decline in available hospital beds for geriatric medicine observed in Figure 13. Theoretically extra care housing may also help to alleviate pressure on hospitals and reduce bed occupancy rates compared to living in the community in three ways:

(i) Firstly, the ergonomic adaptations and group exercise classes within extra care may facilitate the mobility of older people. In turn, this could reduce their propensity to experience falls requiring hospitalisation, evidence for which was presented in Chapter 6.

(ii) Secondly, through providing flexible care and essentially a continuous surveillance on the health and wellbeing of older people, emerging health care issues may be identified early on and treated before needing hospitalisation. The presence of Well-being Advisers, responsible for health promotion, prevention and assessment activities, also assists older people to maintain and improve their health. Furthermore, non-communicable diseases such as diabetes may be better managed by

a known and regular team of care staff than may be the case in the community. This may be applicable even in cases where domiciliary care is provided in the community, given that domiciliary care can be associated with a high staff turnover (see EHRC 2011).

(iii)Thirdly, in cases that do require some form of hospitalisation, patients from extra care may be more likely to be admitted on an outpatient rather than inpatient basis because the provision of flexible care allows for more rapid discharge than may be the case for patients living in the community. In fact, the absence of domiciliary care has been identified as a key factor in slowing discharge times among those living in the community (Jasinarachchi et al 2009).

In this chapter, we explore these issues and examine the characteristics that predict overnight hospitalisation within extra care, as well as exploring differences in the patterns of hospitalisation between those in extra care and a community setting.

Data and Methods

To examine trends in overnight hospitalisation rates, we employ data from Retirement Security. As discussed in Chapter 3, Retirement Security is one of the oldest and largest providers of extra care housing. Generally, the majority of the units are offered on an owner occupied basis only, and Retirement Security residents are likely to be of higher socioeconomic status than the average older population, by virtue of both the tenancy available, and the price of properties. Nevertheless, as was presented in Chapter 4, non-trivial proportions of Retirement Security residents are eligible for means-tested benefits, signifying a degree of heterogeneity in resident characteristics. Also provided in Chapter 3 is a description of the data, which outlines the structure of the data, and the matching strategy we use to link resident records between years. As we are concerned about the efficacy of our matching strategy, we err on the side of caution and analyse the data in this chapter both longitudinally and cross-sectionally.

Modelling Count Data

We descriptively examine the incidence of overnight hospital stays through examining the incidence rate of hospitalisation – this is simply the ratio of overnight hospital stays to the total time residents were exposed to the risk of hospitalisation. We present these data by the resident characteristics outlined in Chapter 4, which includes information on means-tested and health-based benefits. We then progress to understand the patterns of overnight hospitalisation by resident characteristics in further depth through constructing regression model. As hospitalisations over the course of a year represent skewed data, the underlying assumption of normality, the basis of Ordinary Least Squares regression, is unlikely to be satisfied in these data (see Figure 15 for distribution of data and Cameron & Travedi 1998 for more information on this issue). Instead, we test a number of different distributions that are able to handle the non-normal distribution of our data. These distributions are also able to handle different exposure times, which means that residents who only entered extra care housing part way through the year are included in our analyses.

We first test a Poisson distribution, although we find that this distribution is unsatisfactory to model our data, given that the variance of hospitalisations is substantially larger than the mean (overdispersion). We then progress to test a negative binomial distribution, which is commonly used

in the literature to model overdispersed count data and allows for the variance to be greater than the mean. Given that we know from descriptive analyses of the data that the majority of residents in extra care do not experience overnight hospitalisation (an excess of zeros), we then test to see if a model that splits the notion of hospitalisation into two latent components is an improved estimator through a zero-inflated negative binomial regression model. This model simultaneously estimates the probability of residents not experiencing an overnight hospitalisation event (the zero inflated portion of the model), and for those residents who do experience a hospitalisation event, the expected count (days spent in hospital, the negative binomial part of the model). The specification of two latent components suggests that two different theoretical processes govern the process of first entering hospital overnight, and secondly governing the expected length of stay. The basis for this assumption is discussed in greater depth in as we discuss the findings, although there are good reasons to suspect that the interplay between patient driven, extra care and health care forces may operate differently in predicting the probability of initial entry into hospital overnight, compared to the expected length of stay. In terms of the model fit, the Vuong test statistic confirms that a zero-inflated negative binomial model provides a better fit than an ordinary negative binomial model (see Stata 2009, p2042 and Zaninotto and Falaschetti 2010 for an applied example).

In these data, we include records of extra care residents from 32 different sites. In constructing preliminary ordinary negative binomial models, we examined whether hospitalisation patterns of residents in the same sites were more likely to be similar than patterns of residents in different sites through constructing random-effects negative binomial regression models. We found that the degree of site level correlation was insignificant in site level models. Nevertheless, after performing the Vuong test on our zero-inflated negative binomial regression models to test the zero-inflation specification, we allow our standard errors to take into account a site clustering effect; this has the effect of increasing the standard error of our parameters, introducing a degree of caution into our estimates[45].

Propensity Score Matching and BHPS data

As is the case with earlier analyses, we also wish to make comparisons between the overnight hospitalisation patterns of our extra care sample with a suitable control group. To do so we use a sample from the British Household Panel Survey (BHPS) and use Propensity Score Matching (PSM) as a technique by which we match those in our extra care housing sample (our treatment group) with an individual in the BHPS who is the closest match (the control group). Respondents to the BHPS are asked each year “Since September 1st [previous year], have you been in hospital or clinic as an inpatient overnight or longer?” and are then asked about how many days in total were spent in hospital. The exposure time is therefore the length between the interview date and the reference date given in the question. For Retirement Security, the data are collected as a census (see Chapter 3), and overnight hospitalisation is simply the aggregate number of days the resident spent overnight in hospital. Therefore, in the case of Retirement Security, overnight hospitalisation is recorded by extra care housing staff while for the BHPS this is self-reported. We are not able to disaggregate the number of episodes per se of overnight confinement to hospital in the BHPS or

[45] In the later matched analyses, we do not account for site clustering in our estimates as we are unable to account for the same degree of clustering in the BHPS comparison data.

Retirement Security data, for example two episodes lasting three days. Furthermore, in the analyses using matched data, we do not include Retirement Security data from 2009 and 2010, as the latest available data for the BHPS covers 2009/10 only.

We use the 'nearest neighbour' method to form a control group, although with a very low caliper tolerance (an indicator of how close a match is to a control subject) to select suitable controls; see Guo et al (2006) and Ryan et al (2008) for more information on PSM. We then analyse the incidence of overnight hospitalisation in the extra care sample and compare this with the incidence in the BHPS data. More details on our matching procedure, and the variations we tested, are given in later in the chapter.

Methodological Issues and Limitations

Here it is appropriate to repeat some of the methodological issues and limitations highlighted in earlier analyses. PSM is usually applied in cases where a number of observed variables can be used to predict 'treatment' and ultimately construct a comparison group. In this analysis, we match only on gender, age, living as a couple, year of observation, receipt of pension credit, receipt of Attendance Allowance, and receipt of Disability Living Allowance[46], the latter two also giving an indication of health status. It is unusual to match upon such a small number of variables. To partially compensate for this, we use a very small caliper value of 0 or 0.01 (the tolerable threshold of difference in the propensity to receive treatment [move into extra care housing]). In addition, as explained later, we select specific members of the control group who share other characteristics that mirror the extra care housing experience. As was the case for the analyses in Chapter 5, we consider matching on the basis of region, although this resulted in too small a comparison sample being drawn, particularly when we narrowed the sample based on care criteria, and it was deemed more important to form an adequate match on the basis of socio-demographic and care criteria than on the basis region. We match one BHPS control per extra care housing resident but randomly sort the control group first before matching. We avoid exact matching because we want to preserve as many extra care housing cases as possible in our sample, although inevitably, a large proportion of matches are exact matches nevertheless because of the limited range of characteristics used to match. Despite these cautions, PSM is often used as a basis for attempting to model selection processes into a treatment. In this analysis our use of PSM is more rudimentary and we use PSM to construct a treatment group that resembles our control group on the basis of observed socio-demographic and socioeconomic characteristics.

Results

Examination of the incidence rates (Table 20) suggest that we would, on average, expect residents to spend between 4-8 nights of the year in hospital; our longitudinal linked data places the average annual incidence rate at around 5.4 nights per year per resident. However, this figure masks the fact that the majority of extra care residents are recorded as not experiencing overnight hospitalisation

[46] To facilitate comparisons with the BHPS, where a number of respondents were not aware of the exact type of benefit they received, we treat receipt of any form of Disability Living Allowance as a binary variable, and do not account for the separate mobility and care components in the matched analyses. In addition, we do not account for the different levels of attendance allowance received in matched analyses, again reflecting data collection conventions in the BHPS.

(Figures 14 and 15); around two-fifths of residents will experience no overnight stays in hospital in any given year, with between 2-4% of residents experiencing 50 or more nights in hospital and a small number of residents recording much longer stays of 200 nights or more nights in hospital. In our pooled data, 59% experienced an incidence rate equivalent to less than a day in hospital overnight. The figures also mask the differences based on resident characteristics, which are presented as incidence rates for our pooled data in Figure 16. While age appears to be a strong predictor of the incidence rate of hospitalisation, with older age associated with a higher incidence rate, receipt of additional care appears to be the most prominent factor predicting hospitalisation. We investigate these trends in greater depth through constructing a regression model.

Figure 14: Distribution of overnight hospital stays by census year: Retirement Security Data

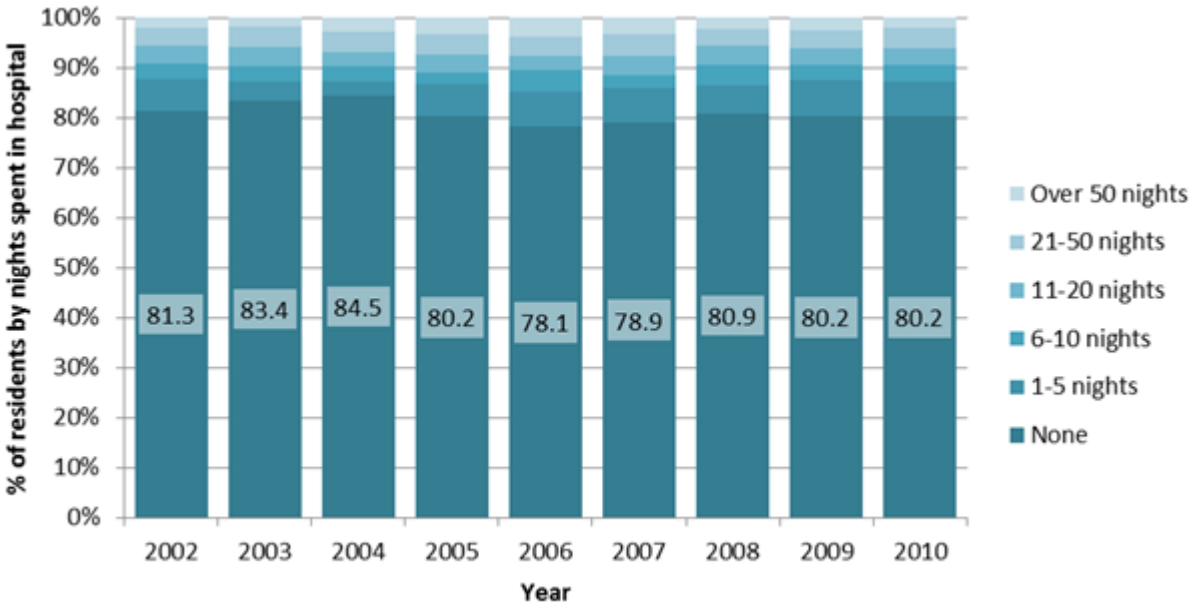


Figure 15: Distribution of overnight hospital stays for pooled longitudinal data: Retirement Security Data

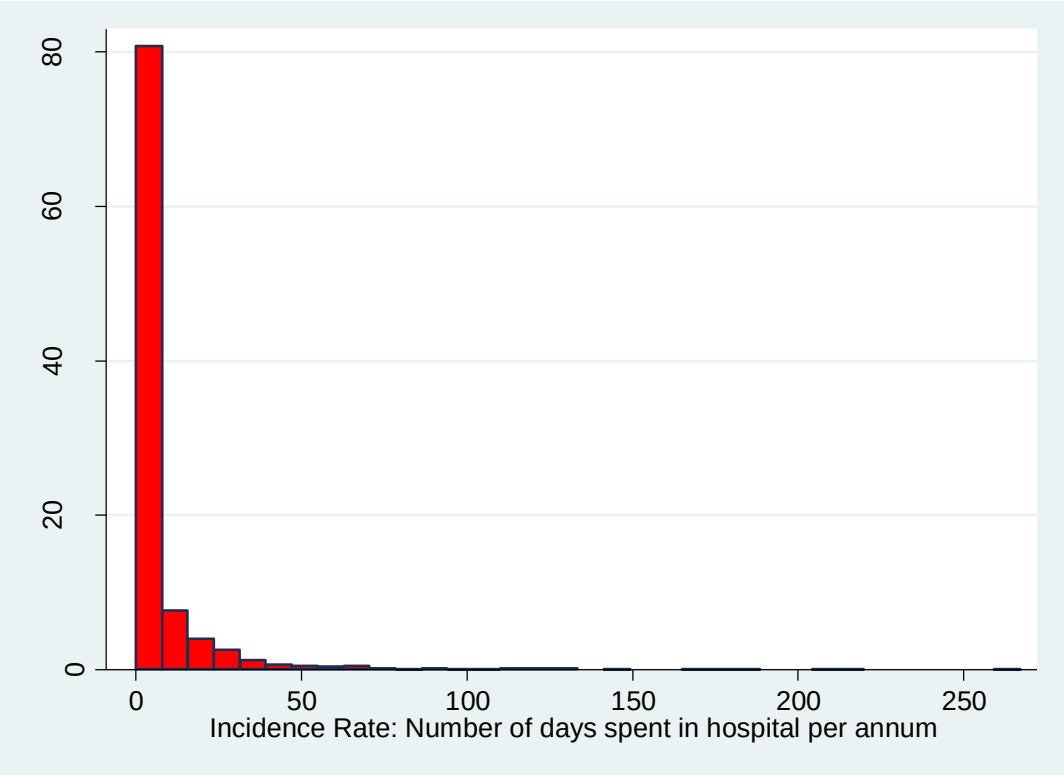
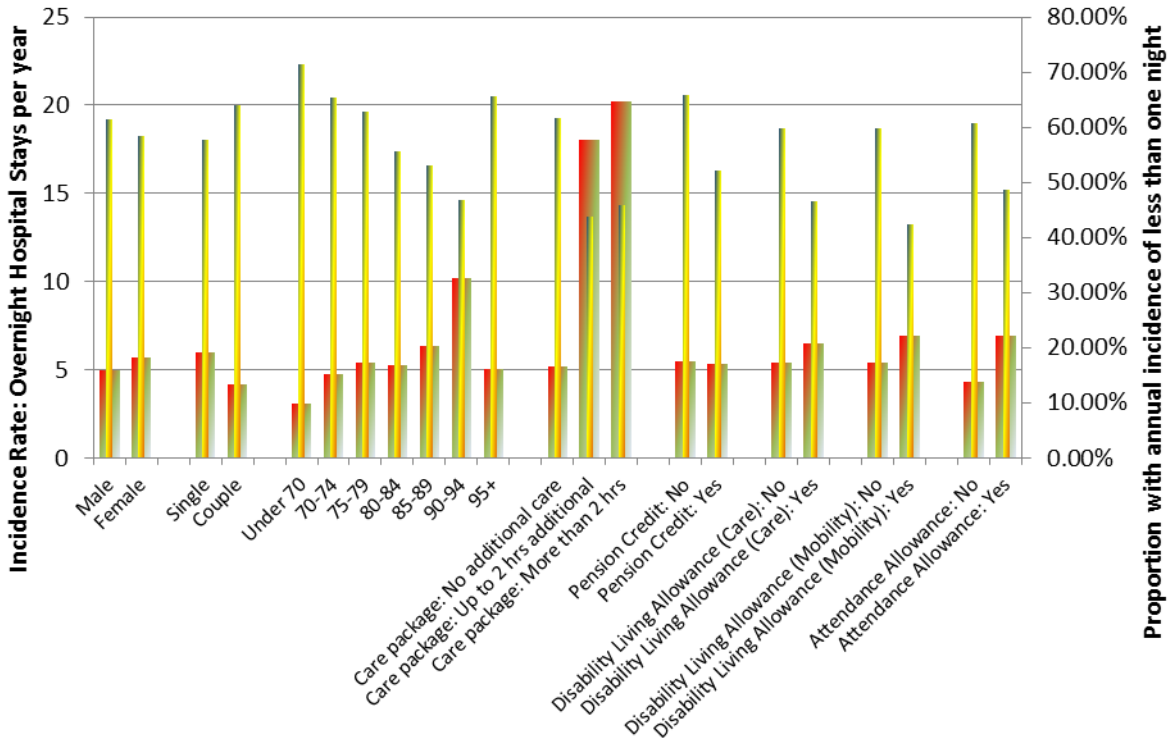


Table 20: Incidence rate of overnight hospitalisation by census year: Retirement Security Data

Year	Residents	Total Nights	Nights at risk (time at risk)	Incidence Rate per year
2002	1,442	6210	518203	4.38
2003	1,471	5576	512749	3.97
2004	1,430	6409	506999.3	4.62
2005	1,379	8500	479518.3	6.47
2006	1,325	9769	460366.8	7.75
2007	1,329	8548	457544	6.82
2008	1,398	5955	496574.5	4.38
2009	1,295	5406	464206.3	4.25
2010	1,398	5731	489859.8	4.27
Longitudinal Sample (2002-2010)	2,610	55665	3,725,678	5.46

Figure 16: Annual Incidence Rate of Overnight Hospitalisation by selected characteristics, and proportion with incidence of less than one night (Pooled Longitudinal Retirement Security Data, n=2,610)



Regression Results: Predicting Overnight hospitalisation in extra care

Table 21 presents the results from the zero-inflated negative binomial model we use to model incidence and number of overnight stays in hospital in our pooled longitudinal sample which includes a measure for different levels of residence (exposure). Each of the predictors represents the characteristics at the first census in which the resident was included. The first two columns present the results from the negative binomial part of the model, which models the count of overnight hospital stays among those who are predicted to have some experience of overnight hospitalisation – the first column shows the untransformed coefficients with standard errors below in brackets, while the second shows the exponentiated coefficients, representing the factor change in the expected count of nights spent in hospital among those predicted as experiencing hospitalisation. The results show that older age and receipt of additional formal care both significantly predict a higher number of nights spent in hospital among those classified as being at risk of hospitalisation. Similarly, receipt of attendance allowance, and in particular receipt of the higher rate, is predicted to increase the number of nights a resident stays overnight relative to not receiving any form of Attendance Allowance. On the other hand, receipt of pension credit is associated with a lower number of nights spent in hospital among those predicted to spend some nights in hospital. Gender, living arrangements, informal care and the receipt of Disability Living Allowance are not associated with the number of nights spent in hospital once other factors are accounted for. When we examine the results for the probability of not spending any night in hospital (the logit portion of the model), we find that very few factors are significantly associated with staying out of hospital. One exception is the receipt of attendance allowance, with those on the higher rate

having a significantly lower probability of avoiding inpatient stays in hospital relative to those who do not receive attendance allowance.

For the reasons discussed earlier, we also model the incidence of overnight hospitalisation cross-sectionally. The results are presented as exponentiated coefficient only in the appendix, and confirm many of the patterns observed in the pooled data. One exception, however, is the significance of the provision of additional formal care in lowering the probability of avoiding inpatient stays in hospital; although the direction and magnitude of this trend is reflected in the pooled results, the result does not achieve statistical significance in these pooled data.

For providers of extra care housing, the results suggest that receipt of Attendance Allowance, and not Disability Living Allowance, is a more accurate predictor of health status as reflected in patterns of hospitalisation. However, this is likely to be superseded by internal means of assessing residents' health and social care needs which were not supplied for this research. The receipt of additional formal care however does appear to be significantly associated with the number of nights spent in hospital, and is also likely to be a reflection of underlying health status. While these results illuminate patterns of overnight hospitalisation within extra care housing, in the next section we build on these and examine whether hospitalisation patterns in extra care housing differ from those among older people in a community setting.

Table 21: Zero inflated negative binomial regression coefficients for overnight hospitalisation: Pooled Retirement Security Data 2002-2010

	Negative Binomial Portion		Logit Portion	
	B	**exp(β)**	**B**	**exp(β)**
Gender Baseline: Male				
Female	-0.051	0.950	0.003	1.003
	(0.21)		(0.24)	
Age				
Years	0.024**	1.024**	-0.026	0.974
	(0.01)		(0.02)	
Additional Formal Care				
Hours	0.057*	1.059*	-4.190	0.015
	(0.02)		(2.62)	
Additional Informal Care				
Hours	-0.004	0.996	0.005	1.005
	(0.00)		(0.01)	
Receipt of disability living allowance (care component) Baseline: Not in receipt				
In receipt	0.374	1.453	-1.037	0.354
	(0.44)		(0.64)	
Receipt of disability living allowance (mobility component) Baseline: Not in receipt				
In receipt	0.300	1.349	-0.457	0.633
	(0.36)		(1.00)	
Receipt of attendance allowance Baseline: Not in receipt				

Lower Rate	0.239	1.270	-0.538	0.584
	(0.13)		(0.32)	
Higher Rate	0.373***	1.452***	-0.826**	0.438**
	(0.11)		(0.31)	
Receipt of pension credit Baseline: Not in receipt				
In receipt	-0.460***	0.631***	-1.016	0.362
	(0.13)		(0.73)	
Living arrangements Baseline: Single person household				
Couple	-0.296	0.744	0.142	1.153
	(0.18)		(0.18)	
Constant	-5.825***		1.477	
	(0.79)		(1.37)	
α (dispersion parameter, untransformed)	4.184***			
	(0.320)			
N	2610			

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Results: taking extra care and fewer beds?

We apply propensity score matching (PSM) to match the extra care housing and BHPS samples using the nearest neighbour method and a caliper value of zero[47]. As we match only on socio-demographic and benefits data, we randomly sort the data before undertaking the matching process as a number of cases will have identical propensity scores. We match cases based on the observed socio-demographic and benefits data. As is the case for the results above, we run the analyses both on the pooled longitudinal data as well as the separate cross-sectional data. For the pooled dataset, we also match on the year in which the exposure time of interest began as well as the number of waves in which the case was observed.

As is the case for the analyses presented in chapter 5, we present a number of different specifications for forming a comparison group reflective of hypothesised differences and similarities in the BHPS and extra care housing samples. Firstly, we match both datasets on the observed characteristics described above – once with the whole population aged 65 and above, again with the population aged 75 and above, and a third time with the population aged 80 and above. We perform this age stratification because we know that age is an important predictor of movement into retirement housing (see Chapter 4), and that differences between extra care housing and the general population may become more transparent among an older population (see Chapter 5). Secondly, we match the extra care housing sample in the same way to a population of older people who are socioeconomically advantaged; we do this through dividing the distribution of weekly household income among over 65s in the BHPS into quintiles, and exclude those in the bottom two

[47] To preserve the size of the sample, we do not specify the no replacement option in the propensity score matching in this chapter. This is to preserve the size of the sample, and allows a control subject to be matched more than once to an extra care subject.

quintiles[48]. This method does not, therefore, take into account housing wealth, but will represent a proxy indicator for those with the highest amounts of income that potentially could be spent on health and social care. We alter the comparison group in this way as we know residents in Retirement Security are exclusively owner occupiers, and we use income in this way to proxy for homeownership. Thirdly, we use the advantaged comparison group once again, although this time we restrict our focus to those who are most advantaged and who are in receipt of domiciliary care of some form, which included respondents who received any form of meals-on-wheels and home help (regardless of frequency). We take this step as we know that movement into extra care housing, and specifically Retirement Security extra care housing, also corresponds to a movement into accommodation where meals and housekeeping services are available as standard (regardless of actual care package received, if one was received at all). We repeat the analyses three times for the population aged 65 and above, 75 and above, and 80 and above.

The results are presented in Table 22 which shows the coefficients for being in extra care relative to a matched sample in the community; these estimates are from fully adjusted models[49], although for parsimony we present only the extra care housing coefficients. As with table 21 earlier, the negative binomial portion predicts the number of nights of hospitalisation among those classified as experiencing overnight hospitalisation, while the logit portion predicts the likelihood of avoiding overnight hospitalisation. Higher estimates for the negative binomial portion suggest an increased frequency nights spent in hospital among those predicted to spend any night, while the higher estimates for the logit portion suggest an elevated probability of avoiding overnight hospitalisation. The results for these pooled data are rather inconsistent. Generally most specifications show for those who are predicted to stay in hospital overnight, this stay is likely to be significantly longer in extra care housing. This trend is most prominent in the matched sample that consists of those who are socioeconomically most advantaged and are in receipt of domiciliary care – the group we suspect of being most similar to the extra care housing sample. For these samples also, there was a trend of those in extra care housing having a higher likelihood of avoiding overnight hospital stays, although the coefficient for the logit portion was statistically insignificant. Compared to the sample over the age of 75 who were advantaged and in receipt of domiciliary care, those in extra care housing exhibited a weak pattern of an increased likelihood of avoiding overnight hospitalisation, but a longer stay among those who were hospitalised overnight.

[48] Exclusion of the bottom 40% and not a larger proportion is a partial reflection of the need to maintain an adequate sample size in later analyses and partially to reflect concerns that income may not reflect savings and assets wealth.
[49] Adjusted for age, gender, living arrangements and binary measures of receipt of disability allowance, pension credit, and attendance allowance.

Table 22: Coefficients for difference between extra care and community comparison sample from Zero Inflated Negative Binomial Models. Models adjusted for gender, age, living arrangements, receipt of disability living allowance, receipt of pension credit and receipt of attendance allowance. Coefficients presented by sample and age group for pooled Retirement Security and BHPS data (2002-2008 pooled data, standard errors in brackets)

Comparison Sample	Age Group	Negative Binomial Portion		Logit Portion	
		B	exp(β)	B	exp(β)
Full community Sample Match	65 and over	0.387*	1.473*	-0.572	0.564
		(0.20)		(0.49)	
	75 and over	0.120	1.128	-1.738	0.176
		(0.35)		(1.13)	
	80 and over	1.328	1.969***	0.218	1.479
		(0.29)		(0.23)	
Advantaged Community Sample Match	65 and over	0.284	1.328	-1.523	0.218
		(0.22)		(1.04)	
	75 and over	0.132	1.141	-0.563	0.570
		(0.22)		(0.44)	
	80 and over	0.384	1.468	-0.285	0.752
		(0.23)		(0.39)	
Advantaged Community Sample in Receipt of Domiciliary Care Match$	65 and over	-0.037	0.964	-0.881	0.414
		(0.24)		(1.44)	
	75 and over	0.843**	2.324**	0.055	1.056
		(0.27)		(0.45)	
	80 and over	0.612*	1.844*	0.128	1.136
		(0.30)		(0.48)	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ $Estimates from models with coefficient for extra care versus community sample only

In the above set of results, we examined a set of pooled data for both the extra care sample and our comparison BHPS data. However, the models presented accounted for resident and control group characteristic at the beginning of the exposure period (from 2002 in 45% of cases), and did not account for time-varying characteristics. This may be one possible explanation for the inconsistent trend observed in these pooled data; another may be different processes of exiting the study, with those who experience overnight hospitalisation in the community setting at particular risk of exiting the study, and possibly entering institutional accommodation, in the BHPS data. To minimise this possible bias, we explore the most recent wave of data cross-sectionally further in the next section.

Results: Taking extra care and fewer beds?; Interpreting the effect and application to 2008 data

We investigate the trends discovered for the most recent wave of cross-sectional data available for extra care housing and our control sample derived from the BHPS, and present the results for 2008 in table 23.

Table 23: Coefficients for difference between extra care and community comparison sample from Zero Inflated Negative Binomial Models. Models adjusted for gender, age, living arrangements, receipt of disability living allowance, receipt of pension credit and receipt of attendance allowance. Coefficients presented by sample and age group for cross-sectional Retirement Security and BHPS data (2008 data, standard errors in brackets)

Comparison Sample	Age Group	Negative Binomial Portion		Logit Portion	
		B	exp(β)	B	exp(β)
Full community Sample Match (Block A)	65 and over	0.477	1.611	0.762*	2.143*
		(0.29)		(0.30)	
	75 and over	0.457	1.579	0.565	1.760
		(0.29)		(0.32)	
	80 and over	0.215	1.240	0.761*	2.140*
		(0.22)		(0.31)	
Advantaged Community Sample Match (Block B)	65 and over	1.329***	3.777***	1.188***	3.280***
		(0.29)	(1.08)	(0.32)	
	75 and over	1.434***	4.196***	1.253**	3.503**
		(0.30)		(0.39)	
	80 and over	1.333***	3.791***	1.302**	3.678**
		(0.31)		(0.42)	
Advantaged Community Sample in Receipt of Domiciliary Care Match$ (Block C)	65 and over	0.869**	2.386**	1.644***	5.175***
		(0.29)		(0.39)	
	75 and over	0.813**	2.256**	1.276**	3.581**
		(0.22)		(0.35)	
	80 and over	1.075**	2.925**	1.907***	6.732***
		(0.24)		(0.47)	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ $Estimates from models with coefficient for extra care versus community sample only

Full details of the characteristics of matched and unmatched cases for Block C are available in the appendix. Matching details for Blocks A and B are available upon request.

Here, we see the overall trend of extra care housing being associated with a significantly decreased risk of admission to hospital, although a significantly longer length of stay among those admitted overnight in hospital across most of our models. Some caution should be exercised in the interpretation of non-significant results, where a small sample size in the community sample hinders complete matching and increases the standard errors associated with our estimates - this is particularly evident where the strength and magnitude of the coefficients are similar between different sample specifications[50]. The evidence here overall therefore suggests that residents of extra care housing are less likely to be hospitalised overnight but are likely to stay longer if they are hospitalised than an equivalent sample in the community. A possible mechanism underlying this

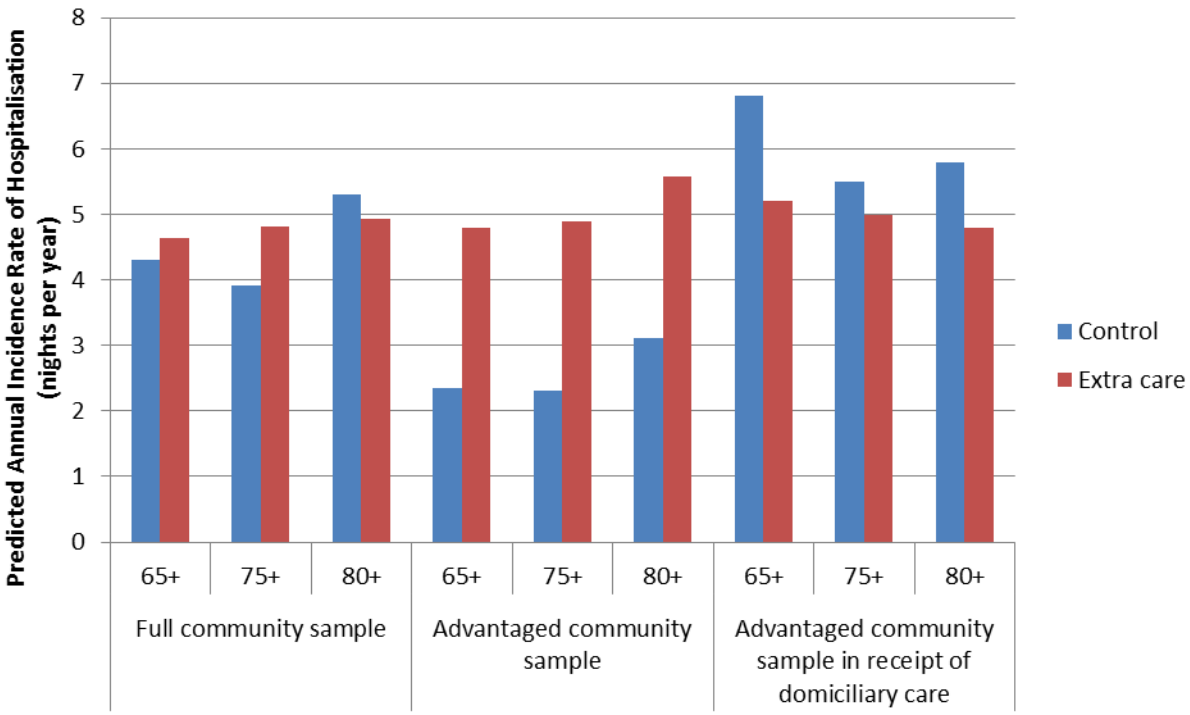
[50] Full matching details are available on request. Generally, those we did not match were more likely to be women, single, older, and with higher rates of receipt of attendance allowance and pension credit. Tables of the characteristics of those who were matched and unmatched are presented in the appendix.

trend is that extra care housing residents are hospitalised overnight in severe cases only, and not for more minor episodes of ill-health. Based on earlier evidence presented in Chapters 5 and 6, the extra care housing effect may reduce the propensity of older people to experience falls, and within its own right, extra care housing supports a non-trivial proportion of residents to maintain and improve their social care needs. Both of these mechanisms may partially explain the lower propensity of extra care housing residents to experience overnight hospitalisation. However, the accompanying evidence that extra care housing residents stay longer in hospital when hospitalised suggests that extra care residents use hospital services in times of severe crisis, with the facilities offered within extra care housing possibly reducing the need for overnight stays for more minor episodes of ill-health.

To examine the implications of these findings, we predict the predicted number of hospital nights per person per year in Figure 17 for each of the comparisons made in table 23[51]. In the second block of results, where we restrict the comparison sample to those in the most advantaged income groups, the positive effect of extra care housing disappears, and residents of extra care housing are predicted to exhibit a considerably higher incidence of overnight hospitalisation than the community sample. In the final block of results, we restrict the sample to those who are both advantaged and in receipt of some form of domiciliary care. Theoretically, this may be the closest group as the residents included in these extra care housing data are those who at minimum receive home help and housekeeping services and meals, although may receive substantial additional help with the activities of daily living. Those who receive any form of domiciliary care and were advantaged in the community sample had higher predicted incidence rates of overnight hospitalisation, with the effect particularly pronounced in the oldest age group (5.8 nights a year versus 4.8).

[51] These are derived from the predicted total number of nights spent in hospital for a year for a fully adjusted model.

Figure 17: Predicted annual incidence rate of overnight hospitalisation per person per year among the extra care housing sample and a matched community sample for 2008



It should be noted that in all the estimates in Figure 17, those in the extra care housing sample had a significantly higher probability of avoiding overnight hospitalisation altogether compared to all comparison groups featured. The higher annual incidence rates were due to a small number of residents with extended stays. The impact of avoiding hospitalisation on the quality of life of residents should not be underestimated. Furthermore, there is good reason to suspect that those in the BHPS comparison groups who also experience prolonged stays in hospital are at much higher risk of attrition or wave non-response from these data than residents included in the extra care data, even when proxy response is a possibility. Given that the Retirement Security extra care housing data represents a census carried out by staff, non-response is not a possibility[52].

Finally, we interrogated the findings in Block C further by restricting the extra care housing group to those recorded as being in receipt of additional formal or informal care[53], beyond the meals, 1.5 hours per week of home help, and informal care provided as standard. When we impose this restriction on the extra care housing sample aged 65 and above, the earlier trends observed above hold in terms of extra care residents having a statistically significantly lower propensity to be admitted to hospital overnight although also a statistically significantly higher predicted length of stay among those admitted to hospital. In terms of the predicted incidence of overnight hospitalisation, the extra care housing sample has a slightly lower predicted incidence of 9.1 nights per year compared with 9.6 nights among the community setting sample.

[52] However, this is not to say that other measurement error issues do not exist.
[53] In order to preserve an adequate sample size, we relaxed the matching assumptions slightly by increasing the caliper tolerance value to 0.10. The characteristics of matched and unmatched cases are available in the appendix.

Summary and Conclusions

In these data, we find evidence that residence in extra care housing is associated with a reduced level of expected nights spent in hospital than may be expected in an equivalent population living in the community, matched on demographic and selected socioeconomic characteristics. However, the differences are attributable to a lower propensity of being confined to hospital initially, and not through shorter lengths of stay. In fact, when admitted, we find that those in extra care housing are more likely to stay for longer than those matched on observed characteristics living in the community. We posit that the underlying mechanism behind this effect to be that those in extra care housing are only admitted overnight to hospital for serious conditions, and may be treated as outpatients for less serious conditions, whereas those in the community may be more likely to be admitted overnight and not discharged for minor procedures. Our findings generally support our notion that extra care may play a part in reducing the risk of initial entry as a hospital inpatient. However, beyond the decreased risk in inpatient stays, the evidence for extra care in reducing lengths of hospitalisation is more questionable. This means that the evidence for the effect of extra care housing in reducing the total number of nights expected to be spent in hospital annually is not clear across all of our control group specifications. However, should we confine our control group that we match to our extra care residents to include those aged 80 and above who are socieconomically advantaged and in receipt of domiciliary care, based on the national average cost of a hospital bed day[54], our findings could equate to a potential saving of up to £320 from hospital budget per year. If we restrict our comparison to those in extra care housing in receipt of additional care services (beyond the standard package) with those who are socieconomically advantaged and in receipt of domiciliary care, the potential savings equate to £160 per person annually for those aged 65 and above.

However, these findings are presented with the caveats outlined throughout the chapter. These include good reasons to suspect that an extra care housing effect may be underestimated in the control group data through the differences in reporting procedures between our control group and extra care data. Specifically, there may be good reason to suspect that those in the BHPS control group who had prolonged lengths of stay in hospital were more likely to have attrited from the study, or to be subject to wave non-response; for the Retirement Security data this is not a concern given that these data were collected regardless of whether residents were present to submit the information themselves. Additionally, there are also reasons to suspect that those in extra care differ from those in the control group in ways that may influence the results – these could operate to either increase or decrease the likelihood of hospitalisation, although our 'trimming' of the control group should help somewhat with this issue. Furthermore, we were also unable to match some residents within the extra care group to suitable controls – these were more likely to include women, residents claiming means tested benefits, and particularly residents who were older[55]. Given that the results in Figure 17 and Table 23 suggest that the effect of extra care may be pronounced among the oldest population, this may be another reason to suspect that the effect of extra care housing may actually

[54] NHS estimate of £320 per day: http://www.connectingforhealth.nhs.uk/systemsandservices/clindash/benefits
[55] For example, in matching those over 80 to a community sample over 80 who were advantaged and in receipt of domiciliary care, the overall match rate was 30%, although for those aged 95+, the match rate fell to 9%.

be underestimated in these results. Nevertheless, despite these caveats, compared to a population living in the community and matched on observed demographic and benefits characteristics, we do see some evidence of lower than expected levels of hospitalisation among extra care housing residents, which is of significance to policy-makers, older people, and providers of extra care housing alike. We discuss the implications of our findings in greater detail in our concluding chapter.

Chapter 8: Summary, Implications and Recommendations

Summary:

We began this research through outlining several of the key demographic, health, social care and housing trends to have emerged over recent years in the UK. As a population we are getting older, but not necessarily healthier. At the same time, we have witnessed a drop in the construction rates of housing for older people, and present evidence that highlights that older people may be living in accommodation that is increasingly unsuitable for their needs. One possible reason for the apparent slowdown in older people's housing movement is a lack of purpose-built retirement housing. Extra care is one such form of specialist retirement housing that combines independent housing with the provision of flexible care. However, we argued that there remains a lack of consensus on some of the fundamental issues and claims associated with extra-care housing. This has resulted in a lack of evidence on some of the most basic indicators of the extra-care housing experience, including the length of stay and the maintenance of health and social care needs. In this study, we address some of these evidence gaps through analysing longitudinal data on almost 4,000 residents of extra-care housing supplied by three extra-care providers. We examine the characteristics of extra-care residents, the length of stay and whether extra-care housing can be considered a 'home for life', the changing health characteristics of residents, falls among extra-care housing residents, and patterns of inpatient hospital stays among residents.

We find evidence that extra-care housing, on the whole, supports some of the oldest and frailest members of society, and a population that appears older and frailer than found living in other forms of independent housing in the community. We find that the median length of stay in extra-care housing is 6.5 years, using data from two partners (Extra Care Charitable Trust and Audley). When directly examining the 'home for life' issue, we find that after five years about 8 per cent of residents will have moved into institutional accommodation. The ratio of exits to institution and exits because of death within five years is about 1:3. At ten years, we would expect some 14 per cent of residents to have moved to institutional accommodation. When we examine whether the low rates of moving to institutional care for the extra-care housing sample are lower than would be expected within the community setting, we find indications supporting this, albeit with a number of caveats. Our results suggest, based on the low numbers entering institutional accommodation, particularly when compared to a community population, that extra-care housing is a 'home for life' for the majority. We find that among those 'at risk' of experiencing an improvement in health – a group that includes those who enter extra-care housing with additional care needs or who later develop additional care needs – 24 per cent of extra-care residents experience an improvement over the first five years. This represents measurable fiscal benefits as well as benefits to the quality of life of older people. Based on a small sample of residents in one extra-care housing scheme, evidence shows that these residents are significantly less likely to experience a fall than those in receipt of care at home and who are of similar social background. Finally, we found that in a typical year some four-fifths of residents do not spend a single night in hospital, and we also found evidence that the hospitalisation

rate has fallen in recent years. Our evidence also suggests that residence in extra-care housing is associated with a reduced number of nights in hospital than may be expected in an equivalent population living in the community.

Limitations

While the specific limitations to the analyses have been outlined in each individual chapter, there are three main broad-based limitations to that apply to our research design and data.

(i) Firstly, there are issues in the applicability of these findings from the three extra care housing providers included in this study to the sector as a whole. This research has included providers from the private sector, as well as one operating as a charitable trust, and has included both leasehold and rental extra care properties. Further research is needed to understand whether our findings are applicable to the sector as a whole.

(ii) Secondly, there are also issues in the applicability of these findings to different groups within the older population. For example, older people with visual or hearing impairments, those with dementia, those from specific minority ethnic groups, or older people who identify as LGBT may have different needs that are well placed to be met within the extra care housing environment, although we are unable to disaggregate our data to examine these groups. Further quantitative and qualitative research is needed to understand how extra care housing can best meet the needs of these and other groups.

(iii) Thirdly, we draw comparative data from nationally representative longitudinal studies. While these represent a gold standard in social sciences, the issues within these studies that are the focus of this research, movement to institutional accommodation and hospitalisations, are likely to be those subject to greatest measurement error. However, we suspect that any bias in measurement error in this case serves to understate rather than overestimate the relative effect of living in extra care housing. Conversely, we also emphasise throughout that the selection effects into extra care housing are generally poorly understood, and may also unduly influence our results. With respect to this latter limitation, we are unable to directly speculate on the possible direction, although we do employ strategies that we hope partially reduces this uncertainty.

These limitations serve as caveats of our results, but do not serve to detract from the main messages of our findings, which we examine through a fiscal lens in the next section.

Inferences on the costs and benefits of extra care housing

Opportunity cost: Moving to institutional accommodation

In Chapter 5 we outlined the median stay amounted to 6.5 years in extra care housing based on information from Extra Care Charitable Trust. If we believe that extra care is a direct alternative to living in a care home, then the potential costs are outlined below based on information on the unit costs by Curtis (2007-2010), Curtis & Netten (2004-2006) and Netten & Curtis (2003). Clearly, for local authorities, Local Authority extra care housing represents an economical housing solution compared to Local Authority residential care. However, the evidence comparing other forms of extra care housing is more ambiguous, particularly when examining differences with community care

packages. When we disaggregate the care costs further, and examine the social and health care costs alone, the cost of residential care, both private and Local Authority run are higher. However, this is partially due to the care and accommodation costs being subsumed as one when calculating the care costs for residential care (as fees), which is not fully the case for extra care housing.

Table 24: Cost of 6½ year stay in different forms of accommodation (based on information contained within Curtis (2007-2010), Curtis & Netten (2004-2006) and Netten & Curtis (2003), see notes)

Care type	Cost for median stay of 6.5 years	Care costs[$] only for median stay of 6.5 years
Local Authority Run Extra Care*	£104,910	£39,676
Local Authority Residential Care*	£276,302	£247,579
Low Community Care Package*	£111,228	£16,042
Median Community Care Package*	£148,278	£59,774
Housing Association Extra Care (Rental)*	£164,242	£99,944
Private Residential Care*	£154,752	£150,441
Housing Association Extra Care Leasehold Housing ** (see notes)	£134,342	£99,944

Notes: *Taken directly from the unit costs estimated by PSSRU (Curtis (2007-2010), Curtis & Netten (2004-2006) and Netten & Curtis (2003)). **Extra care leasehold costs inferred from monthly cost for Housing Association Very Sheltered Housing minus the notional rental charge. In doing so, we treat the property itself as a transferable asset that maintains its value – therefore we treat this neither as a cost or an investment. [$]Care costs refer to revenue costs and use of external services and excludes living costs for residential care; for extra care housing care costs refer to revenue and other health and social care costs; for community care costs care costs refer to health and social care costs only.

Perhaps, from the perspective of prospective residents and policy-makers, a key question in making decisions about the type of accommodation and the cost of health and social care is the calculation of the opportunity costs associated with extra care housing. Our earlier analyses in Chapter 5 showed that extra care housing was associated with a lower probability of entering institutional accommodation of any kind. Among a matched population aged 80 and above, we found that the probability of entering institutional accommodation in the first five years for the extra care sample was around half of that for the community sample (Table 12), although this is associated with a higher upfront cost (as demonstrated in table 23). Below, we examine the total care costs associated with residence in extra care compared to being in receipt of the median care package in the community for a hypothetical population of 100 in each group, with residents in either setting being at risk of movement into residential care (the cheapest option among the range of institutional care available). We find that although in the short-term that extra care is associated with greater upfront care costs, in the long-term, because of the increased risk of movement into institutional accommodation for those living in the community that the opportunity (care) cost of not moving to

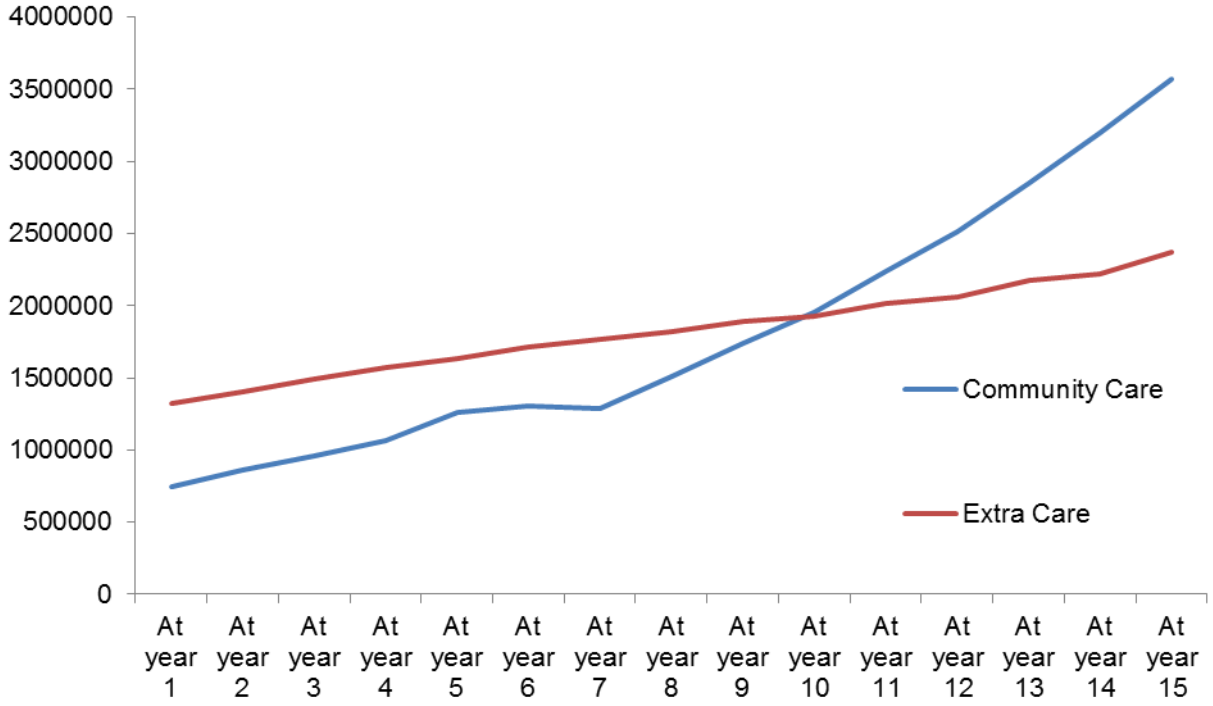
extra care begins to outweigh the short-term costs. While, we are only able to examine the situation up to ten years in our data, we extrapolate the rates based on earlier observed data to examine the situation up to fifteen years – this is based on a certain set of assumptions found in the notes for Table 24, and it is important to realise that these represent caveats to our projections:

Table 25: Projected cost of social care for hypothetical cohort of 100 people aged 80 and above for matched extra care and community sample

	Community sample receiving domiciliary care (median cost)		Extra care matched sample	
	Proportion moved to residential care*	Care costs**	Proportion moved to residential care*	Care costs**
Year 1 costs (2003 costs)	2.5%	£748,215.00	0.7%	£1,323,730.00
Year 2 costs	8.8%	£859,094.10	2.9%	£1,403,073.00
Year 3 costs	13.1%	£959,837.30	5.9%	£1,491,006.00
Year 4 costs	17.6%	£1,061,565.00	8.4%	£1,574,398.00
Year 5 costs	17.6%	£1,260,954.00	10.8%	£1,634,639.00
Year 6 costs	17.6%	£1,308,245.00	11.2%	£1,718,637.00
Year 7 costs	19.8%	£1,291,937.00	13.0%	£1,767,579.00
Year 8 costs	23.5%	£1,507,626.00	14.7%	£1,816,426.00
Year 9 costs	27.5%	£1,744,724.00	18.5%	£1,889,023.00
Year 10 costs	27.5%	£1,952,349.00	18.5%	£1,925,668.00
Year 11 costs	*32.2%*	*£2,239,418.00*	*23.3%*	*£2,016,914.00*
Year 12 costs	*32.2%*	*£2,511,014.00*	*23.3%*	*£2,057,860.00*
Year 13 costs	*37.7%*	*£2,846,931.00*	*29.3%*	*£2,174,439.00*
Year 14 costs	*37.7%*	*£3,196,748.00*	*29.3%*	*£2,220,918.00*
Year 15 costs (2017 costs)	*44.1%*	*£3,568,125.00*	*36.9%*	*£2,371,949.00*

Notes: The community care sample is based on BHPS residents who were in receipt of some social care while the extra care sample is based on a sample matched to BHPS data (see Chapter 5). Shaded cells represent extrapolated data. For the proportion in residential care, we use growth between 8 and 9 years as a starting point to estimate growth between 10 and 11 years, and so on. We use this method because the numbers in our model entering institutional care between 9 and 10 years were stagnant, although it is unlikely that this would remain fixed after this point. Similarly, costs after 2010 are extrapolated based on rise in unit cost of previous year. The costs in both models assume that no one in the sample dies; although this is impracticable in reality, this is deemed of little relevance given that there was no significant difference found in the rate of death between extra care and the community sample; in addition, in principle, neither residence should be measured as being cost effective by virtue of a higher death rate.

Figure 18: Projected cost of social care for hypothetical cohort of 100 people aged 80 and above for matched extra care and community sample



Notes: See Table 24

Mechanisms of cost saving

We present these projections graphically in Figure 18, which shows that in terms of social care costs, an opportunity cost may exist in terms of not moving to extra care. As discussed throughout the report, one mechanism that may underlie this opportunity cost may lie in the health outcomes achieved by extra care residents. Residents may be less likely to enter institutional accommodation because they are able to maintain their level of health and functional ability in extra care housing more so than similar residents in the community. In Chapter 6 we partially examined this through examining receipt of social care package as a proxy for health status. We outlined the case that while the majority of residents who enter in receipt of a social care package are likely to experience no change in social care package or a decline in health equating to a need for an increasing social care package, a significant proportion are likely to experience an improvement in health equating to decrease in the comprehensiveness of the social care package received. For those who were 'at risk' of experiencing an improvement in health (measured through change in social care package) within the first five years – those who entered in receipt of a social care package or those who entered with no social care needs but subsequently developed social care needs – around a quarter would experience an improvement in health within the first five years. While we were unable to compare the results for extra care residents with those for older people in different settings, we did highlight that within the extra care setting, such positive movements in health expressed through changes in social care package could equate to potential annual saving of up to £5,432.60 per resident[56].

[56] Based on ECCT costs in Broadway Gardens for 2011/12.

Recently, the health and social care costs of falls in England have been estimated to reach £6 million a day (Age UK 2010), although this represents the associated costs of hip fractures alone. Other indicative evidence from the ambulance service places the number of ambulance call outs due to falls at 700,000. Each ambulance call out costs £115, and around 75% of call-outs result in admission to hospital (includes both out- and inpatients) (Age UK 2010). The total societal costs of each hip fracture has been estimates to reach £28,665 in 2007 including all subsequent health and social care costs (Heywood & Turner 2007). Not all falls result in hip fractures, and estimates on the proportion of falls that do result in hip fractures are absent from the literature. Therefore, while we are unable to place a cost on each fall averted, the results presented in Chapter 6, where a difference of up to 18% was found between the fall rate in a matched extra care and advantaged community sample, clearly hold fiscal societal benefits. For residents also who self-fund their own social care, living in accommodation associated with a lower rate of falls will also offer cost savings in terms of social care package needed. However, these results are based on a small and select population, as outlined in the limitations.

Our final investigations into health outcomes of extra care residents examined the rate of hospitalisation among extra care residents compared to those who were thought to be of a similar socioeconomic background and were resident in the community and in receipt of domiciliary care. We found that the predicted annual incidence of overnight hospitalisation was lower in extra care compared to the matched community sample, and table 25 below outlines the potential cost-benefit per person associated with lower levels of hospitalisation. As earlier, these results are caveated by the limitations set out earlier in the research.

Table 26: Costs of predicted annual hospital stays in matched extra care and community based samples based on estimate of £320 per bed day[57]

	65+	75+	80+
Community based sample in receipt of domiciliary care: annual incidence rate of hospitalisation per person	6.8	5.5	5.8
Extra care matched sample: annual incidence rate of hospitalisation per person	5.2	4.99	4.8
Community based sample in receipt of domiciliary care: annual hospital costs per person	£2,176	£1,760	£1,856
Extra care matched sample: annual hospital costs per person	£1,664	£1,597	£1,536
Difference (per person)	£512	£163	£320

In the remainder of the chapter, we conclude through outlining our:

- Key findings
- Recommendations for Policy-Makers
- Recommendations for Providers of Extra Care Housing
- Recommendations for Future Research

Key Findings

- **Extra care is a home for life**

  In total in these data, around 8% of residents enter institutional accommodation from extra care housing after 5 years of residence. Compared to those living in the community in receipt domiciliary care, those in extra care housing are less likely to enter institutional accommodation. Among a matched population aged 80 and above, we would expect around 19% of those living in the community in receipt of domiciliary care to enter institutional accommodation compared to around 10% of those in extra care housing. When we narrow the focus of comparison and match those in extra care housing who are in receipt of a care package and are aged 80 and above on arrival with those in the community in domiciliary care, the results hold (12.5% of extra care and 22.5% of community based residents expected to have moved to institutional accommodation at 5 years). This highlights the efficacy of extra care housing in supporting people with a diverse range of needs. Furthermore, this can represent substantial fiscal benefits from social care budgets.

- **Extra care housing is a healthy home for life**

  Around a quarter of residents who enter extra care housing with additional social care needs, or who develop additional social care needs within extra care housing, later go on to experience an improvement in their health equating to a decrease in social care needs. In addition, many more experience stability in care needs and don't exhibit the diminution in functional ability that is usually associated with older age. While we have no comparison data that can help to show

[57] http://www.connectingforhealth.nhs.uk/systemsandservices/clindash/benefits

whether these are trends that are mirrored for recipients of domiciliary care, such an effect can translate into positive benefits, both in fiscal terms and through raising the quality of life of residents.

- **Extra care housing translates into fewer falls**

  A lower than expected number of falls was recorded among residents of extra care housing compared to a matched comparison group living in the community. This can translate into substantial fiscal benefits for policy-makers through lowering reliance on health services. This could also be a mechanism that underlies the finding of extra care housing residents exhibiting a lower likelihood of moving to institutional care. However, this finding is based on one extra care housing scheme and further work is needed to examine the applicability of this finding in other settings.

- **Extra care housing is associated with a lower uptake of inpatient hospital beds**

  We present evidence that shows that residence in extra care housing is associated with a lower likelihood of admittance to a hospital overnight compared to a matched sample living in the community. However, among those admitted, extra care housing residents were likely to stay longer. We interpret this finding as demonstrative of an overall tendency of extra care residents to be less reliant on hospital inpatient beds for minor procedures, and that extra care residents are more likely to utilise inpatient services in times of crisis only. While these findings are subject to the caveats set out in the report, they do suggest a substantial fiscal benefit in terms of hospital expenditure and also in terms of a benefit to the quality of life for residents. In addition, we also present the argument that our estimates may overstate the case of longer stays in hospital for extra care housing, and we therefore would simply emphasise that those in extra care housing have a lower probability of entering hospital than a matched sample in the community.

- **Extra care housing supports some of the oldest and frailest members of society**

  In Chapter 4, we present indicative evidence on the characteristics of those in extra care housing. The average age of extra care residents is in the very late seventies and early eighties across all three partners. This is higher than would be expected in the general population. For example, mid-year population estimates from the UK show that among those aged 50+ in the general UK population, 6.5% are aged 85+ and 13.7% of those aged 65 and over are aged 85+. In comparison, 17.4% of those in Extra Care Charitable Trust extra care housing were aged 85+ on entry and 22.5% of those in Audley Retirement were aged 85+. Not only were extra care residents older, there were also a number of factors that suggested extra care residents were frailer than would be expected among a population of similar age living in the community. Certainly, the number of people living with dementia, the aftermath of a stroke, or Parkinson's disease was ostensibly higher in extra care housing than was the case in the general population. Residents of one extra care housing provider included in this study were also more likely to be claiming attendance allowance, a benefit reflective of personal care needs, than those in the population. Points 1 and 2 above also suggest that the majority of extra care housing residents are able to maintain the level of health on entry, or are at least able to continue living

independently in extra care.

- **The benefits of residence in extra care housing could translate into substantial cost savings, particularly in the long-term**

  Assessing the costs of different models of care is challenging. In this research we speculatively outline that there is likely to be a higher individual and societal cost to delaying movement into specialist retirement housing for some older people. This is due to the higher transition rates into institutional accommodation that those in community settings are likely encounter. Furthermore, we also highlight that there are shorter term fiscal benefits to be observed from the lower rate of hospitalisation, the lower rate of falls and decreases in social care packages received.

  Extra care housing represents a model of housing with care for older people that offers health and social benefits for older people. These benefits have fiscal implications for older people and society more generally. Furthermore, expansion of the extra care sector, as part of the retirement housing sector more generally, could help to alleviate housing challenges facing people of all ages.

Recommendations for policy-makers

1. Policy-makers need a co-ordinated response to providing housing, health care and social care for our ageing population. Older people appear to be increasingly living in accommodation that is unsuitable for their current needs. Those living in the community who have social care needs are less likely to be receiving assistance at home with these needs. Construction rates of specialist retirement housing have declined, while at the same time younger people struggle to become home owners. This context shows a substantial lack of co-ordinated planning, and the situation is unlikely to improve without a co-ordinated response from central government.

2. Policy-makers should make specific pledges to increase the level of provision of extra care housing. Currently, extra care housing is estimated to account for about 1 per cent of the housing of those aged 65+. This market share, particularly in the context of an ageing population, is unlikely to waver without specific policy commitments to raise the profile of housing with care. The recent proposals put forward by the Dilnot Commission (2011), for example, will if implemented place a cap on the expected individual contribution for social care. The commission specifically expressed the hope that more people would opt for extra care housing once levels of awareness had increased, and once people were more certain of the likely total costs of social care they may require. However, without specific policy commitments, the extra care housing model is unlikely to fully meet the needs of an ageing population that is diversifying in terms of demography, health and housing equity. We would urge policy-makers to develop housing policies for older people that include specific details on the number of housing units to be constructed, including extra care housing units.

3. The proposed National Planning Policy Framework should champion far more robustly the housing needs of older people. The framework in its current state calls on local planning

authorities to prepare a Strategic Housing Market Assessment (SHMA) to assess their full housing requirements, taking account of migration and demographic change, and addressing the need for all types of housing, including affordable housing and the needs of different groups in the community (such as families with children, older people, disabled people, service families and people wishing to build their own homes). However, this statement could clearly go much further and the terms of the SHMA should be clearly drawn out to ensure consistency between local authorities. Without clearer guidance, there is little to ensure that local authorities provide housing for different sections of the older population, and different models of housing, including extra care housing.

4. Policy-makers should recognise and encourage private sector development of extra care housing. This report cites statistics from the Elderly Accommodation Counsel (2008) that showed that construction rates of retirement housing declined precipitously since the 1990s, and speculated that much of this effect was due to the withdrawal of the public sector in constructing older person's housing. Given that the private sector has been unable to match this provision, policy-makers should develop ways of assisting private sector developers to fill the void, although not at the expense of housing quality. In addition, policy-makers should research and evaluate the work of private sector extra care housing providers. This current study represents only one of a handful to assess the work of private sector extra care providers. Although policy-makers justifiably pay greater attention to state funded endeavours, some focus on the private sector is needed, given recent policy recommendations on funding long-term care.

5. The Health White Paper (Equity and Excellence: Liberating the NHS) in its current form does include some mention of housing, although this is in the context of Lifetime Homes and the Warm Front schemes, both of which have fallen by the policy wayside in recent months. The Health White Paper conspicuously fails to mention housing with care for older people. The findings in this report suggest that policy-makers drafting the **Health White Paper should explicitly consider and make specific pledges to increase the role of housing with care**. The Health White Paper implicitly assumes that decentralising health policy to local authorities will mean greater cohesiveness in local housing and public health policies. However, without central direction this can only happen, if at all, on a haphazard basis and, as our recommendations above suggest, we are concerned that cohesive policy-making will not happen without further clarification and guidance.

6. Policy-makers should enhance programmes of education and information for those who are retired and newly retired to plan their housing and financial futures. Furthermore, consumers need reassurance that policy changes will not negatively impact their retirement decisions. We express concern that recent developments, such as the collapse of Southern Cross, are likely to have a knock-on effect on the perception of retirement choices across the sector. Such developments are likely to negatively impact the perceptions held by current and future consumers of retirement housing on the quality of choices available. This could further decelerate the older person's housing market, and lead to greater numbers of people avoiding retirement housing, or choosing retirement housing when it is too late. Instead, we would call for the sustainable funding of co-ordinated programmes of action, such as 'First Stop'

to inform consumers how to make the right choice at the best time. Our results suggest that an opportunity cost may exist in the failure to move to suitable retirement housing in good time – while retirement housing may be a more expensive option in the short term, these short-term savings should be balanced against the beneficial outcomes experience in the long-term that equate to fiscal savings.

Furthermore, consumers of retirement housing need reassurance that policy changes will not negatively impact on their retirement decisions. For example, changes to the benefits system or state funding streams could negatively impact extra care housing residents, and make residence in extra care housing unsustainable for some. Prospective residents and consumers need reassurances that the decisions they make, based on the current state of play in terms of state funding, also have guaranteed long-term stability.

7. Any **National or Local Falls Prevention Strategy should include housing** as a key component of preventing further falls. We demonstrate that housing with care has a beneficial effect in reducing the incidence of falls, and outline the likely mechanisms that underlie this, and call for strategies on falls to include housing and design as key components. Our results on social care needs and hospitalisations could also indicate the role of housing and care may play in the efficient management of falls.

8. Receipt of Attendance Allowance opens a gateway for many older people to access extra care housing, through helping to finance monthly care costs and to help access other benefits. However, many older people included in this research, including around a fifth of centenarians and nonagenarians in 2010, did not access these benefits, and financed their stay in extra care housing without this support. It could be expected that the vast majority of this age group would need some help in carrying out the activities of daily living. Helping older people access Attendance Allowance and other benefits to support residence in extra care housing could help reduce social care and health care spending in other areas. **We would urge policy-makers to ensure that all who are eligible to claim Attendance Allowance do so** which could enable greater numbers of older people to support a stay in extra care housing.

9. Further research is needed into the extra care housing sector, and particularly the contribution that housing with care can make in improving quality of life of older people and reducing the fiscal burden. However, this also involves strengthening the research base. We would call on policy-makers to fund the design and delivery of standard data collection across the sector to allow researchers to fully quantify costs and benefits of different social care models.

Recommendations for providers of extra care housing

Investigate and promote provision of informal care within extra care environment

Many of the mechanisms upon which the findings rest are thought to be dependent on the provision of informal care within the extra care environment. While this is a plausible mechanism, there is an opportunity to investigate and quantify this further. Also an opportunity to extol this as a benefit to potential residents through case studies.

2. Revisit referral procedures for clients moving to institutional accommodation in larger village developments and smaller courtyard developments

This research found significant differences in the propensity of clients to exit to institutional care by development type, with those in village developments more likely to exit to institutional care. This may not necessarily be a negative difference, although further research should be conducted to explore the underlying mechanisms behind this trend.

3. Revisit referral procedures into institutional accommodation for clients who enter with moderate-medium care needs

This research suggests that those with moderate-medium care needs were more vulnerable to moving to an institution and the group where the notion of extra care as a home for life was least applicable. Further details of the care needs and health transitions of this group may illuminate the mechanisms behind this trend

4. Gender balance

Although the gender balance in this research conformed to the gender balance of extra care in the literature, there was evidence that the gender balance was more skewed towards female than male clients than may ordinarily be expected in the older population as a whole. Several reasons may explain this difference. However, developers of extra care housing may nevertheless wish to review the attractiveness of the services available and the overall environment of schemes to ensure that they remain accessible and appealing to male residents. This may be particularly important in light of the rapid gains in male life expectancy described in Chapter 1.

5. Revisit assessment procedures for social care transitions

In chapter we found that those in smaller courtyard developments were significantly less likely than those in larger village style developments to experience a change in social care package, and particularly a decrease in the social care package received (corresponding to an improvement in health). This suggests that resident-care staff relationships are managed differently by site type and may indicate the need for greater standardisation across sites. These differences were not accounted for by the observed characteristics of residents.

6. Male falls prevention programme

These data revealed that male residents in one extra care provider were much more likely to experience a fall than female residents. Although based on a small sample, the results were statistically significant. They suggest that there is room to explore why male residents are

susceptible to falls and set up an intervention programme to prevent falls among all residents, although targeted towards male residents.

7. Utilising attendance allowance to predict adverse health outcomes

In these data, where information on attendance allowance was provided, this was found to be a significant predictor of hospitalisation. This suggests that residents in receipt of attendance allowance are among those most at risk of experiencing adverse health outcomes and may be those whose health and social care needs should be monitored most closely as routine.

8. Maintaining community balance

Many of the findings of this report are likely to be contingent on the essential ingredients of extra care including preserving older people's independence and providing flexible care. A third important mechanism, and one that is most likely to be threatened with a changing profile of older people and increasing longevity as well as dwindling resources for social care, is the balance of social care needs. The majority of residents in these data enter extra care with no additional care needs, although the majority (from assessments of receipt of attendance allowance) are in need of some low level care provided as standard. Keeping a community balance of high, medium and low care needs is likely to be vital, not only in preserving a non-institutional environment of extra care, but also in ensuring that positive health outcomes continue to be observed as a result of the informal assistance residents with low care needs provide to neighbours with higher support needs.

9. Data collection and standardisation across the sector

This research has highlighted the potential for developers to implement standard procedures for collecting data from potential and current residents. Such data could be used to establish the basis for a performance management framework. It could also be used to enrich further research into what works in extra care and for whom.

Recommendations for further research

While many of the issues below may be currently under study, we conclude by highlighting that this research has uncovered the need to learn more about:

- Selection effects in to extra care housing and to understand why extra care is a choice for some. Future research could also consider how different policies across or within Local Authorities could create a natural experiment in order to fully understand the effects of residence within extra care housing.
- Further research needs to include better information on the socioeconomic background of residents, which is likely to influence some of the outcomes discussed in this research.
- Better data is needed about older people in institutional and other settings to facilitate comparisons between different models of housing.
- Further research is needed to understand changing patterns in receipt of domiciliary care, and

the implications for comparisons with other models of care.

- As a direct extension of this current research, we would welcome further research that unpacks care transitions and changes within the extra care housing setting.
- As noted earlier, further quantitative and qualitative research is needed to understand how extra care housing can best meet the needs of groups with special needs or from minority groups.
- Finally, any further research should be underpinned by better data that would follow from greater standardisation across the sector.

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Appendix

Table 27: Characteristics of matched and unmatched samples (Chapter 5, Tables 12 & 13): ECCT residents matched to BHPS sample in receipt of domiciliary care for 65+, 75+ and 85+ age groups

		Sample aged 65+					
Variable	**Sample**	**Treated (Mean)**	**Control (Mean)**	**%bias**	**% reduction in bias**	**t-test**	**p>t**
Number	Unmatched	30	N/A				
	Matched	1024	N/A				
Age	Unmatched	77.73	77.98	-3.30		-0.76	0.45
	Matched	77.98	77.98	0.00	99.20	-0.01	1.00
Gender	Unmatched	0.67	0.66	0.80		0.17	0.86
	Matched	0.66	0.66	-0.80	-9.10	-0.19	0.85
Living Arrangements (Couple)	Unmatched	0.34	0.34	-0.60		-0.13	0.90
	Matched	0.34	0.34	1.00	-77.90	0.23	0.82
		Sample aged 75+					
Variable	**Sample**	**Treated (Mean)**	**Control (Mean)**	**%bias**	**% reduction in bias**	**t-test**	**p>t**
Number	Unmatched	674	N/A				
	Matched	674	N/A				
Age	Unmatched	82.145	77.979	64.5		12.57	0
	Matched	82.145	82.162	-0.3	99.6	-0.06	0.954
Gender	Unmatched	0.71513	0.66309	11.3		2.26	0.024
	Matched	0.71513	0.71662	-0.3	97.1	-0.06	0.952
Living Arrangements (Couple)	Unmatched	0.23294	0.33984	-23.8		-4.74	0
	Matched	0.23294	0.23739	-1	95.8	-0.19	0.847
		Sample aged 80+					
Variable	**Sample**	**Treated (Mean)**	**Control (Mean)**	**%bias**	**% reduction in bias**	**t-test**	**p>t**
Number	Unmatched	421	N/A				
	Matched	421	N/A				
Age	Unmatched	82.15	77.98	64.50		12.57	0.00
	Matched	82.15	82.16	-0.30	99.60	-0.06	0.95
Gender	Unmatched	0.72	0.66	11.30		2.26	0.02
	Matched	0.72	0.72	-0.30	97.10	-0.06	0.95
Living Arrangements (Couple)	Unmatched	0.23	0.34	-23.80		-4.74	0.00
	Matched	0.23	0.24	-1.00	95.80	-0.19	0.85

Table 28: Characteristics of matched and unmatched samples (Chapter 5, Tables 14): ECCT residents in receipt of additional care matched to BHPS sample in receipt of domiciliary care for 65+, 75+ and 85+ age groups

		Sample aged 65+					
Variable	**Sample**	**Treated (Mean)**	**Control (Mean)**	**%bias**	**% reduction in bias**	**t-test**	**p>t**
Number	Unmatched	1	N/A				
	Matched	373	N/A				
Age	Unmatched	80.79	77.98	37.20		6.20	0.00
	Matched	80.74	80.48	3.50	90.70	0.48	0.63
Gender	Unmatched	0.70	0.66	8.60		1.42	0.16
	Matched	0.70	0.72	-4.60	46.50	-0.65	0.52
Living Arrangements (Couple)	Unmatched	0.17	0.34	-39.40		-6.20	0.00
	Matched	0.17	0.16	1.90	95.20	0.29	0.77
		Sample aged 75+					
Variable	**Sample**	**Treated (Mean)**	**Control (Mean)**	**%bias**	**% reduction in bias**	**t-test**	**p>t**
Number	Unmatched	3	N/A				
	Matched	285	N/A				
Age	Unmatched	83.85	77.98	88.10		12.36	0.00
	Matched	83.68	83.45	3.50	96.10	0.49	0.63
Gender	Unmatched	0.76	0.66	22.40		3.26	0.00
	Matched	0.76	0.78	-3.90	82.60	-0.50	0.62
Living Arrangements (Couple)	Unmatched	0.14	0.34	-47.40		-6.58	0.00
	Matched	0.14	0.11	8.40	82.20	1.26	0.21
		Sample aged 80+					
Variable	**Sample**	**Treated (Mean)**	**Control (Mean)**	**%bias**	**% reduction in bias**	**t-test**	**p>t**
Number	Unmatched	3	N/A				
	Matched	203	N/A				
Age	Unmatched	86.54	77.98	139.10		15.91	0.00
	Matched	86.35	86.37	-0.50	99.70	-0.07	0.95
Gender	Unmatched	0.79	0.66	29.00		3.63	0.00
	Matched	0.79	0.81	-4.50	84.60	-0.49	0.62
Living Arrangements (Couple)	Unmatched	0.13	0.34	-52.20		-6.17	0.00
	Matched	0.13	0.12	1.20	97.70	0.15	0.88

Table 29: Coefficients from zero inflated negative binomial regression models predicting overnight hospitalisation using cross-sectional Retirement Security data (Chapter 7)

	2002	2003	2004	2005	2006	2007	2008	2009	2010
					Negative Binomial Portion				
Gender Baseline: Male									
Female	0.889	1.207	0.929	0.845	0.799	1.129	0.959	0.722	2.135***
	(-0.33)	(1.02)	(-0.34)	(-0.76)	(-0.83)	(0.70)	(-0.24)	(-1.40)	(4.06)
Age									
Years	1.020	1.013	0.984	0.988	1.027	1.016	1.014	1.003	1.034
	(0.83)	(0.70)	(-0.78)	(-0.78)	(1.83)	(0.64)	(0.90)	(0.14)	(1.81)
Additional Formal Care									
Hours	1.027	0.970	0.986	0.980	0.946*	0.933***	0.996	0.985*	0.976
	(1.08)	(-0.61)	(-1.06)	(-0.73)	(-2.26)	(-3.67)	(-0.36)	(-2.12)	(-1.68)
Additional Informal Care									
Hours	1.000	0.998	0.957***	0.991**	0.999	0.944***	0.964***	1.137	1.003
	(0.18)	(-0.36)	(-4.74)	(-2.72)	(-0.30)	(-4.04)	(-4.43)	(1.83)	(1.47)
Receipt of disability living allowance (care component) Baseline: Not in receipt									
In receipt	1.696	3.121	0.340	0.234*	6.129*	0.640	0.108**	0.592	1.022
	(0.91)	(1.27)	(-1.39)	(-2.04)	(2.37)	(-0.68)	(-2.62)	(-0.85)	(0.04)
Receipt of disability living allowance (mobility component) Baseline: Not in receipt									
In receipt	0.484	0.526	0.730	1.636	0.140***	3.617	6.842*	0.950	1.476
	(-1.78)	(-0.66)	(-0.39)	(0.97)	(-4.22)	(1.29)	(2.25)	(-0.10)	(0.85)
Receipt of attendance allowance Baseline: Not in receipt									
Lower Rate	1.775	1.654	0.507	1.058	1.171	1.376	1.121	1.052	1.184
	(1.49)	(1.77)	(-1.34)	(0.24)	(0.60)	(1.06)	(0.32)	(0.13)	(0.53)
Higher Rate	1.683	1.610	0.533	1.852*	1.280	1.110	0.844	1.049	1.250
	(1.78)	(1.93)	(-1.25)	(2.34)	(0.74)	(0.39)	(-0.42)	(0.13)	(0.79)
Receipt of pension credit Baseline: Not in receipt									
In receipt	0.578*	0.777	0.921	1.032	0.521	0.491***	1.670*	0.473*	0.424***
	(-2.05)	(-1.43)	(-0.32)	(0.14)	(-1.83)	(-3.64)	(2.15)	(-2.25)	(-3.41)
Living arrangements Baseline: Single person household									
Couple	0.613	0.771	0.514**	0.565	1.025	0.582*	1.239	0.696	1.049
	(-0.88)	(-1.03)	(-3.12)	(-1.61)	(0.08)	(-2.20)	(0.55)	(-1.66)	(0.16)
					Logit Portion				
Gender Baseline: Male									
Female	1.322	1.003	1.113	0.899	0.727	0.916	1.226	1.207	1.143
	(1.15)	(0.02)	(0.66)	(-0.51)	(-1.36)	(-0.42)	(1.20)	(0.88)	(0.69)
Age									
Years	0.985	0.977	0.988	0.974*	1.001	0.955**	0.999	0.976	0.980
	(-1.03)	(-1.82)	(-0.88)	(-2.00)	(0.10)	(-2.84)	(-0.09)	(-1.49)	(-1.05)

Additional Formal Care									
Hours	0.909***	0.948	0.962	0.838*	0.628**	0.794	0.789*	0.795	0.895*
	(-3.55)	(-1.17)	(-1.34)	(-2.22)	(-2.75)	(-1.65)	(-2.57)	(-1.36)	(-2.22)
Additional Informal Care									
Hours	1.003	0.993	0.899	0.998	0.624*	0.871	0.909***	1.021	0.869
	(1.10)	(-0.78)	(-1.27)	(-0.33)	(-2.52)	(-0.90)	(-3.93)	(1.25)	(-1.89)
Receipt of disability living allowance (care component) Baseline: Not in receipt									
In receipt	0.218*	1.383	0.400	0.530	2.026	0.578	0.792	1.207	3.496*
	(-1.98)	(0.47)	(-1.31)	(-0.90)	(0.55)	(-0.80)	(-0.24)	(0.19)	(2.22)
Receipt of disability living allowance (mobility component) Baseline: Not in receipt									
In receipt	0.884	0.309	1.364	0.443	0.067	0.620	0.547	0.084*	0.269*
	(-0.13)	(-1.55)	(0.39)	(-1.21)	(-1.94)	(-0.50)	(-0.78)	(-2.52)	(-2.41)
Receipt of attendance allowance Baseline: Not in receipt									
Lower Rate	0.569*	0.641*	0.736	0.633*	0.735	0.820	0.354***	0.336**	0.466***
	(-2.08)	(-2.36)	(-1.50)	(-2.19)	(-0.95)	(-0.84)	(-4.83)	(-3.24)	(-3.59)
Higher Rate									
	0.367***	0.532**	0.435***	0.573**	0.314***	0.623*	0.339***	0.370**	0.451***
	(-4.00)	(-2.62)	(-4.06)	(-2.74)	(-3.33)	(-2.09)	(-4.89)	(-3.21)	(-4.32)
Receipt of pension credit Baseline: Not in receipt									
In receipt	1.137	0.869	0.715	1.329	1.037	0.827	0.906	0.876	0.715
	(0.50)	(-0.61)	(-1.64)	(1.65)	(0.10)	(-1.10)	(-0.50)	(-0.43)	(-1.21)
Living arrangements Baseline: Single person household									
Couple	1.928	1.376	1.349	1.114	1.284	0.800	1.510	0.776	0.794
	(1.81)	(1.39)	(1.33)	(0.55)	(0.89)	(-0.78)	(1.50)	(-0.88)	(-1.22)
N	1208	1242	1428	1378	1324	1329	1398	1295	1396

Exponentiated coefficients

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 30: Characteristics of matched and unmatched samples (Chapter 7): Sample of Retirement Security 2008 matched to BHPS advantaged sample in receipt of domiciliary care for 65+, 75+ and 85+ age groups

		Sample aged 65+					
Variable	**Sample**	**Treated (Mean)**	**Control (Mean)**	**%bias**	**% reduction in bias**	**t-test**	**p>t**
Number	Unmatched	350	N/A				
	Matched	1033	N/A				
Age	Unmatched	84.93	77.27	109.30		16.17	0.00
	Matched	83.06	83.29	-3.30	96.90	-0.88	0.38
Gender	Unmatched	0.72	0.57	30.30		4.35	0.00
	Matched	0.67	0.65	3.90	87.20	0.88	0.38
Disability Living Allowance	Unmatched	0.04	0.29	-70.50		-13.72	0.00
	Matched	0.05	0.10	-12.20	82.70	-3.67	0.00
Attendance Allowance	Unmatched	0.68	0.32	77.00		10.70	0.00
	Matched	0.60	0.60	0.20	99.70	0.04	0.96
Pension Credit	Unmatched	0.13	0.13	0.70		0.10	0.92
	Matched	0.09	0.10	-2.90	-299.70	-0.74	0.46
Living Arrangements (Couple)	Unmatched	0.29	0.70	-91.60		-12.75	0.00
	Matched	0.38	0.33	9.10	90.00	1.98	0.05
		Sample aged 75+					
Variable	**Sample**	**Treated (Mean)**	**Control (Mean)**	**%bias**	**% reduction in bias**	**t-test**	**p>t**
Number	Unmatched	354	N/A				
	Matched	928	N/A				
Age	Unmatched	86.02	82.17	73.10		8.15	0.00
	Matched	84.38	84.86	-9.10	87.60	-2.10	0.04
Gender	Unmatched	0.72	0.59	28.50		3.28	0.00
	Matched	0.68	0.66	3.40	88.00	0.74	0.46
Disability Living Allowance	Unmatched	0.03	0.21	-59.10		-10.09	0.00
	Matched	0.02	0.06	-11.00	81.50	-3.76	0.00
Attendance Allowance	Unmatched	0.70	0.44	55.60		6.37	0.00
	Matched	0.63	0.64	-2.70	95.10	-0.58	0.56
Pension Credit	Unmatched	0.12	0.12	1.90		0.21	0.83
	Matched	0.09	0.15	-18.10	-842.80	-3.94	0.00
Living Arrangements (Couple)	Unmatched	0.26	0.60	-72.00		-8.34	0.00
	Matched	0.34	0.34	0.50	99.40	0.10	0.92
		Sample aged 85+					
Variable	**Sample**	**Treated (Mean)**	**Control (Mean)**	**%bias**	**% reduction in bias**	**t-test**	**p>t**
Number	Unmatched	154	N/A				
	Matched	941	N/A				
Age	Unmatched	87.40	85.48	45.60		3.94	0.00

	Matched	86.57	86.57	0.10	99.70	0.03	0.97
Gender	Unmatched	0.73	0.56	34.90		3.20	0.00
	Matched	0.69	0.66	5.40	84.50	1.18	0.24
Disability Living Allowance	Unmatched	0.02	0.23	-66.90		-10.54	0.00
	Matched	0.02	0.03	-0.70	99.00	-0.30	0.77
Attendance Allowance	Unmatched	0.73	0.51	45.80		4.23	0.00
	Matched	0.69	0.70	-2.20	95.10	-0.50	0.62
Pension Credit	Unmatched	0.13	0.15	-5.60		-0.51	0.61
	Matched	0.10	0.14	-10.20	-80.80	-2.36	0.02
Living Arrangements (Couple)	Unmatched	0.23	0.48	-53.90		-5.12	0.00
	Matched	0.26	0.27	-1.40	97.40	-0.31	0.76

Table 31: Characteristics of matched and unmatched samples (Chapter 7): Sample of Retirement Security 2008 in receipt of additional care matched to BHPS advantaged sample in receipt of domiciliary care

Variable	Sample	Treated (Mean)	Control (Mean)	%bias	% reduction in bias	t-test	p>t
Number	Unmatched	51	N/A				
	Matched	170	N/A				
Age	Unmatched	86.029	77.274	126		13.27	0
	Matched	84.473	84.235	3.4	97.3	0.38	0.706
Gender	Unmatched	0.77828	0.57399	44.6		4.7	0
	Matched	0.73529	0.78824	-11.6	74.1	-1.14	0.253
Disability Living Allowance	Unmatched	0.0905	0.287	-51.8		-5.45	0
	Matched	0.11765	0.18235	-17	67.1	-1.67	0.095
Attendance Allowance	Unmatched	0.80543	0.32287	111.1		11.7	0
	Matched	0.74706	0.78824	-9.5	91.5	-0.9	0.37
Pension Credit	Unmatched	0.20362	0.12556	21.1		2.23	0.027
	Matched	0.13529	0.20588	-19.1	9.6	-1.73	0.084
Living Arrangements (Couple)	Unmatched	0.13122	0.70404	-142.4		-14.99	0
	Matched	0.17059	0.20588	-8.8	93.8	-0.83	0.407

ILC–UK
11 Tufton Street
London
SW1P 3QB
Tel : +44 (0) 20 7340 0440

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