



## Predicting demand for social care in Hampshire

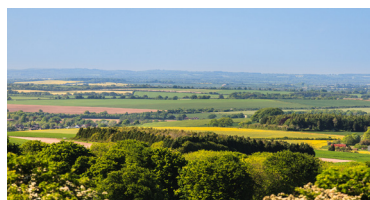
### Introduction

The aims of the Care Life Cycle research project are to gain a better understanding of the factors which affect the supply and demand for health and social care in the UK, in the context of an ageing population. We are keen to ensure that our research has practical impact and are working with local partners, Hampshire County Council (HCC). Like all Local Authorities, HCC currently provides social care to all eligible individuals according to their need. Hampshire is an attractive retirement destination and the number of people aged 65 and over in Hampshire is forecast to increase. HCC want to be sure they can meet future demand.



### The System Dynamics model

Members of the EPSRC Care Life Cycle programme have been working in partnership with colleagues from Hampshire County Council to develop a computer simulation model of social care. The model uses a technique called System Dynamics which examines the behaviour of complex systems over time. One of the key features of System Dynamics is its ability to identify feedback within systems, and hence understand why changes within one area can lead to counter-intuitive results elsewhere. The model allows planners and care providers to see the “big picture” and explore the potential outcomes of different policy options. The model will help in the challenging task of providing for the changing needs of the ageing population while working within tight budgetary limits.



### Key Points

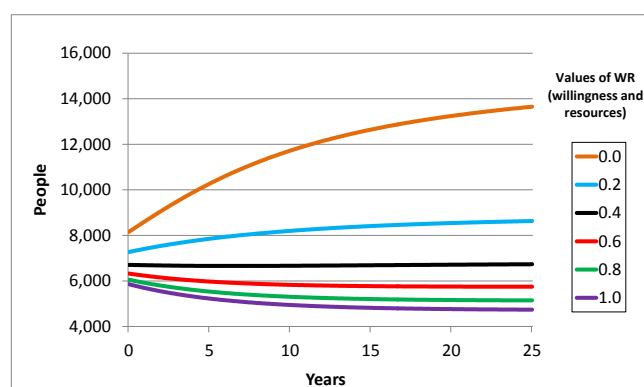
- A computer simulation model is helping Hampshire County Council predict demand for social care. Hampshire is a popular retirement destination and has a growing elderly population.
- The model uses System Dynamics, a modelling approach which takes a “whole system” view and captures the connections between different parts of a system, where small changes in one area can have surprisingly large knock-on effects elsewhere.
- Policies which seem rational and beneficial for one part of the system may have unintended consequences elsewhere.
- The model will help HCC make better decisions for planning social care services.

The model uses information on the health of the older population as well as their living arrangements and a range of other characteristics from local and national data sources. People ‘arrive’ in the model when they reach their 65th birthday. The majority of older people have no social care needs and are able to live independently. However, this may change as they get older, and the model takes this into account using the four categories widely used by Hampshire (and all UK local authorities) - low, moderate, substantial and critical need. These care needs can be met in three possible ways. Firstly, entirely provided by the local authority; secondly, through other sources such as informal family arrangements, the voluntary sector or privately purchased care; or thirdly, by a combination of the first two.

### Willingness and resources

System Dynamics models can include qualitative or subjective variables. Our model contains a variable called “willingness and resources” which represents people’s ability (and desire) to provide care for elderly relatives. For example, changing divorce patterns lead to complex family structures, and people who are not raised by their birth parents may feel no obligation to care for them in old age. In today’s geographically mobile society children often live far from their parents. An unmarried woman in her fifties may want to give up her job to care for her aging parents, but this could impact not only on her current earnings and standard of living, but also on her future pension and quality of life in her own old age. The model allows us to explore changes over time in people’s capability and/or willingness to provide care.

One issue highlighted by the model is the importance of the caring role currently being fulfilled by family, neighbours and friends, and of the role of local authorities in supporting these “informal” carers.



The graph above shows the results from a series of hypothetical experiments, for an elderly population similar to Hampshire’s, over a 25-year period. It depicts the numbers of people receiving Local Authority care alone, for different values of the subjective variable Willingness and Resources (WR), where WR = 0 (the orange line) means that no family care is available, WR = 1 (the purple line) means that the family is able to provide 100% of the required care, and current best estimates of WR are around 0.4 (the black line). The dramatic increase in numbers as WR gets close to zero shows that if in future people are less willing or able to provide informal care for elderly relatives than at present, there would be a major impact on local authority care budgets.

### Future Research

This model is an example of the type of collaborative research carried out within the Care Life Cycle project. Its ultimate aim is not just to generate new knowledge, but also to provide practical decision support for policymakers. This work would not be possible without the involvement and commitment of HCC staff, but the findings are relevant beyond Hampshire alone. The model is still being developed and enhanced. Please contact us if you would like further information on the Care Life Cycle project, via email to [clcproj@soton.ac.uk](mailto:clcproj@soton.ac.uk) or telephone 023 8059 8981.

#### Authors

Joe Viana (CLC), Sally Brailsford (CLC), Kevin Andrews (HCC), Rachel Dittrich (HCC)

#### Editor

Yvonne Richardson