

# The Balance of Care Model

## Introduction

The Balance of Care and Business Case Models have been developed by the Department of Health to assist local councils with social services responsibilities in preparing business cases for local telecare developments. The impetus for this has come from the announcement of funding for telecare through the Preventive Technologies Grant.

The models enable individual local councils to develop their business cases for telecare using local data centred on local issues which, in turn, shape the requirement for local telecare development. They are designed to be flexible and straightforward to use and to enable a wide range of assumptions, ideas - and their potential resource and financial consequences - to be explored in a short period of time.

## Development of the models

There are two separate - but linked – models developed by a Technical Expert team working for the Department of Health. This document describes the Balance of Care model, which aims to assist in developing a local strategic direction for telecare. Outputs from this model can then be used as inputs to the Business Case Model to obtain more detailed financial flow implications of investment.

Particular attention has been paid in the development of the modelling components to obtaining appropriate definitions of client groups and services, and to providing valid working assumptions. These form a starting point for local applications and are capable of being easily amended to local circumstances using locally routinely available data.

## The Balance of Care model

The Balance of Care model (developed by Tom Bowen and Paul Forte of the Balance of Care Group [www.balanceofcare.com](http://www.balanceofcare.com)) has been developed to assist in the resource planning decision making process - not to replace it. It is a tool which can help focus attention on relevant data and organise it in such a way that it can assist in discussion and negotiations between all groups involved in decision making.

This modelling component supports the shaping and setting of the local strategic direction for telecare: what might the potential impact of telecare be at a future point in time in terms of consequences for services in the local health and social care economy for older people? All of the key variables in the model can be changed to enable a wide range of local assumptions, opinions and data to be tested. Outputs from this modelling process can then be used as a basis for planning, financial modelling and business case development and for specifying further, more detailed information requirements. The results are based on the estimated planning population for a particular planning year horizon (for example, five or ten years ahead; both the planning population and desired time horizon are determined by local users).

Once a strategic direction is established, outputs from the model can then be entered into the Business Case Model to enable the strategic planning objectives to be costed in detail.

## Using this documentation

This document serves as a practical guide to the Balance of Care model. Full definitions of the variables, data and planning assumptions used in it are provided in the technical appendix to this document. These should be regarded as a starting point for substitution by local data and assumptions as required.

## Data Entry Conventions

1. You can enter or change data or text in areas of the model which have a yellow background and blue text or numbers. All other areas with a white background and black text are protected as they contain the results of calculations. You should not attempt to change any text or data here.
2. To delete existing text or data, use the **delete key only** to clear the contents of a cell; do not use the space bar to 'blank out' entries. If you want to remove any service elements or client categories from the master lists, you must first ensure that there are no values for them remaining in the 'care options' screens as removing the descriptive label does not automatically delete these values.
3. In all data entry screens it is important **not** to leave any blank rows between data entries. This is because, when automatically setting the screens for display, it is assumed that the first blank line in a data entry table represents the end of the text or data entries. Anything entered after a blank line will therefore be ignored. The same rule applies in the scenario menu where new scenarios must be defined sequentially.
4. You will find it helpful to record separately any assumptions you are putting into the model, or data sources as you go along.

## Pre-defined data in the model

The Balance of Care Model is made available with pre-defined client categories and service lists for which data should be readily available in all local councils with social services responsibilities.

The technical appendix contains definitions of the variables defined in the model, the sources of pre-loaded data items and underlying assumptions.

## Starting the model

Begin by starting Excel and opening '**Balance of Care Telecare Model v1.0**'. Once the model is loaded you are presented with the screen shown in figure 1 and, from this point onwards, you should use the menu buttons to move between different parts of the model. The Excel main menu always remains on display and can be used at any time to copy and paste data into and from the model as required and generally enable you to carry out normal Excel activities.

**Important note: as the Balance of Care model is macro-driven, you will need to ensure that your Excel system is enabled for 'medium level' macro security. This is the normal Excel default. If necessary it can be changed using the 'Tools, Macro, Security' commands from the main Excel menu.**

## **Saving and Exiting the model**

As you work through the model it is a good idea to periodically save what you are doing. If you use the Excel menu 'File Save' option to do this the model version you are working on will be updated and remain on the screen.

When you want to leave the model completely, the preferred way to do so is to save it and close it down via the **Close** button on the Balance of Care model **Main Menu**. You will be prompted to save changes before quitting.

If you want to save the model under a different name (and thus build up a library of different model versions), use the Excel menu 'File Save As' option. You will be prompted to type in a new name after which the model you are using on the screen will be renamed. You can exit from the model using the **Close** button as above.

Note that you can, of course, cut and paste data from the model at any time to another Excel worksheet to undertake other analyses outside of the model itself.

## The Balance of Care Model section by section

### 1. Main Menu

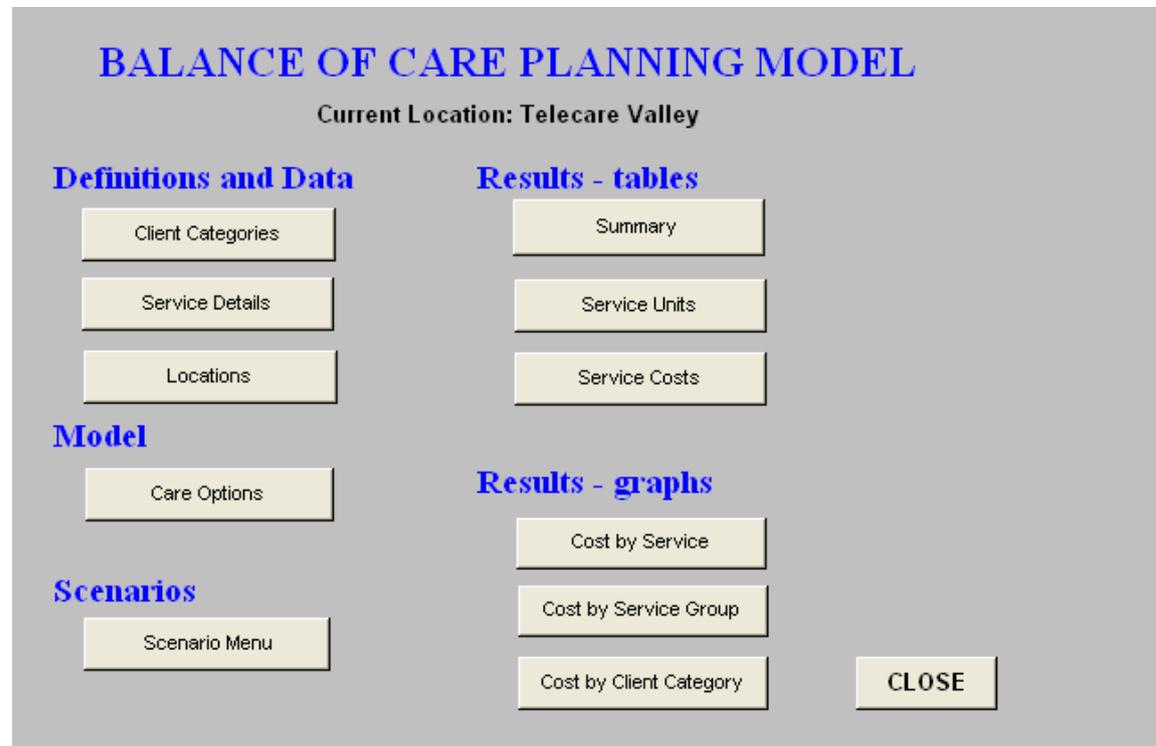


Figure 1

The Main Menu is the 'home page' of the Balance of Care model and links all of its five main sections: Definitions and Data, Model, Scenarios, Results - tables, Results - graphs. They are described briefly here (and in more detail below) in the order you are likely to find most convenient when setting up and working through your own application.

#### *Definitions and Data*

The menu options here enable you to define the population being planned for (**Client Categories**), information on the resources to be modelled (**Service Details**), and planning populations and baseline service details for each geographical area you want to consider (**Locations**).

#### *Care Options*

The **Care Options** area of the model enables you to explore the relationship between demand and supply, such as the implications of different treatment options, or of different levels of demand or the trade-offs between cost and quantity.

This is also the area of the model where you can attach a 'quality weighting score' to each care option. This provides an additional criterion to be considered when exploring and discussing different care strategies.

### ***Results - tables***

The options available here present tables of results at both **Summary** and more detailed levels (**Service Units** and **Service Costs**).

### ***Results - graphs***

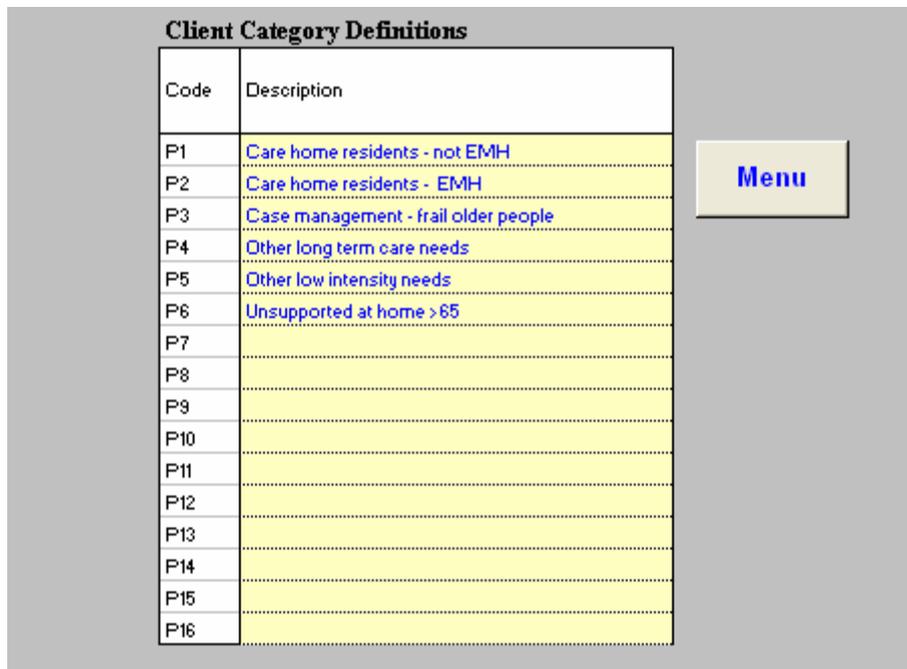
These are summary (**Cost by Service Group**) and detailed (**Cost by Service**) bar graphs of planned service expenditure resulting from the plan. There is also a pie chart of planned expenditure by client category (**Cost by Client Category**).

### ***Scenarios***

The **Scenario Menu** enables you to save and compare different runs of the model on occasions when you might want to consider a range of different assumptions and compare their potential impacts.

## 2. Definitions and Data

### 2.1 Client Category Definitions



Code	Description
P1	Care home residents - not EMH
P2	Care home residents - EMH
P3	Case management - frail older people
P4	Other long term care needs
P5	Other low intensity needs
P6	Unsupported at home > 65
P7	
P8	
P9	
P10	
P11	
P12	
P13	
P14	
P15	
P16	

Figure 2

This is the usual starting point for any application and where the population groups to be modelled are defined. Any definitions can be established as required (at least one, and up to a maximum of 16) but you will also need to provide a population (whether actual or estimates) for each category. Therefore the groups should be mutually exclusive to avoid problems of double-counting. Remember not to leave a blank line in the middle of the list.

The definitions already contained in this model are those which the Expert Group consider are the most meaningful for planning telecare developments and for which local population data or estimates should be relatively straightforward to obtain – see the technical appendix.

You can enter different populations for each geographical location you may wish to define via the 'Locations' option (see below), but the client category definitions for each location will always be the same as those defined here (figure 2).

## 2.2 Service Definitions

Service Definitions								Main Menu
Code	Service Description	Unit	Current Unit Cost	Projected Unit Cost	Annual Factor	Annual Unit	Conversion Factor	
S1	Community nurse	Hrs	£25.00	£25.00	1	WTE	1500	
S2	Physiotherapist	Hrs	£25.00	£25.00	1	WTE	1500	
S3	Care Assistant	Hrs	£13.84	£13.84	1	WTE	1500	
S4	OT	Hrs	£25.00	£25.00	1	WTE	1500	
S5	Geriatrician	Hrs	£90.00	£90.00	1	WTE	1500	
S6	Rehab asst	Hrs	£15.00	£15.00	1	WTE	1500	
S7	Care home EMH	Wks	£410.00	£410.00	1	Places	52	
S8	Care home (non-EMH)	Wks	£364.00	£364.00	1	Places	52	
S9	Acute bed	Days	£400.00	£400.00	1	Beds	365	
S10	Comm hospital bed	Days	£200.00	£200.00	1	Beds	365	
S11	Telecare	Wks	£15.00	£15.00	1	Packages	52	
S12	CPN	Hrs	£25.00	£25.00	1	WTE	1500	
S13	Night sitter	Nts	£50.00	£50.00	1	WTE	200	
S14	Extra care housing	Wks	£150.00	£150.00	1	Places	52	
S15	Day care	Attends	£21.96	£21.96	1	Places	250	
S16								
S17								
S18								
S19								
S20								
example:								
S21								

Figure 3

Return to the main menu and select the **Service Details** button. Here you define the ‘master list’ of resources you wish to model (figure 3). This is likely to include existing key services, but it could also include services which do not currently exist locally but which you might want to introduce. As with the Client Categories screen, do not leave a blank line in the middle of the service list. All items on this screen can be changed as required.

Each row describes the components of an individual service element. Taking ‘Care Assistant’ as an example, and reading from left to right:

### *Service description*

This label describes the resource or service; in this case ‘Care Assistant’. Note that this role is often described in different ways in different councils (eg Home Carer). You should always use the appropriate local definitions and labels for services in order to facilitate discussion of alternatives and their impact.

### *Unit*

This is how you want to describe the way in which the resource is normally used. The workload of care assistants, for example, is typically referred to in terms of ‘hours’.

### *Costs*

The next two columns describe average unit costs of the service element per unit of time which you have defined (ie. per hour, per week, etc). The left-hand column is

labelled 'current unit cost' and is used in the model only to calculate current spend based on the current service levels entered in **Location Details** (see below).

The right-hand cost column (labelled 'projected unit cost') can be set to current levels or adjusted for anticipated changes. Note that all cost calculations in the Balance of Care model based on specified **Care Options** are based on the figures in this column.

#### *Annual factor*

As the results from the model are expressed as volumes and costs for a one-year period, the annual factor is a simple multiplier to annualise service volumes and costs. We recommend that all data entered in the care options section (see below) is expressed in annual volumes anyway, so it will therefore be the same for all service elements (ie '1'). For ease of use and understanding we suggest keeping to this, and that any service elements you subsequently want to change or add locally should follow this convention.

#### *Annual unit*

The measurement of care assistant usage in 'hours' is meaningful when considering the inputs to care options. However, for planning purposes it is usually helpful to express them in volume terms (rather than the 'total number of hours'). In the case of care assistants (and most personnel-based services) Whole Time Equivalents (WTEs) are conventional units.

#### *Conversion factor*

This is factor needed to convert the total number of hours (across all client categories) into the total number of care assistant personnel required (ie the annual unit above). In this case the factor is '1500' which represents a 37.5 hour week multiplied by the average number of working weeks in a year. Allowing for leave, sickness, training, we have assumed 40 working weeks ( $40 \times 37.5 = 1500$ ). You can change these parameters as required locally.

### **2.3 Group Description and 'Service to Group' Assignment**

In these two tables (figure 4), you can define up to 11 Service Groups (which are summary headings for one or more service elements) and assign each individual service element to one of those groups. This optional feature can be useful in summarising results.

Service Group Definitions		Service to Group Assignment		
Group Code	Group Description	Code	Service Description	Group Code
G1	Social care	S1	Community nurse	G2
G2	Community health	S2	Physiotherapist	G2
G3	Acute health	S3	Care Assistant	G1
G4	Telecare	S4	OT	G1
G5	Care Home	S5	Geriatrician	G2
G6		S6	Rehab asst	G2
G7		S7	Care home EMH	G5
G8		S8	Care home (non-EMH)	G5
G9		S9	Acute bed	G3
G10		S10	Comm hospital bed	G2
G11		S11	Telecare	G4
		S12	CPN	G2
		S13	Night sitter	G1
		S14	Extra care housing	G1
		S15	Day care	G1
		S16		
		S17		
		S18		
		S19		
		S20		

[Main Menu](#)

[Services](#)

Figure 4

Location Definitions		
Code	Description	Current Location
L1	Telecare Valley	<input checked="" type="radio"/>
L2		<input type="radio"/>
L3		<input type="radio"/>
L4		<input type="radio"/>
L5		<input type="radio"/>
L6		<input type="radio"/>

[Location Details](#)

[Menu](#)

Figure 5

## 2.4 Locations

The locations screen (figure 5) is where you define the geographical area(s) you wish to model and where one of them is chosen by you as the basis for the current model run (in the example shown, there is only one location ‘Telecare Valley’). If you wanted to define other areas or subdivisions of a larger area then these names can be entered here as well. Once an area is selected, clicking on the **Location Details** button enables detailed information about that currently selected location only to be entered. These details are stored - even when that location is not currently selected for

modelling - and they can be amended at any time as required. Note that at least one location must be defined and selected; any more than this is optional.

You can only model one location at a time, but you can make comparisons between up to four locations within the model using the scenario setting function (described further below). Alternatively, you can copy results directly from the model into a separate spreadsheet for further analysis.

**NB: The name of the location assigned to ‘L1’ will be the default name which appears on the model’s ‘home page’ – in this case ‘Telecare Valley’.**

## **2.5 Location Specific Client Populations and Service Levels**

Clicking on this button brings you to two data entry areas (figure 6). One is for the estimated planning population in each of the previously defined client categories for the area under consideration and the time horizon chosen. The other is the current volume of service in that location for the services. If the defined services do not currently exist in a particular area you can enter zero or leave it blank.

The model comes with ‘starting values’ already supplied here. These are based on published data for England and Wales and represent figures for an ‘average’ local council in the country (see the technical appendix for definitions and sources used).

The **Bar Graph** and **Pie Chart** options show the relative local population proportions in each client category. The **Return** button brings you back to the Locations sub-menu.

The model takes a ‘snapshot’ view of resource implications which means that the category population data entered will be assumed to match or be in keeping with whatever forward planning horizon you wish to work towards (for example, three years, five years, etc). You may want to take this into account if you are using current population estimates.

NB: the population of P6 is set to zero here. As the largest single group in any locality (approximately 48,000 in an ‘average’ council) its scale overwhelms the other client groups for whom telecare is a more important feature. As including the P6 population makes it difficult to focus on groups P1-P5 in the results graphs its population has been set to zero here (see technical appendix).

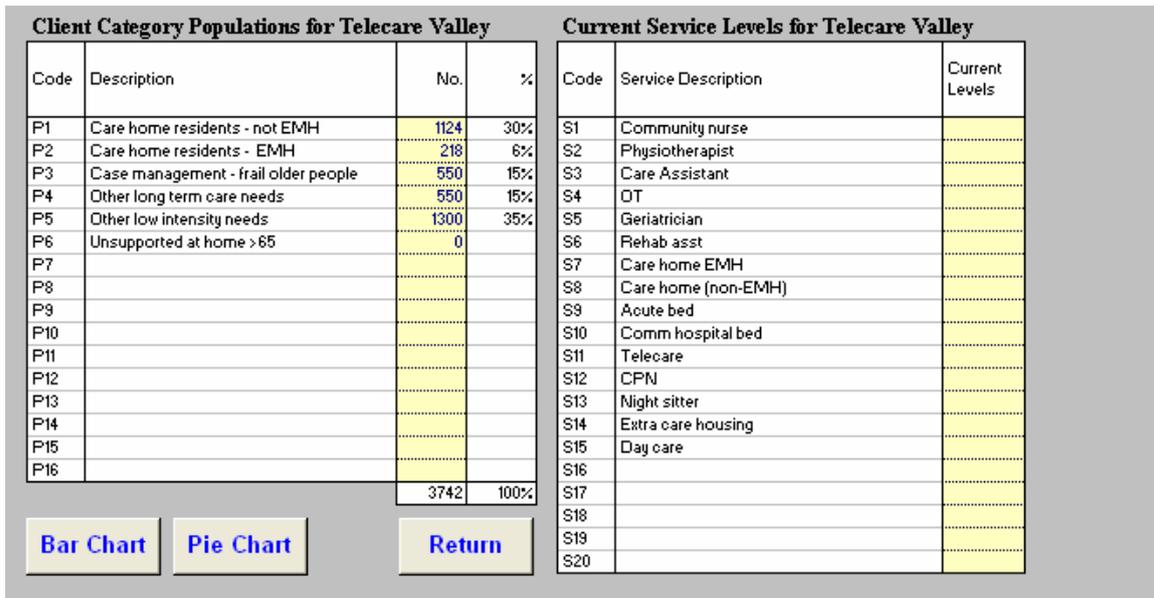


Figure 6

### 3. Care options

		P1 - Care home residents - not EMH			Telecare Valley			
		Unit Cost:	No. of Clients:					1124
		£18,928	£18,983	£16,235	£	£	£	Totals
		70%	15%	15%				100%
Allocated Clients:		787	169	169	0	0	0	1124
Code	Service Description	Current	Extra care	Home with	Opt 4	Opt 5	Opt 6	Cost
S1	Community nurse							£
S2	Physiotherapist							£
S3	Care Assistant		730	1095				£4,257,741
S4	OT		12	12				£101,142
S5	Geriatrician							£
S6	Rehab asst							£
S7	Care home EMH							£
S8	Care home (non-EMH)	52						£14,889,900
S9	Acute bed							£
S10	Comm hospital bed							£
S11	Telecare		52	52				£262,969
S12	CPN							£
S13	Night sitter							£
S14	Extra care housing		52					£1,314,846
S15	Day care							£
<b>Total Cost:</b>		<b>£14,889,900</b>	<b>£3,199,998</b>	<b>£2,736,700</b>	<b>£</b>	<b>£</b>	<b>£</b>	<b>£20,826,599</b>
<b>Quality Score:</b>		<b>60%</b>	<b>80%</b>	<b>100%</b>				<b>69.0%</b>

Figure 7

This is the set of screens where modelling of different assumptions and perspectives about care for each client group is carried out.

When you select this option, the care options screen for the first client category is displayed. Use the left and right chevron buttons beside the word 'menu' to move to the equivalent windows for each of the other client categories. Figure 7 shows three potential care options for client group 1.

Up to six care options (in vertical columns) can be described for clients in each client category, and you can allocate a percentage (0-100%) of that category's population to one or more of them. This percentage is entered in the allocation line towards the top of the screen and the number of clients this represents is automatically displayed beneath. **(NB: It is up to you to ensure that exactly 100% of clients are allocated within each category).**

Each care option is described in terms of 'per person, per year'. You decide which combination of services, and their volume over a one-year period, are appropriate or desirable for a person in that care option and enter the amount under each option heading (you can define the heading label as required – it is useful as a reminder of the predominant model of care you are defining – eg. 'Extra Care').

Care options can reflect current activity or best practice, but they can also be used to model the potential impact of new or alternative services not yet introduced locally or perhaps only currently given to a small proportion of client in the group. In this way the model provides an opportunity to explore a wide range of options and assumptions.

As allocations are made, the total cost for all clients, unit costs per client of each care option, and the total cost of each service element across all care options are automatically calculated in the various row and column totals. You do not need to enter 'zero' for services which you do not want to include in that care option. Any numbers entered can easily be updated by over-typing, but remember that if you want

to delete a number use only the delete key; **do not** use the space bar to delete the contents of a cell.

As you move between the client groups you will notice that the list of services remains the same. However you will be changing the quantities and combinations of the services as appropriate for the client group characteristics and requirements.

The bottom row of the table (quality score) can be used optionally to enter a relative 'quality percentage' for each care option in a given client category. The maximum value is 100% and the definition of 'quality' is left entirely to you to define. The quality scores do not need to total 100% across all care options in a category; the total quality score shown in the bottom right hand corner of each care options table is the average quality score for that client category (as weighted by the number of clients allocated to each option and the quality score for that care option).

### **Some important notes about defining care options**

In the case of the 'Telecare Valley' care options, which have been generalised from actual case study examples, we are assuming that the telecare initiatives do actually have the projected impact on other services as set out. This should be regarded as indicative for any particular locality; however, the true impact in any place will be affected by local circumstances.

In particular, the extent to which informal support from family and friends is available will have an important role to play in affecting the volume and types of services required from statutory sector agencies. In some cases this may reduce the demand for those services; in others it may lead to an increased demand for carer support services (such as respite care). In some cases it may be worth considering a care option 'twice over' – in one version assuming the client has informal support at home (eg. spouse, immediate family), and in the second assuming no informal support is available.

Other agencies may also have an important role to play locally such as local council housing departments, or the voluntary sector (neither of which are explicitly shown in the Telecare Valley example).

The ability of the model to accommodate 'quality' (as outlined in the preceding section) is an important one when developing an all-round approach to care provision locally as it can provide a useful counter-balance to cost-driven pressures in exploring appropriate care options.

## 4. Results

Service Units and Cost Summary					
<a href="#">Graph</a> <span style="margin-left: 20px;"><a href="#">Main Menu</a></span>					
Service	Annual Units	Current Units	Projected Units	Current Cost	Projected Cost
Community nurse	WTE	0.0	18.5	£0	£694,375
Physiotherapist	WTE	0.0	0.2	£0	£6,875
Care Assistant	WTE	0.0	785.0	£0	£16,297,393
OT	WTE	0.0	7.7	£0	£289,717
Geriatrician	WTE	0.0	0.0	£0	£0
Rehab asst	WTE	0.0	0.0	£0	£0
Care home EMH	Places	0.0	185.6	£0	£3,956,637
Care home (non-EMH)	Places	0.0	786.7	£0	£14,889,900
Acute bed	Beds	0.0	28.5	£0	£4,158,000
Comm hospital bed	Beds	0.0	0.0	£0	£0
Telecare	Packages	0.0	864.9	£0	£674,614
CPN	WTE	0.0	0.0	£0	£0
Night sitter	WTE	0.0	2.0	£0	£19,650
Extra care housing	Places	0.0	190.4	£0	£1,485,146
Day care	Places	0.0	0.0	£0	£0
				<b>£0</b>	<b>£42,472,308</b>
				<b>Weighted Quality:</b>	<b>82.8%</b>

Figure 8

### 4.1 Summary

This summary level results screen (figure 8) presents both the total current and projected service units and costs across all client categories given the plans specified and the total weighted quality score for the chosen location. This quality score (if this facility is being used) is calculated by averaging the quality scores for the client categories weighted by the population of each client category.

In this example the current cost is zero because no current baseline volumes of services have been supplied (For an individual locality you would enter these in the 'location details' screen).

The service costs can be viewed as a bar graph by clicking on the graph button. This is the same one as that accessed by clicking on the **Cost by Service** graph button from the Main Menu.

## 4.2 Service Units

Service Units by Client Type		Main Menu						
Service	Annual Units	Total	P1	P2	P3	P4	P5	P6
Community nurse	WTE	18.5	0.0	0.0	18.5	0.0	0.0	0.0
Physiotherapist	WTE	0.2	0.0	0.0	0.2	0.0	0.0	0.0
Care Assistant	WTE	785.0	205.1	18.6	334.6	118.4	108.3	0.0
OT	WTE	7.7	2.7	0.3	0.4	4.4	0.0	0.0
Geriatrician	WTE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rehab asst	WTE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Care home EMH	Places	185.6	0.0	185.6	0.0	0.0	0.0	0.0
Care home (non-EMH)	Places	786.7	786.7	0.0	0.0	0.0	0.0	0.0
Acute bed	Beds	28.5	0.0	0.0	28.5	0.0	0.0	0.0
Comm hospital bed	Beds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Telecare	Packages	864.9	337.1	32.8	275.0	220.0	0.0	0.0
CPN	WTE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Night sitter	WTE	2.0	0.0	2.0	0.0	0.0	0.0	0.0
Extra care housing	Places	190.4	168.6	21.8	0.0	0.0	0.0	0.0
Day care	Places	0	0.0	0.0	0.0	0.0	0.0	0.0

Figure 9

The **Service Units** results screen (figure 9) shows the total projected volume for each service by each client group. This can be used to highlight which client categories are generating demand for particular services and, if necessary, pinpoint where further changes to assumptions might be made.

If there are a larger number of client groups specified, this table will extend to the right of the screen and a scroll bar will appear to enable you to access it.

## 4.3 Service Costs

Service Costs by Client Type		Main Menu						
Service	Total	P1	P2	P3	P4	P5	P6	
Community nurse	£694,375	£0	£0	£694,375	£0	£0	£0	
Physiotherapist	£6,875	£0	£0	£6,875	£0	£0	£0	
Care Assistant	£16,297,393	£4,257,741	£386,026	£6,945,950	£2,458,676	£2,249,000	£0	
OT	£289,717	£101,142	£9,825	£13,750	£165,000	£0	£0	
Geriatrician	£0	£0	£0	£0	£0	£0	£0	
Rehab asst	£0	£0	£0	£0	£0	£0	£0	
Care home EMH	£3,956,637	£0	£3,956,637	£0	£0	£0	£0	
Care home (non-EMH)	£14,889,900	£14,889,900	£0	£0	£0	£0	£0	
Acute bed	£4,158,000	£0	£0	£4,158,000	£0	£0	£0	
Comm hospital bed	£0	£0	£0	£0	£0	£0	£0	
Telecare	£674,614	£262,969	£25,545	£214,500	£171,600	£0	£0	
CPN	£0	£0	£0	£0	£0	£0	£0	
Night sitter	£19,650	£0	£19,650	£0	£0	£0	£0	
Extra care housing	£1,485,146	£1,314,846	£170,300	£0	£0	£0	£0	
Day care	£0	£0	£0	£0	£0	£0	£0	
<b>Total Cost</b>	<b>£42,472,308</b>	<b>£20,826,599</b>	<b>£4,567,983</b>	<b>£12,033,450</b>	<b>£2,795,276</b>	<b>£2,249,000</b>	<b>£0</b>	
<b>Quality Score</b>	<b>82.8%</b>	<b>69.0%</b>	<b>64.0%</b>	<b>90.0%</b>	<b>94.0%</b>	<b>90.0%</b>	<b>0.0%</b>	

Figure 10

The **Service Costs** results screen (figure 10) similarly shows the projected total annual expenditure on each service, by client category. It also show the summary 'quality score' for each client category (see section 3 above for a description of the quality scoring facility).

Again, if there are a larger number of client groups specified, this table will extend to the right of the screen and a scroll bar will appear to enable you to access it.

## **5. Graphs**

### **5.1 Cost by Service**

Bar graph of total current and projected service costs. (This graph can also be accessed via the **Summary** table - see above).

### **5.2 Cost by Service Group**

Bar graph of total current and projected costs by service group (ie by summary service element groups).

### **5.3 Cost by Client Category**

Pie chart of the total planned expenditure by each client category.

## 6. Scenario Menu

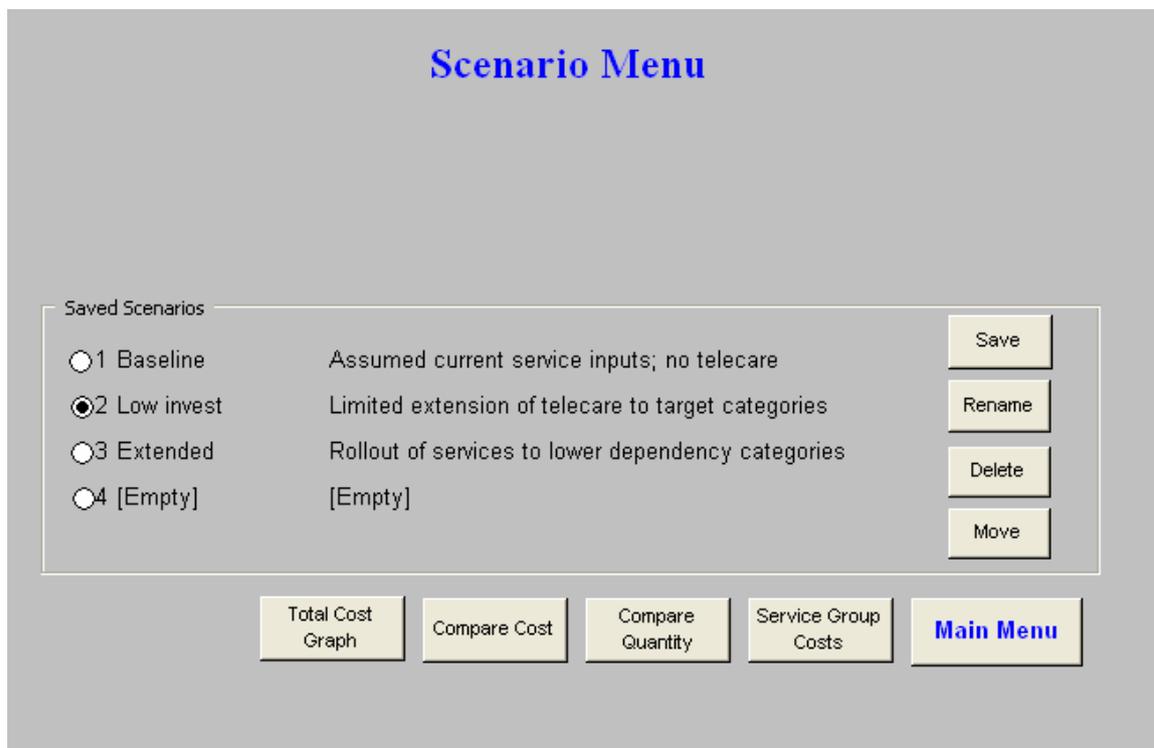


Figure 11

The scenario sub menu enables you to save up to four separate sets of changes you have made during the course of your deliberations and to compare summary totals of volumes and costs against each other. Current levels of service are also shown in order to act as a benchmark for comparison of scenarios (although none are entered in this example). It is accessed by the **Scenario Menu** button on the Main Menu.

Note that the scenario comparisons are only between previously saved scenarios and the current levels of service if entered. The results of the current 'live' version of the model you may be working on are not automatically included; they need to be specifically saved as one of the four scenarios before they can be compared with any others.

There are two sets of buttons on the scenario menu screen itself. Those inside the frame, arranged vertically on the right, control the definition, saving and deletion of individual scenarios. Those along the bottom of the screen control the different views by which you can compare the scenario results. The scenario control buttons inside the frame have the following functions:

### 6.1 Save

To save the set of assumptions and results you are currently working with, click first of all on the scenario number which you want to save it as (in the centre section of the screen) and then click the **Save** button. You will be prompted to enter a title and short

description of the scenario. If you are overwriting an existing scenario you will be prompted for confirmation of these changes.

You should always start with the first scenario slot and save additional scenarios sequentially below; do not leave any gaps in the scenario list. Scenario tables and graphs will automatically adjust to show only those scenarios you have defined.

## **6.2 Rename**

To change the title of a previously saved scenario, select the scenario to be changed and click the **Rename** button. When prompted enter the new title and a short description.

## **6.3 Delete**

To delete a scenario, select the one to be deleted and then click the **Delete** button. You will be asked to confirm this and the slot will then display the description **[Empty]**.

## **6.4 Move**

To move a scenario to a different slot, select the scenario and click the **Move** button. When prompted enter the number (1-4) of the new slot you want to move it to.

The buttons along the bottom of the screen have the following functions:

## **6.5 Total Cost Graph**

This shows a bar graph of the total planned cost of each of the scenarios (ie. costs across all client categories).

## **6.6 Compare Cost**

This screen shows the total planned costs of each service under each of the saved scenarios compared with the current cost of services.

## **6.7 Compare Quantity**

This screen compares the total projected volumes of each service under each of the saved scenarios against the current service volumes.

## **6.8 Service Group Costs**

This displays - for an individual service element - a comparison of the volume required under each scenario. Once selected, click the cursor on the cell with the description of the service you want to graph. Click the graph button to compare the volume of that service required under each scenario with the current service volume.

**END**

## TECHNICAL APPENDIX

### Values used for Illustrative Model based on National Data

The Balance of Care Model has been configured to consider telecare related options. The client categories have been chosen to reflect key groups of people for whom telecare may open up alternatives, and the definitions aligned with existing characteristics for which data are routinely available at both national and local authority level.

Telecare options shown in the example are all intended to represent the more limited types of ‘reactive’ monitoring (sometimes called ‘r-type’) rather than more complex preventive types of telecare that could involve video consultation etc. The impact of these options in terms of the requirement for other services has been assumed based on interpretation of research findings.

Alternative care packages that involve or require informal carers are not shown in the example, but may be significant in local developments and could be explored using the model. Similarly the involvement of housing departments (now sometimes combined with social care) could also be explored.

There are 150 Councils with Social Services Responsibilities in England. We have estimated values for an imaginary council called *Telecare Valley*, whose population and service levels are exactly the England total divided by 150.

### Client Category Definitions

The first five categories are intended to cover all older people receiving social care support by or partly funded by the local authority. The sixth category includes the remainder of the older population: although these people do not by definition have a need for social care that could be expedited by telecare, there is potential for more preventive approaches, and people may wish to fund their own telecare.

Definitions can be found from *Menu, Categories*. Data for Telecare Valley can be found from *Menu, Locations, Location Details*.

	Category Label	Intended Population Base	Data Source for Telecare Valley
P1	Care home residents - not EMH	Permanent care home residents over 65 supported by council (excluding Elderly Mental Health)	England residents at 31-03-2004 / 150 = 1124
P2	Care home residents - EMH	Permanent care home residents over 65 supported by council (Elderly Mental Health)	England residents at 31-03-2004 / 150 = 218
P3	Case management - frail older people	Numbers over 65 receiving intensive home care (> 10 hours per week). These are assumed to be the people who would be included in case management schemes for frail older people.	Based on England number receiving intensive home care (over 10 hours) at 31-03-2004 / 150 = 550
P4	Other long term care needs	Numbers over 65 receiving home care (5- 10 hours per week). These are assumed to be the people who require continuing social care support, but do not have chronic healthcare needs appropriate for case management.	Based on England number receiving 5-10 hours of home care at 31-03-2004 / 150 = 550
P5	Other low intensity needs	Numbers over 65 receiving home care (< 5 hours per week)	Other England low intensity home care (<5hrs per week) at 31-03-2004 / 150 = 1300
P6	Unsupported at home >65	Total resident population 65 years and over, not receiving a social care service. <b>Note:</b> Since no services have been defined for this category in any of the scenarios explored, in illustrative model runs this has been set to zero.	England 2001 Census, resident population over 65, divided by 150, and net of estimated values for P1 to P5 inclusive. (If shown would total 48,300)

When looking ahead (the suggested planning horizon for full realisation of benefits of telecare related developments is 10 years), future projected populations could be used rather than the current levels shown here. For England, and hence Telecare Valley, the adjustment could be based on the forward projection of category populations (P1 to P5) based on age specific service use.

For example, given that the service user population defined above tend to be over 75 years old, we could estimate the future category numbers in P1 to P5 at current level plus the growth in numbers of people over 75, which ONS project to be an increase of 13% over the next 10 years. If local councils have more detailed data on the age of service users, and equivalent demographic projections, similar but more detailed adjustments could be used to estimate future category demand.

### Service Definitions and Costs

Services included for the Telecare Valley illustration include all current social care services that are provided to older people to meet care needs, and the requirements for which may be affected if telecare support is developed. Unit costs shown are intended to be gross to the council, thus include expenditure shown in local authority financial returns (eg PSS EX1), but exclude expenditure funded by other agencies eg nursing support in care home. Values shown are for England 2003-04. The social care services included are:

Code	Service Description	Unit Cost (England 2003-04)	Data Source
S3	Care Assistant	£13.84	PAF indicator 2.22A (B17) Hourly cost per adult for home help care <a href="http://www.publications.doh.gov.uk/public/councilunitdetails2003-04.xls">http://www.publications.doh.gov.uk/public/councilunitdetails2003-04.xls</a>
S4	OT	£25.00	Assumed level based on gross costs per hour encountered in a number of PCTs
S7	Care home EMH	£410.00	PAF indicator 2.12A (B15) Weekly expenditure per adult with mental health needs excl NHS supported <a href="http://www.publications.doh.gov.uk/public/councilunitdetails2003-04.xls">http://www.publications.doh.gov.uk/public/councilunitdetails2003-04.xls</a>
S8	Care home (non-EMH)	£364.00	PAF indicator 2.2A (B13) Weekly expenditure per person excl NHS supported <a href="http://www.publications.doh.gov.uk/public/councilunitdetails2003-04.xls">http://www.publications.doh.gov.uk/public/councilunitdetails2003-04.xls</a>
S13	Night sitter	£50.00	Assumed level for one night cover
S14	Extra care	£150.00	Assumed gross cost to LA of extra care provision based on a small number of schemes
S15	Day care	£21.96	PAF indicator 2.35 Average expenditure per day care session in LA provision <a href="http://www.publications.doh.gov.uk/public/councilunitdetails2003-04.xls">http://www.publications.doh.gov.uk/public/councilunitdetails2003-04.xls</a>

Similarly NHS and other agency services have been included where there is reason to suppose either that the service may need to be developed alongside the telecare to ensure that benefits are realised, or where there is likely to be some change in per capita demand. Costs here have been based on assumptions based on experience of typical unit costs encountered in a range of Primary Care Trusts.

Assumed telecare unit costs include a capital element spread over 2 years and call centre costs, as detailed in the general introduction to the nature of telecare services.

The 'conversion factor' from the aggregate annual unit (eg WTE) to the unit describing provision of service within care options (eg hours) is assumed based on experience in other studies. Care Option service use (see below) has been quantified to show the total volume per client in a year, hence the 'annual factor' value is set to 1 in all cases; for ease of use we recommend that this practice should be followed when building up local scenarios using the model.

No values have been assumed for the volume of current provision in Telecare Valley (*Menu, Locations, Location Details*), although a scenario is calculated based on assumed utilisation (see Scenarios below). If users are including current provision at the local level, they should also ensure that the Unit Cost (England 2003-04) is also edited to include local costs, as these variables are used to calculate current expenditure in the model.

### Modelling Assumptions

For each client category two or three options have input to the model. In every case the first is labelled 'Current' and indicates the care package being delivered on current practice. The other options are intended to identify alternative feasible options that would become available if telecare was available alongside the other specified services. Note that there may be other alternatives to current care practice that do not involve telecare but these are not shown in this example (piloting indicated that they would tend to be more expensive).

It should be noted that the definition of the categories is in terms of current service use, means that in effect the choice within the model to use an alternative telecare linked option implies that future client numbers are those who 'would have used' those lead services. Most notably the numbers requiring support in a care home is reduced. The assumed allocation percentages shown are based on experience of telecare evaluations, and of surveys of care home residents and hospital inpatients.

Because nursing care costs are excluded from care home costs shown in P1 and P2, no nursing input is shown for the alternative community based care packages, implicitly assuming that nursing input for clients who need it (principally those currently in nursing homes) would be available at the same cost in alternative locations.

P3 is concerned with frail older people who are assumed to be candidates for case management programmes. Including telecare is assumed to reduce the social care input required. Acute bed use is also shown, at an average of 21 days stay per year; option 3 is used to describe an assumed 10% of patients who could now avoid admission. Both values are based on the findings of Balance of Care Group point prevalence surveys of hospital populations, and lengths of stay of potentially avoidable admissions.

## Scenarios

Three scenarios are shown:

1. **Baseline.** This calculates the total services and expenditure to deliver the assumed current care patterns in Telecare Valley.
2. **Low invest.** This shows the implications of introducing telecare related services to the more dependent population only, where care home or hospital admission may consequently be avoided. The initial values in the model made available are set to the levels of this scenario.
3. **Extended.** This shows a rollout to the lower dependency group (P5) and increased coverage in P4.