HEALTH ECONOMIC MODELLING OF THE SERVICE OF CARE IN SHEFFIELD FOR PATIENTS WITH LONG-TERM DEPRESSION

Jon Tosh, Alan Brennan, Glenys Parry and the Improving Quality and Effectiveness of Services Therapies and Self Management (IQuESTS) Research Project Team
ScHARR, School of Health & Related Research. University of Sheffield, United Kingdom
Contact: j.tosh@sheffield.ac.uk www.clahrc-sy.nihr.ac.uk/theme-iquests-introduction.html

The University Of Sheffield.

RATIONALE

The Improving Quality and Effectiveness of Services Therapies and Self-management on longer term depression (IQuESTS) study aims to reduce the levels of long-term depression in South Yorkshire, UK. The project is a collaboration between the School of Health and Related Research (ScHARR) at the University of Sheffield and the local NHS providers of mental health services.

BACKGROUND

Depression is one of the commonest yet most debilitating mental health problems, affecting an estimated 121m people worldwide (WHO 2009). Whilst many people (approximately 20%) experience a single major depressive episode, the majority recover only partially, or relapse and experience a recurrence of depression. For many people, depression must therefore be understood as a relapsing condition, which requires long-term management to minimise the impact of the disorder on their quality of life.

OBJECTIVES

The objective of the analysis is to quantify the costs and health benefits of the current system of care for patients with long-term depression, and to identify cost-effective improvements to the system through innovative decision-analytic modelling techniques.

Patients with long-term depression are often treated within different health services, and the chronic nature of the condition means that the whole patient pathway needs to be evaluated. Novel "Whole Disease Modelling" methods (Paul Tappenden thesis: University of Sheffield) allow the whole system of care to be modelled. This means that the impact in terms of patient benefits as well as the resource implications can be evaluated for the whole patient lifetime.

METHODS

The Whole Disease Modelling framework requires operational research methods to develop a robust and quantified decision-analytic model. A six stage process has been followed:

1. **Understand the decision problem**
   Identify the clear objectives of the model, and define the level of complexity required to produce useful results for informing decision-making

2. **Develop a conceptual model**
   A representation of the current system that identifies its key components and their relationships

3. **Systems design and analysis**
   Developing a computer simulation model

4. **Implement quantitative model**
   Provide evidence and data for the model

5. **Model checking**
   Validate both the model, and the results of the model

6. **Use of model**
   Undertake reconfigurations of the model, and also present scenario and sensitivity analyses to identify how the service can be improved.

CONCEPTUAL MODEL

The conceptual model is a 'mental model' that represents an understanding of the current system. It provides an agreed basis on which to develop a fully quantified model.

The conceptual model has been developed by a series of interviews with various stakeholders, including service users, therapists and managers, as well as referring to literature and published clinical guidelines.
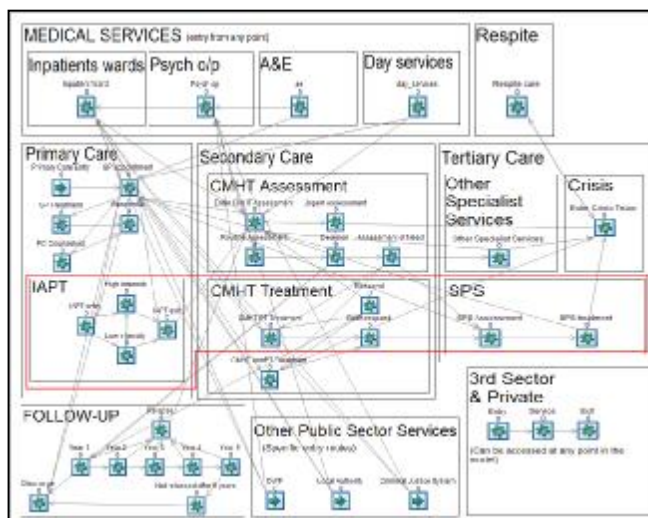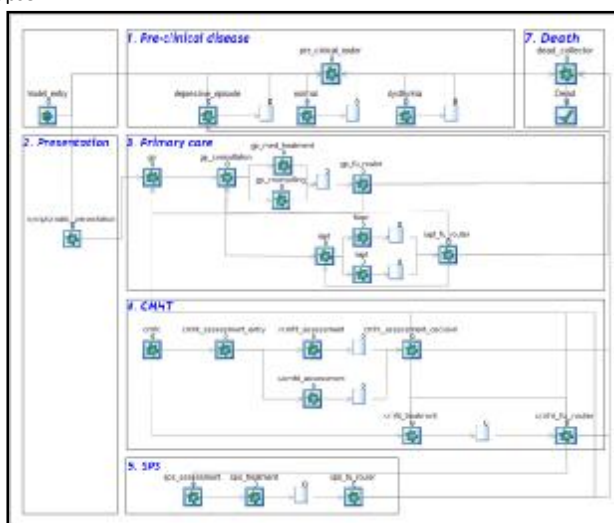

QUANTIFIED MODEL

The model is designed using a relapsing/remitting framework. Patients are simulated and move between Normal Health, Depressive Episode or Dysthymic Episode. Epidemiological data are used to determine the probability and length of a relapse, and the effectiveness of the system is modelled in terms of its ability to shorten and/or reduce the severity of an episode, and also the ability to increase the time before relapse.

Routinely collected data (see below) will provide evidence for the current pathways and flows of patients through the service. It will provide an understanding of time spent in the service, likely care offered, drop-out rates and some indication of treatment effectiveness. It will also identify where data may be lacking.

Alongside routinely collected data, published literature is currently being reviewed to provide parameter values for treatment efficacy, epidemiological data and Quality of Life data.

DATA

With an agreed conceptual model in place and the model designed, the parameters that require evidence can be identified to develop the quantified model. Routinely collected data in Sheffield have been requested from:

- Improving Access to Psychological Therapies (IAPT)
- Sheffield Health and Social Care NHS Trust
- Sheffield Specialist Psychological Services (SPS)

RESULTS AND CONCLUSIONS

The research is currently at the point of the model parameterisation being completed, and therefore final results are not yet available. The four potential service reconfigurations that were identified in a stakeholder workshop, and will be tested in the model are:

1. Self-referral back to therapist after therapy discharge

2. A case-manager (tested as quicker and more appropriate access and reduced drop-out)

3. Widening the availability and offering effective non-therapy services

4. Common assessment tool with alliance monitoring