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Evaluating Models of Service Delivery: Reconfiguration Principles

Research Report

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"How can one discover in history, a coherent sequence of cause and effect, how can we find any meaning in history, when our sequence is liable to be broken or deflected at any moment by some other and, from our point of view irrelevant, sequence?"

E.H Carr (1961; p.130)

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Glossary of Abbreviations and Acronyms

A&E	Accident and Emergency [services or specialty]
CCN	Cardiac Care Network [In 2000, the National Service Framework for Coronary Heart Disease called for the establishment of local cardiac clinical networks across England]
CE	Consultant Episode [an episode of care - the time a patient spends in the continuous care of one consultant]
CHC	Community Health Council [Community Health Councils were established in 1974 to provide a voice for patients and the public in the National Health Service (NHS) in England and Wales. They were abolished in 2003 in England as part of the NHS Plan announced in July 2000. They continue in Wales]
CRD	Centre for Reviews and Dissemination [at University of York]
DGH	District General Hospital [generally, a hospital serving one geographical area]
DRG	Diagnostic Related Group [system to classify hospital cases into groups expected to have similar hospital resource use]
EPIDUR	Duration of an episode of care
EWTD	European Working Time Directive [in relation to impact on hours of work of junior doctors]
FCE	Finished Consultant Episodes [completed episode of care - see Consultant Episode above]
GP	General Practice or Practitioner
HES	Hospital Episode Statistics [a data warehouse containing details of all admissions to NHS hospitals in England and all NHS outpatient appointments in England. Source for a wide range of healthcare analysis for the NHS, Government and many other organisations and individuals. It contains admitted patient care data from 1989 onwards, with more than 12 million new records added each year, and outpatient attendance data from 2003 onwards, with more than 40 million new records added each year.]
HRG	Health Resource Groups [standard groupings of clinically similar treatments which use common levels of healthcare resource. Enable organisations to understand their activity in terms of the types of patients they care for, the treatments they undertake and the comparison of activity within and between different organisations, including opportunity to benchmark treatments and services to support trend analysis over time. Used to code activity for Payment by Results.]
IC	Intensive Care
ICD	International Statistical Classification of Diseases and Related Health Problems [Most commonly known by the initials ICD, it provides codes to classify diseases and a wide variety of signs, symptoms, abnormal findings,

	complaints, social circumstances and external causes of injury or disease. Every health condition can be assigned to a unique category and given a code, up to six characters long. Such categories can include a set of similar diseases. Published by the World Health Organization and used worldwide for morbidity and mortality statistics, reimbursement systems and automated decision support in medicine.]
IT	Information Technology
JRA	Joint Point Regression Analysis [designed for estimating optimal linear and non-linear trends in frequency data. Pioneered by the US National Cancer Institutes, it enables trends in data to be viewed as a series of linear segments where 'joinpoints' denote significant changes in specialty activity levels within an organisation.]
MIU	Minor Injuries Unit
MLU	Midwifery Led Unit
O&G	Obstetrics and Gynaecology
OECD	Organisation for Economic Co-operation and Development
OPCS	Office of Population Census and Surveys
OSC	Overview and Scrutiny Committees [Local Authority oversight of health care]
PACS	Picture Archiving and Communication Systems
PAS	Patient Administration System
PBC	Practice Based Commissioning [involving GP practices and other health and primary care professionals in the commissioning of services.]
PbR	Payment by Results [intended to provide a transparent, rules-based system for paying trusts that rewards efficiency, supports patient choice and diversity and encourages activity for sustainable waiting time reductions. Payment is linked to activity and adjusted for case-mix.]
PCT	Primary Care Trust
PFI	Private Finance Initiative
PPI	Patient and Public Involvement
RAWP	Resource Allocation Working Party [1975 review of the arrangements for distributing NHS capital and revenue to RHA,s AHAs and Districts to establish a method of securing a pattern of resource distribution that was responsive, objective, equitable and efficient, taking into account relative need.]
SCAN	Scotland Cancer Network
SCBU	Special Care Baby Unit
SETRHA	SE Thames Regional Health Authority
USNCI	United States National Cancer Institute
WIC	Walk-in Centre

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Executive Summary

Background

The aim of the research was to analyse and explain the process of reconfiguration, to evaluate its consequences within the limitations of both the data and of the possibilities of attributing events to causal processes originating with reconfiguration, and to draw any conclusions that might be of wider interest.

Many health systems are concerned with the issue of how best to configure their hospital based services. There is an inevitable balance to be struck between the capital investment and high infrastructure costs of the hospital sector which has to be set against a strengthening primary care sector, new forms of medical care delivery options and shifting demographic factors within different countries.

The pressures for service reconfiguration manifest themselves in specific ways at particular sites. The interplay between the generic model of forces and the local trigger is a key component of this research report. There is evidence that the drivers of change are not always those stated at the outset, that proponents of change tend to exaggerate the likely benefits and understate the costs, and that the process of change itself can be a constraint to service improvement.

Definition [Chapter 1.2]

For the purposes of the present study we have developed the following two-part definition - the word “configuration” is used here in two senses, one broad and one narrow.

In the narrow sense, hospital *configuration* means the distribution of medical, surgical, diagnostic and ancillary specialties that are available in each hospital or other secondary or tertiary acute care unit in a locality, region or health care administrative area.

Reconfiguration, in the narrow sense, therefore means a deliberately induced change of some significance in the configuration by managers and policy makers.

In the broad sense, however, reconfiguration is sometimes used in the grey literature to mean the full range of processes of change affecting hospitals.

Objectives [Chapter 1.1 & 1.3]

The overall objectives of the research were:

1. to evaluate the performance of each site in terms of sustained delivery and the processes relating to planning and implementation of the reconfiguration,

2. to draw overall conclusions about factors associated with success and failure in each site, and

3. to develop a framework of assessment for proposed reconfiguration that would also serve as the basis for evaluation of such changes in provision.

The Sites [Chapter 6]

The three sites were identified within the Department of Health project 'Configuring Hospitals in Health and Social Care Systems'. Each of these sites had taken a different and distinctive approach to maintain acute service provision. The sites are designated as A, B, and C throughout the report and represent significant differences in terms of urban, rural and inner-city contexts.

Conduct of the research [Chapters 1.4, 1.5 &2]

The research consisted of the following distinct strands of work.

Firstly, a detailed qualitative programme of interviews was conducted, in two waves, with key stakeholders in each of the three case study sites, to examine the process by which reconfiguration was negotiated and implemented to the different extents that it was implemented at all in the three cases.

Secondly, data were obtained from ambulance trusts and, where possible, from the hospitals themselves, to enable quantitative analysis of the flows of emergency patients.

Thirdly, activity data on selected specialities in each hospital were examined using Joinpoint regression analysis to identify trends that might be related to activities undertaken in the name of or consequential upon reconfiguration.

Although some preliminary analysis of financial data was possible using nationally available data sets, difficulties in securing useable data at the level of the individual hospital made it impossible for us to conduct the full analysis originally intended.

The Literature [Chapters 3, 4, &5]

A review is presented of the principal findings from recent empirical studies, mostly from peer-reviewed sources, on various aspects of hospital change that may form part of hospital reconfiguration. The analysis of the literature leads readily toward the proposal [Chapter 5] of a conceptual framework and hypotheses relating to the politics of hospital reconfiguration processes.

In attempting to answer the basic research questions posed, it might be expected that the available literature would readily provide

• taxonomies of types of reconfiguration and of key processes,

• accounts of processes expected to be associated with each of type reconfiguration, and

• hypotheses about the impacts of each type upon key stakeholders

In reality, the resources gleaned from the literature are more modest than anticipated but still useful and are organised into a conceptual framework. The literature reviewed covers a definition of reconfiguration, the key drivers for change, the dependent and independent variables of reconfiguration and change, trends and rationale for change, networks and relationships and mergers. Finally, the literature on the politics, goals and values and their inter-relationship is examined and a typology for illustrating differences is offered.

The Process of Reconfiguration [Chapter 7].

Qualitative approaches were used to examine the process of reconfiguration, by reflecting the experiences of stakeholders including the wider health community. This element of the study uses semi-structured interviews with internal and external stakeholders in two rounds separated by eighteen months to two years, and documentary analysis, to study the proposed changes and the implementation process, including consultation and involvement of stakeholders.

The typology of claims and arguments presented about hospital reconfiguration, and the kinds of basis claimed for them in rival priorities about what is counted as "the public interest" [Chapter 5], was arrived at through an examination of the data from the three sites. We investigated how these different interpretations of the public interest were distributed among stakeholders, and how they related to the solutions they advocated. This analysis confirmed that 'patient' public health interest claims, concerned with health outcome, are most commonly expressed by clinicians. 'Taxpayer' public interest claims concerned with efficient use of resources were most likely to be expressed by the internal non-clinical group made up mostly of trust executive team members. The diverse group of external stakeholders were most likely to express 'consumer' claims (typically about access to care and the patient experience). 'Voter' public interest claims relating to the local significance and value of services were rarely expressed by interviewees in this study. No type of claim was exclusive to any one group. Views of the purpose of reconfiguration were most polarised in Trust C.

Though all three sites achieved changes in delivery of acute services and were able to claim benefits, none could be termed an unqualified success. Trust A implemented service changes and benefits in cost and output were claimed. but these changes do not fall within the definition of reconfiguration adopted for this study which involves the distribution of services between hospitals, in that they did not involve the removal of services from any site. Trust B also implemented service changes and the reconfiguration plan was formally signed off as complete, but interpretation of the reconfiguration as a success was challenged by some internal and external stakeholders, and the process was lengthy. At Trust C, service changes within the definition of reconfiguration used for this study did not take place. All three face internal as well as external obstacles to the sustainability of acute services – financial, safety, clinician challenge and managerial change all affect long-term embedding of service reconfiguration. However, all three case studies offer the chance to learn about how reconfiguration can be planned and implemented.

Emergency Care [Chapter 8]

Difficulties were encountered in collecting reliable data related to emergency department flows highlighting the need to undertake prospective studies and recommendations for the same are offered. The use of process flow charts is proposed and discussed as a way of demonstrating whole system change, with statistical process control charts used to demonstrate changes in each arm of the flow chart. Statistical Process Control Methodologies allow evolving changes to be observed.

A focus group of clinicians was used to determine methods of assessing potential clinical impacts of reconfiguration in addition to the above. The group agreed unanimously that this was best done by modelling changes in patient pathways.

Modelling Service Change using HES Data [Chapter 9]

Here we offer a graphical means of representing the complexity of Hospital Episode Statistics (HES data) in a way that provides a common frame of reference for health professionals from different backgrounds to visualise and interpret the actual patterns of hospital activity changes that have occurred over time. This process of sense-making is concerned with finding patterns of meaning and explanatory structure in complex or seemingly unstructured situations and has both a cognitive and social component. Interpreting HES data in this way requires careful consideration at local Trust level and there are many unresolved questions that commonly surround attempts by various stakeholders to represent the reasoning and rationale for service change scenarios.

Trends in the HES data from the three participating sites were examined through inflexion point regression (a non-linear 'piece-wise' or segmented regression modelling). 'Joinpoint Regression Analysis' (JRA) has been designed for the specific purpose of estimating optimal linear and non-linear trends in frequency data and used in numerous studies where it is critical to identify changes in trend. Trends in Finished Consultant Episodes were identified and used to identify and monitor the impact of planned and unplanned interventions.

The exploration of HES data in this way can provide a way of exploring and understanding reconfiguration, allowing for both planned and unplanned effects and for the intrinsic untidiness of change processes through the involvement of Trust staff. The quantitative analysis of the HES data suggests many interesting local 'stories' about the strategic planning and implementation of change and focuses attention on the extent to which these fluctuations in levels of service activity are the products of the strategic will of managers or are the results of the impact of unexpected situations and circumstances.

With further research to systematically establish the reliability and validity of this approach, adopting this type of conceptual framework for sharing HES data may provide a basis for more effective communication between staff from different backgrounds and perspectives on the change, more effective problem solving about organisational change leading to more effective planning and implementation of local change.

Financial Effects [Chapter 10]

This element of the study was limited by lack of data. The practice of compiling accounts at Directorate level rather than across sites and services meant that the range of data needed to observe how these changed during local site reconfiguration of services was not available.

Data downloads were obtained from HES for two of the three sites in this study. Although there is scope in HES for recording of the site within a trust at which treatment is provided to inpatients and day cases, this is not necessarily always

collected. Our request for HES data showed that for one Trust there was no site-specific data available.

The analysis of the cases treated at each of the two sites shows a relatively high degree of stability in clinical activity at both sites. The highest volume Healthcare Resource Groups (the way in which activity is coded for Payment by Results – essentially based on diagnosis, procedure and cost) are identified along with, where the volumes in HRGs are smaller, the volume of individual chapters of the HRG classification, minus the high volume HRGs reported separately.

The national cost index provides a basis for overall comparisons based on the scale of change. For example, if only 5% of a Trust's activity is affected by reconfiguration, we would not expect to see a major shift in the cost index, even if this reconfiguration was adding significantly to costs. A cost increase of 20% in reconfigured activities would add only 1% to the cost index. However, it is noteworthy that over the period of the study, the cost indices of the Trusts involved have been relatively stable.

Conclusions and Recommendations [Chapter 11]

Conclusions

At its broadest level the project has provided a useful taxonomic framework through a confirmation of the literature and qualitative material. The latter too has provided important insights into the multi-faceted and tortuous process of implementing change in the NHS, emphasising the political context of service reconfiguration.

We have offered a definition of reconfiguration but beyond this is the degree to which it is appropriate to view reconfiguration as a singular event or a continuing process. The former suggests that there is a point in time when services change and the system works or does not. This conceptualisation makes an evaluative approach appropriate. Our view tends more towards the second perspective that reconfiguration is a process often taking place over a considerable period of time with piecemeal components, some of which function more quickly and more effectively than others.

A parallel dimension is that of reconfiguration as a technical initiative based around systems (financial, clinical, safety or others) as opposed to politically seeking to come to a decision or solution in the context of competing values. This research project has largely experienced configuration as a political issue. Frequently technical criteria are rehearsed but the prevailing view is that the strength of the political perspective is, in the end, greater. This has a major impact upon the issue of sustainability.

The multiplicity of issues and criteria at play in a reconfiguration scenario are frequently in conflict. Moreover as no agreed or acceptable weighting system exists to determine which issues dominate it is unrealistic to see any reconfiguration decision to meet all the criteria or crucially for any reconfiguration to be the best or most successful model. The potential for the variables to acquire different status or value in specific local contexts makes it most unlikely that a reconfiguration in one context will offer a generalisable model elsewhere.

It seems that government policy in respect of reconfigurations sees enhanced public involvement and consultation as a solution. The assumption seems to be that the involvement will be educative in such a way as to lead to smooth acceptance of service change. All the evidence gathered here from the wealth of stakeholder interviews suggests that this is very optimistic

The NHS functions in an unstable, turbulent environment where technological changes are often at odds with other policies. The inter-dependencies of specialties do not yield a fixed value. The service has evolved over time: the stand-alone provision that currently exists would quite recently have been seen as unacceptable.

In the context of assessing the financial merit of a particular configuration it is quite clear from the research here that national resource allocations and policies such as Payment by Results and National Tariffs massively dominate Trust finances beyond anything traceable to an evolving reconfiguration. Moreover, the emerging policies around Treatment Centres and private provision as well as Primary Care Trust commissioning, make it difficult to assess and attribute any movement in an organisation's financial position to a single variable.

At the level of the health community it can appear that a reconfiguration plan exists to overcome a crisis point somewhere in the system. The degree to which reconfiguration plans have precise measurable milestones or clear monitoring systems is quite limited. This is compounded by the high levels of movement in the key actors such that there is a fading memory of the commitments, and newcomers have little personal allegiance to previous agreements.

It is difficult to view the reconfiguration plan as a dominant force in an organisation's behaviour. It may set a general direction but the detail of day to day operational decision making appears to come from more current service priorities.

The paucity of really relevant data to assess reconfiguration outcomes as documented here is probably linked to the issue of who owns or monitors the process of enactment. However, the work on the HES data with these three sites has identified how HES data in conjunction with particular local statistics can offer a useful way of assessing the size of the service change, the control exercised over the process and the sustainability of the new pattern.

Recommendations

The findings from the present study lead to a number of recommendations in terms of how future reconfigurations might be implemented and investigated.

Longitudinal studies - As the policy context becomes ever more complex, it will be necessary to follow proposed reconfigurations very closely from inception, to planning, to implementation.

Data collection - It is clear from this study that retrospective data collection presents a difficulty in terms of capture and interpretation. HES data offers a way of assessing the progress of reconfiguration.

Generalisability - The issue of generalisability needs to be tackled in terms of both technical content – what was the favoured solution and what were the factors that made it successful in a particular site – and of cultural context.

The Report

1 A Summary of the Research Programme

1.1 *Background*

Many health systems are concerned with the issue of how best to configure their hospital based services. There is an inevitable balance between the capital investment and high infrastructure costs of the hospital sector which has to be set against a strengthening primary care sector, new forms of medical care delivery options and shifting demographic factors within different countries. A dominant philosophy of the 1980s was the need for larger central units so that a critical mass of clinical excellence and economies of scale could be achieved.

A number of smaller hospitals in the NHS were merged with larger ones within the concept of 'hub and spoke' models. Very hostile reactions from local communities, e.g. Kidderminster, (Raftery & Harris 2001) to the loss of direct access to emergency care in particular has led to some re-thinking. This line of argument has been bolstered by the emergence of networks which have enabled local sites to continue functioning albeit in slightly altered re-configured ways. 'Keeping the NHS Local: A New Direction of Travel' epitomised this thinking by acknowledging the need to ensure as much local access as possible within a robust clinical safety framework and at acceptable cost.

In England, the pattern of acute hospital service provision is evolving rapidly with pressures on established configurations resulting in sometimes piecemeal and transient solutions and on other occasions beginning to define more permanent models for future, wider use.

The literature debating these issues is also expanding witness - 'Keeping the NHS Local: A New Direction of Travel' (Department of Health, 2003); (McKee & Healey, 2002).

The forces driving towards these changes are also well documented, and many are common internationally although some clearly have a more localised basis (Clark & Spurgeon, 1999). These pressures have been classified as either demand based, such as changes in demography, patterns of disease and altered public expectations, or supply-led where commonly quoted influences include changing technology, medical knowledge, changes in the workforce andpolitical and financial pressures. Nonetheless it is clear that, despite the internationalisation of hospital systems, the pressures for service reconfiguration manifest themselves in specific ways at particular sites. The interplay between the generic model

of forces and the local trigger is a key component of this research report. There is evidence that the drivers of change are not always those stated at the outset, that proponents of change tend to exaggerate the likely benefits and understate the costs, and that the process of change itself can be a constraint to service improvement (Fulop et al, 2002; Hutchings et al, 2003).

1.2 *Definitions*

In order to specify the aims, objectives and research questions sufficiently precisely to enable us to design both the literature search and analysis and also the empirical collections and analyses of data, it is necessary to begin with a statement of a definition of the term "hospital reconfiguration" for the purposes of this study. Here, we give a definition around which the present study has been organised, and some brief contrasts with related terms commonly used both by practitioners and by researchers.

The term 'reconfiguration' has been used for some years in UK health policy to describe changes to hospital services, but its widespread use appears to date from the 1990s. Earlier changes, for example in the 1980s, were referred to as 'rationalisation' or 'retrenchment' (Pettigrew et al, 1992). The use of language plays an important part here: these terms may be seen by some opponent stakeholders, such as the media and some groups among local publics, as euphemisms for 'cutback management'; changes driven by financial concerns. A recent Department of Health report describes reconfiguration as 'synonymous with major service change, service improvement and delivering value for money for the taxpayer' (Department of Health, 2007). Clearly, none of these usages is adequate for research purposes. Therefore, we have developed the following two-part definition for the purposes of the present study.

The word "configuration" is used here in two senses, one broad and one narrow.

In the narrow sense, hospital *configuration* means the distribution of medical, surgical, diagnostic and ancillary specialties that are available in each hospital or other secondary or tertiary acute care unit in a locality, region or health care administrative area.

Reconfiguration, in the narrow sense, therefore means a deliberately induced change of some significance in the configuration by managers and policy makers.

In the broad sense, however, reconfiguration is sometimes used in the grey literature to mean the full range of processes of change that are affecting hospitals.

Although it may be associated with mergers, or the formation of structured networks, reconfiguration is that measure of change which directly addresses operational rather than structural change: hospitals may merge,

form networks, or change their divisional or governance structures, without reconfiguring services.

We can at least partially distinguish hospital reconfiguration in this specific sense from "hospital restructuring". As Norrish and Rundall (2001) note, there is no accepted definition of this term either, but their characterisation of its principal elements (drawing principally on the literature in the US) shows that the redistribution of services available, their co-location, centralisation or decentralisation as between hospitals, is at least not necessarily or even typically involved. They write that restructuring is nearly always defined as "internal" to a given hospital, and characterised by "redesign of patient care processes and changes in workforce composition, organisational structure, decision-making processes and the responsibilities of management and patient-care staff". Reviewing developments up to the mid 1990s, Sochalski and *et al* (1997) concluded that most restructuring concerned the labour process. However, at least in the present climate in the UK, hospital reconfiguration nearly always involves internal restructuring. Likewise, in North America, as Cummings and Estabrooks (2003) note, many of the restructuring exercises that resulted in the outcomes for staff that concern them were ones that were undertaken as a necessary concomitant of reconfiguration. It is worth noting that much of the literature on "restructuring" has been concerned with downsizing, staff layoffs, closure of units, overtime restrictions and other measures that have affected terms and conditions for hospital labour (e.g. Burke and Greenglass, 2001a; Burke, 2005). Other uses of the term concentrate on changes to the roles of boards and senior executives in governance and management, or else upon operational level changes such as business process reengineering. For example, Walston et al (2004) provide no definition, but require that at a minimum, restructuring involve changing nursing models, developing clinical pathways, and undertaking cross-training or personnel. These types of changes too can and often are undertaken without reconfiguration also being required.

1.3 *Aims and Objectives*

The aim of the research was to analyse and explain the process of reconfiguration in each of the three sites, to evaluate its consequences within the limitations of the data and as the possibilities of attributing events to causal processes originating with reconfiguration, and to draw any conclusions that might be of interest beyondthe three particular sites.

Three particular sites were identified within the Department of Health project 'Configuring Hospitals in Health and Social Care Systems'. Each of these sites had taken a different and distinctive approach to maintain acute service provision. The sites are designated as A, B, and C throughout the report.

The overall objectives of the research were:

1. to evaluate the performance of each site in terms of sustained delivery and the processes relating to planning and implementation of the reconfiguration;

2. to draw overall conclusions about factors associated with success and failure in each site; and

3. to develop a framework of assessment for proposed reconfiguration that would also serve as the basis for evaluation of such changes in provision.

It was proposed that these would require identification on both generic measures of performance and measures specific to particular initiatives in each local context. These were to be based on explicitly stated goals and reasonable expectations about service development benchmarked against overall changes in NHS service delivery. Earlier evaluation of hospital mergers and disputed reconfigurations provided insight into the type of information required.

The proposal described how the research needed to engage with various levels and dimensions of reconfiguration, e.g. the consultation and planning process, the implementation process and the implications for resources, workforce and the wider elements of the health and social care system.

1.4 *Research questions*

1.4.1 Overarching research questions

The research set out to address two distinct and completely separate questions:

1. What lessons could be learned from the evaluation of the successful (or not) implementation of reconfiguration programmes in the three pilot sites? (Addressing this question would require specific centralised sets of data and information from each site).

2. What more generalisable features could be identified about the process and implementation of reconfiguration? (An optimal, single model might not be possible but an attempt would be made to capture principles. A taxonomy of the contingencies would be developed in which particular approaches to reconfiguration seem most sensible or least promising).

1.4.2 Specific Research Questions

We identified several specific research questions to be explored in order to tackle the two main questions (above).

1.4.3 Models of Acute Sector Provisions

The first specific research question was to identify from the literature possible models of hospital configuration in order to help us interpret implementation in the chosen sites.

1.4.4 Assessment of Clinical Performance

Assessment of performance delivery was based upon the notion of HES data whereby it was hoped that patterns of change in particular services could be discerned over time and be viewed as consistent (or not) with the reconfiguration plan. This was broadly successful in the site where the reconfiguration was most successful but even here the overwhelming amount of data and the potential external reasons for change other than reconfiguration made interpretation far from simple.

In addition specific focus was given to the impact on Emergency Services as these are often critical to reconfiguration plans. The marker data identified in the specific conditions were not accessible in these sites due to changes in data capture methods. Finally, through the qualitative data we sought to understand better the causality of changes identified.

1.4.5 Implementation and Sustainability

The literature on organisational behaviour and inter-organisational behaviour was examined to provide a framework to understand the process of implementation. Documentary analysis and two phases of interviews were used to identify the impact of the main variables regarded as key to sustainability – leadership, culture and incentives.

1.4.6 Patient Experience

There had been an initial intention to collect direct patient satisfaction data but early contact with the sites suggested that the turbulence surrounding the NHS would make it difficult to attribute any patient data to an aspect of reconfiguration. Direct patient data was therefore not collected but the qualitative phase gathered information from representative groups such as Local Authority Overview and Scrutiny Committee and Patients Advisory and Liaison Services.

1.4.7 Expected and Realised Changes in Costs

Cost containment is often a key component of reconfigurations although frequently not made an explicit goal or reason for the service change. There are established problems in comparing costs across organisations and the cost basis of NHS organisations is notoriously unstable. Changes in costs associated with particular clinical services may relate more to technological advances than an organisational reconfiguration. The number of NHS wide initiatives during the period of the project and the absence of a service specific cost database made this element of the project relatively unsuccessful other than at the broadest level. Models of the critical data required for such cost analysis of future reconfigurations are an important outcome of the project.

1.5 *Research conducted*

The research conducted to answer these questions therefore consisted of the following distinct strands of work.

Firstly, a detailed qualitative programme of interviews was conducted, in two waves, with key stakeholders in each of the three case study sites, to examine the process by which reconfiguration was negotiated and implemented, to the different extents that it was implemented at all in the three cases.

Secondly, data were obtained from ambulance trusts and, where possible, from the hospitals themselves, to enable quantitative analysis of the flows of emergency patients.

Thirdly, activity data on selected specialties in each hospital were examined using Joinpoint regression analysis to identify trends that might be related to activities undertaken in the name of or consequential upon reconfiguration.

Although some preliminary analysis of financial data was possible using nationally available data sets, difficulties in securing useable data at the level of the individual hospital made it impossible for us to conduct the full analysis originally intended.

A fuller statement of those aspects of the original plan of investigation which could not be completed because of the unavailability of data from the three case study sites is given in Chapter 2, and in particular, in sections 2.1 and 2.2.

1.6 *Outline of the report*

This report is organised into eleven chapters. Following this introduction, we present a series of four chapters setting out the methods (Chapter 2), synthesis of knowledge available from previously published literature (Chapters 3 and 4), a conceptual framework and hypotheses used in the qualitative research (Chapter 5).

The second part of the report consists of empirical information from the study of the three sites. This part begin by providing the reader with some basic information about the three case study sites (Chapter 6) and is necessary to provide contextual information for understanding what follows. Chapter 7 presents findings from the qualitative study of reconfiguration processes. In Chapter 8, findings are given from the quantitative study of flows of emergency patients. Chapter 9 offers a review of what can be gleaned from use of HES data. In Chapter 10, the limitations of what can be done with available financial data are set out, and some principles offered for future studies on reconfiguration that might be able to draw on richer data sets than were available to us.

Chapter 11 summarises the key findings from the research as a whole, and draws conclusions.

2 Methods (Including The Plan of Analysis)

This chapter describes the methods used for each of the strands of research conducted, corresponding to the specific research questions identified in the previous chapter. It presents, in turn, methods used for

- search and analysis of empirical knowledge from published literature;
- the qualitative study of the process of reconfiguration;
- analysis of data on emergency flows; and
- analysis of clinical activity data from the Hospital Episode Statistics data set.

(Because of problems of unavailability of financial data, which are discussed in Chapter 10 below, the planned study on financial consequences of reconfiguration did not proceed. Therefore, methods for this element are not presented here. Instead, Chapter 10 presents a statement of the kinds of methods that would be recommended for future research, if and when suitable data could be made available.

2.1 *Methodological strategy*

This section provides a summary of the original research proposal and the adaptations made necessary by the practical problems encountered in terms of both data availability and organizational changes.

The investigation necessarily operated at a range of levels of evaluation and involved a variety of methods. A key task was the co-ordination of the various strands so that they were able to deliver specific and targeted summative evaluations of the three pilot sites as well as development of a robust framework, including the principles, to guide acute sector service configuration in the medium to long term. A number of important dimensions of the research process needed to interact to enable the strengths of each to deliver a more powerful outcome than any unitary approach.

Although complex, the over-arching research philosophy had to reconcile, for example, a critical analysis of the research evidence in a number of domains with the requirement to assess the practical impact of specific and localised initiatives to marry data specific to individual pilot objectives with generalisable principles set within a national and international context of change forces in the acute sector and to link qualitative methods concerned with understanding the reactions of staff, patients, the public and the wider health community to the process of reconfiguration with quantitative data incorporating resource implications and critical performance criteria.

The overall strategy for the approach was to establish a common framework of methods applicable to all sites, whilst incorporating local specific

measures relevant to the objectives of the particular site. The research framework supported the former whilst a dedicated research liaison link was identified to develop the second as well as establishing continuity and rapport with the local pilot site community and individuals. These research links had a base in each collaborating institution and were brought together within a clear and coherent common research process.

The research process incorporated emerging national findings as well as local initiatives related to the three sites.

Within the formative evaluation paradigm, feedback was documented so that the impact of any intervention could be clearly understood in terms of the implementation process.

Drawing upon conceptual frameworks, theories and hypotheses from the review of the literature, the three main empirical strands of research presented below (setting aside the study of financial consequences which could not proceed) suffice to provide an account of what can be known from a study of this type with data that are presently available in relation to some of the issues that have been of greatest concern to policy makers, and indeed some of the most contested issues of conflict between different groups., The relationships of these variables are not necessarily ones of straightforward cause and effect of reconfiguration, as we document in detail in the empirical chapters 7 through 10 below. The concluding chapter 11 presents a synthesis of main findings, showing how the four aspects of the study (including the review of literature) work together to provide an answer to the first research question about what can be learned about reconfiguration from the implementation, to the extent that reconfigurations were in fact implemented, of the proposals made for each of the three study sites.

2.2 *Methodological problems*

The evaluation of these initiatives had to address three problems.

1. Because each of the three initiatives had already begun, the only available baseline data were documentary and statistical in character, other than in Site A where the positive relationship established with the existing research team facilitated the sharing of unique baseline data. This type of information may be critical in designing future evaluative programmes. This was supplemented by qualitative data from interviews, with the interpretation of these data qualified by the fact that it consisted in self-reported memories, which may be subject to a variety of distortions (cognitive dissonance reduction, blame effects, etc). We ameliorated this by ensuring that we interviewed managers, clinicians and administrators to secure a wide range of perceptions, by checking data against documents wherever possible, by noting inconsistencies carefully, and entering appropriate qualifications in written outputs.

2. The three sites were not selected as representative. Therefore typicality was dependant on links with the literature on hospital reconfiguration.

3. It is very difficult to construct credible counter factual scenarios for cost, performance and outcome trends against which to compare actual trends. We therefore analysed the actual data against a range of plausible scenarios reflecting stakeholders' original expectations or aspirations (where these could be reconstructed) and linear projections of prior trends.

2.3 *Methods for the review of literature*

Copies of relevant reports and references to articles were provided by all members of the research team.

In addition, searches of online databases were conducted. The following databases were used: ASSIA, ISI Web of Knowledge, Business Source Premier, IBSS, JSTOR, Science Direct. Searches were restricted to peer reviewed pieces and to studies published since the early 1990s. The keywords "hospital configuration", "acute configuration" and "health configuration" identified no articles at all on ASSIA, BIDS and ISI.

More extensive searches were conducted using the online database Ingenta, and abstracts were collected concerned with a wide range of potentially relevant issues to do with hospitals, some using a simple single keyword search for "hospital" in articles back to 1994, but most using noun phrases such as "hospital network", "hospital change", "hospital restructuring", "hospital closure", "hospital downsizing", "hospital centralisation", etc. Articles of potential relevance were found in the following journals: *Public Administration, Public Money and Management; International Journal of Public Sector Management; Organisation Studies; Organisation; Journal of Economic Behaviour and Organisation; International Journal of Industrial Organisation; Journal of Law, Economics and Organisation; Group and Organisation Management; Leadership and Organisation Development Journal; Journal of Health, Organisation and Management; Health Manpower Management; Health Care Management Science; Health Services Management Research; Disease Management and Health Outcomes; and Home Health Care Management and Practice*. Several hundred abstracts were selected for closer examination.

The results were disappointing, for the specific purposes of the report and study. There were very few empirical studies on hospital configuration in the specific sense that is the subject of the present research (see below for definitions). There have been some normative and prescriptive studies to develop modelling tools which are presented as useful for decision makers charged with making configuration decisions (e.g. Stummer et al, 2004; Congdon, 2001). A few papers discuss configuration meaning the legal form and the structures of board-level governance or else more generally the set of formal and informal structures, systems and ideas at work (Kitchener and Whipp, 1998). Some studies have been published on medical workforce planning which do discuss configuration in the specific sense in which it is used in the present study, but they tend mainly to examine the extent to which hospitals in particular areas have met the quantitative standards for numbers of physicians in certain categories recommended by the Royal Colleges (e.g. Hamilton et al, 2000).

The largest body of directly relevant literature concerns the effects of hospital mergers, and this body of work is reviewed below under three distinct headings. A distinct set of searches was conducted on this area, and another 80 abstracts identified; many papers were examined in full. The literature review on networks has been taken from another recent piece of work on this problem.

There are vast literatures, of course, on a number of issues that clearly influence configuration or are related to it, but which are not reviewed here in any detail for reasons of lack of space and of lesser relevance to the core questions. These include studies on the technical, cost and allocative efficiency of hospitals; on the relationship between volumes of activity in specialties and clinical outcomes; on the incentive effects of payment systems and systems of regulation upon hospitals; on protocols for the management of particular diseases and conditions; on aspects of hospitals', professionals and managers' cultures as they affect organisational change in hospitals; on the merits and demerits as shown by various evaluations of particular managerial techniques used in hospitals,such as Total Quality Management, Business Process Re-engineering, Performance Appraisal; and on the design and appraisal of integrated care pathways.

Because of the limitations of the literature in peer-reviewed journals except for that on mergers, therefore, rather greater use has been made of material in reports from government, from government appointed bodies, from professional organisations, and from studies commissioned by NHS organisations from academics. A few books on hospitals have also been used, such as McKee and Healy's (2002) handbook for the European Observatory on Health Care Systems. In addition, in order to develop some of the conceptual framework, materials have been used from social science more widely.

As one would expect, the so-called "grey" material that is relevant and available itself varies in its quality and evidential status; it ranges from the relatively rigorous to the straightforwardly opinion-based by way of the academic but prescriptive. The most rigorous consists in comprehensive reviews of previous studies on some specific aspects of configurating, such as the relationship between volumes of activity in specialty units and clinical outcomes, and clinical outcomes associated with telemedicine; minor injuries units, transfer of roles from doctors to other clinical staff, and ambulatory care (DH, 2004a). The widely cited York review deals with studies on the relationship between hospital speciality unit size, clinical outcomes and economies of scale (Ferguson et al, 1997; Posnett, 2002). There are some reports written by academic researchers for consultancy purposes using case study data on several reconfiguration initiatives (e.g. Clark et al, 2000; Clark et al, 2003; Clark and Spurgeon, 2001). There are more general reviews of trends in hospital structure, management, configuration and pressures for change (e.g. Ham et al, 1998; Locock, 2001). Other writings by academics include comprehensive reviews of the developments in hospital organisation (Harrison, 1996; Harrison and Prentice, 1996), similarly widely ranging studies using future scenario-building methods (McIver et al, 2002; Ginzberg, 1998), reviews and

conceptual summaries of particular approaches (Spurgeon et al, 2001). Professional institutes have issued statements of their views on appropriate forms of configuration and statements of what they propose should be standards for number of consultants in particular teams, specialties that should be co-located on the same site, minimum numbers of population required for a critical mass and adequate volumes of work for hospital units to be capable of sustaining their skills and quality (e.g. Joint Consultants Committee, 1999; Senate of Surgery of Great Britain and Ireland, 2003; Royal College of Physicians, 2002a,b; Joint Working Party, 1998). Such documents and their predecessors have formed the basis of particular local studies, such as that by the Acute Services Strategy Group for South East Thames Regional Health Authority (1991). Government-issued policy documents range from detailed reviews of standards for particular specialties such as that provided for Scotland by the Scottish Office (1998) to more general and loose presentations of values, vignettes and suggestions for local processes of decision-making such as that offered by the Department of Health (2003).

2.4 *Methods for the qualitative research on reconfiguration process*

Qualitative approaches (assessment of planning documents, interviews, and questionnaires) were used to reflect the experiences of staff, patients, the public and the wider health community in terms of the process of reconfiguration with quantitative data incorporating resource implications and critical performance criteria.

Qualitative data were analysed using a preliminary framework based on the theoretical basis of the study (Miles, 1979), rather than the purely 'grounded theory' approach of Glaser and Strauss (1967). The research developed the analytic categories, according to an agreed framework, to ensure reliability.

We tried to counter the distortions of subjective responses by ensuring that interviews included a wide range of stakeholders, by checking data against documents wherever possible, by noting inconsistencies carefully, and entering appropriate qualifications in written outputs.

2.4.1 Methods

This qualitative element of the study uses semi-structured interviews with internal and external stakeholders in two rounds separated by eighteen months to two years, as well as the documentary analysis, to study the proposed changes and the implementation process, including consultation and involvement of stakeholders. A separate quantitative element attempted to investigate clinical outcomes, costs and management systems.

2.4.2 Sampling

The three sites for the study had already been identified by the funding body. A sample of 'key stakeholders' involved in the reconfiguration process was interviewed at each site.

A sample frame of internal and external stakeholders was drawn up by the research team, consisting of a core set of stakeholders (Table 1) and other stakeholders identified through interviews with the core stakeholders as important to the reconfiguration or its consequences. 'Internal' stakeholders were internal to the organisation. However, these were not a homogeneous group: different interests played different roles in the reconfiguration process. For example, clinicians might or might not perceive their interests as aligning with those of management. Similarly, 'external' stakeholders were those outside the Trust, but again, these were not a homogeneous group, with Local Authority stakeholders having very different interests from those of NHS stakeholders such as Strategic Health Authorities. Interviewees were identified through a combination of an initial review of documents and use of 'snowballing'.

Table 1 Core stakeholders interviewed in all three case studies

Internal Stakeholders	External Stakeholders
Chair of Board	Strategic Health Authorities
CEO	Primary Care Trusts
Director of Nursing	Social Services
Medical Director	Overview and Scrutiny Committees
Project Manager	MP
Financial Director	Local Media
Director of Modernisation/Service Re-Design	

Introductory visits to the trusts took place in July 2004, followed by site visits in September 2004, during which meetings and informal interviews were held with key figures at the trusts. Appendix A includes the letter and information sheet about the project that was sent out to all respondents. This was supplemented by e-mail and telephone contact with individual respondents.

Approximately 20 initial interviews, (half with internal stakeholders and half with external) were planned at each site, so it was important that there was close collaboration with each site to supplement the above framework with others who had been close to the reconfiguration process.

For the purposes of anonymity, the sample achieved at each of the three sites in Table 2 is broken down into quite broad categories of:

- internal clinical;
- internal non-clinical; and
- external stakeholder.
-

Table 2 Round 1 interviewees still available for interview in Round 2

	Type of stakeholder			
	Internal clinical	**Internal non-clinical**	**External**	**Total**
Trust A	3 (of 7)	1 (of 4)	0 (of 3)	4 (of 14)
Trust B	6 (of 7)	3 (of 4)	3 (of 7)	12 (of 18)
Trust C	3 (of 6)	1 (of 5)	5 (of 9)	9 (of 20)

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Table 3 Sample profile

	Type of stakeholder							
	Internal clinical		**Internal non-clinical**		**External**		**Total**	
	Round 1	**Round 2**	**Round 1**	**Round 2**	**Round 1**	**Round 2**	**Round 1**	**Round 2**
Trust A	7	7	4	4	3	4	14	15
Trust B	7	7	4	4	7	8	18	19
Trust C	6	7	5	5	9	11	20	23
Total number of interviews							52	57

So far as was possible the same stakeholders were interviewed at the first and second rounds to investigate change over time. However, changes in postholders, posts and organisations, and the emergence of new stakeholders between the two rounds, meant that a high proportion of second round interviewees were new (see Table 2 and Table 3).

Table 4 Reason for new interviewees in Round 2

	Type of stakeholder					
	Internal clinical		Internal non-clinical		External	
	New postholder	New post	New postholder	New post	New postholder	New post or new organisation
Trust A	3	1	3	0	0	4
Trust B	0	1	1	0	1	4
Trust C	3	1	3	1	3	3

2.4.3 Fieldwork

The first round of interviews was conducted between February and August 2005, and the second round between November 2006 and April 2007. Most interviews were conducted face to face at respondents' places of work, with some at the respondents' homes or at the researchers' offices, and a few by telephone. Interviews were conducted using topic guides which listed the issues and sub-topics to be explored. Responsive questioning and probing were used to ensure relevant topics were covered in depth. The topic guide is reproduced in Appendix B. Interviews were recorded, with participants' permission, and transcribed verbatim. In the second round, attention to some topics relating to the initiation of reconfiguration was reduced in favour of topics relating to impact.

2.4.4 Analysis

The data were analysed using 'Framework', a systematic and comprehensive method for classifying and interpreting qualitative data (Ritchie & Spencer 1994). The first stage of analysis involved familiarisation with the data and identification of key emergent issues. A series of thematic matrices or charts was then drawn up, each covering one key theme with columns representing sub-topics and rows representing individual interviews. The data from each interview were then summarised in the appropriate cell, with the context retained and the transcript page noted. The charts were stored in Microsoft Excel. The charted data from both rounds were reviewed to explore the range of comments made under each sub-topic, to explore individual cases in detail, to identify the factors which influence approaches and to make comparisons between cases and groups of cases.

This report is based on the accounts given during the research interviews by the respondents and as such are the subjective views of the respondents' experiences. Much work went into the sampling to ensure that the key players were interviewed. However, this was a sample rather than a census view of the changes at each Trust, and not all aspects of change that are taking place could be covered within this work. Analysis of the data identified themes and patterns at the individual Trust level and made comparisons between the three, but cannot provide a fully comprehensive account of all the change taking place.

After the report was prepared, all interviewees for whom current contact details were available were given an opportunity to correct matters of fact. Forty-eight interviewees were invited to comment, and ten responded, of whom six made substantive comments. Changes were made as a result of four responses.

A separate analysis, of the type of argument ['public interest claim' (6, 2007): see Chapter 5] put for reconfiguration was conducted, to illuminate how types of argument varied by type of stakeholder, by the circumstances of the reconfiguration, and by what type of configuration was favoured.

2.4.5 Methods for qualitative operationalisation of the framework on conflicting claims

Responses from the 109 interviews conducted in two rounds of data collection had been summarised on a spreadsheet by themes following the framework analysis method (see Chapter 7). Views corresponding to those in Figure 3 were noted for each interview. Interviewees were classified as expressing arguments compatible with consumer, patient, voter and taxpayer type public interest claim. An interviewee could be classified in more than one type. For example, one might argue that a reconfiguration should achieve both financial sustainability (taxpayer) and services close to patients (consumer). Findings for both data collection rounds were aggregated.

The findings were analysed by stakeholder group (internal non-clinical, internal clinical and external).

- internal non-clinical stakeholders included Trust chairs, executive directors (apart from medical directors and directors of nursing) and senior managers;
- internal clinical stakeholders included all internal interviewees who were doctors, nurses or members of allied health professions, including directors of medicine and nursing;
- external stakeholders included interviewees in other organisations in the health economy (PCTs, strategic health authorities, local authorities), patient forums and campaign groups, and MPs.

Both internal groups included some interviewees from threatened sites. All groups, therefore included stakeholders with diverse interests with respect to centralisation and reduction of services at smaller sites.

Findings were also analysed by case study, to see if the particular circumstances of different sites influenced what views were expressed.

2.5 *Methods for the analysis of emergency flows*

The aim of this part of the study was to examine the flows of patients within the local emergency care system and the impact on the three hospital sites, by examining calls for emergency assistance alongside maps generated of actual ambulance journeys to the focal hospital and to others in the local system by month over a period of some five years.

Routinely collected data were obtained from the local ambulance service for emergency calls taken to the hospitals involved in the reconfiguration. These were categorised as follows. The differences between the sites reflect the differences in the data that were in fact available.

- (site A) all 999 calls and all GP urgent ambulance cases (not available by PCT or severity; data on transfers also unavailable);
- (site C) all emergency (999) incidents resulting in a transfer to hospital (total for ambulance service and subdivided by PCT of reconfigured hospital);
- (site C) all emergency (999) incidents in priority category A (potentially life threatening) resulting in transfer to hospital;
- (site B) all emergency (999) incidents resulting in a transfer to hospital (total for ambulance service);
- (sites B and C) GP urgent transfers;
- (site C) transfers from the reconfigured hospital to the major centre.

2.6 *Methods for the Analysis of Activity Data (HES)*

The aim of this part of the study was to show how HES data can be used retrospectively to analyse and monitor actual reconfiguration actions and decisions (or indeed, an absence of them) against intended or stated strategy, and thus provide an informed basis on which to consider the impact of current and future decisions and their implementation.

2.6.1 Making Sense of Health Episodes Statistics (HES)

The Hospital Episodes Statistics (HES) system is a database containing personal, medical and administrative details of all patients admitted to and treated in English NHS hospitals. Virtually all hospital inpatients are

assigned to a consultant who is responsible for their treatment; their period of care under a consultant is termed a "Consultant Episode" (CE). The HES database is a minimum data set of Consultant Episodes which originates from the Patient Administration Systems (PAS) of individual hospital providers. All HES admissions are jointly coded by the ICD-10 (The International Statistical Classification of diseases and Related Health Problems, tenth revision) and locally by the OPCS-4 (Office of Population, Censuses and Surveys - Classification of Surgical Operations and Procedures - 4th Revision).

During their stay in hospital (usually referred to as a "spell"), the majority of patients are treated by just one consultant and these will therefore have one Consultant Episode (i.e. only one HES record containing details of their spell). However, in about 5% of cases primary responsibility for a patient is transferred from one consultant to another during a spell and a new HES record must be completed. Consequently the total number of CEs will generally exceed the number of spells.

In addition to these “raw” entries, HES also contains "derived" fields consisting of data worked out through combining entries in other fields. For example, EPIDUR (duration of episode) is derived by subtracting the start from the end date of the episode. The main strength of hospital episode statistics is that they are relatively complete with all data routinely available and regularly collected. However, they are sometimes poorly filled in by doctors and there maybe questions as to whether a correct diagnostic code has been used. This only covers cases serious enough for hospital admission, and are not currently linked to other data sets.

As well as providing answers to parliamentary questions, the HES database not only supports planning and policy development (particularly monitoring and evaluation based on variations in health status and delivery over time and between geographical locations) but is also used for general medical research (specifically developing new treatments and investigating causal factors. Other applications of HES data include monitoring fair access to services, assessing the effective delivery of care, identifying and monitoring public health issues, and evaluating quality of care and health outcomes.

Clearly the quality of the results obtained by HES analysis depends upon how well the original data were collected and entered into the system and although the quality of HES information has generally improved over the last decade, comparing between data-years and producing time series reports should still be undertaken cautiously. This is because of the variations not only in the way HES records have been collected but also in results from structural changes in NHS organisations over time.

Hospital activity rates are not a simple measure of the underlying prevalence and severity of disease since they also reflect referral practices, the supply of hospital beds, admission policies, and hospital access. These influences can be statistically controlled to some extent but statistical adjustments always introduce an element of heightened uncertainty. Furthermore, changes in complex organisations like hospital trusts are not typically dependent upon simple linear chronologies but rather are

moderated by complex and interacting cycles and rhythms that often occur within an organisation characterised by multiple socially constructed frames of reference. In reality, organisational change is not a wholly predictable, linear course of action but is a socially-perceived phenomenon that occurs against a changing backdrop of chance and ambiguity. Little wonder then that the neatly-packaged stages, phases and milestones that dominate many strategic plans rarely unfold in the expected ways that many health service managers anticipate.

Of course, the explanatory power of routine data sources such as HES data has been frequently questioned. ('Routine data' is standard data concerning patients and resources and which is usually collected for management or administrative monitoring rather than for clinical or research purposes.) As Harley et al (2005) have pointed out, for the last 20 years routine data sources such as Hospital Episode Statistics have been seen as having limited value because of continuing problems with completeness and accuracy. This means that since much HES data is of variable quality its relevance to understanding the quality and outcomes of NHS care is compromised. However, in recent years data from Hospital Episode Statistics have been increasingly used and there is a growing recognition that even imperfect data may be valuable if it is carefully transformed into meaningful information. For example, Hospital Episode Statistics data were used in the Bristol inquiry and the subsequent Kennedy report unequivocally concluded that HES data should be recognised as a valuable tool for analysing the performance of hospitals.

In the approach described in Chapter 9, HES data are not used to explore the performance of individual consultants - rather, the trends and patterns within the HES data are summarised at the aggregated level of clinical directorate.

2.6.2 Approach to Analysis of HES Data

Analysis of the HES data through statistical modelling can help shed light on understanding the range and interaction of organisational factors associated with implementing Trust reconfiguration strategies. Applying the technique 'Joinpoint Regression Analysis' (pioneered by the US National Cancer Institutes - NCI) has enabled trends in the HES data to be viewed as a series of linear segments where 'joinpoints' denote significant changes in specialty activity levels within each participating Trust. Chapter 9 describes, in greater detail, the procedures and benefits of using this approach in the current study.

Having identified the patterns of changes in HES data over time, further statistical analyses can help unpick and illuminate key aspects of strategic planning and the implementation of change at Trust level. Some of the reasons and underlying causes of why particular hospital activity levels have changed over time have been discussed with Trust representatives and Chapter 9 describes how these local 'narratives of change' may be related to the statistical models which have been identified.

2.7 *Limitations of method and data*

From the quantitative perspective the emphasis in this study has been placed on collecting historical data simply because this is how this type of information is collated within the NHS and it is readily available. From the qualitative perspective, the wide variety of goals and the different rates of progress within the various strands of each of the reconfiguration plans were considered to minimise the potential usefulness of formally surveying current 'snapshots' of stakeholder perceptions. Furthermore, the often large time lags not only between planning and implementing reconfiguration strategies but also between implementing change and assessing its organisational impact varied both within and between the three study sites.

This real-world uncertainty about the anticipated time scales of planned organisational changes, together with the modification and refocusing of reconfiguration plans as events unfold, mean that it is practically difficult, if not impossible, to specify accurately how far a particular organisation has actually travelled along its various anticipated change 'journeys'. Clearly identifying which aspects of change are 'planned' or 'unplanned' is not an easy matter and this makes it difficult to assess quality or quantity of progress towards a goal or final achievement.

Rather than focusing specifically on current perceptions, both the qualitative and quantitative evidence presented in this report rest largely on either stakeholder memories of critical events or retrospective analysis of historical NHS data. Although this research strategy has the benefit of greater stability, it is inevitable that any study of this type rests on available evidence that is neither 'fresh in the mind' nor fully up-to-date. Hindsight may be a more stable perspective on events than the 'here-and-now' but it is not necessarily more valid. For this reason, it is important that retrospective analysis is able to verify whether the raw data on which it is based is both sufficiently reliable and valid to justify any conclusions that are drawn. The reader of this report will appreciate that efforts have been made not only to ensure the conceptual consistency of all the evidence presented within it, but also to blend disparate types of information into a meaningful and coherent whole.

The breadth of the current study necessitated that data were collected from a variety of geographically-dispersed sources and analysed using a variety of techniques. Furthermore the accessible quantitative data was not always available in the format that was best suited for the analyses that were required. Of course, as well as having its own distinctive benefit each one of these data collection and analysis strategies has its own limitations. These issues and how they have been, for the most part, successfully tackled are discussed within the appropriate subsequent chapters of the report.

3 Hospital Reconfiguration: Issues from Available Recent Literature –Drivers of change

This chapter and the one that follows it (Chapter 4) present a review of the principal findings from recent empirical studies, mostly from peer-reviewed sources, on various aspects of hospital change that may form part of hospital reconfiguration. The analysis of the literature leads readily toward the proposal in Chapter 5 of a conceptual framework and, to hypothese about the politics of hospital reconfiguration processes.

In attempting to answer the basic research questions posed in Chapter 1, it might be expected that the available literature would readily provide

- taxonomies of types of reconfiguration and of key processes,
- accounts of processes expected to be associated with each type of reconfiguration, and
- hypotheses about the impacts of each type upon key stakeholders

If the necessary studies are available, then it has not been possible to find them. The resources gleaned from the literature are modest, but still useful. This Chapter and the one that follows it attempt to present those modest resources, augmented by some initial work to develop and organise them into a conceptual framework with a particular focus mainly upon the first of the three questions for the research set by the NCCSDO. These also examine some issues for stakeholders, focusing less on impact and more on their preferences for goals of reconfiguration.

The review draws upon available and relevant literature to offer both initial and preliminary frameworks only, for addressing the following questions, which are key to the research of which it forms part. The following list represents those issues addressed by the literature review (in this chapter and preceding and following chapters):

1. Definitional issues: What is hospital “reconfiguration”?

2. Taxonomic issues: What types of hospital are there, and what types of reconfiguration are there?

3. Trends issues: What are the major trends of change in hospitals, and how does reconfiguration relate causally or otherwise to them?

4. Political questions: Which groups or interests appear to have, or might be expected to hold particular preferences for reconfiguration?

5. Policy background: What is the impact of central policy initiatives which create a changing context for planned reconfiguration with unanticipated variables and consequences?

6. Contribution to evaluation: How might answers to these questions enable the research (a) to generate hypotheses to be explored in the course of the

evaluation and (b) to classify the perspectives of key groups in each of the three case study sites, and to classify organisational processes in the three hospitals and their local health economies, in order to assist in the analysis of data and interpretive synthesis of findings?

This third Chapter is organised as follows. This section identifies the key questions to be addressed. There follows a short discussion of the literature used. A very short section offers a definition of configuration and reconfiguration for the present purpose, before a cursory review of the key drivers for change, which provides an overview of the main distal independent variables in accounts of reconfiguration. The dependent variables of hospital change are then presented, and a hypothesis summarised in a flow chart about how they might be related to each other. The following section discusses ways of identifying the menu of types of configuration found in the literature, and this is followed by a listing of the main trends in reconfiguration identified and highlighted in the official reports.

The chapter then reviews literature on arguments for reconfiguration based on three types of claims. These are the claim that larger centres exhibit greater clinical safety and outcomes than smaller ones, arguments about "access", and arguments about the trade-offs between clinical risks associated with longer journey times on the one hand and improved treatment outcomes from having reached larger, specialist regional treatment units for treatment on the other. Finally, the chapter examines arguments about the best use of the clinical labour force, given trends in its regulation.

3.1 *National public policy background*

The term 'reconfiguration' has tended to be used in the UK policy context in a way which suggests a problem to be solved by calculations of optimal design. The Department of Health and local health policy makers have often presented it as a technical matter of optimising bed to population ratios, or co-locating services that require close connections, and achieving 'rational' resource allocation (e.g. Department of Health, 2004). However, the evidence base for these optimal ratios is slender, and much of it relies largely on rules of thumb endorsed by established professional clinical institutes, rather than on careful evaluations.

Many reconfigurations, particularly where proposals included closing or the 'downgrading' of a hospital, have produced major local political conflicts. One of the most high profile of these occurred during the 2001 General Election, where in one constituency, the election was fought on the issue of a proposed reconfiguration of Kidderminster hospital which many in the town and nearby region perceived as a 'downgrading' in favour of transferring and developing some services in Worcester. The local Labour MP, a junior minister in the Government, lost his seat to a former medical consultant from Kidderminster hospital who stood under the banner of a local organisation called Health Concern (www.healthconcern.org.uk) established to 'save the hospital'.

This led to a change in Government policy and publication of the white paper, 'Keeping the NHS Local' (Department of Health, 2003), which aimed to strike a balance between pressures to centralise acute services and maintain patient safety, whilst maintaining local access. As part of this policy, an independent reconfiguration panel was established, which aims to adjudicate on controversial reconfiguration proposals to 'take the politics' out of such decisions. Further measures to incorporate the public's views in the development of reconfiguration proposals were developed including a strengthened statutory requirement to consult the public over reconfigurations, and the extension of Local Authority Overview and Scrutiny Committee (OSC) powers to include local health services. However, the extent of local accountability that OSCs add has been questioned, because their only recourse if they wish to challenge a decision is referral to the Secretary of State (Farrington-Douglas and Brooks, 2007a).

Subsequent policy changes, notably the introduction of 'payment by results' and patient choice, may increase pressures for reconfiguration as hospitals compete for activity. Stated policy aims to shift care from hospital into 'the community' (Department of Health, 2006a). NHS Foundation Trusts have greater freedom to make service changes so reconfigurations may be more likely as more NHS Trusts gain Foundation status. The process of reconfiguration is currently widespread and politically high profile. The Department of Health identified 77 NHS trusts which are at risk of closing services (Guardian, 8 November 2006), and in October 2006, the Guardian identified 50 areas where there are public protests at local reconfiguration proposals (Guardian, 26 October 2006).

Government documents and policies have increasingly emphasised the role of 'evidence' and consultation with the public (e.g. Department of Health, 2007) based on the assumption that if only the public are involved 'enough' and are presented with the 'right evidence' they will be convinced of the need to change.

Policy developments also have the potential, during the process of reconfiguration, to undermine the assumptions on which reconfiguration plans are built, and so to threaten their sustainability. The following are particularly relevant:

- Payment by Results (PbR), introduced in stages beginning in 2005-2006, aims to provide a more consistent method of paying for hospital services than the previous historic basis by introducing a standard tariff for procedures, allowing for case mix. The tariff is recognised not to reflect the cost of some services accurately. It provides an incentive for hospitals to increase activity, but struggles to factor in the appropriateness of activity. Modifications to tariffs are being made in each successive year of implementation.
- Practice-based Commissioning (PBC) aims to make commissioning more responsive to need by involving general practices. All PCTs should have engaged and prepared practices to be involved in commissioning by the end of 2006, but the pace of adoption of PBC

by practices will vary by area, determined by the readiness of practices and the level of support provided by PCTs.

- Patient Choice, as it applies to referrals, was introduced in 2006. Patients who will have elective procedures should be offered a choice of four or more appropriate providers, with private sector providers being included wherever they are appropriate. PbR facilitates patient choice by making it possible for payments to follow patients.
- Health care provided in community settings. A direction of travel towards provision of an increasing range of health care services in community settings including diagnostics, day surgery and outpatients was set out in the health and social care white paper Our Health Our Care Our Say (Department of Health 2006).

PbR makes hospitals dependent on high and consistent levels of activity for their income, while the other three developments are likely to result in commissioners and patients opting for a wider range of providers.

A review of healthcare in London by Professor Ara Darzi proposed that more care of all types be provided locally in polyclinics hosting primary (including urgent care) and secondary services, while more specialised care including trauma and stroke services be centralised in units serving large populations (Darzi, 2007). Lord Darzi reported on his review of the NHS in July 2008 (Dept of Health 2008) and has stressed that his proposals for London are not necessarily transferable across the country. The review focused on three main areas: describing what world class quality of care looks like in a number of clinical areas; facilitators and barriers to achieving this world class care such as leadership and workforce issues; and other issues such as informatics and incentives (Dixon, 2008).

Several interim reports have been published in advance of the final one including *Our NHS, Our Future* published in October 2008 (see http://www.ournhs.nhs.uk/), and Strategic Health Authorities have begun to publish 'vision' documents in response to this. In addition, the review has published 'five pledges in the document, *Leading Local Change* about how changes to the NHS should be implemented, emphasising the central role of clinicians in any local decisions to change services.

Lord Darzi argues that any change will have to be transparent, based on clinical evidence, locally led, and for the benefit of patients. He stresses that no existing service will close until a new and improved one is in place (BMJ, 2008).

3.2 *Drivers of Change*

The literature on the key drivers of change that are affecting configuration in the broad sense is vast. McKee et al (2002) distinguish between

- demand-side factors such as demographic change (e.g. ageing populations, falling birth rates, migration), changing patterns of disease (e.g. growing importance of chronic disease, rising emergency admissions, new hospital acquired infection risks), and

changing public expectations (easier access, single rooms, reduced in-patient stay);

- supply-side changes, of which technological change in diagnostics (enabling more investigations to be done outside hospitals), techniques (e.g. minimally invasive surgery), communications (telemedicine, electronic patient records), medical instruments and pharmaceuticals are the most important, but trends in workforce skills, training, availability, costs, skills-mix and possibilities for transferring roles from doctors to others are also key; and
- wider societal changes, including financial pressures, internationalisation of health care systems (including EU and WTO regulation) and changes in medical research and development.

McKee and Healey (2002) claim that these factors are, in most countries, causally related to each other in a very particular fashion. They argue that in most countries the most important single proximate driver is upward pressure on costs, (cf Sochalski *et al*, 1997). However, these cost pressures arise, they argue, as a consequence of new technologies and rising public expectations, together with downward pressure from economic recession and political unwillingness to increase taxes. Although these cost pressures affect the whole health care system, because hospitals account for between 40% and 60% of health expenditure in OECD countries, it is not surprising that the focus has been on acute hospitals and the way in which they are organised.

While cost considerations are, as causal drivers, ones of risk or loss avoidance, it has also been argued that the positive pursuit of gains has been important. These have been argued to include anticipated clinical gains, using arguments relating to improvements in clinical quality predicted through higher volumes of activity; better medical training; and easier recruitment and retention of staff (Ferguson et al, 1997). As we shall show below, the argument has been used - and it may quite sincerely have been a significant driver in part of the *form* of reconfiguration, if not the imperative to undertake it at all – that higher volumes are associated with improved clinical outcomes in some specialties. (However, as we shall see in more detail below, such gains appear to be exhausted at relatively low thresholds (NHS Centre for Reviews and Dissemination, 1997), and the mechanism for the relationship, if it is causal, is unclear (Halm et al, 2002).

McIver et al (2002) organise the factors around a taxonomy taken from scenario building methods: demography, environment, culture, politics, technology, productive capacity, innovative capacity and organisational capacity. Under these headings, in addition to the particular factors identified by McKee et al (2002), they emphasise the emergence of antibiotic resistant strains of disease, interest rates and land prices, skill shortages, industrial relations, political pressures for primary care commissioning-led specification of secondary care, payment systems based on DRGs, patient choice, the growing role of the private sector in non-emergency provision, the rate of development of primary care alternatives to hospital-based care in some areas (Audit Commission, 2004), the

capacity and quality of project management in the hospital sector, the ebb and flow of preferred management styles (from TQM and BPR in the 1990s perhaps to Six Sigma in the 2000s: Young et al, 2004), political decisions about the rate of public spending on health care, the strategies of regulators, and local political mobilisation around hospital facilities.

Clearly all of these factors, considered as independent variables, can have indirect influences upon configuration in the narrow sense, and much more direct shaping power over hospital change generally.

The factors creating these debates are largely common across countries as McKee and Healey (2002) demonstrate in Europe and Clark and Spurgeon (1999) in a review commissioned from Australia illustrate on a world wide scale with case studies from different continents. (See also Maarse *et al* 1997 for the Netherlands and Robinson 1994 and Shortell *et al*, 1995 for the USA). A major driver in most health systems is the availability of a suitably trained workforce. This is of particular relevance to the NHS in the context of the EU Working Time Directive (WTD).

It is quite clear that specific and sometimes relatively small local forces can trigger change in the context of international factors. For example a study by Clark & Spurgeon (2001) in Scotland recognised the impact and interplay of issues such as rurality, clinical safety and workforce.

There is little research into the evaluation of the changing nature of hospitals and even less on the new models introduced in many developed countries. In the UK there has been no central policy on the role of acute hospitals since the 1962 Hospital Plan for England and Wales. There has been rather more analysis of the various healthcare reform policies, particularly different funding and organisational arrangements that appear to be on the agenda of virtually every OECD government. McKee et al (1998) contended that the driving forces for reform are stimulated by upward pressure on costs, from such factors as the consequences of new technologies and rising public expectations, colliding with downward pressure from economic recession, political unwillingness to increase taxes, and in the United States, demand for even greater profits from the corporate providers of health care.

The forces driving change are complex and it is difficult to postulate what is the most effective configuration. Harrison (1996) suggested that the only safe conclusion that can be drawn is that the range of possible hospital features is growing as new forms of service delivery become available, some of which will mean dispersal away from those sites currently called hospitals. At the same time, technological development (e.g. in diagnostics) may improve the competitive position of hospitals in relation to community based alternatives.

Inevitably historical background and emphasis varies between countries and as a consequence the emerging organisational arrangements differ. However, whilst it is clear that there is no one right solution, Smith (1999), writing with the NHS in mind, suggested that a number of principles

should guide the discussion about the reconfiguration of acute hospital services:

- The exercise is about trading access, quality and cost and thus a universal solution is impossible. Services should be delivered as close to home as is compatible with not compromising quality or generating unreasonable costs.
- Those planning services should think in terms of whole-system i.e. primary, community, secondary and tertiary care.
- No consultant should be single-handed.
- Hospitals serving small populations should not aim to provide all acute services.
- There is a need to think differently.
- Research and evaluation need to be undertaken. Better data and evidence on the best way to deliver acute services are needed.
- Greater consultation with the public is needed on the unavoidable trade-offs.

These principles provided a useful framework for initially reviewing different approaches to reconfiguration of acute hospital services. However, they are often contradictory and the outcome arbitrary as there is no rational basis for ranking them, only the supremacy of one value set over another.

Economic constraint, demographic change, technological development and consumer expectations are common denominators to all developed countries. However, in the UK other forces are also contributing to the radical rethinking on the role of the hospital and the most appropriate model of organising acute services. These include:

- unsuitability of old buildings and associated high maintenance costs;
- problems of inner cities and demographic shifts;
- shifts to primary and community-based care;
- changing health needs;
- medical education and training requirements;
- desire for greater equality of access and consistency of treatments and outcomes;
- developments in clinical practice;
- increasing specialisation;
- increasing demands from commissioners;
- clinical governance and risk management;
- increasing emergency workload;
- changing roles of clinical staff and trend to skill substitutions;

- changing work patterns;
- new approaches to multi-disciplinary and integrated care;
- short-term political imperatives (Clark & Spurgeon, 1999).

3.3 *Key Types of Hospital Change*

Organisation change in health and other human services is best analysed by examining these influences as they interact with a set of contextual variables (Pettigrew et al, 1992; Pawson and Tilley, 1997). These included externally imposed technology change, the policy environment, leadership, prior organisational culture, linkages with the rest of health and social care systems

A wide body of literature was reviewed in order to provide a full conceptual framework for understanding organisational and service change, including syntheses in the literature on implementation (Hill and Hupe, 2002). This was used to develop further frameworks for understanding risk, constraints and styles of implementation. In order to develop frameworks for understanding sustainability, the literature on institutionalisation was examined together with the literature on inter-organisational relations, networks, collaboration and integration. These findings were combined in order to develop frameworks and hypotheses on the effects of reconfiguration initiatives of these kinds on wider local health and social care systems.

In every health care system, hospitals are constantly making at least small changes to their configurations. For example,. Kirby et al (2006) analyse introductions and closures of services by Californian acute hospitals between 1995 and 2005. They found that fully half of the sample closed or opened at least one service, nearly a quarter closed one or more services, but most made very few changes. The service most frequently closed was obstetrics for normal births, while the most frequently introduced service was inpatient rehabilitation. Those making the greatest number of changes tended to be small, rural and in financial difficulties.

The literature provides some indication of the range of dependent variables that may be of interest in evaluating hospital change. Together these can be taken to describe reconfiguration in the broad sense and in the context of which configuration in the narrow sense should be understood.

The Scottish Office (1998), Spurgeon et al (2001), Harrison (1996) and Ham et al (1998) all place great emphasis on change in the relationships between hospitals and between hospitals and other secondary care units. Most distinguish between “hub and spoke” network structures and “managed clinical networks”, although the definitions of the distinctions do not necessarily coincide: these are discussed in more detail below. Relationship between secondary care organisations can be vertical (that is, along pathways of care or patient journeys beginning either in primary care and referral into secondary care or else in emergency admissions and ending either back in primary or in outpatients or in continuing care) and

they may be horizontal (that is, between similar types of secondary care unit, such as those involved in breakthrough collaboratives or cancer care collaboratives or joint clinical governance networks – or both) such as those which bring together all the organisations in a local health economy. For the Scottish Office (op cit), as well as for Clark et al (2003), these structures can shape configuration in the narrow sense very directly, for they permit – they argue – the retention of facilities in remote and isolated hospitals that might otherwise not be justifiable, because in the absence of these structures, clinicians would not carry out high enough volumes of procedures to ensure sufficiently high quality.

Changing technologies and changing protocols of disease management are emphasised by all of the professional bodies as key aspects of hospital change. In this context, the Department of Health (2004a) place great emphasis on the ways in which telemedicine enables changes in configuration, both by permitting specialties not to be co-located that would otherwise have to be, and by supporting network relationships that can sustain skill and quality among clinicians who have to carry out procedures they too rarely perform but can carry out safely using telemedical supervision, including simple operations through robotic surgery carried out remotely across telemedicine networks. However, patient willingness to accept telemedicine practices may vary significantly among groups, and change over time: for example, Sorensen (2008) found evidence of significant reluctance among many Danish citizens in rural areas. The now widely cited studies on the Kaiser Permanente approach to integrated elective orthopaedics and other forms of non-emergency care (Feachem et al, 2002; Ham et al, 2003) offer another example of the impact that changing disease management protocols can have upon configuration. More radically, under this rubric, it will be important in the next decade or so to consider the range of organisational, technological and labour skills innovations that could support major extensions of the “hospital at home” models of care which are redefining the boundaries of what is counted as “the” hospital (eg Robinson, 1994). It has long been argued that a radical shift of the location of care from hospital to home is both overdue and highly likely, not only for rehabilitation but increasingly for diagnostic and treatment phases (e.g. Vetter, 1995), although developments in this direction have been slower than many anticipated, not least because the hoped-for cost advantages have not materialised. The development, more recently, of techniques of mapping pathways of care has created opportunities for redesigning those pathways. Some hospital reconfiguration exercises and rebuild initiatives (including the BECaD development at Central Middlesex: DH, 2003a) have been specifically crafted to support redesigned pathways of care within secondary care. There is also a very large literature, for which space does not permit review here, on the redesign of pathways of care to allow for more work to be conducted in primary settings (Audit Commission, 2004).

Change in management tools and strategies has been given great emphasis in the range of studies on efforts to change “cultures” in hospitals whether through the use of form and disciplined approaches to management such as

Business Process Re-engineering (McNulty and Ferlie, 2002) and Total Quality Management. To the extent that these changes can influence disease management (in particular, the specification and streamlining of pathways of care) and technology introduction and use (especially the use of diagnostic technologies) as well as clientele selection (through the enabling of clearer costing of pathways for each severity band of the case mix, enabling managers to identify those activities where their costs are above the national tariff, indicating that they might choose to concentrate resources on other activities), management tools and strategies can influence decisions about configuration.

Harrison and Prentice (1996), Harrison (1996), Clark et al (2000, 2003), Ham et al (1998) all stress that changing internal divisions of labour are very important aspects of hospital change. In particular, the unbundling of roles such as prescribing from doctors to nurses, and of responsibilities such as patient cleanliness from nurses to care assistants, enables new uses of senior clinician time and therefore changes in configuration. Also, the anticipated impact of EU regulation on the working time of junior doctors has led to the introduction of greater team working, and the greater involvement of some senior consultants in on-site activity (Ham et al, 1998). Subspecialisation represents a major source of pressure on configuration, because it threatens to produce ever more specialties, each of which could carry out volumes of activity too low to sustain high quality (Scottish Office, 1998).

In this regard, there is a body of research on the introduction of team structures to replace consultant-dominated systems, although much of it consists in particular case studies. For example, Rymaszewski et al (2005) analyse changes to a musculo-skeletal outpatient service in Stobhill, Glasgow, to support a team structure with introducing protocol-based triage and appointment allocation and changes to nursing and ancillary roles, claiming significant reductions in waiting times and greater satisfaction as a direct consequence.

Finally, changing regulatory pressures (including the EU working time directive but also the star rating system and the inspection role of the Healthcare Commission and perhaps in future the work of local authority scrutiny committees) represent important pressures on configuration. The latter two in particular have influences upon configuration. Healthcare Commission pressure for improved clinical outcomes leads to innovations to sustain quality, while local authority oversight of reconfiguration on grounds of local political acceptability can be an important constraint.

Finally, there are some important background variables to do with local characteristics of hospitals but which are not themselves aspects of hospital change, that impact on the scope for configuration decisions. Issues emphasised in several of the studies are:-

- local and regional epidemiological characteristics of population (in turn affected by social characteristics such as age profile, rates of residential mobility) (McKee and Healy, 2002);

- geographical character of locality and region (e.g. urban or rural, quality of transport links between sites for hospitals and other facilities, digital communications infrastructure) (Scottish Office, 1998; Clark et al, 2000, 2003; McIver et al, 2002); and
- industrial relations (e.g. militancy of consultants, junior doctors, nurses, others locally, willingness to agree to changes in contractual conditions, work flexibly, commit more time to NHS rather than private practice) (Harrison and Prentice, 1996).

3.4 *Types of Hospital and Configuration*

There are various ways to classify hospitals. The conventional empirical classification is by tier – secondary acute, secondary elective, tertiary specialist, etc., – or else by general function – community hospital, treatment centre (e.g. for routine elective surgery in one or two specialities), (district) general hospital, tertiary research and teaching hospital, tertiary specialist hospital, rehabilitation unit (Healy and McKee, 2002).

Unfortunately, the literature reviewed does not provide any taxonomies, the elements of which are defined by systematic differences in configuration.

Stokoe (1994) suggests that the following five distinct clusters of configurations can be found:

1. the traditional full-service DGH providing A&E, intensive care, pathology, O&G, SCBU, paediatrics, acute medicine, acute surgery (elective and emergency), acute geriatrics, acute psychiatry, diagnostic X-ray, outpatients: also sometimes found in DGHs are neurology, neurosurgery, specialist urology and ophthalmology;

2. as for (1), but no A&E;

3. as for (1), but neither A&E nor IC;

4. as for (1), but no geriatrics, psychiatry or diabetics, but with an emergency medical ward; and

5. the community hospital providing outpatients, minor injuries unit, day case general surgery, visiting consultants for several specialties, mobile cardiac catheterisation.

There are many normative studies that attempt to examine the relative advantages and disadvantages of co-locating particular specialities, but these are not grounded in empirical analysis of how actual collocations of specialities are distributed. The review of the literature up to the mid-1990s offered by Harrison and Prentice (1996) concludes that there is no canonical way of defining which specialties ought to be co-located, and that official planning reviews conducted in different cities have come to different conclusions about the financial viability, the skill and quality achievable with configurations that bring specialties together and those which allow for more stand-alone specialist units. Harrison and Prentice (1996) discuss a University of York study which offers a set of ordinal rankings of the relative

importance of collocation for pairs of specialties in a set of six – namely, accident and emergency, paediatric accident and emergency, intensive care and therapy, cancer care, general medicine, and cardiology. Ryder et al suggest, following conventional wisdom in the early 1990s, that there is a good case for A&E being co-located with each of IC, general medicine and cancer care, and that cancer care and cardiology work well together.

The SETRHA Acute Services Strategy Group (1991) also identifies pairs of services that, in their view, ought to be co-located. O&G, they argue, require anaesthetics and paediatrics on the same site. Full A&E services require general medicine, paediatrics, trauma orthopaedics, O&G, diagnostic and interventional radiology, anaesthetics, IC and coronary care therapy – indeed, about two thirds of the specialties that make up the traditional full service DGH as Stokoe (1994) defines it.

Using these maxims, the SETRHA group identify four types of hospital by configuration according to four main types of functions or broad types of work done in hospitals, which can be summarised as follows [Table 5]:

Table 5 Types of functions and acute care facilities, as defined by SETHRA (1991)

Functions: Facilities:	Type A: Low dependency outpatient work, not requiring high tech support	Type B: Low dependency inpatient work not requiring elaborate investigation or life support IC	Type C: Low risk elective surgery and medicine on patients with no concurrent illness, only planned investigations and treatment as inpatients or day cases: short stay, high turnover, routine	Type D: Emergency, trauma-based work, referred through A&E, major elective surgery
Type 1: Acute general hospital				Accident and emergency, intensive care unit and related paediatrics, obstetrics and gynaecology
Type 2: Elective resources centre			Elective orthopaedics, ophthalmology, ear nose and throat	
Type 3: Local hospital, community hospital	Continuing care, outpatients, post-operative rehabilitation,	Low intensive general medicine, medical beds managed by GPs		
Type 4: Polyclinic in primary care	Outpatients			

The risk-based approach of trying to define inter-dependencies between specialities so tightly that co-location is invariably superior for clinical outcomes to geographical or organisational separation, on the basis of the most common patient journeys or pathways of care (probability) or else the pathways of those with the most serious conditions (severity), could be and has been questioned. Most research on clinical outcomes in hospitals suggests that case-mix, physician skill, infection control, etc., are much more important than the time taken or physical distance travelled in transfers of patient bodies or of information or other resources between specialty units. Also, there may be trade-offs between different putative

priority interdependencies. Again, each area has to start from its legacy configuration, and there is an argument that different trade-offs could be acceptable in different parts of the country.

Moreover, the particular interdependencies are highly sensitive to changes in health care technology. As more surgery can be handled on a day case basis or even in primary care, as more chronic disease management can be handled in primary and continuing care, as more diagnostics can be handled anywhere at all, as new treatments enable some conditions to cease to require intensive care, as more support can be provided through a variety of forms of telemedicine and telecare, and as advances in treatment enable more emergency matters to be handled in minor injuries units rather than full A&E centres, it is likely that the assessments of which interdependencies are of greatest importance will change significantly.

This suggests that the "menus" of types of facilities identified by the SETRHA group and by Stokoe may already be out of date, or at any rate cannot be expected to remain stable for many years. It is noticeable that these kinds of taxonomies of configuration have not been widely picked up by other analysts of hospitals, such as Healy and McKee (2002).

3.5 *Trends in Reconfiguration Initiatives*

Many of the official studies that have presented their arguments as being concerned with reconfiguration, instead of using taxonomies of the distribution and co-location of specialty units, have instead concentrated on more empirical trends. The Department of Health (2004a) reviews of evidence on effectiveness and reports of local innovations, for example, devote attention to changing small hospital focus and organisation: e.g. converting into specialist elective surgery only facilities such as Treatment Centres (Bishop Auckland), grouping into chronic disease management networks with ambulatory care, general medicine and surgery but without full accident and emergency and intensive care (Central Middlesex, Brent, and NW London), nurse and junior or staff grade doctor led minor injuries (Northumbria), etc. Trends identified include:-

- telemedicine to provide more expert support to smaller facilities;
- minor injuries units (sometimes replacing full A&E units, and sometimes introduced de novo), sometimes nurse-led (see "extended roles");
- "extended roles", meaning greater involvement of nurses and paramedics in making decisions about and delivering appropriate treatments, handling diagnostics;
- ambulatory care, meaning walk-in centres, "one stop" services in primary and community health services, GP-run minor surgery units, mobile outreach clinics;
- dedicated maternity services centres led by midwives; and
- managed clinical networks in cardiac and cancer care services.

The Scottish Office (1998) review of acute services identified many of the same trends, albeit less developed at that date.

More recently, Kellett (2009a,b) has reviewed a series of promising developments in internal reconfiguration within the acute hospital, such as early warning scores and rapid response systems, arguing that nonetheless careful work to shape realistic expectations among patients and wider public of what can be achieved in acute interventions will be important.

What remains to be understood in more detail, and is not explored in these studies, is the nature of the inter-dependencies in local health economies between these trends and the wider patterns of reconfiguration at local and regional levels. Do these trends, taken together, amount finally to the beginning of the long-predicted but so far unrealised comprehensive "unbundling" of the DGH into largely separate emergency and elective facilities, increasingly separate medical and surgical facilities, and the obviation of many co-location imperatives by information technology? As yet, this would seem to run far ahead of the evidence about the expectations for the "direction of travel" (DH, 2003c). And what trade-offs are implied by these trends between the competing goals for acute and secondary care?

3.6 *Justifications and Evidence*

There are several kinds of argument for hospital reconfiguration, applied typically to rather different kinds of reconfiguration. Each appeals to distinct goals. Two in particular are based on considerations of clinical safety and the clinical labour market.

3.6.1 Clinical Safety And Outcomes

In recent years, one of the most widely used arguments for reconfigurations of the type that seek to bring about the centralisation or regionalisation of certain specialities in larger regional units where greater number of numbers of physicians are concentrated, higher rates of interventions are performed and to which some patients have to travel further, is that clinical outcomes are typically better in such units. In the recent political debate in the UK, for example, Farrington-Douglas and Brooks (2007a) writing for the Institute for Public Policy Research argue for centralisation based on evidence about the improved outcomes of mortality, reinfarction and stroke from angioplasty performed in higher volume centres and from several studies showing improved outcomes in trauma treatments in higher volume centres, as well as similar types of findings for vascular surgery outcomes. They conclude that the evidence supports greater centralisation than is presently found in England at least, for cardiology, neurosurgery, liver transplantation, some types of cancer surgery and major vascular surgery. However, for emergency medical procedures, they rely for arguments in support of centralisation more on British Association for Emergency Medicine and Faculty of Accident and Emergency Medicine (2005) recommendations about services that should be readily available for safety

than on research evidence; Farrington-Douglas and Brooks infer from the British Association's recommendations that co-location is required for safety and that this will in turn require centralisation. In the US, too, the Leapfrog initiative of the major insurers has used similar arguments to press providers to ensure higher volumes in order to be eligible for payment. In scholarly work sometimes, too, medical researchers draw the same inference that strong associations between volume and improved outcomes warrant centralisation or regionalisation (e.g. Kalant and Shrier, 2004) or at least referral to high volume regional centres of excellence (Tingulstad et al, 2003).

Earlier reviews had drawn rather sceptical conclusions not least because many studies were found to be methodologically doubtful (Sowden et al, 1997). Some of the more recent principal systematic reviews of the literature on the relationship between volumes and outcomes are rather more nuanced in drawing conclusions that greater centralisation is generally warranted than either some policy advocates or some of the professional bodies. In general, they note that there is indeed evidence for an association between higher volumes and better outcomes, but researchers are often far from confident about just what should be inferred from the association. To be sure, the widely cited systematic review by Halm et al (2002), for example, notes that no study reviewed found higher volumes to be associated with worse outcomes. Halm et al (2002), Murray (2004, 2006) and Davoli et al (2005) all note the continuing methodological limitations of many of the studies examined. Many continue to use administrative data for case-mix adjustment, and many (but not all) researchers consider that using administrative rather than clinical data for this purpose has the effect of exaggerating the magnitude of the volume-outcome relationship. Moreover, much of the data on outcomes is concerned with in-hospital mortality measures or five year survival measures for cancers. Rather fewer studies have examined morbidity measures, and in particular various complications. Moreover, all these reviews note that there is, for many specialities, significant variation – although narrowing over time – within clusters of high and low volume centres: some high volume centres have poor outcomes and some low volume centres have good outcomes; at the very least, then, the association, if causal, must be capable of being mitigated by other factors in some types of case.

All these four well-respected reviews worry that it has yet to be established both that the association is wholly causal rather than artefactual, and, to the extent that it is causal, that the mechanism is clearly understood.

There are two main possibilities that at least some of the association may be artefactual. One is "selective referral", namely that those patients referred to larger centres are ones who will tend to have better outcomes, perhaps because some higher volume centres may be specialising in processing routine cases. This possibility is regarded by at least many as not likely to explain very much of the association, although the limitations of case-mix adjustment methods without clinical data make it possible that it may have some work to do. It is also possible that in at least some

specialties, different techniques are used in higher volume centres which, when adopted in smaller volume centres, would raise outcome standards. The fact that over time in most specialties, outcomes are improving in any case as new techniques diffuse suggests that this may also be part of the explanation.

To the extent that the association is causal, most writers presume that it must run through the "practice makes perfect" mechanism, or else through the mechanism of improvement in technique through mutual surveillance and support between clinicians. If this is the case, then we should expect the association to be robust at the level of the individual physician, and indeed, there are some studies on the physician outcome-volume relationship which suggest that this may be a genuinely causal part of the explanation, but by no means all studies suggest that, as we should expect if the hypothesis is correct, the association is stronger at the individual than the hospital level.

This does not settle the question entirely. For if practice makes perfect, then it ought to operate at the level of the particular procedure carried out. However, Urbach and Baxter (2004, cited in Murray 2004, 2006) find evidence that high volumes in general rather than for the procedure in question are what matter most in predicting better outcomes.

Perhaps more important is that if the "practice makes perfect" mechanism is working, then it does not work uniformly or with the same time lag in every specialty, and few researched have satisfactorily explained the differences observed between specialities.

Halm et al (2002) find the association strongest for AIDS treatment, pancreatic cancer surgery, oesophageal cancer surgery, abdominal aortic aneurysm surgery, and paediatric cardiac problems; they find significant associations of smaller magnitudes for coronary heart bypass surgery, coronary angioplasty, carotid endarterectomy, some other cancer surgery and orthopaedic procedures. Davoli et al (2005) find the association strongest for unruptured abdominal aortic aneurysm, percutaneous transluminal coronary angioplasty, knee arthoplasty, coronary artery bypass, oesophageal and pancreatic and prostate cancer surgery, colecistectomy, carotid enderarterectomy, myocardial infarction, and neonatal intensive care. The fact that the association is strongest for surgical procedures may be an artefact of what has been studied, or may reflect genuine differences in the power of the "practice makes perfect" mechanism in surgical by contrast with other specialties of hospital activity. However, the absence of a reported observed association in many medical and emergency intensive procedures is striking, even if only at the level of an absence of evidence rather than any evidence of absence.

Moreover, there is some evidence that not every kind of high volume centre is beneficial for all outcomes. Murray (2004, 2006) notes that the UK Neonatal Staffing Study Group (2002) showed that some high volume units with many consultants also showed high levels of nosocomial bacteraemia, and that units running close to capacity showed worse outcomes than those with some "slack". Large units with high volumes that also have slack are

presumably also expensive to run, since presumably the proportion of slack required for better outcomes will also be larger in absolute terms than that required for moderate volume centres, and this may direct attention to questions of economic evaluation as well as of clinical safety.

The inference that improved clinical outcomes in some important surgical procedures associated – even when taken to be causally – with higher volumes constitute a case for centralisation and regionalisation is, however, a more complex one requiring additional evidence. For example, Mccarthy *et al* (2008) have recently shown that at least for cancer services in England, factors to do with hospitals have at least as much to do with outcomes as does the simple fact of specialisation.

An argument for centralisation even on clinical safety and outcomes alone would have to show that it is possible, as it were "to get there from here", and that there is clinical evidence of a "better and after" kind from actual regionalisation initiatives for improved clinical outcomes in deliberately created high volume centres from a starting point of several smaller volume centres. There are far fewer studies on this, than there are on the general relationship between volumes and outcomes. One useful study is that by Curtis *et al* (2005). They examined clinical outcomes data over 5 years during regional centralisation and aggregation of hospitals in St Johns region spanning Newfoundland and Labrador. A wide variety of clinical outcome measures were either slightly improved, and some at least unaffected, although access problems were noted, particularly for post-coronary artery bypass grafting. However, in such a single region before-and-after study, it is hard to disentangle the effects of centralisation *per se* from the effects of other concurrent improvements in clinical governance (see also Parfrey *et al*, 2005 and Gregory *et al* 2005 for further analyses). The studies reviewed by Murray (2004, 2006) by Nathens et al (2004) on the US and France, by Nobilio et al (2004) on Emilia-Romagna and another on Lothian provide some encouraging evidence, but the numbers of such studies remain small, and do suggest there can be a significant lag in time between reorganisation and improved outcomes. That last finding would be consistent with the studies on the process of hospital merger and restructuring which point to evidence of disruption, distraction of managerial and clinical attention, upheaval, low morale and uncertainty for longer periods before general performance improves (see below).

Some recent reviews of centralisation in particular procedures have emphasised that changes in clinical outcomes are highly sensitive to physician incentives and clinical governance, and certainly not driven exclusively by volumes or learning effects. For example, Falconer et al (2007) reviewed data from 1997 to 2002 for treatment for squamous or verrucous vulval cancer in south-west England. They find that as centralisation progressed, there was a marked preference for more conservative operations, and that, while surgeons with high volumes of work achieved better rates of tumour-free skin margins, even these were adequate only in 49% of operations and that lymphadenectomy rates did not follow guidance. As well as clinical governance, payment systems and incentives for physicians also sometimes appear to affect the clinical

outcomes achieved after centralisation in regional specialist centres: Nobilio and Ugolino 2003 were able to show this for coronary artery bypass graft surgery in a comparison between Lombardy and Emilia-Romagna.

However, perhaps at least as important in order to warrant the inference to centralisation at any particular level as evidence from the volume-outcome association studies would be any evidence that we can identify volume thresholds at which outcome improvements begin to rise, and at which they might begin to plateau, in order to enable us to determine at what point hospital planning should target points on clinical learning curves. All the principal reviews note that there is a dearth of evidence about thresholds of either type. Murray (2004, 2006) points to methodological difficulties in explaining the lack of convincing evidence here, as well as the confounding factor that new techniques often tend to be used for higher risk patients with the result that they are associated at least initially with poor outcomes. However, Murray does note that many studies do suggest plateauing in the relationship between the rate of increase in volumes and improvements in outcomes, but without providing sufficient evidence to identify thresholds with any confidence.

In sum, the balance of evidence from the systematic reviews undertaken suggests a modest case for a connection that is probably at least in part causal, even if some part is artefactual, between volume and outcomes for some important surgical procedures. What it does not provide is unambiguous evidence that only hospitals that can offer levels of activity above particular threshold levels can provide acceptable standards of care, not least because there is clear evidence that some larger volume centres do show poor outcomes.

3.6.2 Access

At least in the UK and in some other healthcare systems, most of the objections to hospital reconfiguration, centralisation, downsizing, or downgrading of facilities are framed in terms of claims on behalf of populations living near hospitals that cease to carry out particular functions or procedures or offer particular services, that they suffer a loss of “access”. Access is not a straightforward concept to define, let alone operationalise.

For example, while “access” may be used to discuss the challenges, whether of time, distance, or journey difficulty faced by patients in reaching hospitals, it may also refer to those faced by relatives and visitors. It is also used sometimes to discuss bureaucratic procedures that may affect decisions about which hospital might be able to admit someone in emergency settings, or indeed those which affect the choice of hospital in less urgent contexts such as elective procedures.

Some studies (e.g. Roos and Lyttle, 1985) define access as actual utilisation, or effective demand – an economic, rather than a travel-based concept. This would incorporate a measure of willingness as well as ability to travel. Because most people in real need are prepared to travel at least some distance for care, access in this sense rarely falls very dramatically

after hospital reconfiguration or facility closure: few people simply go without care altogether.

Because actual use makes it difficult to separate willingness (and especially very high willingness) to travel from ability to do so, most studies try to measure some proxy for ability alone such as road distance (Christie and Fone, 2003), expected travel time at rush hour, cost of travel by alternatives means or even cost per mile of the cheapest alternative or of public transport only.

However, it may well be that "access" is in fact used as a kind of code for other values such as being able to identify with a hospital or a clinical facility because it is located in the area with which one has some connection – in short, it may indicate a desire for locality as loyalty rather than locality as short travel-to-care distance, time or cost in themselves.

3.6.3 Travel to care

The time required to reach hospital may, for some conditions, be a critical factor in explaining outcomes, as may the quality of the journey. Many studies find that planned hospital change is best done, in both developed and less developed health systems, in association with careful improvement of road services (Murawski and Church, 2009) and of bus services (Martin *et al*, 2008).

To the extent that debates about "access" have to do with travel to care, it is important to note that there is a relevant body of literature on the impact of delays (independently of, for example, distance or risk of jolting during transport) caused by journey times to hospitals, on clinical outcomes for patients. For arguments about the merits of particular proposals for reconfiguration are often framed in terms of whether a superior balance can be found between clinical gains from being treated in a specialist centre over treatment in less specialist or indeed generalist clinics, and clinical losses from delays in reaching such a specialist centre which is likely to be located further from at least some and probably from many patients than is a less specialist facility.

Time matters in a large number of conditions and affects outcome (Cooke et al, 2005). Recently, Buchmueller *et al* (2006) have shown, using data on closures and distances travelled to hospital in Los Angeles between 1997 and 2003, that greater distance is associated with higher probabilities of death from heart attack and of unintentional injuries, with the most serious problems for older residents. A recent large scale study of over 10,000 cases of people with potentially life-threatening conditions (other than cardiac arrest) taken to hospital in four English ambulance trust areas found that increased distance to hospital was indeed associated with greater risk of mortality, at the rate of an additional 1% for every ten kilometre straight line distance, and the worst effects were for patients with respiratory emergencies (Nicholl *et al*, 2007).

On the other hand, it is not known whether reconfiguration delays time to definitive care. Arrival at hospital is not a clinically relevant time; it is the

commencement of the critical definitive treatment that affects outcome. The delay to receiving treatment has been referred to as the therapeutic vacuum (Easton, 1969).

In some cases treatment may be undertaken by ambulance paramedics, in which case the journey time to hospital is not critical. A specialist unit may decrease in house delays to definitive care sufficiently to compensate for increased journey time and mean that a longer journey results in earlier definitive care. Taking a patient to the nearest hospital and awaiting a transfer team can have adverse effects on patient care in surgical conditions but a period of optimisation may be advantageous in medical conditions. (Cooke and Alberti, 2007). However, there is a paucity of studies taking a user centred approach to clinical aspects of reconfiguration: we are missing the research that looks at differences in outcome for residents of a specific location. Present research focuses on the simplistic proposition that hospital B is better than hospital A.

There is a wide range of medical conditions in which it has been identified that specialist care improves outcomes. Although small hospitals may have subspecialisation of elective medical work, they will invariably combine all physicians in an emergency on call rota. Many medical conditions benefit from the care of a specialist rather than a generalist. In asthma care, respiratory physicians provide significantly better care than non-respiratory physicians, (Pearson et al, 1995; Packham, 2002; Eisner, 1999).

In unstable angina cardiologists provide more effective care than general physicians (Schreiber et al, 1995) and mortality is improved in acute myocardial infarction (Birkhead et al, 2006).

Establishing a specialised unit for gastro-intestinal bleeding reduces mortality (Masson et al, 1996) with mortality halved in a specialised unit, (Sanders et al, 2004).

A review of the world literature highlighted the complex relationship between volume and outcome and concluded that there was no simple causal link. There was however noted to be substantial evidence for some specialties and procedures, (Sowden et al, 1997). In surgical specialties the link between volume and outcome has been questioned in a review of studies up to 2000 (Halm et al, 2002).

It has been noted that the experience and skill of the individual surgeon is more important than the hospital size (Teisberg et al, 2001, Urschel, 2000). However other studies have failed to reveal this link in a variety of surgical procedures (Wenning et al, 2000) with similar readmission rates in large and small hospitals (Welch et al, 1992).

A review of vascular surgery concluded that acute limb ischaemia was best treated at a specialist centre as tissue damage is delayed for several hours and the surgery may be complex. (Campbell and Chester, 2002). This review also concluded that transfer of patients with leaking aneurysms have shown no adverse effect of transfer time or distance on survival and it is likely that deaths during transfer select out those who would have died in the early stages of care if they had remained at a local hospital.

However a 1% absolute increase in mortality has been noted for a 10 km increase in ambulance journey in an English cohort study of 10.315 patients with potentially life threatening conditions. Patients with respiratory emergencies showed the greatest association (Goodacre et al 2006). Outside research into major trauma, the therapeutic vacuum time element has been poorly studied.

There is a more extensive literature related to trauma care. The results of a meta-analysis showed a 15% reduction in mortality in favour of the presence of a trauma system in America. (J Trauma, 2006). This may have been mainly due to operative survival with early studies showing that high volumes are associated with improved outcome. (Smith et al, 1990, Konvolinka et al, 1995).

While an in-house on-call attending surgeon policy (the commonest UK model in district general hospitals) was not associated with improved outcomes, the presence of a trauma and surgical critical care fellowship programme, a potential surrogate marker for an institution that is committed to this specialty interest, is associated with improved outcomes for critically injured patients (Arbabi et al, 2003). However the only UK study to prospectively compare trauma centre care with standard local district general care failed to demonstrate any difference (Nicholl and Turner, 1997) although the results were subsequently heavily debated.

Long prehospital times in the rural environment were not associated with differences in mortality or length of stay in moderately and severely injured patients in the west of Scotland and was seen to support centralisation of trauma services despite considerably longer journey times in Scotland (McGuffe et al, 2005). However within some systems, case-fatality for all injuries and for severe injuries was seen to be significantly associated with distance from Level I/II trauma care after controlling for other predictors of case fatality (Durkin et al, 2005).

It has been suggested that air transport may be a method of increasing the catchment area of a specialist hospital without increasing journey time. The data supporting this are however limited. One study in Seattle demonstrated that of 118 patients transported an average distance of 340 miles, the in-hospital mortality was 19% compared with 18% for a comparable group of trauma patients who were ground-transported from within the city limits of Seattle, Washington. The two groups did not differ significantly in age, Injury Severity Score, or Glasgow Coma Score. These results suggest that some part of the clinical benefit of a regional trauma centre may be extended up to 800 miles with no increase in transport-related mortality (Valenzuela et al, 1990).

The majority of cases of trauma are however not life threatening. In many reconfigurations A&E departments are converted to nurse led minor injury units. The care provided by nurse practitioners is of equal quality to that provided by junior doctors (Sakr et al, 1999) and they order x-rays appropriately (Benger, 2002). In these cases delay is not an issue and they represent the large majority of the workload of many UK A&E departments. It is now widely accepted in the UK that minor injury units

with appropriately trained emergency nurse practitioners can substitute for that component of the A&E workload.

Telemedicine has been demonstrated to be safe in assisting remote care, hence enabling care to be provided locally but utilising remote specialist support in minor injuries (Brebner et al, 2002), mental health (Rosina et al, 2002) and hospital referrals (Pekka Jaatinen et al, 2002), and can avoid unnecessary trauma referrals. (Rogers et al, 2001). It may however be more costly than face to face consultations (Jacklin et al, 2003). It can also support paramedic care during transfer (Terkelsen et al, 2002, Ricci et al, 2003), potentially making longer journeys safer.

This literature provides indirect evidence to support the theoretical arguments behind reconfiguration. There is a lack of prospective evidence of the clinical impact of reconfiguration. The study of reconfiguration in Kidderminster demonstrated little change in acute admissions for the population. Although attendances at the county's A&E departments decreased, the increase in attendances at minor injuries unit meant an overall increase. After reconfiguration, 80% of the number A&E attenders at Kidderminster attended the replacement minor injuries unit in subsequent years. No adverse clinical events were detected that could be ascribed to the reconfiguration (Raftery and Harris, 2005).

3.7 *Considerations about the Clinical Labour Market and its Regulation*

There is another driver of change, also emphasised by Farrington-Douglas and Brooks (2007a) but stressed by some of the professional bodies both before and after the application of the European Working Time Directive to clinical staff. This is used less as a justification from first principles of reconfiguration, than as a statement of a constraint.

A variety of professional labour market considerations have been offered as supply side arguments for consideration. These include the shortage of key skills, the advantages for recruitment and retention of larger centres carrying out higher volumes of work with leadership by well-known and highly skilled physicians, the desire of clinicians to avoid wasting their time on travelling between centres and the benefits of mutual support and surveillance through clinical governance in larger teams.

The enactment of the European Working Time Directive (EWTD) limiting working hours, together with the "New Deal" for junior doctors, has, as is well known, proven especially challenging to British NHS hospitals, which have, for a variety of reasons, always operated long hours especially for junior doctors and specialist registrars. Although all hospitals were required to be fully compliant by August 2004, it is accepted, tacitly even by the Department of Health, that many were not. It is widely recognised that the availability of junior doctor posts is critical, given that there are limitations to the willingness of senior consultants to work unsocial hours.

There has been a series of reforms to junior doctors' training beginning with the Calman report of 1992 (NHS Executive, 1992) and leading most recently to the Unfinished Business report of 2002 (Chief Medical Officer) and Modernising Medical Careers in 2004 (Scottish Executive Health Department et al, 2004). These aim to align medical training more closely with European and international norms, to introduce greater flexibility in skills and skill-mix, to provide some greater element of common training between clinical professions, to try wherever possible to shorten the necessary periods of training before juniors can practice at some supervised level, and to increase labour supply. The importance of this most recent paper is that it may, and, in the view of the Department, should be a spur to innovation and organisational change within hospitals and in networks of collaborating hospitals in order to make better use of the now still scarcer labour time of clinicians of various kinds available to them.

The requirements of the Royal Colleges about the training of junior medical staff have had an important impact on pressures for reconfiguration. In particular, requirements have been put in place that training will be accredited by the colleges and by the regulatory bodies such as the General Medical Council only in clinical units of a certain size and providing a certain minimum range of services, capable of providing a certain amount of structured training and study, or serving a certain minimum population. These have led to pressures for centralisation, not least because of the consequent difficulty of attracting junior doctors to work in hospitals with teams smaller than these standards. For even apart from the renewal of the workforce, the conventional model of hospital medical cover relies heavily on the rostering of junior doctors in training (Dowie and Gravelle, 1997).

Some innovations that can be introduced in order to rise to the challenge could involve changes of configuration to produce still greater centralisation of some specialty services in regional centres, in order to achieve the combination of feasible rostering of staff and frequency of practice of skills required by the EWTD and Royal Colleges and clinical governance standards. No doubt those who generally favour such centralisation will support this as an appropriate response.

However, greater centralisation is not the only possible response. A wide variety of other ways is available and many have long been in use to reduce the demands upon the time of clinicians and to release time from existing staffing resources. Telemedicine, greater use of care at home, reducing inpatient stays through technical and organisational innovations, transferring functions from doctors to nurses and from nurses to care assistants, more use of visiting consultants doing circuits of hospitals, and so on are not yet exhausted. However, insofar as the key problems arising from the EWTD concern night time coverage, meeting prescribed ratios of fully trained to trainee staff for supervision, and staffing for isolated and rural hospitals, these kinds of measures alone will be of limited help.

The Academy of Medical Colleges (2004) identifies a number of possible responses to the EWTD including

- greater use of skill-mix, i.e. transferring functions from doctors to nurses and para-medics, and from nurses to care assistants, etc;
- cross-cover between specialities for out-of-hours, involving trainees;
- triage and separation of high and low risk cases, reducing numbers of cases really requiring out-of-hours care;
- pooling trainees between networks of hospitals to ensure adequate cover in smaller hospitals;
- reducing tiers of cover;
- ensuring the maximum use of daytime hours of senior staff;
- use of senior staff for special infrequent out-of-hours sessions;
- evening theatre sessions;
- "hospital at night" initiatives using more flexible mixes of competency;
- dedicated, multi-disciplinary out-of-hours teams

The Academy calculates that a junior doctor rota sufficient for cover 24 hours a day, seven days a week requires a cell of eight to ten doctors but ideally ten, if they are working a 56 hour week, although eight may suffice in specialities where handover time can be brief.

The Department of Health (2004b) has published a set of suggestions on how hospitals might respond to the challenge of compliance with EWTD. The list is rather similar to that produced a few months previously by the Academy:

- "hospital at night", involving reduced cover by different skill mix staff, more specialists on-call at home;
- dedicated out-of-hours teams;
- reducing duplication between of work out-of-hours and admissions teams;
- redesigning rotas, increasing the use of non-resident on-call rostering;
- making better use of doctors in training by merging grades, reducing overnight rostering in favour of evening rostering, cross-cover between specialties and special arrangements for busy nights such as Mondays and Fridays;
- more use of senior consultants during evenings;
- transferring responsibilities to nurses, para-medics, care assistants;
- greater use of networks between small hospitals;
- more use of telemedicine;
- restricting out of hours admissions in some specialities in isolated or rural hospitals; and

- integrating A&E with GP or general medical cover in networks in rural areas.

It is hardly surprising that many of these are suggestions also made in Keeping the NHS Local (op cit) as ways of ensuring the viability of smaller hospitals.

To date, there appears to be very little published peer-reviewed research evaluating these measures specifically as responses to clinical working time restrictions (indeed, at the time of writing it is too soon to expect this), although many of these suggestions have been examined more generally and in the context of hospital change quite generally.

Many clinicians fear that the move to full shift working can only disrupt training opportunities for intermediate grade doctors. One participant-reported case study of new shift working rotas in general surgery at Wansbeck DGH in Northumbria found reduced training opportunities did indeed result, but the authors speculated that cross-speciality cover might mitigate the problem (Garg et al, 2003). A case study written by those taking part in a new approach to rostering specialist registrars (SpRs) in Royal Gwent Hospital reported that an EWTD-compliant scheme had been introduced but was found to have resulted in disorganisation, difficulties in accommodating leave, problems of acclimatising to sudden changes of sleep patterns, and poor continuity of care leading in some cases to worse quality care, and disruption to training (Tayton et al, 2004). Another such self-reported case was of nurse practitioners in otolaryngology senior house officer rotas responsible for a “primary bleep holder” role, triage, bed management and other functions in an ear, nose and throat department. The study found that although British New Deal for Junior Doctors rules could be complied with, EWTD rules could not because of the numbers of disturbed nights experienced by the SHOs: the authors conclude that the scheme could be adapted to conform, as nurse practitioners grow in experience and if a new post were approved (Chisholm et al, 2004).

4 Hospital Reconfiguration: Issues from Available Recent Literature – Structures and Processes

4.1 *About this chapter*

Reconfiguration necessarily involves considering several acute and secondary care units in an area together. This fourth chapter, therefore, reviews the debate about *networks* and their relationship with reconfiguration. Some case study evaluation evidence about the variety and the strengths and weaknesses of networks of different kinds involving hospitals as organisations or involving individual hospital clinicians is reviewed. This discussion is followed by more detailed analysis of the research evidence about hospital *mergers*, because mergers are perhaps the extreme case of a spectrum running from isolation through collaborative networks to complete integration. The chapter does not provide a section on "hospital downsizing", because examination of the literature under this rubric suggests that the term does not describe a distinct or single type of reconfiguration strategy: "downsizing" is often but one part of a programme of internal restructuring within a single hospital, regional centralisation, networking, merger, other kind of reconfiguration, reduction in financing or simple response to technological change allowing the release of no longer needed real estate.

4.2 *"Networks": Types of Relationship Between Hospitals, and with Other Secondary Care Units*

In the US, the term " hospital network" tends to be used to refer, not so much to more or less locally determined and largely voluntarily entered patterns of relationships between organisationally independent hospitals, as to chains of hospitals owned or at least financed by a common organisation or company and collaborating in ways prescribed by that organisation or company. There is an extensive body of US research on such chains, arguing, for example, that hospitals which work more closely with the rest of their chain can achieve higher levels of efficiency (Rosko and Proenca, 2005). Using the alternative term, "multihospital systems", Tucker and Zaremba (1991) found that economies of scale enable them to outperform standalone hospital organisation especially in financial management. However, it has long been recognised that such "networks" or "systems" vary dramatically in the degree of their integration, differentiation and centralisation of decision-making. Using these three dimensions, Bazzoli et al (1999) were able to construct a taxonomy, which was updated by substantially the same team a few years later (Dubbs et al, 2004). Indeed,

their late study suggests a degree of decentralisation had occurred between 1994 and 1998, although they note that the gains in operating flexibility achieved may be achieved at some cose to efficiency in raising and investing capital, where centralisation may have advantages. Alexander and Fennell (1986) find that although they vary in distribution of decision making between the central organisation and the member hospitals, more complex matters tend to be decided at the collective level.

The term “network” was used in a rather different sense in the British debates, where it described supposedly less hierarchically organised, more egalitarian arrangements entered into between health care organisations within the NHS and also making linkages into local authority social services. In practice, many such “networks” turned out to be more hierarchical than some might have hoped, but they remained very different from the trading brands that have characterised the hospital industry in the US; indeed, many of the British ones were not so much between whole hospitals as between particular clinical teams and other teams or agencies. In England and Wales, in 1998 and 1999, Frank Dobson as Secretary of State for Health introduced a series of measures intended to bring an end to the internal market arrangements put in place by the previous Conservative administrations. Of particular if mainly symbolic importance was the provision in the Health Act 1999 that placed a duty on all NHS bodies to co-operate with each other. More important were the various regulatory requirements and incentives for the development of clinical networks especially in fields such as “collaboratives” in cancer care services extending to service delivery collaborative models of medical research that have been developed over decades (Kerr et al, 2002), the introduction of clinical governance, National Service Frameworks requiring integrated care in a series of areas both between acute and primary care and between acute trusts where patients used services from more than one trust, regulation specifying collaboration in certain specialties, and the ending of the force of the previous guidance on NHS Trust mergers which had been designed to cultivate a measure of hospital competition in each geographical area.

At least since 2001, his successors Alan Milburn and John Reid have introduced measures that moved back significantly toward incentives for more market-like and competitive arrangements: in particular, patient choice, Payment by Results and Foundation Hospital status – which are discussed below – can be considered as bringing pressures for more competitive behaviour. However, there remain in place many of the regulatory pressures for collaborative networks.

Whereas much of the research on mergers and acquisitions (see below) has been written by economists concerned with the effects upon competition, prices and costs, and much of it has been carried out in the USA, rather little of the research on acute care networks has been written by economists or greatly concerned with questions of whether networks constitute forms of collusion or anti-competitive practices that might violate principles of competition policy. Indeed, for a scholar to refer to these practices as networks is almost a signal that they are prepared to set such questions aside. Much of the research is written by scholars in health management,

public management or general management, public administration, organisation behaviour and organisational sociology. The literature is scattered, lacking theoretical integration and famously unable to converge on a shared set of definitions of terms for types of networks. Some networks are inter-professional but intra-organisational, some inter-organisational but intra-professional, some between primary and acute care and some within acute care only.

The peer-reviewed literature on relationships between hospitals has largely followed official and practitioner writings in distinguishing between "hub and spoke networks" and "managed clinical networks", and it has developed largely in isolation from the wider social science studies on inter-organisational network forms. (For a review of the wider literature, see 6 et al, 2006).

Definitions of these types differ between studies (see Spurgeon et al, 2001). The Scottish Office (1998) review defines hub and spoke networks as ones in which "the ties between the same specialty in different hospitals are more prominent than inter-specialty links on site … a hierarchy… suited to highly specialised tertiary services". By contrast that review defines managed clinical networks as "sharing patients, expertise and resources, rather than unidirectional centripetal flow. rather than centralisation.. some strands of the net (may) be thicker and stronger than others.. much of the power and influence lying at the interstices of the net as knowledge and resource centres". Following the ideas in the Calman-Hine report on integrated cancer care, the NHS in Scotland issued a circular in 1999 (Scottish Executive, 1999) which defined the managed clinical network as involving all tiers of care and emphasised that networks cross organisational boundaries. Similarly, OPM (2002) insists on the "whole system" character of clinical networks. The very general definition give by the Scottish Executive (1999) has been widely adopted and cited, but it does not specify a particular kind of network structure that would rule out a "hub and spoke" form. Indeed, the Scottish Executive letter specifies a number of elements – rules, clear roles, defined membership, central group servicing, maintenance of expertise, focus on quality, evidence-based working around redefinition and streamlining of pathways of care and patient journeys, and highly structured clinical governance – that could be compatible with a measure of centralisation in services in some cases. The Scottish Office (1998) review allowed that some centralisation of services might be possible in managed clinical networks (MCNs from now on) but insisted that this should be "balanced" by increased outreach services to enhance access. Perhaps "hub and spoke" networks need to be seen as one type of MCN characterised by higher centralisation of services in tertiary hospitals, rather than contrasted with them. Spurgeon et al (2001) distinguish networks consisting of distinct clusters (e.g. rooted in primary and secondary care) and which are brokered by key reticulists or "care coordinators" from "ring" networks of specialty units in distinct hospitals.

Various relationships are possible between network forms and reconfiguration. Some of the language of the Scottish Office (1998) review appeared to suggest that managed clinical networks could be used to avoid

difficult and contentious reconfiguration decisions to close small facilities, at least in some specialist fields, but ensuring their integration into wider networks. It is not difficult to see how networks could be used by vulnerable clinicians seeking to prevent the closure or redeployment to a more distant centre of otherwise financially unviable or clinically poor quality small facilities. By contrast, the Department of Health (2003, 2004a) appears to regard the development of networks as both a consequence and a concomitant of reconfiguration, partly where MIUs replace A&E, and where routine birthing is separated from the more complex O&G work, or where functions are moved into primary care (Audit Commission, 2004). In these cases, network forms are seen as the concomitant of decentralisation and unbundling of services which is seen as clinically and financially justifiable. However, in other cases, network structures emerge in the course of centralisation. This often raises questions about patient journeys in the literal sense of transport between hospitals. Arrangements for such transport can be critical to the effectiveness of network reconfigurations, but little research has been done on this. (See Ramnarayan 2009 for some methodological development.)

6 et al (2006) distinguish between functions for which network arrangements have been developed in health care, identifying:

a. the coordination of decision making (such as local strategies e.g. Health Action Zones);

b. the sharing of information;

c. the joint procurement, purchasing and commissioning of health care or of health and social care together;

d. the integration of service delivery (such as local Cancer Services Collaboratives); and

e. the ownership of chains of services and facilities, not necessarily reconfigured but perhaps freestanding and conventionally organised or else highly vertically integrated with primary care but not necessarily horizontally integrated between hospitals (as in the case of Kaiser Permanente or some HMOs in the USA)

Of these, types (b) and (d) are of particular importance for reconfiguration.

Much of the debate about networks has been concerned with appropriate structure. For example, on the one hand, Provan and Milward (1995) (see also Milward and Provan (2000) and Provan et al, 2004) argue that greater effectiveness is achieved by the use of hierarchically structured, tightly integrated and internally regulated networks, in a study of commissioning. Kodner and Kyriacou (2000), reviewing literature on integrated care, propose that hierarchical networks are more effective. By contrast, Bate and Robert (2002) argue that cancer services collaboratives in the NHS have, precisely because of their hierarchical character, failed to sustain information sharing through communities of practice. Leutz (1999) suggests that fully integrated models may only be appropriate for a small subset of chronically ill patients who have unstable and functional conditions and who

frequently interact with health and social care systems and where therefore all the agencies within the network are required to provide ongoing collaboration between professionals to provide care. Sermeus et al (2001) examine a network of hospitals known as the Belgian-Dutch Clinical Pathway Network, which was created in response to financial incentives for reducing the length of in-patient spells, to develop common definitions of care pathways, evaluate innovations in their development and share learning gained. They found that the network needed to incur significant ongoing costs in order to maintain the commitment of members. The research on ownership networks is also ambivalent about the merits of hierarchical network forms: Bazzoli et al (1999, 2000) have shown that, in US integrated health care, there seems to be a trade-off between both breadth of scope and innovation on the one hand and managerial centralisation and profitability on the other, so limiting the degree to which the hierarchical form can be sustainably dominant. To tackle this, organisations have had to develop hybridity with less hierarchical styles of network structure and practice. The imperatives for hybridity at the level of the particular network are replicated by pressures for institutional variety at the level of the whole market or policy field. The studies by Bazzoli et al and Robinson and collaborators (1996, 1998) show that variety in forms at the level of the market as a whole with other institutional forms is also a response to demand-side conditions: some US health insurance enrollees will accept a restricted choice of hospitals in a tightly integrated network with lower co-insurance rates, whilst others prefer a wider choice of hospitals that include 'premium' as well as 'core' providers measured by cost, quality and performance. Thus, the trade-offs and dilemmas in the optimisation of different aspects of performance are clearly related to the extent to which settlements are struck between the elementary institutional forms.

There have been a number of case studies published of service delivery integration networks in secondary care. Much as in the UK, perceptions of fragmentation, duplication and lack of sharing of information after a period of internal market governance of health care in the state of Victoria, Australia led to measures being introduced to require secondary care networks for psychiatric care, palliative care, rehabilitation and home-based services for older people from 1995. The key aim of the network was to promote better access and standards of care to elderly patients in the suburbs of Melbourne by transferring activities from larger hospitals in the city centre to the smaller 'spokes'. Each separate Hospital Board was 'incorporated' into the health care 'network' which developed its own board of directors, though overall accountability for finances and clinical care to patients remained with the individual hospitals. A review of the network has suggested that effective co-operation between clinical disciplines has resulted (Victorian Government, 2000). Integrated care packages for older people were developed across a range of disease areas helping to increase continuity of care between hospitals. Moreover, over five years, the caseload of elderly patients treated in outer Melbourne increased by 37 per cent compared to a 5 per cent increase in the city. However, despite progress, the network has only partially implemented its vision.

In the Italian region of Emilia Romagna, a clinical network for cardiovascular disease known as the Parmesan Partnership was developed. This was designed to use a 'hub and spoke' model of care with the purpose of developing better and more appropriate transfer of cardiac patients from peripheral to central units based on a threshold protocol of case complexity. Ugolini and Nobilo (2003) report quicker transfers and more appropriate sharing of the various phases of cardiac care between members of the network. The network was managed by a full-time 'planner' with a mandate from the hospitals to co-ordinate decision-making in accordance with pre-established objectives. A very similar approach to cardiac care services was undertaken within one of the largest managed care organisations in the USA, leading to similar outcomes in terms of utilisation effectiveness (Plogman et al, 1998).

Also relevant are some studies of inter-professional, rather than inter-organisational networks, where members are individuals but membership spans more than one organisation, and where some of the professionals are hospital-based clinicians, although others are based in primary care. James and Miles (2002) reviewed a number of case studies of managed clinical networks. They found that such networks have often been developed for the protection of existing hospitals and/or certain medical specialties, rather than the development of new or more effective services.

The Cardiac Care Network of Ontario (CCN) was established and funded by the Ontario Ministry for Health as a partnership of health professionals, hospitals and government, in response to a concerns about long waiting times for adult cardiovascular surgery, cancellation of surgeries, and limited access to key services. Its role is to develop strategies to ensure access, monitor progress, develop an information facility to promote best practice, develop research and develop processes for monitoring patient access and waiting times. For example, 'consensus panels' of clinical, research, administrative and policy experts have been instituted to undertake reviews of the literature and clinical data to make policy recommendations on future cardiac care strategies in the region. Monaghan (2000) reports the initiative as a success in motivating change.

In 1995 the Netherlands government mandated regional networks in geriatric care involving hospitals, nursing homes, residential homes, home care organisations, general practitioners and community mental health care organisations to organise optimum care pathways, reduce levels of inappropriate referral, diffuse specialist expertise, develop new services, and improve coordination; initially, four pilots were established. Nies et al (2003) report problems in decision-making save on general principles, especially for networks with broad definitions of target clientèle or where professional priorities or organisational interests diverged sharply. Many of the positive outcomes reported, such as the development of new services, could be found in areas where pilot networks did not exist. Ties between professionals had deepened but protocols, blueprints and appointments on prevention, assessment, treatment and care delivery were used mainly by the already active and not greatly diffused beyond the members.

In Scotland, Scottish managed clinical networks for cancer, coronary heart disease, diabetes, renal transplantation, and palliative care have been mandated in response to pressures to avoid closure of potentially unviable hospitals. Hamilton et al's (2001) preliminary evaluation of a managed clinical network for cardiac services in Dumfries and Galloway found, just as did Nies et al in the Netherlands, that the network had been successful in involving patients, sharing information on its activities, mapping patient pathways and constructing protocols, standards and guidelines, but far less successful in identifying and implementing changes for clinical and service improvements. Woods (2003) evaluated the South East of Scotland Cancer Network (SCAN), a multi-disciplinary, professionals and patients group covering a population of 1.25 million involved in developing protocols, patient pathways, quality assurance, audit, and plans for service redesign and with several 'associated networks' addressing specific primary care, nursing, telemedicine, palliative care, pharmacy and patient involvement. SCAN is reported to have achieved a 'remarkable degree of agreement' across its professionals on service priorities (equity of access and quality, improved survival, and better patient experiences), but network members wanted a more clearly defined understanding of outcomes, clearer objectives and more work on trust and relationship building to change cultures, more resources, and had concerns about the limited pool of leadership. Monaghan (2000) and Livingston and Woods (2003) argue that work on trust and relationship building should precede structural changes such as new referral pathways, common clinical protocols, joint audit, and even joint leadership.

More generally, research on the practical implementation and management of integrated care pathways, often the basis around which managed clinical networks are built, has found that they are beset by interprofessional conflicts over roles and attempts to capture vacant territory that networks find it difficult to resolve (Hugman, 1995; Jordan et al, 1999), if the refusal of professionals to accept lay management (Jones, 2001) and by the preference of many professionals for maintaining proprietorial control over their knowledge (Smart and Daws, 2003). These conflicts continue despite the heavy investment of time and resources by such networks in persuasion, dialogue and consultation (Velasco et al, 1996; Barnette and Clendenen 1996).

Although most of the research consists in single case study reports, using very different methods and often addressing rather general questions about management challenges, it is clear that there is neither marked convergence in best practice in network systems in which hospitals play a role nor a general prescription to the effect that more or less hierarchical governance of networks is generally more or less effective. A recognition can be found throughout the literature that the core and well-documented challenges for inter-organisational working remain as difficulties (6 et al, 2002; Sullivan and Skelcher, 2002).

Most studies on networks are examinations of process. There appear to be few studies on networks involving hospitals that examine their effects upon clinical outcomes, or economic variables such as productivity or costs. For

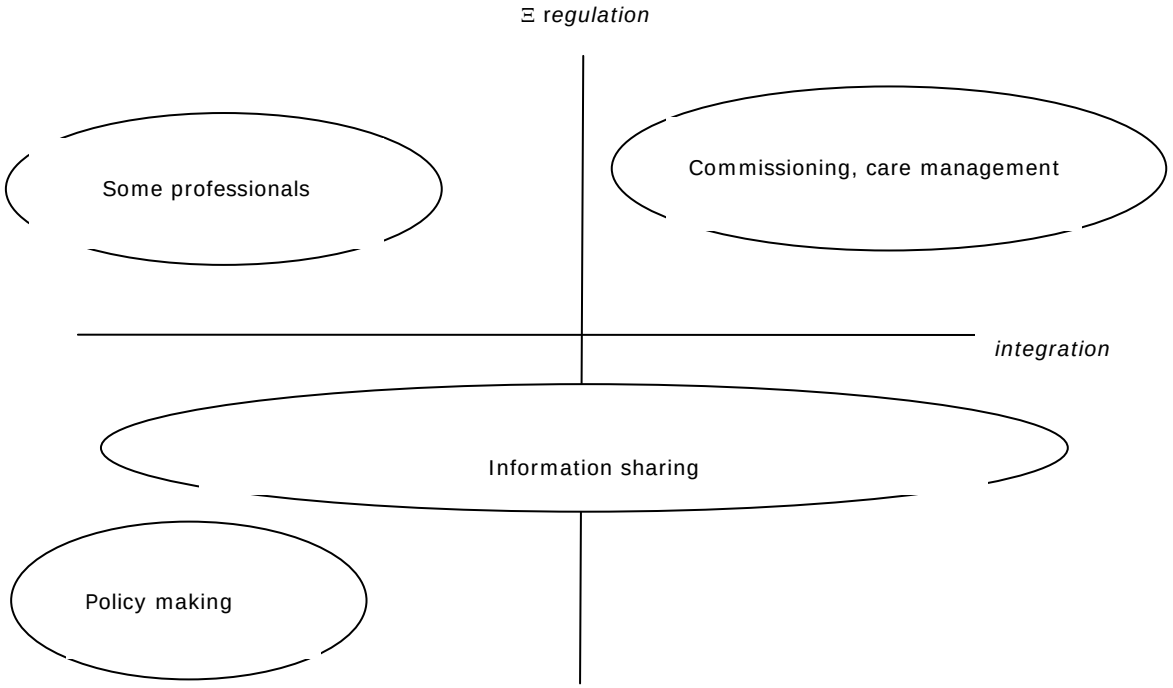
example, studies often tend to look at “success” in inter-organisational arrangements in terms of the express goals of the actors: even these often find that “success” is difficult to achieve in inter-hospital arrangements entered into in the course of restructuring and downsizing (e.g. Flint, 2003).

6 et al (2006) argue, drawing upon neo-Durkheimian institutional theory, that there are four elementary forms of networks, which can be combined in two-, three- and even four-way hybrids. The four forms are defined by the extent to which they exhibit strong or weak social regulation – meaning accountability to rule, role and given fact or, conversely, discretion – and strong or weak social integration – meaning accountability to other individuals or organisations, or conversely, independence. Cross-tabulating these dimensions yields the four network types: hierarchy, individualism, enclave and isolate (Douglas, 1982ab, Gross and Rayner, 1986, Thompson et al, 1990; Hood, 1998; 6 et al, 2002). Each has particular strengths and weaknesses. Figure 1 summarises the key differences and their relative strengths and weaknesses in general, while Figure 2 presents the 6 et al (2006) interpretation, using these categories, of the literature on networks in UK health care in recent years.

Figure 1 Elementary forms of networks in general

Social regulation		
Isolate network Network form: Sparse social ties Style of organisation: Heavily constrained individuals acting opportunistically, unable to sustain trust Basis of power: Domination Type of leadership: Despotic Strategy: Coping or survival-oriented behaviour, individual withdrawal Strengths: Enables valuable coping behaviour and survival during adversity, prevents excessive aspiration during periods when this might be destructive Type of failure: Limited ability to sustain collective action or tackle complex problems, chronic mistrust, inability to innovate; instability to due simultaneous over- and under-institutionalisation	**Hierarchical network** Network form: Dense social ties at top; mainly vertical ties at the bottom Style of organisation: Centrally ordered community – e.g. formal inter-organisational partnership body Basis of power: Asymmetric status, rule- and role-based authorisation Type of leadership: Bureaucratic Strategy: Regulation, counterpoint between vertical and lateral boundaries internally, control through systems of status based on role Strengths: Enables clarity and complex divisions of labour Type of failure: Over-regulation and low productivity, limited ability to generate prosperity; gridlock due to baroque procedures; the system of rule and role can become so Byzantine as to be illegible; risks demotivation of the "lowerarchy" through denial of access to superior authority and denial of sufficient validation; instability due to over-institutionalisation	**Social integration**
Individualistic network Network form: Sparse social ties, spanned by brokers Style of organisation: Instrumental, entrepreneurial individuals – e.g. markets Basis of power: Personal control of resources Type of leadership: Broker, "merchant adventurer", "Big Man" Strategy: Brokering, negotiating for control of resources Strengths: Unleashes powerful motivations of aspirant self-interest, enables focused instrumental activity Type of failure: Zero-sum competition, instability due to insufficient institutionalisation, high transaction costs esp. in defining and enforcing property rights, severe conflict between powerful individuals, demotivation of weaker groups through insecurity	**Enclaved network** Network form: Dense social ties Style of organisation: Internally egalitarian, but sharply marked boundaries with others; held together by shared commitment to moral principle – e.g. sects, cults, movements, clubs Basis of power: Constant personal and collective reaffirmation commitment Type of leadership: Charismatic Strategy: Intense mutual support within enclave, confrontation of those outside Strengths: Empowers passionate principled commitment and supports integrity, unleashes powerful motivations of protection Type of failure: Demotivation through exhaustion and burn-out; schism, feud; instability due to insufficient institutionalisation, inability to sustain negotiation with outsiders due to inability to support effective authority internally, poor productivity due to greater emphasis on distributional than productive values	

Figure 2 Types of networks reported in literature on cases in health care in UK, 1995-2002



4.3 *Mergers*

Hospital mergers appear to represent a major international trend during the 1980s and 1990s (Colón et al, 1999; Given 1996; Jaspen, 1998).

The reasons given for mergers tend to cluster, in administered healthcare systems, around the search for economies of scale or efforts to capture improved clinical outcomes from higher volumes of activity produced by mergers of a type that achieves centralisation, and, in more market-based systems, the elimination of direct competitors and the search for greater market share by large companies owning many hospitals ("networks" in the US jargon) (Bogue et al, 1995).

There is a debate about whether greater size is associated with improved efficiency (Harris et al, 2000) or financial performance in respect of costs, vulnerability to changing demand patterns, (e.g. Goldstein et al, 2002), or whether the exhaustion of economies of scale at modest levels in many specialties (Posnett, 2002) limits the benefits of mergers, and whether, when costs are measured at the DRG level, mergers are associated with actual increases in prices (Krishnan, 2001).

Although the literature has tended to suggest that there is some optimal size for hospitals, above or below which they suffer some diseconomies because of their size, the literature, both internationally and in the UK, is not very definitive on the size at which minimum cost occurs. Again, changes in scope that go with changes in size may confound simple results of cost comparisons.

A few studies attempt to estimate overall social welfare, conceived as in welfare economics, yielded by mergers: Calem et al (1999) offer an abstract model without empirical data to show that it is possible, should their conditions be met, that hospital mergers could be welfare-enhancing, if they can reduce cost-sharing and moral hazard between consumers.

There is a large body of work on such mergers, which represent the extreme end of a spectrum of types of hospital reconfiguration ranging at the other extreme to comparative isolation of hospitals, running through a variety of competitive and then collaborative relations. The research can be divided into studies of process, studies of organisational dynamics, economic studies of effects upon costs and prices and efficiency and clinical outcomes and other "objective" measures of performance, and studies of the implications for policies to promote competition between hospitals. Latter policies include antitrust law in countries other than the UK, where the nationalisation of much of the hospital sector effectively precludes the direct application of monopoly and merger and competition law to the sector. During the period of the internal market, there was guidance in place on mergers between NHS Trusts that was clearly intended to approve and disapprove proposed mergers on the basis of criteria that were intended to promote competition (NHS Executive, 1994: see extended discussion in Goddard and Ferguson, 1997). However, the importance of patient choice in the UK does give growing emphasis to competition between hospitals for patients as a policy goal. On the other hand, since the Payment by Results system of HRG funding uses a fixed national tariff, that competition will not be very strongly based on price, and so many of the studies of the impact of mergers on hospital prices in the US will have limited relevance to the UK context.

At least in principle, studies on mergers should be distinguishable from studies on the general effect of hospital size or economies of scale, or specialty team size or specialty activity volume, upon clinical outcomes or costs or efficiency, although this distinction is not entirely straightforward in the literature. For it may matter for a wide variety of outcomes and it will very likely matter for almost all process measures, whether consolidation and large size is the result of acquisition, merger, growth without merger or acquisition, growth in a growing market or growth in a shrinking market at the expense of competitors who shrink or exit.

The literature on economies of scale was reviewed systematically by the Centre for Reviews and Dissemination at the University of York (CRD) in the 1990s and that review remains among the best quality assessments of the field (Ferguson et al, 1997; Posnett, 2002). These studies were based upon reviews of a wide variety of specialty-specific research. They concluded that, where the evidence suggested that economies of scale existed at all, they were exhausted at a hospital size of between 100 and 200 beds, with hospitals larger than 300 beds tending to show higher unit costs with increased size. Key findings were that bed numbers and team size do not necessarily produce better clinical outcomes, and that the frequency with which an individual clinician performs a particular procedure, which is unrelated to organisational scale, is a better predictor of clinical outcomes.

However the relationship is probably curvilinear: that is to say, those who do something too often may become sloppy or simply rushed and so make more mistakes. This probably reflects two offsetting factors and at least two confounding factors:

- bigger hospitals probably have lower management costs per patient, at least within certain size ranges, as the management cost can be spread over more patients;
- bigger hospitals tend to do more for patients, because they have the skills and equipment to do so, possibly increasing quality but at a higher cost per patient;
- bigger hospitals may tend to attract a more complex casemix, on average, from a wider catchment area, and so have a higher unit cost per patient;
- all hospitals in studies of size and cost may not be efficient in themselves so that we cannot identify the real efficient levels of production given the noise of sub-optimal performance.

The CRD study also found that there was little evidence of cost-savings from hospital mergers and similar reconfiguration of services.

(Of course, in areas where over-provision has led to large numbers of small hospitals resulting in a system that is still typically below the threshold of scale economy, these studies would still justify some centralisation on cost-efficiency grounds. The study by McCallion et al (1999) on Northern Ireland's hospital centralisation programme implicitly reconciles its findings with the wider literature on these grounds. Perhaps the same might be said, although the finding is more surprising in this context, of the study on scale efficiency in US hospitals (by Harris et al, 2000).

The recent literature on economies of scale at the hospital level is relatively sparse, with few papers in the literature over the past 5 years. From these, it continues to be difficult to identify clear lessons for the cost impact of economies of scale and reconfiguration.

For example, Preyra and Pink (2006) recently reported on hospital reconfiguration in Ontario and identified a range of potential economies of scale that could be exploited by reconfiguration. But Twells et al. (2005) in a study of reconfiguration in two other Canadian provinces concluded that reconfiguration to centralise services did not lead to significant savings, principally because the reconfiguration increased the wage bill. More recently still, a review of 7 mergers from 17 original hospitals in Norway by Kjekshus and Hagen (2007) found that, by comparison with a larger control set, in all but one case, there was no effect on technical efficiency and that cost efficiency was positively undermined. One very large and drastic centralisation did report some benefits.

4.3.1 Studies of the Merger Process

There are some studies of merger process from the perspective of organisational politics. For example, Kitchener's (2002) review of US trends

argues that they are a management fad, driven principally by managerialist ideology backed by the self-interest of management consultants, legislative initiatives adopted for populist reasons. In the same vein, Bigelow and Arndt (2000) consider transfer from private sector models to be important. In a review of five Canadian merger case studies, Comtois et al (2004) examine claims about objectives as rhetoric, distinguishing "rational" arguments appealing to cost savings, rationalisation of services to end duplication and service enhancement, political arguments about survival under threat or enhancement of prestige through takeover, and institutional arguments about pressures from government reform initiatives or budgetary restrictions; they conclude that political arguments, however difficult to present to wider publics, were often the most important motivators.

Some analysts foresee benefits from mergers other than purely economic ones: Leroy and Ramanantsoa (1997) propose potential benefits of shared learning and collaboration. By contrast, Ferguson and Goddard (1997) (see also Goddard and Ferguson, 1997) identify a range of potential organisational problems, in addition to economic measures such as diseconomies of scale and clinical metrics such as worsening outcomes, that might flow from mergers. These include problems of integrating staff, information systems and working practices. Other studies identify loss of morale, fear of loss of jobs and stress (Greene, 1990; McClenahan and Howard, 1999; McClenahan, 1999). Markham and Lomas (1995) found mergers associated with high transition management costs, restricted patient choice, increased staff stress, loss of collective identity and disruption of organisational routines. Job loss following merger has been found in one study of one Australian hospital merger to have been concentrated on older, full-time employees with low levels of absenteeism and with acceptable workloads but with low levels of co-worker support and who had not supported the merger (Iverson and Pullman, 2000).

There is a cluster of published research papers – especially from one major and one smaller study in Ontario – conducted among nurses during and just after hospital downsizing, closure, merger and other restructuring programmes. These have found that nurses experience significant loss of morale, stress, emotional exhaustion, anxiety, burn-out, general ill health, sense of loss of control, absenteeism, workload, low work satisfaction and motivation to provide high quality care (e.g. Blythe et al, 2001; Burke and Greenglass 2000a,b, 2001b; Burke, 2001, 2004; Norrish and Rundall, 2001; Brown *et al* 2003; Hertting *et al*, 2004; Woodward *et al*, 1999), some of which may have subsequent effects on the quality of care, at least for a period before the hospital recovers. However, the sensitivity with which communication is managed and the provision support have been found to have some moderating effect upon some of these measures of staff misery (Burke, 2004).

An in-depth case study of hospital merger in the UK found problems of organisational culture mismatch creating major difficulties (Shaw, 2002). Rider and Longmaid (2003) studied the process of mergers between postgraduate medical training facilities, and reported programme disruption,

loss of morale, and falling recruitment and retention. Buchan (1999) suggests that mergers may be, by effacing old hospital identities, undermining an established and perhaps valuable system of hospital reputations supporting "magnet hospitals" that handle the recruitment and retention of the best nurses, and therefore contribute to the management of the labour force. A study of effects on obstetric and neonatal care nurses' emotional well-being six months after hospital mergers in Israel by Idel et al (2003) found that those being transferred in an acquisition or between sites after merger did markedly less well, as measured by self-reported distress, stress and burnout.

Fulop et al (2005) conducted four in depth case studies on hospital mergers in the UK using qualitative methods and documentary analysis. They found that there could be problems of loss of management control and focus for up to 3 years after the merger, and that perception of differences in organisational culture between staff from the merging hospitals could be exacerbated in the period immediately after the merger before abating. They found, unsurprisingly, that staff lack of support for merger and lack of trust in senior managers or in staff from the other organisation were associated with perceptions in one organisation that it had been the subject of a takeover rather than being an equal or the superior partner. In most cases, managerial attention was preoccupied with managing the merger for at least eighteen months after it had formally occurred, to the detriment of other putatively desirable (and, some stakeholders would perhaps claim, more desirable) initiatives. Their study reported limited achievement of the stated objectives of mergers which included financial and clinical goals (see also Fulop et al, 2002).

4.3.2 Studies of Effects on Clinical Quality and Economic Performance

Although a number of studies measure economic aspects of the consequences of hospital mergers, there is very little literature on the effects upon clinical outcomes. Ahgren's (2008) survey of almost 500 employees at one merged Swedish hospital provides some data about staff perceptions of the impact of the recent merger on accessibility, economies of scale, integrated working etc. Because the merger was resisted and unpopular, the fact that staff associated few improvements with the merger itself is perhaps unsurprising, but the study reports no independent research to check staff perceptions.

Indeed, Ho and Hamilton's(2003) article found no previous studies on the effects upon clinical quality, only advocacy texts deploring worrying possible adverse effects. (More recently, Romano and Mutter (2004) have attempted to lay down methodological canons for such studies). The argument for concern about the effect upon quality would be that where mergers reduce competition, the result is less need to compete on quality and indeed a growing likelihood of seeking to maintain profits by cutting back on quality. Ho and Hamilton (2003) compare patient outcomes in Californian hospitals before and after mergers and acquisitions for heart

attack and stroke patients and early discharged newborn babies: they find no evidence of increased mortality, but accept that such effects could be masked within the large standard errors for mortality estimates. However, they do detect some evidence that acquisition of independent hospitals is associated with higher readmission rates for patients who have suffered heart attacks and some evidence that acquisition of hospitals of one hospital system by another system is associated with quicker discharge for normal newborn babies: quite why these distinct types of mergers by organisational form should be associated with different effects is not clear. Krishnan et al (2004) analysing US hospital mergers found that those merging increased their presence in profitable insured services by comparison with non-merging hospitals, but no evidence of a shift away from low-profit services used by the uninsured.

Economic studies have focused on effects upon costs, on prices and on profits. Goddard and Ferguson (1997) review several studies. They note that the earliest US research suggested that mergers between the mid-1950s and the end of the 1960s led to cost increases not likely to be offset by improvements in efficiency (Treat, 1976). However, hospital unit costs were generally increasing in the US during that period. A study on mergers from the first half of the 1980s by Mullner and Anderson (1987) found few clear gains or losses in profitability conclusively associated with having merged. Greene's (1990) study of mid-1980s mergers found improved profitability and higher charges, and that improved profitability was associated with facility closures, which ran into significant opposition, and therefore transaction costs and risks of implementation failure. Ferrier and Valdmanis' (2004) examination of efficiency and productivity measures in a sample of merged US hospitals found some apparent initial improvement by comparison with a control sample, but it was not sustained over time and may have been due to market factors rather than to the mergers.

Some economic studies published in the 1990s on mergers among US hospitals, often examining data from the 1980s, suggested reasons for optimism. Bogue *et al* (1995) suggested that, at least as long as antitrust policy remained favourable, the trend might support hospital networks of greater financial strength and cohesion. Bazzoli *et al* (1994) reviewed 7 US cases of hospital consolidation and found reductions in costs appeared to result, a finding broadly confirmed by Connor et al (1998) also working on antitrust implications. Alexander et al (1996) found that the average merger between previously independent hospitals in their sample yielded short term cost reductions of about one third per admission, when several adjustments were made, which seems a very large figure. Dranove (1998) argued that when economies of scale are exhausted, as they are at modest levels of hospital size, then cost savings from mergers also disappear. However, Lynk (1995) argued that cost savings can most likely be achieved not by merger alone but by clinical consolidation that specifically enables the larger units better to manage peak load and variability in the daily patient census. For this reason, among others, Lynk suggested, it is misguided to make inferences about the effects of merger from the general studies on hospital size or economies of scale. More modest cost savings are found by some

studies, such as Connor and Feldman (1998), but these fall away as markets become more concentrated. Connor et al (1997, 1998) find that savings of 5% can be achieved through mergers, especially for mergers of similarly sized hospitals which have a high measure of duplication in services and low occupancy rates prior to merger; however, the less competitive the market, the lower the chance of savings. Dranove and his colleagues have conducted several simulations of mergers or "pseudo" mergers based on modelling by randomised or stratified hypothetical pairing of Californian hospitals, and then comparing actual hospital systems. Dranove and Lindrooth's (2003) modelling exercise suggests that consolidation of hospitals into systems does not generate savings even after four years, although other kinds of mergers where operations are combined can achieve savings, whether though capacity reduction or synergies. Connor and Feldman (1998) observe lower percentage price increases in hospitals that have merged than in those that have not, but again as the concentration of the market increases, the effect is lost. Krishnan and Krishnan's (2003) analysis of acquisitions in the Californian market in the mid-1990s finds that mergers result in increased revenues and operating margins in the subsequent year, but without lowering operating costs and so raising profits without greatly improving efficiency in the short run. Vita and Sacher's (2001) examination of a non-profit merger finds that it was associated with subsequent price increases that cannot be explained by post-merger improvements in quality of care.

There may be longer term economic benefits from mergers. Dranove and Shanley (1995) suggest that greater reputation building, enhanced brand management and reduced consumer search costs may be achieved through mergers between hospitals, although it is not clear how long these gains would take to show up.

In the UK, the study by Fulop et al (2005) found that management costs had not typically decreased after the first two years, suggesting that in the less competitive environment of the NHS, expectations about cost savings from mergers should be modest.

4.3.3 Studies on Competition

Whether hospital merger is subject to administrative planning within public or private systems, public regulation of private systems, or only antitrust regulation of competition, policy makers have in most countries and over at least the last century paid close attention to the question of the appropriate size and population of geographical region over which there should be either monopoly or some measure of competition between hospitals (Bridgman Perkins, 1999). In the UK, the 1962 Hospital Plan, published by Enoch Powell as Minister of Health, committed the NHS to future hospital building on the basis of a district general hospital of between 600 and 800 beds as a planned monopolist for a wide range of specialties in each sub-region of between 100,000 and 150,000 people, with specialist facilities at larger regional or even national level. The planning norm was to be 3.3 acute beds for 1000 population with some regional variations, and an expectation that the ratio would decline as new technologies were introduced and efficiency

improved. However, in the detail of the Plan, it was clear that government accepted that only a much more incrementalist approach to new building would be practicable. A variety of local political mobilisations were successful in creating additional beds in many areas. In theory, the bed norms were supposed to have been set on the basis of forecasts of population size in fifteen years' time, the pattern of disease, the current methods of treatment except in mental health where the use of tranquillisers was assumed to be capable of reducing length of stay, and "the balance of care" between health and social or other community based care, together with criteria about the size and locations of hospitals. The plan was not based on detailed argument about configuration, but simply on the explicit but not closely argued assumption that it was better for medical specialties to be co-located in DGHs, the belief that small hospitals were "uneconomic" and the view that greater flexibility in relationships between specialities could be conceived as a problem of hospital architecture and professional communication (Allen, 1979, 65-75). The unstated assumption was that competition between hospitals was inappropriate and should be avoided by careful planning and location of investment.

The "planning by norms" approach was subsequently followed by the Bonham-Carter report of 1967 (Central Health Services Council, 1967), but with a preference for monopolists with larger regional populations of 200,000 to 300,000. Planning by norms of beds per population was accompanied by planning of expenditure calculated on a comparable population needs basis. The most developed form of regional planning by norms was the 1976 Resource Allocation Working Party (RAWP) formula for inter-regional expenditure allocation. It was not formally abandoned in the UK until the 1980s, despite the well-documented failures of implementation, typically explained by the weaknesses of incentives for political commitment, medical interest in preserving the inherited pattern of provision, and uneven patient and public mobilisation (Klein, 2000). Other countries have been more successful in implementing such plans: for example, Bennema-Broos et al (2001) find that inter-territorial equity in numbers of hospitals per 1000 population in Germany is associated with left-wing Land governments.

In the US, the wave of mergers in the hospital sector has provoked close interests from the courts on grounds of antitrust law, often on the basis that the relevant product market to be assessed geographically as well as by specialty and by the height of market entry barriers results in the very regional monopoly that administered systems such as the NHS have often thought desirable. Noether (1998) provides a detailed review of major cases and trends. Her article shows that just as in the concept of a region for planning in administered systems, the criterion of the geographical market used by the US courts is a concept of the distance that patients can practicably be expected to travel in order to access care (as indeed was the case under the mergers approval guidance for the UK under the internal market: NHS Executive, 1994). However, the determination of the distance to be used as the limit of willingness and ability to "travel for care" is not a straightforward matter. The US courts have required account to be taken of

profitability (marginal revenues minus marginal costs) of care per admission, the price elasticity of demand, inflow address data, discharge destination data, travel costs and times for different quarters of cities and rural sub-regions to alternative hospitals, of the geographical reach of hospital marketing, of advice or pressure from bodies providing primary care or handling payment for secondary care. As one would expect, each of these considerations identifies different geographical regions not only for each hospital but also for different specialties within each hospital (Sacher and Silvia, 1998). Moreover, the courts have often regarded primary, acute and occasional outpatient care as distinct product markets, and have tended in recent years to discriminate more finely still.

Interestingly, US courts have sometimes also been more lenient to non-profit than to for-profit hospitals, sometimes permitting mergers in these cases when comparably sized or geographically ranging for-profit mergers might have been struck down: non-profit hospitals have claimed that they do not exploit market power in the way that for-profit hospitals would, although there is evidence to the contrary. The study by Vita and Sacher (2001) already cited also suggests that one should be cautious about such claims. A study of three differently structured non-profit hospitals by Young et al (2000) also found evidence that they exploited market power, as does a quantitative study of Californian hospital mergers by Simpson and Shin (1998).

In some states, case law appears to relax competition law for certain high-prestige, broadly ranging, high technology “anchor” facilities.

It can also be argued that managed care in the US has broadened geographical markets by requiring patients enrolled in schemes to be prepared to travel further. Simpson (2003) has recently argued that the US courts’ leniency is due to a failure to take sufficient account of the price elasticity demand for health care in the US, both in the fee for service and the payment plan and insurance sectors. Dranove et al (2002) argue that managed care has been very strongly statistically associated with greater consolidation in the hospital industry in the USA.

4.3.4 Assessing the Merger Research

It is clear from the studies on economic variables as well from the studies on competition that the institutional character of the health care system hugely influences the consequences of hospital merger. In summary, a key finding appears to be that the greater the competition between hospitals for patients or their paying proxies both in the secondary health care system generally and in the local system in particular, the greater will be the imperative and, with any luck, the capacity of hospitals, to capture any available cost savings from the merger process. Mergers in the absence of strong competition tend not to offer cost savings, or at most economies of scope rather than significant economies of scale: this is consistent with the research on scale, irrespective of whether achieved by mergers, which suggests that economies of scale are exhausted at modest levels.

NHS hospitals have historically experienced rather modest levels of competition for patients or paying bodies (GP fund holders, PCTs as commissioners, in future PCTs as passive administrators of quasi-vouchers for patients exercising choice in elective care or for practice-led commissioning) that act as their proxies. It seems likely that the introduction of patient choice will increase competition at least modestly, whether or not reductions in waiting times are sustained. It may be that, if there is a marked once-for-all increase in competition between NHS trusts, then some of the rather pessimistic findings of the British research about the results of mergers on the achievement of financial goals might be modified over time. However, for the current mergers initiatives, it is very difficult to assess how far the anticipation, rather than actual experience, of future increases in competition might lead to changes in behaviour. Moreover, for the foreseeable future, patient choice is likely to result in significantly greater competition only in fields such as elective care. This should give us reason to be cautious about the possible behavioural effects of anticipated future competition.

It is also an important question whether competition is again the critical factor in explaining the relationship between the findings of the process, economic and competition research summarised above. For example - suppose that the findings of the process research are correct: that for up to three or four years after a merger, there are disruptive or even deleterious effects on morale, motivation, organisational trust and organisational identity. Suppose too that the economic studies are correct: that even in that same short term, at least modest cost savings are possible at least in competitive contexts, and further that those gains are most likely due to clinical reorganisation, reduction in over-capacity and capture of synergies. In that case, one possibility is that the damage found in the process studies need not be so severe as to undermine the once-for-all gains from clinical re-organisation. Another is that the process research, much of which based predominantly on British qualitative studies, reflects what can be expected in the institutional conditions of limited competition, whereas the economic studies, most of which are from the US, report gains both because the US system suffers from over-capacity in some key specialties whereas the British system may suffer from insufficient capacity in at least some fields, and because the discipline of greater competition in the US system generally and in California in particular focuses managerial attention on exploiting mergers for cost savings.

4.3.5 Potential Impacts of the Current Policy Environment on Hospital Mergers and Networks

Pressures for and against mergers and network arrangements between hospitals arise from a series of policy initiatives, and not only from the specific policy apparatus in place to support hospital reconfiguration. This section briefly considers some aspects of the policy environment that are not considered elsewhere. In the next section, the impact of the European Working Time Directive will be examined in the wider context of workforce policy.

The current hospital building programme will likely have effects upon competition. To the extent that the hospital building programme represents in the main the expansion of existing NHS Trusts on existing sites or sites close to their original bases, rather than the entry of new Trusts or the entry of existing Trusts into quite new geographical markets, it may do little to increase competition and may indeed be in large part the outcome of further centralisation. Goddard and Ferguson (1997) argued that one motivation for mergers was the greater ability of larger NHS Trusts to attract private capital. Much of the current hospital building programme is PFI financed: it could be the case that without a measure of concentration, it would have been difficult to finance the present boom on the scale that it has been financed, and that the effect of large Trusts expanding further within their existing geographical markets may be decreased competition. There are rather fewer cases in which network arrangements, even when they do require capital investment, are supported by PFI, except in some cases of PFI supported information technology solutions for joint initiatives. No doubt in part this reflects the typically more modest requirements for capital expenditure of most clinical networks, but it may also be due in part to the fact that private investors are sometimes less willing to commit to supporting consortia of public agencies than single agencies.

The reform of financial flows for secondary care can be expected to have impacts upon pressures for reconfiguration, although it is still difficult to specify in detail what those might be. In a general way, as an HRG based prospective payment system, Payment by Results bears some similarities with DRG-based prospective payment systems in use in the USA, which have been used to support managed care and to bear down upon costs. As Dranove et al (2002) show, managed care has been strongly associated with mergers: Goddard and Ferguson (1997) went further, arguing that as managed care was introduced to control cost inflation in the US health care system that was believed in the 1980s to be the product of patient-driven competition on non-clinical quality, it bore down on costs and reduced competition. However, Payment by Results uses a fixed tariff rather than a more market-like pricing mechanism, which limits the extent to which it will bear down on costs. This may tolerate some measure of monopoly behaviour by those consolidated trusts with below-tariff costs. However, to the extent that they will bear down on costs, at least over time, mergers may be a rational response to that pressure as they have been in the US after the introduction of managed care. In many ways, the principal goal of HRG based payment in the UK is to increase productivity rather than to bear down on inflation, at least in the early years. A secondary aim is to encourage the adoption of new technologies and to encourage investment in new capacity in specialties in which patients have recently experienced significant waiting times. Some, though by no means all, health technologies require high volumes of activity before they can be operated economically, and this too may be a force for continued centralisation. Many reconfiguration initiatives specifically encouraged by government, such as the greater use of minor injuries units, day case surgery and the development of ambulatory care, have been driven by the desire to reduce levels of admissions. The fact that the unit of activity that attracts payment

under the reformed system is the inpatient spell rather than the finished consultant episode may mean, at least at the margin, that there are fewer incentives than previously to avoid admissions and vigorously to pursue reduction in length of stay, which in turn could reinforce pressures for centralisation.

The Foundation Hospital status programme has generally been seen as an opportunity for already large and successful hospitals to expand, perhaps through mergers and acquisitions. There are rather limited rewards for joint working with other hospitals in the programme of regulatory waivers offered to hospitals with foundation status. For in order to secure public involvement and to retain a critical mass of skilled clinical staff, Foundation Hospitals will have every reason to maintain and even expand their size. At the time of writing, it is not clear just how much of what has reported in the health care trade press of what is expected to be recommended in the Nicholson report will be adopted by the Department in the revised guidance (HSJ, 2004). However, if the government does, as it is suggested Nicholson will recommend, require the pooling of surpluses accrued by Foundation Hospitals, then it is entirely possible (depending on the precise formula adopted and its proportionality to various possible measures of hospital size or activity volumes) that the pursuit of mergers and acquisitions might become the preferred strategy of Foundation Trust chief executives seeking to maximise their revenues under the surplus pooling rules.

4.4 *Hospital Closures*

The literature on the effect of closures on access and outcomes is not extensive, and it offers findings that are for the most part very specific to the particular geographical areas studied. Much of the work is econometric in character, and closely related to studies on mergers because the two processes are often linked (see e.g. Harrison, 2007, who finds weak productivity to be a key predictive factor for closure). Recent work has measured the damaging effects on local and regional economies from hospital closures, in unemployment and falling incomes (Holmes *et al*, 2006).

Some studies are purely descriptive or interpretive of stakeholders' experiences (e.g. Oborn, 2008 and Brown 2003 on the Kidderminster conflict, and Dent 2003 on another British case). (There is a large body of work on hospital closures that relates to the closure of inpatient psychiatric hospitals during the years of "deinstitutionalisation". For the purpose of the present review, this literature is not examined, because the issues of access, product-mix, and even closure process are very different from those faced by general acute hospitals.)

It has long been recognised that closures are not especially strongly predicted by weakening bed-to-population ratios (Longo and Chase, 1984), although these may be one factor alongside others that indicate overall competitive position vis-a-vis other hospitals in the area (Alexander *et al*, 1996). Conversely, in the US, hospitals that survive waves of closures tend to exhibit some degree of favouring not only by competitive factors but also

by regulation (Santerre and Pepper, 2000). That closures tend to be caused by financial problems is both expected and well-documented, especially for more market-based systems such as the US (Wertheim and Lynn, 1993; Longo et al, 1996; Wilson and Carey, 2004). Interestingly but somewhat speculatively, Prince and Sullivan (2000) predicted (writing at the height of euphoria about digital technologies) that failures to invest in digital imaging and telemedical information technologies would lead to hundreds of hospital closures in the US.

Some studies, as one would expect, report bad news about access. Disappointing findings are more common, as we should expect, in studies on closures in rural areas than in urban ones: for example, recently, Sontheimer *et al* (2008) have identified more low birth weight babies resulting from access problems to pregnancy and obstetric services following closures in rural Missouri. In accident and emergency care, Buchmueller et al (2006) found that urban closures in Los Angeles between 1997 and 2003, by increasing distance travelled, also increased deaths from heart attacks and unintentional injuries, and diverted people toward primary care; older people reported greater difficulty in accessing care. Roos and Lyttle (1985) found that centralisation of total hip replacement in Manitoba did not seem adversely to have affected access, if we measure that difficult concept by predicted take-up. The Rosenbach et al (1995) study of rural hospital closures in the US in the mid-1980s did not examine the effect of health status fully but found no adverse short term effects on mortality; however, it found patients in closure areas more likely to be admitted to teaching hospitals after closures although there was a general decline in admissions among patients in those areas, even though the study looked at fully insured Medicare cases; they found no evidence of substitution of primary for secondary care.

Studying 52 hospital closures in Saskatchewan, Canada in the 1990s, Lepnurm and Lepnurm (2001) found that the closure programme had been managed in ways that preserved the best utilised hospitals and preserved access to health care. In the UK too, a study in Worcester found evidence that after a closure, most people found other sources of access to care (Khoosal, 1991).

The relationship between closure and clinical outcomes is, presumably, rather heavily influenced by a host of factors including the extent to which the surviving hospitals can offer higher or lower quality care, absorb any increasing levels of demand, and the numbers of people, if any, deterred from presenting early because of access concerns. There are rather few studies that control for these and other factors. Evidence suggests that adverse outcomes, as measured by utilisation or mortality are not inevitable (e.g. White and Seagrave, 2005; Brownell *et al*, 1999). Hemmelgarn et al (2001) used administrative data to look at clinical outcomes for coronary revascularisation in Calgary and found that closures led to more procedures being performed on patients who were on average sicker in shorter stays but, adjusting for co-morbidities, rates of death were slightly lower after the closure. Clearly, where closures are undertaken as part of planned centralisation in order to raise volumes and to concentrate excellence and

where the surviving centres are under active measurement for their improved quality of care, the active pursuit of better clinical outcomes has a greater chance of success than where centralisation simply follows financial failure of a hospital. Thus, for example, reviewing the early effects on clinical outcomes of centralisation of oesophageal cancer services in one part of England undertaken as part of the implementation of the Calman-Hine report, Branagan and Davies (2004) found some modestly encouraging if undramatic improvements.

Reductions in budget that are intended to achieve greater financial discipline for efficiency may not always do so. Flint's (2003) analysis of downsizing in hospitals in metropolitan Toronto found a mixed picture, but emphasised poor inter-organisational practices in consequence of the reduction in operations. Shanahan *et al* (1999), studying the effect of budget cuts for large teaching hospitals in Manitoba, found that the net effect appeared to be that the most costly hospitals showed *greater* unit costs after the reductions. On the other hand, the same team, in a related study, did find that the programme did not necessarily undermine access to or quality of care, at least where imaginative alternatives were developed (Brownell *et al*, 1999).

However, at least some closures can be found to show associations with improvements in economic outcomes. Deily et al (2000) find less efficient for-profit and non-profit US hospitals to be more likely to exit in the period 1986 to 1991, but those in the public sector were protected to some degree. Lindrooth et al (2003) found that in urban hospital markets in the US, survivors have been more efficient as measured by costs per adjusted admission by between 2% and 4% for all patients and between 6% and 8% for those who were estimated likely previously to have been treated at a hospital that had closed. Older studies such as Mayer et al (1987) too found that closures in market-based systems such as the US tend to befall less well-utilised hospitals and to reflect population change. Noh et al (2006) examining closures in South Korea find that smaller hospitals are more vulnerable, and that urban ones are less so than their rural counterparts.

4.5 *Models of change*

One might have expected that processes leading to each of the outcomes for hospitals discussed above – reconfiguration, network formation and deformation, merger and closure – would have been studied by scholars interested in testing theories, or at least conceptual frameworks, of change in organisations and in organisational fields. Unfortunately, very little of the available theoretical work on organisational change in general has been applied to the study of hospital change in particular. This section briefly notes some of the models, theories and frameworks that have been developed for understanding organisational change, and that could usefully be explored in future research on hospital change generally and hospital reconfiguration in particular.

Several mechanisms of organisational change are available to be explored in particular. Van de Ven (1992) argued that there are essentially only four basic "paradigms" or model mechanisms for change over time in organisational and inter-organisational studies. These are, he suggested:

- evolution: non-linear, unpredicted, driven by adaptation to environmental forces (Darwinian), possibly also incorporating inherited learning (Lamarckian);
- dialectics: non-linear, unpredicted, driven by conflict between rival forces, catastrophic, oscillatory;
- teleology: linear, deterministic, sequential, progressive; and
- life-cycle: linear, deterministic, sequential, circular.

All are driven by combinations of two basic kinds of cybernetic system mechanisms (Jervis, 1997) – those of positive feedback or reinforcement of existing trends (e.g. path-dependency, Tocqueville effects of reinforcement of expectations faster than events are moving: cf. Elster, 1993) and those of negative feedback taking the form of reaction against trends (e.g. revolts, countervailing pressure) or homeostatic correction to stabilise a situation (Dunsire, 1993; Baumgartner and Jones, 2002). Dialectical models of organisation change are driven by uncontrolled negative feedback, while life-cycle models work on homeostatic negative feedback; teleological models are typically based on positive feedback processes, while evolutionary models draw on both. Typically, several of these mechanisms would be expected to be operating simultaneously, creating complexity (Stacey, 1992).

Organisation change in health and other human services is best analysed by examining these categories of mechanisms as they interact with a set of fairly standard contextual variables (Pettigrew et al, 1992; Pawson and Tilley, 1997). These include externally imposed technology change, the policy environment, leadership, prior organisational culture, and linkages with the rest of health and social care systems.

In addition, since these reconfigurations are deliberate reengineering of organisations, we examined the factors predicted to be associated with sustainable strategic organisation change by the main theories. Managerialist theories emphasise design capability: these include the Burke-Litvin model (Burke, 2002, 195-216) and Proehl's (2001, 84-101) synthesis model. These models typically stress the importance of leadership impact on organisational culture as a mediating variable for individual motivation and commitment (cf. Schein, 1992), and especially aligning professional and organisational commitment (Thompson and van de Ven, 2002): these theories are often teleological or life-cyclical in their modelling of change. By contrast, more anthropologically informed models of organisational change stress improvisation in sense-making (Weick, 1995), emergence rather than direction (Mintzberg and Waters, 1985). Many change initiatives of course exhibit features of both deliberate control and leadership and of improvisation and retrospective sense-making models.

5 Preferences and politics: a typology of competing claims

Reconfiguration is a highly contested process. This chapter presents a way of thinking about the rival goals at stake in reconfiguration debates, both nationally and locally.

Goddard and Ferguson (1997, 26-28) identify the drivers that motivate hospital managers to seek mergers as the desire to remove excess capacity, the aspiration to capture economies of scale and scope, the imperative to meet professional standards (e.g., Royal College guidance) on minimum standards required for training to be accredited in order to attract junior doctors; imperatives to meet Royal College guidance on minimum activity levels required for high quality care, the need to respond to government policies for particular ways of organising care such as dedicated cancer units; the desire to be attractive enough to the private sector to attract capital finance; a desire to manage uncertainty, the need to find alternatives to closure; and the simple managerial drive to greater market power. Many of these drivers are at work in reconfiguration more generally, and not only in the case of mergers. When thinking about reconfiguration more generally, it is also important to recognise some imperatives that Goddard and Ferguson could afford to ignore because of their specific focus on mergers. In particular, and since the Kidderminster case and the publication of Keeping the NHS Local, considerations of patient and public access matter. It would also be important to recognise the imperatives for local political accountability that because very clear in the conflict over the proposed Kidderminster A&E closure and reconfiguration. As Goddard and Ferguson note, some of these may also be achievable, or even better achieved by means other than merger and, indeed, it could be said, by means other than reconfiguration. The combination, weighting and distribution of these motives between people active in any local reconfiguration exercise will vary hugely, and may change over the course of the reconfiguration initiative.

Despite the aspirations of some people to the contrary, hospital reconfiguration has always been, is and probably ought to be an intensely political and conflict-ridden process of mobilisation, rhetoric, presentation and coalition-building between interests and institutions (eg. Dent, 2003 on the politics of professional conflicts over proposed hospital closures; Martin, 2004 on resident mobilisation about hospital land use proposals; Brown 2003 on the Kidderminster case; Bryant 2003 on the ways in which closure proposals for a women's hospital in Ontario were resisted by coalitions of citizen and professional interests appealing to very different kinds of information, and the failure of politicians to devolve the restructuring process in ways that would depoliticise it). The development and adoption of the 1962 Hospital Plan was a similarly highly political rather than technocratic process (Allen, 1979). The outcomes of those processes are

the product of political negotiation between local and national interests, and it is not possible to substitute any form of technical rationality for human decision making. At most, the kinds of modelling tools offered by writers such as Stummer et al (2004) can provide inputs and information for decisions that will be made politically (cf. 6, 2004). Many of the official writings on reconfiguration emphasise the importance of public involvement: indeed, this is the burden of much of the argument of the Department of Health (2003) in Keeping the NHS Local.

The papers by the professional organisations and by some of the consultants (e.g. Stokoe, 1994), however, tend to downplay the political character of the process to some degree. The professional institutes, in particular, tend to represent any politics involved as being a reasonably straightforward conflict between two values, namely those of enhanced clinical outcomes to be secured by configurations that secure sufficiently high volumes of activity to ensure that skills do not atrophy, and those of access, to which they typically acknowledge – sometimes with apparent regret and sometimes according some weight to these considerations - that the public are attached.

The research evidence on whether the public have a point is mildly supportive but not compelling for every specialty. One much cited review of the evidence (Carr-Hill et al, 1997) on the relationship between distance to travel to secondary care and both utilisation rates and outcomes concluded that greater distance is associated with lower rates of utilisation of accident and emergency services, screening services available only in hospitals, attendance at outpatients clinics for some but not all services, some but not all surgical procedures although in some cases people are prepared to travel considerable distances (probably to hospitals with reputations as national centres of excellence in particular specialities), and a smaller number of studies found that relationships between distance and outcomes were weaker. The professional advocacy for centralisation is generally based on the argument that the evidence for an association between higher volumes of activity by individual clinicians in a specialty (itself believed to be associated in turn with centralisation, perhaps mistakenly for many specialties) and lower levels of clinical mistakes is of more importance than any evidence of a negative association between distance and utilisation or outcomes. Essentially, the issue turns upon one's view of the relative importance of utilisation rates and clinical error rates for health outcomes, for cost-effectiveness, and for public acceptability.

However, many of the arguments used by all of the professional bodies as well as those presented by the Scottish Office also place great weight on considerations of "critical mass" not only in terms of treatment activity volumes but also in terms of financial viability. Hence, there can be observed in these professional and policy papers a tendency to propose minimum or maximum or ideal numbers of population that ought to be served by hospitals of particular types, when considering each general hospital's configuration alone, and a tendency to relax these standards when it is argued that network forms can justify viability with smaller populations served. In 1991, the SETRHA review group proposed that

300,000 people should ideally be served by a DGH. The Joint Consultants Committee (1999) too consider that a DGH ought to serve between 200,000 and 300,00 but allowed that groups of hospitals or large DGHs should ideally serve between 450,000 and 500,000. The Scottish Office (1998) are understandably keen to permit tiny populations to be served by hospitals with varying configurations in the Hebrides, Orkney and Shetland and the remoter parts of the Highlands. The "evidence base" for these population standards is not precisely defined, but rests ultimately on professional standards of acceptable clinical outcomes and professional judgments about the volumes of activity required to sustain skills and retention of the most skilled clinical staff.

Wider social science literature on policy conflicts suggests that we can distinguish between several different types of goals, each of which tend to be the priorities for particular interests. The goals of greater access, the retention of facilities in localities and the general stress on convenience can be seen as consumer-based values. In general, access stands in some tension with other goals that may militate in favour of centralisation, although access is not simply a function of distance but different affordability for different groups, and changes in configuration affect access for different groups and different specialties differently (Christie and Fone, 2003).

The kinds of values about treatment quality to which the Royal Colleges appeal, and the related claims about health gain are fairly obviously public health goals, in which people's interests as patients are emphasised over their interests as consumers.

There are also several and different political goals which local communities and voters have in the health system, and which we have as voters in national elections. Locally, we may want hospitals to be grounded in their local communities, seeing their role as major employers and as actors in community planning and development as very important, and we may want to retain local scrutiny and influence over them. As voters in national elections, we may be more concerned about their auditability, comparability and amenability to regulation to impose standards that may be seen as preventing variation in local practice from tolerating unacceptable performance, on broadly egalitarian grounds as well as for reasons of health gain or treatment quality.

Finally, as taxpayers, we may have goals about value for money, efficiency, cost-effectiveness, or simple economy in (for example) administration, management and other services that may be seen as less directly conducing to productivity. Articulated respectively by consumer, professional, local political, departmental and regulatory, audit and economic analysis bodies, these goals can readily come into conflict in more complex ways than are recognised by the royal colleges' tendency to describe the politics of reconfiguration as a simple contrast between public concerns about access which have to balanced or traded-off against treatment quality.

Figure 5a presents one way of thinking about the relationship between these types of goals, ranking them by the degree to which commitments to

these goals are institutionalised and by the degree to which their achievements are measured by technical or by informal and popular means.

Using this simple representational device, it is possible to show some of the key differences between the kinds of preferences about goals for reconfiguration that different groups active in the politics of hospital change may have. Figure 3 offers a set of hypotheses about how some typical preferences of key groups might be shown using the device.

Figure 4 clearly shows ideal types. We should expect some hybridity in the goals espoused, at least “officially” or when interviewees are pressed to acknowledge the importance of each of these various kinds of claims in most actual cases. In their recent study on a small number of reconfiguration initiatives, Farrington-Douglas and Brooks (2007b) adapt this framework in order to examine interview data with a variety of stakeholders. As might be expected, they found most stakeholders willing, at least in interviews, to give at least some weight to several claims. Only managers showed, they found, little support for voter-oriented goals, while members of the public and voluntary associations did not mention any taxpayer goals. Despite the evidence from their study that most stakeholders were prepared to acknowledge multiple claims, they did find, as we should expect, a propensity for clinicians to be critical of consumer-based claims about access. In general, indeed, with the exception of politicians, who exhibited more support for patient than for voter goals, the tendency of the stakeholders they interviewed to give greatest weight to the type of goals suggested in the framework was broadly as might be expected from the two figures shown, given that the Farrington-Douglas and Brooks study did make some simplifications of this framework.

Figure 3 What is hospital reconfiguration for? A classification for types of goals

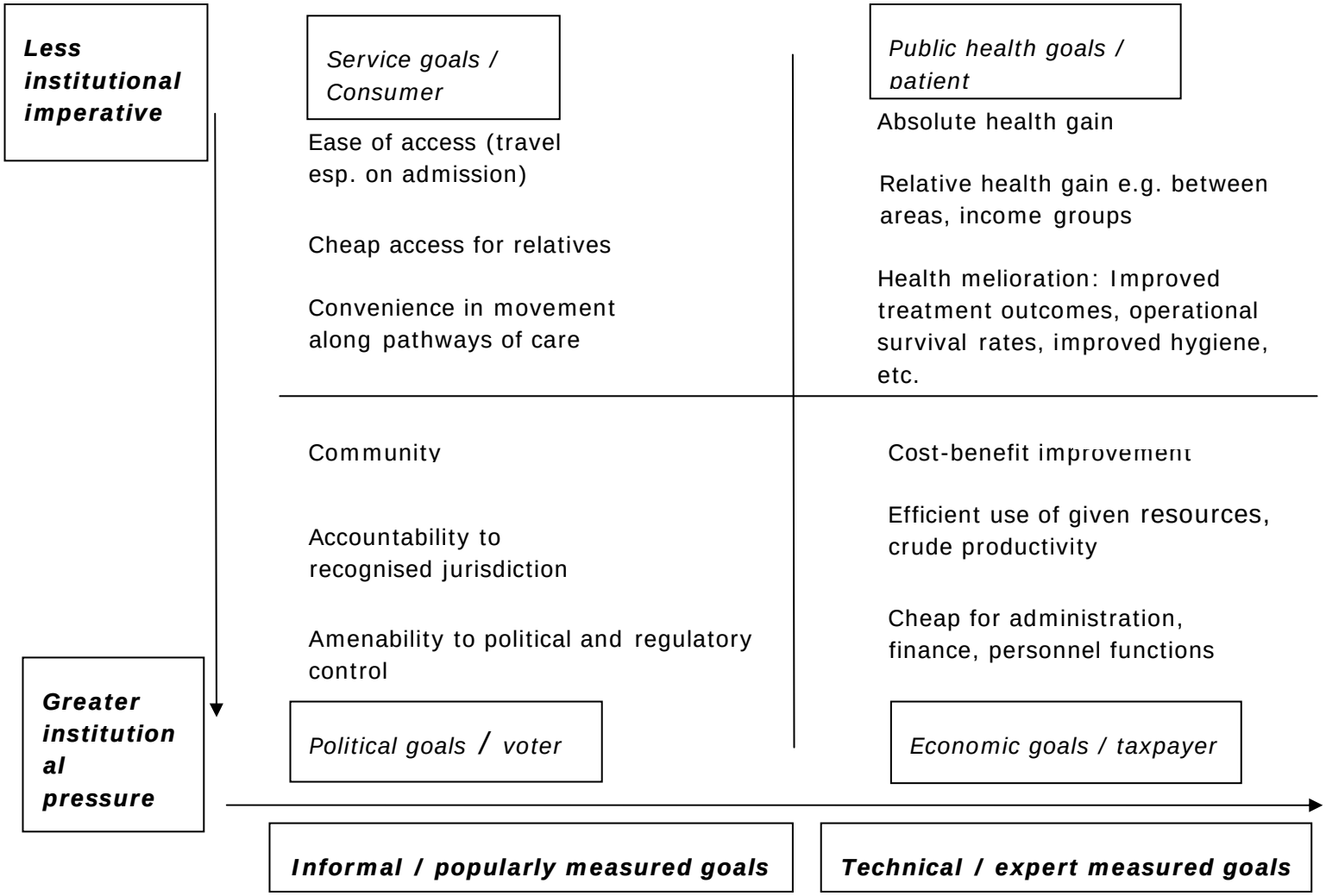
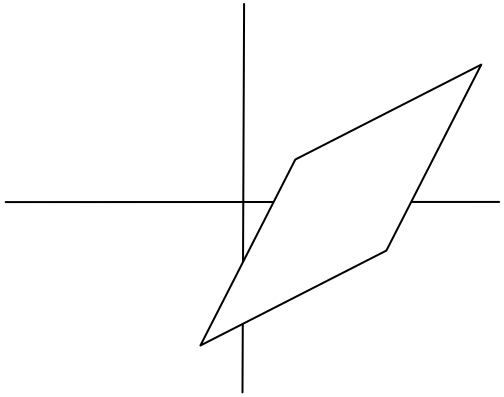
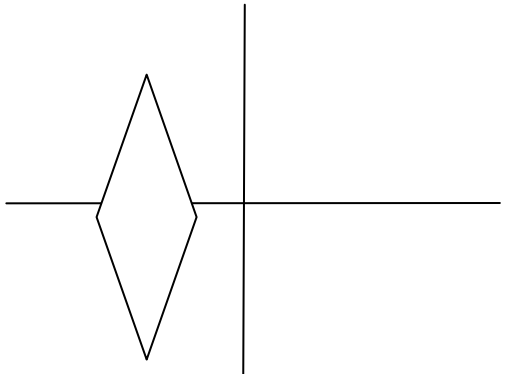


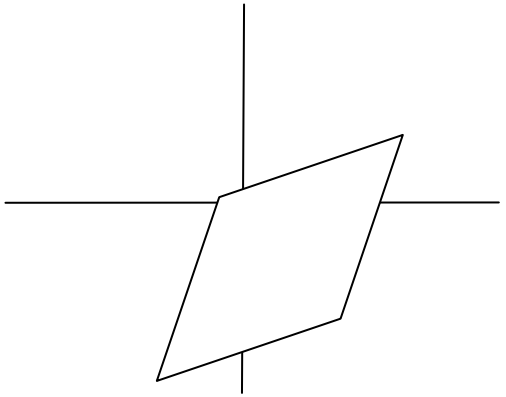
Figure 4 Key actors' preferences for reconfiguration



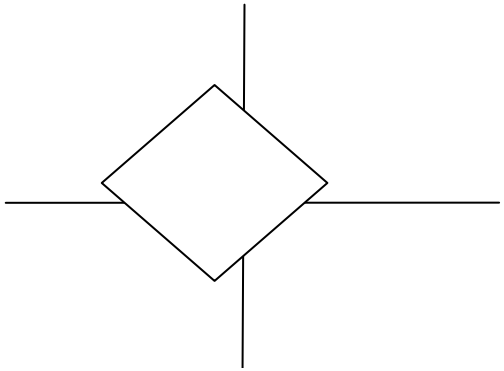
The Royal Colleges' preference



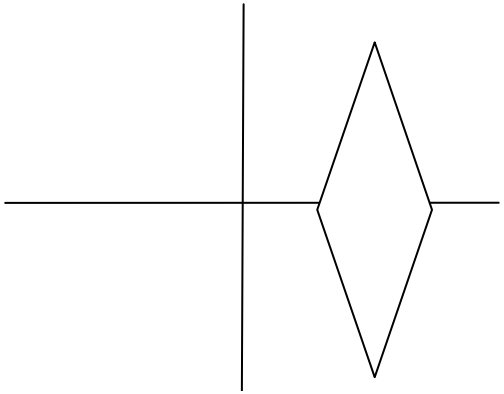
The Kidderminster protesters' preference



Department of Health preferences 1997-2000



Department of Health preferences 2003-present (*Keeping NHS local*, Foundation trusts)



The health economists' preferences

Just how might these differences relate to specific reconfiguration initiatives? The discussion so far suggests some hypotheses about how preferences about goals might be related to preferences about reconfiguration.

1. The more committed a group is to consumer or to political goals, the more likely members are to demand a presumption that specialities should be widely distributed locally.

2. Those committed to consumer goals are less likely to be attracted to merger-type solutions, which might put access at risk, than to network-based reconfigurations that might preserve multiple hospitals in operation by sharing resources, even at the cost of efficiency or clinical quality.

3. Conversely, those committed to clinical goals of patient safety are more likely to support reconfigurations such as mergers that increase the activity volume on a single site.

4. The more committed a group is to public health goals and especially to treatment outcome goals, or to economic goals of efficient (e.g. 24 hour rostering) utilisation of resources which are expected to be scarce for the foreseeable future (skilled consultants, well-equipped theatres) the more likely members are to demand a presumption that specialties should be concentrated in regional centres.

5. The more committed a group is to economic goals and in particular to economising on administration costs, the more likely members are to demand a presumption that specialties should be concentrated in regional centres.

6. The more committed a group is to both economic goals and public health goals, and therefore to cost-effective production of overall health gain (e.g. health economists), the more likely members are to demand a presumption that specialties should be located and distributed to maximise individual clinician activity volume and hence skill maintenance rather than emphasising unit size per se or co-location of specialties, and hence to prefer sub-regional specialist treatment centres.

7. The more committed a group is to national political goals of amenability to regulation and national political oversight, the more likely they are to demand a presumption that specialties should be distributed on similar principles in different parts of the country, except and unless special geographical conditions “require” local variation.

8. In more isolated areas, trade-offs are more likely to be favourable to consumer and political goals than in major conurbations. (It is clear from the literature already discussed that geography can influence the distribution of preferences about goals.)

Table 5 presents a set of hypotheses about how each of these types of preferences might lead people to be interested in each of the trends identified by the Department of Health (2004a). (This is not to say that in practice, all and only those trends marked with an asterisk will actually turn out empirically to conduce to these goals.)

Table 5 How goal preferences might lead to interest in particular reconfiguration trends

Configuration trends Goals	Minor injuries unit	Specialist routine elective unit	Tele-medicine	Extended roles	Ambulatory care	Dedicated routine maternity unit	Managed clinical networks
Consumer	*				*	*	
Patient		*	*		*		*
Local voter	*		*		*	*	
National voter							
Taxpayer		*		*			*

6 The Three Case Study Sites

Three acute hospital trusts were identified by the Department of Health as being sites where a type of service reconfiguration was in progress, and all three were in receipt of some Department of Health funds to support this process. A summary of the trusts is outlined below:

6.1 *Trust A*

Trust A was formed from two separate trusts which merged in 1999, and the difference between these hospitals and the impact of the merger is an important element in the reconfiguration process experienced to date. Small Hospital Trust served an urban inner city area with a very mobile population, and saw itself as having a forward thinking approach and a reputation for innovative practice. Small Hospital also hosts an early diagnostic and treatment centre [DTC] which opened in 1999 and provides one-stop elective treatment services.

Big Hospital Trust, in a more suburban area of a big metropolis, was a teaching trust with a solid reputation and what was considered a more traditional approach to delivering health care.

Securing a sufficient volume of activity and surgical support to make proposed service developments at Small Hospital viable was reported as being a key driver for the merger. In a part of the country with a large number of hospitals, it became clear that in order to compete in a busy market place, finding a 'unique selling point' was going to be vital. At the same time, Big Hospital Trust was in financial difficulties. The merger took place in 1999. It was described as an unexpected reverse takeover, and the management team of the newly merged trust was formed almost entirely from Small Hospital Trust. As one respondent commented 'the tadpole swallowed the whale'. Considerable difficulties as a result of the different cultures were reported.

The reconfiguration that is the focus of this study concerns the delivery of acute services at Small Hospital. Because the impact is at one hospital and did not involve the distribution of services between sites, it could be argued that it was not a true reconfiguration, and it was referred to internally as a redesign.

A new service model was being developed at Small Hospital to support a major hospital redevelopment. The aim was to provide a new model for the DGH that could provide sustainable assessment and treatment for the local cachment population. It involved a fundamental redesign of patient process and staff roles based on the use of care systems, pathways and protocols.

6.1.1 Service Portfolio

Services provided at the new acute unit at Small Hospital included acute medicine, surgery, gynaecology, trauma and orthopaedics, inpatient

paediatrics but not consultant led obstetrics. Elective inpatient provision would be maintained for urology. Short-stay and day surgery for a full range of specialties would be offered from the new unit, and expert consulting services (replacing existing outpatient clinics) in all major medical and surgical sub specialties and in paediatrics. Services would be linked to specialist centres such as vascular surgery, a maxi-centre at Big Hospital, and cardiac services at a nearby teaching hospital.

6.1.2 Service Model

In 2004, the future service model depended on a high degree of service redesign and significant changes in working patterns, although the future relationships between the DTC (which was substantially underutilized) and the new unit were not fully specified (particularly the deployment of medical staff). The Small Hospital building was in a poor state of repair and a PFI gave the chance to embed the model of care in the layout of a new building. Although completion of the PFI build for the new unit was expected to be in early 2006 it would take some months before the service delivery model was fully implemented in the new building.

The A&E of the new acute unit would have two front doors. NHS Direct and the Ambulance service would direct patients to the appropriate setting. Patients with minor injuries and complaints were to be treated in the urgent treatment centre. This centre would be primary care led and staffed by a team of urgent care specialist including GPs and practice nurses as well as emergency nurse practitioners.

There would also be built-in primary care follow-up including registration and significant social care input. Patients with more major complaints were to be treated in the Major Assessment Centre which would become part of the new integrated acute assessment service.

6.1.3 Workforce Issues

In common with many hospitals of its size, Small Hospital had a comparatively small number of specialists, and junior and middle grade doctors in all major specialties, particularly surgery. Sustaining emergency care in the context of the requirements of the European Working Time Directive (EWTD), and increasing sub-specialisation, provided therefore a major challenge, prompting much configuration debate since 1998.

Ultimately pre-registration house officers and senior house officers were to be supernumerary at Small Hospital, and changes to the working patterns of middle grades and consultants would achieve EWTD compliance as part of the redesign of the whole service model including:

- streaming within A&E
- unified general medicine and A&E teams to provide an integrated acute assessment service with senior clinical leadership
- patient-led single service for chronic disease
- team based working providing protected emergency cover

- strong differentiation between day and night working with an extended working day and hospital-wide night team
- devolved management of surgical theatres and beds with out of hours working minimised in line with best clinical practice as per National Confidential Enquiry into Peri-Operative Deaths (NCEPOD) recommendations.

6.1.4 Integrated Acute Assessment Service

There would be a clear division in the hospital between the management of patients who were acutely ill (in the acute assessment service) and those in the recovery phase (in the step-down service). In both areas, medical and surgical patients would be treated together.

The acute assessment service would bring together A&E, Assessment Unit, ITU, CCU and HDU with acute medical, surgical and care of the elderly inpatient beds. This would involve merging the A&E team and the acute/critical care team, with 24 hour middle grade anaesthetic cover. Extending the working day to minimise out of hours working and merging these frontline teams would deliver a consultant led system with middle grades covering a shorter night shift, the team supported by "major nurse practitioners".

Acute assessment would be covered by medical consultants working for a 7-day period, in rotation, alongside A&E specialists and intensivists. The team would be able to call upon specialist opinions in surgery, trauma and orthopaedics, gynaecology and urology. The aim was to have early input from middle grade staff to provide an expert opinion. There would be 24-hour pathology and radiology support with extended day access to MRI, CT, and ultrasound.

6.1.5 Chronic Disease Service

In the step-down service, primary care, intermediate care and step-down wards for older patients would be combined to provide a single service for patients in recovery. Staff in this service would have the opportunity to rotate between inpatient and community jobs, and case-management would ensure consistency of care before, during and after admissions. A major feature of the new unit was merging primary and secondary care to provide a single service for patients with chronic disease. This followed a disease management model, with patients taking a large part in determining their care and having direct access to specialists. Care was to be provided under shared protocols and using shared information, with a greater menu of interventions. The outpatient department was to be replaced by an expert consulting centre used by integrated teams.

6.1.6 Team Based Working in Surgery

To ensure a rapid emergency response, surgery would be organised on a team basis with a "surgeon of the day". A middle grade surgeon would also be assigned each day to booked work and separately to theatres.

6.1.7 Strong Day / Night Differentiation

At night, the on call nursing, medical and surgical team would merge to form one integrated team, allowing co-ordination of investigative effort. The team would be led by a middle grade physician and could include administrative support. The workload of the team was to be reduced through core specialties working an extended day. This pooled resource would free up time for doctors to be used for more intensive training or rest periods. Ultimately this would make all medical and surgical SHO posts EWTD compliant.

6.1.8 Devolved Management of Surgical Beds and Theatres

Management of outpatients, elective inpatient beds and theatre time would be devolved to the surgical teams within the expert consulting centre led by a new team manager (a role piloted within orthopaedics).

A consequence of reducing admissions and lengths of stay was a reduction in bed numbers, and it was hoped that beds would be reduced by about 25, numbers having reduced by several hundred over the previous decade.

6.1.9 Developments during the study period

During the study period, the new acute unit building was completed very nearly to plan and on time, and was operational by March 2006. However, some developments in the health economy not known at the start of the study period had an impact on the process of reconfiguration. Firstly, Trust A was found in 2004/05 to have a financial deficit. Secondly, in September 2006, the PCT serving the population from which most of Small Hospital's patients came, which had been an important partner in the new model of care, was found to have a large deficit.

6.1.10 Timeline

Table 6 Timeline for Trust A

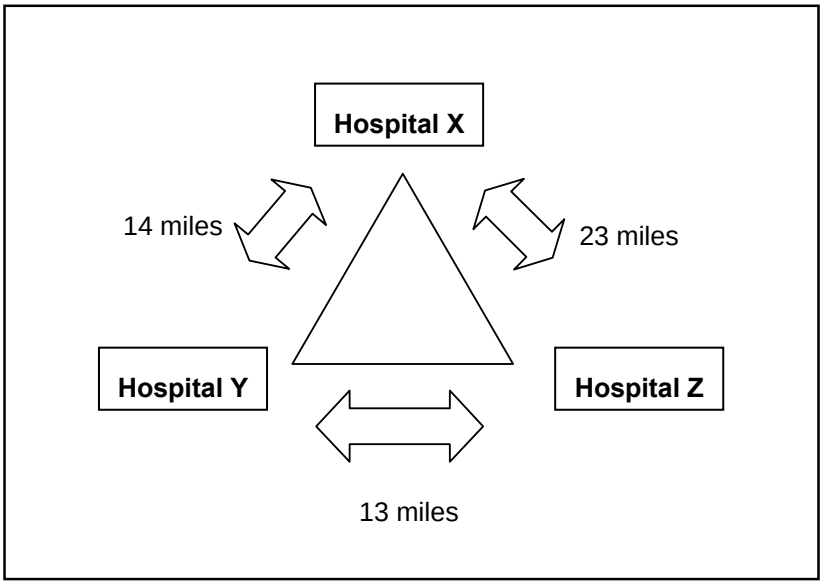
Early '90s	Local HA said there were too many beds in sector, needed to close an A&E. Small Hospital's department was obvious choice, but they demonstrated importance of services they provide to deprived community and got reprieve on basis they come up with new, cheaper model.
1994	Early Diagnostic and Treatment Centre (DTC) planned Model for redesign of acute services also being set up
During '90s	Elective care was to follow protocols under which it was run more by nurses, involving doctors where deviation from protocol necessary. Protocols also drawn up for emergency care in 6 main medical admissions: MI, asthma, COPD, heart failure, stroke & diabetes
1997	Labour government reduced competition, so basis of DTC as place to bring in elective work from outside own area was undermined
1999	April: merger of Small Hospital Trust and Big Hospital Trust to form Trust A July: DTC opened Public consultation about maternity services across the merged trust underway
2001	Pathology services merged
2004	Joint programme board for development of services with lead commissioner PCT for Small Hospital set up
2003-5	Directorates working to set up new ways of delivering acute services at Small Hospital
Spring 2005	Layout of acute services changed to model layout of new building at Small Hospital 1 service within Trust put on special measures. Trust has financial deficit and fails to reach the target of a 4-hour wait in A&E.
Summer 2005	E-mail clinics being set up between consultant and primary care practitioners at Small Hospital Identification and training of GPwSI in the chronic conditions
March 2006	New building for acute services at Small Hospital completed, move takes place smoothly Trust A has second year of deficit Implementation of most of the model according to plan
Sept 2006	Unexpectedly, lead commissioner PCT for Small Hospital is found to have large deficit, requiring radical changes to service affecting some elements of model of care
Feb 2005-Feb 2007	Substantial changes to senior management team between first and second round of interviews

6.2 *Trust B*

The second of the case study trusts is set in a predominantly rural area with a population around 600,000, with hospitals in formerly industrial towns. For this report, the three hospitals are referred to as Hospitals X, Y and Z and have approximately 380, 270 and 490 beds respectively (as at 2004). Pockets of wealth are interspersed with a more widespread picture of socio-

economic deprivation, particularly around the smallest of the three hospitals, Hospital Y. Transport links are also less good to this hospital and distances between the three hospitals are illustrated in Figure 5.

Figure 5 Location of hospitals in Trust B



At the start of the project, the clinical sustainability of services at Hospital Y, with the narrowest range of emergency medicine, was under threat and this in turn presented major capacity issues for the other two hospitals. Leading up to 1998, the Royal College of Surgeons had produced a number of reports which stated that they would not provide continued support for Acute Surgery at Hospital X or Hospital Y. At that time the three hospitals were three separate trusts but in 2000, Hospitals X and Y amalgamated to form a new trust.

In 2001 the Health Authority asked an independent expert to advise on clinically sustainable options for the provision of general acute services across its population catchment area. Following the expert's review, the local NHS and its partners developed a proposed service model based on the three hospitals working together as one integrated health care system to serve the needs of the people of the whole area. Agreement was reached to amalgamate the two existing trusts to form the current Trust B in April 2002. At that time emergency surgery moved from Hospital Y and it became an acute medical unit (with on-call consultant surgeon from Hospital X) but with substantial levels of day-case and short-stay surgery. A wide range of out-patient services and the establishment of a treatment centre in late 2004 further extended the range of services.

6.2.1 Aim of Reconfiguration

The aim was to develop a networked approach to care across the three hospitals. The key features were emergency surgery provision at Hospital X and Hospital Z with a new treatment centre at Hospital Y to boost elective capacity trust-wide. It was intended that Hospital Y should continue to take emergency medical patients alongside the elective (but not emergency)

surgery service. Other innovations at this site included the development of a nurse-led overnight paediatric service.

6.2.2 Service Portfolio

Hospitals Y and Z would continue to provide a full range of acute services.

Elective medicine would be integrated across the 3 hospitals, with some sub-specialisation in each one, for example diabetes, endocrinology, coronary angiography and stroke.

Surgery would be provided in a county-wide network with some sub-specialisation of elective surgery encouraged, e.g. vascular services.

Hospital Y would offer a reduced range of acute services but still retain an A&E, an urgent treatment centre (for stabilisation and possible onward transmission) and critical care capacity.

Digital imaging would be installed to link the three hospitals and the PACs system would be used for Radiology transmission.

6.2.3 Service Model for Hospital Y (2004)

A&E. Hospital Y had a doctor led A&E service. Local GPs had expressed openness to exploring greater co-operation between the primary care out of hours centre and the A&E department, which were already co-located. There was a view that the doctors in A&E could be integrated with medicine to make the posts more attractive by offering a wider range of experience.

Medicine. General acute medical services, including emergency cardiology, respiratory medicine, gastrointestinal services and stroke management continued at Hospital Y. Clear protocols for upper gastrointestinal haemorrhages meant patients transferred to the Hospital Z if they required surgery.

Likely options for medical sub-specialisation at Hospital Y included the management of acute stroke, inpatient haematology, diabetology and endocrinology. Other sites developed different sub-specialties (e.g. coronary angiography).

Hospital Y retained a critical care facility including coronary care, high dependency and some intensive care beds and would develop 24-hour on-site anaesthetic cover. The key requirement was for resuscitation and ventilation facilities.

Surgery. Hospital Y would be developed as a specialist centre for elective surgery, functioning as a treatment centre for patients from across the catchment area. The main service provision would be focused on orthopaedics, urology and general surgery.

Some intermediate (short stay) procedures were to be undertaken in most surgical specialties. Clear protocols were developed to identify suitable patients including high-throughput arthroplasty (focusing on hip and joint replacements) and intermediate urology procedures (e.g. transurethral resection of prostates). Surgeons undertaking elective procedures at

Hospital Y would continue to provide opinions for medical colleagues, removing the need for patients to be transferred to another hospital for an opinion.

Maternity and Paediatrics. Services at Hospital Y would include a midwife-led maternity unit and a 9am-9pm consultant led paediatric unit. Between 9pm and 9am the paediatric unit would provide nurse led inpatient beds with consultant on-call support. Patients who required a consultant or emergency treatment would be referred to Hospital X or Hospital Z. Consultant-led maternity (leaving 9 midwifery-led beds) was withdrawn from Hospital Y (to Hospital X) in May 2004.

Sub-specialisation. Sub-specialisation had developed for some services. For cardio-angiography, residents in the southern part of the catchment area had received their service from Hospital X since January 2004. Residents in the northern part of the catchment area continued to receive their service from Hospital X and an extension to this service had been approved. Vascular surgery had been provided on the Hospital X site for general surgical patients and critical care patients since 2003. The design for a robust and sustainable critical care service was developed in conjunction with the Critical Care Network, the Royal Colleges and the clinicians in Hospital Y.

Digital imaging (PACS) has been in place at Hospital Y since June 2003. Increased acute activity, such as in orthopaedics and urology, started in Hospital Y in January 2003 and was an integral part of the DTC development.

Workforce Issues. There was an opportunity with all the above service changes to provide new roles such as nurse consultants in critical care, RMO for on-call surgical cover, GP specialists for minor surgery, therapy consultants and practitioners to improve rehabilitation. The new services required new ways of working including the development of networks and greater specialisation. It was important to ensure that sufficient resources were available to facilitate such developments, including people with the right skills to smooth the progress of change.

6.2.4 Developments during the study period

The project was formally signed off by the strategic health authority in May 2005, but important elements of the independent expert's recommendations, the bringing together of Hospital X and Y's haematology services and stroke services to single sites, had not been implemented. Stroke services were centralised at Hospital Y in March 2006. There was agreement to centralise haematology on Hospital Y in February 2007. In January 2007 Trust B achieved Foundation Trust status, and it was the only one of the three case study sites not to have a deficit at any stage during the study period.

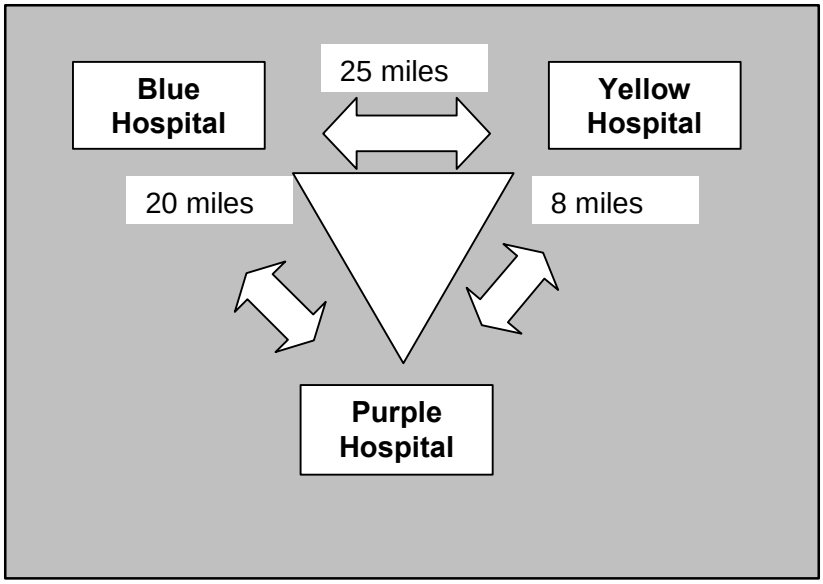
6.2.5 Timeline Table 7 Timeline for Trust B

Early 1990s	• Separate Trusts in operation at each of the 3 hospitals in the region
1992/93	• Hospital Y lost SHOs in A&E and anaesthesia
1996	• Paediatrics at Hospital X hit crisis point owing to lack of consultants. Hospital Y as the neighbouring Trust at that point stepped in, got the department functioning again, became a combined directorate intra Trust
Up to 1998	• The Royal College of Surgeons withdrew support for continuing acute surgery at both Hospital X and Hospital Y sites • Consultation at Hospitals X and Y on ▪ moving all acute services from Hospital Y to X ▪ moving emergency surgery & trauma to X from Y, leaving acute medicine at Y • Hospitals X and Y merged into a single Trust
1999	• Emergency surgery moved from Hospital Y to Hospital X
2000	• Concerns raised about sustainability of O&G at Hospital Y (EWTD, training regulations etc) • Trust approached strategic health authority asking permission to look at how services were configured between Hospitals X and Y • Trust quickly realised they were going to have to look at all of child health, which HA also agreed to • Child health consultants at Hospital Y realised was likely to affect them most: requested impact assessment
Beg 2001	• Acute Trust began assessment of O&G/maternity services reconfiguration with multi-disciplinary team of key stakeholders
April 2001	• New PFI Hospital Z opened in north of region amidst concerns of insufficient bed capacity
Nov 2001	• At last meeting before going to public consultation about O&G/maternity services, PCG refused to sign up due to concerns about service provision (services being removed from Hospital Y) • Independent expert was invited by the Health Authority to advise on clinically sustainable options
Feb 2002	• Publication of independent expert's report o Supported the changes that had been developed for O&G/maternity services • Advised merging the trust for Hospital Z with that for Hospitals X and Y Report findings to be implemented
April 2002	• Merger as advised by independent expert
June 2002	• New PFI Hospital Y opened
2003	• Consultation between newly merged Trust & PCTs to garner sign up and commitment to reconfiguration plans
May 2004	• Midwifery and O&G move took place: MLU opened in Hospital Y • Acute services moved to Hospital X
Oct 2004	• Arthroplasty unit opened at Hospital Y
2005 (Round 1 interviews)	*Configuration at time of interviews* • Orthopaedics, pathology and radiology as Trust wide directorates • Consultant-run paediatric service running from 9am-9pm at Hospital Y; out of these hours, patients go to Hospital X. Admissions until 5pm at weekends. • Acute medicine and ITU but no trauma or emergency surgery at Hospital Y
May 2005	• Reconfiguration signed off as complete by Trust and strategic health authority
Mid 2006	• Stroke services for Hospitals X and Y centralised at Hospital Y
Jan 2007	• Foundation trust status achieved
Feb 2007	• Haematology for Hospitals X and Y centralised at Hospital Y (final element in reconfiguration)

6.3 *Trust C*

The third case study trust, located in a rural and socio economically deprived part of the country, also consists of three hospitals. The largest of the hospitals has about 750 beds and the full range of acute services. It is situated on the edge of a medium sized town and for the purposes of this report will be referred to as Blue Hospital. Twenty five miles away in a smaller, more remote town lies the second of the three hospitals (Yellow Hospital), with about 80 beds. The third of the hospitals, Purple Hospital, is a 60-bedded elective surgery hospital located between the two towns (Figure 6). The Trust as whole serves a population of 500,000 increased by a large number of tourists (up to million each year). The reconfiguration debate has focused on Yellow Hospital and Purple Hospital. The whole of the county served by Trust C is remote, and Trust C's three hospitals lie in the part furthest from population centres. Some towns and villages in the rest of the county are in the range of hospitals in neighbouring counties, but many residents have difficult journeys to any hospital, including those in Trust C.

Figure 6 Location of hospitals in Trust C



Proposals to reconfigure services in the area extend back to the early 1990s, and possibly earlier, but this study focuses on the period from 2002 when the PCT consulted on proposals for services from Yellow Hospital.

With only three wards, Yellow Hospital faced real challenges in maintaining clinical standards within workforce constraints. At the same time, centralisation of services was particularly problematic because of the large distances to other hospitals. Understandably, this has been the subject of a great deal of public and political discussion for many years.

6.3.1 Aims and Proposed Changes to Working Patterns

Yellow Hospital piloted a local emergency unit as part of its plans for an urgent assessment, diagnostic and treatment hospital. The focus was on

providing comprehensive assessment services, accepting that some treatment for acutely ill patients might have to be provided elsewhere. The aim was to maintain 'front door' services close to home, and to integrate primary and hospital care, in order to reduce avoidable admissions while increasing the number of patients using the hospital.

The local medical and surgical assessment unit would be linked to a doctor-led urgent treatment centre, selected medical and surgical admissions, high dependency care and a diagnostic and treatment centre including day surgery provision. The service model of a local emergency unit is based on a model developed by an independent expert. The main features of this model are:

- very well developed linked working between a small hospital and a larger remote centre – i.e. Yellow Hospital and Blue hospital twenty-six miles away;
- high quality digital links to allow joint assessment of patients by staff in both locations based on primary care record;
- minimum pre-assessment selection of patients;
- escalation protocols to ensure patients needing acute care are transferred rapidly to the larger hospital; and
- direct admission to wards in larger hospital.

A key feature of the model was that it should receive unselected primary care, ambulance and self-referrals for assessment. The rationale for this was that staff working in hospitals dealing only with selected categories of patients can become de-skilled. It would not be appropriate for a small hospital to receive and expect to retain all unselected patients for treatment but effective, rapid assessment might be provided earlier at a local hospital. If this could be of exactly the same quality as in the main hospital, and with no detrimental effect on treatment, there would be no reason not to take any patient to the local hospital. In practice there are some circumstances – such as major trauma – when patients must be taken direct to a larger centre.

Assessment Process

Yellow Hospital's Emergency Unit was to be staffed by resuscitation-trained nurses who rotate regularly through the A&E department at Blue Hospital. When a patient arrived at the Unit, staff would call up the patient's primary care record and contact the duty doctor at Blue Hospital who would communicate with staff and the patient at Yellow Hospital via a digital link allowing them to view images and receive results of investigations. Based on the assessment made, the patient might be able to return home under the care of a GP with support from community nursing.

A key objective was to reduce unnecessary hospital admission, and to accelerate access to emergency assessment, diagnosis and treatment and care for as many patients as possible in their own homes or communities. Some patients would, however, need to be admitted to a hospital bed and clear protocols would be used to determine whether admission to a bed at

Yellow Hospital was clinically appropriate. Where patients needed to be transferred to Blue Hospital for further investigation or treatment, this would be on the same basis as if they had been assessed in Blue Hospital's A&E and they would be admitted direct to a ward. In many cases, treatment might be started by nurses in the Assessment Unit or by paramedics.

Workforce Issues

This model depends on significant changes in working patterns, and on the development of real partnership between the hospitals involved. The pilot at Yellow Hospital would provide an opportunity to explore how the relationship between the two participating hospitals worked in practice, particularly in terms of issues around remote working and the core conditions for pre-assessment selection. Evaluation of the pilot will focus on the key objective of reducing avoidable hospital admissions and the development of these "virtual clinician" skills (implemented in September 2004). This will depend on achieving a quality of assessment at Yellow hospital equivalent to that in Blue Hospital, taking account of both technical and organisational factors.

No true reconfiguration of services between Blue and Yellow Hospitals has taken place, despite concerns about the existing configuration, and the case study has been characterised by conflict between the trust and a community campaign.

6.3.2 Developments during the study period

In March 2006, the trust was found to have a severe deficit, which grew over the study period. Later that year, a county-wide PCT took over responsibility for ensuring the provision of health care, and set up a strategic review of services including acute services. The community actions which had opposed health service change prior to the study continued through the study period.

Timeline

Table 8 Timeline for Trust C

End 1996	- Local campaign group for health issues formed
End 1997	- Strategy consultation paper published by PCG included proposals to: o close four community hospitals o reduce A&E services o close children's ward at Yellow Hospital - Resulted in public outcry
Summer 1998	- Secretary of State rejected the proposals: community hospitals were saved but children's ward at Yellow Hospital was closed on understanding that paediatric day surgery would increase
Autumn 1999	- Doubts raised about sustainability of clinical services at Yellow Hospital by consultant from that hospital
Feb 2002	- CHI visit: stopped ventilated patients at Yellow Hospital (was no 24 hr consultant anaesthetic cover: they went home at night), and raised concerns that there was no monitoring of outcomes of seriously ill patients there
Feb 2002	- Consultation document published, process led by PCT. Main thrust was: o cessation of 24 hour medical led emergency admissions to Yellow Hospital o variety of options considered using some form of Medical Assessment Unit working in collaboration with Blue Hospital
July 2002	- Reportedly 20,000 strong public march in Yellow Town against the proposals
Aug 2002	- Recommendation from PCT that medical and surgical emergency admissions to Yellow Hospital be stopped (this viewpoint supported by the acute Trust) - Casualty at this point being run at night by Emergency Nurse Practitioners with SHOs on call (junior housemen had stopped covering casualty as Royal Colleges deemed this not to be proper training)
Sept 2002	- Consultation process broke down: service changes not accepted by campaign group. - Health Authority and PCT decided to re-examine the situation – by this point the issue had reached ministerial level & message reported as being to quieten things down - Stakeholder Steering Group (SSG) of NHS and external stakeholders set up, the latter including representatives from the campaign group - Multi disciplinary workshops established to try to find some ways forward
Autumn 2002	- Campaign group identified external consultant, having seen his proposal elsewhere for a local medical emergency unit. - He proposed tele-medicine BUT said it wouldn't be viable for 10-15 years - Commitment to continuing emergency admissions at Yellow Hospital stated - Blue Hospital implemented changes to A&E: separated surgery and medicine - Development of general physician role (preceding the Royal College drive) whereby consultant sees patient early in the journey
Jan 2004	- General physician role started at Blue Hospital
Sept 2004	- General physician role started in Yellow Hospital - Out of hours operating stopped at Yellow Hospital
2005	*Configuration at Yellow Hospital at Round 1 interviews* - System of patient assessment at Yellow Hospital so that those who need more specialist input are transferred to Blue Hospital; those who can be treated at Yellow Hospital stay there - Redesigned emergency nurse practitioner roles - Continuing emergency surgery, according to protocol - No orthopaedics or trauma - No ITU

	- No specialist physicians - Developed protocols of care & worked closely with ambulance service - Increase of consultants from 4 to 6 - Covering anaesthetics remains ongoing issue
Oct 2005	- Royal College of Anaesthetists visit Yellow Hospital, do not withdraw approval but propose expensive solution
Mar 2006	- Trust C has deficit of £8 million
Autumn 2006	- Trust C proposes "health campus" new build in Yellow Town, including range of primary and secondary services
Oct 2006	- PCT Strategic review announced, involving informal engagement of stakeholders
Jan 2007	- Strategic review framework document published with commitment to surgery and doctor-led A&E at Yellow Hospital, health campus proposal suspended
Early 2007	*Configuration at Yellow Hospital at Round 2 interviews* - Trust deficit grown to over £30 million, but some progress in making savings - Reports of inconsistent application of protocols and variations in hours of casualty and emergency surgery - One-in-two rota covering anaesthetics

7 Hospital Reconfiguration: What is it and How Does it Happen

7.1 *Introduction*

This chapter describes the qualitative element of the research study of reconfiguration in acute hospital services based on the three case studies.

Qualitative approaches were used to examine the process of reconfiguration, by reflecting the experiences of stakeholders including the wider health community. This element of the study uses semi-structured interviews with internal and external stakeholders in 2 rounds separated by 18 months to 2 years, and documentary analysis, to study the proposed changes and the implementation process, including consultation and involvement of stakeholders. Inclusion of a wide range of stakeholders, checking of data against documents wherever possible, and careful noting of inconsistencies were used to counter the potential bias of subjective testimony. For further details of the method, see Chapter 2 Section 2.4.

In the next three sections of the chapter, each of the three case study sites is examined in turn, identifying the drivers for change, and exploring the consultation and implementation processes. These sections report impacts of the reconfiguration, respondents' views and researchers' conclusions about sustainability and the future. These are followed by a section describing the analysis of public interest claims described (Chapter 2).

The last section of the chapter discusses some of the key issues raised during the research, looking at what lessons can be learned from the three case studies.

7.2 *Trust A*

7.2.1 Drivers of Reconfiguration

From the early 1990s, before the merger of Small Hospital Trust and Big Hospital Trust in 1999, Small Hospital had been developing a patient-centred model of care involving prevention of admission, early discharge and delivery of care in the community(see Chapter 6, Section 6.1). It was a small trust surrounded by many bigger ones with national reputations, which prided itself on a culture described repeatedly by internal stakeholders as 'innovative' and 'can-do'. A patient-centred model of care was a way to stand out in a competitive climate.

Part of the thinking behind the model was to focus on the future of the DGH. As one non-clinical internal stakeholder put it 'we were trying to get small where most people were trying to get big'. Particularly given the political events in Kidderminster (see Chapter 3 Section 3.1), there was

considerable motivation to find new ways of successfully delivering the care DGHs are in the business of not the high flying, groundbreaking medical advances but the chronic diseases such as for example, asthma and stroke.

Following the merger, the proposed reconfiguration could take on some removal of duplicate services and benefit from surgical cover from Big Hospital, although the hospitals would continue to operate for the most part as two free-standing DGHs.

The model was expected to reduce costs.

> 'If you look at the standard system we admit people for our convenience, not for theirs, once they get in we make them sick by just doing nothing, having a bed. People get better faster in their own home.' Internal clinical stakeholder, Round 1

> 'The DVTs……that would be admitted for investigation and stabilisation and antibiotics might be in ten to fourteen days messing around, they were taken home on day 1, weren't admitted in other words, had their tests as a quick same day protocol and were treated at home by the nurses on protocol.' Internal clinical stakeholder, Round 1

The model needed a new type of building design. The building was laid out according to level of acuteness with the most acute at one end. Wards were replaced by bays off a corridor. Diagnostics and ITU were close at hand. There were separate outpatient clinics according to disease or condition, giving more autonomy to clinical teams.

It involved new ways of working. Elective surgery had been separated from acute from the implementation of the DTC, and there was considerable development of nursing roles, different ways for consultants to work, and changed administrative and clerical roles including taking blood and weighing in out-patients.

> 'At the moment what happens is that there's a whole system of referral, referral to an A&E doctor, the A&E doctor refers to the on-take firm, not necessarily the person who is expert in the condition…so there is a series of… gates which have to be opened to allow clinical practitioners in…And just as an example of that, why is it that clinicians at the front end, who are seeing these sick patients, why are they not allowed to admit those patients? Why do they have to go through an SHO, a registrar?' Internal clinical stakeholder, Round 1

The PCT, and to a lesser extent social services, were essential partners. GPs were to run minor urgent care attendances in A&E, the PCT would also have a minor injury unit in a community hospital, care pathways were agreed, and GPs had to learn to interact with consultants in a different way. Many specialist nurses were working across the hospital and the community, and might be employed and receive their professional support from either organisation. The model had been influenced by the successes of Kaiser Permanente in the U.S. The model also needed a sophisticated

understanding from patients, particularly those with chronic diseases who were high users of health services.

7.2.2 Implementation

The team in Small Hospital who developed the model and the plan saw it as a continuation of developments in the hospital over many years. They had separated elective surgery into a new build diagnostic and treatment centre (DTC) in 1994. The implementation of the plan began by operating the new care model in the old, cramped and dilapidated building, from 2003.

The building project for the new building was reported to be well-managed, and built to time and specification with only minor problems. The move took place, smoothly, as planned, in March 2006.

By the second round of interviews in the winter of 2006 and spring of 2007, the model and plan were reported to be '70% implemented'. Most of the parts which were not implemented were PCT-led elements. The PCT was revealed, suddenly and unexpectedly, to have a large deficit in September 2006. The PCT-run minor injuries unit in a community hospital had not gone ahead although considerable preparation had been done, and some work in the community had been dropped, although care pathways had been implemented. The minor injuries area in the hospital was not led by GPs, and GPs were less engaged in the model than had been hoped. The PCT's financial problems led to delayed discharges in the winter of 2006/07, as the PCT ceased to provide care to patients it assessed as having only social care needs, leading to a loss of capacity in the health economy.

Implementation had involved intensive work with staff. The hospital's culture was said to facilitate implementation, but could be a drawback.

> 'Small Hospital, being quite an informal kind of place, had gone through several stages of pilots of trying to rotate staff, but what that inevitably meant is that the staff who wanted to do it would give it a go, the staff who didn't want to do it, we actually had quite a few of those, would not.' Internal non-clinical stakeholder, Round 2

Implementation of the same model in Big Hospital was considered. Plans for rebuilding of that hospital had been made but abandoned for reasons some of which were external to the trust, so that implementation would have to be without the features of the building that facilitated the patient's journey through hospital. The model was resisted by some Big Hospital consultants. However, elements are being introduced as separate services are redesigned, including the opening of a paediatric A&E on the site. The implementation of the care model at Small Hospital depended on cover from surgeons at Big Hospital to be compliant with regulations, but medicine is run by Small Hospital independently of Big Hospital.

Trust A's financial difficulties, emerging in 2004/05 and continuing through the following years, reduced the trust's flexibility. When the second round of interviews took place early in 2007 there was a much changed senior management team with a new chief executive, medical director and director of nursing, and a director of operations who had started since the redesign

was planned. There was a focus on turnaround and some senior managers who had originally come from Small Hospital Trust on the team at the time of the first round of interviews early in 2005, who were committed to the model of care implemented at Small Hospital, had left.

7.2.3 Consultation

The development of the model involved the PCT closely, and this collaboration should not be described as consultation since the PCT was an integral partner involved in the development from the start. Social services were involved later in the process.

There was public consultation on the new building, but not on the change to services. Patients were involved, to engage them in the changed model of outpatients, through the expert patient programme. No public concern was reported about service changes; this may have been because of the changes not being seen as losses of service. A new building was provided, and no services were withdrawn. External stakeholders also reported a lack of cohesion in the local community and this may have contributed to a lack of community concern.

There was, however, extensive internal consultation, followed by workforce development in preparation for service redesign.

Since the implementation of the changed care model at Small Hospital, consultation and informal stakeholder engagement have become more usual in the NHS and in some circumstances are required. The trust reports regularly to two overview and scrutiny committees. The committee covering Small Hospital was preoccupied by the difficulties of the PCT at the time of the second round of interviews. The strategic health authority has initiated a strategic review of acute services across an area including that served by Trust A, and several neighbouring acute trusts. Trust A has begun public engagement on acute services which, it is planned, will dovetail with the public consultation phase of the strategic health authority acute review in autumn 2007.

Local MPs were reported to be concerned about local health services and one had been involved in a brief “Save our A&E” campaign. Concerns about continuing A&E services at Small Hospital had, however, been allayed. No regular communication with MPs was reported. Trust and local authority, however, were reportedly brought together by shared concerns about PCT cuts.

7.2.4 What Worked Well

Process

The process for implementation of service change in Small Hospital was well-planned and met most objectives for the process, including training staff and implementation of new roles, modelling redesigned services in the old building and a smooth move to the new building.

'Everything that has been planned, has been done. I mean if we look at some examples, … what was traditionally known as the old outpatients department is now our expert consulting suite, and what we did is we sort of married up specialities. For example, we've got cardiology sitting with respiratory and in that facility patients, when they come in, it's like a one-stop shop. They go in, they don't have to leave there to go to diagnostics, there's an x-ray facility within that area, there's a pacing room within that area, there's a lung function test room within that area, the consultants' offices are based within the expert consulting centres as are the specialist and consultant nurses so the patients basically come in and can see whoever it is that they need to see. We've reduced obviously waiting lists in terms of the old traditional outpatient facilities where patients seemed to be on the books forever, that's been dramatically cut, and it's more of a drop-in service where they can get an expert consult very very quickly.' Internal clinical stakeholder, Round 2

Outcomes

Some positive and expected outcomes have been reported including:

- reduction in medical admissions(for example, chronic respiratory disease admissions were reported as down by 70% in 2006/07);
- reduced lengths of stay;
- low admission from A&E;
- some reduction in outpatient attendances;
- reduced costs, for example in hernias and chronic disease management;
- good patient satisfaction responses.

Internal interviewees attributed these positive results to:

- a strong central team;
- a culture supportive of innovation in a small hospital;

'I think that any organisation needs to have its share of mavericks… I think you need some independent people within the organisation who are not answerable for the deliverables around targets, who are just there to ask the questions "Why are you doing it in this way? Could we do it in another way?"' Internal clinical stakeholder, Round 1

- a careful and thorough plan; and
- the use of clinical champions internally to support changing practice.

'….they basically created a whole new model. It's working and now we're putting it up in front and saying, "Look, you said this couldn't be done. We've done it here. If we can do it there, why can't we do it here?"' External stakeholder, Round 1

They have convinced most internal and external stakeholders of the case for the model of care, or elements of it.

The process was undoubtedly facilitated by the lack of community opposition to changes, although internal stakeholders did not show awareness of this.

7.2.5 Challenges

PCT deficit

The challenge that was most apparent to internal stakeholders was the impact of the PCT's financial difficulties, which meant that several elements of the model did not go ahead. More fundamentally, it effectively changed the status of the PCT from an integral partner to a reluctant and partial contributor.

There has also been a knock on effect, in that the reduced number of beds at Small Hospital has made the health economy less resilient to the PCT cutbacks.

> '… because there's been the bed reductions in the whole system, if you see it as a sort of conveyor belt, I suppose, the conveyor belt is now shorter than it used to be and has got less capacity, so people need to go into and through and out of the system quicker than was previously envisaged. Now, one of the observations that people have made about that is that actually that means that people are plopping out at the end with higher levels of need than was previously the case. … and, of course, any reduction in capacity across the whole system increases the need to get people through quicker.' External stakeholder, Round 2

Low surgical activity

The trust is perceived by some internal stakeholders to be over-provided, for its activity level, particularly with theatres. Big Hospital has closed an elective unit in favour of better facilities in Small Hospital's DTC, but there are still believed to be too many theatres on the Small Hospital site, including both the DTC and the new acute building. There is some concern that low surgical activity may mean that staff lose skills in the extended roles in which they have been expensively trained.

Loss of senior internal support

Some internal stakeholders are not completely convinced by the model. A change of senior management has meant that some senior managers were not caught up in the level of commitment that drove the redesign through its early stages, and are judging it carefully against the claims made for it, particularly given the trust's deficit.

> '…they were seen to be off on a tangent and not supporting the day to day or the short term. So they're off doing the long term planning, which is great and they're all happy clappy. Day to day operationally the trust is under significant pressure…The project management structure was not seen to support the operational running of the hospital' Internal clinical stakeholder, Round 1

> 'I can't think of any particular part of the healthcare delivery system that is working better now than it was in the old building. There were less complaints about rats is about the one thing I can say, I'm afraid.' Internal non-clinical stakeholder, Round 2

7.2.6 Transfer to Big Hospital

Elements of the redesign are being adopted piecemeal by Big Hospital, but initial hopes that the model would be transferred readily have not been fulfilled.

7.2.7 Sustainability

Clinical sustainability. Doubts about clinical sustainability of the model as implemented were mentioned by only few interviewees. Most internal stakeholders saw no threats to clinical sustainability. Doubts raised included safe cover for out-of-hours surgery at the new acute building in Small Hospital, and the prospect of expert nurses losing their skills owing to low activity on the site.

Financial sustainability. Financially, however, many factors combined to jeopardise the service at Small Hospital.

Payment by Results (PbR). PbR rewards high hospital activity, while the model of care was designed to keep patients out of hospital, and in doing that, was in line with government objectives for care closer to home, and avoiding admission. PbR creates a particularly harsh economic climate for Small Hospital's model. PFI payments add to the burden.

> '….. we crucified ourselves in terms of how the NHS works in terms of funding…as they start to look at funding according to measured activity we are shooting ourselves in the foot, which is a fundamental problem still with the NHS: it is not geared to financially reward people who practise properly.' Internal clinical stakeholder, Round 1

There may also be other perverse incentives in the system.

> '… a hospital who keep somebody in under their care and, you know, investigates them to death, ends up getting paid an awful lot of money, whereas a hospital who has a reduced length of stay and orders baseline investigations only and it only goes for another range of diagnostics as required will end up getting paid less. So we may end up earning a lot less than some of our colleagues because of our efficiency.' Internal clinical stakeholder, Round 2

> '… part of that was for the consultants to give telephone and e-mail consultations and that's a free service to the PCT because we've never sorted out how they're going to pay for that because that doesn't come within the tariff.' Internal non-clinical stakeholder, Round 2

Trust deficit

The financial problems of Big Hospital were a driver for the merger, but when Trust A's senior management team came to examine its deficit, it identified Small Hospital as the site where problems originated.

Competition

The competitive environment, including the introduction of practice-based commissioning (PBC), will not help Trust A. It has not completely succeeded in winning the support of local GPs, who have a choice of several accessible acute providers, some with national standing. Small Hospital's DTC is an attractive alternative to independent sector treatment services, but internal stakeholders argued that the trust was unfairly disadvantaged by the inflexibility in the PbR tariff while independent providers were free to vary their charges. Low activity also means that a consultant rota compliant with regulations is expensive to operate, an expense that needs to be recovered through the tariff.

The PCT is no longer committed to the integrated approach on which the development of Small Hospital's model of care rested, and its senior management team is prioritising addressing its deficit. This is likely to cause it to prioritise in-year savings over the long term functioning of the local health economy, which will threaten the sustainability of Small Hospital. A particular element causing difficulty was the advice provided by consultants to GPs by phone or email. There was no mechanism for paying under PbR, and the PCT was unlikely to prioritise it.

> ' they have very ambitious plans for turnaround and … some of those plans have been, sort of have emphasised care in the community and the GPs taking on much more of a role in managing their patients and deciding who comes in, so the demand management plans have always been part of the [DTC] or of our clinical redesign. So demand management was already part and parcel of the plan, the grand design. The only problem is that we've already implemented a lot of the demand management and trying to reduce GP referrals, … we've already cut the slack and now, you know, to try and get another twenty, thirty percent reduction is going to be quite a feat for the PCTs to achieve, especially without our support. Now, you know, we could do this, it could be achieved with our support, but now because of PbR, they have to pay, the acute trust want them to pay us for that support.' Internal clinical stakeholder, Round 2

Approaches to these difficulties mentioned by internal stakeholders include increasing high volume low risk activity, such as day case surgery, possibly by winning work from further afield. The competition is strong in Trust A's area, but the new building and innovative model of care may make the hospital an attractive option.

Some internal stakeholders held out the hope that the PbR tariff might be adjusted to reward a model of care which minimised inappropriate hospital stays, attendances and investigations, and supported secondary preventive activity and delivery of acute care in the community.

Organisational factors

Changes in Trust A's senior management team between the two rounds of interviews replaced senior managers originating with Small Trust before the merger with executives not aligned to either of the former trusts. The model was not adopted in its full cohesive form at Big Hospital, because of cultural factors and abandoned plans for a new build.

7.2.8 Conclusion: Trust A

It could be argued that the redesign of services at Trust A did not constitute a reconfiguration, since distribution of services between hospitals was not a central element. It also differs from most reconfigurations in that no services were withdrawn from any site. There are however common features with a reconfiguration as more widely understood which give transferable lessons for reconfiguration.

The model of care offers a practical demonstration of how acute care need not be tied to a hospital setting or follow traditional and unproductive routines. From that point of view it is in line with recent national priority for providing care close to home and avoiding admission. Nonetheless it is penalised by PbR, and has had to deal with a drastic loss of PCT resources and commitment.

It may not be readily applicable where local communities are more cohesive and mistrusting, or where the population base cannot support a high enough level of activity, and it is not clear how important the attractive new building is to local support.

7.3 *Trust B*

7.3.1 Drivers of Reconfiguration

Two interweaving strands form the background reasons for this case study trust embarking on change, relating to safety and sustainability of surgery and of obstetrics and gynaecology at the smallest of the three hospitals, Hospital Y, and dating back before the merger of the three hospitals (see Chapter 6, Section 6.2 for details of the background to this case study).

Providing a safe and sustainable service

Firstly, training, recruitment and management problems in surgery triggered changes to the system at Hospitals X and Y. Hospital Y had lost junior staff from their Accident and Emergency Department and from anaesthetics at the beginning of the 1990s and experienced increasing difficulty recruiting to consultant positions without training doctors at the hospital. The Royal College of Surgeons then withdrew their support for the continuation of emergency surgery at both hospitals. At the same time, there were reported problems in the directorate at Hospital X, with some talk of the team being dysfunctional.

Secondly, concerns were raised about the sustainability of obstetrics and gynaecology (O&G) and children's services at Hospitals X and Y. There

were only about 1,300 births at each unit, and the ability of each to comply with the then newly published guidelines from the Royal College of Obstetricians and Gynaecologists for 24 hour consultant cover at maternity units seemed remote.

As possible ways forward began to be considered, other issues were also raised, such as the importance of maintaining local access to services whilst at the same time ensuring sufficient throughput of patients. A new PFI hospital was in the pipeline at Hospital Y, and ensuring the utilisation of this space was important.

Respondents reported that finance had not been a driver.

7.3.2 Consultation Process

Two consultations took place at this trust, one about each of the areas of service change described above. The interviews focused on the second one into O&G and child health, which had taken place more recently and was fresher in interviewees' memories. However, it is important to note that the outcome of the first consultation was that emergency surgery and trauma moved from Hospital Y to Hospital X, with emergency medicine remaining at both hospitals.

This had implications for the outcome of the second consultation, which was working from the premise that the current configuration of services was unsustainable. A different way of delivering care which did not involve continuing to have full maternity and child services on both sites was needed. Ultimately, because emergency surgery was by this point only operating in Hospital X, the view was taken that the acute O&G and child services should be co-located so that in the event of an emergency situation, the surgeons would be available on site. This therefore entailed moving the acute aspects of these directorates from Hospital Y to Hospital X.

The consultation process about the future of O&G and child health services at Hospitals X and Y was widely reported by both internal and external stakeholders as having been a success, in that stakeholders were persuaded of the case for the proposed reconfiguration. This success was attributed to a number of factors.

Clinical champions

Repeatedly mentioned in interviews were the perceptions of the clinicians leading the consultation. They were perceived as 'decent people' throughout the consultation process, and had dealt well with some of the public meetings that were reportedly quite hostile. What came across from these interviews was that there had been a sense of trust in these individuals.

'…there's a guy called […], a northern guy, very straightforward, commendably straightforward and I was impressed by the way he addressed the mob because he was simply explaining that it would no longer be safe. I mean, he is an obstetrician and I think he convincingly made the case that it was not viable…I was convinced. There were still some people who were saying, you know "We don't agree with this."…And there was also I think, I think it's […] who was from midwifery…and they were quite impassioned really. I mean they were aware how much it meant to people' External stakeholder, Round 1

Listening and being open

Interviews with respondents who had been involved in presenting at these public meetings testified to their somewhat stormy nature and talked about having tried to be as honest and open as possible. They described having made enormous efforts to listen and respond appropriately to the fears of the public about the potential impact of the proposed changes. Indeed, some important components of the redesign were reported as having come from the consultation process, such as having a midwifery-led unit, keeping a paediatric service open on a part time basis and setting up outreach teams.

Evidence

Another feature highlighted was the nature of the information being put across. There was recognition amongst the clinicians leading the consultation that being prepared and having evidence about the changes was very important, for example:

'I think we were able to allay fears in the sense that we'd done a very comprehensive review by telephone of all the midwifery-led units and they hadn't had adverse outcomes…the transfer time is not so much of an issue in the sense that if things go wrong they tend to go wrong three or four hours before you need a doctor involved and we would be looking to transfer them as soon as we picked up any problems. I'd done a very large audit, looking at all the ladies who would have been eligible to deliver at the midwifery-led unit and looked at what point would we have transferred had they been in a midwifery-led unit and I didn't find one lady that we didn't pick up a problem at least two hours before.' Internal clinical stakeholder, Round 1

The clinicians involved had done their best to pre-empt the concerns that might be raised during the public meetings and had responses ready to counter them with.

Talking to the right people

Another aspect of consultation described by respondents was the amount of thought and work that had gone into identifying the right people to talk to and trying to get across the message about what the reconfiguration would mean.

'…we got invited to a number of things, we went to GP units, we just went to anyone who wanted us to go and talk about the reconfiguration. We went to health visitors, district nurses, school nurses because we found that the public were asking them questions as well, so we felt it was important that they had the facts as we saw it'. Internal clinical stakeholder, Round 1

One clinician spoke about the influence that grandmothers have over their families in this region of the country, and the importance of getting the right information about the proposed changes to this group of the population, in particular because many of the assumptions being made by this generation were out of date about contemporary realities of health care provision, for example about what midwives are now trained to do.

The trust took care to brief local MPs, and continued to inform them of significant developments in local health services.

7.3.3 Outcome of obstetrics and gynaecology consultation

Despite some satisfaction with consultation process by external stakeholders, and the amount of work that went into it, the primary care partners ultimately decided that they could not sign up to a change that would take maternity services out of Hospital Y. This outcome was described as frustrating but understandable.

The strategic health authority sought advice from an independent expert. Following some intensive work with the key stakeholders involved in the reconfiguration, he published his recommendations. Whilst he broadly endorsed the work that the trust had already carried out, he introduced some new elements to the reconfiguration. A summary of his proposals and the reasoning behind them is outlined below – table 9.

Table 9 Summary of Expert's Findings on Trust B

KEY AIMS:
- maintain access to services for all communities;
- improve patient choice about where they are treated; and
- make sure that services are sustainable and will thrive in the long term.
Main issues
- Hospitals X, Y and Z each serve relatively small catchment areas: will find increasing difficulty meeting demands and providing better quality care unless they work together.
- Improving clinical quality means developing networks of doctors across different sites & pooling catchment populations to enable doctors to specialise.
- Range of specialist services cannot be maintained in small hospitals working on their own.
- None of the three hospitals will be sustainable longer term unless strong clinical networks are formed through working together.
- By working together, the hospitals will have capacity to offer greater choice to patients with faster access to specialist services.
- Recruitment and retention across the hospitals will be enhanced.
Underpinning factors
- Withdrawal of acute medicine from Hospital Y would destabilise Hospital Z because it would become overburdened picking up the shortfall.
- Consultants from all three sites need to work together. If Hospitals Y and Z worked separately from X, X's catchment area would be reduced and its cancer unit status as well as Royal College accreditation for emergency services threatened.
- Utilisation of spare capacity at Hospital Y's elective centre critical to ease waiting times, cancelled operations and would result in increased levels of NHS services for NHS patients.
Proposed changes
• Merging the trust which ran services in Hospitals X and Y with a trust in the north of the area, operating mainly out of Hospital Z. The future of services in the area would be sustainable only if the three hospitals worked together as an inter-dependent network.
• Setting up a centre for elective surgery at Hospital Y focusing on orthopaedics as well as urology and other surgery.
• Centralising acute O&G and paediatric care at Hospital X. However, Hospital Y would offer a midwife run obstetric unit and a paediatric service run from 9am -9pm.

Although there was another consultation process about this new plan, respondents were clear that these proposals were going to be implemented because the expert was seen as having been sent by the Department of Health (DH) with their full backing and support. The Community Health Council formally rejected these proposals, triggering a referral to the DH. The DH response was that they should be adopted, and the next section describes the process of implementation.

7.3.4 Implementation

The project was formally signed off by the strategic health authority, with most of the independent expert's proposals implemented, in May 2005, and the last change, the centralising of haematology services at Hospital Y, was agreed in February 2007. At the first round of interviews three directorates were operating trust-wide, and by the second round, six were operating across at least two sites. General medicine, however, was still in separate directorates for each site.

7.3.5 What worked well

In many respects the reconfiguration at Trust B could be described as a success, and that was how senior internal stakeholders perceived it by the second round of interviews.

> 'We implemented [the reconfiguration plan] actually to the letter.' Internal clinical stakeholder Round 2

Two new services, the midwifery-led unit (MLU) and the arthroplasty service based at Hospital Y, had good patient satisfaction responses, and the arthroplasty unit had reduced lengths of stay.

> '… midwifery-led unit has a very good patient evaluation … as has the arthroplasty unit. We've done a lot of patient experience work there and that's how I say to you, you know, the patient experience is fantastic, people love it, the outcomes are good, etc, you know, and we've got the evidence to demonstrate that'. Internal non-clinical stakeholder, Round 2

Internal stakeholders leading implementation attributed these successful outcomes to several factors.

A well-planned implementation. The plan was developed in detail and included considerable involvement by internal clinical stakeholders.

> 'the biggest strength I would cite is the project management and I would say that that was strong both internally, but also strong performance management by the then health authority to ensure that the changes were implemented.' Internal non-clinical stakeholder, Round 2

Time was allowed for this work, particularly in obstetrics and gynaecology, where the independent expert had supported a proposal which already been through extensive internal and external consultation. A key feature of the proposed model for reconfiguration was that the three hospitals would work inter-dependently. Respondents felt that had they not had the time and space to work with those resistant to the changes, they would not have been able to move the reconfiguration as far as it has got. Part of the reason for being able to have this opportunity was put down to the good financial performance of the trust having 'earned' it some space.

Several methods were employed to persuade clinicians to change their ways of working, including incentives, overall expansion of the size of departments offering opportunities to sub-specialise and therefore advancing careers of resistors and recruiting new blood to teams who had already bought in to the changes.

Although they were resistant to practising in a new hospital, many had not actually seen the premises so another tactic was to take them to visit the site.

Clinical champions. As with the public consultation, having a clinician championing and pushing forward parts of the reconfiguration was also an important factor at Trust B. The identification of a surgeon willing to work towards having a single trust wide directorate operating a joint replacement unit at Hospital Y was described as being invaluable. The fact that the

individual in question was from Hospital Z, was near to retirement so not seen as empire-building and had trained many of the doctors so had some influence over those doctors whose practice he was trying to change was described as having been helpful.

> 'the key thing probably more than anything was that we had a small group, and it did only need to be a small group, of hospital consultants who were convinced that this was the only model that long-term would work and they themselves were prepared to sit on platforms and argue the case for change with local populations. It's the first one I'd ever done like it … in the past you'd never get the docs anywhere near consultation, so it was always left to people in suits … no-one could say "This is something that management is imposing and the doctors don't think it's viable, doable". The doctors are full square with the management of the implementation of this.' Internal non-clinical stakeholder, Round 2

Strong cohesive management. The trust leadership attributed the positive features of the detailed plan and its implementation to strong cohesive management. This team was almost unchanged between the first and second round of interviews and presented a well-articulated shared vision.

> '…they knew that we weren't cowboys behaving in a cavalier fashion towards our services and so we didn't have to demonstrate that.' Internal non-clinical stakeholder, Round 1

7.3.6 Key challenges

The perception of a successful implementation was not shared by all stakeholders, and some challenges relating to implementation were acknowledged by the trust's leadership. Despite a number of favourable circumstances including a lack of opposition, and support from local politicians, the changes were slow and incomplete.

Cross-site working

Cross-site working, and particularly the inclusion of Hospital Z in the configuration, was seen as essential to stability and sustainability. The number of 3-hospital directorates increased over the period of the study, but not all directorates were operating across the trust by the second round. Resistance to working at Hospital Y was reported from consultants at both Hospital X and Hospital Z.

Some consultants at Hospital Z had resisted the merger from the start, and perceived the development of Hospital Y as being at the expense of a necessary expansion of capacity on their own site. Several respondents reported that providing services at Hospital Y conflicted with Hospital Z consultants' private work.

'… one of the issues and one of the reasons around this merger was that Hospital Z is stuffed for medical capacity, … that was what the meeting I was at this morning was about, and so there are lots of cancelled surgical operations and so the waiting lists develop and guess what they're doing? In the private sector the Hospital Z surgeons, and they make a lot of money thank you very much, or did, I don't think it's as active now as it was, they make a lot of money out of waiting list initiatives. If the medical overflow came down here it was dealt with by physicians who just had to get on and do it.' Internal clinical stakeholder, Round 1

This resistance, though diminished, was still evident at the second round of interviews. In this connection some interviewees challenged senior management's presentation of themselves as strong and decisive.

'…you almost get the feeling that the way trusts work nowadays the troublesome people get rewarded for being troublesome. You know, nobody pushes them around, they get paid extra pots of money and all these kinds of things and the people who try and do things flexibly get no reward and sometimes get pushed further.' Internal clinical stakeholder, Round 1

'… part of that is a huge reluctance of people to change the way they work and perhaps an element of reluctance of management to, you know "Come on guys, we want you to go and do your operative, your elective operative stuff at Hospital Y."' Internal clinical stakeholder, Round 2

Resistance to working at Hospital Y was shown at Hospital X when the last element, the centralisation of haematology, was put into place. The original plan had not specified whether this service should be centralised at Hospital X or Hospital Y, and the eventual decision favoured Hospital Y.

Insecurity at Hospital Y

The reconfiguration plan was, originally, guardedly supported by clinicians at Hospital Y, but its implementation was seen as partially confirming their doubts. Clinicians argued that the configuration was inherently unsustainable, particularly the loss of emergency surgery. This led, in their view, to other specialisms being vulnerable. It jeopardised recruitment because doctors did not want to work in a site with such a restricted range of specialisms, particularly without emergency surgery and supporting services.

The situation was exacerbated in their view, because elective surgery had not been moved to Hospital Y on the scale envisaged by the plan, partly because of the reluctance of consultants at other sites to work at Hospital Y. The arthroplasty unit did not treat high-risk patients, and was also a victim of its own success in that reduced lengths of stay meant that the unit was not running at capacity. The overall result was that by the time of the second round of interviews theatres were reported to be working at only 15% of capacity.

The sense of mistrust and betrayal among clinicians at Hospital Y was striking, and they saw the site as under threat.

> '… unless the clinical director is actually based at Hospital Y my impression has been that their approach to cost-saving has been to strip out Hospital Y because, you know, Hospital X and Hospital Z are seen as the larger of the two organisations and so the easiest way to do your cost improvement programme and save money is to strip more services out of Hospital Y.' Internal clinical stakeholder, Round 2

7.3.7 Access to services

Accessible services had been a primary objective of the original plan, but several stakeholders were concerned about access particularly for the residents of the rural area and small town that formed the catchment area for Hospital Y when it was a DGH.

External stakeholders and Hospital Y clinicians argued that the poverty, and the dispersed rurality of the community in this area made them less vocal than the populations in the larger towns where Hospital X and Hospital Z were sited.

> '… I think that the population of Town X would be more vocal too … More middle-class, you know.' Internal clinical stakeholder, Round 1

Conflicting reports were given about the quality of transport links between the towns, and one stakeholder commented that the distance appeared to be different depending on whether the traveller was a patient or a consultant.

Over the period of implementation the scrutiny functions of the Community Health Council transferred to local authority overview and scrutiny (OSC) committees, and the public representation function to Patient and Public Involvement (PPI) forums. Five of the six PCTs merged, and changes in structure of the strategic health authority took place. There may, therefore, have been a weakness in organisations focussing on population needs over the period. Some external stakeholders reported poor communication by Trust B with local authorities.

The impact of these factors would be to weaken advocacy for the population around Hospital Y, which was perceived as making the site a target for removal of services.

There was also a perception of vulnerability of services at Hospital X, particularly around the times of the centralising of stroke and haematology services at Hospital Y.

7.3.8 Sustainability

The reconfiguration plan was designed to be future-proof but a number of concerns were expressed about its sustainability, both financial and clinical. For external stakeholders, the closure of wards at Hospitals X and Y

strengthened these concerns, although trust management was clear that services were not being removed.

Financial sustainability

The midwifery-led unit (MLU) at Hospital Y was exceeding the planned number of 300 births, but under Payment by Results (PbR) would need 700, an unachievable number, to be viable. This was the most striking of many examples of how the new method of payment starkly exposed the financial viability of services. The services at Hospital Y, and other sites, were vulnerable to competition from a number of sources:

- large NHS providers accessible to residents of the county served by Trust B
- private sector treatment centres
- provision by GPs or services engaged directly by them, and likely to grow under practice-based commissioning (PBC)

In some cases this competition was a result of implementation of policies, for choice and provision in community settings, which had not been foreseen at the time that the plan was formed. The plan developed by the independent expert did not include costing of the reconfigured services.

'…I was a little surprised that there hadn't been, or there appeared not to have been any rough guesstimate of what it might cost. It was very clinically driven, which I'm not saying is wrong, but the economics are a reality that we live with and there didn't seem to have been any consideration of that in the proposal.' Internal non-clinical stakeholder, Round 1

Clinical sustainability

The concern of Hospital Y clinicians about the configuration there made them see the site as vulnerable, and its closure, despite the need to maintain PFI payments, as a possibility.

'So I think inevitably there is a sort of delay before, units do start working together, but from a Hospital Y perspective I think there's a limited amount of time for that to actually happen because I don't think the current set-up is sustainable in the longer term, I just think that it, you know, at some point either we start to see the facility properly used or we stop trying to provide an all-embracing medical service when we don't have laboratory back-up, radiology back-up, surgical opinion, anaesthetic support for critical care and other issues.' Internal clinical stakeholder, Round 2

7.3.9 Maintaining sustainability

Several stakeholders of all types raised the question at the second round of interviews of whether continuing to provide services at three sites was realistic under PbR. Activity was reduced and would continue to fall due to competition from other providers, policy pressures to move services from acute sites and trends for models of service to involve shorter lengths of

stay. Wards had closed at Hospitals X and Y over the winter of 2006/07, arousing local protest.

However, local communities are loyal to all three sites, and continuing PFI payments are due on Hospital Y and Hospital Z, so withdrawing from any site would be difficult. Stakeholders raised a number of approaches to maintaining sustainability:

- winning new business for the arthroplasty unit and MLU from further afield;
- working with the PCTs and primary health care commissioners on provision in the community;
- seeking a premium payment from PCTs for maintaining accessible services, particularly the MLU.

> 'the viability financially of say, the midwifery-led unit, well, it is not financially viable under payment by results. I think the children service arrangements, they are probably not financially viable under payment by results, and what we don't know is whether the Primary Care Trust … is prepared to pay a premium for the retention of a locally delivered service. And that's essentially where we are at the moment is saying to them "Look, from 2007/08 onwards we need to have a very clear view from you. Are you long term? Do you want to remain married to this arrangement? Because if you do we can't provide it at tariff and, you know, we're quite happy to have an open book approach to that but, you know, we just can't run this service for tariff prices and what does that mean you want us to do with it?"' Internal non-clinical stakeholder, Round 2

7.3.10 Conclusions: Trust B

The reconfiguration at Trust B was in many respects successful, but was unpopular among some stakeholders, and is perceived to be unsustainable under NHS policies some of which were introduced since it was planned.

Its success, shown in implementation of a large part of the reconfiguration plan and some positive outcomes, is likely to be due to good consultation, planning and allocation of resources by a strong and cohesive management team. They may have been assisted by a concentration of particularly powerful government MPs, and Labour dominance of local government. There may also have been weaker local resistance to change because of turbulence in other local agencies and relatively weak community concern. The use of an independent expert, and the enforcement of the expert's findings by the Department of Health, were essential to securing the agreement of other local NHS organisations to the reconfiguration.

Trust B had many factors, therefore, that are believed to facilitate implementation of reconfiguration plans. Despite this, reconfiguration took over three years from the agreement by stakeholders of a plan. It cannot be said to be fully implemented, since an essential element, a merged trust, is not operating as intended. Consultants are not delivering services across all three sites, and probably as a result, elective surgery is not taking place at Hospital Y at the level of activity originally envisaged. Even under

favourable conditions, therefore, reconfiguration is difficult, outcomes are uncertain, and external factors can destabilise the new configuration.

It was planned under a different financial environment, and Trust B, now a foundation trust, will have to be creative and proactive to sustain services at all three of its sites. It may well not be able to sustain the configuration of services that was the focus of this study.

7.4 *Trust C*

7.4.1 Drivers of Reconfiguration

Chapter 6, Section 6.3 gives the background to the case study at Trust C. A strong characteristic of the case study was conflict between NHS organisations and groups from the local community, and there were separate sets of drivers for Trust C itself and for some local community stakeholders.

7.4.2 Drivers for Trust C

For the trust, the initial driver was clinical governance and clinical risk. In 2002 CHI required that Yellow Hospital cease ventilating patients, confirming long-standing concerns of consultants at Blue Hospital about safety. Low activity meant that a safe configuration of consultants could not be justified, and clinicians did not gain enough experience of even relatively common conditions such as acute myocardial infarction.

> '… we took the acute surgical take out of Yellow Hospital, which was entirely the right thing to do, and we were forced to put it back two weeks later. For three patients a day to be operated on by people who cannot be as expert at doing specialist procedures as specialist surgeons. It's just as simple as that. We actually have got concrete data there. In the year before we took out operating on aortic aneurisms at Yellow Hospital the mortality rate at Yellow Hospital was ninety percent and at Blue Hospital here it was twenty percent and that's data and that's staggering and appalling.' Internal clinical stakeholder, Round 2

Anaesthetics was one such area of contention. There was only one anaesthetist based at Yellow Hospital, who for the most part would be in theatres tending to the patients undergoing operations. However, they also had responsibility for the High Dependency Bay as well as needing to cover the casualty department if necessary.

> '…you might, as a nightmare scenario, have a patient in the HDU, a patient on the operating table undergoing a major operation and be called to casualty to another sick patient. What do you do? Well, you stretch yourself pretty thinly and try and make it work because you assume that everybody else thinks it's okay.' Internal stakeholder, clinician, Round 1

The trust wanted to provide safe care that continued to be accessible given the problems of travel and access in a scattered rural setting.

Internal stakeholders did not, at the start of the period the study focuses on, list finance as a driver. Finance became important from March 2006 when the trust's deficit emerged.

These drivers were explicit. For the trust, it was also clear that an unspoken resistor of change was a wish to avoid a hostile response from the local community campaign.

7.4.3 Drivers for community campaign

Some of the external stakeholders constituted a coherent community campaign. These included a pressure group to advocate improved health services in Yellow Town and the surrounding area, and the district council and MP for that area. This community campaign also wanted change in the configuration of services in that area, stressing access to acute services in Yellow Town.

> 'I mean it's common sense, isn't it? If you're told that you need specialist cancer treatment, you know that the specialist you want to see is not at Yellow Hospital, therefore you have to go to Blue. We've taken this on board for many years, but now there are so many other things that are all being centralised at Blue Hospital, like people with heart attacks now don't go to Yellow Hospital, generally-speaking, they'll go straight to Blue. A&E out of hours, they would go straight to Blue, whereas formerly they would have gone to Yellow Hospital. So I think that for the most part the community feels that whilst they accept, to some degree, that specialist services have to be retained at Blue, they're still losing out by other services being downgraded that were part and parcel of what was formerly provided at Yellow Hospital, like the high-dependency.' External stakeholder, Round 1

Their emphasis on access, with a lower priority given to safety, meant that the configurations proposed by the trust and other NHS agencies were often unacceptable to them, and there was a lack of mutual trust. This sometimes extended to cynicism about clinical governance arguments put by the trust.

'I mean, people have talked a lot about empire building, there seems to be a notion that you need to be in a big hospital and I suppose things like litigation, and the increase in people suing, you feel safer if you're in a bigger environment, you're not so vulnerable. So I suppose from a medical point of view the staff prefer to be as part of a much bigger team where they can watch each other's backs a bit more. I mean I don't know, I wonder if it's that. You know, some people have mischievously said "Well, it's because the Blue Hospital site is right next to a private hospital and so the consultants can just hop over there and do some private practice." I don't know how, I mean that's true, but how much that's affected the way that Blue Hospital grows I don't know. Obviously the managers will talk about things like economies of scale, needing to centralise and wanting to develop services, so they need to have lots of patients to justify that. There's obviously a cost issue because, from their point of view, presumably, it's cheaper to have everything in one place than to have it in two or three locations. That's their arguments, but our arguments, as I've already said, are to do with transport and convenience for patients and families really and how do you balance the two?' External stakeholder, Round 1

7.4.4 Consultation Process

There have been several proposals for service change at Yellow Hospital from the 1990s, but this report focuses on the last three consultations – a PCT consultation in 2002, a stakeholder group set up later the same year, and a strategic review begun in autumn 2006, by the newly established county-wide PCT. Relationships between trust and community campaign were already mistrustful, and in 1998, attempts to change services had ended with intervention from the Secretary of State for Health, limiting the extent of proposed change in response to public demand.

7.4.5 PCT led consultation 2002

In February 2002, the PCT which covered the third of the county containing Yellow and Purple Hospitals published a consultation paper with five proposals about how services could be reconfigured. All the recommendations involved the cessation of 24 hour medical led emergency admissions to Yellow Hospital. The PCT's proposals were supported by Trust C.

Local responses objected that the consultation paper allowed no scope for discussion about removing 24 hour medical led emergency admissions from Yellow Hospital. People felt that it was not a real consultation because this key decision had already been made.

> '….when the consultation document was published [representatives from] the PCT and Trust C were having public meetings, so people could drop in and talk about the consultation and put their point of view across, but…some people didn't bother going because they just thought there was no point…. they thought there was already a decision made…. Out of the models none of them was of any use to them. That's what they felt…they had five models of which none of them in its entirety was applicable.' Internal clinical stakeholder, Round 1

The consultation was described by internal stakeholders as 'botched'.

A 'march of 20,000' in the streets of the Yellow Town protested at the proposals. The reaction of the public had a major impact on the reconfiguration process. It was agreed that another way forward had to be found.

7.4.6 Stakeholder Steering Group

Following the march of September 2002, a 'stakeholder steering group' was set up with a balance of NHS and community campaign members. The community members hoped for an independent chair but eventually it was chaired by a strategic health authority executive who was apparently respected by all members.

The acute trust had supported the PCT proposals to remove 24 hour medical-led emergency admissions from Yellow Hospital, which left external stakeholders with the understandable belief that this was what the acute trust ultimately wanted, and was what they were opposed to. Mutual mistrust continued.

> '… you end up with a lot of cynicism in the group that it's just a way of keeping us occupied whilst downgrading happens.' External stakeholder, Round 1

Community members identified an expert whose work elsewhere in the country interested them. He was invited by NHS stakeholders to contribute, and made a radical proposal whereby a remote hospital would function as the satellite of a larger hospital. Quality digital links allowing joint assessment of patients by staff in both locations would mean that patients could be seen at the individual units before deciding where the appropriate treatment would be offered.

Given the local context, this facility for triaging at both hospitals was viewed as being a potential way of preventing all patients having to travel to Blue Hospital, only to be told that they could be treated back at Yellow Hospital.

However, the consultant also apparently made it clear that the technology allowing for these digital links to be used for these purposes would not be ready for 10-15 years. Nevertheless, telemedicine equipment was purchased, with some financial help from the local District Council. Trials were set up, and despite apparent reluctance from consultants at Blue Hospital to participate, they were persuaded and reportedly pleasantly surprised by the outcomes.

The campaign group proposed building two new DGHs in the county, one in Yellow Town, and one in a town in another part of the county, where there used to be a hospital many decades ago. Internal stakeholders described this as being very frustrating. In their view these proposals were completely unrealistic, and showed a total lack of understanding of the clinical, financial as well as political realities of the situation.

'…we made it clear from day one "We want to look at all the options" but I said, "I'm going to be completely honest with you, if anybody is saying you think you're going to create another district general hospital in Yellow Town, it's pie in the sky. When you talk about a full DGH you're talking about a fully blown accident and emergency department that requires an intensive care unit, orthopaedics on site, it requires on-site CTs, MRIs. So we made it quite clear from day one that that wasn't on - not just from my perspective, from [expert]'s perspective as the guy nationally who's at the leading edge of being challenging and radical. He's a real radical and he's saying it's not on. The SHA are saying it's not on, the Royal Colleges, all of my staff are saying it's not on and my staff at Yellow Hospital are saying it's not on…this the learning point from this is there are some individuals who will not be open to rational debate or persuasion.' Internal non-clinical stakeholder, Round 1

Despite a promising start, by the time of the first round of interviews for this study three years later, the stakeholder steering group was described as unproductive by both NHS and community participants and no reconfiguration proposals had been agreed. In the following years 2005-2007, a number of events affected the relationships between stakeholders.

Trust deficit

Firstly, the Trust's deficit emerged in spring 2006, and grew over the following year, making turnaround a focus of the trust's planning.

March over Purple Hospital

Secondly, an internal document including a cost-saving option to close Purple Hospital, the small elective unit, was leaked in the summer of 2006. A march with estimates from 25,000 to 29,000 participants took place. Internal stakeholders insisted that closure had never been a concrete proposal.

The community group argued that the trust was secretive and untrustworthy. The Secretary of State visited and stated that any proposal to close Purple Hospital "would not be accepted".

Health campus

Finally, in the autumn of 2006, Trust C developed and put forward a proposal for a 'health campus', a new build in Yellow Town involving a range of primary and secondary services, although no details had been developed at that stage. There was a hope that a new build would give the community confidence, while a service configuration could be developed for higher

volume, lower risk services. Patients in Yellow Town would need to travel to Blue Hospital less than they did under the present configuration.

The proposal was overtaken by the PCT Strategic Review.

7.4.7 PCT Strategic Review 2006

In October 2006 a new county-wide PCT was set up, and initiated a strategic review of health services as a priority.

- The review began with a period of informal engagement including public meetings, evidence hearings and invitations for individual contributions.
- Simultaneously the PCT compiled a set of technical papers on health need and current service provision.
- These processes informed a strategic framework document
- After the data collection period of the project, proposals were to be drafted for formal consultation, with a recommendation to be put to the PCT board in July 2007.

The strategic framework document included commitments to maintaining doctor-led A&E and surgery at Yellow Hospital, and keeping Purple Hospital open as an elective surgery unit. Breast surgery, which had moved to Yellow Hospital where it was hard to provide a fully single sex ward, would return to Purple Hospital. The PCT concluded that sufficient consensus was built around the framework proposals for there to be no need for formal consultation. No details were given in the strategic framework on the interpretation of these commitments. In making them, the PCT was, depending on detailed proposals, open to an accusation of favouring the part of the county around Yellow Town, where the campaign is vocal and organised.

The Trust's health campus proposal was suspended while the proposals from the strategic framework were developed. Trust interviewees welcomed the PCT's active role. External stakeholders who were suspicious of the trust did not have the same level of mistrust of the PCT. However, stakeholders from all sectors reserved their judgements on the value of the review until proposals had been put forward and agreed.

> 'I think all things could help, but at some stage somebody will have to make some decisions and stick with them and not be bullied by small minorities.' Internal clinical stakeholder, Round 2

> '[The review] can only help in terms of sounding out what the population feels it wants. Whether it will be able to deliver what they want I think is another issue' Internal non-clinical stakeholder, Round 2

The review was chaired by an independent chair, and a stakeholder reference group including those involved in the community group was set up. A multi-agency board oversaw implementation.

7.4.8 Relationships between stakeholders

Relationships between the trust and the community campaign had been difficult for some years, and each side described the other as not acting in good faith. The trust was particularly concerned that it could not talk openly to staff, particularly from Yellow and Purple Hospitals, because tentative proposals would be leaked to the media.

> '…if we can't talk to our staff about what services could look like, should look like, then we're never going to be able to sort anything out because, you know, the senior management team shut away in a room is going to come up with a wrong answer whatever happens.' Internal non-clinical stakeholder, Round 2

From the external stakeholders' perspective, they did not feel that their concerns were being properly addressed, and they kept returning to issues that the internal stakeholders felt had been dealt with. They reported secrecy, a history of removal of services from Yellow Hospital and promises made by the acute trust, for example to install a CT scanner, that had not been carried out.

> '…there's been a catalogue of broken promises. There's certainly a perception in the public and it's certainly an opinion that I hold, that things are taken away and promises are made that other things will be put in their place, which will make things better, but we still wait to see them.' External stakeholder, Round 1

The deficit reinforced a suspicion on the part of community campaign members that reducing costs motivated proposals for withdrawing services, even when a clinical governance case was made. Internal stakeholders rejected this suggestion.

> 'I would never ever recommend the service to be withdrawn if it was a great service that was utterly sensible, but was expensive. It's just that this service is not sensible, it's not safe and it's costing a fortune and all of those three put together the reason that that is happening is because the, the local politicians and health groups [in the area of Yellow Town] are holding this hospital to ransom, and threatening both individuals and the organisation with all sorts if anybody touches our hospital and tries to downgrade it any further.' Internal clinical stakeholder, Round 2

The present PCT, a new organisation, wanted to side-step this history and assure the community that it was open to their concerns from the start of its strategic review. A change in many of the trust's senior management team at about the same time brought executives willing to endorse that approach. It was not clear at the time of the second round of interviews that this approach alone could overcome some external stakeholders' mistrust.

Some NHS stakeholders were concerned that the strength of the community campaign and mistrust of the trust had two impacts.

- Firstly it meant that any service change was greeted with hostility and resisted, making the NHS static.
- Secondly it focused attention and resources on the third of the county's population surrounding Yellow, Purple and Blue Hospitals, at the expense of the rest of the county, including deprived areas with difficulties in access to health care worse than those found around Yellow Hospital.

The strength of the campaign was attributed by all stakeholders to regional isolation and regional pride, and the evident high health need in the area. Some, particularly NHS stakeholders, also suggested political opportunism by both local councils and MPs, who had played a prominent role and were in parties opposed to the labour government. The district council covering Yellow Town funded administration for the community campaign and the MP had led marches

7.4.9 Implementation

There has been no agreed reconfiguration plan which addresses the drivers which concerned the internal and other NHS stakeholders, or the community campaign.

Emergency services

Some changes to the model of care were made in A&E in Blue Hospital late in 2004 to address a problem of ambulance waits at peak times of year, including the holiday season when the population nearly doubles in size. A redesign of the emergency services at Blue Hospital was championed by one of the emergency physicians at the department.

The redesign involved:

- development of an emergency physician role;
- dividing A&E into three units;
- accident and emergency;
- medical emergencies;
- surgical emergencies;
- consultant delivered care with patients seen and reviewed by a consultant on admission then every subsequent day of inpatient care;
- acute clinics for discharged patients to be seen the following day;
- specialised nursing roles;
- 'hospital at home' with nurses continuing care in patients' home, e.g. administering of IV medication.

This model was implemented with reported success at Blue Hospital, and was considered to have potential to improve the quality of care at Yellow Hospital. With some modifications it was implemented there as well. However, it was not satisfactory either to those concerned about clinical

risk (who saw it as offering only limited protection from risk) or to the community campaign (who saw it as a holding operation only).

> 'I was just looking at the treatment of acute heart attacks and how good we are at getting the treatment done within the first thirty minutes. The numbers at Blue Hospital are only about sixteen and the Yellow Hospital numbers are between nought and 1, so would you put in place a system of nurses to deal with Yellow Hospital's thrombolysis in the same way as you might here? Well, the answer is it would be a crazy waste of a resource and actually the wrong thing to be doing by those patients anyway because if you need thrombolysis you want to be somewhere where there's a cardiac cath lab opposite you and the cardiologist that can drive it and take you to the cath lab instantly if you need to go.' Internal clinical stakeholder, Round 2

Other changes made to address concerns about clinical risk at Yellow Hospital have been applied with varying degrees of rigour:

- Ending out-of hours surgery, which had not been resumed at the second research round.
- Restricted opening hours for casualty. At the first round of interviews casualty at Yellow Hospital was doctor-led only until 9 pm with nurse practitioners leading the service overnight, but at the second round of interviews the doctor-led service had been extended to 10 pm.
- Restricted emergency surgery admissions. Emergency surgery was briefly removed but resumed at Yellow Hospital. What was agreed was that there would be space left at the end of elective lists for some emergency conditions to be operated on at Yellow Hospital, according to strict protocol.

> 'There was strong lobby from surgeons here [at Blue Hospital] saying there shouldn't be an emergency take down there at all. One particular person who took the lead on emergency surgical admissions here was one of those. So he and I sat down and went through patient by patient a whole list of patients they'd actually had through [at Yellow Hospital]. And we stopped and looked at them, he went "Yeah, makes perfect sense to be doing those down there. That one doesn't and that one doesn't." But for the vast majority of them it was perfectly sensible that they were being operated on at [Yellow Hospital].' Internal stakeholder, clinician, Round 1

- Unselected medical admissions continue despite serious concerns, and there were reports of variable application of admission and ambulance protocols.
- Anaesthetic cover. Two anaesthetists provided a 1-in-two rota at large expense for low volumes at the second round of interviews.

Lower risk activity

A complementary measure to the reduction of high risk activity was the increase of low risk work – diagnostics and outpatient clinics. At the second round there was no report of increase in diagnostics or outpatient clinics at Yellow Hospital.

Operation across two sites

Integration across the two sites has been suggested, but rotation of both medical and nursing staff has failed to produce the level of mutual understanding that was hoped for. Restructuring of directorates to span the sites was resented at Yellow Hospital as removing autonomy. Staff at Blue Hospital report that staff from Yellow Hospital could not cope with the level of activity at Blue Hospital A&E, and that practice was poor at Yellow Hospital. Poor relationships continue.

> 'I was literally shocked by the medicine when I went [to work in Yellow Hospital Casualty]. I was stunned by some of the things. Simple things, the first patient I saw had actually had a heart attack five days before, but it was completely undiagnosed.' Internal clinical stakeholder, Round 1

7.4.10 Sustainability

A number of factors threaten the sustainability of the present configuration of services at Yellow Hospital.

Finance

Payment by results (PbR) will further expose the high cost of maintaining a body of consultants at Hospital Y sufficient for even a minimal range of acute admissions. The trust's deficit reinforces other factors which encourage shorter lengths of stay at all sites.

The PCT's commitment to continuing doctor-led A&E and surgery may mean that it is open to the prospect, hoped for by some internal stakeholders, that it will add a premium to the PbR tariff.

Practice-based commissioning (PBC) is likely to contribute to the sustainability of Yellow Hospital, since the GPs around Yellow Hospital support the hospital and are reported to be particularly advanced in their preparation for PBC.

Internal and external stakeholders mentioned the way that funding disadvantaged rural health services. Providing services accessible to scattered communities increased cost, and under Agenda for Change NHS staff are paid on a national pay scale. Stakeholders argued that the combination of these costs with the Market Forces Factor (which adjusts NHS funding, mainly to take account of local labour costs) unfairly penalised scattered rural communities in England. The prospect of a rural supplement was raised with increasing optimism by some stakeholders.

Clinical sustainability

Internal stakeholders continued to be concerned about unselected medical admissions, surgery and anaesthetic cover at Yellow Hospital. The provision of diagnostics and supporting specialisms at a safe level would be financially disproportionate, depriving other areas of resources, so the allegations of the community campaign were in a sense true – there was a relationship between clinical risk and finance.

At the second round of interviews, the configuration was insufficient to satisfy the community campaign, and still too risky to allay internal stakeholders' concerns.

The community campaign believed that there was a risk in the additional travel time to Blue Hospital's A&E that outweighed the risk of an inadequately supported A&E in Yellow Town. In fact, for vascular surgery, out-of-hours emergency admissions alternated at weekends between Blue Hospital and a hospital in the next county, an arrangement that did not seem to arouse the same level of public awareness and concern as the restricted hours for emergency surgery in Yellow Hospital.

The opportunities of triaging by tele-medicine may be more realistic than they were when first explored by the stakeholder steering group in 2002. This approach will require constructive and open-minded collaboration before a realistic assessment of its potential can be undertaken.

Recruitment to Yellow Hospital, particularly of anaesthetists trained in up-to-date practice, was reported to be difficult because of the unattractive configuration and low activity level. However, coverage from Blue Hospital was not considered realistic because the journey time was 40 minutes, or longer in the holiday season.

Political sustainability

The question of political sustainability arises strongly at Trust C. In order to be sustainable, a solution must have the support of local politicians and campaigners. A sustainable configuration depends on some level of trust being restored between NHS agencies and the campaign group.

The PCT's open approach, now supported by the trust, may offer a prospect of a sufficient level of trust for progress to be made. At the time that data collection was complete, commitments by the PCT made were vague, and progress depended on good relationships continuing when hard decisions were made.

Local politicians, who were not in the Government party, were critical of local NHS services, and party politics may confound a solution. They argued that a Labour area might have been better resourced. However, there were also two instances in the history of reconfiguration at Trust C when Secretaries of State had made statements which undermined the positions of local NHS organisations.

7.4.11 Conclusions: Trust C

This case study of attempts to provide a safe, accessible and affordable configuration of health services in a remote rural hospital is characterised by the exceptional impact of a community campaign group. There has been a lack of trust between the group and Trust C which may be decreasing, but which was exacerbated by Trust C's deficit.

There has been no true reconfiguration of Trust C's services and at the first round of interviews there was an impasse. The intervention of the present PCT, with a fresh open approach, may offer some hope of progress, but only if, in the face of severe financial constraints, a solution can be offered

that is acceptable to local campaigners and some entrenched positions can be broken down. The role of party politics has not been supportive of a resolution at Trust C, and the reluctance of Government to repeat the circumstances in Kidderminster may mean that national politicians would prefer local organisations to resolve the impasse.

The introduction of an independent expert had the potential to clear a log-jam at one stage in the lengthy process. It failed to do so because the expert's recommendations failed to convince important internal stakeholders, and were not feasible in the short term. Local campaigners, at first interested in the proposals, later began to argue for two new DGHs instead.

Potential and actual geographical inequity in access to health care must be addressed. All three of Trust C's hospitals are in one end of the county. The community campaign's expectations, if delivered, would draw further resources into Yellow Hospital which cannot offer a county-wide service because of its size and location. The county council's overview and scrutiny committee and the PCT have responsibilities to the population of the whole county, but may not be able to improve geographical inequity given political resistance to change.

7.5 *Arguments for Hospital Reconfiguration – Operationalising the Typology*

In Chapter 4 above, we set out a typology of the types of claims and arguments presented about hospital reconfiguration, and the kinds of basis claimed for them in rival priorities about what is counted as "the public interest". In our qualitative study of the reconfiguration process in each of the three cases, we were able to examine the data we obtained from our interviews in order to operationalise this typology. We also set out some hypotheses about who might be expected most readily to reach for each of these types of arguments and claims.

The interviewees in this study included stakeholders from a range of interests which would influence the arguments they used, and it might also be expected that the particular circumstances of reconfigurations would influence what arguments were expressed – for example that in areas where interests of stakeholders were conflicting, interviewees would be less likely to acknowledge a wide range of interests. We investigated how these different interpretations of the public interest were distributed among our interviewees, and how they related to the solutions they advocated.

Conflicting interests reported in the preceding sections, and particularly in the chapters on Trusts B and C, could be crudely summarised as favouring or opposing moving services into large central sites and from smaller local sites.

7.5.1 Method

Responses from the 109 interviews conducted in two rounds of data collection had been summarised on a spreadsheet by themes following the framework analysis method (see Chapter 2.4). Views corresponding to those in Figure 5a were noted for each interview. Interviewees were classified as expressing arguments compatible with consumer, patient, voter and taxpayer type public interest claim. An interviewee could be classified in more than one type. For example, they might argue that a reconfiguration should achieve both financial sustainability (taxpayer) and services close to patients (consumer). Findings for both data collection rounds were aggregated.

The findings were analysed by stakeholder group (internal non-clinical, internal clinical and external).

- Internal non-clinical stakeholders included trust chairs, executive directors (apart from medical directors and directors of nursing) and senior managers.
- Internal clinical stakeholders included all internal interviewees who were doctors, nurses or members of allied health professions, including directors of medicine and nursing.
- External stakeholders included interviewees in other organisations in the health economy (PCTs, strategic health authorities, local authorities), patient forums and campaign groups, and MPs.

Both internal groups included some interviewees from threatened sites. All groups, therefore, included stakeholders with diverse interests with respect to centralisation and reduction of services at smaller sites.

Findings were also analysed by case study, to see if the particular circumstances of different sites influenced what views were expressed.

7.5.2 Findings

'Consumer' public interest claim

The 'consumer' public interest claim, relating to access and the patient experience, was most likely to be found among the diverse 'external' group including interviewees from organisations outside the trust, politicians and patient representatives. In these case studies, interviewees putting forward these arguments were likely to favour local services.

> 'I think that when they start talking about moving things they have to take into account the transportation of people as well.' External stakeholder, Trust B, Round 1

'If, as is often the case, you have ambulances queuing up outside [Blue Hospital] unable to unload patients, that still happens, for people in [that area] you haven't got the choice, you just have to join the queue. Whereas what we're saying is, is surely it makes sense that for people who need to be seen as an emergency there should be a pressure release valve and the capacity to be able to accept emergencies in a small hospital like Yellow Hospital and it would be sensible to plan to build those facilities up and to have the clinicians in place to do it.' External stakeholder, Trust C, Round 1

'Patient' public interest claims

Arguments in terms of health outcome ('patient') were most likely to be put by clinicians but also by more than half of non-clinical internal interviewees.

'To have single discipline consultants on one site is not good and you can't sustain that, we need to get consultants working in teams so they're sub-specialised and we have teams of people working across the organisation. And I think that's a huge benefit and from the quality of patient care that's probably going to be the biggest benefit.' Internal clinical stakeholder, Trust B, Round 1

'I think that we are, we are seeing a greater number of staff whose clinical decision-making is of a high level. I think that we see staff who understand the clinical process both in the acute and the community primary care setting in a way that they would not have understood it a year ago or a few months ago.' Internal clinical stakeholder, Trust A, Round 1

'… my clinical concerns have been supporting surgical endeavour on a site removed from the major hospital which has got access to the sorts of things that you need to run a major surgical unit, such as CT scanning, cardiology, intensive care, gastroenterology, everything. But the full range of services isn't there.' Internal clinical stakeholder, Trust C, Round 2

Many clinicians based advocacy of centralised services on 'patient' arguments, but these arguments were also used to support localised services.

'The proposed model is that we would not have a consultant anaesthetist on this site other than for some fixed sessions during the day.' [SO HOW WOULD YOU BE COVERED OUT OF HOURS?] 'By a staff grade … for our non-selected medical take, overdoses, going unconscious, epileptics, meningitis, asthmatics going into respiratory failure. You know, it beggars belief.' Internal clinical stakeholder, Trust B, Round 2

Some of the 'patient' arguments for centralised services rest on assumptions about the benefits for health outcome of such services. However there is only limited support in research evidence for exactly which services need to be co-located for a safe configuration (Harrison and Prentice, 1996), for whether outcomes are better at larger organisations

(Ferguson et al, 1997) or for what is a safe level of surgical activity (Halm et al, 2002; Murray, 2004; Murray, 2006; Davoli et al, 2005).

'Voter' public interest claims

Statements classified as 'voter', involving the significance of NHS services to local communities, were made in only 5 of 109 interviews analysed. It may be that this type of argument motivated the involvement of local campaigners and politicians in the reconfiguration issue, but that these stakeholders found it necessary to advocate in other terms which were more likely to influence NHS decision-makers.

Some stakeholders at each site attributed 'voter' values, particularly the cultural importance of buildings, to local communities (although the attribution of values to others was not systematically analysed).

'... a lot of people who live here, have always lived here, you know, there's a sense of ownership, and I think it's when you're trying to give things or take things away the reaction is stronger.' External stakeholder, Trust C, Round 2'

'Taxpayer' public interest claims

Arguments for efficient use of resources ('taxpayer') were put by almost all internal non-clinical interviewees (mainly trust management teams) and also more than half of clinical interviewees. These arguments did not categorically support centralised services. Interviewees making these arguments tended to accept the provision of some local services as a necessity to be accommodated in achieving financial objectives.

'... the biggest single service change that we've done has been orthopaedics, and I can see even a few months in it's changed the dynamic of certain ways in which the service operates, some of which will be favourable, but some could be very unfavourable. So we're very keen on evaluating every change we've put in place to say "Well, actually was it the right thing in the first place?" In the environment we now find ourselves in it's absolutely the wrong thing to do because the independent sector procurement work is a major issue, they're going to want the arthroplasty work that we've done in the treatment centre. And so we, as a patch that's one of the options that we have currently on the table with the Department of Health that having done this with the arthroplasty unit that we actually see if a provider wants to come in and run it. But they would need to run it for a bigger population because for the clinical needs of the patients we've constantly reviewed the criteria for who's acceptable for the treatment centre, for the arthroplasty unit but there is a limit to the demand on this patch for that type of care.' Internal non-clinical stakeholder, Trust B, Round 1

'…, to cut costs to that extent we already know where some of that is going to come from, we already know where about seven million is going to come from, … you have to do something quite radical and I don't know what that's going to be and we've got an away day with the PCTs shortly to talk about that finally, because otherwise, you know, what are we going to close?' Internal non-clinical stakeholder, Trust A, Round 1

This suggests a flexibility indicating that those who prioritise 'taxpayer' arguments may find it easier to respond to recent reviews and policy advice supporting more local services (Department of Health, 2006b; Department of Health, 2007; Darzi, 2007) than those who prioritise 'patient' arguments supporting centralised services.

Trust A

Most interviewees at Trust A were internal, and all of both the clinical and non-clinical internal groups expressed 'taxpayer' arguments. These interviewees were also more likely than those elsewhere to make 'consumer' arguments, possibly reflecting that the redesign at Trust A was based on a model of care which took account of the patient journey.

'I think patients who do come into A&E will actually get a better deal and I think patients generally will get a better deal because more patients will get an early expert opinion.' Internal non-clinical stakeholder, Trust A, Round 1

The high proportion of clinicians expressing 'taxpayer' arguments may be accounted for by the history of Trust A's model of care which was developed at a time when Small Hospital Trust's place in the health economy was challenged by neighbouring competitors and it needed to demonstrate its distinctive advantage to survive.

'… the amount of elective work that we're bringing through has increased, so there has to be very very good utilisation of our bed base in order for that reduction to happen and, you know, many of the schemes that we put into place have worked extremely well, so well in fact that we moved in here and were able to close twenty-four beds three months after moving in. Now, that's efficiency at its best, I would say.' Internal clinical stakeholder, Trust A, Round 2

The greater level of overlap between the types of argument made by different groups within Trust A than elsewhere may support claims made about the cohesive culture at Small Hospital. However, 'patient', 'taxpayer', and 'consumer' claims do not necessarily predict support for particular configurations – the same type can be used to support opposing positions. It may simply indicate that debate took place on clinical, efficiency and patient experience issues.

Trust B

In Trust B all trust managers (the internal non-clinical group) used 'taxpayer' arguments and over half also used 'patient' arguments. The overwhelming majority of clinicians used 'patient' arguments, and over half also used 'taxpayer' arguments. As elsewhere, it was common for both of these internal groups to use 'consumer' arguments. The use of 'taxpayer'

arguments was as common as the use of 'consumer' arguments among external interviewees at Trust B. Here, organisations in the health economy outside the trust were concerned about the financial demands the present configuration could make on the health economy.

'… The other thing that's very important to say though is the financial consequences of all of this, which I don't believe were really evaluated as they ought to have been. … if they had been you probably would, if people really costed these changes in great detail you'd probably never move anything, so I understand why, you know, there's an imperative to change and you sort of have to catch up, but the PCTs couldn't really afford all of the [reconfiguration plan] implications.' External interviewee, Trust B, Round 1

Internal non-clinical interviewees (mainly trust management) were aware of the influence of 'patient' arguments with a wide range of stakeholders, particularly when they were put forward by clinicians.

Trust C

In contrast to Trust A, Trust C showed the smallest proportion of clinicians using 'taxpayer' arguments, and a low level of 'consumer' arguments put by non-clinical internal interviewees. Only 1 of the 20 external interviews included a 'patient' (health outcome) argument. This seems to confirm the picture of a polarised debate with the trust on one side and a local campaign on the other.

'.. the last time I was down there I literally had an eighty-six-year-old gentleman who was dying because he needed a pacemaker and I said "Well, we'll send you up to Blue Hospital and do it." And he said "I'd rather die than go to Blue Hospital." And he did die.' Internal clinical stakeholder, Trust C, Round 2

'…all the investment has gone into [Blue Hospital] and really Yellow Hospital didn't stand a lot of chance then, they started saying "Well, Blue Hospital is the main hospital, this is the hospital for the county." Now maybe that was okay in the sixties, though I would still argue that you shouldn't put all your eggs in the one basket in a county like [this one], but now, with a growing population, a growing elderly population and all the issues of transport and stuff, it seems quite crazy to me to be centralising everything on the one site. I don't know if you've been in Blue Hospital and seen the traffic flows, for instance?' External stakeholder, Trust C, Round 1

Change over time

We investigated whether arguments had changed over time. The first data collection round took place from February to August 2005, and the second round between November 2006 and April 2007. Interviewees had raised the increasing financial constraints over the study period, and we were interested in whether they were more likely to deploy 'taxpayer' arguments in the second round. In fact, for the 25 interviewees interviewed in both

rounds (see Table 3 in Chapter 1) there was little difference in the type of argument used in the first and second rounds

7.5.3 Discussion

This analysis confirms that 'patient' public health interest claims, concerned with health outcome, are most commonly expressed by clinicians. 'Taxpayer' public interest claims concerned with efficient use of resources were most likely to be expressed by the internal non-clinical group made up mostly of trust executive team members. The diverse group of external stakeholders were most likely to express 'consumer' claims (typically about access to care and the patient experience). 'Voter' public interest claims relating to the local significance and value of services were rarely expressed by interviewees in this study. No type of claim was exclusive to any one group. Views of the purpose of reconfiguration were most polarised in Trust C.

Questions arise as to the validity of some aspects of this analysis. Differences between trusts may be accounted for by the balance of stakeholder groups among the interviewees in the case studies. At Trust A, the proportion of external interviews was small and these low numbers are hard to interpret. Trust C included the highest proportion of external interviews. The interviewees were not representative in a statistical sense. Samples in qualitative research are not designed to be representative of the population. Sizes are based on judgement – how many participants will be enough to ensure data saturation (i.e. the point at which no new themes will emerge on the research question), and how many will be too many for manageable analysis (Pope et al, 2000). In some groups, numbers were small. They were reduced further by some interviewees (two journalists and two external advisers, all classified as external stakeholders for this analysis) expressing no arguments about the reconfiguration. In most cases, classification of claim type was clear, but some statements (for example advocating reduced length of stay and reduced admission) could be interpreted as either 'taxpayer' or 'patient' positions if no helpful commentary was added.

Whether interviewees expressed any claims could depend on the views and circumstances they were responding to. For example where values are widely shared, they may not need to be spelled out. So the analysis reports on the distribution of expressed arguments, and not on the distribution of beliefs. This may account for the low number of 'voter' arguments expressed.

The findings are compatible with another study using this framework to analyse a smaller number of interviews (Farrington-Douglas and Brooks, 2007b).

7.6 *Lessons Learned and Implications for Policy*

This chapter has aimed to examine how well the study sites performed in sustaining delivery of acute services through reconfiguration, to identify

factors that contributed to success or failure and to look for learning that can guide future reconfiguration.

The study sites achieved changes in delivery of acute services and were able to claim benefits, but none could be termed an unqualified success:

- At Trust A, service changes were implemented, and benefits in cost and output were claimed. These changes do not fall within the definition of reconfiguration adopted for this study (section 1.2 above), which involves the distribution of services between hospitals, and so did not involve the removal of services from any site.
- At Trust B, service changes were implemented and the reconfiguration plan was formally signed off as complete, but interpretation of the reconfiguration as a success was challenged by some internal and external stakeholders, and the process was lengthy.
- At Trust C, service changes within the definition of reconfiguration used for this study did not take place.

All three face challenges to the sustainability of acute services. However, all three case studies offer the chance to learn about how reconfiguration can be planned and implemented

7.6.1 Limitations of Study

There are limitations to the confidence which can be placed in these conclusions, which are based on subjective testimony. The project includes only three case studies, which may not be typical of others during the study period; and since the work was conducted the NHS environment has changed, and will change more.

7.6.2 Local Stakeholders

We looked at the involvement of different stakeholders in reconfiguration, and considered what type of argument they were likely to use:

- consumer (relating mainly to access);
- patient (relating to clinical safety;
- taxpayer (relating to economic factors, particularly financial sustainability);
- voter (relating to cultural significance).

The study also examined how stakeholders were able to influence reconfiguration, and which solutions to the problems of threatened small hospitals each stakeholder favoured, characterised crudely as supporting either local or centralised services.

Trust managements

Trust managements developed reconfiguration proposals, although their ability to implement was constrained by other stakeholders. In all cases, they supported retaining some services at threatened local sites (although it was not clear from our data whether their grounds were access or cultural

significance). They sought to make the sites viable with service configurations which were financially sustainable and clinically safe. At Trusts B and C these involved centralising some services at larger sites. The solutions they put forward tended to coincide with those advocated by clinical leaders (see below). They gave the impression of being able to respond quickly to policy incentives set nationally.

In all three case study sites, as in another study (Farrington-Douglas and Brooks 2007a) the importance of cost as a primary driver was played down by trust managers, who stressed the importance of the clinical safety case, particularly at Trusts B and C. This was confirmed by analysis of public interest claim types (Section 7.5 above).

Clinicians

Clinical leaders in trusts B and C tended to favour centralisation of some acute services, on grounds of safety. They told stories of having raised their concern with management, royal colleges and colleagues. Their arguments were put in clinical terms, and they tended to recommend centralising only when they perceived services as risky. Their concerns related to the practice of more acute procedures, commonly now performed by sub-specialists, in sites with low activity and without a range of services – for example the ventilation of patients at Yellow Hospital at Trust C. Clinical leaders acknowledged public concern about the viability of local services, and suggested building up of low risk services. For those who were interviewed for this project, cost was not a primary concern.

The lack of clear evidence to support solutions in particular cases gave room for conflict, particularly in Trust C. This lack of clarity left room for clinicians to wish to err on the side of safety, for others to challenge their arguments, and for royal colleges to hold back from clear adjudications. Clinicians gave instances where Royal Colleges were not able to give a clear withdrawal of approval of a configuration that they found to be dangerous.

> '… the Royal College came and said "This is how you could run this service." It would cost an absolute fortune to put a service as they would and it's financially not an option to do it. You would be employing a number of consultants to do nothing, other than provide a safety net.' Internal clinical stakeholder, Trust C, Round 2

> 'Take very little notice of the Royal Colleges, is the other thing I'd say…I mean they're risk averse in terms of treading on toes and politics and pulling things.' Internal clinical stakeholder, Trust C, Round 2

Clinicians based at threatened sites tended to resist removal of services from those sites, using arguments of clinical safety, particularly those relating to co-location of services. Some were concerned about the ability to recruit to sites without sub-specialisms. Their resistance to removal of some services from small sites brought then into conflict with trust managements and clinical leaders. They were not strongly influential, and expressed frustration. Doctors, in particular, could be inflexible, but were

critical to success of implementation (for example, consultants at Hospital Z in Trust B). Nurses were perceived as more flexible.

Local communities

The local communities argued for the maintenance of local services, expressing their arguments mainly in terms of access rather than cultural significance. A&E and more acute services raised the greatest level of concern. There were several instances at Trusts B and C of external stakeholders being suspicious of clinical safety arguments and attributing cost-saving motives to trust managements.

The influence of local communities over reconfiguration varied. In Trust B, some aspects of the reconfiguration plan were altered because of feedback from public consultation, but at Trusts A and C local communities had had no direct influence on reconfiguration plans and proposals. Trust C gave a dramatic example of a community able to influence what was implemented, and of a trust being deterred from the development of proposals by the threat of community action. No firm proposals were put for Yellow Hospital between the PCT consultation in 2002 and the end of data collection early in 2007. There was no notable resistance at Trust A, where services were not withdrawn.

Characteristics of the local community may be influential in determining whether local communities become concerned about reconfiguration, and take effective action. The removal or threat of removal of local services (particularly acute services) also played a part. At Trust C, involvement of politicians, whose input was triggered by a different range of factors, strengthened the impact of local communities.

Politicians

Politics at national and local level played a role in all three case studies. Trusts A and B were believed to have been supported by influential national politicians. At Trust C two government ministers had made statements which undermined the position of the trust management. Local politicians argued that the area was under-resourced because there were no Labour MPs representing it. Both local councillors and an MP were deeply engaged in the community resistance to proposed changes to the services at Yellow Hospital.

Other organisations in the health economy

Other organisations in the health economy with responsibility for populations were immature or undergoing reorganisation during our study period.

The role of the PCT in commissioning services for populations means that they might be expected to lead on reconfiguration of acute services. However there was organisational change for PCTs covering Trusts B and C, and they did not show strong leadership during the start of the study period. The PCT covering Trust A experienced a severe deficit which influenced its priorities.

Overview and Scrutiny Committees in local government were new at the time that reconfiguration plans were developed. They took positions broadly supportive of trust managements, who mentioned, particularly at Trusts B and C, work to develop their understanding. They were not perceived by most stakeholders as influential or well-resourced.

These organisations are taking a stronger role in more recent reconfigurations, and some were showing more leadership in our case studies towards the end of the period.

7.6.3 Implementation

At the second data collection round in late 2006 and early 2007, Trusts A and B had implemented most of their services changes. The study examined a number of factors which may contribute to success or failure in implementing reconfiguration. By "success", we mean reported implementation of the planned changes, and their reported operation as intended.

By this time the challenges to financial sustainability had grown. The issue of cost of providing care became more prominent during the process of implementation. After the case study trusts began forming reconfiguration plans, the financial pressures on NHS organisations changed. Payment by Results (PbR) introduced a standard minimum tariff for procedures in NHS hospitals. PbR created particular difficulties for small hospitals which need to provide a safe level of consultant cover with a low activity level, an issue which arose at all the hospitals on which our case studies focused. The tariff was not fully implemented during the study period, but was influencing planning.

Pressures of competition through patient choice and practice based commissioning (PBC) grew during the period of study, particularly for Trusts A and B which had strong local competitors.

These financial difficulties constrained the trusts' scope for protecting access. For example, at Trust A, the problems in the PCT had led to less care shifting from the hospital to the community than had been planned. Implementation proved difficult in all cases, even when, as in Trust B, local opposition was not strong and the trust was financially secure. There were deficits in our other case study trusts, and in Trust A's close partner, the PCT.

Trusts do not get extra resources for implementing reconfiguration, and the process consumes resources and time.

Internal stakeholders at Trust A claimed that the use of a changed model of care and role redesign had made them more resilient to the new financial challenges they faced.

'… even though last year was one of the worst years we've been through in terms of the extent of the savings programmes and the difficult things we had to do and we moved into a building, within four months we were shutting bits of it down. I mean, and even despite all that, you know, we still did pretty well, … people kept going and still, you know, believed in the system.' Internal non-clinical stakeholder, Trust A, Round 2

7.6.4 Consultation – managing external stakeholders

The national clinical director for reconfiguration has made a case for "open and honest stakeholder engagement", (Department of Health, 2007). Internal interviewees, particularly in Trust B, supported the view that the process of consultation could influence the success of a reconfiguration.

' …the message that I've certainly given to everybody that's come to visit us is it's not just about the message, it's who gives the message and if you can get an influential well-regarded clinician to be the one to give the message you are so much more likely to succeed because they can say things in public that if a manager or a director or whomever made that comment people would leap on it. But as a consultant saying it as a senior clinician, people value that opinion and will take advice about what needs to happen, in I think a slightly more open-minded way. It's not a guarantee, but it's a, it's certainly a help.' Internal non-clinical stakeholder, Trust B, Round 2

' …I remember one snowy evening up to [remote village] to speak to some maternity services group, mother and toddler group or something ……you know, and the amount of time we spent on the road, you know, sometimes three or four evenings a week speaking to GP groups, speaking to mother and toddler groups, speaking to this group and the church parish councils and all this sort of stuff.' Internal clinical stakeholder, Trust B, Round 2

Findings from this study suggest that openness and honesty may be hard to achieve and do not guarantee effectiveness in building a local case.

In Trust B, careful consultation was held and some changes made to details of the plan as a result. The most influential interventions from outside the trust came not from the public, but the PCG in blocking the initial plan, and from the Department of Health in supporting and ensuring the implementation of the plan developed by an external expert. At Trust A, public consultation was not influential in the development of the plan, and at Trust C, successive consultations failed to win public support for any plan. It is not yet clear whether a new approach to consultation by the PCT in Trust C's area has overcome the loss of trust between community stakeholders and NHS organisations.

During the course of implementation there were public protests about service changes or rumours of service changes not directly related to reconfiguration at all three sites.

Trust managers at Trust B stressed the importance of involving and informing politicians, and had become more sophisticated about it over the period of implementation.

'… if you're going from our experience here you've, you've got to have the chief exec, the chairman or whoever at whatever level keeping the local MPs aware of what's going on …… For instance, I did a presentation to, to the MPs, just purely for the MPs so that they understood what the clinical issues were … what I found there was that, never having dealt with politicians before, that even the politicians, if you actually have very sound clinical drivers for change and a change is clinically led for clinically sound reasons and also that you're actually realising that there are issues about the locality of services and you're actually writing that into your plan …' Internal clinical stakeholder, Trust B, Round 2

'I would never ever have realised before that you're actually, if you're actually going to make any real serious change that the best time to try and do it is in the first two years after the general election.' Internal non-clinical stakeholder, Trust B, Round 1

7.6.5 Managing internal stakeholders

Internal stakeholders had influenced the progress of implementation so that, for example, consultants working for Trust B at sites other than Hospital Y had threatened that site's viability by refusing to work there, while those at Yellow Hospital had succeeded in reversing a decision by Trust C that emergency surgery should cease there.

Planning

In Trusts A and B, managements argued that they had been able to influence the course of reconfiguration by careful planning. Both trusts dedicated considerable amounts of time to implementation, used a project management approach and stressed the need to do this in their reflections. Plans involved extensive work with the workforce and depended on a project manager and a supportive team.

'… have a very robust and systematic project management structure around it because there are so many strands that you end up having to work through and implement that unless it's done in a very systematic way you can miss key things. And I remember [a clinical director], he and I had some very interesting discussions early on because he didn't see any reason why he couldn't make the changes to [his service] by just talking to one or two people and it would happen. And nine months of planning and implementation later involving a multi-disciplinary team of people in admin roles and clinical roles and nursing roles and with the PCT and everyone else that he thought I was completely over-egging it at the start and saying, you know "Why do you need so many people to do this?" By the end of it he said "You know I couldn't believe how much there was to implement and to change."'. Internal non-clinical stakeholder, Trust B, Round 2

> 'The big obstacles to service change in an organisation which seventy percent of its costs are on human resources, it's human beings, not buildings. Buildings are the least important thing. I think that's what we've learnt. We've got a lovely building down at Small Hospital, the question is whether they're fit for purpose ten years after they were originally planned. You know, the health service context is changing so rapidly. What we also know is you can deliver effective healthcare in a tent, so don't get bogged down by the physical surroundings.' Internal clinical stakeholder, Trust A, Round 2

Organisational cultures

Trusts' organisational cultures (usually several different cultures co-exist within each trust) shaped how easy it was to make the case for, and to apply, change. History of merger meant both different cultures on each site and possible unresolved resentment or mistrust about how the merger was achieved. The reported lower level of elective surgery at Trust B's Hospital Y than originally planned was at least in part attributed to lack of co-operation from consultants at Hospital Z. These consultants employed arguments about safety in their refusal to work at Hospital Y, but their reluctance was attributed by others to conflicts with their private practice.

Trust A was the only case study where change was applied mainly on a single site, with, reportedly, a single culture and without site rivalries which were likely to affect implementation. The culture at Small Hospital was described as innovative and 'can-do'. Nonetheless, some resistance was encountered from the clinical workforce, which the plan had allowed for. Small Hospital's culture was reported to have facilitated Trust A's redesign, which rested almost entirely on changed models of care and redesigned roles. It was claimed that overall, consultants' time was more effectively used. There was relatively little role redesign in Trust B's reconfiguration, and this may have reduced the impact, and the demands on the workforce, of the reconfiguration.

Management style

Leadership styles, and the coherence of senior management teams, was reported as influencing how well they were able to build support for a reconfiguration both internally and externally. At Trust B, the senior management team was cohesive, stable, and strongly engaged in implementation of the reconfiguration; many local stakeholders argued that leadership from a supportive and stable team contributed to the sustainability of the reconfiguration there. Initially, the redesign at Trust A was strongly supported by the senior management team. During the implementation, key members left to be replaced by executives with a brief to tackle the trust's deficit, and support from above was reduced, but by that time the building was nearly complete and momentum for implementation strong.

7.6.6 Success in implementation

Trusts A and B implemented most of what they had planned, and internal stakeholders considered the plans implemented. Trust A was able to report intended benefits despite the financial problems in the trust and the PCT, although the redesign was protected to some extent from the trust's financial problems because the new build was agreed and the redesign implementation begun before the problems emerged. Trust B successfully centralised high risk maternity at Hospital X and low risk maternity and orthopaedics and stroke services at Hospital Y. Less elective surgery has been transferred to Hospital Y than was planned.

However, even under the most favourable circumstances, implementation was a lengthy and difficult process. For example, in Trust B, the trust was not working across all sites in a way that allowed the planned range of services in Hospital Y to be delivered. For all the trusts, the NHS had changed so as to change their priorities, possibly away from those which drove the reconfiguration.

Reconfiguration plans were made as interdependent sets of changes, and those incompletely implemented may have inherent weaknesses. At Trust B, merger with Hospital Z's trust was the element added by the independent expert specifically to give the reconfiguration stability, and the participation of Hospital Z clinicians in the configuration has been a particularly difficult element, threatening the stability of the configuration.

At Trust C, the reason for incomplete implementation appeared to be a lack of public support for change.

7.6.7 Sustainability

The case study trust managements all recognised that financial sustainability at the smaller sites would be jeopardised by the implementation of NHS policies, viz payment by results (PbR), patient choice, practice-based commissioning (PBC) and the move of more care closer to home (brought in with the community care white paper Our Health, Our Care, Our Say). These financial constraints and threats to activity levels reduced the flexibility of trusts to improve access or make the provision of safe care possible in a site with low activity. PCTs may be willing to pay above the PbR tariff for an accessible service, but have to make a positive decision to do this. All internal and most external stakeholders were aware of these risks. Some internal stakeholders were open to the possibility of removing services at small sites that the original reconfiguration plans were designed to preserve. No stakeholders advocated closure of any of the threatened sites. Proposals were put forward for other health or social care uses of the buildings, delivered by a range of agencies including primary and secondary NHS services, local authorities and the third sector.

The implications of closing PFI projects were raised at Trusts A and B, although stakeholders felt protected by the existence of a new building.

'… the issues that the PCT has faced have not been related in individuals' minds, public minds, to the situation at Small Hospital…. I think it's quite a superficial thing, isn't it? That it's a brand new spanking building and it's very lovely, the buses run there, and people just don't connect it basically. It's out of harm's way, if you know what I mean.' External stakeholder, Trust A, Round 2

Threats to sustainability could be internal as well as external. The change in senior management at Trust A (prompted by external pressures) seemed to threaten sustainability of its redesign. Members of the workforce at Trust B were holding back an element important to sustainability, the concentration of elective surgery at Hospital Y.

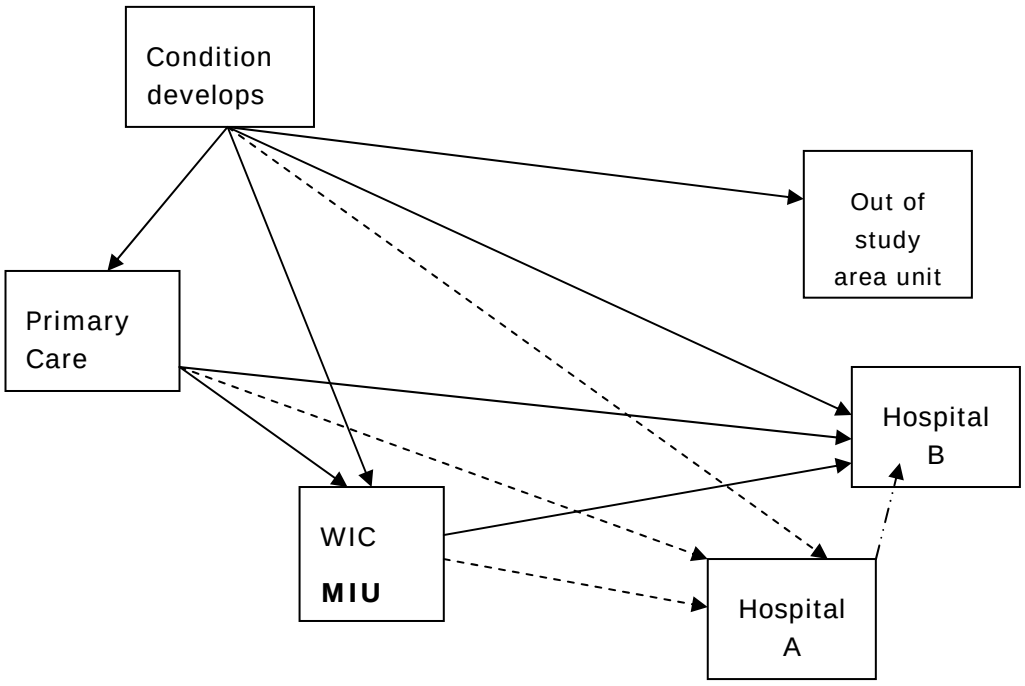
8 Hospital Reconfiguration - Emergency Care

This chapter looks at patterns of emergency care in the three Trusts, including information supplied by the three relevant Ambulance Services.

8.1 *Change in Patient Flows*

A generic system map (Figure 7) was developed to illustrate the patient flows within a local emergency care system. The aim of this study was to populate this flow diagram with data of number of patients per month during the period of reconfiguration. Although global data will demonstrate the flow in a whole system, more detailed and focused information will be more informative about the success of change. This focused data may be for specific conditions or for geographical location of the incident or illness onset. When considering condition specific pathways it is important to utilise presenting complaint rather than eventual diagnosis. Most patients will present to emergency care because of a symptom (e.g. chest pain or collapse) not with a prelabelled condition (such as myocardial infarction or stroke). Planning by use of diagnostic groups will fail to correctly manage those whose true diagnosis is not apparent at presentation. Recent work has also demonstrated a 50% error rate in paramedics diagnosing left ventricular failure, (Jenkinson et al,2009) using this diagnosis to plan care could mean that 50% of patients are taken to the wrong unit.

Figure 7 Simple model of patient flows



Example

Services are transferred from Hospital A to Hospital B.

Protocols are developed such that certain patient groups will go directly to Hospital B as their condition can no longer be treated at Hospital A.

If the new system is successful then:

- Patients with a condition only treated at Hospital B should not arrive at Hospital A.
- Patients with conditions treatable at Hospital A should not be arriving at Hospital B if they became ill/ were injured in catchment area of hospital A.
- The number of transfers from hospital A to B (irregular dashed line) will not increase (and should decrease).
- Patients transferred A to B will not have arrived from primary care or MIU.

(In an ideal reconfiguration, no patients would follow the interrupted lines).

A similar map can be drawn looking solely at ambulance journeys either emergency (following 999 calls) or urgent (following request from GP). It would be expected that a reconfiguration would change the flow by increasing the number of journeys to the more distant specialist unit. This change in numbers is important for assessing resource requirements for the ambulance service. Increased journeys to a more distant hospital will result in a need for more ambulances to maintain local cover when vehicles are out of the area. Because decisions are being made by trained health professionals, it is expected that a reliable system would ensure that these patients go to the correct destination first time. Therefore any subsequent secondary transfers are a system failure. However it is also important to assess the over triage (patients taken to the more distant unit when the local unit could have dealt with their condition) as this reflects poor system utilisation and inconvenience to the user.

8.2 *Emergency Department Flows*

Data on patient flows in the study hospitals was requested. No hospital was able to supply data that was useful for the study. Most pointed to altered methods of data collection over the study period, meaning that data from different time periods was not comparable. Data was often not separated into new and review patients, counting GP referrals and A&E attendances separately or combined and new IT systems either replacing older systems or replacing paper based systems. More detailed information was not available as hospitals do not collect postcode or other location data of where the incident happened or the person became ill. This data is held by the ambulance service but data linkage is complex (requiring manual matching of individual records) or impossible (Downing and Wilson, 2002).

Nationally collected data was not usable for this study as all information is collected at trust level rather than departmental or hospital level and a change in collection method in 2003 meant that it also included walk-in centres and minor injury units within trusts' geographical area. These individual components are not separable in the national data set. Reconfiguration and other national strategies are also trying to increase the amount of care within primary care. It is recognised than many patients attending A&E could be treated in primary care already (Cooke et al, 2005) but reconfiguration may increase the number using local primary care services. Primary care has no data collection system to identify these patients either by diagnosis or urgency. At the same time as this reconfiguration major changes have occurred in the provision of out of hours primary care, including co-operatives and then the new GP contract. It has therefore been impossible to assess the shift from secondary to primary care for urgent and emergency cases.

The difficulties encountered in collecting reliable data relating to emergency departments' flows in this study have highlighted the necessity of undertaking prospective studies of reconfiguration. In exploring the issues to collect the data we have been able to formulate recommendations for the study of patient flows in the emergency care system.

The problems of collating data from multiple A&E departments have recently been recognised and the data quality is known to be poor. A West Midlands system has demonstrated that it is highly labour intensive to clean A&E minimum data set information before it can be utilised (Downing and Wilson, 2004). In reconfiguration this is compounded by the need to have data from minor injury units and primary care which do not have any requirements to collect data on emergency workload in a standardised format. The present minimum dataset for emergency care is inadequate for the purposes of analysing flow changes. The development of emergency care systems within the national programme for IT may allow data to be collected in a standard format so that comparisons can be made.

8.3 *Ambulance Flows*

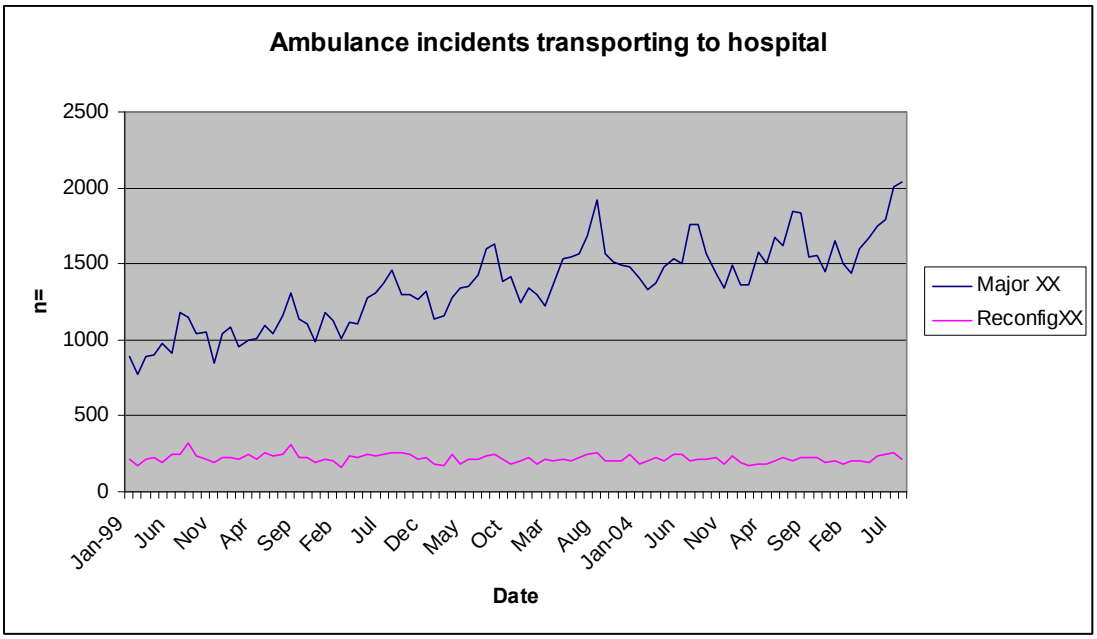
Ambulance services often state that reconfigurations rarely take account of the impact of the changes on their workload. A study by the King's Fund in a suburban environment suggests the impact to be small and it is the time taken to get to the patient that is more critical than the journey time to hospital(Reconfiguration at Chase Farm Hospital: an independent review of the impact assessment). (Kings Fund, London, 2007) http://www.enfield.gov.uk/downloads/kingsfundreview.pdf

It is inevitable that reduction of emergency services at any hospital will mean that patients in that area have to travel further and that ambulance services will often provide this service. This change may be either a change in the primary destination of patients, either following a 999 call or following a general practitioner's request, or it may be a subsequent secondary transfer. Despite mergers of Trusts, ambulance services were able to provide us with some data on patient flows to populate the flow model.

8.3.1 Results (Site C)

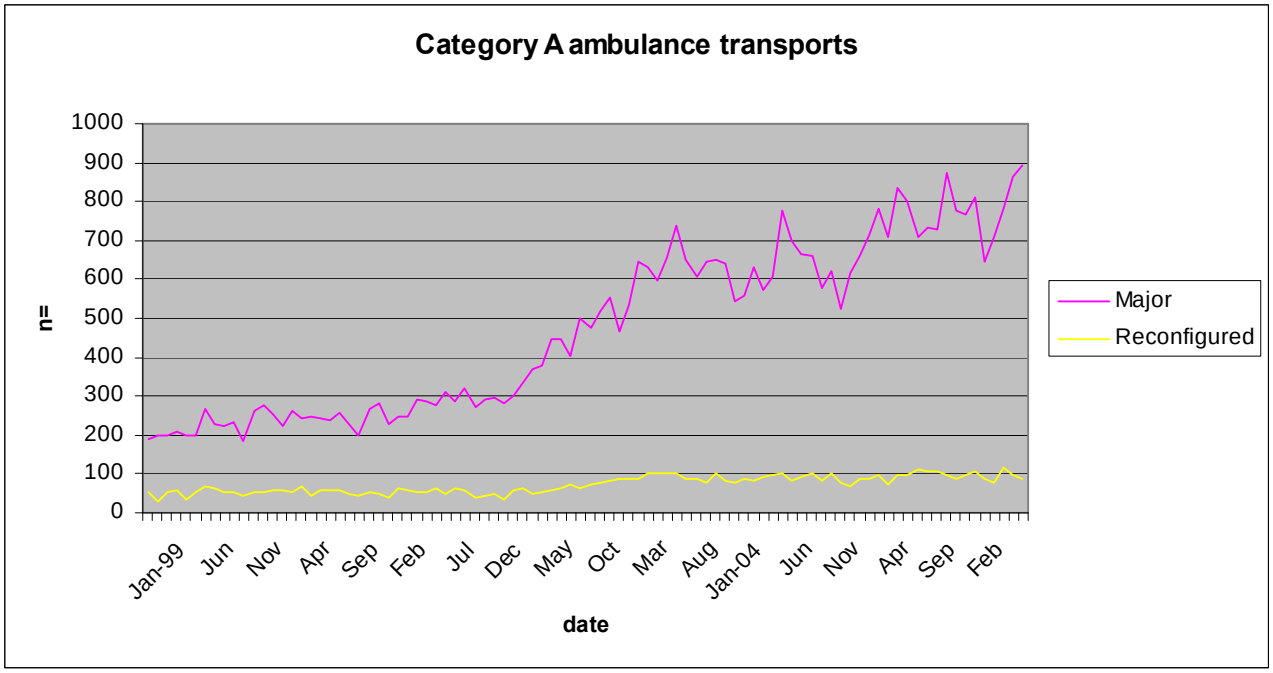
The results of the above data are shown in the graphs below.

Figure 8 Ambulance incidents resulting in transport to hospital (Site C)



The number of ambulance cases transported to the major hospital has increased over the study period [Figure 9], whereas that in the reconfigured unit has remained static. Over this time there was a cumulative increase of 39% nationally.

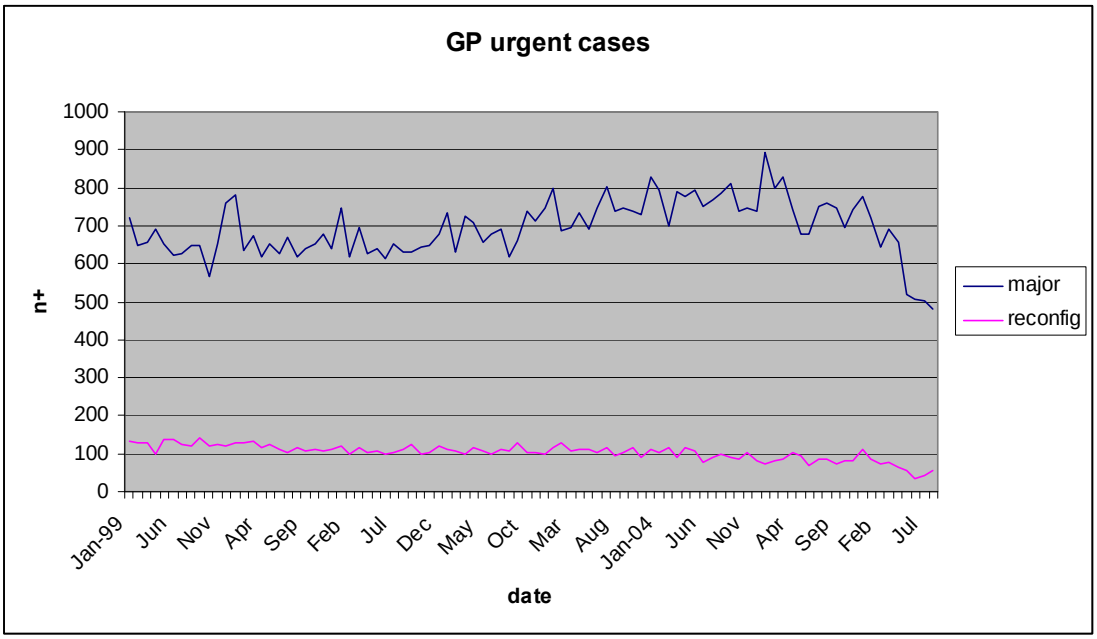
Figure 9 Ambulance transports (Site C)



Again the number of incidents involving potentially life threatening cases showed small increase static in the reconfigured hospital but a large increase in the major hospital commencing at the end of 2002.

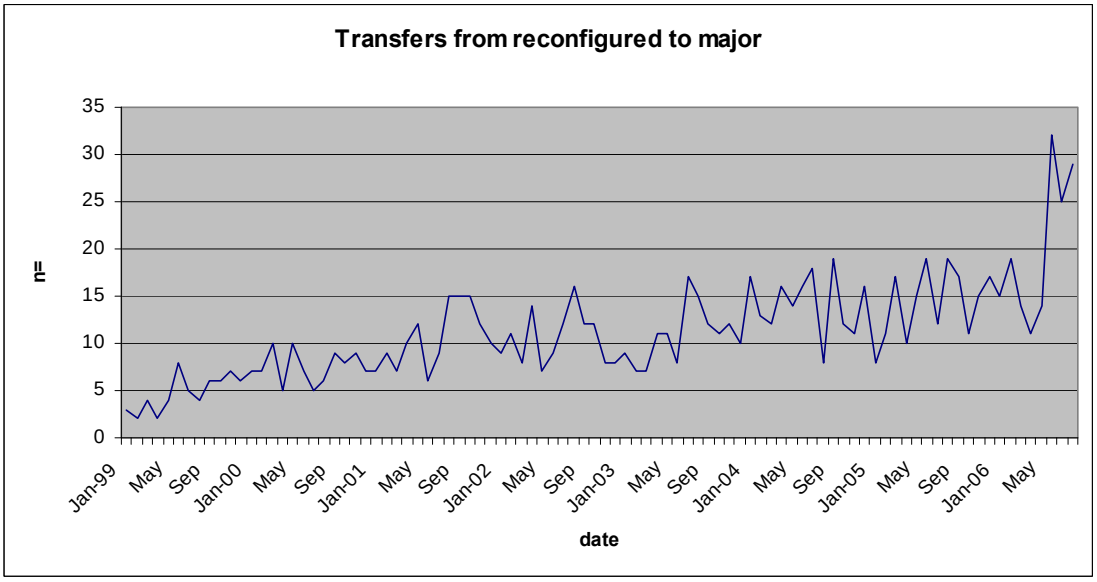
GP urgent cases [Figure 10] have great variation. There is the appearance of a change in number going to the major unit in early 2003 but no consequent decreases in those at the reconfigured hospital. The local organisations stated they thought the change in the last few data points was due to data issues.

Figure 10 GP urgent cases (Site C)



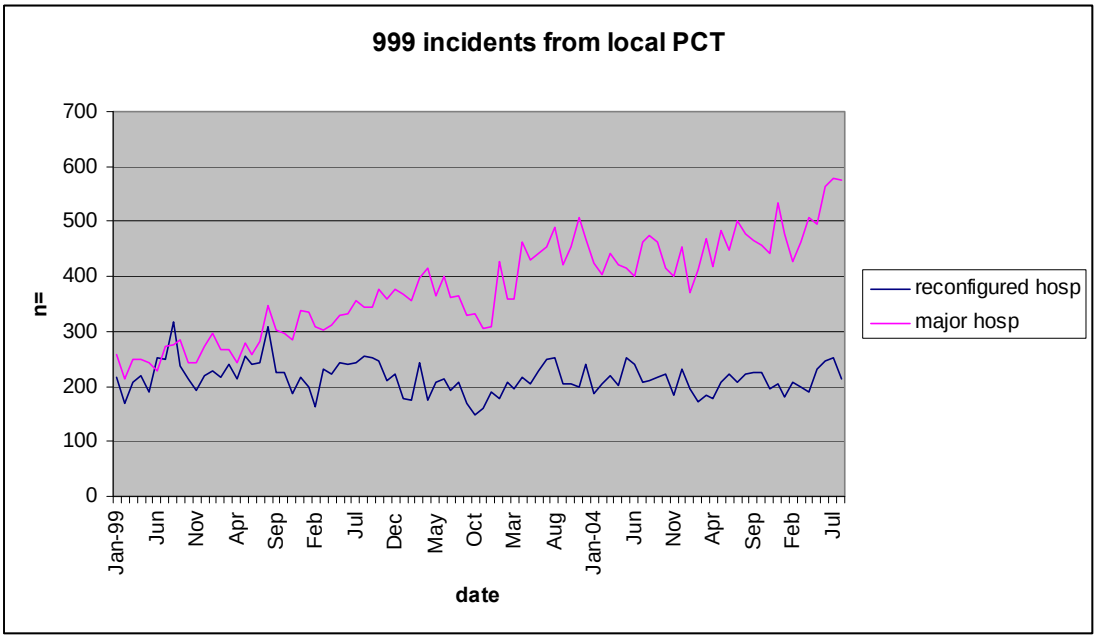
Transfers from the reconfigured to the major hospital have shown a steady increase over the study period [Figure 11].

Figure 11 Transfers from reconfigured to major hospital (Site C)



The data above covers all patients taken to the major hospital [Figure 8e]. Changes could therefore be due to other reconfigurations in the catchment area of the major hospital. It has been possible to isolate the number of emergency incidents occurring in the main catchment PCT of the reconfigured hospital [Figure 12]. It has however not been possible to divide the other incidents by PCT.

Figure 12 999 incidents from local PCT (Site C)



This analysis suggests that an increasing number of 999 calls from the area are being taken to the major hospital from the catchment area of the reconfigured hospital.

8.3.2 Conclusions of ambulance data analysis Site C

The reconfigured hospital appears to have experienced only small increases in ambulance borne work over the study period and significantly less than the national increases. This increase has occurred in cases from the PCT area of the reconfigured hospital. The major hospital has however received significant increases particularly of category A (potentially life threatening cases). However the GP urgent referrals have shown this change to a much lesser extent. The transfers between the two hospitals have increased suggesting that many patients are still being taken to their local hospital when they require treatment at the major centre.

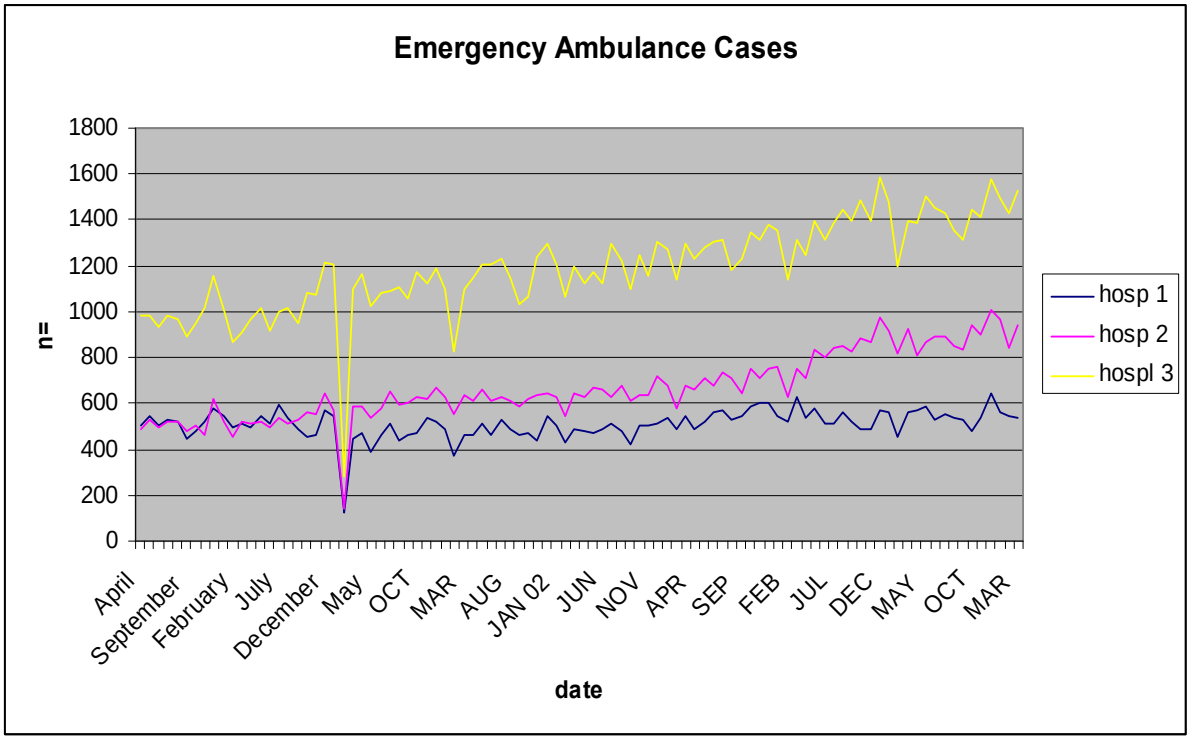
The data suggests that reconfigurations will have a significant impact on ambulance services. If the journey to the distant major unit is significant then the increase in primary and secondary (transfer) journeys to that unit will result in a requirement for increased resources to maintain the ambulance cover in the reconfigured area.

8.3.3 Study at Site B

There was a reconfiguration of the ambulance service in May 2000. Data from two systems had to be merged from data before this date. Some anomalies in data are seen around this time and 1 month's data (February 2000) is unreliable. Data could not be split by priority due to differing systems used by the ambulance services before reconfiguration and subsequently data on transfers between hospitals was not available to the major centre. Incomplete postcode data also meant that data by PCT catchment area could not be analysed.

In the graphs below lower case dates indicate time before the ambulance service reconfiguration.

Figure 13 Emergency ambulance cases (Site B)

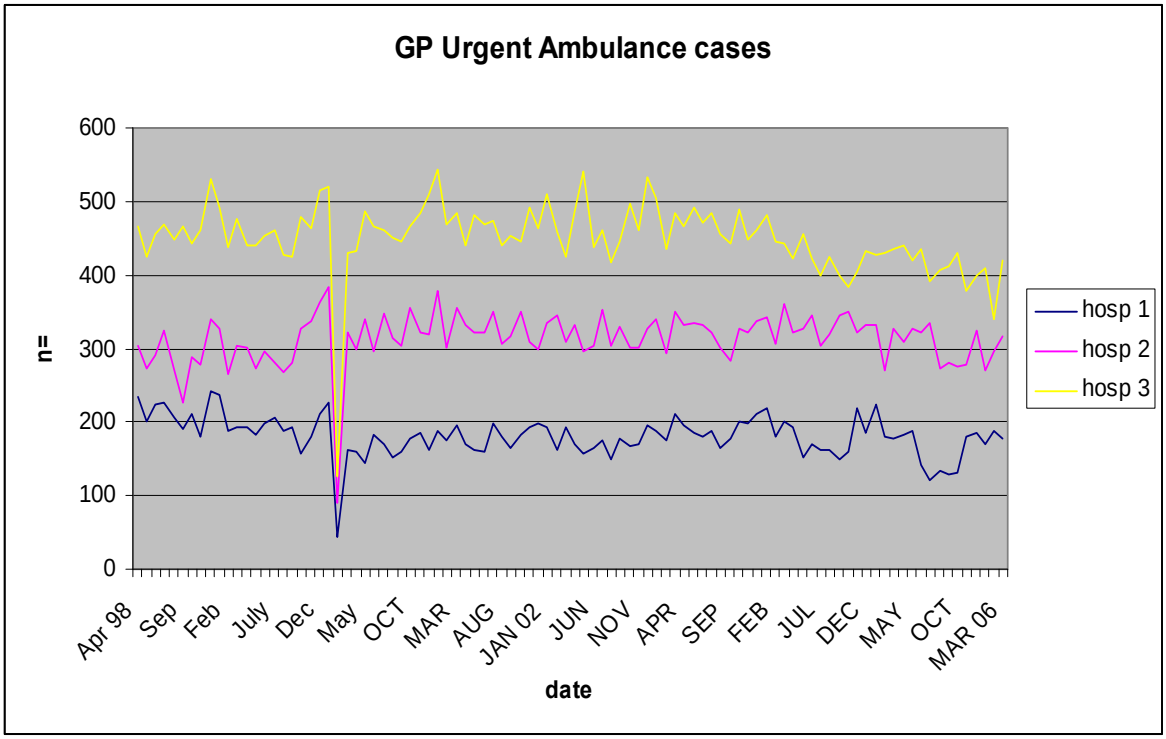


The number of emergency cases to hospital 1 (reconfigured) has remained unchanged whereas the other two hospitals have a steady increase in cases.

There appears to be little difference in the pattern of GP urgent ambulance cases between the three hospitals but a generalised decrease is noted.

8.3.4 Conclusions at study site B

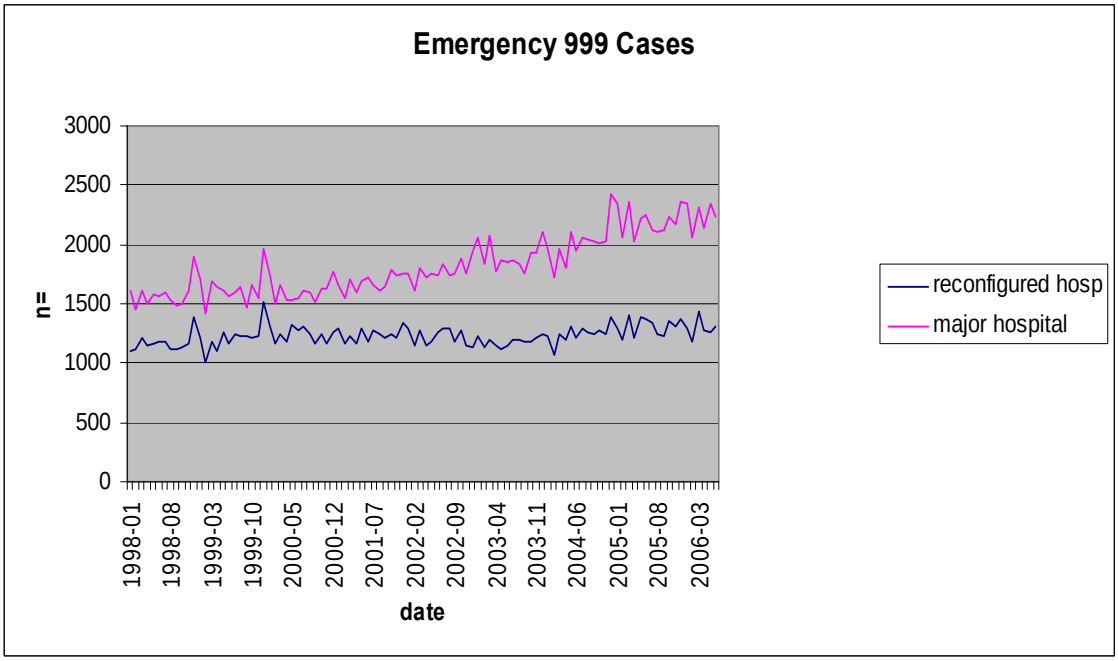
Figure 14 GP urgent ambulance cases (Site B)



Again the major hospitals appear to have had an increase in emergency ambulance cases compared to the reconfigured unit but have not seen any change in the GP urgent cases.

8.3.5 Results from site A

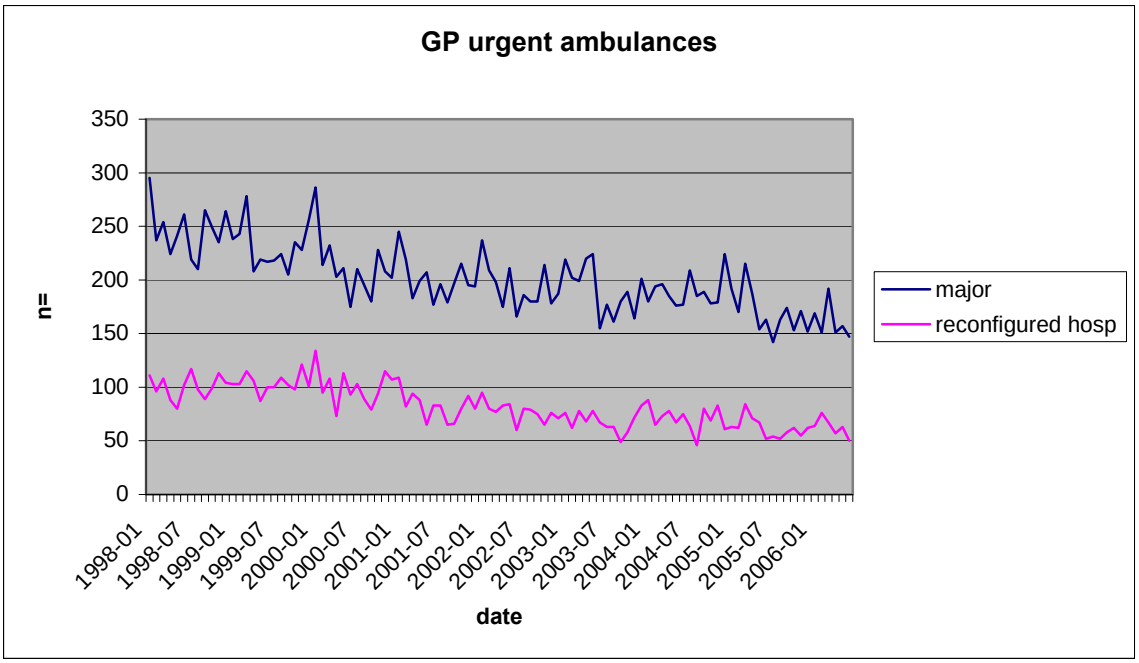
Figure 15 Emergency 999 cases (site A)



In this area there was a slight increase at the reconfigured site but a markedly greater increase in the number of 999 cases taken to the major hospital.

The number of GP urgent cases has decreased in both sites in a similar fashion

Figure 16 GP urgent ambulance cases (Site A)



8.3.6 Conclusions at Site A

In this location the ambulance service do appear to have changed the flow of patients with a greater proportion going to the reconfigured hospital, but the local GP's do not seem to have changed the relative pattern of urgent referrals. The reasons for the generalised decrease are unknown.

8.3.7 Secondary Transfers at Site A

Information on cases that were taken to a hospital by ambulance and subsequently transferred within 24 hours (implying it would have been better to go to the major unit direct) to another unit (indicating a failure of the system to determine the correct destination first time) was not available. The study above looked at all transfers not just those initially taken by ambulance to the "incorrect" hospital. There was no linkage between the ambulance records and the A&E departments. Hence the only means of tracking these cases would be manual checking of every transfer until data linkage is introduced.

8.3.8 Conclusions from Data Collection

At no site was it possible to analyse accident and emergency department attendances.

All three sites demonstrated similar effects on ambulance transports. At all sites the number of emergency ambulance cases taken to the major hospital increased whereas those to the reconfigured show no or minimal increase. Those in the life threatening group showed a similar pattern at site C. (Data was not available from other sites.) Transfers between sites (from reconfigured to major site) showed increases. GP urgent transfers to hospital however remained static or decreased at both major and reconfigured sites.

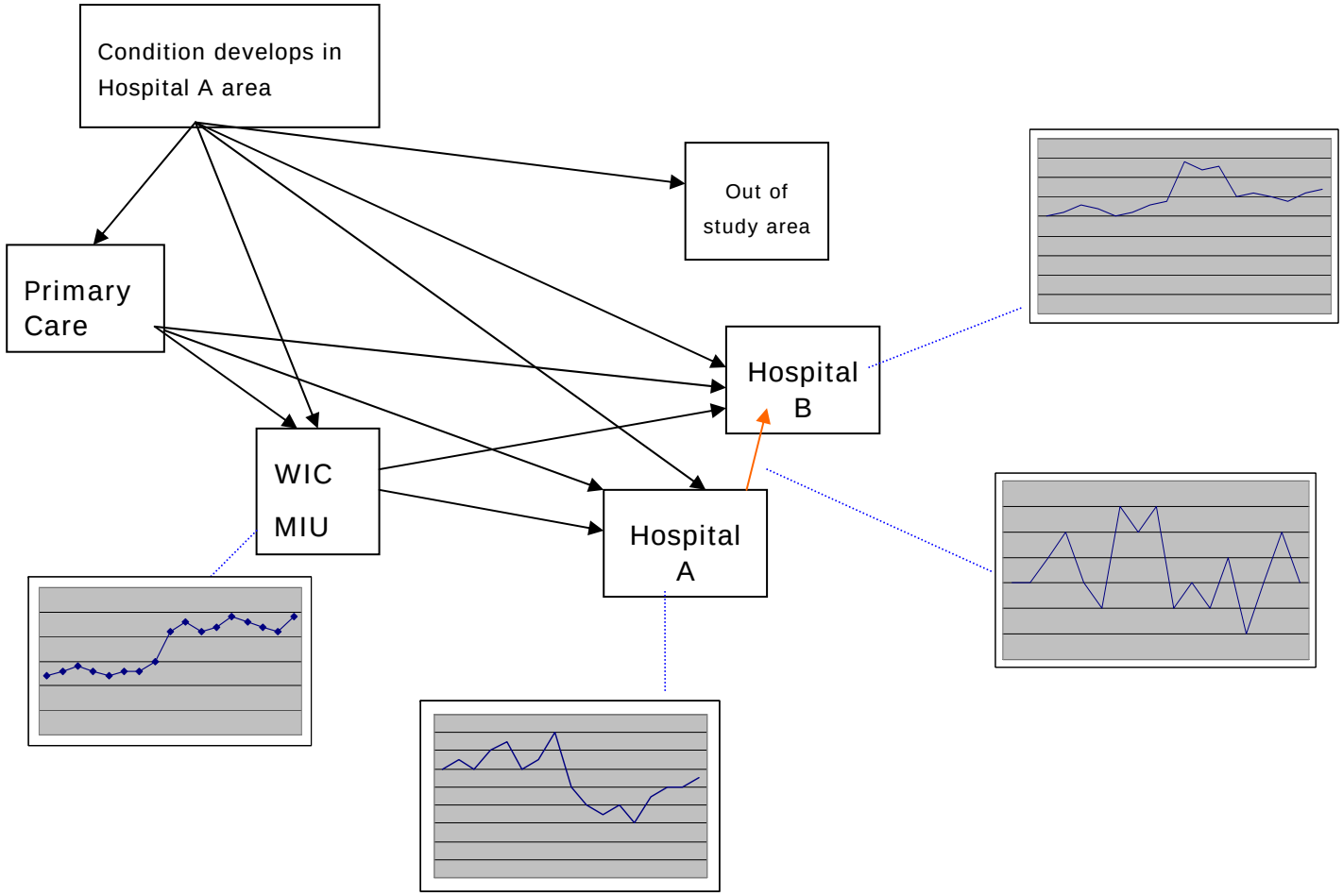
This data suggests that ambulance services were taking more patients directly to the major hospital. However the general practitioners did not seem to change their referral patterns. The number of transfers does however imply that some admission to the reconfigured hospital were inappropriate and needed care only available at the major centre. Future reconfigurations should therefore account for the extra ambulance journeys but should also recognise that patients may be transported to the wrong hospital initially and need secondary transfer. We are unable to assess how many patients were incorrectly taken to the major unit when they could have been dealt with at their local (reconfigured) hospital.

8.4 *A Proposed Template for Measuring Patient Flow Changes in a Reconfigured Emergency Care System*

The process flow chart is still believed to be the most effective way of demonstrating whole system changes. Annotation of the flow chart with statistical process control flow charts to demonstrate changes in numerical cases in that arm of the flow chart is believed to be the most effective method of demonstrating these complex changes. Traditionally a simple before and after design approach would be used with statistical significance of the step change being analysed. This method is appropriate when a single change has been undertaken. Although rarely reconfiguration may have one major change, e.g. closure of an A&E department, the resultant changes are not a single temporal event. The reconfiguration will usually be a complex series of changes over several years. Similarly the flow of patients is likely to change over a prolonged period as both users and professionals adapt their practices to the new system. Statistical Process Control methodologies (Mohammed, 2004) allow evolving changes to be observed and assessed and have been used in the emergency care setting (Schwab et al, 1999). This technique may have advantages in study of dynamic systems over the traditional before and after analysis.

The example below [Figure 17] illustrates a resulting process flow chart.

Figure 17 Example process map with SPC annotation of change



- Services are transferred from Hospital A to Hospital B.
- Protocols are developed that certain patient groups will go directly to Hospital B as their condition can no longer be treated at Hospital A.
- Hospital A has experienced a decrease in attendances.
- Hospital B had an initial rise in attendances then settled to a slight increase on original.
- The MIU had a sustained rise in attendances.
- The number of transfers is highly variable but has probably not changed.
- Addition of upper and lower control limits to the graphs would delineate whether changes are significant.

The implication is that people chose to attend the MIU rather than the downgraded hospital after reconfiguration and the increased number going to the specialised hospital B was small. Transfers continue between hospitals and the reasons for this need investigation by case review.

8.5 *Clinical Quality and Safety*

An increasing number of databases are set up and audits undertaken nationally to assess the quality of care provided by various hospitals. These provide useful comparative data. Studying these over time provides an opportunity to assess the impact of reconfiguration on quality and safety.

Exploring the potential for this for the three reconfigurations being studied highlighted the problems associated with retrospective review. In the various national audits that are openly available there were none where there were historical data for the periods around reconfiguration available individually for the hospitals concerned. In many cases the smaller units were not participating in the national audits or numbers were so small per year that changes were not statistically significant. In some cases data were returned by trusts rather than by individual locations. NHS trusts are continuously changing their configuration and so data are not comparable between years. As care is moved in to the community for an increasing number of conditions, the case mix may also change and so audits that are geographically based would be preferable to hospital based audits.

National databases/audits will be utilised for future studies of the clinical impact of reconfiguration. The studies should ensure that the hospitals are all participating in the various audits and that their components can be individually separated. The databases below could not be used in this study as they were not undertaken by the smaller hospitals because data were only available as aggregated (e.g. as whole Trust data) or because the database in question has been recently introduced.

Generic

- Patient Safety- National reporting and learning system http://www.npsa.nhs.uk/health/reporting/background
- Death in acute hospitals and emergency admissions studies NCEPOD http://www.ncepod.org.uk/studies.htm
- Dr Foster Hospital Standardised Mortality Rates Condition specific
- Myocardial Infarction- MINAP http://www.rcplondon.ac.uk/college/ceeu/ceeu_ami_home.htm
- Stroke- RCP sentinel Stroke Audit http://www.rcplondon.ac.uk/standards.asp
- COPD- RCP COPD audit http://www.rcplondon.ac.uk/standards.asp
- Major Trauma UKTARN www.tarn.ac.uk
- Surgical procedures NCEPOD http://www.ncepod.org.uk/
- Minor injuries and A&E care BAEM / Healthcare commission audits of emergency care

Although the generic audits could usefully be employed in all sites, the choice of disease specific audits should be guided by the nature of reconfiguration. The danger of undertaking diagnosis specific audits is that those suspected of having a subsequently rejected diagnosis would not be included. For example, in a reconfiguration of cardiology services, a patient with chest pain may be transported to a major cardiology unit, only to discover they have a non-cardiac problem; this patient would not be included in an audit of cardiac disease even though that is the change that determined his care.

8.6 *Decision Matrix*

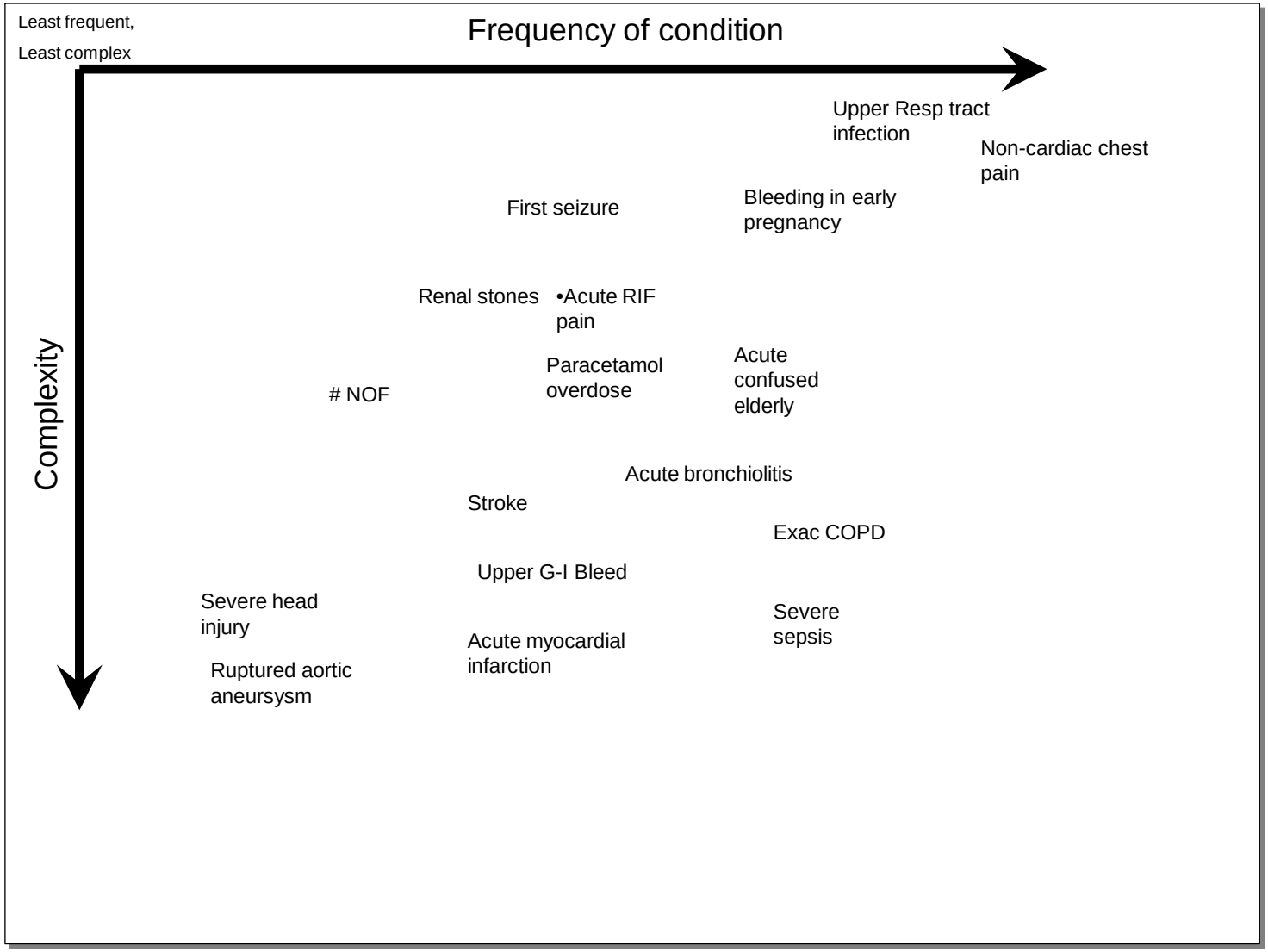
A focus group of clinicians was held to determine methods of assessing potential clinical impacts of reconfiguration. Ten individuals from a variety of backgrounds (nurse, surgeon, physician, A&E specialist) formed the group and debated additional methods of assessment. Whilst agreeing with the above methodologies for use in research to determine impact of changes, they considered that a method was required to predict clinical issues that could result from future reconfiguration. There was unanimous agreement that this was best undertaken by modelling changes in patient pathways. For each pathway consideration would be given to the potential advantages and disadvantages.

The proposal from this group was that when considering reconfiguration of A&E services a variety of marker conditions and presentations should be utilised. These would reflect a range of conditions for both their incidence in the population and the complexity of the treatment (a recognised advantage of specialist care). See Figure 18.

It is likely that common conditions that do not require highly specialised staff or resources could be treated locally but that rare conditions needing the care of a clinicianwith experience of that condition and the appropriate resources and facilities may need care at a more specialised unit. The boundary between these two groups can be identified by using these marker conditions.

This approach can be tailored to local circumstances of reconfiguration. It can focus on those services to be relocated and also on known local performance for those conditions. This would therefore need cross referencing to the known literature and the audits already undertaken.

Figure 18 Distribution of types of emergency diagnostic condition by frequency and complexity



9 Hospital Reconfiguration: Using HES Data to Model Service Reconfiguration Strategies

9.1 *Understanding Service Change*

The process of sense making is concerned with finding patterns of meaning and explanatory structure in complex or seemingly unstructured situations, and has both a cognitive and social component. At the individual cognitive level the process is concerned with individuals striving to make sense of the information they need to consider important issues and problems at hand in an informed and practical way. At the interpersonal social level, groups also frequently need to work together to understand larger issues by collecting and collating information and blending these into synthesised models of shared understanding.

The purpose of this chapter is to present a graphical means of representing the complexity of Hospital Episode Statistics (HES data) in a way that provides a common frame of reference for health professionals from different backgrounds to visualise and interpret the actual patterns of hospital activity changes that have occurred over the years. The framework has been designed to facilitate a more effective, faster and more intuitive exploration of very large and unwieldy HES data which are usually in the form of various tabular or spreadsheet formats. It is hoped that this new type of graphical visualisation will assist staff in interpreting anticipated activity changes implied by reconfiguration plans and will encourage a greater sense of meaningful engagement in creatively contributing to service innovation.

Specifically, this chapter aims to show how HES data can be used, albeit retrospectively i.e. an annual look back over a number of years to analyse and monitor actual reconfiguration actions and decisions (or indeed, an absence of them), against intended or stated strategy, and to provide an informed basis on which to examine and monitor the impact of current and future decisions and their implementation. Of course, interpreting HES data in this way requires careful consideration at local Trust level and there are many unresolved questions that commonly surround attempts by various stakeholders to represent the reasoning and rationale for service change scenarios. Some of the more common ones are listed below (in no particular order).

- Is the volume of hospital procedures related to the quality of patient outcomes?
- Does increased service specialization have the potential to save many patients' lives?

- Are the interests of patients that require tertiary referral best dealt with by rapid triage?
- Does concentrating services in one hospital significantly improve patient safety?
- Does merging hospitals actually result in any real cost savings?
- Do A&E services reduce/improve access particular for socially excluded patient groups?
- Does shorter length of hospital stays mean that bed numbers may be safely reduced?
- Is bed overcapacity a major contributor to current problems with financial deficits?
- Are most patients strongly in favour of retaining local A&E units for very good reason?
- Do patients prefer a demand-led health system based on competition and patient choice?
- Does reducing patient length of stay result in high risk of readmission?
- Does greater patient choice improve the quality and effectiveness of services?

It is to be expected that fundamental questions of this sort will be at the heart of reconfiguration discussions and equally predictable that the answers are often contradictory. There is clearly scope for a great deal of debate and disagreement around these sorts of issues although what is common across all viewpoints is the recognition that at some levels all service reconfigurations are examples of 'organisational change'. In the management theory literature, there is a widespread and continuing fascination with all aspects of understanding, predicting and controlling organisational change. Indeed, over the last twenty years or so, an initially academic and arcane vocabulary of change management has become increasingly commonplace and nowadays it is normal for words and phrases such as 'flexibility', 'decentralisation', 'empowerment', 'mission statements', 'competencies', and 'change champions' etc. to be freely bandied about by all types of NHS staff. Unfortunately, this apparent common conceptual currency actually masks a multitude of conflicting theoretical and practical viewpoints about practical service development predicaments.

In order to understand the enormous diversity in change management issues, Wilson (1992) proposed a simple but useful two-dimensional framework through which to view various organisational change approaches. His first dimension contrasted the fact that organisational change can either be *planned* in advance *by managers* or can *emerge* as a result of the complex interplay between several salient organisational factors. His second dimension highlights the distinction between organisational change as primarily either a *process* or as a strategy of *implementation*. By mapping the two dimensions together to form a four-cell matrix (i.e. planned process, emergent implementation, planned

implementation, and emergent process) it becomes possible to accommodate most approaches to organisational change in one of the four cells.

Applying this model to service reconfiguration in the NHS it becomes clear that despite the growing weight of evidence that the dynamics of organisational change are firmly rooted in shifting political allegiances within the organisation, over the last twenty years NHS managers have been actively and systematically trained and encouraged to embrace change strategies that draw more heavily upon planned rather than emergent models of change. One of the main areas where the distinction between planned and emergent models is crucial relates to how the facilitators and barriers to change are construed. In particular, the concept of 'resistance to change' has been described many times in textbooks and papers concerned with organisational theory. Typically, this resistance is seen as located within the individual values and beliefs of stakeholder types or groups of staff within the organisation. However, although it is important, this personal psychological reluctance to accept new ways of working is not always the only level of analysis where resistance to change can act as a significant brake on the redesign of an organisation. Resistance to change can also emerge at the organisational level as a result of the unanticipated interplay between a wide variety of organisational factors.

9.2 *Monitoring Reconfiguration Sites*

Three NHS trust hospital groups were designated as 'reconfiguration' sites in this project and have been examined using activity data drawn from nationally available (Department of Health) HES data.

Succinctly stated, the three main objectives of the this reconfiguration project are:

- to evaluate performance in each of the three project sites with respect to the planning, implementation and sustainability of the reconfiguration strategy adopted at each;
- to identify and understand the factors associated with success and failures in implementing the reconfiguration strategies at each of the three project sites;
- to develop a generic framework through which to understand and evaluate NHS future reconfiguration strategies.

Clearly all three objectives are concerned with exploring the nature, impact and potential transfer of reconfiguration strategies and they have been reiterated at this point not only to show how the quantitative analyses that are reported in this section support the main themes of the research but also to highlight the fact that service reconfiguration itself is a rather yielding term with many aspects and shades of meaning which differentially appeal to the various stakeholders in the service redesign arena. The extensive interviews with a cross-section of stakeholders described earlier in

this report [Chapter 4] clearly indicate that although there is an apparent broad consensus of what reconfiguring services might mean in the NHS, this surface agreement masks a wide range of different and often conflicting opinions.

Performance control in the public sector is probably easier to observe than performance per se and consequently it is easier to formulate criteria for good performance control than for performance. One of the approaches we have adopted in examining the ways in which HES data shed light on service reconfiguration is to focus on performance control rather than performance itself by extracting the patterns in HES trends over the years in which reconfiguration has taken place.

Identifying and understanding the factors associated with success and failure in implementing the reconfiguration strategies at trust level is one of the primary aims of this project. However, assessing changes in HES trends over time is not easy. The simplest way is based on visual inspection of rates, while more sophisticated methods are based on statistical modelling of observed data. The HES data has been analysed in both ways to explore whether they contain any information that could shed light on the reconfiguration processes under study. In addition to plotting levels of service activity over time, sophisticated statistical techniques such as cluster analysis and regression analyses have been applied to the trusts' HES data in order to explore patterns and trends in service activity levels.

The quantitative analysis of the HES data completed to date suggests many interesting local 'stories' about the strategic planning and implementation of change and the extent to which these are the products of a formal implementation plan or responses to the impact of unexpected situations and circumstances.

9.3 *Planned and Unplanned Changes*

The three NHS Trust hospital groups designated as 'reconfiguration' sites in this project have been examined using activity data drawn from nationally available (Department of Health) HES data. Assessing sustainability against parameters identified by reconfiguration plans for each hospital has proved difficult since all of the project sites have deviated to a greater or lesser extent from their own previously-formulated reconfiguration plans.

Even where these plans have apparently been adhered to, there are conceptual and practical difficulties in assessing the extent to which hospitals have conformed to planning intentions because often plans are insufficiently detailed or too vaguely specified to make such assessments with any degree of useful precision. In general, the reasons for this gap between strategic intentions and service redesign are complex but seem to reflect not only unanticipated or unexpected emergent organisational conditions but also the impact of stakeholder preferences in implicitly or explicitly supporting or resisting proposed organisational changes.

Since the perceptions and priorities about what is seen as critical and what is considered peripheral in service reconfiguration depend very much on an

individual stakeholder's perspective, there have been many attempts at reconciling this diversity by grouping stakeholders into apparently homogeneous "types" (e.g. doctors, managers, the public, politicians etc.) or by erecting general definitions of what reconfiguring services might practically mean in the context of the NHS. The multifaceted nature of most definitions (including the one presented earlier in this report) guarantees that there is ample scope for continuing debate. This is understandable since there is a dearth of good quality evidence and therefore a continuing body of unresolved and contentious issues that surround most reconfigurations, either planned or in progress.

9.4 *A New Way of Viewing HES Data*

Capturing and interpreting the range of organizational factors associated with success and failure in implementing Trust reconfiguration strategies is a primary aim of this project. Analysis of HES data through statistical modelling can help to do this. Since service profiles at each site are in a constant state of flux, the tables that provide activity level data encapsulate annual overall activity data at the three hospital study sites bracketing some years prior to 2004 and then until 2007. More specific HES data summarising service activity levels for elective, emergency, day case and outpatients across the study period are used to compare performance in Appendix 3 (CDROM).

See Chapter 6 for brief descriptions of the sites.

Trends in the HES data from the three participating sites have been examined through inflexion point regression (a non-linear 'piece-wise' or segmented regression modelling) using the US National Cancer Institute's (NCI) "Joinpoint "program (Version 3.0 - Kim et al, 2000 provide a detailed description of statistical theory in term of Joinpoint regression analysis). 'Joinpoint Regression Analysis' (JRA) has been designed for the specific purpose of estimating optimal linear and non-linear trends in frequency data and used in numerous studies where it is critical to identify changes in trend.

This approach modelled trend data where several trend-lines are connected together at "joinpoints" which represent those points in time where significant changes in the direction of trend occurred. In this case finished consultant episodes (FCEs) were fitted by the simplest inflexion model that the data allows. The program starts with the minimum number of joinpoints (i.e. 0 joinpoints, which is a straight line) and tests whether more joinpoints are statistically significant and must be added to the model, thus making it possible to test whether an apparent change in trend is statistically significant. In other words, the adjacent lines meet at a point called a joinpoint and each of these denotes a statistically significant change in the service activity trend.

9.4.1 The Benefits of this Approach

Joinpoint regression analysis is a useful way of summarising trends in FCE rates whilst allowing changes in trend to be identified. The benefit of this statistical approach is that the patterns of changes in hospital episode statistics (HES data) can be used to identify and monitor the impact of planned and unplanned interventions. In this way the quantitative analysis of the HES data described in this section suggests many interesting local 'stories' about the strategic planning and implementation of change.

Rather than relying solely on potentially misleading 'eyeballing' of the data to identify trends, JRA provides an objective and reliable way of locating when and where changes actually start and stop in the time-series data – we have called this Level 1 analysis.

Having determined whether linear or non-linear trends are actually present in the HES data, the reasons and underlying causes of why change points are present can be pursued – we have called this Level 2 analysis.

9.5 *Level 1 Results – Describing Activity Changes*

The patient activity data obtained from these three sites has been analysed in the following three ways in order to provide a balanced picture of service activity changes over the course of the project. In this way, the patterns of change in the hospital episode statistics (HES data) can be used to identify and monitor the impact (both speed and size) of reconfiguration changes (both planned and unplanned).

The Level I results consist of three perspectives on the HES statistics that taken together provide a means of describing the changing pattern of services activity within specific specialties at each of the hospital sites.

PERSPECTIVE 1: Frequency analysis: Where the FCE data is available, simply plotting activity levels over time is a useful first step in identifying absolute levels of service activity and provides a visual representation of changes over time within specialties for the various types of patients (i.e. for emergency, daycase, inpatients, outpatients and regular day patients).

PERSPECTIVE 2: Correlation analysis: The similarity in time-based patterns of activity both between and within different Hospitals and Trusts at each of three project sites can be summarised using simple correlation coefficients. These can prove particularly valuable in pinpointing 'yoked' patterns of change (positively correlated) as well as highlighting significant service of 'trade-offs' in activity levels (negatively correlated) between Trusts and hospital sites.

PERSPECTIVE 3: Regression analysis: Trend analysis (using the 'joinpoint regression' approach pioneered by the Statistical Research and Applications Branch of the American National Cancer Institute) has been utilised to identify changes in levels of service activity within the various specialties at the three project sites. This type of regression can identify significant discontinuities and inflexions in the activity trends over time.

Having determined whether linear or non-linear trends are actually present in the HES data, the reasons and underlying causes of why change points are present can be explored in a focused way.

Taken together, these three perspectives on the HES data provide a means of describing the changing pattern of services activity within specific directorates at the three project sites. Some of these shifts in activity levels are broadly in accord with early reconfiguration plans whilst others may either have resulted from planned revisions to the original intentions or reflect the unintended consequences of other change strategies. The complete set of results is presented in Appendix 3 (CDROM). For each speciality at each of the three participating Trusts, Appendix 3 provides the following:

- A histogram to show changes in retrospective annual patient activity levels at each of the specialties identified as emergency, daycase, ordinary admission, new outpatient, follow-up outpatient and DNA outpatient as appropriate.
- A correlation matrix based on quarters detailing the correlation coefficients between the various patient types in order to illustrate the extent to which growth or decline in service activities are linked across the various patient types.
- Optimum joinpoint regression plots which identify when there have been significant shifts in the levels of service activity. Patterns of linear and non-linear trends can be examined with respect to when rates of service activity have actually changed in the HES data.

9.6 *Level 2 Results - Mapping Service Reconfiguration*

The following diagram illustrates how the trend patterns of FCEs in different specialties can be captured and interpreted in a simple way. The actual pattern of the trends actually present in the HES data may be categorized and simply described as shown in the top five boxes in the figure below. These broad categories are:

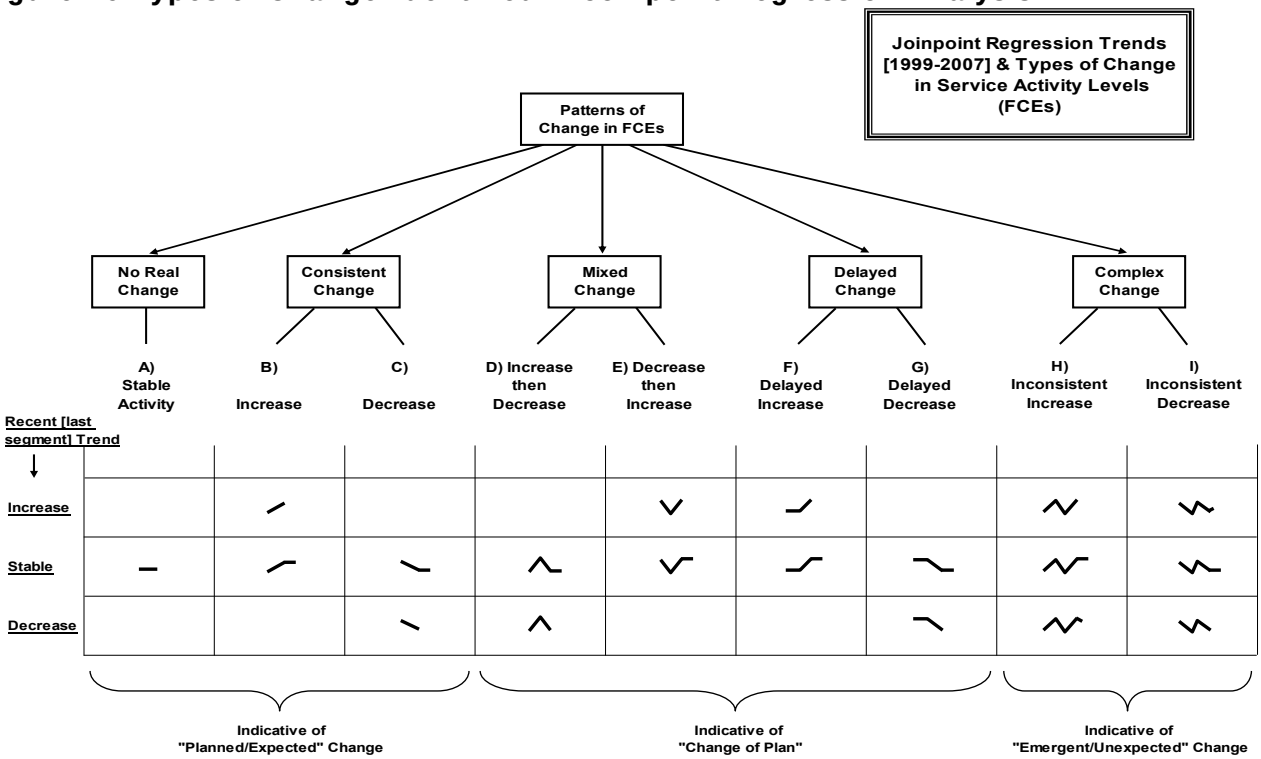
- No real change - a stable level of service activity.
- Consistent change – a linear growth or decline in service activities.
- Mixed change – increase then decrease or vice verse.
- Delayed change – no change then increase or decrease.
- Complex change – a fluctuating pattern of ups and downs.

Taking account of direction of service change i.e. increase or decrease in level of activity, these five broad ‘types of change’ may be further categorized into nine more specific types of change. In other words, the various ‘shapes’ of time-based trends identified by joinpoint regression analysis have been categorized into nine distinct types labelled A to I and these are illustrated in the hierarchical figure shown below.

An examination of the figure shows that the core nine types of trend pattern have themselves been further disaggregated by using the most recent trendline in the joinpoint regression plot to identify whether the latest change segment is characterized by an increasing, stable or decreasing activity trend. By categorizing the HES in this way, any particular trend pattern can be hierarchically identified – for example, a change in pattern in FCEs might be described say as "a delayed increase which has stabilized" or as "an inconsistent decrease which continues to decrease" and so on.

An examination of the joinpoint regression graphs [see Appendix 3 - CDROM] indicate that some levels of service activity have essentially remained unchanged over the period in question whereas some 'orderly' linear regression patterns may indicate 'planned' or 'expected' change. In contrast, other more complex regression patterns may suggest that strategic plans have probably changed over the years whereas 'emergent' or 'unexpected' change is more likely associated with more chaotic change patterns.

Figure 19 Types of Change Identified in Joinpoint Regression Analysis



For all of the three trusts and for the various types of patients in all of the specialties, these patterns of change in service activity have been cross-tabulated with level of service activity based on the frequency of FCEs. Level of service activity has been simply categorized as 'high' (labelled A), 'medium' (labelled B) or 'low'(labelled C) for each particular 'specialty by patient type' combination. These bands have been derived for each patient type (i.e. for emergency, daycase, inpatients, outpatients and regular day patients) by ranking all specialties within a hospital in order of level of service activity. In addition the number of joinpoints (labelled 'JPs' in the

tables) has been included as has the type of change pattern determined from the joinpoint analysis (labelled 'A' to 'I' in accordance with the explanatory figure shown earlier in this chapter). The complete set of summary results is presented in the tables shown in Appendix 3 (CDROM). From the information contained in these tables, it is possible to track the level and type of changes in activity levels in particular specialties over time. By focusing on the specifics of change in service activity, it is sometimes useful to explore the underlying causes of why changes in activity levels have occurred and whether these fluctuations are in accord with formal or informal strategic or operational plans.

The three tables below detail the specific episode frequencies for all specialties at the three participating sites. Please note that these aggregated tables do not contain a relative indication of level of service activity since these bands (i.e. high, medium and low as described above) are based on individual specialties.

Table 10 Activity Measures (Trust A)

	Y1 (01/02)	Y2 (02/03)	Y3 (03/04)	Y4 (04/05)	Y5 (05/06)	Y6 (06/07)	Quart. Min	Quart. Max	Y1 to Y6 Absolute Change	Y3 to Y6 Absolute Change	Y1 to Y6%	Y3 to Y6%	no. of JPs	Type of Change	Level of Activity
Trust A															
Emergency Admission	12551	10420	8482	10117	10916	10863	1897	3360	-1688	2381	-13.4	28.1	2	E	na
Day Case Admission	12136	13855	10844	11575	11535	11041	2518	3744	-1095	197	-9.0	1.8	1	C	na
Ordinary Admission	2330	2469	3576	3435	4333	3600	533	1246	1270	24	54.5	0.7	2	D	na
New OP	38116	37212	37952	37122	30498	29311	7079	10496	-8805	-8641	-23.1	-22.8	4	I	na
Follow-up OP	93597	93563	88194	88245	76488	78571	18539	24179	-15026	-9623	-16.1	-10.9	1	C	na
DNA - OP	45454	43867	36523	38091	33185	25539	5676	12048	-19915	-10984	-43.8	-30.1	2	C	na

Table 11 Activity Measures (Trust B)

	Y1 (00/01)	Y2 (01/02)	Y3 (02/03)	Y4 (03/04)	Y5 (04/05)	Y6 (05/06)	Y7 (06/07)	Quart. Min	Quart. Max	Y1 to Y7 Absolute Change	Y4 to Y7 Absolute Change	Y1 to Y7%	Y4 to Y7%	no. of JPs	Type of Change	Level of Activity
Trust B																
Emergency FCEs	65694	65905	66242	68058	72811	75544	72713	15644	19150	7019	4655	10.7	6.8	3	D	na
Elective Inpatient FCEs	14634	13220	13379	13411	12497	12528	12227	2771	3800	-2407	-1184	-16.4	-8.8	3	E	na
All Daycases	32598	26020	25790	25280	24351	26215	29008	5918	9170	-3590	3728	-11.0	14.7	3	E	na
First Appointments	101546	104498	104197	97487	106161	111549	109171	23547	28380	7625	11684	7.5	12.0	4	H	na
Follow-up Appointments	256106	252683	256116	252302	257653	246094	222184	53490	67404	-33922	-30118	-13.2	-11.9	2	G	na
Hospital Y																
Emergency FCEs	12753	12116	11545	13152	10430	9995	9739	2243	3391	-3014	-3413	-23.6	-26.0	4	I	na
Elective Inpatient FCEs	3219	2763	2743	2485	2009	1882	1983	383	853	-1236	-502	-38.4	-20.2	2	E	na
All Daycases	7263	5389	4868	5308	4781	5694	5662	1117	1881	-1601	354	-22.0	6.7	2	E	na
First Appointments	21022	20672	21668	20844	18879	20673	19834	4548	5651	-1188	-1010	-5.7	-4.8	4	I	na
Follow-up Appointments	47150	47660	49505	48106	44397	43005	39352	9252	12951	-7798	-8754	-16.5	-18.2	2	D	na

Table 12 Activity Measures (Trust C)

	Y1 (99/00)	Y2 (00/01)	Y3 (01/02)	Y4 (02/03)	Y5 (03/04)	Y6 (04/05)	Y7 (05/06)	Y8 (06/07)	Quart. Min	Quart. Max	Y1 to Y8 Absolute Change	Y5 to Y8 Absolute Change	Y1 to Y8%	Y5 to Y8%	no. of JPs	Type of Change	Level of Activity
Trust C																	
Emergency FCEs	41376	41799	44856	48990	53455	55069	55528	50862	9907	14622	9486	-2593	22.9	-4.9	2	D	na
All Daycases	30032	32525	32810	36455	39299	37454	40286	40318	7312	10789	10286	1019	34.3	2.6	2	B	na
Elective Inpatient FCEs	15002	15910	16960	15796	16356	15418	15918	15782	3456	4482	780	-574	5.2	-3.5	1	A	na
Regular Day Patient	10464	12150	15011	17093	16410	15231	14009	13834	2541	4480	3370	-2576	32.2	-15.7	3	H	na
First Appointments	108915	111435	113584	115561	119574	116833	125661	132416	25908	34031	23501	12842	21.6	10.7	1	B	na
Follow-up Appointments	245571	249376	261256	270128	279438	276846	284539	274059	59734	72746	28488	-5379	11.6	-1.9	2	B	na
Yellow																	
Emergency FCEs	4258	3829	3856	4014	4007	3664	3422	2962	682	1272	-1296	-1045	-30.4	-26.1	2	C	na
All Daycases	2154	2269	2775	3409	3701	3309	3508	4023	475	1151	1869	322	86.8	8.7	3	H	na
Elective Inpatient FCEs	945	1049	1028	1046	790	745	905	1147	173	370	202	357	21.4	45.2	4	H	na
Regular Day Patient	2681	3118	4044	5804	6083	5290	4964	5482	540	1182	2801	-601	104.5	-9.9	3	D	na
First Appointments	12320	11901	11589	11679	11065	10414	11349	10293	2392	3244	-2027	-772	-16.5	-7.0	1	C	na
Follow-up Appointments	32587	30806	29521	29783	27659	26915	27768	24597	5670	8428	-7990	-3062	-24.5	-11.1	2	C	na

In interpreting these tables above we can see that some of the identified shifts in activity levels are broadly in accord with early reconfiguration plans whilst others may either have resulted from planned revisions to the original strategic intentions or alternatively may reflect the unintended consequences of other change strategies.

The quantitative analysis of the HES data suggests many interesting local 'stories' about the strategic planning and implementation of change and focuses attention on the extent to which these fluctuations in levels of service activity are the products of the strategic will of managers or are the results of the impact of unexpected situations and circumstances. Some of these are issues are explored in greater detail in the next section.

9.7 *Management Control and Hospital Performance*

Management control is generally seen as a set of information-guided activities aimed at ensuring that the organisational processes are aligned with a set of planned goals or targets. Alignment of organisational processes to these goals is crucial to ensuring sustainable development. However, in his seminal article '*Management Misinformation Systems*' Ackoff (1967) questioned whether management control and information systems do actually provide the information that managers need to support decision-making and this point has been reiterated many times since.

The numerous problems associated with using publicly available, routinelycollected data such as those obtained from the HES database for management purposes have been frequently discussed but this type of database can provide insights into management control systems if viewed in the right way.

Understanding the determinants of the performance of public organizations such as hospitals is difficult, partly because those factors which determine the performance of such organizations are not well understood (Boyne 2003) and partly because of political and societal pressures to prove that

tax money is well-spent. Dahrendorf (2003) has succinctly formulated this issue as:

"How do we make sure that public services are run with reasonable efficiency and produce the results intended by governments and expected by taxpayers?"

9.7.1 A Different Approach?

Rather than concentrating on identifying the determinants of performance, it has been suggested that focusing on the question how *performance control* in public organizations functions could prove a more fruitful use of scant research resources. Performance control is the process of monitoring performance, comparing it with some standards, and then providing rewards and adjustments (see Ouchi 1977). As Kenis (2004) has observed, the main advantage of such an approach is that it sidesteps the thorny problem of which criteria are chosen against which to assess organisational performance. Any performance analysis is questionable on the basis of the choice of criteria (e.g. should hospitals be local, should they be safe or should they be clean?) whereas the analysis of *performance control* instead of *performance* has the advantage that the performance criteria are not defined by the researcher or any other stakeholder but rather form part of the empirical enquiry. Kenis considers that performance control in the public sector is probably easier to observe than performance per se and consequently it is easier to formulate criteria for good performance control than for performance.

9.7.2 Applying this to the HES Data

One of the approaches we have adopted in examining the ways in which HES data shed light on service reconfiguration is to focus on performance control rather than performance itself by extracting the patterns in HES trends over the years in which reconfiguration has taken place. In common with the least squares regression method, the joinpoint regression approach aims to discover the best fit-line through a series of historical data points. However, the crucial difference between the old and the new methodology is that the joinpoint methodology tests whether segmented lines provide a better fit to the observed data than merely relying on a single straight line. In the regression models, the segments of the line are joined at points called 'joinpoints' and each of these denotes a statistically significant change in trend. The minimum and maximum number of joinpoints to be tested in the regressions models is provided by the user and in this case these were respectively set to zero joinpoints (one line segment) and three joinpoints (four line segments). The model that best fits the observed data is selected by the computer program as the best description of the pattern of service trend over time.

9.7.3 Highlighting the Characteristics of the Trends

The use of joinpoint regression analysis as an analytical lens through which to view HES data highlights three statistical characteristics of the activity

trend pattern over time. Each of these three statistical characteristics is indicative of three important dimensions of organisational change.

- The first characteristic is the ***relative magnitude,*** the size of the change and this is a measure of the absolute change in activity levels (i.e. percentage increase or decrease in quarterly FCEs from the first to the last year of the study). This measure is indicative of the scale of the organisational initiative.
- The second statistical characteristic is concerned with the ***relative alignment***, the 'goodness-of-fit' of the model (i.e. the trend lines) to the observed HES data and summarises how well the trend lines fit the observed data. A closer alignment between the statistical model and the observed data indicates greater predictability and may imply tighter management control whereas more unpredictability in activity levels over time may imply looser management control.
- The third statistical characteristic relates to the ***type of change*** illustrated by the shape or pattern of the trend line (see the figure which identifies the various types of trend pattern). At its simplest the shape of these trends may either be a simple linear increase or decrease over time, suggesting change is sustainable, or alternatively the trend line may be more 'jagged' or complex in appearance possibly indicating that change is not maintainable over an extended period of time and may indeed be unsustainable. These three dimensions which characterise change are briefly described in the table below.

Table 13 Key Dimensions of Change

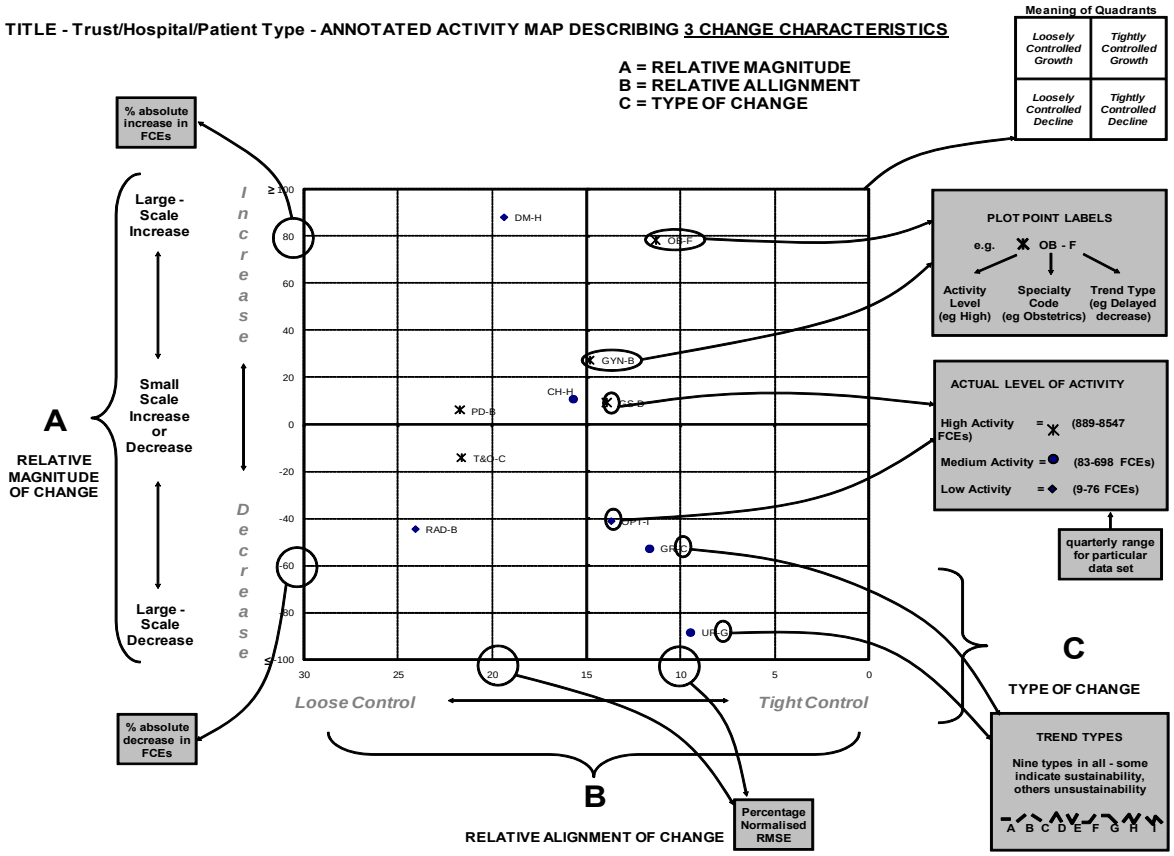
Trend Dimension	Organisational Implication	Basis of Measurement
A)Relative Magnitude of Change	***Small Scale ----- Large Scale*** **(Big increases or big decreases in service activity levels may imply major management change initiatives).**	**Absolute change in FCEs from the first to the last year of the HES data divided by frequency of FCE's in Year 1 taking account of the sign and expressed as a percentage.**
B)Relative Alignment of Change	***Tight Control ---Loose Control*** **(Closer fit between the statistical model and the observed data may imply tighter management control whereas greater variability may imply looser management control)**	**Normalised root mean squared error (NMRSE) expressed as percentage*. This is a version of a 'goodness-of-fit" measure.**
C) Type of Change	***Sustainable ---- Unsustainable*** **(Steady change may imply sustainability whereas "see-saw" change may imply a change strategy that is not really sustainable)**	**The type of trend identified as nine types of joinpoint pattern (A-I see Figure*) including linear and segmented trend patterns.**

[* The root mean square error (RMSE) or root mean square deviation (RMSD) is a frequently-used measure of the difference (residuals) between values predicted by a model and the values actually observed. The normalized root mean square error (NRMSE) is the RMSE divided by the range of observed values and often expressed as a percentage. Lower values indicate less residual variance corresponding to more consistent change in the current approach.]

Any of the HES service activity trends may be described using these three dimensions and each of the dimensions may be assumed to have particular implications for the ways in which service reconfiguration has been planned and implemented. In other words, each of the three trend dimensions summarises an important aspect of the change process; taken together they can highlight important aspects of reconfiguration strategies. In order to provide a visual summary of reconfiguration strategies a full set of site by specialty plots have been included in Appendix 3 (CDROM) and these have been designed to summarise the impact of reconfiguration strategies at the three participating sites.

The annotated activity map figure below indicates how to interpret the specialty plots shown in Appendix 3
(CDROM)

Figure 20 Diagram Showing Interpretation of Plotting of Specialty Activity Changes



Essentially, the activity map is a simple quadrant plot where the 'x' axis represents ***'relative alignment of change'*** and the 'y' axis represents ***'relative magnitude of change'***. By mapping these two dimensions together, it becomes possible to identify four sorts of organisational change process:

- Loosely controlled growth
- Tightly controlled growth
- Loosely controlled decline
- Tightly controlled decline

The third dimension of change (i.e. ***'type of change'***) is shown on the activity map using the nine letters 'A' to 'I' to denote the nine trend types described earlier. In addition levels of activity (i.e. 'high', 'medium' or 'low') are coded on the plot next to the directorates they refer to. For the various medical specialties, the activity maps provide a rapid way of identifying magnitude of change (large scale and small scale), alignment of change (tight control and loose control) and type of change (sustainable and unsustainable).

9.7.4 Identifying Reconfiguration Strategies

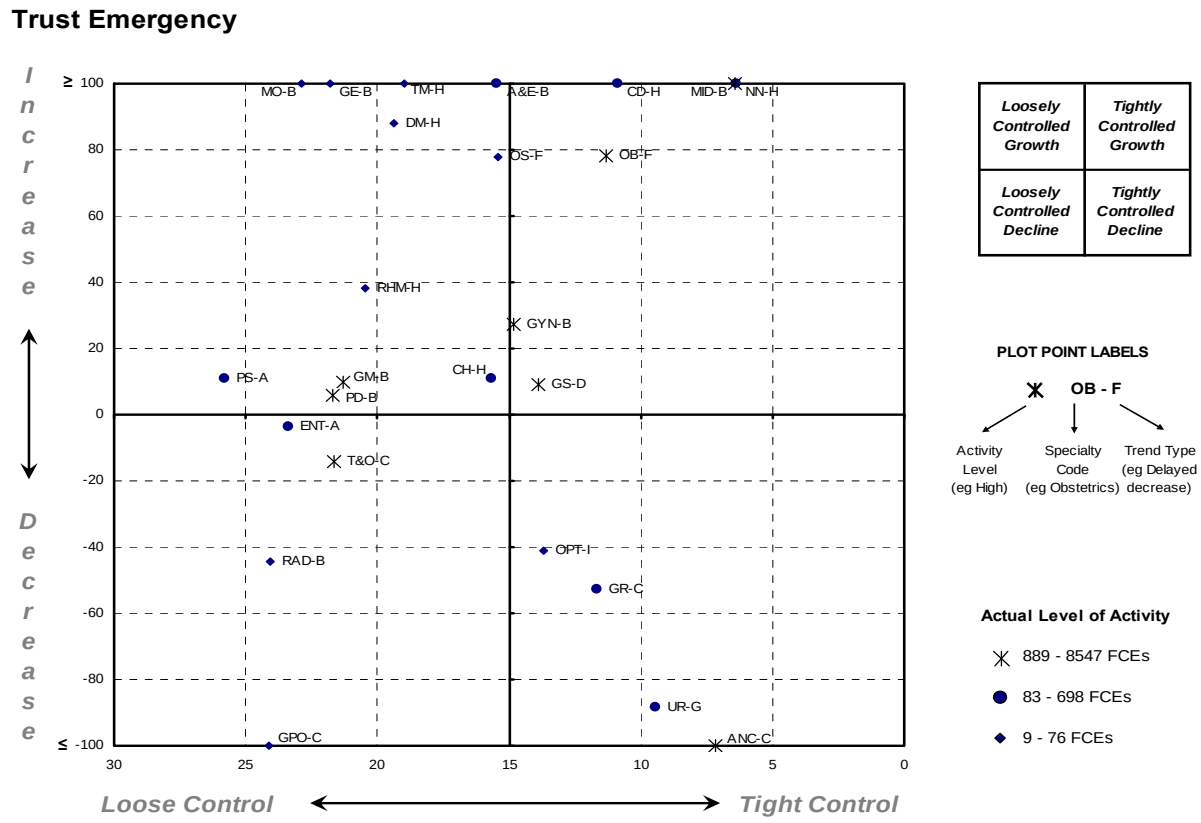
The following section is a worked example based on Trust B, showing how the HES data has been used to reveal the actual pattern of service changes over time and how these patterns of change may reveal various reconfiguration strategies. Hospital Y is the small hospital in Trust B most affected by reconfiguration.

9.7.5 An Illustrative Example

As an example of how the figures in Appendix 3 (CDROM) should be interpreted, the figures below summarise activity map analyses for emergencies at Trust B and at Hospital Y. [Hospital Y is part of Trust B as described in an earlier chapter of this report]

As an illustration, let us identify from the figures some specialties marked as large scale changes which appear to be both sustainable and which appear to have taken place under tight management control at both Trust B and at Hospital Y.

Figure 21 Trust B - All Emergency Services



The figure shown above represents emergency services for whole of Trust B. It can be seen that large scale changes (either increases or decreases) are identified as an asterisk in the figure [i.e. Actual level of activity for large scale changes here lie between 889-8547 FCEs]. We have seen that sustainable changes are those which tend to have relatively simple linear trend lines (i.e. linear trend patterns 'B' and 'C' are probably the best indicators of sustainability). Finally, it can be seen from the graph that changes in those specialties under relatively tight management control occupy the two quadrants on the right-hand side of the activity maps.

Table14 Key to Specialty Codes

A&E	A & E	GPO	GP Other	OPT	Ophthalmology
ANA	Anaesthetics	GR	Geriatrics	OS	Oral Surgery
ANC	Ante-Natal Clinic	GS	General Surgery	PAL	Palliative Medicine
BS	Breast Surgery	GYN	Gynaecology	PD	Paediatrics
CD	Cardiology	HV	Joint Consultative Clinic	PM	Pain Management
CH	Clinical Haematology	MID	Obstetrics Midwife led	PS	Plastic Surgery
CP	Chemical Pathology	MO	Medical Oncology	RAD	Radiotherapy
CS	Cardiothoracic Surgery	NEU	Neurology	RHB	Rehabilitation
DM	Dermatology	NN	Neonatology	RHM	Rheumatology
ENT	E.N.T.	NPH	Nephrology	T&O	Trauma and Orthopaedics
GE	Gastroenterology	OB	Obstetrics	TM	Thoracic Medicine
GM	General Medicine	OD	Orthodontics	UR	Urology

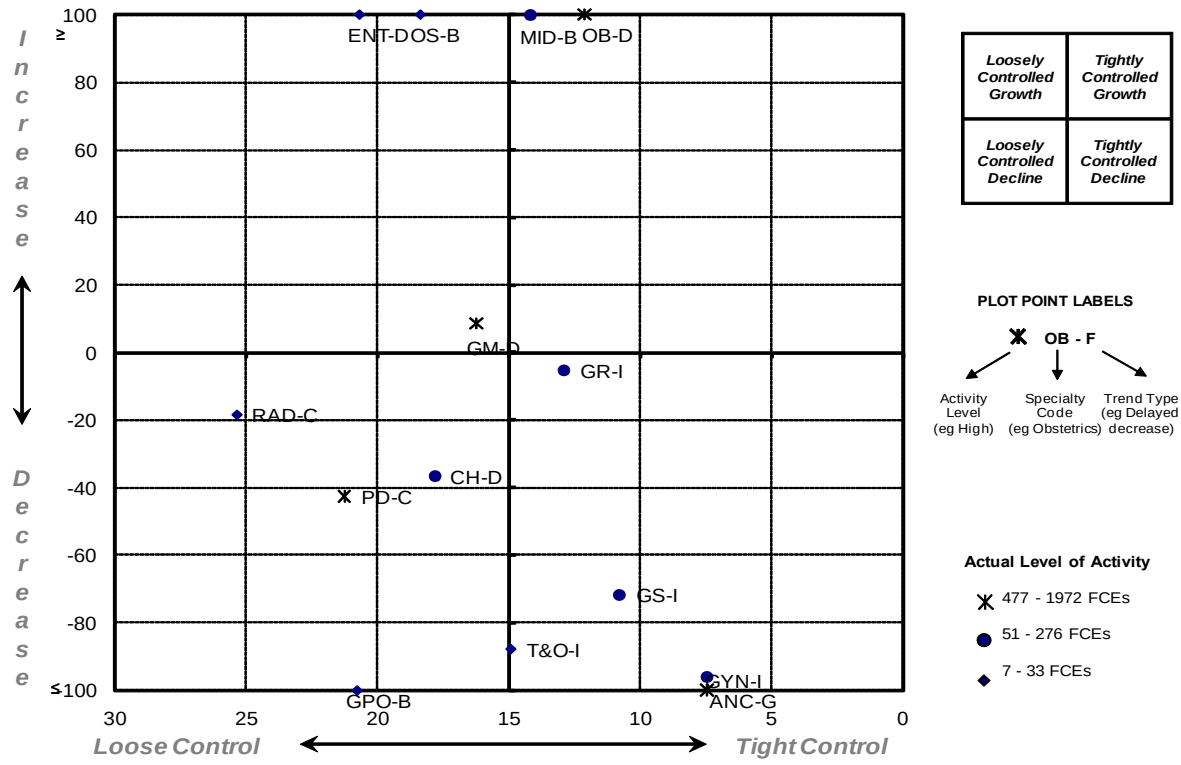
Trust B: Ante-Natal Emergencies - 'ANC': [See lower right quadrant of Figure 21 shown above]. For all Trust emergency data, it is apparent that the Ante-Natal specialty is associated with high levels of activity [i.e. asterisked] compared to other specialties and these activity levels have relatively decreased a great deal over the retrospective study period [see 'y' axis scale]. This change appears to have been sustainable [type of change is 'C'- i.e. *decrease*] and has probably occurred under tight management control [see 'x' axis scale].

Trust B: Obstetric Emergencies - 'OB' and 'MID': [See upper right quadrant] For both Obstetric and Midwife-Led Obstetric FCEs (both associated with high levels of activity – asterisked - compared to other specialties), the figure indicates that both of these have been associated with relatively large scale increases in magnitude. These changes appear to have been sustainable since the type of change is 'F'- i.e. *delayed increase* for Obstetrics and 'B' – i.e. *increase* for Midwife-Led Obstetric FCEs. Both types of service growth have occurred under relatively tight management control. **Hospital Y: Emergencies -** Looking again at the two examples of Antenatal and Obstetric services for Hospital Y Emergency data alone, an examination of the activity map overleaf reveals that:

Hospital Y: Ante-Natal Emergencies – 'ANC'; [see lower right quadrant in The Hospital Y Emergency figure shown above]. For ANC there are high clinical activity levels compared to other specialties at Hospital Y and these have decreased in relative magnitude a great deal over the study duration. This reduction appears to have been sustainable since the type of change is G – i.e. *delayed decrease*. Furthermore the plot reveals that this change has probably occurred under tight management control.

Hospital Y: Obstetric Emergencies - 'OB' and 'MID': [See upper right quadrant]. Although Midwife-Led Obstetric FCEs at Hospital Y appear to have sustainably increased over the study duration, the emergency Obstetric activities show a different pattern at Hospital Y compared to the Trust as a whole. Although the Obstetric emergency activity levels have increased overall across the study period, the pattern of change at Hospital Y revealed a steady increase for Midwife-Led Obstetric FCEs [type of change for MID is B – i.e. *increase*] whereas for Obstetrics an initial increase was followed by a subsequent decrease in activity level [type of change is D – i.e. *increase then decrease*].

Figure 22 Hospital Y Emergency Services



As a further illustration of how to interpret the figures, we may be interested in identifying whether there have been any unsustainable changes at either the Trust B level or at Hospital Y alone. Here the above figures reveal that there are several specialties where the pattern of change (i.e. the inconsistency of the fluctuations in service activity levels) suggests unsustainable development. For example, at Trust level, both Cardiology and Clinical Haematology (both associated with medium levels of activity compared to other specialties) are characterised by inconsistent increases in FCEs which may be indicative of repeated attempts to stabilize growth. Another example is General Surgery and Gynaecology at Hospital Y. Here, we observe a clear 'saw tooth' pattern of activity decline for both these medium-size specialties suggesting that attempts to curtail clinical activities at this hospital site are not permanently sustainable and may require repeated efforts to ensure that planned intentions are enacted.

9.8 *Summary and Implications*

Two distinct strategies of organisational development have often been contrasted. The first, may be called the 'planning' (or 'top-down') strategy since it focuses on making a planned journey between where the organisation is now to where management considers it needs to be taken. The management emphasis is on careful control of the stages of the journey through careful planning and keeping the change progress on track. All

deviations from the planned route are triggers that alert management to the need for remedial corrective action in order to steer the organisation back to the proper development plan. In contrast, rather than focusing on the external imposition of planned 'stages' of change, the 'learning' (or 'bottom-up') strategy emphasizes the importance of staff gathering experience about what change might mean and learning important change lessons from immersion in the change process itself. In the learning strategy, members of staff learn how to handle change so that implementation is driven through continuous discussion at all levels about problems and possible solutions. Of course, in practice both 'top-down' and 'bottom-up' strategies are usually drawn upon to promote effective change through the use of both top-down planning and bottom-up participation.

In the context of the approach described in this chapter, monitoring the impact of organisational change relies upon the systematic collection of routine management information (HES data) during the various timescales in which broad reconfiguration plans have been implemented as specific projects, programmes or policies at the three pilot sites. Theoretically, monitoring is an essential component of evaluation of policy implementation, although over time, it is very easy for 'policy drift' to lessen the potential impact of planned change activities. In these instances, the originally envisaged reconfiguration plans and the methods used to drive planned change are likely to become less focused and even to be progressively replaced by other intervention activities not really related to the original reconfiguration intentions. To monitor and evaluate change it is important to examine the expected or planned changes as well as identifying the unexpected and unplanned. Both types of information are essential in indicating not only the extent to which objectives are being achieved but also in providing an early warning of potential problems.

Reconfiguration plans themselves may or may not contain inherent design flaws but the ways in which they are implemented may also fall short of being fully effective. Problems with reconfiguration policies and plans should be distinguished from failures in implementation although monitoring this type of shortfall presupposes that reconfiguration activities, anticipated outcomes and projected activity levels have been as tightly specified as possible. Clearly, it is simply not possible to measure deviations from standards which have not been adequately specified. Unfortunately, many reconfiguration objectives are too vague to be translated into measurable programme goals and this means that it is frequently difficult, if not impossible, to assess whether the proposed goals and targets have been met within an acceptable bandwidth of tolerance.

It is apparent that converting reconfiguration plans and policies into practice at trust level is far from being a simple issue. Since sustainability is the process by which a new innovation becomes accepted normal practice, then successful initiatives may be considered to be those organisational initiatives that are either maintained or allowed to expand their impact for some time. On the other hand, an unsustainable change is not able to withstand the real-world challenges or pressures it faces and therefore does not become accepted as normal practice in the organisation. Under these

conditions managers may attempt to introduce new systems and contingencies to revive a failing initiative but lack of acceptance usually means that these attempts only have a temporary impact. Typically, this type of unsustainable change is visible in the 'stop-start' see-saw activity patterns typical of many clinical change initiatives.

Furthermore, the local organisational context is often unpredictable, turbulent and overloaded with many competing demands for organisational and management changes. This may result in considerable confusion and uncertainty that makes sustainable decisions difficult to implement successfully. On top of this, there is a range of practical constraints under policy implementation that create prove difficulties at Trust level, including problems with insufficient time and resources; poor understanding of, and disagreement about, objectives; lack of clarity about the cause-effect reasoning behind implementation schemes, and poor communication about the implications and impact of proposed implementation strategies. Under these conditions it is not easy to promote well-informed debate and focused discussion about the rationale and impact of particular change initiatives. However, our experience of using the HES framework as described in this chapter suggests that this form of analysis may prove useful in facilitating the building of shared understanding and informed acceptance of the need for active implementation of plans.

The exploration of the HES data in this way can provide a means of understanding reconfiguration at a level which recognizes two fundamental facts about all attempts to improve healthcare. Firstly, organisational change initiatives are always associated with a wide range of effects, both planned and unplanned. Secondly, the process of change rarely if ever progresses in a neat linear way systematically advancing through discrete stages of problem analysis, intervention design and organisational implementation.

The biggest challenge in using the HES framework as a type of monitoring tool lies in the attribution of any changes in HES data activity patterns to the sequence and timing of 'milestone' reconfiguration changes. Through detailed discussion with representatives from the three participating Trusts, it was possible not only to make these links between the initiation of local service plans and their subsequent impact on patient activity levels but also to use perceived discrepancies between expectations and realities to effectively explore the reasons behind a wide range of change-related issues. The response to this approach to date has been promising, primarily because it recognises the critical importance of viewing change not as an isolated event but as a dynamic process characterised by the changing rate, rhythm, and dynamic patterns of work activities. With further research to systematically establish the reliability and validity of this approach, adopting this type of conceptual framework for sharing HES data may provide the following three benefits:

1. More effective communication between staff from different backgrounds and with different perspectives about particular organisational change initiatives.

2. More effective problem solving about organisational change and ways of exploring and understanding why organisational initiatives succeed or fail at local Trust level.
3. More effective planning and implementation of local change initiatives since decision-makers will be required to think about why certain changes may or may not be as significant as expected.

10 Financial Effects of Reconfiguration

10.1 *Introduction*

This chapter sets out the status of the study component aimed at assessing the costs and efficiency of the three sets of hospitals in the reconfiguration study of hospitals in the three case study Trusts. It also sets out some relevant background on the economics of hospitals and the research methodology that was envisaged and which could provide an assessment of the costs and benefits of reconfiguration of hospitals, had the requisite data been available.

However, no site-specific financial data covering clinical services (as opposed to site services such as power, heat and light) was available because of the compiling of local accounts at directorate level, across sites. As a result, a less detailed analysis only was possible. This is set out in Sections 10.3 and 10.4.

10.2 *Economics of Hospital Size and Reconfiguration*

The key issue for hospital reconfiguration is whether hospitals are more economic when of a specific size or when organised to produce specific types of care, (for a given level of quality).

In economics, the scale of a productive enterprise is generally expected to have some implications for the unit cost of production. This is because, for example;

- the physical characteristics of production processes may mean that it is cheaper, per unit, to process larger than smaller volumes;
- the organisation of production processes may mean that larger volumes can be produced more cheaply by breaking down production processes into a series of steps, each of them highly repeatable on production lines;
- the power of large enterprises may be able to exert greater control over input prices, including labour, materials and credit, as monopsony buyers.

However, hospitals may differ significantly from other production facilities. Two key differences are important here:-

- Firstly, acute general hospitals are not obviously characterised as a single business unit but are, in practice, large buildings within which many business units interact and overlap. The clinical firm, the

individual wards, the theatres, the laboratories, all have some characteristics of individual businesses. They may be pursuing different objectives and may not all be contributing to the production of relatively similar, generic products. This means that many scale effects may not be apparent at the level of the whole hospital but at some subordinate level, e.g. the clinical firm, the ward. While many companies may also have a similar number of departments, they are typically working on a smaller range of different products, with similar inputs, and so objectives may be more consistent between different groups within the company. In hospitals, some departments may be able to treat patients in relative isolation from the management and organisation of other departments.

- Secondly, many aspects of hospital care are relatively labour intensive. As a result, it may not be possible to organise them in ways which deliver significant economies of scale, that is, lower costs per unit from higher volumes of production.

If the production process remains relatively labour intensive, as it does in wards, theatres and other elements of hospital care, then the conventional scale effects from the application of more equipment to production are less likely to occur. Where the activity is less labour-intensive, e.g. in laboratories carrying out routine blood tests, there is greater scope for mechanisation and larger units may have lower unit costs.

As a result, it is far from clear whether clinical activities such as patient care in wards, out-patients or primary care really do offer the potential for economies of scale, at least beyond some relatively small size. Scale effects might operate at the ward level rather than the hospital level, for example.

It follows that, as hospital care is organised in wards and theatres and other departments which use some items of specific equipment on patients for specific periods, a key issue in the economics of hospitals is likely to be around the size of the units of these facilities, rather than the overall size of the hospital.

Against this background, it is possible to formulate some hypotheses about how reconfiguration might have affected the hospital trusts in our sample.

- Firstly, at least in principle, it might be expected that trusts which tend to concentrate specific clinical activities on fewer sites might make cost savings, e.g. from their ability to reduce the number of teams in each specialty covering the trust's sites and because of increased utilisation of dedicated facilities and equipment at each site. However, the literature is not clear on how big any savings might be and they may occur at a scale that is larger or smaller than the scale of the facilities and services at our three trusts.
- Secondly, it might be expected that trusts which tend to continue to keep a broad mix of services on each site will not achieve appreciable savings per unit of caseload, because of duplication of staffing and facilities, which might then be under-utilised.

- Thirdly, it might be expected that trusts which reduce services on a site which they retain might incur some diseconomies of scale, as the overhead costs of the site will then be spread across a smaller caseload.

Economies of scope, noted earlier, may be more important where hospital sites are relatively small. That is, there may be little change in the scale effects of activities as a result of reconfiguration but changes in the scope of the work carried out might generate some savings. For example, if a hospital concentrates on a smaller number of types of patient care, it may become quicker at carrying them out or have fewer complications as a result.

Costs are likely to be smaller for a smaller range of cases because less diversity of equipment and, potentially, of staffing is required. Also, given that labour costs are the most significant part of hospital cost, labour costs per case may be reduced by more efficient scheduling of a narrow range of procedures or by a focus on a healthier patient group with fewer complicating conditions. Procedures may also be carried out faster due to greater experience of a narrow range of work, though this will depend on the degree of dedication of staff to premises as well as the range of activities carried out in any hospital premises. Length of patient stay may fall because of fewer complications but this could be an artefact of the selection of cases and so may not offer savings for a multi-site hospital as a whole.

The key to understanding the actual impact of reconfiguration is an assessment of the activities carried out and the cost, for each of the sites involved.

10.3 *Potential Study of the Cost Impact of Reconfiguration*

Given at least the possibility that reconfiguration of hospital services could affect the costs of care, it was proposed in our original submission to SDO that we would use trust data to examine the cost impact of reconfiguration. That is, given the lack of consistency in statistical analysis across large samples of hospital data, it was proposed to focus on the direct and observable impact of reconfiguration on the trusts involved.

Such a study would require information on:

- the clinical activities carried out on each site in each trust;
- the cost of these clinical activities at each site;
- the infrastructure and support or other costs of each site.

One difficulty in using this data to estimate the relationship between reconfiguration and costs is that clinical activity and cost per patient may increase or decrease on a site, or for the trust overall, during the study period, for reasons unrelated to the efficiency of reconfiguration, e.g. local waiting list initiatives or budget cuts. As a result, there is unlikely to be a

consistent movement in activity solely due to reconfiguration, particularly with a sample of only three trusts.

NHS Trusts have also faced very significant changes to the cost of labour because of the implementation of the consultant contract and Agenda for Change. These again may make it harder to discern the direct effects of reconfiguration on costs.

Furthermore, trusts are not necessarily working at the optimum efficiency at any time, so that observed costs may not reflect efficient costs. This may also mean that, from time to time, costs may change because of general changes in efficiency rather than changes in activity linked to reconfiguration.

In practice, the original project plan was to examine how costs and activities changed at each site in each Trust and to see, pragmatically, what if any links could be drawn between service changes and cost changes by site and what if any evidence could be found of the confounding factors noted above.

For example, suppose medicine was centralised on one site and surgery on another site, from two existing sites in a trust. Detailed financial and activity data would allow the following kind of analysis:

- estimation of the net cost effects of the service changes, after adjustment for inflation, at each site;
- estimation of whether, overall, total costs had risen or fallen following reconfiguration;
- estimation of whether cost changes at each site appeared consistent with the changes in activity at each site.

In the absence of detailed data on activity by site, below specialty level, it would be possible to use some proxy measures of activity to compare costs by site. For example:

- bed days could be used as a proxy for in-patient activity;
- outpatients and day cases could be given a proxy cost weight relative to the cost of a bed day of inpatient care.

However, developments in the recent past offer the potential to go further, using information generated by the Payment by Results initiative in the NHS.

Given a breakdown of clinical activity by HRG by site, together with the costs of each site, it would be possible to calculate whether a site was making a notional surplus or a loss on its clinical activity and whether this changed during reconfiguration. The NHS Tariff could provide a way of weighting each HRG for its relative cost and so be used to produce a standardised index of activity in each year of the financial analysis. This would allow us to ask questions about whether reconfiguration was in the economic interests of a trust, as well as in the interests of patient care or access to services.

At the start of the study, it was anticipated that the three trusts would have good information on activities and costs by site. This was because of the development of Hospital Episode Statistics as a very effective method of counting hospital in-patient activity; because of an increased focus on costing due to the introduction of Payment by Results, and because it was thought likely that the costs of retaining different mixes of services on different sites would be a key concern of trust management.

10.4 *Results*

We obtained data downloads from HES for two of the three sites in this study, Trusts A and C. Although there is scope in HES for recording of the site within a trust at which treatment is provided to inpatients and day cases, this is not necessarily always collected. Our request for HES data showed that for Trust B there was no site-specific data available.

The analysis of the cases treated at each of the two sites shows a relatively high degree of stability in clinical activity at both sites. This is shown in Figures a-d. Graphs identify the highest volume Healthcare Resource Groups (the way in which activity is coded for Payment by Results – essentially based on diagnosis, procedure and cost) and, where the volumes in HRGs are smaller, the volume of individual chapters of the HRG classification, minus the high volume HRGs reported separately.

Given the relative stability of the caseloads, we have not attempted to adjust for any changes in specific HRG codes between the three periods when the data was collected. These are not likely to have a significant effect as for specific high volume HRGs the coding appears to be consistent and for other areas of activity we have examined Chapters rather than HRGs. Changes in coding are not likely to be significant at the level of the Chapter in HRGs.

10.4.1 Trust A

This site has seen some changes in casemix and activity over the period 2004/5 to 2006/7. Specifically, there have been increases in:

- gynaecology;
- musculoskeletal;
- pain and Neurology;
- cardiac treatments.

These have offset falls in activity in:

- lens replacement;
- endoscopy and colonoscopy;
- vascular;
- dermatology.

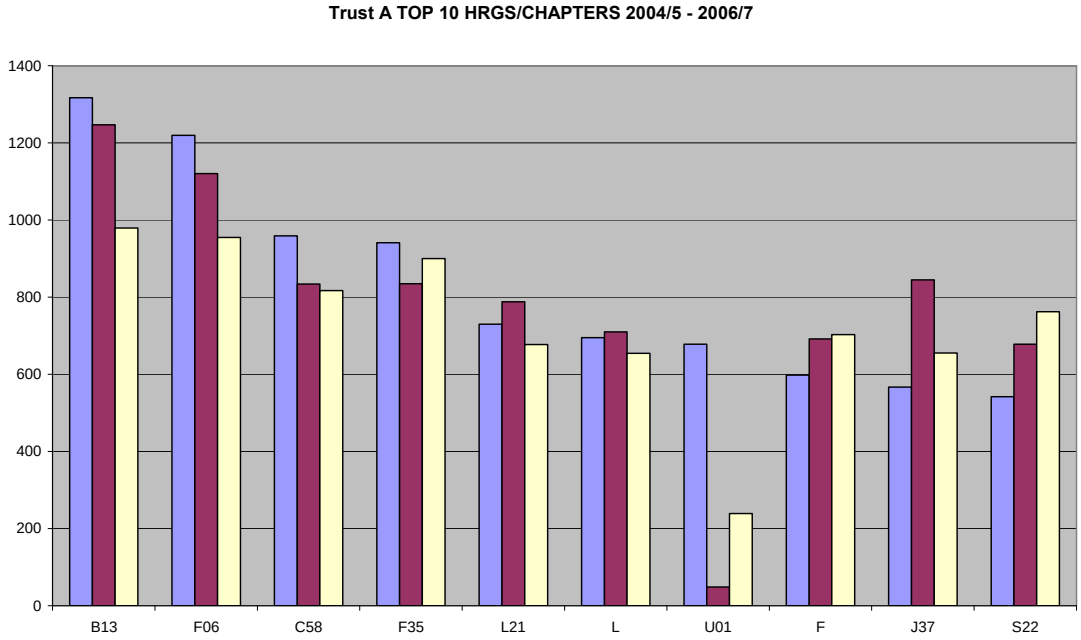
There were increases and decreases within many chapters, notably in ENT.

The notional income for each year was calculated using the 2006/7 NHS Payment by Results Tariff. This showed considerable stability and some modest growth in the notional income. By using a single year's tariff, changes due to changes in the tariff were not excluded.

The changes in activity between 2004/5 and 2005/6 would, at a consistent tariff, have generated an increase of 8.6%, notionally. That is, activity changes tended to increase income. Between 2005/6 and 2006/7 notional income fell by less than 1%.

While we do not have cost data to compare with notional income data, it is clear that over the whole period of 3 years, activity changes at this site should not have caused substantial financial difficulties for the trust. However, this is without any consideration of costs, in the absence of site-specific cost information. Although these notional income figures were calculated using a standard tariff, and are therefore at 2006/7 prices, it is possible that changes in costs could have led to the trust making a surplus or deficit on the site overall. We cannot conclude on this without the cost information but, taking activity and tariff information, there are no obvious signs of a serious collapse of activity or potential income. This is largely the consequence of the relative stability of services, with some growth offset, to a degree, by some increases in activity. For example, although growth in cardiac services was quite modest, cardiac services have a relatively high tariff price. Given that this will include items such as pacemakers, however, it is possible that the costs for these activities were also significant and therefore that this activity might not generate a surplus routinely.

Figure 23 Trust A: costs for selected HRGs 2004/5-2006-7



10.4.2 Trust C

This site has seen some changes in casemix and activity over the period 2004/5 to 2006/7. Specifically, there have been increases in:

- dialysis and related renal services;
- gastroenterology and endoscopy;
- cholecystectomy and related liver procedures;
- ENT.

This has been offset by falls in:

- lens replacement and other ophthalmology;
- cardiac treatments.

In other services, there have been some increases and some decreases in activity for similar or related treatments.

Overall, there are no dramatic changes in activity recorded at this site over the three year period.

Using the 2006/7 Payment by Results Tariff, we calculated the notional income for this site for each of the 3 years under scrutiny here. Income fell by 3% between 2004/5 and 2005/6 but rose by 8% 2005/6 to 2006/7. Overall, a change of about 5% in income for this site suggests that it is unlikely that it has been suffering serious financial problems though in the absence of costs by site, this cannot be confirmed. The HES data available to us did not identify, consistently, with associated costs, emergency and elective cases. Although this is not an ideal position, given the relative stability of the income position, with or without the replacement of some

elective tariffs with emergency tariffs, further analysis has not been undertaken. Overall, there were some changes in activity over the three year period but these were not major for any single clinical activity or chapter and would not have led to a seriously adverse financial position under PbR.

Figure 24 Trust C: costs for largest HRGs

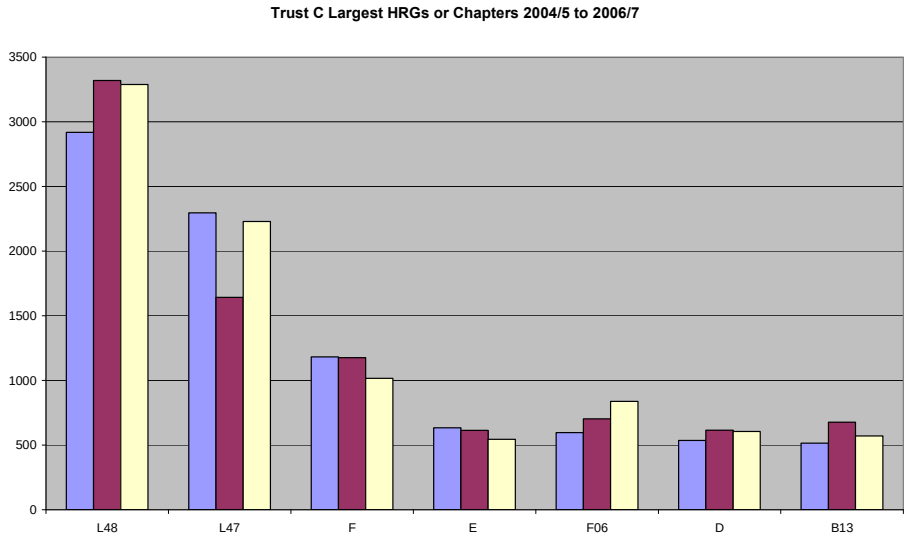


Figure 25 Trust C: costs for intermediate HRGs 2004/5-2006/7

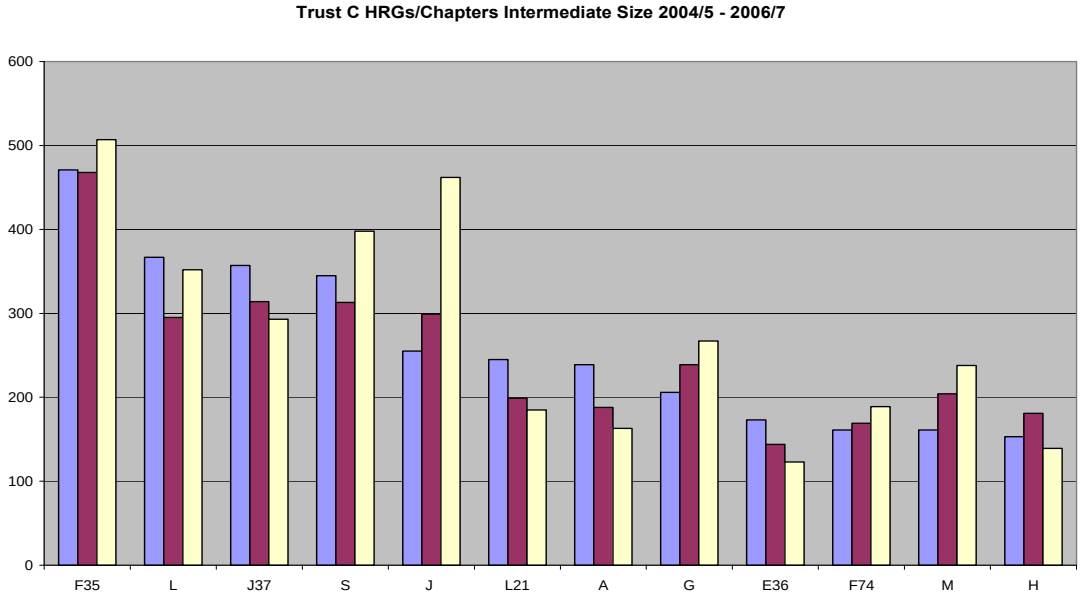
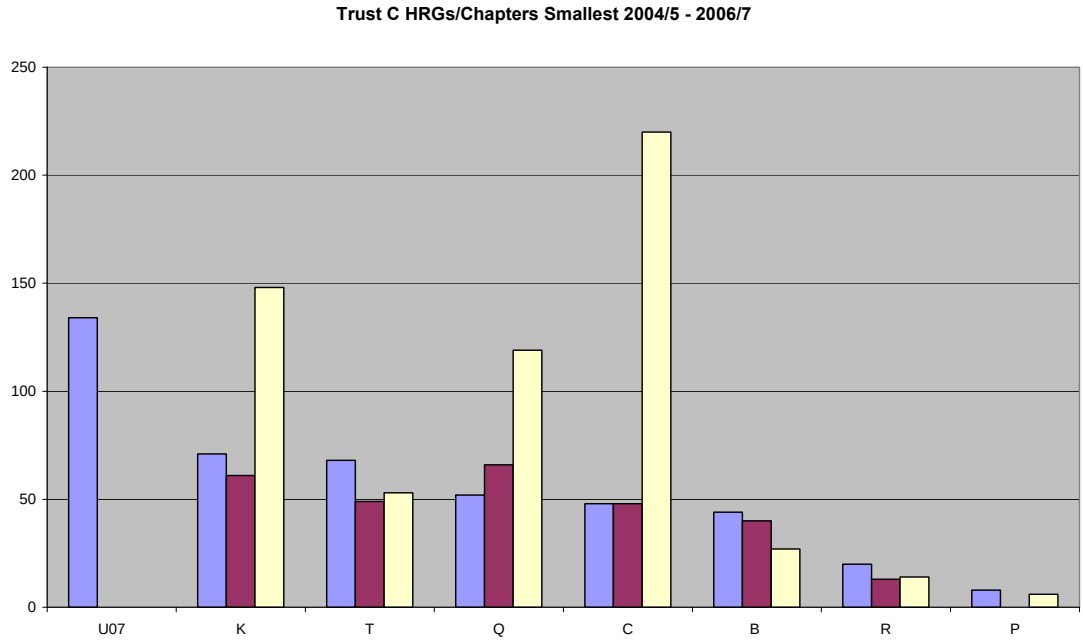


Figure 26 Costs for smallest HRGS 2004/5-2006/7



10.5 *Comparative Cost Data*

Given the limited changes in activity at the two sites examined in more detail, it is plausible that costs would not have changed appreciably over the three years 2004/5 to 2006/7. This can be tested a little, though at the level of the Trust and not the site.

There is some data available comparing the efficiency of the whole trusts involved in our study, the national reference cost exercise. This generates a cost index for every NHS provider which takes account of local reported costs and also the Market Forces Factor, the weighting used in the NHS to adjust for local labour market conditions across the country.

Clearly, the extent to which reconfiguration might affect this cost index depends on the scale of change in the organisation relative to the status quo. For example, if only 5% of a trust's activity is affected by reconfiguration, we would not expect to see a major shift in the cost index, even if this reconfiguration was adding significantly to costs. A cost increase of 20% in reconfigured activities would add only 1% to the cost index.

However, it is noteworthy that over the period of the study, the cost indices of the Trusts involved have been relatively stable. (Costs are benchmarked in this annual exercise by the Department of Health, to show variation around a mean value of 100.)

Table 15 Reference costs indices for study trusts

Trust	2003	2004	2005	2006
Trust A	108	99	98	96
Trust B	108	106	106	108
Trust C	97	98	102	99

Note that in 2003 Trust B had not been formed. The data relate to one of the two former Trusts which amalgamated to form Trust B.

These data suggest relatively little change in efficiency over time in Trusts B and C but a more striking downward trend in the cost index, and an implied increase in efficiency, in Trust A.

Taken in isolation, these figures do not provide an entirely dependable basis for assessing the cost impact of the merger. But they are consistent with the possibility that reconfiguration did not impose major inefficiencies or generate major efficiencies in at least two of the Trusts.

10.6 *Conclusions*

This element of the study has been limited by the lack of cost data for each site within the trusts involved and the lack of activity data for part of Trust B.

It is perhaps surprising that costs for each site were not examined further, given the extensive discussion about their role and function, but in the absence of financial data, cost comparisons are not possible.

It should be noted that for the two sites examined, activity changes are relatively limited and so major changes in costs would not be anticipated to result from them. This may explain why the trusts have not examined site-specific costs in more detail.

The lack of financial information by site was identified as a difficulty at the start of the project and was confirmed in communication with the Trusts' finance departments in November 2007. Without this information, this element of the study has only achieved a limited output.

11 Overview, Main Findings and Recommendations

This chapter provides an overview of the main findings from the different components of the study, placing them in the context of the existing literature. It also identifies the strengths and weaknesses of this particular study and makes recommendations as to future research priorities.

11.1 *Overview*

11.1.1 Background and Aims

In common with social system changes at a world-wide level it is inevitable that established patterns of acute care provision must evolve to take into account a range of new pressures. Therefore the selection, in 2003, of three sites within the Department of Health's 'Configuring Hospitals in Health and Social Care Systems' with distinctively different approaches (a consequence of local and general forces) offered the opportunity to:

- evaluate the performance of each site in terms of sustaining delivery of acute services;
- identify factors associated with success and failure in each site;
- develop a more generic framework of principles to serve as a guide to future reconfiguration options.

11.1.2 Methods

An investigation of the breadth proposed here has necessarily had to operate at a number of different levels of data collection and focus, and to respond to the changing realities of the NHS context and to the practical realities discovered in relation to data access and availability.

The research set out to relate data on specific site initiatives with the need to inform more generic principles of reconfiguration. Objective performance data was also sought so that it could be interpreted in conjunction with qualitative data relating to stakeholders in the wider health and social care system.

The main findings from each methodology employed in the study are summarised below.

11.2 *Summary of Main Findings – The Literature*

11.2.1 Definitions

In many instances plans and strategies for reconfiguration are presented as being derived from technical calculations, or as a consequence of external forces such as the European Working Time Directive. Despite apparent focus on technical processes such as pathways of care and clinical procedures the decisions to be made about reconfigurations are typically political ones involving a range of contestable values. As a consequence evaluations of hospital reconfigurations must involve a set of multiple criteria, where the relative weighting is a matter of judgement and where conflict often exists between the respective criteria.

Case studies of reconfigurations reviewed here rarely seem to take into account the historical backcloth, preferring instead to focus upon apparently neutral concepts such as cost-effectiveness or allocative efficiency. In reality the local context is critical whether involving provision of alternative services, communications infrastructure, the resource in the community or local political pressures.

Finally it is clear that policy developments during the process of reconfiguration have the capacity to undermine the assumptions on which reconfiguration plans are built. Prof Darzi's (2007) review of healthcare in London suggesting more care be provided locally in polyclinics is a typical example.

11.3 *The Qualitative Review of the Three Case Study Sites*

The qualitative study was aimed at examining how well the study sites performed in sustaining delivery of acute services through reconfiguration, identifying factors that contributed to success or failure, and looking for learning that might guide future reconfiguration.

Two of the sites achieved changes in the delivery of acute services and were able to claim benefits but could not be described as unqualified successes. A third site did not proceed with the proposed reconfiguration and any changes achieved were more like normal evolution of services. All three face challenges to the sustainability of acute services. However, all three case studies offer the chance to learn about how reconfiguration can be planned and implemented.

11.3.1 Trust A

At Trust A, service changes were implemented, and benefits in cost and output were claimed. These changes do not fall within the definition of reconfiguration adopted for this study, which involves

the distribution of services between hospitals, and so did not involve the removal of services from any site.

11.3.2 Trust B

At Trust B, service changes were implemented and the reconfiguration plan was formally signed off as complete, but interpretation of the reconfiguration as a success was challenged by some internal and external stakeholders, and the process was lengthy.

11.3.3 Trust C

At Trust C, service changes within the definition of reconfiguration used for this study did not take place.

11.3.4 History and Background

At all three sites, the attempted service change originated with difficulties in the viability, going back years, of small hospitals. These difficulties included low levels of activity or threats to medical recruitment which jeopardised financial sustainability or clinical safety.

The pressures for hospitals to sustain and increase levels of activity grew over the period of the study because of national policies including Payment by Results, patient choice, the movement of more care to community settings, and practice-based commissioning. There were also policies which affected recruitment of health professionals.

11.3.5 Stakeholder Perspectives on Solutions

The plans put forward by trust managements sought to balance accessible care, clinical safety and financial sustainability, and, less explicitly, but also evidently, were concerned to retain local hospitals because of their importance to the community. These four factors correspond to the four functions of a hospital (social, clinical, economic and cultural). However, **there are conflicts and trade-offs which make reconfiguration difficult; different stakeholders took different positions on these factors, and how they affected implementation and sustainability.**

Access means having services near to where they are needed, and therefore rests on technical measures of health need, travel time and access to transport. Some stakeholders' concerns about access (considered in the section on local stakeholders below) are hard to relate to health need, and may in fact be concerns about threats to the cultural function of a hospital. The implication of addressing cultural concerns is that existing buildings and sites, and services such as emergency services with high cultural significance, are preserved. Both access and cultural importance, therefore, involve preservation of local services, although the solutions to problems of access and cultural significance do not coincide exactly. It was often not

clear whether cases for local services were made on grounds of cultural significance or access.

Clinical risk is intimately related to cost, in that where volume of activity is low, a safe configuration without a changed model of care requires more consultants and is expensive. It is possible, with more resources, to provide clinically safe services at small sites, and this use of resources is a political decision. A safer solution can be a lower-cost solution only where it is possible to bring services together in a larger centre, which considerations of access and cultural significance may prevent.

The study looked at the involvement of different stakeholders in reconfiguration, and considered what type of argument they were likely to use, how stakeholders were able to influence reconfiguration, and which solutions to the problems of threatened small hospitals stakeholders favoured, characterised crudely as supporting either local or centralised services. Arguments invoking the needs of:

- consumer (relating mainly to access) – tend to resist centralisation and to defend existing local services;
- patient (relating to clinical safety) – tend to favour centralisation;
- taxpayer (relating to economic factors, particularly financial sustainability) – likely to favour centralisation but adapt to incentives rewarding local provision;
- voter (relating to cultural significance) – could express preference for either centralisation or local .

The analysis confirmed that 'patient' public health interest claims, concerned with health outcome, are most commonly expressed by clinicians. 'Taxpayer' public interest claims concerned with efficient use of resources were most likely to be expressed by the internal non-clinical group made up mostly of trust executive team members. The diverse group of external stakeholders were most likely to express 'consumer' claims (typically about access to care and the patient experience). 'Voter' public interest claims relating to the local significance and value of services were rarely expressed by interviewees in this study. No type of claim was exclusive to any one group. Views of the purpose of reconfiguration were most polarised in Trust C.

Reconfigurations involve reconciling pressures of safety, accessibility and financial sustainability in the delivery of hospital services. These pressures are evident in the drivers of reconfiguration, in how they are implemented, and in whether they can be sustained in the long term. **In all the reconfigurations in this study, and most reconfigurations, these tensions were expressed as decisions about what must be delivered in large central services, and what can safely be delivered locally.**

Trust managements were likely to express the objectives of reconfiguration as ensuring the delivery of safe, accessible and financially sustainable services but decisions about reconfiguration cannot rest on technical

evidence alone. **The evidence base is not strong enough to guide decisions in specific situations about what care can be safely delivered locally, and what must be delivered in large facilities.**

The implementation of reconfigurations was influenced by stakeholders outside the trusts. Communities could be powerful in influencing local decisions, particularly where acute services were threatened. It is likely that communities, while expressing their concerns mainly in terms of accessible services, were also influenced by the significance of hospital services and buildings locally. **Where other organisations in the health economy, (PCTs, SHAs and local government overview and scrutiny committees) that might be expected to show leadership in ensuring that health services meet population need, are immature or undergoing reorganisation they are unable to provide this lead.** These organisations are taking a stronger role in more recent reconfigurations, and some were showing more leadership in our case studies towards the end of the period.

Politicians at local and national level avoided supporting or directly opposed potentially unpopular decisions on the provision of services. Our findings suggest that **trusts might benefit from making more positive approaches to MPs and local authorities.**

11.4 *Emergency Care*

The discussion on the clinical case for emergency care reconfiguration is based around the conflicting arguments of the advantages of specialist care versus the risks of delay in reaching a specialist centre.

There is a lack of primary research studying the clinical effects of reconfiguration of emergency care. Most of the literature uses proxy measures such as the benefits of specialist care or risks of increased journey time. It is difficult to draw conclusions for specific locations as the interactions of this literature, local circumstances and potential compensators (e.g. improved prehospital ambulance care, telemedicine) are not clear.

Data from ambulance services demonstrate that during the period of reconfiguration at each site the reconfigured hospital maintained its number of 999 ambulances received but the major centres experienced increases. In view of the national increase in 999 calls it is likely this means that **reconfiguration may have resulted in a relative transfer of care with an impact on the ambulance services.** GP urgent cases have shown less change, implying that GP referral patterns for emergencies have not changed.

Present data systems are unable to provide adequate information for process mapping of emergency care flows to be undertaken retrospectively. Process mapping of emergency care flows is considered to be the optimal technique for studying changes in patient flows after reconfiguration if combined with statistical process control techniques to study the change in numbers in each component of the flow chart. Quality

of care can be measured by a variety of national accepted audit tools which are being widely adopted.

11.5 *Financial Effects of Reconfiguration*

This element of the study has been limited by the lack of cost data for each site within the trusts involved.

11.5.1 Data Availability

At the start of the study, it was anticipated that the three trusts would have good information on activities and costs by site. This was because of the development of Hospital Episode Statistics as a very effective method of counting hospital in-patient activity, because of an increased focus on costing due to the introduction of Payment by Results and because it was thought likely that the costs of retaining different mixes of services on different sites would be a key concern of trust management. The lack of financial information by site was identified as a difficulty at the start of the project and was confirmed in communication with the Trusts' finance departments in November 2007. Without this information, this element of the study has only achieved a limited output.

The fact that activity changes are relatively limited and therefore major changes in costs would not be anticipated to result from them may explain why the trusts have not examined site-specific costs in more detail.

11.6 *Modelling Service Reconfiguration Strategies*

Rather than relying solely on potentially misleading 'eyeballing' of the data to identify trends, Join Point Regression Analysis provides an objective and reliable way of locating when and where changes actually start and stop in the time-series data. Having determined whether linear or non-linear trends are actually present in the HES data, the reasons and underlying causes of why change points are present can be pursued.

One of the approaches we have adopted in examining the ways in which HES data shed light on service reconfiguration is to focus on performance control rather than performance itself by extracting the patterns in HES trends over the years in which reconfiguration has taken place.

The use of joinpoint regression analysis as an analytical lens through which to view HES data highlights three statistical characteristics of the activity trend pattern over time. Each of these three statistical characteristics is indicative of three important dimensions of organisational change.

- The first characteristic is size of change and this **is a measure of the absolute change in activity levels** (i.e. percentage increase or decrease in quarterly FCEs from the first to the last year of the

study). This measure is indicative of the scale of the organisational initiative.

- The second statistical characteristic is concerned with the 'goodness-of-fit' of the model (i.e. the trend lines) to the observed HES data and summarises how well the trend lines fit the observed data. A closer alignment between the statistical model and the observed data indicates greater predictability and may imply tighter management control whereas more unpredictability in activity levels over time may imply looser management control.
- The third statistical characteristic relates to the shape or pattern of the trend line. At its simplest the shape of these trends may either be a simple linear increase or decrease over time suggesting change is sustainable or alternatively the trend line may be more 'jagged' or complex in appearance possibly indicating that change has not been sustained over an extended period of time and may indeed be unsustainable.

11.7 *Reconfiguration: Conclusions*

The separate components of the research project have within their own expertise and limitations, reached conclusions in the context of their particular methodology. A final attempt is made here to identify the over-arching conclusions of the study.

a) We have offered a definition of reconfiguration but beyond this is the degree to which it is appropriate to view reconfiguration as a singular event or a continuing process. The former suggests, perhaps naively, that there is a point in time when services change and the system works or does not. This conceptualisation makes an evaluative approach appropriate. Our view tends more towards the second perspective that reconfiguration is a process often taking place over a considerable period of time with piecemeal components, some of which function more quickly and more effectively than others. It may therefore be inappropriate to look for a single metric of change. Instead there will be a series of changes, varying in size, which come to constitute the reconfiguration but which may have different timescales of implementation and impact.

   A parallel dimension therefore is that of reconfiguration as a technical initiative based around systems (financial, clinical, safety or others) as opposed to a political one seeking to come to a decision or solution in the context of competing values.

   This research project has largely experienced configuration as a political issue. Frequently technical criteria are rehearsed but the prevailing view is that the strength of the political perspective is, in the end, greater. This has a major impact upon the issue of sustainability. If technical solutions were required to common, technically based reconfiguration problems, then they are likely to be specifiable and would transfer readily to other similar problems. The

political emphasis introduces both a local variability and a lack of constancy in the proposed changes, as the surrounding political context itself changes.

b) The multiplicity of issues and criteria at play in a reconfiguration scenario are frequently in conflict. Moreover as no agreed or acceptable weighting system exists to determine which issues dominate it is unrealistic to expect any reconfiguration decision to meet all the criteria or crucially for any reconfiguration to be the best or most successful model. The potential for the variables to acquire different status or value in specific local contexts makes it most unlikely that a reconfiguration in one context will offer a generalisable model elsewhere.

c) It seems that government policy in respect of reconfigurations sees enhanced public involvement and consultation as a solution. The assumption seems to be that the involvement will be educative in such a way as to lead to smooth acceptance of service change. All the evidence gathered here from the wealth of stakeholder interviews suggests that this is very optimistic. The differing emphases by stakeholder groups are largely irreconcilable and lead inevitably to arbitration and consequent dissatisfaction in some part of the stakeholder set.

   Some advocates of centralisation talk of "educating the public" about the importance of reconfiguration, apparently imagining that there is some pedagogical process that can bring about acceptance of one particular kind of claim about what constitutes the public interest. Just as the research on risk communication has shown that this approach typically fails in respect of "public understanding of science" or technological or environmental risk, so it is with hospital reconfiguration. The strong likelihood that conflict over hospital reconfiguration will persist is not to be explained as the consequence of some lack of "education" on the part of an undifferentiated "public" to be overcome by expert-led teaching. Rather, those who cleave to consumer or voter arguments are not irrational or lacking education, but have a distinct view of which kind of claim about the public interest ought to be pre-eminent from those who cleave to patient or taxpayer arguments. It would therefore be unrealistic to expect consensus. Instead of thinking in terms of public education, it is necessary to think about hospital reconfiguration as a field of political conflict that requires conflict containment and conciliation rather than pedagogy.

d) The NHS functions in an unstable, turbulent environment where technological changes are often at odds with other policies. The inter-dependency of specialties is not a fixed value. It has evolved over time such that stand alone provision that currently exists would quite recently have been seen as unacceptable.

   In the context of assessing the financial merit of a particular configuration it is quite clear from the research here that national

resource allocations and policies such as Payment by Results and National Tariffs massively dominate Trust finances beyond anything traceable to an evolving reconfiguration. Moreover, the emerging policies around Treatment Centres and private provision, as well as Primary Care Trust commissioning, make it difficult to assess and attribute any movement in an organisation's financial position to a single variable.

e) At the level of the health community it can appear that a reconfiguration plan exists to overcome a crisis point somewhere in the system. The degree to which reconfiguration plans have precise measurable milestones or clear monitoring systems is quite limited. This is compounded by the high levels of movement in the key actors such that there is a fading memory of the commitments and newcomers have little personal allegiance to previous agreements. Such a weak enactment system plays into the hands of those who remain resistant to new models. It seems that if they prevaricate long enough another review or model will emerge and supplant the previous plan.

   It is difficult to view the reconfiguration plan as a dominant force in an organisation's behaviour. It may set a general direction but the detail of day to day operational decision making appears to come from more current service priorities.

f) The paucity of really relevant data to assess reconfiguration outcomes as documented here is probably linked to the issue (above) of a sense of who owns or monitors the process of enactment. In order to assess reconfigurations properly the NHS as a whole will need to define specific service changes much more precisely and will have to collect pertinent data (activity and cost), including baseline information.

   However, the work on the HES data with these three sites has identified how HES data in conjunction with particular statistics can offer a useful way of assessing:-

- the size of the service change
- the control exercised over the process
- the sustainability of the new pattern.

  At a more general level this approach offers a way of assessing managerial competence with respect to the process of service change.

11.8 *Summary of Outcomes*

At its broadest level the project has provided a useful taxonomic framework through a confirmation of the literature and qualitative material. The latter too has provided important insights into the multi-faceted and tortuous

process of implementing change in the NHS, emphasising the political context of service reconfiguration.

The HES activity data is plentiful but is challenging to use retrospectively without detailed accounts of activity that would explain changes and facilitate understanding of causality. In part this has highlighted the enormous range of uncontrolled factors that may affect services and also the non-specific nature of reconfiguration plans. However, a model of how such HES data, in conjunction with particular statistical methods, could be used to monitor reconfiguration has been devised.

The emergency care and cost elements of the project have, however, not been able to meet their original aspirations. Lack of the relevant data has been an immediate problem for this project but also suggests that reconfigurations in future will be difficult to assess unless there is a concentration and effort to make the appropriate data available.

11.9 *Strengths & Weaknesses of the Current Study*

The study of hospital reconfiguration is in itself a complex task. The attempt to impose an evaluative framework, in real time, has proved particularly challenging. The concept of evaluation perhaps implies the notion of a fixed term outcome assessment. Reconfigurations appear rather to be more like continuing processes with flexible time frames and as a consequence a straightforward evaluation has not proved possible. Related to this was the intention to identify a universal model of reconfiguration. The fact that this has not been achieved is disappointing in the context of the study objectives. However, the finding that the local context is critical and that reconfigurations appear to have unique features is important to how they are considered in future.

The lack of data in relation to emergency care and finances was disappointing. It may have been overly optimistic at the outset but it also reveals a worrying lack of focus by the NHS in general to these issues as part of the reconfiguration process. Similarly HES data seems seriously under-utilised in terms of its potential.

The study has employed a wide range of methodologies and despite limitations (often due to problems of data access) they have made distinct contributions. The literature review has revealed a dearth of good empirical studies of reconfiguration as well as offering a useful conceptual framework as to how the process and elements of reconfiguration might be understood. This conceptual framework provided a basis for the development of the qualitative data gathering tools and have given a strong sense of coherence between these aspects of the study.

Rather less effective was the link between the qualitative and quantitative elements of the research. Again this is largely a consequence of difficulty in accessing and then analysing the quantitative data such that specific issues could be explored in the Phase II qualitative work.

Nonetheless, the case study site interviews have provided ample evidence of the complexity of the issues and conflict often existing between the various stakeholders. In this sense it is a definitive exploration of reconfiguration processes.

The use of the HES data in conjunction with Join-Point Regression Analysis and its focus upon performance control of change has been innovative. The approach has been well received and is to be utilised in future research studies of change implementation in the NHS.

Finally the lack of baseline performance data for each site and of appropriate control groups are important omissions but largely derive from the timing of the research commission. They do, however, though point to the need for longitudinal studies with good early access.

11.10 *Findings in the Context of the Existing Literature*

While the term 'reconfiguration' has been used frequently in the context of health policy in the UK to describe changes to hospital services, it is poorly defined. Earlier changes, for example in the 1980s, were referred to as 'rationalisation' or 'retrenchment' (Pettigrew et al, 1992). The use of language plays an important part here: these terms may be seen by stakeholders, such as the media and the public, as euphemisms for 'cutback management': changes driven by financial concerns. The Department of Health has described reconfiguration as 'synonymous with major service change, service improvement and delivering value for money for the taxpayer' (Department of Health, 2007). This study provides a working definition, although as stated above in our conclusions, we see 'reconfiguration' as an on-going process rather than a one-off event. This perspective has been used in studies of related organisational change, such as mergers (Fulop et al, 2005), and is important if 'reconfiguration' is to be more fully understood.

As we have also noted, the term 'reconfiguration' has tended to be used in the UK policy context in a way which suggests a problem to be solved by calculations of optimal design. The Department of Health and local health policy makers have often presented it as a technical matter of optimising bed to population ratios, or co-locating services that require close connections, and achieving "rational" resource allocation (e.g. Department of Health, 2004). However, the evidence base for these optimal ratios is slender, and much of it relies largely on rules of thumb endorsed by established professional clinical institutes, rather than on careful evaluations.

This study therefore supports others' findings that contextual variables relating to local characteristics of hospitals, but which are not in themselves aspects of hospital change, have an impact on configuration decisions, but also on the *process* of configuration. These variables include local and regional epidemiological characteristics of population (in turn affected by social characteristics such as age profile, rates of residential mobility)

(McKee and Healy, 2002); geographical character of locality and region (e.g. urban or rural, quality of transport links between sites for hospitals and other facilities, digital communications infrastructure) (Scottish Office, 1998; Clark et al, 2000, 2003; McIver et al, 2002); and industrial relations (e.g. militancy of consultants, junior doctors, nurses, others locally, willingness to agree to changes in contractual conditions, work flexibly, commit more time to NHS rather than private practice) (Harrison and Prentice, 1996).

This study illustrates the way different stakeholders with different interests play a role in reconfiguration processes in different contexts (see Fulop et al, 2008). From our study, and other studies of hospital reconfigurations, it seems that both class and geography may play an important part in the process. Smaller towns, with a large middle class population, are more likely to produce conflict between the public and the hospital on reconfiguration. In our study, this is illustrated by the history of Trust C compared with Trusts A and B, and other examples of reconfiguration in Kidderminster and East Kent (Harris et al, 2005). The way stakeholder interests play out differently in different contexts is also illustrated by the importance of the configuration of local politics: local MPs from the governing party can play a much greater role in the reconfiguration process than those from other parties.

While it has not been possible to develop a taxonomy of reconfiguration, this study does show that the *type* of reconfiguration is an important factor in both the process of reconfiguration and what changes are implemented. Where reconfiguration is perceived as a 'downgrading' of service provision, there is more active internal (professional) and external stakeholder involvement as illustrated in Trusts B and C, whereas in cases where changes are not perceived as 'downgrading' because services are not being moved from one site to another or closing, as in Trust A, there is less conflict. Clinicians' interests will play out differently according to how they perceive the changes. In Trust A, there was strong clinical support for the changes as they were based on clear objectives to improve patient care. In Trust B, however, changes were not supported and not fully implemented where some clinicians, in this case surgeons, were concerned about the impact on their private sector work.

Our review of the literature (see Chapter 3 above) presents a complex picture of the relationships between reconfiguration and the quality and safety of care. Nevertheless great emphasis has been placed on stakeholder involvement and the use of 'evidence' to persuade reluctant stakeholders both at national (e.g. Department of Health, 2007) and local level. However, a consultation process in Trust B which was perceived as 'good' did not seem to lead to a more straightforward process of implementation. In Trusts B and C where there was active stakeholder involvement, the original plans were less likely to be implemented.

From this study, it is evident that complex relationships between the interests of a range of stakeholders influence reconfiguration processes. Our findings support the pluralist approach to understanding the policy process

whereby different interest groups with different public interest claims and power resources will influence policy and its implementation. Reconfiguration is not just a technocratic process, as has often been assumed both by those developing the policy and those implementing it. Their response, therefore, has been to undertake technical analyses as described above of, for example, the numbers of beds required or where specific services should be sited and then share these analyses with stakeholders. The role of hospitals in symbolising public entitlement to public services and maintaining trust in the NHS has been underplayed, or even misunderstood. The role of professionalised interests has been underestimated, particularly in the implementation process. Even in cases where professional interests appear to have agreed with proposals, they can delay or scupper implementation (e.g. in Trust B). As we have noted in our conclusions, all these processes have implications for the potential sustainability of changes.

11.11 *Recommendations for Future Research*

The findings from the present study lead to a number of recommendations in terms of how future reconfigurations might be implemented and investigated.

1. Longitudinal studies

As the policy context becomes ever more complex, it will be necessary to follow proposed reconfigurations very closely from inception, to planning, to implementation. This will require acceptance of a working definition of reconfiguration, designation of a site and good levels of collaboration between practitioner and researcher. Many difficult decisions may be involved in the process of reconfiguration and the nuances of how such decisions are taken need to be studied.

There is of course a need for considerable change management skills in the conduct of a reconfiguration. It is not clear however, whether such skills are the same as, or different from, change prompted by a range of different drivers. It is the decisions that define the solution adopted that need to be understood and the learning transferred.

2. Data collection

It is clear from this study that retrospective data collection presents a difficulty in terms of capture and interpretation. The use of HES data in the context of performance control, offers a way of assessing the progress of reconfiguration. It does, however, require close liaison between researcher and site and a very clear, measurable model of how reconfiguration should proceed in terms of specified milestones and changes.

3. Generalisability

The issue of generalisability needs to be tackled in terms of technical content – what was the favoured solution and what were the factors that

made it successful in a particular site – and of cultural context. Some communities mount cohesive campaigns and some do not. It is important to understand the relevant characteristics of communities, the nature of changes which arouse strong local concern and evaluations of approaches to consultation and implementation that operate to allay such concerns.

4. Integration of Policies

The degree to which reconfigurations can proceed amidst often conflicting central policy development is an open question. The Department of Health [2006b] recommend the development of general physicians and surgeons, against the trend to sub-specialisation. The issues of volume, safety and localness need to be integrated in order to allow organisations to proceed accordingly. Similarly, powerful and successful Foundation Trusts have the capacity to influence the pattern of local services in the future.

Finally, a recent decision of the Reconfiguration Panel over the future of Banbury Hospital gave priority to the desire of the public to maintain services. If this were to be seen as a precedent it would alter the balance of the competing values as outlined earlier in this report. It is not clear though, how this might operate if the public perspective (which was given a priority position by the panel) is at odds with other strong policy directives.

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Appendix 1 Invitation Letter and Participant Information Sheet

Dear [interviewee]

AN EVALUATION OF HOSPITAL SITE RECONFIGURATION

I am contacting you about taking part in a research study. The study is looking at the reconfiguration process that has been taking place at [Trust] with a view to highlighting best practice and key learning. Please find attached an information sheet, which provides more detail about the study.

As you can see, there are two main elements to the research. We would like to invite you to participate in the qualitative strand by taking part in an interview. The interview will last no more than one hour and may be tape recorded with your permission, so that we do not miss anything important. The interview will be conducted over the telephone.

It is important for you to be assured that all information obtained will be treated in strict confidence in accordance with the Data Protection Act. Neither the hospital, the organisation that you work for, nor individual staff will be identified when the research is written up. Taking part is voluntary.

I will contact you shortly to discuss taking part in this research and will be happy to answer any questions you may have about the study.

Yours sincerely,

Rhiannon Walters
Researcher
On behalf of the research team

AN EVALUATION OF HOSPITAL SITE RECONFIGURATION

INFORMATION SHEET

[Trust] has kindly agreed to take part in this research study which aims to evaluate models of service delivery in the NHS. Your local hospital is one of three case studies being included in the research. The study has been funded by the NHS Service Delivery and Organisation Programme and is being carried out by an independent team of researchers at the Universities of Birmingham; York and Warwick as well as Kings College London.

OBJECTIVES OF THE RESEARCH STUDY:

- To understand the processes relating to planning and implementation of reconfiguration at each site.
- To understand the factors associated with improved performance (or decline) at each site.
- To document the key lessons learned from successful (or unsuccessful) reconfiguration at each site.

Dissemination of the findings from this research will highlight key challenges and best practice for other organisations to learn from. The research consists of two broad elements.

1. The quantitative strand, led by Professor Peter Spurgeon at the University of Birmingham, is gathering and analysing key data and documents relating to the reconfiguration. This will include statistical information from each trust on a range of input, activity, output, outcome and other audit and performance measures in order to construct an account of any changes in performance which have taken place over the period of reconfiguration.

2. The second – qualitative – strand consists of interviewing a broad range of key stakeholders who have been involved in the reconfiguration process both from within the Trust and externally. This part of the study is being led by Professor Naomi Fulop of Kings College London (formerly of the London School of Hygiene and Tropical Medicine). The first round of interviews took place early in 2005, and a second round began in the autumn of 2006.

It is important for you to be assured that all information obtained will be treated in strict confidence in accordance with the Data Protection Act. Neither the hospital, the organisation that you work for, nor individual staff will be identified when the research is written up. Taking part is voluntary. Should you agree to help us, you are free to withdraw from the study at any time, without having to give a reason. With your permission, interviews may be tape recorded. You will be given an opportunity to review the transcript of your interview before it is used for the study. The tapes and transcripts will be stored in locked facilities for 5 years and will be accessible to the project team only at the discretion of the Project Director.

Rhiannon Walters - ***Qualitative Researcher***
Kings College London
[contact details]

on behalf of the research team:

Professor Peter Spurgeon - ***Principal Investigator***
Health Services Management Centre
University of Birmingham

Dr Perri 6
Health Services Management Centre
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Professor Naomi Fulop – *Qualitative Research Lead*
Department of Management
School of Social Science and Public Policy
Kings College London
(formerly of the London School of Hygiene and Tropical Medicine)

Dr Matthew Cooke
Emergency Care and Rehabilitation
University of Warwick

Mr Peter West
York Health Economics Consortium
University of York

Appendix 2 Interview Topic List

CONFIGURING HOSPITALS PROJECT
QUESTIONNAIRE /INTERVIEW SCHEDULE:
INTERNAL STAKEHOLDERS (Phase One)

Section 1 – Background

Overview of respondent's involvement in reconfiguration

- Length and nature of involvement in the reconfiguration (in brief)

Background to reconfiguration

- Reasons for reconfiguration of services
  - what was the problem that this was the solution to?
- Original objectives
- Explore where impetus of change came from
  - local community, response to government initiatives
- Establish which key stakeholders were involved at this stage
- Find out respondents' views of reconfiguration objectives

Details of reconfiguration: what has changed and how

- Trust wide
- In respondent's specialty
- Explore changes made in the name of reconfiguration

Section 2 – Implementation

- Explore what formal management structures & roles were put in place to drive forward the reconfiguration
  - project team, programme board, leadership, advisory role, formal oversight
  - respondent's involvement
- Informal roles
  - establish who were the key drivers behind the implementation process in practice
  - respondent's involvement
- Explore the differences between the formal/informal roles:
  1. - which have been more/less effective and why

Involvement of stakeholders

- Identify the **key stakeholders** and find out what role they played in the reconfiguration process
  - community
  - clinicians and managers
  - other hospitals in area / region
  - PCTs
  - SHA
- Explore relations with the **key stakeholders** both **internal** and **external** during the reconfiguration process
  - How these relationships have affected implementation
  - Management of the relationships
  - Formal consultation (when? how?)
  - Informal consultations (when? how?)
  - Negotiations (when? how?)
- Which stakeholders were more/ less supportive and why

What demands have the reconfiguration process placed on your organisation?

- Money, management attention, skills
- Staff morale, recruitment and retention issues

Section 3 – Exploring the experience of implementation

Explore the culture or climate of respondent's hospital / specialty / team before, during and after reconfiguration (if applicable)

- Extent to which local culture impacted on reconfiguration process, if at all
  - e.g. top down, consultative

Find out what has gone well in the process and why

- Facilitating factors
  - internal/external: communication; management, attitudes of staff

Find out what has gone less well and why

- Barriers to change (internal, external)
- Formal constraints
- Informal constraints
- Were these problems anticipated? If so, how? When?
- Explore how these problems were/are being overcome

Explore any differences between the reconfiguration as it has happened from what was planned originally

- Reasons for differences:
  - changing priorities, and if so, why
  - explore what were the triggers that led to a change of direction
  - find out whether the changes been reflected in formal plans
- Was reconfiguration used to make changes which were planned or hoped for independently of the reconfiguration

Discuss the learning that took place as the initiative proceeded

Section 4 – Impacts of reconfiguration

Discuss the main consequences of the reconfiguration

- Benefits and disbenefits
- Intended and unintended
- Patient experience, clinical outcomes, organisation / team culture
- Financial impact

Explore which aspects of the reconfiguration respondent views to be:

- Sustainable
- Unsustainable
- Reasons why

Find out what lessons have been learned as a result of the reconfiguration

- What advice would respondent give to another team about to start reconfiguration
- Key messages from the reconfiguration experiences

Explore whether there are other relevant issues relating to the reconfiguration process that have not yet been raised in the interview.

Appendix 3 HES Data & Analyses for Each Site (CD Back Cover)

For confidentiality reasons the full appendices are not available on the website. If you would like to to view the full appendices please contact the SDO team at sdo@southampton.ac.uk

Disclaimer

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Addendum

This document was published by the National Coordinating Centre for the Service Delivery and Organisation (NCCSDO) research programme, managed by the London School of Hygiene & Tropical Medicine.

The management of the Service Delivery and Organisation (SDO) programme has now transferred to the National Institute for Health Research Evaluations, Trials and Studies Coordinating Centre (NETSCC) based at the University of Southampton. Prior to April 2009, NETSCC had no involvement in the commissioning or production of this document and therefore we may not be able to comment on the background or technical detail of this document. Should you have any queries please contact sdo@southampton.ac.uk.