

NHS Borders

Proposal for Provision of a Whole Systems Bed Modelling Tool



3 July 2006

1 Introduction

NHS Borders is planning a £7m capital investment in a new Borders Emergency Care Centre (BECC). It requires the production of information and tools to inform the planning process, with particular reference to the impact of the BECC on bed numbers.

NHS Borders currently has 633 inpatient beds spread over 12 locations, the largest of these being Borders General Hospital, which has 329 beds and is the location for the proposed BECC.

The main element of the work will be the provision of a modelling tool for use within NHS Borders. The deliverables will include:

1. A one-off response to questions regarding NHS Borders bed requirements in relation to the opening of BECC. This will follow a list of detailed assumptions and requirements specified under a separate document titled 'Assumptions and Requirements for Attendance / Bed Modelling' – March 2006.
2. The provision of a modelling tool, which will be licensed/owned by NHS Borders and can be used by NHS Borders staff for future modelling requirements. The tool will be developed using the iThink version 9 simulation software.
3. Training for NHS Borders staff to allow the future use and maintenance of the above model and on going support/development.

2 Proposed approach

The Whole Systems Partnership has significant experience in model building, facilitation and training in health and social care settings (see later). We are proposing an approach that will enable the development of a systems simulation model that reflects, as a minimum:

- current patient pathways;
- bed capacities, lengths of stay, and occupancy rates across the twelve locations;
- demand rates will be arrayed by specialty and day case / inpatient; and will take account of:
 - changes in clinical practice,
 - service redesign,
 - process input,
 - population / demographic changes.

The simulation model will seek to reflect the historical and current structure, behaviour and performance of the defined system. It will enable the testing of new operating policies e.g. implementation of the new BECC, against different demand scenarios.

The approach will:

- Incorporate the assumptions included in the document 'Assumptions and Requirements for Attendance / Bed Modelling';
- Incorporate the uncertainties in the document 'Assumptions and Requirements for Attendance / Bed Modelling' and enable sensitivity analysis around these uncertainties;
- Provide answers to specific questions as outlined in the document 'Assumptions and Requirements for Attendance / Bed Modelling';
- Enable the participants to analyse and understand the intended and *unintended* consequences of implementing planned changes in a 'safe' environment;
- Inform the development of an appropriate range of performance information.

3 Proposed process

The process being proposed would involve:

1. Holding a series of one-to-one discussions at an early stage of the project with key individuals to inform and help identify any critical issues from either a particular organisational or professional perspective.
2. Undertake 3 stakeholder workshops at key stages of the project to engage participants in a confirm and challenge process:
 - a. Defining the boundaries and key questions to be addressed, developing a map of the proposed model;
 - b. Validating a prototype model;
 - c. Testing a quantified simulation model to reflect current and alternative scenarios.
3. Developing a simulation modelling tool to analyse and communicate the key issues.
4. Analysing alternative futures using the modelling tool and identifying key performance targets.
5. Communicating these findings in a written report and/or PowerPoint presentation.
6. Supporting the development of basic skills in systems modelling for a small number of people who may be expected to use and support model development after completion of the project.
7. Provide on going training, support and maintenance of the system model as required.

4 Schedule of Work

This schedule of work is proposed assuming a prompt start to the project by 1 August 2006 and access to relevant people and data. Later dates may be informed by outputs from each stage of the project. It is envisaged that a single internal project manager within NHS Borders would be delegated authority to negotiate any changes in the initial proposals reflected here. The Whole System Partnership consultants can be flexible with these dates depending on local requirements.

Phase	Possible timing	Content
Scoping, information collection, prototype model building,	By 25 August	<ul style="list-style-type: none"> • Development of a specification for simulation model; • One-to-ones with key people from NHS Borders; • Receipt and analysis of data; • Preparation of detailed plans for a simulation model.
Stakeholder workshop 1	By 31 August	<ul style="list-style-type: none"> • Preparation for and facilitation of a stakeholder workshop; • Short interim report produced summarising progress and detailing next steps.
Quantitative simulation model building	1 – 29 September	<ul style="list-style-type: none"> • Refinement of the model in the light of the first stakeholder workshop; • Further data gathering if necessary and discussions with individuals; • Development of a quantitative simulation model.
Stakeholder workshop 2	w/c 2 October	<ul style="list-style-type: none"> • Preparation for and facilitation of a second stakeholder workshop; • Short interim report produced summarising progress and detailing next steps.
Model refinement, testing and analysis	2 – 20 October	<ul style="list-style-type: none"> • One-to-ones with key people from NHS Borders; • Model development and analysis; • Preparation of detailed findings for the third stakeholder workshop.
Stakeholder workshop 3	w/c 23 October	<ul style="list-style-type: none"> • Preparation for and facilitation of a third stakeholder workshop.
Training for NHS Borders staff	Ongoing	<ul style="list-style-type: none"> • Facilitation of one 2-day workshop and two 1 – day workshops

It is envisaged that capacity to provide on going training, support and maintenance of the system model would be negotiated towards the end of the initial phases. In practice we find that 1-2 days per month is sufficient to meet this need.

5 The Whole Systems Partnership

5.1 The team

The project will be led by Peter Lacey, Partner in the Whole Systems Partnership (see brief CV later) with modelling support from Paul Gisborne whose capabilities are in operational and strategic planning using systems thinking, dynamic modelling, and training. Paul has over ten years experience of consultancy and training using systems methods in the public and private sectors.

5.2 Recent work of relevance

Work currently being undertaken or completed in the last 12-18 months by the Whole System Partnership in the field of systems modelling has included:

- Review of capacity and future models of intermediate care in Liverpool using a systems modelling approach;
- Undertaking a whole systems strategic modelling exercise with Shropshire and Staffordshire SHA to develop a high level 'Health System Simulator' tool to inform key capacity decisions including implications for physical build and human resources;
- Undertaking a range of focussed systems modelling projects with Cheshire social services across all five different client groups;
- Supporting Audit Scotland in their work with a Local Health Board in Scotland to explore different ways to address the challenge of delayed hospital discharges;
- Working with a PCT in Leeds to model the impact of its intermediate care and chronic disease management services;
- Working with a large Teaching Hospitals Trust, local PCTs and the SHA Workforce Development Confederation in the East Midlands to model shifts in services between secondary and primary care.

Other strategic reviews and partnership development work recently undertaken by the Whole Systems partnership has included:

- Supporting a number of locations (25 PCTs) in addressing the need to develop their intermediate tier of services under the auspices of the Nuffield Institute for Health.
- Undertaking an option appraisal on appropriate models of delivering mental health services for Ashton, Leigh and Wigan PCT.
- Supporting North & East Yorkshire and Northern Lincolnshire SHA/LA's/PCTs in developing and implementing a programme of staff support for its continuing care policy, revising its policy and supporting panel training, development of an assessment toolkit, benchmarking and putting joint mechanisms in place.
- Involvement in and facilitation of the Expert Reference Group for the National Service Framework for Long Term Conditions.
- A report on recommending a new service model for older people with mental health needs in Salford has recently been submitted following similar successful projects in Bolton and Trafford.

Further information about the work of the Whole Systems partnership can be found at www.thewholesystem.co.uk.

The Whole Systems Partnership is also the preferred partner in the UK for isee systems (www.iseesystems.com) for training in the use of the itink systems modelling software.

5.3 Whole Systems Partnership – project consultants

Peter Lacey has a General Management and health background with commercial and voluntary sector experience before joining the Health Service at a Regional Health Authority in 1990. He has extensive project management experience and provides training in project management, strategic planning and systems modelling to a wide range of clients.

Peter completed an MBA at Durham University in 1998 during which he received a prize for his dissertation work on intermediate care services in the UK and Sweden. Peter is also an associate of the Centre for the Development of Nursing Policy and Practice at the University of Leeds and Chairman of a national charity 'The Relationships Foundation', which develops and applies research into the importance of relational values and practices in both public and private sector organisations.

Peter's experience in systems modelling goes back to the early 1990's when he managed a project at the Yorkshire Regional Health Authority. Since then he has applied the approach in a wide range of health and social care environments. He is a member of the International System Dynamics Society.

Paul Gisborne is an experienced trainer and consultant in the use of systems modelling software and also has expertise in the application of statistical methodologies. He is currently leading on a range of systems modelling projects for WSP clients.

6 Summary

We believe that this is an important engagement for NHS Borders at a critical time in its planning for a new Borders Emergency Care Centre. We are available during working hours to answer any questions you may have. The Whole Systems Partnership's consulting methods are entirely suitable to address the issues discussed and we are prepared to start the project within a short time following your acceptance.

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