

Health and Social Care: Current Provision and the Demographic Effect Summary

The objectives for this modelling for the Demographic and Funding Workstream were two-fold: to map the level and pattern of current expenditure on health and social care by age and to determine a baseline projection to show the impact of demographic change. The baseline projections are intended simply to identify the potential effect of population change and therefore assume that all health and care policy, treatment and technology do not change. In the next phase of the work the baseline projection will be used as a benchmark against which to make assessments of the implications of the re-shaping care proposals. Please note that the reported estimates are provisional and may change as further information becomes available.

Main findings:

- Total public expenditure in 2007/08 on health and care for those aged 65 and over was around £5.3 bn;
- Health expenditure constituted the largest component of public expenditure at £3.4 bn – around 63% of expenditure on health and care for those aged 65 and over;
- Estimated expenditure on care was £1.1 bn and constituted around 21% of public expenditure on health and care for those aged 65 and over;
- Benefits expenditure was £800 mn, around 16% of total public expenditure on health and care for those aged 65 or over;
- Estimated private expenditure on care in 2007/08 was around £350-400 mn;
- The latest GRO population projections imply that the number of people aged 65 and over will increase from 856 thousand (17% of population) in 2008 to 1.4 mn in 2033 (25% of population) – an increase of 64%;
- Baseline activity projections to 2033 for care (holding everything except population constant) imply a substantial increase in the numbers of those aged 65 and over requiring care: 116% for care homes; 97% for care at home; 87% for day care;
- Preliminary baseline health projections to 2033 imply an increase in real costs of around 45-90% (with a lower rate of increase for under 65s partly offsetting the higher rate of increase for those aged 65 and over);
- Preliminary baseline costs projections to 2033 for care imply real increases of 158% for care homes; 107% for care at home; 88% for day care (with slight reductions in expenditure for those under 65 partly offsetting a higher rate of increase for those aged 65 and over).

The next phase of this work will be to make assessments of the potential impact, on the level and cost of care provision, of the re-shaped care proposals which are emerging from workstreams and to undertake sensitivity and scenario analysis to explore the robustness of projections.

Health and Social Care: Current Provision and the Demographic Effect

1. Introduction:

1. The Reshaping Care project is considering the provision of health and care services over the next 25 years, in the context of changing Scottish population demographics. This note reports analysis undertaken for the Demographics and Funding Workstream. The objectives of the work were two-fold: first map the level and pattern of current expenditure on health and social care by age; second, determine a baseline projection to show the impact of demographic change. In the next phase of the work the baseline projection can then be used as a benchmark against which to make assessments of the proposals for re-shaping care.

2. This note reports the mapping of current expenditure, for the population aged 65 years and above, and the initial baseline projections of activity and costs in the health and care sector. It provides some broad indications of the impact of the changing demographic structure of the population for activity in the care sector. Please note that this is work in progress: reported estimates are provisional and may change as further information becomes available.

3. The outline of the note is as follows: the second section sets out estimates of the current level of expenditure on health and care; the third section provides projections of the impact of changing demography on activity and costs; the final section outlines further work. Details of the data sources used are given in the Annex.

2. Current Expenditure:

(i) Care:

4. Estimates of the current pattern of expenditure on care have been derived from a range of sources. Public expenditure by local authorities was obtained from the Local Finance Returns (LFR3). These returns also provide estimates of Local Authority receipts from clients contributions for services received and from Health Boards. The LFR3 information provides a separate estimate for expenditure on 'older people': this was used for the costs of care for those aged 65 or over.

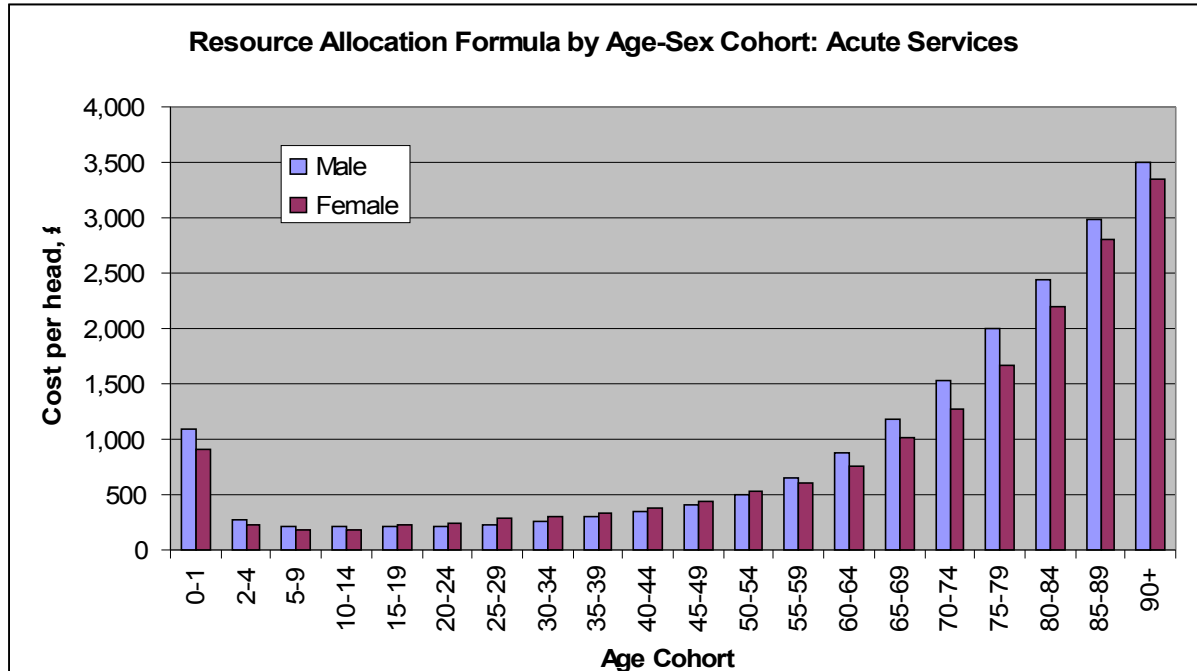
5. Estimates of private expenditure on care homes and home care were constructed using data from the Scottish Care Home Census and the Scottish Household Survey respectively. The estimated levels of expenditure for health and by type of care are set out in Table 1 below, for the year 2007/08.

(ii) Health:

6. Published Health expenditure data is not broken down by age of patient. To construct estimates of expenditure by age of patient we utilise age-sex per-capita costs calculated for the Resource Allocation Formula (RAF). The RAF calculates per-capita age-sex costs for a number of different health programmes (acute, care of the elderly, mental health and learning difficulties, maternity, community and GP prescribing). These per capita costs were weighted by population data to generate estimates of the shares of expenditure by age cohorts, which were then applied to the estimates of programme expenditure taken from the Costs Book.

7. For illustrative purposes the following chart sets out the RAF estimated costs per head for acute services. We can see that the costs are high in the first year of life, decline sharply, and then build gradually until around the age of 60 from when they rise quite steeply.

Figure 1: Resource Allocation Age-Sex Costs per head: acute services, £.

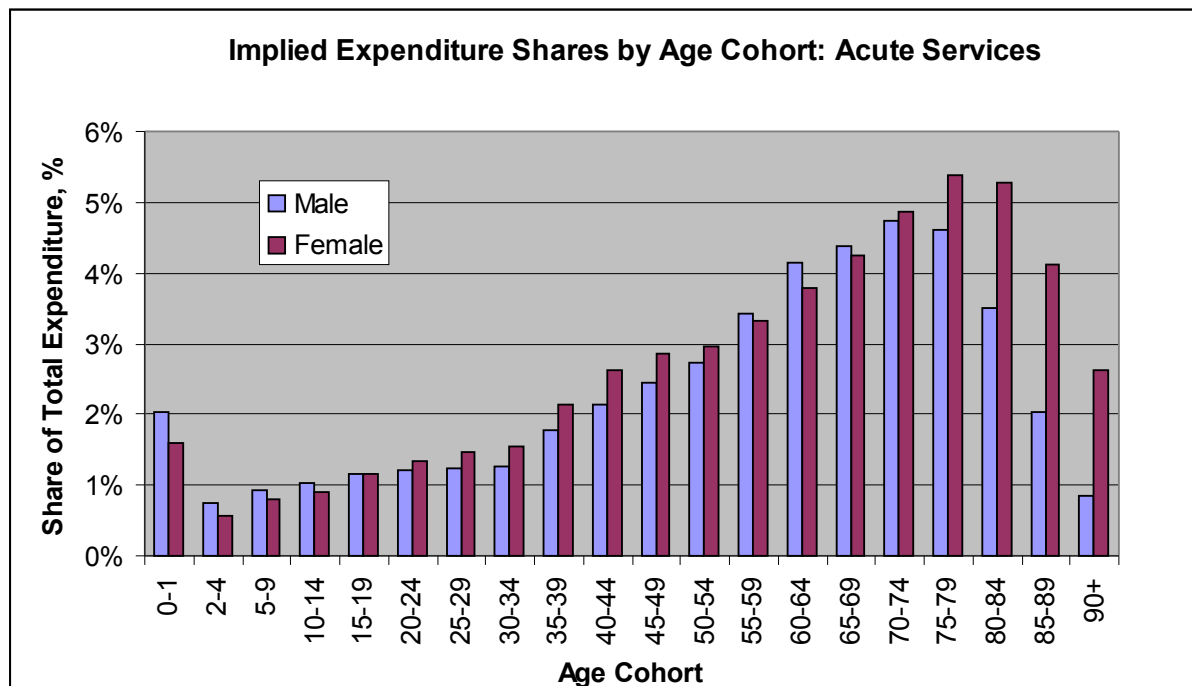


Source: ISD estimates for the 2009/10 allocation.

8. However the level of expenditure is determined by the costs per head by age cohort multiplied by size of the relevant populations. The following chart sets out the corresponding age-sex cohort expenditure shares for acute services.

9. This shows, for example, that around 2% of the total acute services expenditure is expended on males in the first year of life. The overall share for males (summing the age cohort shares) is 46%, and for females 54%. We can see that, whilst the female costs per head for those aged 70 and over are lower than the equivalent male costs, the expenditure on females is greater than on males because more females survive past that age.

Figure 2: Share of Total Expenditure on Acute Services by Age-Sex Cohort, 2007/08, %.



Source: Calculations using ISD age-sex costs per head; GRO population estimates; ISD Costs Book expenditure data.

10. Repeating the calculations for the other types of costs¹ give estimates of the shares of total expenditure by age. Estimated expenditure for those aged 65 or over was £3.4 bn (see Table 1 below) out of a total cost for all ages of £8.4 bn. That implies that approximately 40% of Health expenditure is incurred through activity relating to people aged 65 or over, a group which constitutes around 17% of the population.

¹ Note that Scottish Allocation Formula age-sex weights were used in place of Resource Allocation Formula cost per head to disaggregate GMS expenditure by age-sex cohort.

Table 1: Estimated Expenditure on Health and Care for those Aged 65* or Over, 2007/08, £ mn

Area	Category	Source of funding	£ mn	Public share by type **
PUBLIC EXPENDITURE:				
Health	Hospital, Community & Family services	Health Boards & SG	3,361	63%
Care	Care at home	Local Authority	331	6%
	Care homes	Local Authority	563	11%
	Day care	Local Authority	49	1%
	Other	Local Authority	145	2%
	Total Social Care		1,089	21%
	Sheltered Housing	Local Authority	42	1%
Total Health and Social Care			4,492	85%
Care Benefits	Attendance Allowance	Department of Work and Pensions	421	8%
	Disability Living Allowance	Department of Work and Pensions	302	6%
	Carer's Allowance	Department of Work and Pensions	97	2%
	Total Benefits		820	15%
Total Public Expenditure on Health and Care			5,312	100%
PRIVATE EXPENDITURE:				
Health			na	
Care	Care at home	Clients to Local Authorities and providers	[27-97]	
	Care homes	Clients to Local Authorities and providers	309	
	Day care	Clients to Local Authorities and providers	2	
	Other	Clients to Local Authorities and providers	5	
Total Private			[343-413]	
TOTAL PUBLIC AND PRIVATE			[5,655-5,725]	

Note: * LA estimates are for the category 'Older People'; ** Share is the share of total public expenditure on health and Care;

3. Baseline Projections:

11. The first section below sets out GRO information on the projected demographic profile of the population. The following sections describe the effect of applying that demographic change to the health and care sectors, assuming that everything else remains constant. This assumption allows us to identify the potential impact of the changes in demography.

12. A key determinant of future costs will be the evolution of prices and efficiency over the projection period. Increases in real prices in the health and care sector would tend to increase the future costs, whereas increases in efficiency would tend to reduce the projected costs. In this work we have made projections both on the basis of constant prices and assuming some real increase in prices: specifically that annual real change in unit costs are 1% pa for social care and 1.5% for health care. We have assumed no increase in efficiency – however, in practice increasing efficiency will mitigate cost increases. This is an issue which will be explored more fully in later work.

(I) Demographics:

13. In 2008 the population of Scotland was 5,168 thousand. Of this total 857 thousand (17%) were aged 65 or over, whilst 914 thousand (18%) were under the age of 16. Thus 66% of the population were aged 16 to 64.

14. The most recent (2008-based) Principal population projection from the General Register Office for Scotland (GRO) implies that the total population will increase by 7.3%, to 5,544 thousand, between 2008 and 2033. The number of people aged 65 and over is estimated to increase to 1.4 mn in 2033 – an increase of 64%.

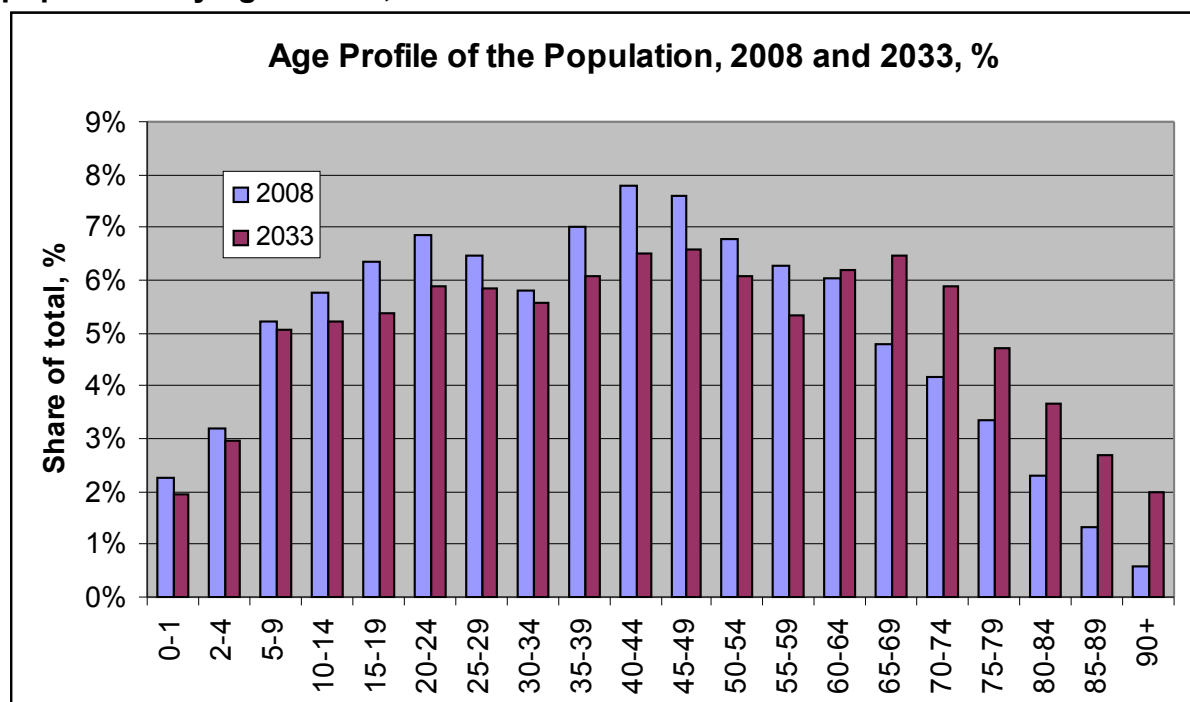
15. The shift in the age distribution of the population is illustrated in Figure 3. This shows, for example, the progression of the 1960s baby boomers now in their 40s, to their 60s and 70s in 25 years time. As a consequence both of increased life expectancy and the post war patterns of fertility, the population aged 65 and over will constitute 25% of the population in 2033 whilst the proportion under age 16 will decline to 16%. The share of the population aged 16 to 64 is anticipated to be 58%.

16. However, the pensionable age is set to increase² and, taking that change into account, GRO estimate that the share of the population of working age will decrease from 63% in 2008 to 60% in 2033.

17. A key determinant of the levels of care required will be the evolution of the health and (dis)ability of the future older age cohorts. If the number of years which people are unhealthy decreases ('compression of morbidity') then the impact will be commensurately lower than if the number of years of ill health increases ('expansion of morbidity'). This is an issue which must be explored further.

² Pensionable age is 65 for men, 60 for women until 2010; between 2010 and 2020 pensionable age for women increases to 65. Between 2024 and 2046, state pension age will increase in three stages from 65 years to 68 years for both sexes.

Figure 3: The Changing Age Profile of the Population: per cent of total population by age cohort, 2008 and 2033.



Source: GRO, 2008-based Principal population projections.

18. Making assessments of the implications of the changing demographic profile is subject to considerable uncertainty: around the extent to which the population projections will reflect the actual outturns 25 years later; around the extent and type of economic growth and thus the unit costs of care activity and availability of public and private funds; around the evolving health and life expectancy of the population; over development of cultural attitudes to provision of care; around household formation and thus the availability of informal care within the household.

19. Nevertheless projections of the demand for and supply of care are important to provide a means of assessing the impact of proposed changes in the delivery of care. This section reports preliminary draft projections for health and care showing how the base period (2007/08) activity and costs would change over the period to 2033 in response to changing demography.

20. The basic approach to these baseline projections has been to assume constant rates of activity per population cohort for the projection period, at the levels observed in the latest years data. This baseline scenario therefore seeks to identify only the effects of demographic change and assumes that all policy, and prevalence of conditions which generate a need for care, remains constant.

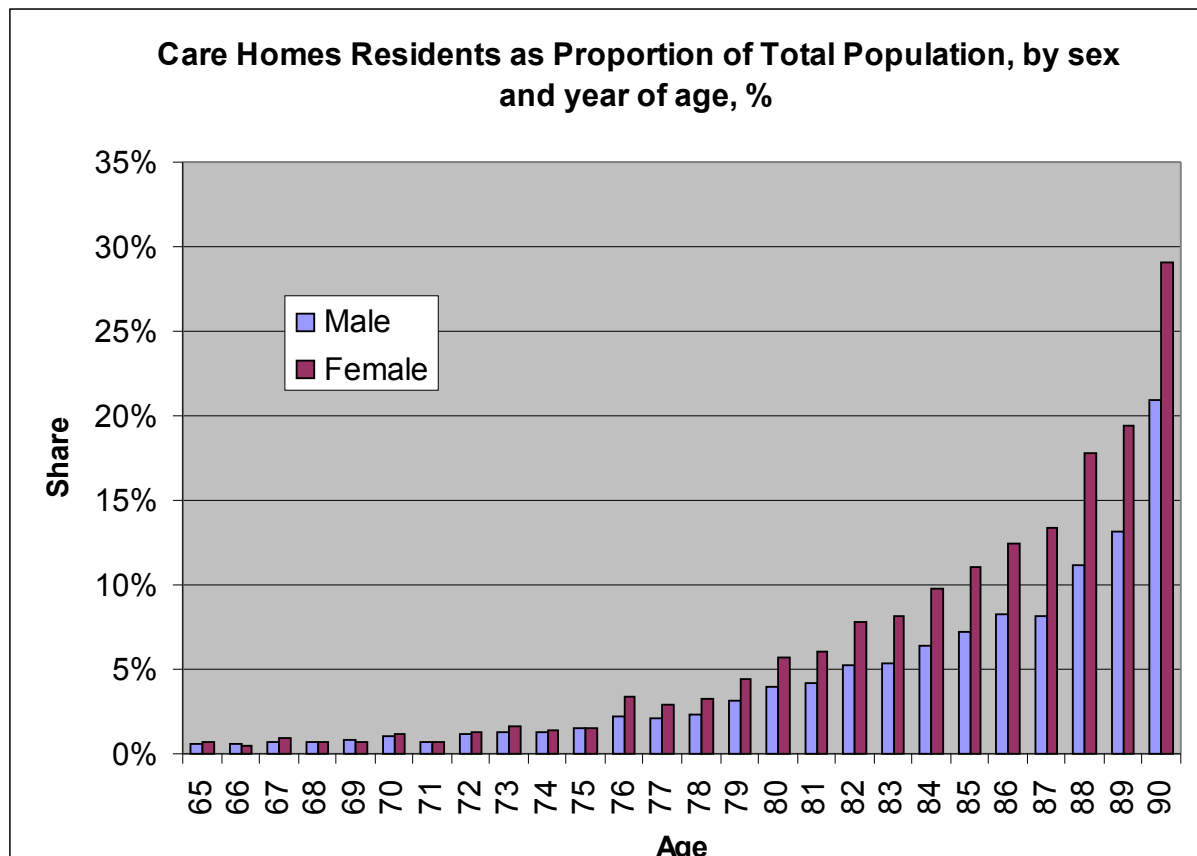
(ii) Care:

21. Projections of activity and costs in the care sector has been based on the model developed in the Range and Capacity Review (RCR). The most disaggregated population breakdown used in the RCR was an age-sex split with 3 age bands – 65-74, 75-84, 85 plus. However, examination of the disaggregated

datasets show that rates of activity are strongly related to age. This is illustrated in the following charts.

22. Figure 4 below shows that the proportion of the population by age which are residents in care homes increases from 0.6% for males aged 65 to 29% for females aged 90 years and over. The overall average for males and females aged 65 and over is just under 4%.

Figure 4: Care home residents by age-sex as a proportion of the total population of that age-sex, %, 2007/08



Source: Scottish Care Home Census data base and GRO population data. Note: 90 should read 90+.

23. In order to account for the distribution of care by age we have used rates of care by single year of age, where that is available. However GRO population data is provided for a single category for those aged 90 and over, so that category cannot be disaggregated.

24. Estimated changes in the levels of activity and workforce for the main care sectors are reported in the tables below.

Table 2: Baseline projections for individuals aged 65 and over receiving care to 2033, number.

Recipients	2007/8	2013	2018	2023	2033	% change 07/08 to 2033
NHS Long stay Beds	2,297	2,587	2,949	3,450	4,553	98%
Care Homes	32,775	37,254	43,024	50,907	70,895	116%
Home Care	55,338	61,768	70,397	81,497	109,250	97%
Day Care	13,014	14,420	16,266	18,617	24,396	87%

Source: Updated Range and Capacity Review model projections using GROs 2008-based Principal population projections and 2007/08 activity data.

Table 3: Baseline projections for workforce providing care to 2033, headcount and whole-time equivalent.

	2007/8	2013	2018	2023	2033	% change 07/08 to 2033
Care Homes*	44,390	50,456	58,270	68,947	96,018	116%
Home Care*	25,992	28,988	33,009	38,074	50,822	96%
Day Care	3,088	3,427	3,868	4,428	5,817	88%

Source: Updated Range and Capacity Review model projections using GROs 2008-based Principal population projections and 2007/08 activity data. * Denotes headcount – others WTE

(iii) Health:

25. ISD are separately projecting activity and costs for acute inpatients unscheduled and elective activity. That ISD analysis will be integrated with this work: specifically, it will replace that part of the projected health cost in this note. In advance of that more detailed information on the acute sector we project the health costs reported in Table 1 purely on the basis of the changing demographics.

26. The method used was the application of the GRO age-cohort structure and population projections to the average expenditure shares previously estimated. This has been done for the entire age profile.

27. Assuming constant unit costs, the overall change in health provision is an increase of around 30%. This average masks a substantial divergence by age group: the costs for the 65 and over age cohort increase by around 80% whilst the costs for the under 65 age group declines by 4%. Assuming an increase in unit costs of 1.5% per year, the overall change in expenditure is around 90%: expenditure for those aged 65 and over increases by over 150%; expenditure for those under 65 increases by around 40%.

28. It is important to note however, that the application the use of age-cohort data to project acute health costs may be an overstatement as the literature suggests that a large proportion of health costs arise in the period before death (the 'proximity to death' effect). Using proximity to death data can reduce the estimate increase in costs by around 50%. We have therefore provided a range for the increase in health costs where the lower end is represented by a proximity to death approach and the higher end reflects the age-cohort approach.

29. The following table summarises the cost projections for both constant prices and increasing real prices. The estimates reflect the change in the total costs for all ages – that is they allow for the fact that there will be some reductions in the costs for younger age groups as well as substantial increases for the older age groups, as a consequence of the changes in the population profile.

Table 4: Baseline projections for the cost of care* to 2033, % change .

Costs	2007/8	2033	
		Constant prices	Increasing real prices
Health	-	15-30%	45-90%
Care Homes	-	101%	158%
Home care	-	61%	107%
Day Care	-	47%	88%

* Note that this is change in the total cost of care, which is lower than the increase in the cost of care for the over 65s only.

4. Further Analysis:

30. Further analysis is necessary to understand the potential implications of the changing population demography. The main areas for future work are as follows:

- Assessments of the potential impact on the level and cost of care provision, from the re-shaped care proposals that emerge from the workstreams;
- Exploring trends recent in activity data and the published literature to assess how realistic are the assumptions of constant rates of activity over the projection period;
- Integrate the ISD cost projections for the acute sector and ensure that we have full baseline cost projections for the health and care sectors;
- Assess the potential trajectories of public sector funding over the next 25 years;
- Take account of changing levels of income and wealth (e.g. the ratio of owner-occupiers in the housing market) on the proportion of future care expenditure which would be contributed from public sources;
- Sensitivity analysis to address the uncertainties around these long-term projections, to ensure that policy recommendations are robust to outturns which differ from projections.

Annex 1: Sources

GRO Population statistics:

Population data were taken from the General Register Office for Scotland (GRO) website available at:

<http://www.gro-scotland.gov.uk/statistics/publications-and-data/popproj/06pop-proj-scottishareas/index.html>

Historic population by year of age were taken from the table: 'Mid-year population estimates; Scotland and its NHS Board areas by single year of age and sex: 1981-2008'; population projections by year of age were taken from the table: '2008-based projected population by sex and single year of age, Scotland 2008-2033'.

The Resource Allocation Formula:

Information on the Resource Allocation Formula is available on the ISD website at:

<http://www.isdscotland.org/isd/5839.html>

The 2009/10 per capita costs estimates were obtained direct from ISD.

Scottish Allocation Formula:

Scottish Allocation Formula age-sex weights were taken from the GMS Statement of Financial Entitlements.

Health sector expenditure by programme:

Expenditure data was taken from the ISD Costs Book, available at:

<http://www.isdscotland.org/isd/797.html>

Care Projections:

Care projections were based on the methodology of the Range and Capacity Review (full details are in the original report which was published at: <http://www.scotland.gov.uk/Publications/2004/07/19665/40321>). This work has been updated using data for 07/08: published data can be found at:

<http://www.scotland.gov.uk/Topics/Statistics/Browse/Health/Data/OlderPeople>

Benefits expenditure by age cohort:

Estimates of the distribution of benefit receipts by age for Scottish recipients have been calculated using data extracted from the Department of Work and Pensions website.

<http://research.dwp.gov.uk/asd/asd4/expenditure.asp>