

## Cumbria ISB Bid – Economic Appraisal

### 1 Approach adopted

The approach adopted to the development of this Economic Appraisal has been:

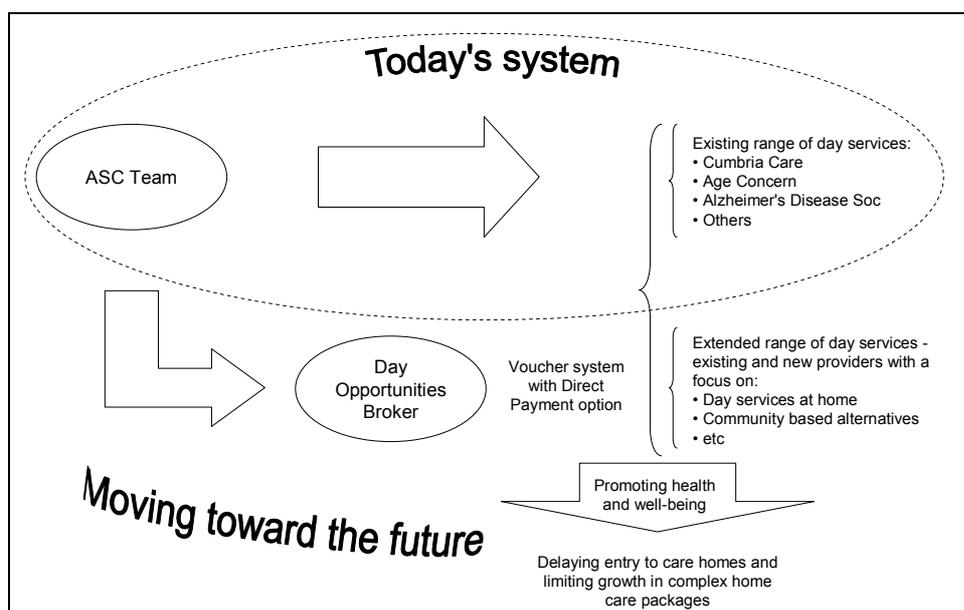
- To explore the assumptions that underlie the expected changes in system behaviour and reflect this in a quantified model;
- To identify local 'evidence' and data to enable the model to reflect local capacity;
- To build on this 'systems' model to identify benefits anticipated by identifying the impact of the changes on care home admissions and enhancements in the levels of home care required;
- To explore sensitivities and alternative scenarios to inform risk strategies and contingency plans.

The benefit of such an approach has been to enable:

- The development of the day opportunities model to be informed from an early stage by the quantification of impact and considerations of capacity requirements;
- The ability to consider different options for roll out in the context of a single model;
- To link with the evaluation of the project by providing a 'baseline' of activity and anticipated impact, including key aspects of the system that will require monitoring particularly closely due to their critical contribution to the pathway model.

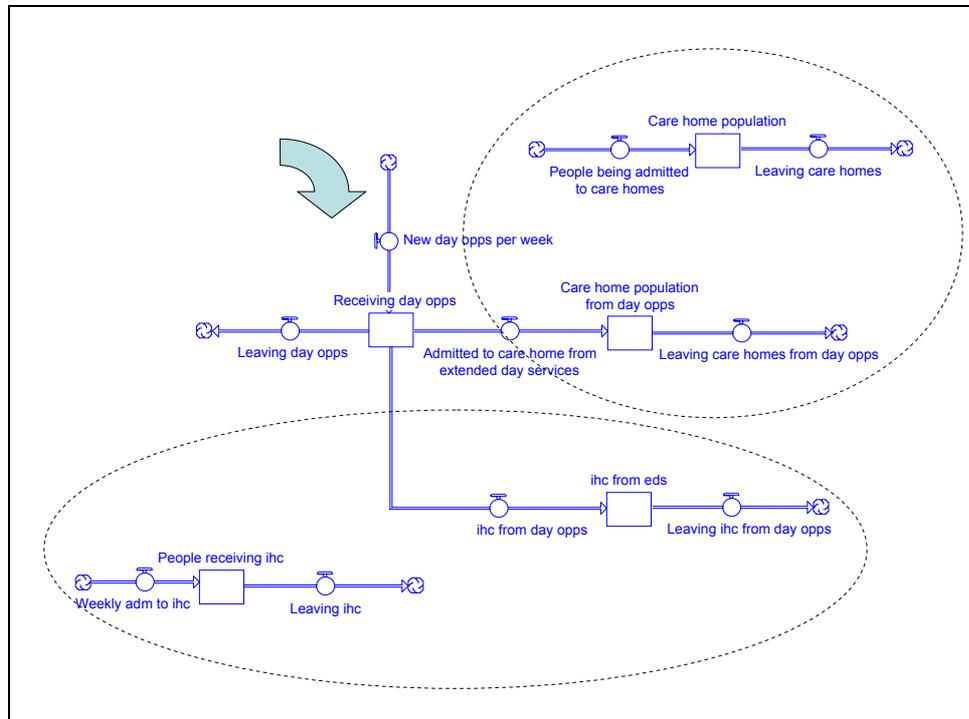
### 2 Modelling impact as the basis of economic appraisal

The 'qualitative' expression of the model is illustrated below. It identifies a new pathway to an extended and more flexible range of day opportunities. The impact on existing day services will be to encourage redesign and 'right-sizing' such that they play an appropriate role in ongoing service provision.



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When developed into a quantified model the following illustration shows the main 'spine' of the model as it reflects key pathways of people through the new day opportunities services in relation to the existing pathways to care homes or enhanced/intensive home care.



### 3 Baseline assumptions

The following baseline assumptions have been made within the model above:

#### ***For the new day opportunities:***

1. The number of packages available is constrained by the available resource – assumed to be £280,000pa of the total bid resources (from year 2);
2. That the number of packages available is also dependant on the average price of such a package, initially set at £110pw (5 days at £22.15 a day);
3. That the 'throughput' in EDS is dependant on the period that people continue to receive these services and that this period receiving vouchers for EDS would be 26 weeks on average. This is based on each package initially being arranged for 13 weeks with the majority only requiring this period of additional support whilst some will require a second period and a small number continuing to receive such packages over a significantly longer period of time, hence 26 weeks is a 'crude average' that will need to be tested once the service is in place. This is the subject of sensitivity analysis later in this appraisal;
4. That those receiving an EDS package will be split 40/60 between those who would otherwise have been admitted to a care home and those who would have required an enhanced package of care at home (alternative scenarios are explored later);
5. That there will be some people who receive 'day opportunities' funding who do not go on to enter the care home sector or receive enhanced home care

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– admission/enhancement diverted rather than delayed – assumed to be 20% (tested for sensitivity later);

6. That the average weekly cost of a care home place is £400 (based on a weighted average of residential and nursing home weekly costs);
7. That the hourly cost of home care is £14.80 and that 7½hrs a week are 'saved' when somebody receives day opportunities funding;
8. That for people who have received day opportunities funding and then go on to be admitted to a care home or receive enhance home care that their subsequent length of stay/period of support is reduced by 13 weeks.

The current budget assumptions are summarised in the table below:

	07/08	08/09	09/10	10/11	11/12
Start-up and facilitation	£20,000	£10,000	£10,000	£0	£0
Market development	£10,000	£10,000	£10,000	£0	£0
Project management	£20,000	£20,000	£20,000	£0	£0
Evaluation	£25,000	£25,000	£25,000	£0	£0
Cost of vouchers	£150,000	£280,000	£280,000	£280,000	£280,000
Contingency	£10,000	£10,000	£10,000	£0	£0
Brokerage costs	£40,000	£40,000	£40,000	£40,000	£40,000
<b>TOTAL pa</b>	<b>£275,000</b>	<b>£395,000</b>	<b>£395,000</b>	<b>£320,000</b>	<b>£320,000</b>
LA contribution	£68,750	£98,750	£98,750		
ISB funding	£206,250	£296,250	£296,250		
	ISB money		£798,750		
	LA funding		£266,250		
	TOTAL		£1,065,000		

The modelling has considered only the impact of changes envisaged by the introduction of day opportunities funding and assumes 'everything else being equal'. It is, however, known that underlying growth in demand for services due to demographic changes, for example, place pressure on services in the order of c.1% pa<sup>1</sup>. For example, on these assumptions the number of people in care homes would be expected to rise in the three Districts envisaged to be part of this project by approximately 135 over five years. Other commissioning strategies are being put in place to address this rise and it is expected that the day opportunities funding would become a part of the overall strategy to address these pressures. The contribution that this project would make is reflected in the baseline outputs of the modelling exercise below.

## 4 Model outputs

### 4.1 Baseline assumptions

***On these initial assumptions the modelling suggests that:***

- 2 people a week would start to receive day opportunities funding and that gradually the number of people receiving day opportunities funding at any one point in time would be 49 (sensitive to the assumption of an average 26 week period);

<sup>1</sup> Scrutiny Panel paper – Demographic growth and services for older adults in Cumbria, 27<sup>th</sup> September 2006, Nick Smith.

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- That over 2 to 3 years the number of people in a care home across Cumbria would fall (all other things being equal) by about 30;
- That the number of people entering a care home over a full year would initially fall by about 30 but then rise again by 15 over a four to five year period;
- That the number of people receiving intensive home care packages would fall by about 20;
- That the financial benefit (based on no take-up in the first 6-months, 15% by the end of year 1, growing to 80% of potential by the end of year 2 and 100% at the end of year 4) would be as shown in the table below.

	Year 1	Year 2	Year 3	Year 4	Year 5
Direct project costs	£275,000	£395,000	£395,000	£320,000	£320,000
Potential care home savings	£50,000	£280,000	£329,000	£354,000	£366,000
Potential home care savings	£24,000	£128,000	£156,000	£171,000	£178,000
Total potential savings	£74,000	£408,000	£485,000	£525,000	£544,000
Net benefits	-£201,000	£13,000	£90,000	£205,000	£224,000
Discount factor	1.000	0.965	0.931	0.899	0.867
NPV of benefits	-£201,000	£12,545	£83,810	£184,220	£194,248
Cumulative NPV	-£201,000	-£188,455	-£104,645	£79,575	£273,823

These figures suggest:

- A small in-year financial benefit in year 2 of £12,000;
- A cumulative financial benefit in year 4 of c.£80,000;
- An annual financial benefit of between £180,000 and £200,000 once the scheme is fully operational.

## 4.2 Re-investment of savings

The proposal for a programme to cover three of the six Districts across Cumbria (covering 53% of the >65 population) in this initial programme would suggest the need for re-investment to ensure Cumbria wide coverage over time. The potential to re-invest the financial benefit across other Cumbria Districts could therefore be realised either on a district by district basis from year 2 or on a 'rising tide' approach across all three remaining districts at a lower level of initial investment. This recycling of resource would in turn have a consequence of generating further financial benefit.

## 5 Model sensitivities

Each assumption will bring with it 'uncertainty' to differing degrees. This section tests a small number of these in isolation in order to identify areas of particular sensitivity and therefore risk.

### 5.1 Period of time receiving day opportunities funding

The period of time somebody receives day opportunities will directly affect the number of people who will benefit from this service, i.e. longer periods of support will limit funding available for other potential clients. The baseline assumption of 26 weeks assumed two 'period' of 13 weeks on the basis that most (perhaps 60% to 70%) will only receive one such period but that others might continue to receive

the funding for significantly longer than 26 weeks. The following Table and Figure illustrate outcomes based on five different inputs for this variable.

Period (wks) of day opportunities funding	10	13	20	<b>26</b>	52
Final annual financial benefit <sup>2</sup> (£'000's)	£1,012	£738	£406	<b>£264</b>	£27



The period of time receiving day opportunities funding can be seen to be a highly sensitive parameter and will therefore need to be built into protocols for delivering the services and into the monitoring and evaluation of the project.

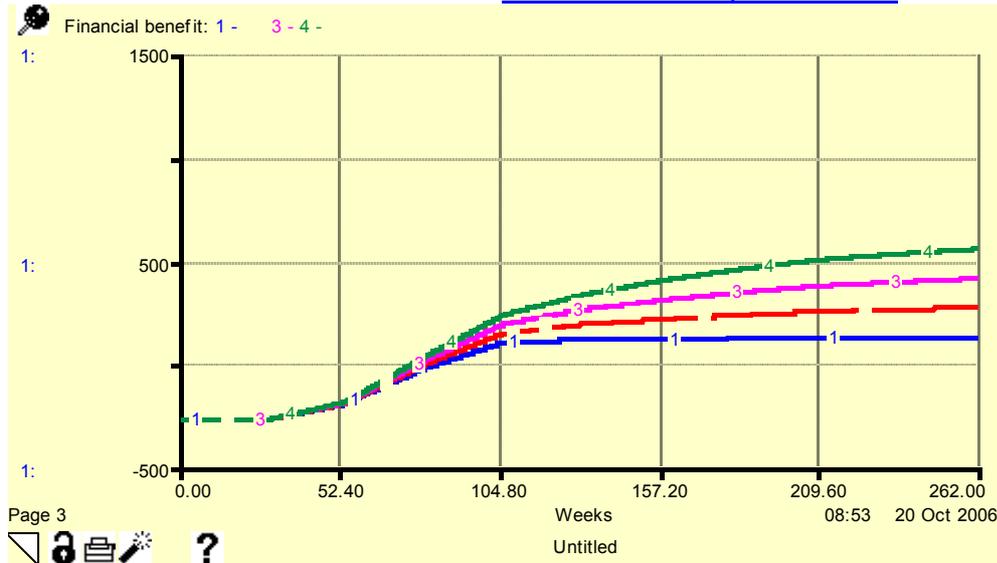
## 5.2 Numbers diverted rather than delayed

The modelling has assumed that 20% of clients receiving day opportunities funding will be diverted from care home admission or enhanced home care services rather than just being delayed. The following table varies this assumption. A lower diversion rate would reduce the financial benefit as illustrated in the table below.

Percent being diverted	10	<b>20</b>	30	40
Final annual financial benefit <sup>3</sup> (£'000's)	£120	<b>£264</b>	£408	£552

<sup>2</sup> Figures are 'crude' outputs excluding calculations of NPV

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The sensitivity of the model to this assumption is not as great as that for the period in receipt of day opportunities but is none the less significant and would need to be monitored closely.

### 5.3 Speed of take-up for funding

The project uptake profile is for there to be no take-up in the first 6-months (during a period of market development) followed by 15% by the end of year 1, growing to 80% of potential by the end of year 2 and 100% at the end of year 4. Alternatives profiles of uptake are illustrated in the Figure below where:

- Profile 1 illustrates financial benefit of earlier uptake in the project compared to;
- Profile 2 which illustrates current baseline assumptions and
- Profile 3 where uptake is delayed slightly and only achieves 90% at maximum.



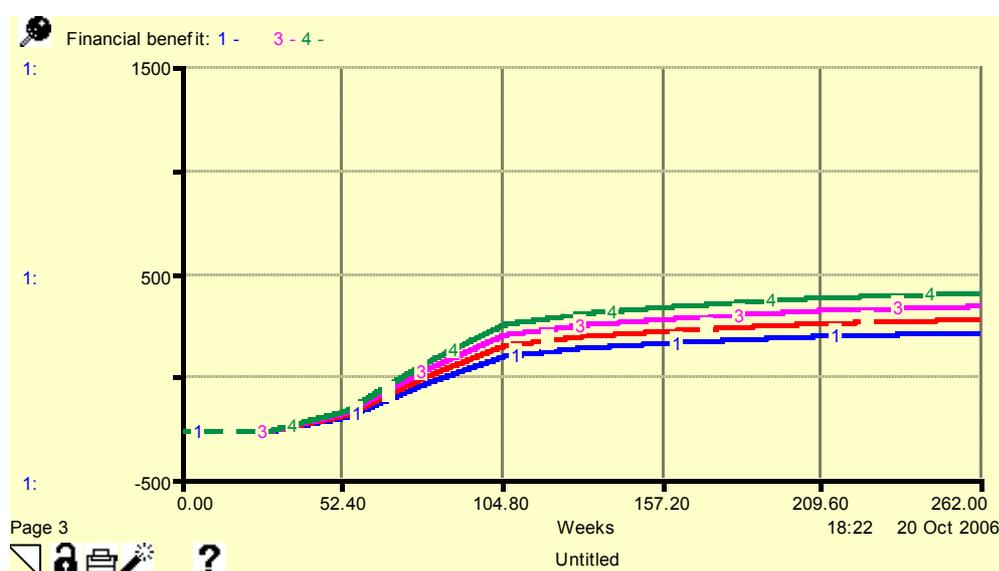
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The sensitivity of the model to these assumptions is marginal and whilst earlier uptake would bring forward financial 'break-even' the overall impact in the medium to longer term is not significant.

#### 5.4 Emphasis of diversion

The baseline model assumes a 40/60 split of those who go on to be admitted to a care home or receive enhanced home care respectively. Two alternative options are reflected in the table and figure below.

Balance of diversion (care home/home care)	30/70	<b>40/60</b>	50/50	60/40
Final annual financial benefit <sup>4</sup> (£'000's)	200	<b>264</b>	328	393



The balance of diversion between care homes and enhanced packages of home care has some impact on financial benefit but not sufficient to challenge financial viability. With lower diversion rates from care homes the time taken to achieve financial balance would be slightly longer.

#### 5.5 Summary and conclusion

This section has tested the sensitivity of the model to four key assumptions and shown that the length of time receiving day opportunities funding is the most important parameter followed by the proportion of people ultimately diverted from care home or enhanced support at home. As there are likely to be trade-off decisions between length of support and diversion the cumulative effect of alternative scenarios cannot be seen as being 'cumulative', i.e. simply adding the extremes of each assumption to create a possible future scenario is unlikely to be realistic. The following section therefore identifies two alternative scenarios 'either side' of the baseline assumption and identifies alternative calculations of NPV.

<sup>4</sup> Figures are 'crude' outputs excluding calculations of NPV

## 6 Alternative scenarios

### 6.1 Breakeven scenario

The model has been used to 'target seek' those assumptions that would deliver a break-even point from year 4 without necessarily having recouped the initial investment. This could be described, from a financial perspective, as the 'worst case'. The assumptions that deliver this output are:

- An additional 4 weeks average period receiving day opportunities funding over and above the baseline assumption of 26 weeks;
- A 10% divert from care home or enhanced home care support instead of 20%;
- A 33%/67% diversion from care home admissions as opposed to enhanced home care instead of the 40%/60% baseline assumption.

The NPV workings are illustrated below.

	Year 1	Year 2	Year 3	Year 4	Year 5
Direct project costs	£275,000	£395,000	£395,000	£320,000	£320,000
Potential care home savings	£38,000	£200,000	£204,000	£201,000	£197,000
Potential home care savings	£25,000	£126,000	£134,000	£132,000	£129,000
Total potential savings	£63,000	£326,000	£338,000	£333,000	£326,000
Net benefits	£-212,000	£-69,000	£-57,000	£13,000	£6,000
Discount factor	1.000	0.965	0.931	0.899	0.867
NPV of benefits	£-212,000	£-66,585	£-53,080	£11,682	£5,203
Cumulative NPV	£-212,000	£-278,585	£-331,665	£-319,983	£-314,780

### 6.2 'Best case' scenario

Selecting a set of 'optimistic' assumptions/outputs illustrate the potential of the scheme. The following assumptions have been used to create this best case scenario:

- Using an earlier uptake profile as suggested in section 5.3;
- Reducing the average period of receiving day opportunities funding by 4 weeks (22 instead of 26);
- Succeeding in diverting 30% instead of 20% from care home admission or receiving enhanced home care;
- Achieving a 60/40 divert from care homes instead of 40/60.

	Year 1	Year 2	Year 3	Year 4	Year 5
Direct project costs	£275,000	£395,000	£395,000	£320,000	£320,000
Potential care home savings	£298,000	£596,000	£713,000	£785,000	£828,000
Potential home care savings	£59,000	£122,000	£150,000	£169,000	£181,000
Total potential savings	£357,000	£718,000	£863,000	£954,000	£1,009,000
Net benefits	£82,000	£323,000	£468,000	£634,000	£689,000
Discount factor	1.000	0.965	0.931	0.899	0.867
NPV of benefits	£82,000	£311,695	£435,813	£569,733	£597,487
Cumulative NPV	£82,000	£393,695	£829,508	£1,399,241	£1,996,728

These assumptions deliver immediate financial benefit in year 1 and achieve in excess of £550,000 a year from year 4 of the scheme.