

Resourcing Care for the Elderly

Prepared for Hertfordshire County Council

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1 Summary

1.1.1 This project examines the financial implications of, and comparisons between, caring for the elderly in the community and in hospital.

1.1.2 It does this in three stages:

1. The potential demand for health related services for the elderly in Hertfordshire
2. Research and evidence on the costs and benefits of hospital and community care
3. Scenarios of need and costs of community and hospital care

1.2 Potential demand for services

1.2.1 The numbers of elderly (65 and over) in Hertfordshire have increased considerably over the last 20 years, with the numbers aged 85 and over doubling.

1.2.2 The number of those aged 65 and over is projected to increase between 2014 and 2020 by 23,000 or 12%.

1.2.3 The numbers aged 65-74 may decline by close to 5%, but the numbers for older age groups are expected to increase.

1.2.4 The largest increase in numbers by age group is for those aged 70-74 where there is a projected increase of 12,600.

1.2.5 The numbers aged 90 and over are projected to increase by 3,500; over one third.

1.2.6 Depending on the assumptions used, changes in the number of elderly with a condition which limits their daily activities show potential increases between 11,600 and 14,600 (from 2014 to 2020).

1.3 Research and evidence on the costs and benefits of hospital and community care

- 1.3.1 Care for the elderly is a complex area involving older people themselves, a variety of conditions which might affect them (often in combination) and whether these can be if not prevented then at least the effects delayed or reduced.
- 1.3.2 Ways in which care can be provided include:
- Care the elderly provide for themselves
 - The care provided by their families
 - Support for the families who provide this care
 - Provision of care through a variety of organisations including the voluntary and community sector
 - A range of more formal care which is traditionally be termed social care (which could include that provided by Nursing Homes)
 - A range of medical services in different settings and from different services, ranging from nursing care, to GPs, to hospitals
- 1.3.3 The value of care in the community needs to be taken into account. Connolly, S. et al. (2014) looked at the economic and social costs of dementia in Ireland and found that forty-eight per cent of the total cost is accounted for by informal care from family and friends, 43% is from residential long-stay care. Formal health and social care costs only come to around 9% of the total.
- 1.3.4 There is no doubt that care which can be defined as health care, as opposed to social care, is more expensive. It is also clearly necessary at certain times. The (52) studies reviewed are those which look at a whole variety of programmes and projects where existing social and health care practices are changed.
- 1.3.5 The studies found that there are no changes in broad approach which can be *clearly* shown to save money in *every example* of where they have been implemented.
- 1.3.6 There are examples where specific projects have saved money:
- Projects can be implemented which reduce the proportion of older people using nursing homes for long-term care (Bardo, A.R. et al. (2013))
 - There are interventions for preventing falls (and resulting costs) from people aged over 60 living in the community (Gillespie L.D. et al. (2012))
 - Community-based health promotion programs can help prevent disabilities and improve health and functioning in older adults (Mayer C, et al. (2010))
 - Home-based nursing health promotion for older people can result in lower number of admissions to hospital or a lower number of days spent in hospital (Markle-Reid, M. et al. (2006))

- Around 40% of nursing home to hospital transfers can be considered inappropriate – residents could have been cared for safely at a lower level of care (Grabowski, D.C., O'Malley, J., and Barhydt, N.R., (2007))
- Increasing family caregiving margins can save money broadly if the family member is not working. The overall impact is different if they stop work or reduce their hours (Van Houtven, C. H. and Norton, E. C. (2004))
- Personal assistance for older adults can save money compared to treatment as usual (Montgomery P, Mayo-Wilson E, Dennis JA, and Mayo-Wilson E. (2008))
- Greater attention to improving the discharge planning process can decrease costs associated with rehospitalisation, reduce spending, and ultimately improve the lives of older adults (Chapin, R.,K., et al. (2014))
- Adult day programs can act as a transition option from hospital to home and reduce readmission rates (Jones, K. R. et al. (2011))

1.3.7 The precise applicability of these would need to be evaluated in the light of current arrangements and practice in Hertfordshire.

1.3.8 A number of studies show that *how* a change is implemented can have an effect as well as what is done. A key to many programmes considered successful is good communications between the people involved. This can be by those who are service providers, but communication with informal care providers (e.g. the family) is also important.

1.3.9 Sometimes the consequences of some changes may not be those expected. Increased medical care in a community setting may be a way of reducing that provided in hospitals. But closer medical care in the community can allow the earlier diagnosis of medical conditions. This might lead to the need for increased medical care.

1.4 Scenarios of need and costs of community and hospital care

1.4.1 The number of care packages in Hertfordshire provided has increased from 13,620 to 13,750 between 2011/12 and 2013/14. The number of packages of day care, direct payments and flexicare increased by 490 over the three year period. The number of packages of home care, long stay nursing home and long stay residential home care have decreased in the same period by 370.

1.4.2 Those aged 65 to 69 received an average of 1.22 packages per client. For those aged 95 or over this has reduced to a level of 1.11 packages per client.

- 1.4.3 In 2013/14 £126,782,700 was spent on these packages for the elderly. Close to half of the money (46%) is spent on care in long stay residential homes. Spending on home care is 27% of the total and money spent on long stay nursing home care accounts for the next greatest amount.
- 1.4.4 Although long stay residential home packages had the most money spent on them, there has only been a 1% increase overall for that category from 2011/12 to 2013/14. The increase in the amount of money spent on long stay nursing home care has also been relatively small, at 2%. Looking at the six categories of package, while direct payments had a relatively small amount of money spent on it this increased by £1,700,700 or 44% between 2011/12 and 2013/14.
- 1.4.5 Over the three years, the overall cost of care for those aged over 90 has declined by 5% for those aged 90 to 94, and by 35% for those aged 95 and over. The greatest absolute rises in costs are for those aged 65 to 69, followed by those aged 80 to 84.
- 1.4.6 Six scenarios have been produced to look at potential for future costs in providing care packages for the elderly. These scenarios use projected number of people and then the two projections for the numbers with limiting long term illness. These have been examined both with fixed costs and then also with costs which follow the trends experienced over the three years.
- 1.4.7 The potential cost changes for 2014 through to 2020 from these scenarios range from an increase of around £25.5million through to £57.8million.

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2 Introduction

- 2.1.1 The aim of the project as a whole is to examine the financial implications of, and comparisons between, caring for the elderly in the community and in hospital.
- 2.1.2 A key element to the background is the Better Care Fund. This was announced in December 2013 as £3.8 billion worth of pooled budgets between health and social care, to start from April 2015. It would be a multi-year fund and was seen to be the biggest financial incentive for councils and local NHS organisations to jointly plan and deliver services. There is the aim of integrated care becoming the norm by 2018¹.
- 2.1.3 The project has been broken into three stages:
1. An examination of the possible implications for Hertfordshire over the next 5 years in terms of demand for and costs of health related services for the elderly, both in the community and in hospital
 2. A summary of research and evidence on the costs and benefits of hospital and community care, in particular in financial terms
 3. Scenarios of need and costs of community and hospital care, and consequently the impact of reductions in key social care budgets

2.2 Context

- 2.2.1 The need for the work comes from:
- The significance of costs arising from care for the elderly
 - The likelihood of increased demand in the future – considering the demographics of an ageing population
 - The availability of resources
 - The creation of an Integration Transformation Fund (the Better Care Fund) which is designed as a single pooled budget for health and social care services to work more closely together in local areas, based on a plan agreed between the NHS and local authorities
- 2.2.2 As one demonstration of the **significance of costs arising from care for the elderly**, the Foundation Trust Network (2012) reported that across 16 Trusts older patients (aged 65 and over) account for over 25% of all A&E attendances, 45% of hospital

¹ Letter to Local Authorities from Norman Lamb, Minister of State at the Department of Health and Brandon Lewis, Parliamentary Under Secretary of State at the Department for Communities and Local Government.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268356/DH_DCLG_letter_on_Better_Care_Fund.pdf

admissions, and 82% of hospital stays that last over 20 days.

- 2.2.3 The **increase in demand** in the long term is reviewed by Wittenberg, R., Comas-Herrera, Pickard, L. and Hancock, R. (2004). They calculate that long term care expenditure the UK would rise to over three times its level in 2000 by 2051².
- 2.2.4 The issue is also picked up by the Care Quality Commission (CQC) (2013) in their report on the state of health and adult social care in England. They note that older people are increasingly arriving in Accident and Emergency with avoidable conditions. People are living longer, increasingly with more complex conditions, and often with more than one long-term condition (known as comorbidity - see also Section 6.2). They estimate that in 2012/13 more than 9% of people aged 75 and over across England experienced at least one emergency hospital admission for what the CQC considered to be an avoidable condition.
- 2.2.5 Among people who are 65 and over, the rate of avoidable admissions rose from 48 in 2007/08 to 62 in 2012/13, per 1,000 people 65+ in the population. For people aged 75 and over the increase was steeper, with the rate of avoidable admissions growing from 74 to 99 (over the same time period).
- 2.2.6 Over the last six years the number of hospital admissions for avoidable conditions has risen more than the growth in the number of older people and also the rise in the total emergency admissions among older people. A consequence is that the increases in these admissions represent an additional strain on hospital emergency care services.
- 2.2.7 In Hertfordshire the numbers of elderly, using the broad definition of aged 65 and over, increased from 141,406 in 1991 to 173,915 in 2011: an increase of 23% or 32,509. Over three quarters of the increase (77%) was in those aged over 75.
- 2.2.8 Between 2014 and 2020 the numbers of elderly in Hertfordshire is projected to increase by 23,000 or 12%³.
- 2.2.9 On the **availability of resources**, the National Audit Office (2014, para 1.29) report that since the 2010 spending review, local authorities have reduced spending on adult care by more than the Department of Health anticipated. The 2010 spending review was within the context of 26 per cent planned reduction in central government support to local authorities by 2014-15. Spending on adult social care has been protected more than other service areas, except children's services. However local authorities reduced their spending by 7.5 per cent in real terms, on

² Though with a growing economy the proportion of GDP required would rise from 1.4% in 2000 to 1.8% in 2051.

³ Source: Office for National Statistics., 2012 based sub national population projections. This is dealt with in more detail in the Forecasting Demand for Services for the Elderly report for this project.

average, between 2010-11 and 2013-14.

2.3 The example of delayed discharges

- 2.3.1 A broad introduction to this issue is given by considering the issue of “delayed discharge”. This refers to patients whose stay in hospitals is longer than is necessary. The concern has been seen for some time. For example “Since 1997, there have been a wide range of policies and initiatives designed to reduce the number of people (particularly older people) who experience delayed discharges from hospital” (Glasby, J., Littlechild, R., and Pryce, K. 2004, p.i). Fernandez, J-F and Forder, J. (2008, p 1504) go further “‘delayed discharges’ have been a more or less a continuous feature in England since the inception of the NHS”. Since the cost of hospital care is greater than that of community care the aim of reducing delay in discharge has been seen as important in allocating resources used to care for the elderly.
- 2.3.2 Those needing care who commonly fall into this category are predominantly older patients, who, although ready for discharge from hospital following treatment, find themselves unable to cope unassisted in the community. They remain in a hospital awaiting the availability of a community care package or a residential or nursing-home placement.
- 2.3.3 Fernandez, J-F and Forder, J. (2008) base research they carried on the view that delayed discharge or ‘excessive’ length of stay is often regarded as an inefficiency in health and social care systems. This is an issue since caring for patients in need of general social support who no longer require treatment in hospital is much more expensive than doing so in the community, in residential care or in nursing care homes. Poteliakhoff, E. and Thompson, J. (2011) report acute hospital care costs of about £200 per day and private nursing home fees at less than £100 per day.
- 2.3.4 Fernandez, J-F and Forder, J. also examined the issue with information from 150 English local authorities, seeking to quantify the extent to which local variations in social care resources were associated with rates of hospital delayed discharges and hospital emergency re-admissions. They found the performance of the social and health care systems are interdependent, and particularly that the intensity of social care provision affects significantly acute health care performance.

2.4 Structure of the report

2.4.1 The report is structured as the project was set out in para 2.1.3,

- firstly it looks at potential future demand in terms of the numbers of elderly and their possible need for services
- this is followed by a literature review of research and evidence on the costs and benefits of hospital and community care
- the last section is scenarios of the need and costs of community and hospital care

3 Future demand for care and numbers of elderly

- 3.1.1 After looking at recent trends in the numbers of elderly, this chapter then looks at projections of the elderly living in Hertfordshire. This is presented by examining numbers in different age groups, as the potential need for care varies considerably by age beyond 65, which is taken as the starting point.
- 3.1.2 The next step is to look at the numbers of people in different age groups who might be in need of care. This is done firstly by looking at the proportions of different age group who currently are experiencing some health problems. These proportions are then applied to future numbers by age group to produce one set of figures of possible demand.
- 3.1.3 A further stage in looking at future demand for care examines past trends in the proportions of different age group who experience some health problems. If trends in these continue and are then applied to the projection of numbers of elderly this provides another demand forecast.

3.2 Past Trends

- 3.2.1 The numbers of elderly, using the broad definition of those aged 65 and over, increased from 141,406 in 1991 to 173,915 in 2011: an increase of 23% or 32,509. Over three quarters of the increase (77%) was in those aged over 75.

Table 1 Numbers of elderly in Hertfordshire (1991 to 2011)

Age	1991	2001	2011	1991-2011	1991-2011
65-74	80,206	83,099	87,590	7,384	9.2%
75-84	48,248	54,391	61,248	13,000	26.9%
85+	12,952	18,957	25,077	12,125	93.6%
Total 65+	141,406	156,447	173,915	32,509	23.0%

Source / Notes: Census data from the Office for National Statistics.

- 3.2.2 We can look in more detail at the numbers in the age groups 65 to 74, 75 to 84 and those aged 85 or over. Numbers in each of these three age groups increased, with the number aged 75 to 84 increasing the most - by 13,000 - while the number of those aged 85 and over increased only a little less – by 12,125. Put together, the number aged 75 and over increased by over 25,000.

3.3 Projections for numbers of elderly

3.3.1 Table 1 shows the projected increase in population for Hertfordshire from 2012 through to 2020. The 2012 starting point is because the projections come from the 2012 based Office for National Statistics projections for Hertfordshire.

3.3.2 Over this period the numbers in each of the 5 year age groups (and those aged 90+) is projected to increase, although the numbers aged 65-69 should remain about the same as the current number.

Table 2 Projections of the number of elderly

Age	2012	2013	2014	2015	2016	2017	2018	2019	2020
65-69	54,290	56,190	57,220	57,990	58,140	55,260	54,220	54,150	54,490
70-74	38,940	40,180	41,600	43,170	45,670	50,480	52,380	53,420	54,220
75-79	35,240	35,560	35,940	35,930	35,280	35,170	36,440	37,840	39,370
80-84	27,420	27,930	28,370	28,780	29,150	29,610	30,120	30,600	30,730
85-89	16,710	16,960	17,510	18,190	18,810	19,580	20,200	20,730	21,270
90+	9,350	9,730	10,250	10,760	11,320	11,800	12,330	12,990	13,760
Total (aged 65+)	181,950	186,550	190,880	194,820	198,360	201,900	205,680	209,740	213,840

Source / Notes: Office for National Statistics, 2012 based sub national population projections

3.3.3 Table 3 shows the change in the projected number of elderly in the 6 year period from 2014 through to 2020. The age group with the largest absolute increase is those aged 70 to 74, where there is a projected increase of 12,600, or 30.4%. The number of people aged 90 or over is projected to increase proportionately the greatest, by 34.3%. And numbers of those aged 85 to 89 are projected to be the second highest in terms of numbers of people (3,800) and this would represent an increase of 21.5% between 2014 and 2020.

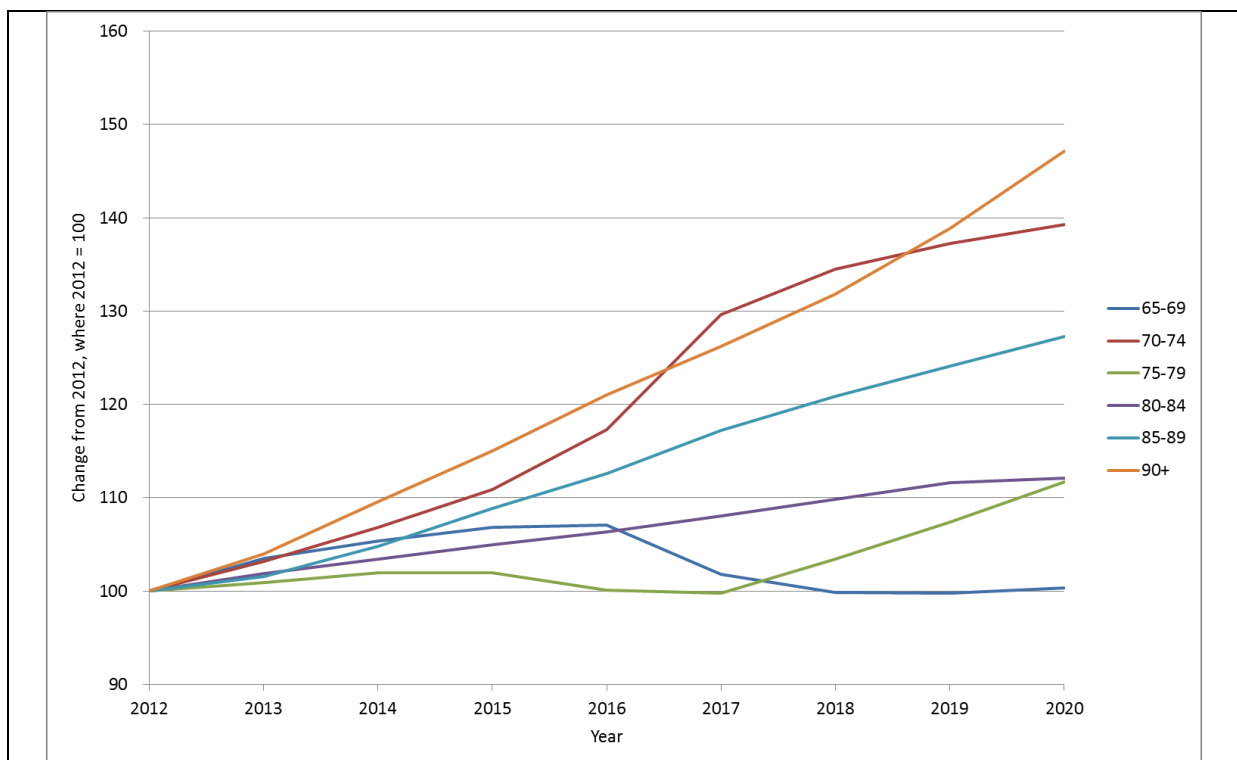
Table 3 Projected change in numbers of elderly, 2014 to 2020

Age	Numbers	Per Centage Change
65-69	-2,700	-4.8%
70-74	12,600	30.4%
75-79	3,400	9.5%
80-84	2,400	8.3%
85-89	3,800	21.5%
90+	3,500	34.3%
Total (aged 65+)	23,000	12.0%

Source / Notes: Office for National Statistics, 2012 based sub national population projections. Note the numbers have been rounded individually so, for example, sometimes the total may not be the addition of the individual numbers added.

3.3.4 The changes in Table 3 are shown graphically in Figure 1.

Figure 1 Comparing projected change in numbers of elderly, 2014 to 2020, by age group



Source / Notes: Office for National Statistics, 2012 based sub national population projections, the numbers in each age group have been standardised so 2012 = 100.

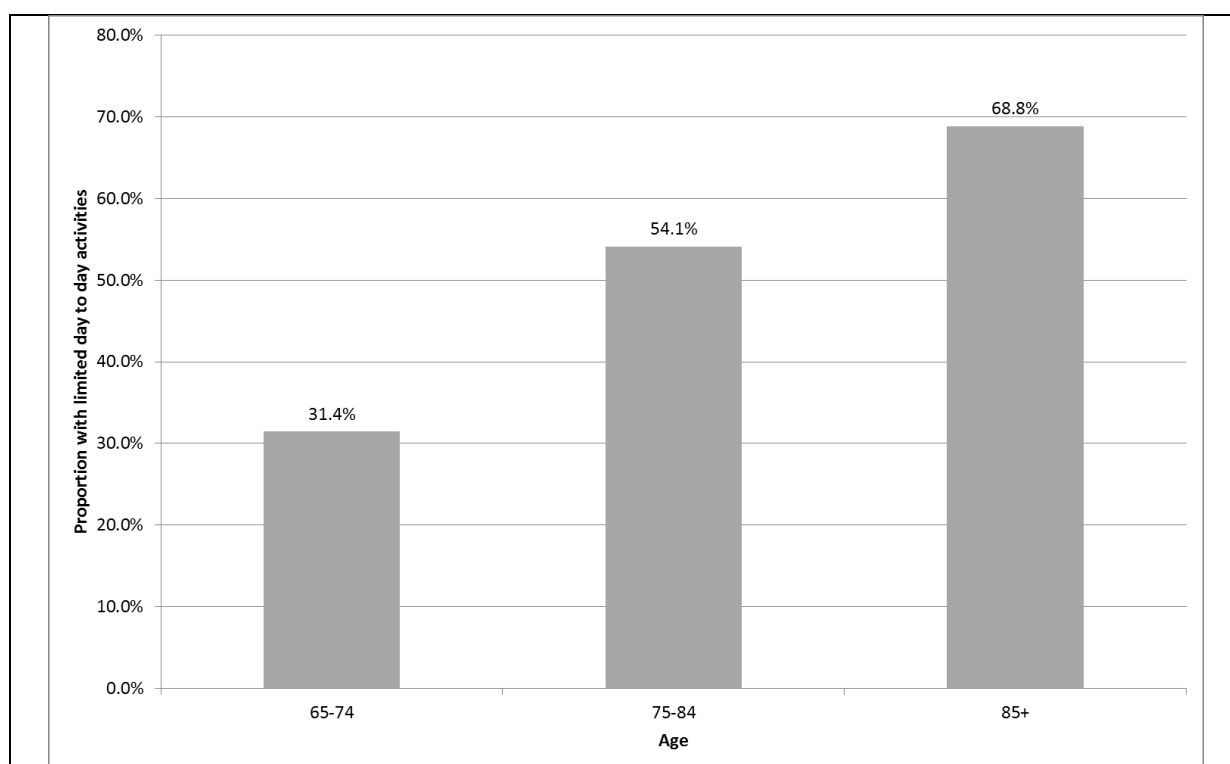
3.4 Proportions of elderly in need of care

3.4.1 Changes in the numbers of elderly in themselves do not generate additional demand for services. However the age of residents is related to the need for services and this can then be related to potential demand for care.

3.4.2 The last three Censuses in the UK have had questions on limiting long terms illness. There are some differences in wording in the different Censuses. In 2011 the following question was asked: “Are your day-to-day activities limited because of a health problem or disability which has lasted, or is expected to last, at least 12 months?” Respondents were asked to include “problems related to old age”. The answers to choose from were: “No”, “Yes, limited a little” and “Yes, limited a lot”⁴.

3.4.3 The relationship between limiting long term illness and age in 2011 can be seen in Figure 2.

Figure 2 Proportion of elderly limited in their daily activities, 2011



Source / Notes: 2011 Census data from the Office for National Statistics. The chart shows the portion of residents whose daily activities were either limited a little or a lot.

⁴ Source 2011 Census Form: <http://www.ons.gov.uk/ons/guide-method/census/2011/the-2011-census/2011-census-questionnaire-content/2011-census-questionnaire-for-england.pdf>

3.4.4 A similar question on limiting long term illness was asked in the 2001 Census. The question was “do you have any long term illness, health problem or disability which limits your daily activities or the work you can do? (includes problems which are due to old age). Table 4 shows the proportions of elderly people in Hertfordshire whose daily activities were limited in 2001 and the same for 2011. As the table shows, the proportion of those aged 65 to 74 whose daily activities were limited fell from 33.6% in 2001 to 31.4% in 2011. This may reflect healthier lifestyles and better health care before the age of 65. The rates of those whose daily activities were limited for people older than 75 increased, with the biggest increase being for those aged 85 or older. The rate for this age group increased from 56.7% in 2001 to 68.8% in 2011. This might reflect greater effectiveness of treatment which prolongs life but where the person who lives does so with a condition which limits their daily activity.

Table 4 Proportion of elderly limited in their daily activities, 2001 and 2011

Age Group	2001	2011	Per Centage Point Change
65-74	33.6%	31.4%	-2.1
75-84	49.6%	54.1%	4.5
85+	56.7%	68.8%	12.2

Source / Notes: 2001 and 2011 Census data from the Office for National Statistics. The chart shows the portion of residents whose daily activities were either limited a little or a lot in 2001 or

3.5 Projections of demand for care

- 3.5.1 The numbers of people whose daily activities are limited, when used with the projected number of old people can provide a basis for estimating potential demand for care.
- 3.5.2 As one way of estimating the projected demand for care, the proportion of the elderly whose daily activities were limited can be applied to the projected numbers of people in 2014 and 2020. This can be done for the three age groups (65-74, 75-84 and 85+) for whom this information is available.
- 3.5.3 This projection can be done using assumptions about the likelihood of living with daily activities limited. Table 5 shows the results of this while applying the limiting daily activity rates (by age group) that applied in 2001. This method results in a change in the numbers of elderly who were limited in their daily activities of an increase of 11,300 or 13%. When looking in more detail at the age groups within this total, the largest increase is in the number aged 85 or over.

Table 5 Projected numbers of elderly limited in their daily activities, 2014-2020, using 2011 rates

Age	2014	2020	Change 2014-2020	
			Numbers	Per Centage
65-74	31,100	34,200	3,100	10%
75-84	34,800	37,900	3,100	9%
85+	19,100	24,100	5,000	26%
Total	85,000	96,200	11,300	13%

Source / Notes: Information from the Office for National Statistics., 2012 based sub national population projections and 2011 Census has been used to derive these figures. Note the numbers have been rounded individually.

3.5.4 As Table 4 showed, the proportion of the elderly whose daily activities are limited changed between 2001 and 2011. From this change an implied annual change can be derived. This annual change rate can be used to derive 2014 limiting daily activity rates and these can be then be applied to the projected population be age group in 2014. And rolling forward from this, implied rates for the year 2020 can then be applied to the projected population for the year 2020. Table 6 shows the results of this.

Table 6 Projected numbers of elderly limited in their daily activities, 2014-2020, using projected health rates for 2014 and 2020

Age	2014	2020	Change	
			Numbers	Per Centage
65-74	30,400	32,100	1,700	5%
75-84	35,700	40,800	5,100	14%
85+	20,100	28,000	7,800	39%
Total	86,200	100,800	14,600	17%

Source / Notes: Information from the Office for National Statistics, 2012 based sub national population projections and 2001 and 2011 Censuses have been used to derive these figures. Note the numbers have been rounded individually.

3.5.5 Since the proportion of those aged 65 to 74 who limited in their daily activities decreased between 2001 and 2011 this method results in a projection of fewer people aged 65 to 74 whose daily activities are limited (compared to the method shown in Table 5. However the limited daily activity rate increased for those aged 75-84 and also those aged 85 and over. This results in a projection of more people whose daily activities might be limited in those two age groups. The increased in the projected number using this method is 14,600.

4 Literature review: method

- 4.1.1 The research uses important aspects of a more formal literature review but is not a comprehensive and exhaustive study, simply one to meet the needs of the project.
- 4.1.2 A number of means were used to identify articles and reports to contribute to the report. Search terms were adopted which were intended to elicit articles and reports of value. These search terms included “cost” “social” and “care”.
- 4.1.3 The following places were searched to find appropriate material:
- Cambridge University Library and its Databases . Cambridge University Library is a legal deposit library and is entitled to claim without charge a copy of all books, journals, printed maps and music published in Britain and Ireland
 - The Cochrane Library⁵. This is a collection of six databases containing high-quality, independent evidence to inform healthcare decision-making
 - Google Scholar⁶. This allows broad searches for scholarly literature
 - Internet search engines were used with the key words identified
 - Microsoft Academic Research⁷. This is a public search engine for academic papers and literature
- 4.1.4 As noted earlier this is not completely rigorous in the sense of employing a search using only specific words, as can be found in more “academic” reviews. The use of key words was the start for finding references. But when the references from the initial searches had been found and they themselves indicated potentially useful follow on material then these links were pursued. This subsequent stage was carried out without the feedback of terms and concepts used being added to the initial search criteria and that work being undertaken again.
- 4.1.5 Importance was paid to more recent articles (post 2000).
- 4.1.6 Finally, searches were made of particular institutions or organisations which were considered and found to have carried out work in this area or to have relevant roles. In particular these were:
- Kings Fund⁸: an independent charity working to improve health and health care in England
 - Personal Social Services Research Unit⁹, a relationship between the Universities of Kent, the London School of Economics

⁵ <http://www.thecochranelibrary.com>

⁶ <http://scholar.google.co.uk/>

⁷ <http://academic.research.microsoft.com/>

⁸ <http://www.kingsfund.org.uk/>

4.2 Factors to consider when looking at the detail

4.2.1 The focus of this report has been to identify research which can assist modelling and processes for care of the elderly which, in addition to providing good outcomes, also maximise the efficiency in resource. The strategy for inclusion in this report has been the identification of cost or resources in the work included. However when reading the report the following caveats should be born in mind:

- **Where research was carried out:** cultural and organisations context. Some of the studies are from different cultures and frameworks, so more specific costings would need to be interpreted or translated into those applicable in the UK.
- **When research was carried out:** although the focus has been on more recent studies, research which evaluates projects must inevitably be carried out after people have been through the project or process. This can mean that even in recently published research the project reviewed may have started a number of years ago. Again the time when the reviewed project ran should be taken into account.
- **Mixed findings on projects and processes.** The report can only highlight the main conclusions from the work referred to. Some of the references are themselves reviews of a greater number of projects and publications. It can be the case that when evaluating some types of work some evaluations might find that that an approach saves money and some might find differently.
- **Different approaches and methods for examining costs.** In terms of the cost evaluation the robustness of accounting for costs (and benefits) varies greatly between research projects. This report includes reports with this diverse range of approach. This has been done to indicate possibilities for further consideration. To focus on the most robust financial evaluations would greatly narrow the topics being considered.
- **“Bias” in which aspects of care have been reviewed and are included.** There are a wide range of types of care for the elderly with different information in turn available on what these cost and what outcomes they deliver. It is understandable that this work can only report on evaluations which have been carried out. Some types of work are covered more than others and the current availability of data on cost may itself play a part in determining which have been carried out .

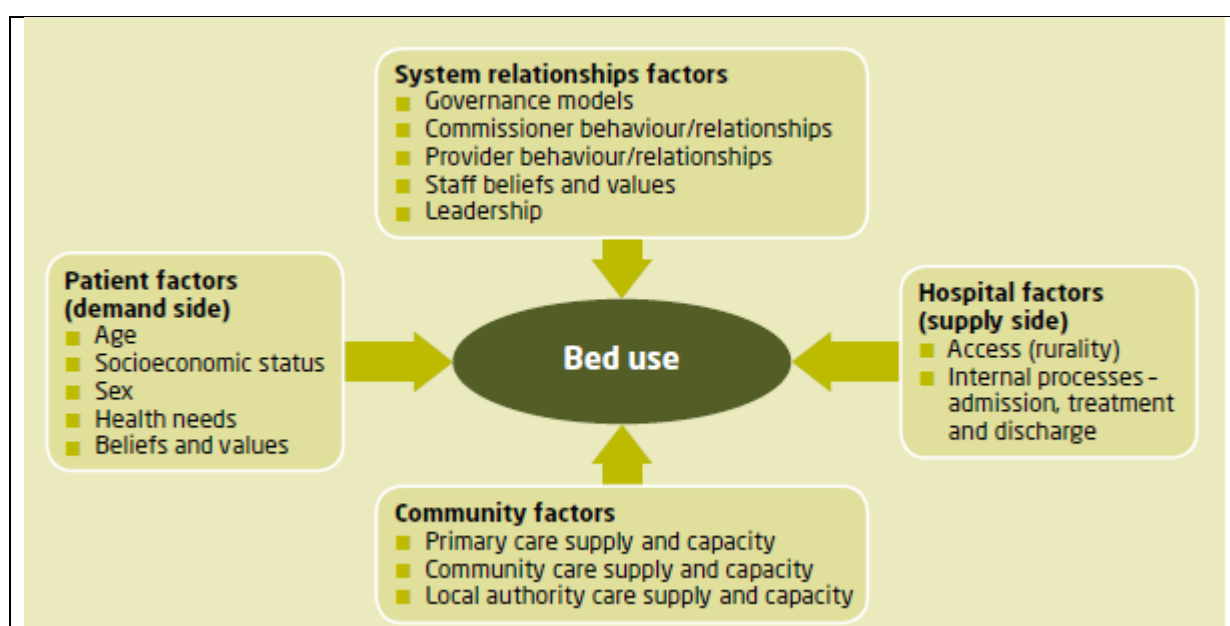
⁹ <http://www.pssru.ac.uk/>

5 Reviews of the cost implications of different ways of providing care

5.1 Introduction

- 5.1.1 This section looks at reviews of different ways of providing care for the elderly. The emphasis is on different ways of providing care that seek to minimise the overall cost on both health and social care spending.
- 5.1.2 European Commission and the Economic Policy Committee (2012) made economic and budgetary projections for the 27 EU Member States to estimate the impact of an ageing population. The report notes that the costs of caring for the elderly are determined by a number of factors. Care can be provided through informal care, home care, institutional care or cash benefits. Furthermore one type of care cannot necessarily be substituted for another, for example the substitution effects between formal and informal care are not straightforward.
- 5.1.3 Imison, C., Poteliakhoff, E., Thompson, J. (2012) review the use of emergency beds by people aged over 65 in the UK. They identify a large number of factors. There are patient-based factors such as age, sex and health status drive which the underlying demand for beds. There are community-based resources (including primary, community and local authority services) which can help to avoid admissions or facilitate early discharge. Relationships between services and the extent to which they co-ordinate and work collaboratively are important. Finally, hospital-based (supply-side) factors also influence the likelihood of emergency admission of patients over 65 and the speed of discharge. These are shown in Figure 3. Figure 1

Figure 3 Factors driving rate of use of hospital emergency beds for people over 65



Source: Imison, C., Poteliakhoff, E., Thompson, J. (2012)

5.1.4 In order to provide a structure to these reviews they have been placed into different categories. The processes reviewed are best understood as part of a larger picture of different way into tackle the issue. To give one example, there is a close relationship between projects which seek to prevent admission to hospital and those which seek to prevent re-admission to hospital.

5.2 Adult day services

5.2.1 Day services for adults are provided in many areas. Some services described as adult day services may be used by age groups which are not elderly and may be provided by a range of providers. They can be described as part of “community care”, though the term community care can also apply to a wider range of activities which provide direct or indirect care for the elderly.

5.2.2 To give one example, Age UK Suffolk¹⁰ describe a range of day services which offer support for older people who live within the local community. The service provides a regular day or morning out; assisting the individual’s general well-being, helping to maintain skills and independence, enabling them to learn new skills and providing mental and physical stimulation. It also provides regular respite for those who require care and allows the family carer to catch up on tasks or have some time for themselves.

5.2.3 Fields, Anderson and Dabelko-Schoeny (2014) provide a review of research on adult day services (ADS) in the USA. In the context of the rising number of elderly people in the USA the report notes that nursing homes can be the most costly care option (estimated at over £3,500 per month¹¹), and increasingly the same level of care can be provided in the community at lower cost. As a result, the number of nursing home beds has decreased by almost 10% in recent years. In England the number of supported residents in registered care homes declined from 214,100 in 2004 to 182,600 in 2008¹².

¹⁰ <http://www.ageuk.org.uk/suffolk/how-we-can-help-you/day-services/>

¹¹ This is a conversion on 30th July from the cost estimate of \$6,000 in the article

¹² Community Care Statistics, Supported residents (adults) - England, 2008 [NS], Health and Social Care Information Centre,

<http://www.hscic.gov.uk/searchcatalogue?productid=1869&kwd=Nursing+home&sort=Most+recent&size=10&page=1#top>

5.2.4 The review by Fields, Anderson and Dabelko-Schoeny (2014) found that there were three main areas of impact from the ADS:

- improvement of participant's health and well-being,
- improvement of care-giver's health and well-being, and
- delay in nursing home placement

5.2.5 Some research does not support the notion that ADS can delay institutionalisation and may not serve as an alternative to nursing home placement. In fact, some ADS programs have been found to act as stepping stones to institutionalisation as family members become more comfortable in handing over care responsibilities to professionals. As with much research this can be taken as a possibility, but the research method or changes in particular programmes since the research was carried out may mean these findings would not be so applicable currently.

5.3 Community Care

5.3.1 The importance of care in the community can be gauged by Connolly, S. et al. (2014) who estimate the economic and social costs of dementia in Ireland. Their work suggests an average cost per person of approximately Euro 40,500 per annum (c. £32,000). Forty-eight per cent of the total cost for Ireland is accounted for by informal care provided by family and friends of those with dementia living in the community, while 43% is due to residential long-stay care. Formal health and social care costs comprise only 9% of the total.

Table 7 Primary and community resource use for dementia patients living in the community

	Unit Cost (£)
GP visit	40
Physiotherapist visit	22
Occupational therapist visit	22
Social worker visit	22
Other (specialist) visit	22
Respite day care	77
Home help visit	14
Meals on wheels	6
Registered nurse visit	25

Source / Notes: Connolly, S. et al. (2014), page 14. Euros in their table converted to £ on 27 July 2014, rounded to nearest £.

- 5.3.2 Farag, I., Sherrington C., Ferreira, M. and Howard, K. (2013) state that a fundamental requirement for economic evaluation is accurate assessment of costing. They carried out a systematic review of the unit costs of allied health and community services used by older people (in Australia). The aim was to provide a consolidated resource of costs of these, to enable their inclusion of these costs in future economic evaluations. The study notes that costs are a significant component of the total cost of illness, injury and disability for the older person and are often overlooked in economic evaluation.
- 5.3.3 There are many complexities in establishing costs, to give one “there was little information available in the literature on the cost of domestic services including home cleaning, garden maintenance or handyman activities”. Nevertheless, the work provides a basis for one of the key elements of looking at costs and benefits. It does not however look at benefits.
- 5.3.4 Bardo, A.R. et al. (2013) report on programmes in the USA to provide nursing home residents an opportunity to return to the community and prevent unnecessary long-term nursing home placement (diversion). The “Money Follows the Person Demonstration” was established to provide States with an incentive to transition long-term nursing home residents back to the community. It is necessary to understand the timescales involved. The Demonstration first required a nursing home stay of at least 6 months to be eligible, this was later reduced to 3 months. One of the results of this programme was to better define what “transition” means.
- 5.3.5 They examined which transition strategies were the most promising and what were the most commonly found barriers. The barriers most often found were:
- the lack of affordable and accessible housing (e.g. homes which had not been modified to be suitable for the elderly to leave the nursing home)
 - the lack of in-home services for individuals with high levels of need or specialized need
- 5.3.6 Strategies were developed to overcome these barriers. They included:
- employing housing specialists to work with program transition coordinators
 - extra incentives and flexibility for program staff
- 5.3.7 The evaluation of the programs was complicated by the problems in precisely defining transition. For example, when do routine in-home services become an official “diversion” strategy, and how long does a person reside in a nursing home before he or she qualifies as a transition participant?

- 5.3.8 Bardo et al. then look in more detail at Ohio's "Aging Network"¹³. The activities used in this programme to aid transition to the community included:
- the use of state and nursing home information systems to identify individuals who could transition from nursing homes
 - identification of nursing homes that serve a high proportion of low case mix residents
 - identification of hospitals that include licensed nursing home beds
 - care managers assigned to nursing homes for routine visits
 - care managers following up on identified individuals who might be potential transitions
 - the referral of potential transition consumers to appropriate program
 - reduction or elimination of the convalescent care exemption
 - implementing models to work with hospitals to improve discharges and (reduce) readmissions. This could involve co-locating case management in the hospital.
- 5.3.9 One important factor was that care managers can change practice priorities with the right training and better incentives. Before the initiative, busy care managers would essentially ignore individuals on their caseload who entered a nursing home. Instead they would allocate their limited hours to those remaining in the community. The demonstration resulted in a change in practice and a shifting of efforts to help return to the community. Care managers went more into nursing homes often - a shift in how case management was practiced.
- 5.3.10 The "Aging Network" was part of the "Money Follows the Person Demonstration" programme to reduce the length of time spent by the elderly in nursing homes. Factors relating to the initial placement were noted in the evaluation. Overall Bardo et al. found that programmes can be implemented which reduce the proportion of older people using nursing homes for long-term care.
- 5.3.11 Gillespie L.D. et al. (2012) reviewed interventions for preventing falls by people aged over 60 living in the community. A reduction would reduce the costs of care resulting from falls. The review covered 159 trials with 79,193 participants.
- 5.3.12 The main factors which can reduce falls were found to be:
- Group and home-based exercise programmes effectively reduced falls and fractures
 - Assessments of an individual's risk of falling
 - Interventions to improve home safety, especially in people at higher risk of falling and when carried out by occupational therapists
 - *Gradual* withdrawal of particular types of drug.

¹³ As "Aging" is taken from a programme in the USA the American spelling is used.

5.4 Day Care in Hospitals

- 5.4.1 Forster A, Young J, Lambley R, Langhorne P. (2008) reviewed medical day hospital care for the elderly and compared this to alternative forms of care. They looked at 13 trials involving around 3,000 participants.
- 5.4.2 They concluded that medical day hospital care for the elderly appeared to be more effective than no intervention, but had no clear advantage over other forms of comprehensive elderly medical services. However when they considered resource use the day hospital group showed reductions in hospital bed use and the placement of survivors in institutional care.

5.5 Early Discharge

- 5.5.1 The concept of early discharge is closely linked to community care, though care in nursing homes can also be an option. As noted in Section 5.3, Bardo, A.R. et al. (2013) report on providing nursing home residents an opportunity to return to the community and prevent unnecessary long-term nursing home placement.
- 5.5.2 Earlier discharge included could be helped by:
- Targeting of hospitals with high discharge rates to nursing homes and/or that have heavy rehab caseloads
 - Provision of information to caregivers about home care options
 - The increase of service plans
 - Providing Caregiver training and support
 - Targeting those in need of high-risk case management
 - Implementation of models to work with caregivers to assist in supporting family member to remain in community

5.6 Health Coaching / Promotion

- 5.6.1 Mayer C, et al. (2010) examined health care costs and participation in a community-based health promotion program for older adults. Enhance Wellness (EW) was a community-based health promotion program that had the aim of helping prevent disabilities and improving health and functioning in older adults. They found that total costs in the year following were \$582 lower among EW participants than nonparticipants. While this difference was not (statistically) significant, they did find that EW participation showed health benefits.

5.7 Home Based Visits

- 5.7.1 Shepperd S, et al. (2009) reviewed twenty-six trials of 'early discharge hospital at home'. This is a service providing active treatment by health care professionals in the patient's home for a condition that otherwise would require acute hospital in-patient care. If hospital at home were not available then the patient would remain in an acute hospital ward.
- 5.7.2 Their review does not support the widespread development of early discharge hospital at home services as a cheaper substitute for **inpatient** care within health care systems that have well developed primary care services.
- 5.7.3 Markle-Reid, M. et al. (2006) reviewed the effectiveness and efficiency of home-based nursing health promotion for older people. This was needed because of the large potential role that community nurses have in providing health promotion to older people and the increasing pressure for evidence to show that this is an efficient use of health care resources.
- 5.7.4 They found that there is a general lack of consensus among the studies on the effectiveness of in-home preventive programs for older persons at high risk versus those with low risk of functional decline. Some studies reported that preventive home visits were most effective for individuals who were not limited in basic activities of daily living. This may be because preventive intervention works best at early and reversible stages in the continuum from health to disability. More disabled and frail clients at higher risk would benefit most from a more intensive intervention.
- 5.7.5 Interventions in which the nurse had a more intensive role identifying problems and carrying out the plan of care seemed to be more effective than those in which the emphasis was on a single problem and the provision of information or emotional support. In four of the studies investigating the effects of the intervention on mortality, the intervention group showed a significantly lower mortality rate in comparison to the control group. Four out of eight studies that examined functional status clearly showed that clients of in-home preventive programs are more likely than controls to experience and retain functional gains. One study looked at the effect of the intervention on caregivers. Here caregivers showed a higher level of satisfaction with care.
- 5.7.6 In looking at *efficiency*, five studies showed either a significantly lower number of admissions to a hospital or a lower number of days spent in a hospital compared to the control group. In five studies which investigated the impact of the intervention on use of nursing homes, the intervention group had a significantly lower use of nursing homes compared to the control group. One impact can be the increased use

of other services: six studies showed a higher use of services such as primary health care providers and also community health services.

- 5.7.7 *Economic evaluation*: three studies showed cost savings because of the prevention of nursing-home admissions and hospital admissions.
- 5.7.8 Holland, R. et al. (2005) looked at the effect of home visits by pharmacists. They noted that adverse drug reactions have been shown to cause more than 5% of hospital admissions and are significantly more likely in older patients. The study was of people aged 80 or over admitted in emergency to hospital and then intended to be prescribed two or more drugs on discharge. Home visits were then carried out by pharmacists. This review did not result in reduced emergency hospital admissions and if anything seemed to increase admissions and home visits by GPs. The report then notes three large studies carried out in the UK a little later - of which two showed non-significant decreases in admissions and the third showed a non-significant increase in admissions.

5.8 Reducing Hospital Admissions

- 5.8.1 As a note for this section, some research studies examine **re-admissions** to hospital which is a form of admission. These are looked at in section 5.16.
- 5.8.2 Preventive home visits (PHVs) are considered a promising intervention to improve the health and independence of the elderly whilst reducing health care costs. These visits are seen to support the elderly in autonomy and independence. Wider benefits include “societal savings” from the slowing down of functional and mental decline. In most cases this is followed by reductions in hospital or nursing home admission and associated cost.
- 5.8.3 Corrieri, S. et al. (2011) reviewed the cost-effectiveness of PHVs, in the context of the loss of independence in older adults hospitalized with medical illnesses. They found three studies which indicated the cost-effectiveness, one delivered no statistically significant results, and one proved the cost-effectiveness only for a subgroup of the study sample.
- 5.8.4 Tian, Y., Thompson J., Buck, D., and Sonola, L. (2013) explored the costs of falls in older people in Torbay. They reported that one in three people aged over 65, and half of those aged over 80, fall at least once a year. Falls are the commonest cause of death from injury in the over 65s, and many falls result in fractures and/or head injuries. Even ‘minor’ falls can be very debilitating: individuals can lose confidence and become nervous about falling again. Falls cost the NHS more than £2 billion per year and also have a knock-on effect on productivity costs in terms of carer time and absence from work.

5.8.5 The study extracted data from Torbay's seven linked health and social care data sets for the following types of services:

- acute hospital care: inpatient, outpatient and accident and emergency (A&E)
- community care: community hospital inpatient and community health visits
- local authority-funded social care: domiciliary care, day care and care homes.

The analysis did not include the costs of GP services and prescriptions as this data was unavailable.

5.8.6 In the 12 months preceding the fall, the cost of acute hospital, community care and social care for those patients totalled £2.5 million, some of which might have been care related to previous falls. The total costs associated with the fall itself were £1.2 million. In the 12 months following the fall, costs for those patients were £4.2 million across the system, with £1.1 million spent on acute hospital services (an increase of 35 per cent), £1.7 million on community care (an increase of 160 per cent) and £1.4 million on social care (an increase of 37 per cent).

5.8.7 The work in Torbay had a focus on reducing lengths of stay in acute hospital and spending more on community care post-discharge for frail older patients. Torbay also cocentrated on intermediate care and re-ablement services in community care to contribute to reducing reliance on permanent care home placements and minimising ongoing social care costs.

5.8.8 The majority of the costs of caring for patients after a fall are outside the acute hospital setting; this is perhaps not always recognised by commissioners, because data on costs is never brought together.

5.8.9 Grabowski, D.C., O'Malley, J., and Barhydt, N.R. (2007) report that 15% of long term nursing home residents are hospitalised within any given 6 month period. Around 40% of nursing home hospital transfers have been deemed inappropriate – residents could have been cared for safely at a lower level of care. Also hospitalisations put nursing home residents at risk of iatrogenic disease¹⁴ and delirium. The study was based on costs associated with nursing home hospitalisations in New York State from 1998 to 2004. They estimated that the average cost of a nursing home hospitalisation stay (in a hospital) in 2004 was \$1,300 per day and the average length of stay was 9.5 days, with the average cost of a stay around \$12,180. The work was based around hospitalisations with an ambulatory care-sensitive primary diagnosis which could have been prevented or treated in the nursing home.

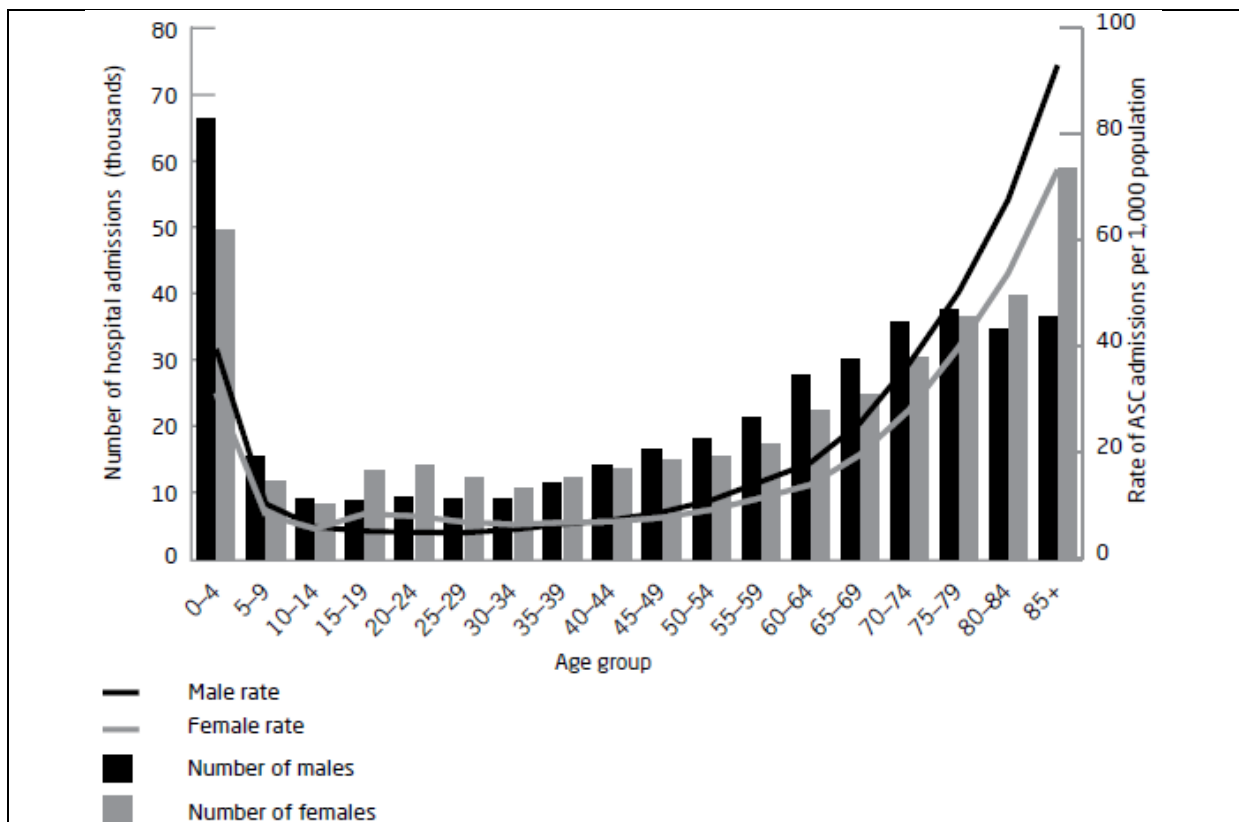
5.8.10 They suggest that major costs are associated with hospitalisations from the nursing home setting. Specifically, in 2004 approximately \$971.7 million was spent on such hospitalisations of which 23% could be deemed to be unnecessary with care at a

¹⁴ any unintended event resulting from medical treatment or advice to patients

lower level adequate.

- 5.8.11 Hsiao, C-J and Esther Hing, E. (2014) examine emergency hospital admissions of nursing home residents in the USA. They found that there was overall visit rate of 123.2 per 100 institutionalized population and, on average, nursing home residents had more than one emergency department visit per year. They report that their findings reinforce the results of previous studies which suggest that many of the emergency hospital visits and subsequent hospitalizations can be prevented if nursing home residents receive appropriate care (e.g. early detection and treatment of chronic conditions).
- 5.8.12 The Kings Fund (2012) also show the relationship between age and ambulatory care sensitive conditions in England (see Figure 4). Older people (aged 75 years and over) account for £563 million (40 per cent) of the total. The average cost of an emergency hospital admission for Ambulatory Care–Sensitive Conditions (ACSCs) (all ages) varied from £734 for ear, nose and throat infections to £4,002 for gangrene. Older people are predominantly admitted for chronic conditions such as chronic obstructive pulmonary disease (COPD), angina and congestive heart failure. The costs that could be saved from emergency hospital admissions for ACSCs are estimated at £238 million, £96 million and £136 million per year according to three different estimates. Some of the savings would need to be spent in improving care and interventions to avoid these admissions.

Figure 4 Age and sex distribution of patients admitted for ACSCs, England, 2009/10



Source / Notes: Kings Fund 2012 Figure1, from Hospital Episode Statistics 2009/2010.

5.9 Loss of Independence

- 5.9.1 Covinsky, K.E. et al. (2003) studied 2,293 patients aged 70 and older. They noted that the loss of independence in activities of daily living (ADLs¹⁵) is strongly associated with institutionalization, caregiver burden, higher resource use, and death.
- 5.9.2 The study found that many hospitalized older people are discharged with an ADL function that is worse than their baseline function. The oldest patients are at particularly high risk of poor functional outcomes because they are less likely to recover ADL function lost before admission and more likely to develop new functional deficits during hospitalization.

¹⁵ The ADLs in this study were bathing, dressing, using a toilet, transferring out of a bed or chair, and eating without assistance.

5.9.3 Indicators of hospital quality might have classified all the patients in the study as having had good outcomes because they survived to hospital discharge. However, it is likely that many of the patients who were discharged with worse-than-baseline ADL function would be more likely to be affected by other important outcomes such as mortality, nursing home placement, healthcare costs, and caregiver strain.

5.10 Informal care

5.10.1 Informal care is an aspect of care provided in the community. It is included here as a potential area for increasing care delivered in a fixed cost regime.

5.10.2 The report by the European Commission and the Economic Policy Committee (2012) combined population and labour supply projections with others and forecast an expected decrease in informal care availability. This could be taken as implying further need for/recourse to formal care and also presses for higher public expenditure on long-term care. Given rigidities in the sector — with a sometimes already limited formal care supply — they suggested that pressure may not fully translate into a direct increase in public expenditure on formal care services. But there might be an expectation that the increasing pressure will then have to be addressed in other ways, for instance not just through better working conditions in the formal care sector, but also arrangements for a better work-life balance to facilitate the provision of informal care, better (public) support to informal carers, development of respite care, and investments in ICT solutions. These might imply more public expenditure.

5.10.3 Van Houtven, C. H. and Norton, E. C. (2004) examine the role of informal care of older adults by adult children and conclude that it is a net substitute not only for long-term care such as home health care and nursing home care, but also for hospital care and physician visits. Informal care is a complement to outpatient surgery. Looking at the likelihood of home health care use, nursing home use, and outpatient surgery collectively indicates that informal care is a net substitute for these three types of formal care. The study shows that that **savings** from increasing an adult child's intensive and/or extensive caregiving margins would be between \$350 and \$1,000 for caregivers who were not previously working. If the wider picture of tax contributions is taken into account then for workers who quit or reduce their hours to part-time, there could be **net costs** of between \$900 and \$3,000.

5.10.4 Netten, A. (2010) looked at residential and nursing home care of elderly people with cognitive impairment. They carried out a study which followed 2,500 admissions to publicly funded care up to 42 months after admission. They also carried out a cross-sectional survey of 618 homes in which they collected information on about 11,900

residents. They noted the role of informal carers in delaying admission of people with senile dementia into residential and nursing home care.

5.10.5 The greatest impact on expected weekly cost was the type of home selected, rather than severity of impairment (prices for type of home shown in Table 8). However the price for caring for a resident with severe cognitive impairment was very similar to that for residents overall or, if greater, less than 10% greater. So before any arguments about cost-effectiveness of placement decisions can be made information is needed about the relative quality of care received and outcomes. The total cost also depends on events subsequent to admission.

Table 8 Comparison between the prices charged for residents overall and for those with severe cognitive impairment (in USA).

Type of accommodation	Estimate of weekly price charged (£)
Private Residential Home	224
Voluntary Residential Homes	234
Dual Registered Homes	292
Nursing Homes	316

Source / Notes: derived from Netten, A. 2010, p 19. This is a very rough derivation from the work by Netten who shows the prices as they applied in the USA in 1998/99 \$. The figures in Table 8 have been produced by applying UK inflation rates to the data and then converting the \$ to £ on 2014 exchange rates.

5.10.6 Schwarzkopf, L. et al. (2011) looked at the costs of care for dementia patients in community setting: for both the mild and moderate disease stages. In most cases family members of dementia patients are the first to take over care giving and supervision tasks. With the changes in living arrangements over the past decades, a growing number of elderly people live on their own.

5.10.7 Their study found that the predicted costs of a care per community-living dementia patient amounted to more than €47,700 per year. The major cost component was care giving time, with an economic impact of around €38,200. Their study findings affirm the initial assumption that deteriorating disease severity is associated with rising health care costs.

5.10.8 However the argument of rising costs according to disease stage was not confirmed for inpatient treatment, outpatient treatment and rehabilitation procedures. For these slightly higher costs were reported for patients with mild dementia. For patients with moderate dementia components of continuous support in daily living –

such as informal care, long-term care, or home health care – gain importance.

5.11 Nursing Home Care

- 5.11.1 Intrator, O., Zinn, J., and Vincent Mor, V. (2004), examine the association between having a nurse practitioner/physician assistant (NP/PA) on staff against other nursing home (NH) characteristics. The association between employment of NP/PAs and hospitalization was only significant for ambulatory care–sensitive (ACS¹⁶) conditions.
- 5.11.2 The study found that the employment of NP/PAs, the availability of IV¹⁷ therapy, the existence of an aide training program, and a higher prevalence of do-not-resuscitate (DNR) orders in facilities were all associated with the lower likelihood of hospitalization for an ACS diagnosis, but these effects were generally small, suggesting that residents’ physical and functional status largely determined hospitalisation trajectories of long-stay residents.
- 5.11.3 Paradoxically, it may be that on-site physicians have greater opportunity to diagnose acute-care problems and may be more likely to determine that they cannot be managed in the Nursing Home.

5.12 Personal Assistance Care

- 5.12.1 Montgomery P, Mayo-Wilson E, Dennis JA, and Mayo-Wilson E. (2008) reviewed four studies dealing with personal assistance for older adults (65+) without dementia. Focusing on cost, one of the included studies (they cite Ruchlin, 1983) provided the most comprehensive estimate of the costs of personal assistance. Accounting for placements and government services, community support services and informal care, the authors report that personal assistance saved \$5.04 per participant per day compared to treatment as usual.
- 5.12.2 They conclude that there is some evidence that personal assistance recipients may have greater satisfaction and have fewer unmet needs than those receiving other services. Following this there can be benefits in participation and physical health.
- 5.12.3 Challis, D. et al. (2010) include a report on Services for Older People with Mental Health Problems in Cumbria. It explores the relative importance of specialist and

¹⁶ ACS conditions usually include: angina pectoris; asthma; cellulitis; chronic obstructive pulmonary disease; congestive heart failure; dehydration; diabetes mellitus; gastroenteritis; epilepsy; hypertension; hypoglycaemia; urinary tract infections; pneumonia; and ear, nose, and throat infections

¹⁷ Intravenous

generic domiciliary care provided to people with dementia. They find two case types for which care at home was judged to be a viable alternative to admission to long-term care. These accounted for approximately nine per cent of all admissions within that local authority (see Table 9). The study was conducted over a 6 month period.

Table 9 Older people with dementia – care at home versus care home or acute inpatient admission.

Care home entrants with the potential for diversion			
Characteristics of case types	Weekly residential costs per user (gross) £	Weekly community cost per user to social services (gross) £	Weekly community cost per user to health services (gross) £
Female, no carer dependent, cognitively impaired	448	190	97
Female, no carer medium dependency, cognitively impairment	520	403	
Inpatient admissions with the potential for diversion			
Characteristics of case types	Daily inpatient cost £	Daily community cost per user to social services (gross) £	Daily community cost per user to health services (gross) £
Female, no carer dependent, cognitively impaired	270		34
Male, carer, non-specific concerns	270	17	12

Source / Notes: Challis, D. et al. 2010, page 31. Prices in source are 2003/4, these have been adjusted by applying UK inflation rates to the data, values are rounded to nearest £.

5.13 Rehabilitation

5.13.1 Ward D. et al. (2008) note the increased interest in providing elderly people with appropriate rehabilitation services. They cite the increase in the numbers of elderly people, but also the recognition of the importance of ‘rehab’ after a stroke, hip fracture, or an illness in general. And, with this, the increasing pressure to use health care resources efficiently, to ensure hospital beds are available to people who need acute hospital care and so that rehab facilities and community services are in place.

5.13.2 Their review acknowledges that rehabilitation services for older persons are complex and contain several separate, but interrelated, components. Rehabilitation is not merely a single intervention, but a transformation process consisting of a number of interventions. It can be described as a family of complex services. They found summarising evaluation difficult as studies in their review “tended to lack crucial details about these components and their relationships” (p. 7).

5.14 Telecare

5.14.1 Steventon, A. et al. (2013) studied the effect of telecare on the use of health and social care services. Telecare covers a range of technology, with the most basic being a pendant alarm, which used is by 1.5 million people in the UK. Newer forms of telecare enable ‘remote monitoring of condition or lifestyle’. They include detectors for falls and bed occupancy. The newer forms of telecare gather and transfer information automatically to monitoring centres. Attention from carers is then prompted in the event of behaviour that differs from routine patterns.

5.14.2 The study included a large randomised controlled trial of telecare in the Whole Systems Demonstrator pilots of integrated care (which were in Cornwall, Kent and Newham). These were established in 2006 by the Department of Health.

5.14.3 The services affected could span both social and healthcare sectors. For example, telecare might reduce admissions to permanent residential and nursing homes, through supporting independence or by easing the burden of care for carers. It might also replace face-to-face contact in domiciliary care. Also telecare might enable faster response to falls, and so reduce hospital admissions or allow facilitate faster discharge from hospital, so reducing the length of stay.

5.14.4 Results were mixed. The study found that 46.8% of intervention participants were admitted to hospital compared with 49.2% of controls. The differences reached statistical significance after adjustments. But they concluded that telecare did not significantly alter rates of health or social care service use or mortality among a population with social care needs over 12 months.

5.15 Transition from Hospital to Home (Discharge Planning)

5.15.1 The transition from hospital to home can play an important part in both outcomes and costs. For example the length of stay in hospital can be influenced as can the use of medicine, as well as the outcomes for caregivers. Another aspect of managing the transition the prevention of or reduction in readmission to hospital, this is dealt with in the next section (5.16).

5.16 Transition from Hospital to Home (Reducing Readmission)

5.16.1 Considering how patients are discharged from hospital can be triggered by the desire to reduce the number of times they return (readmission).

5.16.2 Chapin, R.,K., et al. (2014) examine hospital to community transitions. They chose this topic because effective planning to support client discharge from the hospital to the community has been shown to increase consumer choice, reduce re-hospitalisation or nursing home placement, and decrease medical costs.

5.16.3 The interviews they carried out (in the USA) found a number of challenges in the discharge planning process. These included:

- Medical complexity: because people returning home have more complex medical needs than in the past, a longer time is required to set up an array of services.
- Structural barriers to assessment: assessments are perceived to be most effective if conducted in the hospital before discharge. But community based service providers often do not have time to do a proper assessment because of the need for speedy discharges. Other factors might be waiting for family members arriving from out of town, addressing cognitive decline, and following up with supplementary assessments.
- Poor communication: difficulties between the physicians and discharge planners, and a lack of timely notification to community-based workers that a hospitalized adult needed discharge planning for community services.
- Safety concerns: balancing the values conflict of safety versus older adult independence.

5.16.4 As part of the work by Chapin, R.,K., et al. (2014) participants shared strategies to address hospital discharge planning barriers. Among these were addressing complex needs by assistive technology and variations of multidisciplinary teams. Comprehensive person-centered assessments were felt to allow adults to share goals and preferences in addition to needs. A number of ways to work around time barriers to conducting person-centered assessments were suggested. These included conducting an initial assessment at the hospital, with a follow-up once the consumer returned home. Other strategies involved notifying discharge planners and community-based workers earlier in the process. Communication with physicians, was considered “one of the most important tasks” in the discharge process and a numbers of ways of improving this were shared. Better communication was also felt to be very significant in balancing safety and independence. It was also felt that educating consumers and their families about their health conditions helped to develop more realistic expectations about post-hospitalization care needs.

- 5.16.5 The findings from their study include the view that greater attention to improving the discharge planning process can decrease costs associated with rehospitalisation, reduce spending, and ultimately improve the lives of older adults.
- 5.16.6 Shepperd S. et al. (2013) reviewed studies which looked at the role of discharge planning. The evidence suggests that a discharge plan tailored to the individual patient probably brings about reductions in hospital length of stay and readmission rates for older people admitted to hospital with a medical condition. The impact of discharge planning on mortality, health outcomes and cost remains uncertain.
- 5.16.7 Jones, K. R. et al. (2011) looked at an expanded adult day program as a transition option from hospital to home. This was a pilot program for provision of postacute care (PAC) in an established adult day program. The majority of patients had a neurological diagnosis, most commonly stroke. They found that participants and their family caregivers were highly satisfied with the program. The 30-day readmission rate for adult day program participants was significantly lower than that for nonparticipants. An expanded adult day program may represent a viable Transitional Care Model for selected patients and a feasible alternative to skilled nursing facility and home health care for PAC.
- 5.16.8 In considering how to reduce re-admission, Wallace, E. et al. (2013) reviewed the probability of Repeated Admission (Pra) score in community-dwelling adults to assess its performance. They concluded that the Pra score performs well in predicting hospital admission in community-dwelling adults categorized as high risk according to the score. They considered that the tool has clinical and healthcare policy use in targeting elderly people at highest risk of hospital admission, though it did not work as well for those considered to have low risk.
- 5.16.9 A systematic review of nurse-assisted case management to improve hospital discharge transition outcomes for the elderly concluded that, of the 15 trials that included hospital re-admissions as an outcome, seven studies reported no statistically significant difference in unplanned re-admissions between treatment groups, and eight studies reported that the intervention was associated with a significant reduction compared to the control group (Chiu W.K. and Newcomer R. (2007, quoted in Purdy, S. 2010, p. 10).

5.17 Conclusions

- 5.17.1 Ward D. et al. (2008, p. 7) concluded from a detailed look at 61 studies and reviews “that there remains a lack of robust evidence to inform the debate. Whilst it is evident that there are a number of studies that have investigated this area of health care and have provided insights into the factors that may impact on rehabilitation

outcomes, the lack of rigorous research design hinders the drawing of conclusions.”

5.17.2 The studies referred to in this report have shown a number of problems in finding any clear agreement on activities which might impact on the costs of caring for the elderly.

- Research may be carried out in different countries with different health care systems
- Programmes or activity may have different impact on different age groups or different health conditions
- There may be differences in what costs are included. For example should estimates of the cost of informal care include the impact on the wider economy or tax provision from the provision of more informal care.
- Studies may evaluate the impact over different time periods from the interventions being assessed.

5.17.3 The projects and practices reviewed do show cases where money can be saved. They also show studies where saving money cannot be demonstrated, sometime when the aim of the work in questions is the same. This could be taken as showing that attention should be given to the details of implementation and results need to be monitored. It cannot be assumed that any particular approach will save money.

6 Additional Issues

6.1.1 The purpose of this Chapter is to highlight additional relevant additional issues on the use of resources.

6.2 Comorbidities

6.2.1 Comorbidities are conditions that are not related causally to the principal disease process, but increase a patient's total burden of illness. Comorbidities differ from complications, which are linked causally to the natural history or treatment of the principal diagnosis.

6.2.2 A study by Canadian Institute for Health Information (2011) identified that the five most common combinations of chronic conditions among those aged 65 and over in Canada were:

- High blood pressure and arthritis (14%)
- High blood pressure and heart disease (12%)
- High blood pressure and diabetes (11%)
- Heart disease and arthritis (6%)
- High blood pressure and cancer (6%)

6.2.3 The study went on to show that the cost of care was more closely related to the number of chronic conditions than age. Those aged 65 and over in Canada with three or more chronic conditions reported three times more health care resource use as seniors with no reported chronic conditions (Canadian Institute for Health Information. 2011). There is a relationship between the number of chronic conditions experienced and age: those aged 65 and over were almost four times more likely to report having a chronic condition as adults age 18 to 24 (74% versus 19%).

6.2.4 Lorig, K. R. et al. (1999.) noted that chronic disease is responsible for almost 70% of health care expenditures and that as the average age of the population increases, so will the prevalence of chronic disease. They report that an estimate that people aged 60 years and older have, on average, 2.2 chronic conditions¹⁸.

¹⁸ In this study subjects had their physician confirm a diagnosis of chronic lung disease (asthma, chronic bronchitis, or emphysema), heart disease (coronary artery disease or congestive heart failure), stroke (completed cerebrovascular accident with neurologic handicap and normal mentation), or chronic arthritis.

- 6.2.5 Shwartz, M. et al. (1996) used a record-based comorbidity score which improved the ability to predict hospitalization costs by approximately 19% over existing systems.
- 6.2.6 Charlson, M. E. et al. (2008) concluded that the average annual per patient cost was \$2,655, with older patients having had higher costs. Hospital costs were \$1,558, accounting for 58.7% of total costs. In their predictive model, individuals with higher comorbidity incurred exponentially higher annual costs, from \$4,317 with comorbidity score of two, to \$5,986 with score of three, to \$13,326 with scores greater than seven.

6.3 Case Management

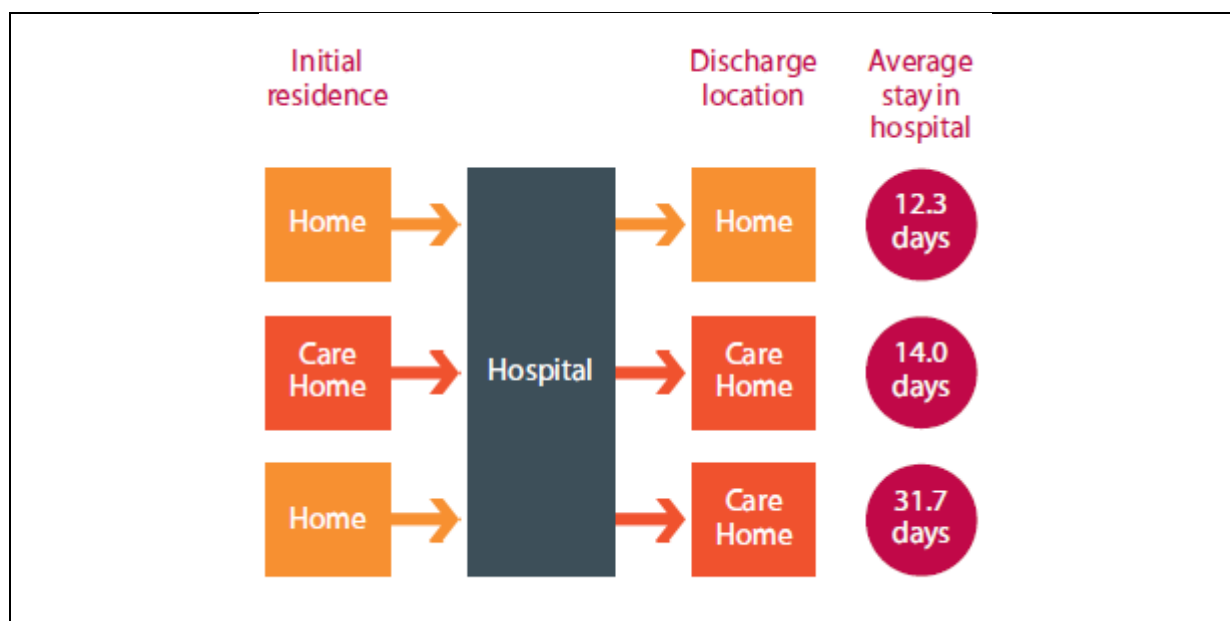
- 6.3.1 The focus of this report is to look at the costs and benefits of different ways of providing care (or treatment to use a Health term). Many of the studies mention different types of provision in the sense of the way different organisations or services work. Examples might include the provision of new programs, encouraging different ways of working amongst existing providers – perhaps more home visits, or pharmacists visiting nursing homes.
- 6.3.2 Eklund and Wilhelmson (2009) review nine articles, each describing one original integrated intervention study. They report that there is some evidence that integrated and coordinated care benefits the frail elderly people and reduces health care use. The majority of the studies they examined had participants with a mean age of 81 or 82 years.
- 6.3.3 The studies they reviewed were randomised control trials where case management (CM) was used. CM emphasises coordination to achieve a successful outcome. It can comprise the assessment of a person's longer-term care needs followed by appropriate recommendations for care, monitoring and follow-up. Five core CM activities are assessment, planning, linking, monitoring and advocacy. For this to work well requires effective information transfer between different caregivers and care levels.
- 6.3.4 The studies showed the following benefits:
- The outcome showing most positive results was medication use
 - Activities of Daily Living was most tested outcome area. Results were mixed. Two of the studies reported an effect on ADL in favour of the intervention. Four did not, though the methods used to measure the effect have since been changed
 - Two of the studies reported outcomes focusing on benefits for caregivers.

- 6.3.5 The studies were also examined for benefits for resources used on healthcare. The most positive result was with the number of days spent in hospital. Three articles reported increased use of home and health services and also a decrease in days in hospital for the intervention group. Their overall conclusion was that there is some evidence that integrated and coordinated care is beneficial.
- 6.3.6 Oeseburg B., Wynia K., Middel B., and Reijneveld S.A. (2014) reviewed the effects of case management for frail older people or those with chronic illness. All the studies included frail or older people with conditions such as functional impairment, medical problems, dementia or frailty. They concluded that patient advocacy case management did not increase service use or costs in frail older people or people with chronic illness and there was some evidence of reductions.

6.4 Financial Integration

- 6.4.1 Case management is an aspect of how care centred on the older person or patient can be managed. Some of the studies reviewed also showed the value of integrating financial aspects of care.
- 6.4.2 Weatherly H., Mason A., Goddard M. and Wright K. (2010) examine financial integration across health and social care. Their review of the Integrated Resource Framework identified several factors critical for success. One was to have a clear, joined-up vision. The use of common objectives would help to support integrated care on the front line. All programme staff need to see how integration benefits them and their work. A second important factor was to avoid a one-size-fits-all approach to integration should be avoided. The type and degree of integration should reflect programme goals and local circumstances. Approaches to integration require some flexibility, adapting to stakeholder views including those of front-line staff, users and managers.
- 6.4.3 There are a number of examples of 'early adopters' of various forms of integrated working. Petch, A. (2012) gives a very brief review of examples from Knowsley, North East Lincolnshire, Somerset and Torbay. Her view is that these examples embrace a diversity of approaches.
- 6.4.4 One example of the need to consider of collaborative working between (narrowly defined) health services and social services and care homes is given by the Foundation Trust Network. (2012) which illustrates the increased average stay in hospital arising from a discharge location which is different to the initial residence (Table 10).

Table 10 average stay in hospital arising from a discharge location different to initial residence



Source: Foundation Trust Network. (2012), page 6.

- 6.4.5 Mason, A., Goddard, M. and Weatherly, H. (2014) looked at the wider issue of financial mechanisms for integrating funds for health and social care: an evidence review. A wider view on the value that integrated funds and resources to support integrated care, compared with 'usual care', found that schemes that integrated funds and resources to support integrated care seldom led to improved health outcomes.
- 6.4.6 As has been noted in some of the studies already referred to in this report, they also found that co-ordinated care can reveal rather than resolve unmet need. While this has benefits it may increase, rather than reduce, total costs. In relation to the Better Care fund they have the view that removing the funding attribution also remove some of the issues around separate funding and focus on care for individuals.

7 Scenarios of the need and costs of community and hospital care

7.1 Introduction

7.1.1 To assist the analysis, Hertfordshire County Council provided anonymized information on the Clients whose service packages they had funded in the three years 2011/12, 2012/13 and 2013/14. The information provided was:

- Financial year in which service package was provided
- Client number (representing the person who received the service)
- Date of birth
- Gender
- The category or type of service
- The amount spent on the service for that client that year

7.1.2 The categories of service which were included in this data are shown in Table 11.

Table 11 Service Packages included in analysis

Service Package	Abbreviation
Day care	DC
Direct payments	DP
Flexicare	Flx
Home care	HC
Long stay nursing home	Nurs
Long stay residential home	Res

7.1.3 In looking at the data it should be noted that this only covers money spent by directly Hertfordshire County Council. It by no mean represents the total amount spent on care as it does not include money spent privately by elderly people or their families or other agencies, particularly those which are more directly health related. Also financial resources spent caring for the elderly do not represent all the care received as this may well include time spent by family members (insert reference). The data included on spending on care packages also does not represent the total amount spent by Hertfordshire Council on caring for the elderly as, for example, it does not account for indirect costs such as those involved in make the payments themselves.

7.1.4 Some clients received more than one service package in a year. For example, home care and care in a long stay residential home.

7.2 Numbers of clients

7.2.1 Table 12 shows the number of individuals who received packages funded by Hertfordshire County Council in the three years.

7.2.2 Looking at the number of clients by age, the age group in 2013/14 with the largest number of clients is 85 to 89, where there are 2,890 clients. This is closely followed by the number who are aged between 90 and 94. Extending this to include those aged 80 to 84 groups and putting these two together, two thirds of clients are aged 80 to 94.

Table 12 Individual clients by Age, 2011/12 to 2013/14

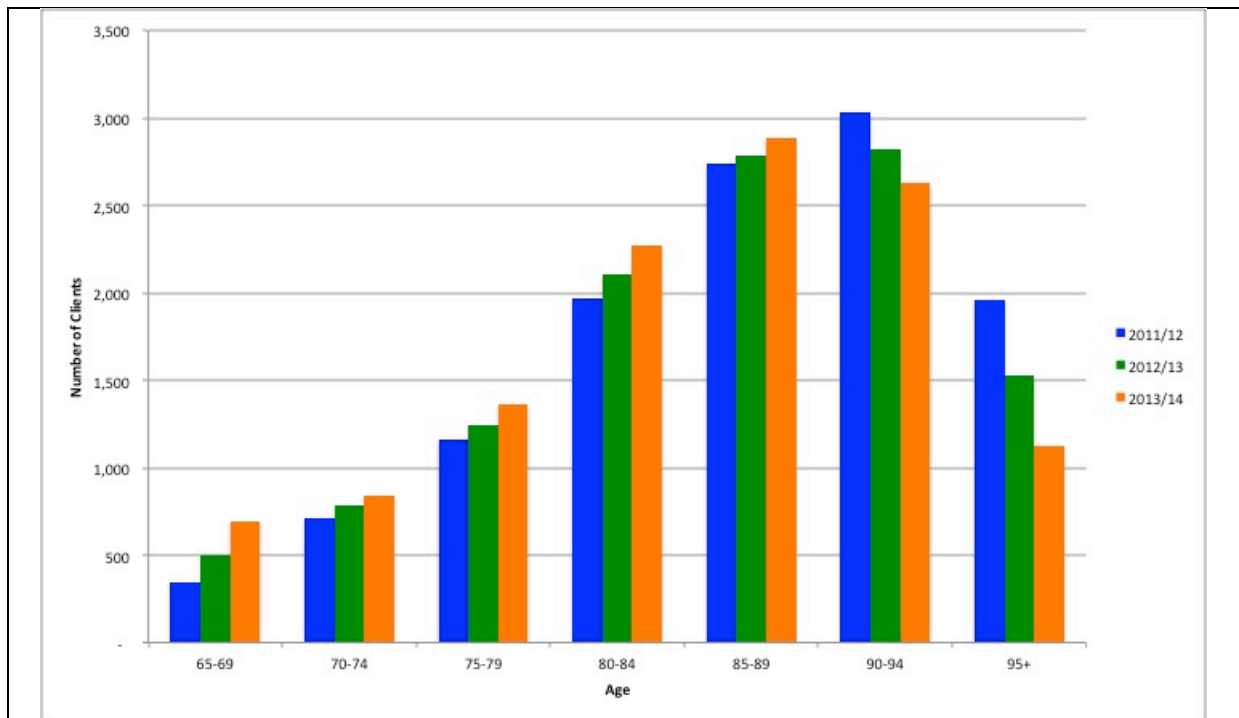
Age Group	Year			Change 11/12 to 13/14	
	11/12	12/13	13/14	Numbers	Per centage
65-69	340	500	690	350	104%
70-74	720	790	840	130	18%
75-79	1,160	1,240	1,370	200	17%
80-84	1,970	2,110	2,270	300	15%
85-89	2,730	2,780	2,890	150	6%
90-94	3,030	2,820	2,630	-400	-13%
95+	1,960	1,520	1,130	-830	-42%
	11,910	11,760	11,820	-90	-1%

Source: Hertfordshire County Council.

Notes: all numbers have been individually rounded so totals may not be the exact addition of the numbers above, and the same caveat should be applied to change figures and per centages

7.2.3 Table 12 also shows how the numbers and proportions of clients in different age groups has changed in the three years. Figure 5 shows this change in the numbers of clients. The overall numbers have remained similar over the three years, at around 11,900 individuals, but there have been changes in the age of clients receiving funded services.

7.2.4 The main change has been that the number of clients in the younger age groups has increased and the number in the older age groups has fallen. So the number of clients aged under 90 has grown over the three years by around 1,140. At the same time the numbers aged 90 or over has fallen by around 1,320. In 2011/12 clients aged over 80 made up 81% of the total number of clients. In 2013/14 the proportion was still significant but was now 75%.

Figure 5 Number of clients, by age 2011/12 to 2013/14

Source: Hertfordshire County Council.

7.3 Types of care provided

7.3.1 In terms of which packages are supplied or authorised, just over half are home care. As a proportion of the total number of packages in a year this has decreased slightly from 53% to 51% over the three years (Table 14 gives the types of package as per centage of the total each year). Care in a long stay residential home is the second commonest type of service package. This type of package accounts for one in five of the total. Figure 6 shows the packages provided in 2013/13 as a proportion of the total for that year.

7.3.2 The three packages of which fewest are funded are: day care, direct payments and flexicare. These three have seen an increase in the number funded over the last three years (see Table 13). The numbers have risen from 2,300 to 2,800. And the per centage of the total number of packages their share has increased from 17% to 20%. Correspondingly, there have been decreases in the number of packages in the other three categories. The distribution of the service packages by type for 2013/14 is shown in Figure 6.

Table 13 Number and type of service packages received by clients, 2011/12 to 2013/14

Type of Package	Year			Change 11/12 to 13/14	
	11/12	12/13	13/14	Numbers	Per Centage
Day care	1,230	1,380	1,450	230	119%
Direct payments	570	580	710	140	124%
Flexicare	490	560	620	130	126%
Home care	7,210	7,020	6,960	-240	97%
Long stay nursing home	1,260	1,210	1,220	-40	97%
Long stay residential home	2,870	2,890	2,780	-90	97%
Total	13,630	13,640	13,750	120	101%

Source: Hertfordshire County Council.

Notes: all numbers have been individually rounded so totals may not be the exact addition of the numbers above, and the same caveat should be applied to change figures and per centages. The per centage change is the number in 2013/14 compared to 2011/12.

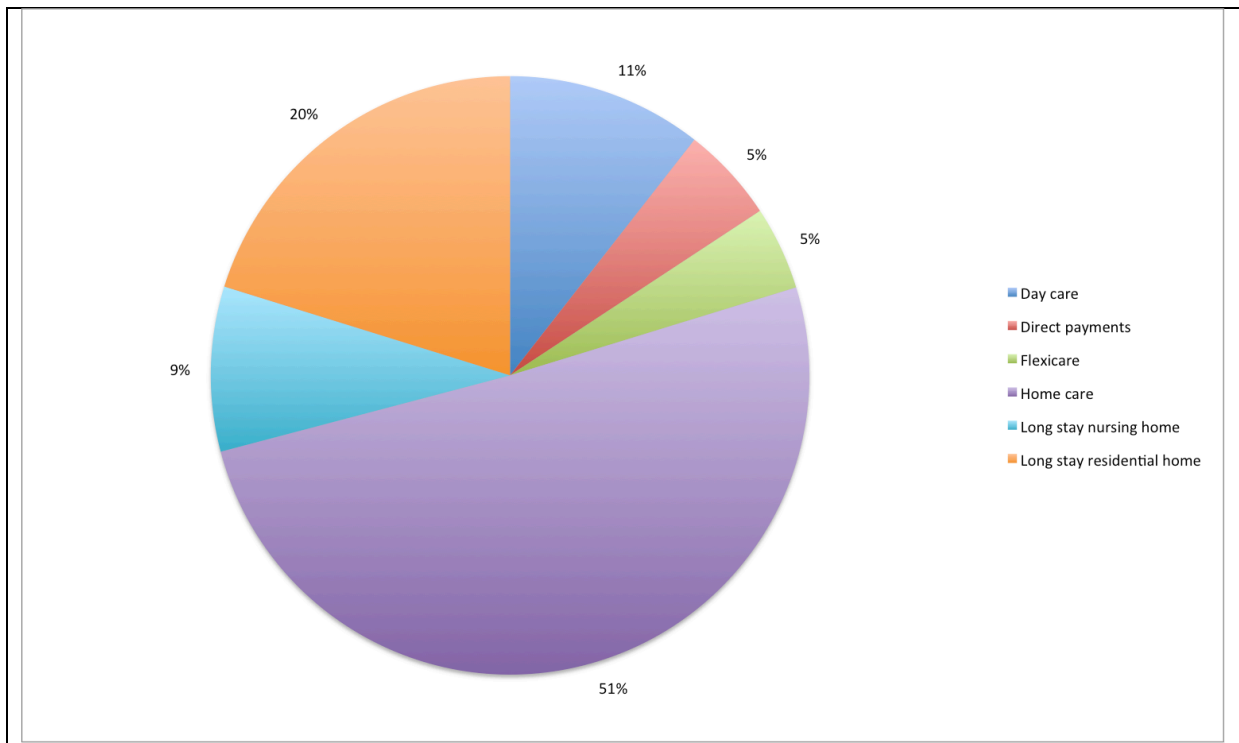
Table 14 Service packages by type as a proportion of the total, 2011/12 to 2013/14

Package Category	Year		
	11/12	12/13	13/14
Day care	9%	10%	11%
Direct payments	4%	4%	5%
Flexicare	4%	4%	5%
Home care	53%	51%	51%
Long stay nursing home	9%	9%	9%
Long stay residential home	21%	21%	20%

Source: Hertfordshire County Council

7.3.3 Table 13 also shows trends in the provision of packages. The total has increased slightly from 13,620 to 13,750. This is at the same time as there has been a slight decrease in the number of individual clients (as shown in Table 12). Some packages have had more money allocated to them and there have been reductions in the money allocated for other packages. The number of packages of day care, direct payments and flexicare have increased in total by 490 over the three year period. The number of packages of home care, long stay nursing home and long stay residential home care have decreased in the same period by 370.

Figure 6 Packages provided in 2013/14 as a proportion of the total



Source: Hertfordshire County Council

7.3.4 Another way of looking at the provision of packages is to examine the relationship between the type of package needed and resourced together with the age of the client. In 2013/14 on average a client might receive 1.16 packages. Naturally in reality there would be a whole number of packages. So some would receive one package and others would receive two or more. The average number of packages received by younger clients is greater than that received by older clients. For those aged 65 to 69 there is an average of 1.22 packages per client. For those aged 95 or over this has reduced to a level of 1.11 packages per client (see Table 15).

Table 15 Average number of packages received by age of client, 2013/14

Age Group	Number of packages for each client
65-69	1.22
70-74	1.20
75-79	1.17
80-84	1.17
85-89	1.16
90-94	1.15
95+	1.11
Total	1.16

Source: Hertfordshire County Council.

7.4 Resources spent on care

- 7.4.1 This section examines the money from Hertfordshire County Council spent directly on resourcing care. This does not represent the total amount spent on care as it does not include other types of care nor the necessary expenditure on providing the payments.
- 7.4.2 Table 16 shows the amount of resources spent on packages from 2011/12 to 2013/14.
- 7.4.3 In 2013/14 £126,782,700 was spent on these packages for the elderly. Close to half of the money (46%) is spent on home care (the proportions of each category are shown in Table 17). Spending on home care accounts for 27% of the money spent and money spent on long stay nursing home care accounts for the next greatest amount. Between them these three categories account for 90% of the total money spent.

Table 16 Cost of care packages by type, 2011/12 to 2013/14

Package Category	Year			Change 11/12 to 13/14	
	11/12	12/13	13/14	£s	Per centage
Day care	£4,010,600	£4,378,200	£4,811,200	£800,600	20%
Direct payments	£3,874,300	£4,345,600	£5,575,000	£1,700,700	44%
Flexicare	£1,779,100	£2,079,200	£2,500,500	£721,400	41%
Home care	£30,116,700	£30,884,000	£33,849,100	£3,732,500	12%
Long stay nursing home	£21,717,900	£21,225,500	£22,091,400	£373,500	2%
Long stay residential home	£57,410,100	£57,782,900	£57,955,400	£545,300	1%
Total	£118,908,700	£120,695,300	£126,782,700	£7,874,000	7%

Source: Hertfordshire County Council.

Notes: all numbers have been individually rounded so totals may not be the exact addition of the numbers above, and the same caveat should be applied to change figures and per centages.

Table 17 Proportion of money spent by package, 2013/14

Package Category	Per centage of total packages
Day care	4%
Direct payments	4%
Flexicare	2%
Home care	27%
Long stay nursing home	17%
Long stay residential home	46%

Source: Hertfordshire County Council.

7.4.4 Table 16 also shows the change in money spent on different types of package across the three years over which this analysis is being carried out. Overall the money spent over the three years has increased by £7,874,000 or 7%.

7.4.5 Although long stay residential home packages had the most money spent on them, there has only been a 1% increase overall for that category. The increase in the amount of money spent on long stay nursing home care has also been relatively small, at 2%. Looking at the six categories of package, direct payments had a relatively small amount of money spent on it. It was the second smallest after

flexicare). However the money spent on direct payments increased by £1,700,700 or 44% between 2011/12 and 2013/14.

7.4.6 Table 18 looks at the relationship between the number of packages and the resources spent on these. While this gives an indication of the unit cost of the packages it does not provide an exact measure of the unit cost. The data provided is that spent on packages by type within a given year. It does not give any information on the length of time the package was received within the year. So, for example, the cost of each home care package may increase from one year to the next, but this could be caused by the clients receiving home care for longer within that year. The number of packages in any year varies from around 500 to 7,000 and these numbers should prevent the data being greatly affected by changes in a small number of cases.

Table 18 Money spent on or allocated to packages compared to the number of packages, 2011/12 to 2013/14

Package Category	Year			Change 11/12 to 13/14	
	11/12	12/13	13/14	£s	Per centage
Day care	£3,300	£3,200	£3,300	£0	1%
Direct payments	£6,800	£7,500	£7,900	£1,100	16%
Flexicare	£3,600	£3,700	£4,000	£400	12%
Home care	£4,200	£4,400	£4,900	£700	16%
Long stay nursing home	£17,200	£17,500	£18,000	£900	5%
Long stay residential home	£20,000	£20,000	£20,900	£800	4%
	£8,700	£8,800	£9,200	£500	6%

Source: Hertfordshire County Council.

Notes: all numbers have been individually rounded so totals may not be the exact addition of the numbers above, and the same caveat should be applied to change figures and per centages. This has not been expressed as “per package” as the size or amount of the package may not always be the same. For example the amount of money spent on day care will depend on the type of day care needed and the number of days in the year over which it is provided.

7.4.7 The biggest increase in resource allocation to individual packages is for direct payments. The money has increased from an average of £6,800 for each direct payment in 2011/12 to £7,900 in 2013/14. There has been some increase in the money allocated to each package (as delivered) apart from day care where there has been no increase.

- 7.4.8 The cost of the packages can also be shown by according to the age of the clients who receive them. The costs by age group will depend on two factors: the number of clients in the age group (as shown in Table 12) and also the cost of the packages clients receive. The costs per package are shown in Table 18.
- 7.4.9 Table 19 shows the costs of care by age group over time, as shown through the cost of packages received. The overall cost of care for those aged over 90 has declined by 5% for those aged 90 to 94, and by 35% for those aged 95 and over. Table 12 showed that the number of clients in those two age groups had declined relatively by slightly less: by 13% and by 42% respectively. This implies that the cost per individual has risen but the overall total cost for the age group has reduced as the numbers have come down. Although other another factor could be that care is now being provided through packages which cost less (perhaps because needs are less) or the packages are being provided for a shorter time.
- 7.4.10 The greatest absolute rises in costs are for those aged 65 to 69, followed by those aged 80 to 84. Looking again at Table 12 it can be seen that these were the two age groups which had the greatest increase in numbers of clients.

Table 19 Total costs of packages by age of clients, 2011/12 to 2013/14

Age of Client	Year			Change 11/12 to 13/14	
	11/12	12/13	13/14	£s	Per centage
65-69	£5,301,500	£7,347,700	£10,490,200	£5,188,700	98%
70-74	£9,103,000	£9,476,400	£10,461,100	£1,358,100	15%
75-79	£11,084,700	£11,941,600	£13,340,800	£2,256,100	20%
80-84	£18,134,800	£20,384,900	£22,338,000	£4,203,200	23%
85-89	£25,038,900	£26,040,000	£28,618,100	£3,579,200	14%
90-94	£29,235,000	£28,514,100	£27,885,900	-£1,349,100	-5%
95+	£21,010,700	£16,990,700	£13,648,500	-£7,362,200	-35%
Total	£118,908,700	£120,695,300	£126,782,700	£7,874,000	7%

Source: Hertfordshire County Council.

Notes: all numbers have been individually rounded so totals may not be the exact addition of the numbers above, and the same caveat should be applied to change figures and per centages.

7.4.11 As introduced in 7.4.10 the cost of the packages for each age group is related to the number of packages received by clients of those age groups. This is not exactly the same as a direct comparison with the number of clients in an age group as it takes account of the fact that clients may receive more than one package in a year. The relationship between the number of packages received by clients is shown in Table 15. This showed that the younger age groups tended to receive a larger number of packages in a year.

7.4.12 Table 20 shows the costs of the packages received by the age of the clients who received them. The cost of packages for younger clients has decreased by £500 per client over the three year period. Table 19 shows the overall cost of packages by age group. In this it can be seen that that the overall money spent on packages for the younger age groups has increased. But, as Table 12 showed, the number of clients in the younger age groups increased as well. The implication of this is that the cost of packages received by clients of the younger age groups (particularly under 75) has decreased – either because the type of package is cheaper or its duration or complexity or intensity has decreased.

Table 20 Cost of packages received by clients, by age of client, 2011/12 to 2013/14

Age of Client	Year			Change 11/12 to 13/14	
	11/12	12/13	13/14	£s	Per centage
65-69	£13,000	£12,400	£12,500	-£500	-4%
70-74	£10,800	£10,100	£10,400	-£500	-5%
75-79	£8,100	£8,100	£8,300	£200	3%
80-84	£8,000	£8,200	£8,400	£400	5%
85-89	£8,000	£8,000	£8,500	£500	6%
90-94	£8,500	£8,900	£9,200	£700	9%
95+	£9,700	£9,900	£10,900	£1,200	13%
	£66,100	£65,700	£68,200	£2,100	3%

Source: Hertfordshire County Council.

Notes: all numbers have been individually rounded so totals may not be the exact addition of the numbers above, and the same caveat should be applied to change figures and per centages.

7.5 Implications for future cost of packages

- 7.5.1 The costs of care packages by age can be brought together with the information on potential numbers of future clients as scenarios for future spending implications. This would provide three scenarios: one using the projected number of people in different age groups, the second and third scenarios would use the possible numbers with limiting longer term illness – those more likely to be in need of care. Two possibilities were produced for these, as set out in Section 1.2. These were firstly to keep the portion of people with limiting long term illness (by age) the same (unadjusted) as it was from the 2011 Census). The second possibility was to also project forward changes in rates of limiting long term illness and apply these to the numbers of residents by age: to use adjusted rates.
- 7.5.2 In addition to the three scenarios above it was decided to test the effects of changes in the costs of packages by age, through a simple trend extrapolation.
- 7.5.3 In total this produces 6 different scenarios for future costs:
- Scenario 1. Project the future cost by using **the cost by age of client with projected numbers of people** in those age groups (taken from ONS population projections¹⁹).
 - Scenario 2. Also use the **projected number of people** by age group but also project forward the **changes in cost of packages** for each age group²⁰ (as shown in Table 20). This would reduce the costs for the numbers aged under 75 and increase it for the numbers aged over 75.
 - Scenario 3. This used the **unadjusted** limiting long term illness rate, with fixed 2013 costs by age.
 - Scenario 4. This used the **adjusted** limiting long term illness rate, with fixed 2013 costs by age.
 - Scenario 5. This used the **unadjusted** limiting long term illness rates, with a **trend adjustment to the prices** of packages received by age of client.
 - Scenario 6. This used the **adjusted** limiting long term illness rates, with a trend adjustment to the prices of packages received by age of client
- 7.5.4 The results off these scenarios are shown in Table 21 Scenarios for changes in costs for packages for clients, 2014 to 2020.
- 7.5.5 The potential cost changes for 2014 through to 2020 range from an increase of around £25.5million through to £57.8million.

¹⁹ The ONS projections are shown in Table 2, the costs of the packages were recalculated so that the 90-94 age group and the 95+ age client age groups were combined to form a 90+ age group – as this was that provided in the ONS projections.

²⁰ The projection of costs was a simple trend projection. It used that change in costs by age group for 2011/12 to 2013/14, calculated an annual rate of change from this and applied this to the costs for future years.

Table 21 Scenarios for changes in costs for packages for clients, 2014 to 2020

Scenario	Change in overall spending 2014-2020
Scenario 1: ONS Pop Proj, by fixed 2013 costs	£28,589,400
Scenario 2: ONS Pop Proj, with trend costs by client by age group	£47,944,200
Scenario 3: Using unadjusted LLI projections by fixed 2013 costs	£25,476,100
Scenario 4: Using adjusted LLI projections by fixed 2013 costs	£38,636,800
Scenario 5: Using unadjusted LLI projections with trend costs	£37,415,400
Scenario 6: Using adjusted LLI projections with trend costs	£57,759,500

Appendix 2 Abbreviations

Abbreviation	Meaning
ACS	ambulatory care–sensitive
ACSC	Ambulatory Care–Sensitive Conditions
ADL	Activities of Daily Living
ADS	Adult Day Services
CM	Case Management
COPD	chronic obstructive pulmonary disease
CQC	the Care Quality Commission
DNR	do-not-resuscitate
EW	Enhance Wellness
GDP	Gross Domestic Product
NH	Nursing Home
NHS	National Health Service
IV	Intravenous
NP/PA	nurse practitioner
PA	Physician Assistant
PAC	postacute care
PVH	Preventable Home Visit
Pra	probability of Repeated Admission
USA	United States of America

Appendix 1 References

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