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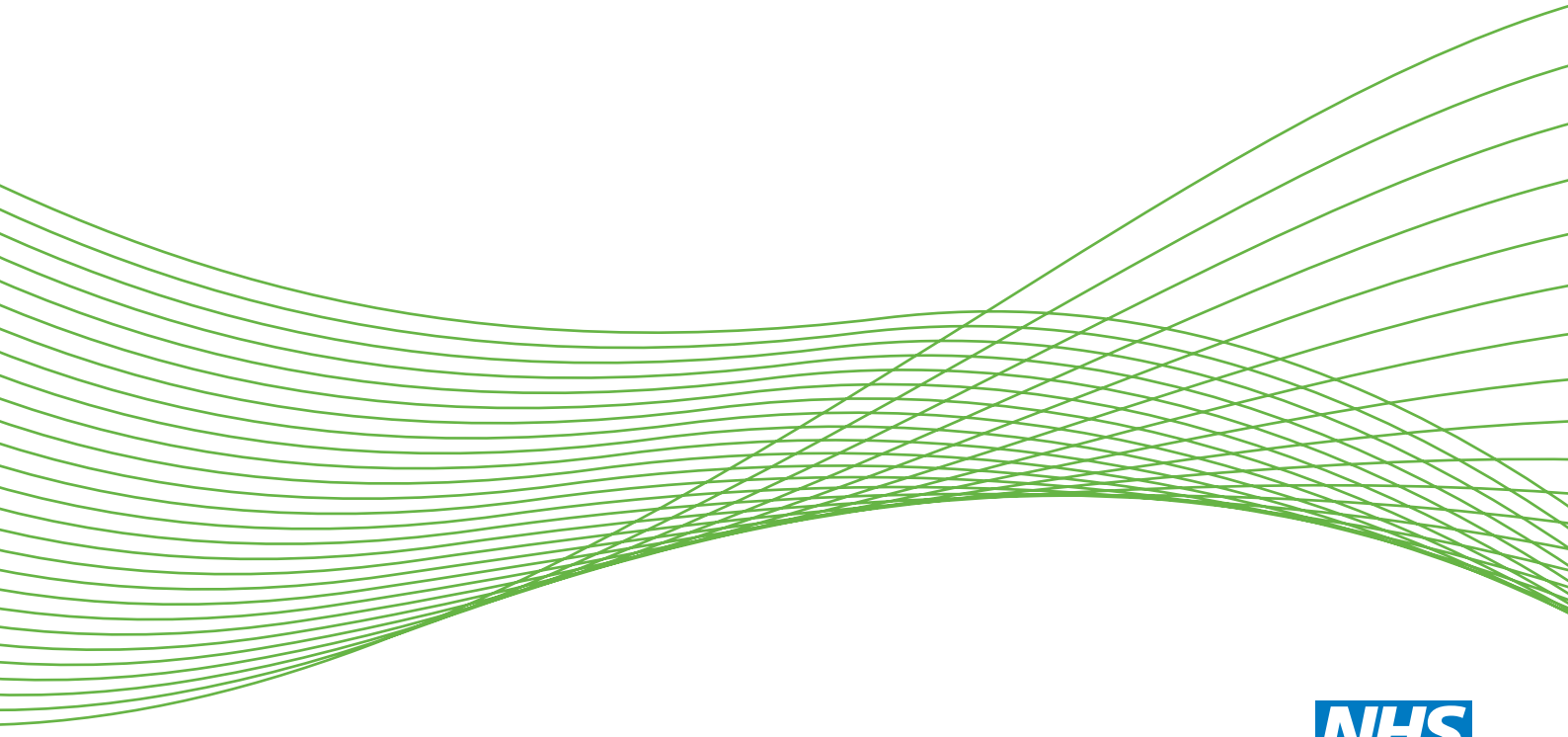

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Abstract

Insights from the clinical assurance of service reconfiguration in the NHS: the drivers of reconfiguration and the evidence that underpins it – a mixed-methods study

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Background: Over the life of the NHS, hospital services have been subject to continued reconfiguration. Yet it is rare for the reconfiguration of clinical services to be evaluated, leaving a deficit in the evidence to guide local reconfiguration of services.

Objectives: The objectives of this research are to determine the current pressures for reconfiguration within the NHS in England and the solutions proposed. We also investigate the quality of evidence used in making the case for change, any key evidence gaps, and the opportunities to strengthen the clinical case for change and how it is made.

Methods: We have drawn on two key sources of evidence. First, we reviewed the reports produced by the National Clinical Advisory Team (NCAT) documenting its reviews of reconfiguration proposals. An in-depth multilevel qualitative analysis was conducted of 123 NCAT reviews published between 2007 and 2012. Second, we carried out a search and synthesis of the literature to identify the key evidence available to support reconfiguration decisions. The findings from this literature search were integrated with the analysis of the reviews to develop a narrative for each specialty and the process of reconfiguration as a whole.

Results: The evidence from the NCAT reviews shows significant pressure to reconfigure services within the NHS in England. We found that the majority of reconfiguration proposals are driving an increasing concentration of hospital services, with some accompanying decentralisation and, for some specialist services, the development of supporting clinical networks. The primary drivers of reconfiguration have been workforce (in particular the medical workforce) and finance. Improving outcomes and safety issues have been subsidiary drivers, though many make the link between staffing and clinical safety. Policy has also been a notable driver. Access has been notable by its absence as a driver. Despite significant pressures to reconfigure services, many proposals fail to be implemented owing to public and/or clinical opposition. We found strong evidence that some specialist service reconfiguration including vascular surgery and major trauma can significantly improve clinical outcomes. However, there are notable evidence gaps. The most significant is the absence of evidence that service reconfiguration can deliver significant savings. There is also an absence of evidence about safe staffing models and the interplay between staff numbers, skill mix and outcomes. We found that the advice provided by the NCAT reflects the current evidence, but one of the NCAT's most valuable contributions has been to encourage greater clinical engagement in service change.

Conclusions: The NHS is continuing to concentrate many district general hospital services to resolve financial and workforce pressures. However, many proposals are not implemented owing to public opposition. We also found no evidence to suggest that this will deliver the savings anticipated. There is a significant gap in the evidence about safe staffing models and the appropriate balance of junior and senior medical as well as other clinical staff. There is an urgent need to carry out research that will help to fill the current evidence gap. There is also a need to retain some national clinical expertise to work alongside Clinical Senates in supporting local service reconfiguration.

Funding: The National Institute for Health Research Health Services and Delivery Research programme.

Contents

List of tables

List of figures

List of boxes

Glossary

Advanced neonatal nurse practitioner A nurse with in-depth knowledge and skills including the stabilisation and transfer of sick babies and independent prescribing.

Care co-ordination An approach to bringing care services together around the needs and preferences of service users, usually including a comprehensive care plan.

Critical care unit (also known as intensive care units) A place in a hospital where advanced life support care is provided to patients with life-threatening conditions.

Emergency centre A hospital capable of assessing and initiating treatment for all patients and safely transferring them when necessary. The Keogh Review anticipated that there would be roughly the same number of these units as accident and emergency departments.

European Working Time Directive A set of regulations about the time that workers can be required to work. It includes rights to an amount of rest in 24 hours, and to work no more than 48 hours per week.

Gateway A team based in the Department of Health that organise Office of Government Commerce Gateway Reviews (a process examining government programmes and projects) for the NHS.

High-dependency unit A place in a hospital that provides extensive monitoring and support for patients not possible on a normal ward. They act as an intermediate step between wards and intensive care units.

Intermediate care A type of care aimed at providing health care closer to home, offering 'step-up' alternatives to hospital admission or 'step-down' supported discharge after hospital stays.

Local neonatal unit The middle tier of a neonatal network, providing special care, high-dependency care and short-term intensive care.

Major emergency centre A larger unit capable of providing highly specialist services. The Keogh Review anticipated 40–70 major emergency centres in England.

Major trauma centre Designated specialist centres within Regional Trauma Networks that provide trauma patients with highly specialised care, often from multiple specialist teams.

Middle-grade doctor A doctor with at least 6 years of working in his or her specialty, accountable to consultants.

Midwife-led birthing unit (also known as 'birth centre') A place that offers care to women with uncomplicated pregnancies; midwives are lead professionals for their care during labour. The units can be colocated with obstetric, anaesthetic and neonatal services ('alongside') or on a separate site ('standalone' or 'freestanding').

Minor injuries unit (also known as 'walk-in centre') A service that can treat minor illnesses and injuries without appointment.

Multiparous woman A mother who has given birth more than once.

Neonatal intensive care unit The top tier of a neonatal network, providing specialist medical and surgical neonatal care for babies referred from their neonatal network.

Obstetric unit The setting for specialist medical care provided to women before, during and after labour. The units are led by consultant obstetricians.

Paediatric assessment unit A place that provides quick consultation, treatment and observation for children on a single day. Children requiring hospital admission overnight are transferred to paediatric inpatient units. They can be colocated with the inpatient units (alongside) or on a separate site (standalone).

Primary care trust A NHS organisation responsible for commissioning health services on behalf of a population. Primary care trusts were abolished in April 2013.

Regional trauma network A system of hospitals with clear protocols for the transport and treatment of trauma patients who may be taken straight to major trauma centres rather than to their nearest hospital.

Special care baby unit The first tier of a neonatal network, providing special care for their local population.

Telemedicine The provision of health care when clinician and patient are separated, usually using telecommunications technology.

Trust A NHS organisation responsible for providing health-care services.

Urgent care centre A label that has been applied to centres providing care for minor illnesses or injuries.

Virtual ward A method of providing case management for patients outside hospital using systems normally found in hospital wards.

Walk-in centre A place that treats minor illnesses and injuries without appointment.

List of abbreviations

A&E	accident and emergency
AAA	abdominal aortic aneurysm
ANNP	advanced neonatal nurse practitioner
AoMRC	Academy of Medical Royal Colleges
BAPM	British Association of Perinatal Medicine
CEM	College of Emergency Medicine
CRHT	crisis resolution and home treatment
CQC	Care Quality Commission
CT	computerised tomography
EWTD	European Working Time Directive
FMU	freestanding midwifery unit
FTE	full-time equivalent
GP	general practitioner
HDU	high-dependency unit
IAPT	Improving Access to Psychological Therapies
ICU	intensive care unit
IRP	Independent Reconfiguration Panel
JCC	Joint Consultants Committee
LNU	local neonatal unit
MIU	minor injuries unit
MLBU	midwife-led birthing unit
MP	member of parliament
MRI	magnetic resonance imaging
NCAT	National Clinical Advisory Team
NCEPOD	National Confidential Enquiry into Patient Outcome and Death
NICE	National Institute for Health and Care Excellence
NICU	neonatal intensive care unit
NSF	National Service Framework
OGC	Office of Government Commerce
PAU	paediatric assessment unit
PCT	primary care trust
PNP	paediatric nurse practitioner
RCM	Royal College of Midwives
RCN	Royal College of Nursing
RCoA	Royal College of Anaesthetists
RCOG	Royal College of Obstetricians and Gynaecologists
RCP	Royal College of Physicians
RCPCH	Royal College of Paediatrics and Child Health
RCPsych	Royal College of Psychiatrists
RCS	Royal College of Surgeons of England
SCU	special care unit
SHA	Strategic Health Authority
SUI	serious untoward incident
UCC	Urgent Care Centre
VSGBI	Vascular Society for Great Britain and Ireland
WHO	World Health Organization

Plain English summary

Clinical services in the NHS are frequently subject to reconfiguration. This means changes to the location and the type of service being offered. Yet it is rare for reconfiguration to hospital services to be evaluated. This means that there is a lack of evidence to help guide service change.

This research set out to discover which services are being reconfigured and why, and what evidence is being used to guide this. We have drawn two main sources of information. First, we reviewed the reports produced by the National Clinical Advisory Team (NCAT). This is a team of clinical experts who, until March 2014, advised the NHS when making changes to hospital services. Second, we have looked for research evidence that would support the changes to services that the NCAT advised on.

We found that many places are reconfiguring clinical services by centralising them on to fewer hospital sites. This is mainly because they want to save money or are having difficulties staffing services. However, the planned changes are frequently not implemented because of local public and/or clinical opposition. There are also examples of changes to services provided in the community. We could not find evidence that service reconfiguration would save significant amounts of money. There is also little evidence to help hospitals find ways of overcoming their staffing difficulties. More research is needed. We believe that the NHS would also benefit from retaining a national source of clinical advice to help guide service change.

Scientific summary

Background

Over the life of the NHS, hospital services have been subject to continued rationalisation and reconfiguration. Yet research into the running and planning of hospital services has been neglected and it is rare for the reconfiguration of clinical services to be evaluated, leaving a deficit in the evidence available to support service change.

Any proposals for 'significant service change', such as the reconfiguration of clinical services, are required by statute to be the subject of public consultation. In 2008, Department of Health guidance said that any proposals to change services should, prior to consultation, be subject to independent clinical and management assessment. A key source of that independent clinical assessment has been the National Clinical Advisory Team (NCAT). The team, drawing on a pool of more than 65 senior clinicians and health professionals, reviewed and advised on local reconfiguration proposals and the degree to which they were supported by the available clinical evidence.

This research uses the reports produced by the NCAT, alongside the supporting literature and professional guidance, to explore the reconfiguration of clinical services in the NHS and the evidence that underpins this.

Objectives

The aims and objectives of this research are to determine the current pressures for reconfiguration within the NHS in England and the solutions proposed.

We have drawn on two key sources of evidence. First, we received the reports produced by the NCAT documenting its 123 reviews of reconfiguration proposals for the period 2007 to 2012. Second, we carried out a search and synthesis of the literature to identify the key evidence available to support reconfiguration decisions at specialty level as well as the evidence to support whole-hospital change.
The specialty categories reviewed were:

- urgent and emergency care including the configuration of acute medicine and surgery
- elective surgical care
- primary and out-of-hospital care – in so far as it influences hospital activity
- maternity
- paediatrics
- specialist acute services – including vascular, trauma and stroke
- mental health services.

Our aim through this analysis is to deepen our understanding of the reconfiguration process and provide new insight into the clinical evidence base used by the NHS and the gaps that exist. The research also provides insight into the NCAT process itself, and the effectiveness of this as a source of clinical assurance of reconfiguration proposals.

Methods

An in-depth, multilevel qualitative analysis was conducted of 123 NCAT reviews undertaken and published between 2007 and 2012. These data were supplemented by interviews with NCAT reviewers, analysis of the guidance produced by the NCAT, a review of documentation provided to the NCAT and a search to determine whether or not proposals were implemented following the reviews. Eight specialty areas were identified from the reviews. A targeted literature search was carried out within these areas to find and review the clinical evidence underpinning reconfiguration. The findings from this search were integrated with the analysis of the reviews to develop a narrative for each specialty detailing the type of reconfiguration, drivers for change within that clinical area, recommendations made by the NCAT, the clinical evidence to support or refute change, and the key evidence gaps. Findings from across the specialties were amalgamated to identify the overarching drivers of reconfiguration within the NHS, the evidence underpinning it and the outcomes of service change.

Results

The pressures for reconfiguration

The evidence from NCAT reviews shows that there are significant pressures to reconfigure services within the NHS in England.

Some service areas have been more vulnerable to reconfiguration than others. The following list ranks the services according to the number of times they were the subject of a reconfiguration:

1. emergency services
2. mental health
3. maternity
4. primary and community
5. paediatric services
6. whole-hospital or -system change
7. elective surgery
8. elements of specialist services – vascular, stroke and trauma.

The primary drivers of reconfiguration have been workforce (in particular, the medical workforce) and finance. Improving outcomes and safety issues have so far been subsidiary drivers, though many make the link between staffing and clinical safety. Policy has also been a notable driver. Access has been notable by its absence as a driver.

Workforce pressures included a desire to move towards a consultant-delivered service; difficulties in recruiting; junior doctor posts providing inadequate training experience; and the insufficient numbers of junior doctors to staff 24/7 rotas (compliant with the European Working Time Directive). The availability of doctors in training was a key issue in the majority of reconfigurations where workforce was a driver.

Financial pressures included: the need to achieve specific savings targets; anticipated gaps in resources as demand grows while funding is constrained; and the effect of shifting care out of hospital to deliver ‘care closer to home’.

Safety featured in a number of maternity, paediatrics, and accident and emergency (A&E) reconfigurations and was a minor driver of mental health proposals. Safety drivers were not present in primary and community proposals. Although safety drivers were mentioned rarely, we cannot discount the possibility that the dominance of workforce drivers could be viewed as a proxy for safety concerns. It is possible that proposals would downplay safety issues as this could raise public concerns.

The solutions proposed

Nearly all of the proposals to reconfigure services involved some degree of service rationalisation or centralisation. For specialist and mental health services, proposals frequently involved rationalising inpatient activity on to fewer sites. In mental health services this was often accompanied by the development of community services or teams.

Reconfiguration of emergency and accident and emergency services

Drivers: finance, workforce and safety.

Changes proposed: reconfigure emergency services across hospital sites to achieve more consultant-delivered care; separate emergency services from elective care to create 'hot' and 'cold' sites; downgrade emergency (A&E) departments to urgent care centres (UCCs) or minor injury units (MIUs); develop new UCCs or MIUs; and close or relocate walk-in centres.

Evidence: we found good evidence to support consultant-delivered care. Emergency services also require the provision of necessary support services, most notably appropriate diagnostics and critical care. We found evidence to support the separation of emergency from elective care. We found evidence that, although centralising emergency departments can improve access to senior consultant opinion and the ability to staff rotas, it can place a greater burden on acute medicine, and we could find no evidence that it saved costs. The evidence would also suggest caution over the degree to which primary- and community-based alternatives to A&E will reduce demand. More evidence is needed.

Implementation of proposals: 20 out of 34 so far implemented in full.

Mental health

Drivers: finance, workforce, national policy and estates.

Changes proposed: proposals to close inpatient wards or beds, reproviding a smaller service on another site or centralising existing services on to fewer sites with more appropriate facilities such as provision of single rooms; plans to develop new services or redevelop an existing service, such as dementia services or the Improving Access to Psychological Therapies service.

Evidence: more robust evidence is required to underpin the centralisation and colocation of inpatient services. We found little evidence indicating whether centralised services are cost-effective, improve staffing levels or enhance access to other acute services. Patient access, clinical outcomes and quality of care also require further investigation. More research should be undertaken to help organisations model future demand for inpatient beds and community services.

Implementation of proposals: 16 out of 25 implemented in full.

Maternity care

Drivers: workforce, dependency on paediatrics, finance and safety.

Changes proposed: concentrating consultant-led obstetrics services on to fewer hospital sites; expanding alongside midwife-led birthing units (MLBUs); creating or maintaining standalone MLBUs; and closure of standalone MLBUs.

Evidence: we found good evidence for the benefits of consultant-delivered maternity care and increasing consultant presence on obstetric units. The minimum number of consultants required to provide 24/7 presence in an obstetric unit is unclear. We found evidence of the benefits of alongside and standalone MLBUs. We found evidence to support home births, particularly for low-risk multiparous mothers. First-time mothers may face an elevated risk from a home birth. There is also evidence from NCAT reviews that standalone MLBUs could prove hard to staff and sustain financially; more evidence is needed.

Implementation of proposals: 13 out of 24 so far implemented in full.

Paediatric care

Drivers: workforce, finance, safety.

Changes proposed: centralisation of paediatric inpatient units; retention or creation of standalone paediatric assessment units (PAUs); closure of standalone PAUs; reconfiguration of a neonatal network – downgrading local neonatal units.

Evidence: we could find no evidence to demonstrate the financial or quality benefits from the rationalisation of paediatric services. More evidence is needed. We could also find little evidence to support the safety and cost-effectiveness of standalone PAUs. Again, more evidence is needed. There is evidence to support the need for dedicated neonatal rotas to support neonatal intensive care (level 3) services.

Implementation of proposals: eight out of 18 implemented in full.

Primary and out-of-hospital care

Drivers: finance, workforce and estate.

Changes proposed: changes to intermediate care beds; development of primary care services and community-based services – often as part of whole-system reconfiguration; and consolidation of primary care services.

Evidence: the evidence regarding the effectiveness of primary, community and intermediate care is mixed. While these types of intervention can reduce demand for hospital care, this is often limited to a specific disease area or client group. We found evidence for the benefits in terms of patient experience. We found little evidence that investment in community care generates significant cost savings overall. More evidence is needed, particularly on the impact of large-scale change in community care.

Implementation of proposals: 12 out of 22 so far implemented in full.

Whole-hospital/-system change

Drivers: finance and workforce.

Changes proposed: proposals often resulted in services moving towards treating patients with less serious conditions or carrying less clinical risk.

- A&E → UCC/MIU
- acute/emergency medicine → non-acute or rehabilitation
- acute/emergency surgery → elective inpatient surgery → day surgery
- consultant-led obstetrics → MLBU
- inpatient paediatrics → PAU
- community beds → community teams.

Evidence: we found little evidence to support whole-hospital or -system reconfiguration, and the evidence that exists is equivocal. For example, England already has much larger hospitals than international comparators, which calls into question the ambition for hospitals to become larger still. We found no evidence that whole-hospital reconfiguration delivers significant financial savings. More evidence is needed.

Implementation of proposals: 10 out of 17 implemented in full.

Elective surgery

Drivers: finance and workforce.

Changes proposed: the separation of elective surgery from acute and emergency services, both as a way to support sustaining services on the 'cold' site, which was often losing an A&E department, as well as to support the 'hot' site with a critical mass of senior staff, and the services required to support them.

Evidence: we found evidence to support the separation of elective care, providing that the units are appropriately staffed and have the necessary support services, and patients are risk-assessed for appropriateness. More evidence is needed on the relative cost and clinical benefits from standalone elective surgical units of different sizes.

Implementation of proposals: four out of 11 so far implemented in full (thought to be driven by the interlinked proposals for emergency care).

Specialist care

Vascular services

Drivers: national policy and quality, that is, improved outcomes.

Changes proposed: the centralisation of vascular surgical services alongside the creation of vascular clinical networks and the designation of vascular surgery and screening centres.

Evidence: we found strong evidence to support the link between hospital and surgeon volumes and outcomes for vascular surgery. We found evidence in favour of the supporting services necessary for a vascular centre. We also found emerging evidence that the recent centralisation of vascular services is producing better outcomes.

Implementation of proposals: seven out of nine reconfigurations implemented in full.

Stroke

Drivers: quality, that is, improved outcomes.

Changes proposed: concentration of stroke services, creation of stroke networks and designation of hospitals either as hyperacute stroke units or stroke units.

Evidence: we found strong evidence for the benefit of stroke units and some emerging evidence to support a two-tier stroke service.

Implementation of proposals: six out of seven reconfigurations implemented in full.

Major trauma

Drivers: national policy and quality, that is, improved outcomes.

Changes proposed: the centralisation of major trauma services into designated major trauma centres and the creation of major trauma networks.

Evidence: we found strong evidence for the benefits of delivering trauma services as part of a formalised system of trauma care with care concentrated in trauma centres.

Implementation of proposals: five out of five reconfigurations implemented in full.

Conclusions

This research provides novel insight into clinical service and hospital reconfiguration in England, what is driving it, the evidence behind it and, to a limited extent, its outcomes (in terms of success of implementation). While our key source documents, NCAT reviews, present a partial view of the reconfiguration process, we believe that they provide reliable insight into the core drivers of reconfiguration and the solutions proposed.

We found that the majority of reconfiguration proposals are driving an increasing concentration of hospital services, with some accompanying the decentralisation and development of supporting clinical networks. The primary drivers of this have been pressures on the medical workforce and finance. A significant number of proposals do not get implemented as planned, largely as a result of local public and/or clinical opposition.

We could find little evidence that the concentration of acute general hospital services and the accompanying investment in community services will deliver the scale of savings envisaged. There is a significant gap in the evidence about safe staffing models and the appropriate balance of junior and senior medical as well as other clinical staff. There is an urgent need for research that will help to fill the current evidence gap and ensure that the future reconfiguration proposals are based on a sound economic and clinical case for change.

Our analysis also suggests merit in there being a national source of expertise and advice for clinical senates, and others leading change locally, to call on. It would be particularly valuable if this could provide not only clinical insight and advice but also advice about the process of public and clinical engagement.

Funding

Funding for this study was provided by the Health Services and Delivery Research programme of the National Institute for Health Research.

Chapter 1 Introduction and background

This report explores the reconfiguration of clinical services in the NHS and the evidence used to underpin this. As the term reconfiguration suggests, this involves the remodelling or restructuring of clinical services, often between hospital sites, but increasingly between hospital and community settings.

Research aims and objectives

The aims and objectives of this research are to determine:

- the current pressures for reconfiguration within the NHS in England and the solutions proposed
- the quality of evidence used in making and reviewing the clinical case for change, respectively, any key evidence gaps, and the opportunities to strengthen the clinical case for change.

We have drawn on two key sources of evidence. First, we received the reports produced by the National Clinical Advisory Team (NCAT) documenting its 123 reviews of reconfiguration proposals for the period 2007 to 2012. As we describe later, the NCAT has acted as a key source of clinical advice to those undertaking reconfiguration in the NHS in England. Although the NCAT did not review all reconfiguration proposals in the period, the reviews provide insight into a significant proportion. These reports have been subject to thematic coding and qualitative analysis using NVivo (QSR International, Warrington, UK). Second, we carried out a search and synthesis of the literature to identify the key evidence available to support reconfiguration decisions at specialty level.

Our aim through this analysis is to deepen our understanding of the reconfiguration process and provide new insight into the clinical evidence base used by the NHS and the gaps that exist. The research also provides insight to the NCAT process itself, and the effectiveness of this as a source of clinical assurance to reconfiguration proposals.

Reconfiguration and the evidence to support it

Over the life of the NHS, hospital services have been subject to continued rationalisation and reconfiguration. Yet as Edwards and Harrison[1] argued in 1999, research into the running and planning of hospital services has been neglected: 'it's rare for the results of hospital reconfiguration to be evaluated' (p. 1363). As this report demonstrates, little has been done in the intervening period to address this evidence gap.

In any reconfiguration of hospital services there are four interlinked drivers: quality (including safety), workforce, cost and access.[2] The challenge for local services is to try to arrive at a configuration that optimises all these elements – as far as this is possible given the complex trade-offs that exist between them. Quality considerations include access to highly trained professionals in all relevant disciplines, compliance with clinical guidelines and access to diagnostic technologies and other support services, as well as strong clinical governance and, for some conditions, the time it takes to access services. There are trade-offs between the quality and financial gains achievable through the concentration of services and the social and clinical costs to the patient of reduced access. There are also interdependencies between services – for example, the withdrawal of paediatric services can threaten obstetric services, which rely on paediatricians to provide care for the newborn child.

The current evidence that can be drawn up to develop a clinical case for change has its limitations. There is good evidence to support centralisation of some services such as trauma and highly specialist surgery based on the volumes of clinical activity needed to secure good outcomes.[3,4] However, as we explore further in this report, for many other conditions there is no clear causal link between volume and outcome,

and where there is a link, the threshold for quality improvement can be quite low.[5] Other factors can be just as important, such as nurse staffing,[6] hospital system resources,[7] compliance with guidelines and knowledge transfer.

A more compelling and linked driver for the reconfiguration of services in many trusts is their capacity to provide junior and senior medical cover 24/7. Workforce drivers sit behind much of the recently published Royal College guidance on optimal configuration.[8–11] Since the application of the European Working Time Directive (EWTD)[12] to junior doctors, there has been a 50% increase in the number of junior medical staff required to provide 24/7 care,[2] and many units have struggled to achieve this.

There is little evidence to support the notion that the reconfiguration of clinical services will result in significant savings. Posnett argued in 1999[13] that after a certain critical mass (circa 600 beds), hospitals suffered from diseconomies of scale. Larger hospitals were not always cheaper. Spurgeon *et al.*[3] were unable to reach any definitive conclusion about the financial impact of the reconfigurations they studied, largely owing to the absence of any meaningful financial data. A major review by Goddard of what drives economies of scope and scale in the provision of NHS services [focusing on accident and emergency (A&E) and related services][14] highlighted the 'dearth' of economic evaluations. One study of A&E centralisation in Sheffield[15] found that the centralised model was more costly. A more recent study of the centralisation of stroke services in London[16] was more positive in its findings.

The process of reconfiguration

The 2006 NHS Act[17] requires any proposals for 'significant service change', such as the reconfiguration of clinical services, to be the subject of public consultation. In 2008, Department of Health guidance said that any proposals to change services should, prior to consultation, be subject to independent clinical and management assessment. This was further strengthened by the Secretary of State in May 2010, who set out that one of his four tests for service reconfiguration was that schemes should demonstrate clarity on the clinical evidence base.[18] *Figure 1* provides an overview of the reconfiguration process as laid out in 2010.

Figure 1 shows two potential sources of independent advice and review for local teams taking forward reconfiguration proposals; firstly, a Gateway review from what was the Office of Government Commerce (OGC) and is now Health Gateway Reviews[19] (funded and managed by the Department of Health). The Health Gateway Review process provides all NHS and other health public sector organisations with free and confidential independent peer-review support for their projects and programmes. Further details on the Gateway review process are available in *Appendix 1*.

Secondly, from 2007 to March 2014, a key source of clinical assurance on reconfiguration proposals was the NCAT. The NCAT (funded by a grant from the Department of Health and then NHS England) provided a pool of clinical experts to support, advise and guide the local NHS on local service reconfiguration proposals. The NCAT was also able to provide ongoing clinical advice as individual reconfiguration schemes developed. The role and function of the NCAT is discussed further in *Chapter 3*.

In December 2013 the guidance was updated to reflect the Health and Social Care Act 2012[20] and the new NHS commissioning structures.[21] This guidance continues to emphasise the importance of clinical engagement and the clinical evidence base: 'Change must be clinically-led and underpinned by a clear clinical evidence base. It is a key responsibility of senior clinicians leading reconfigurations to construct that evidence base, and to build support within the local clinical community on the case for change' (p. 8).

The primary source of external clinical advice and support for local teams leading a reconfiguration is now their local 'Clinical Senate' who took over the clinical review role from the NCAT in April 2014. Twelve Clinical Senates have been established across England (each covering an area broadly based around major patient

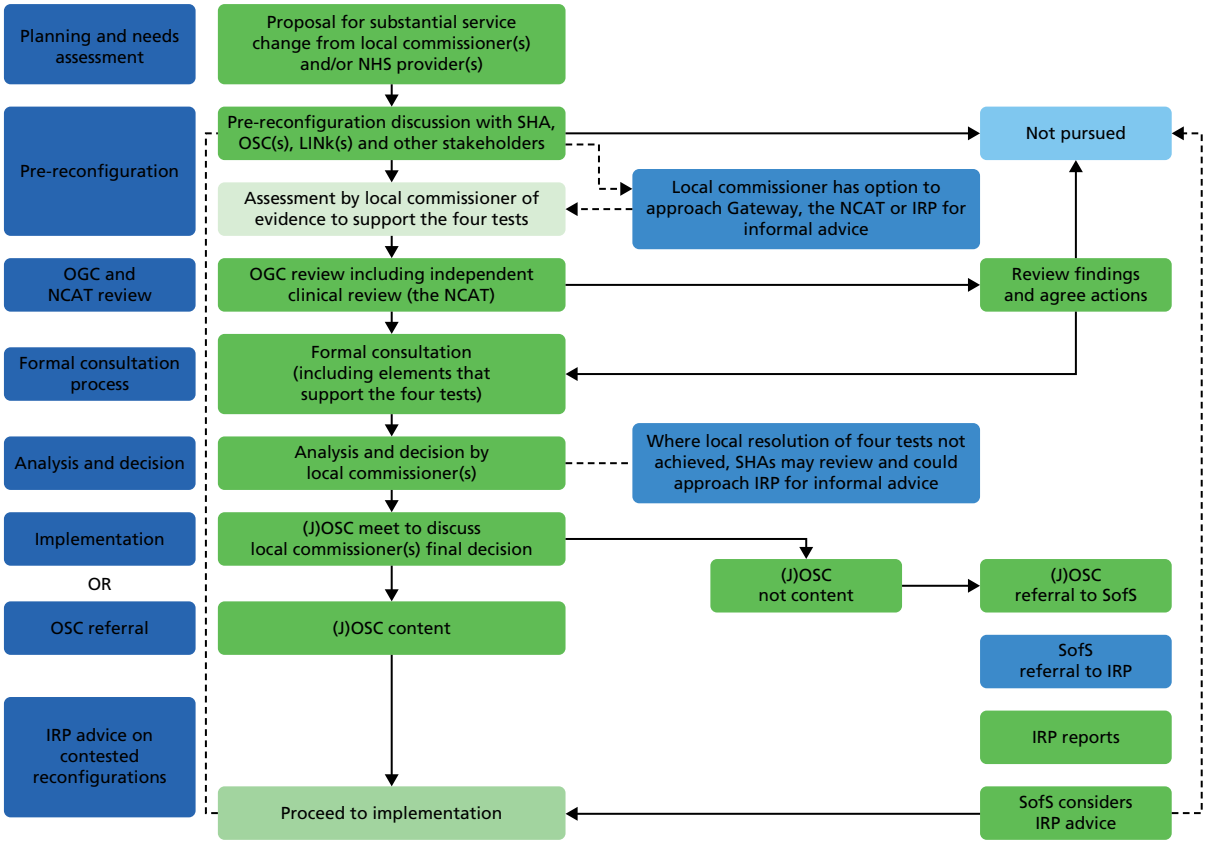

FIGURE 1 Overview of reconfiguration process. (J)OSC, (Joint) Overview and Scrutiny Committee; LINks, local involvement networks; OGC, Office of Government Commerce; SHA, Strategic Health Authority; SofS, Secretary of State for Health. Source: David Nicholson, Department of Health, letter, 29 July 2010. Reproduced under the Open Government Licence guidelines (www.nationalarchives.gov.uk/doc/open-government-licence/). Note: not all service reconfigurations will necessarily go through every stage of this process, though the guidance makes clear that these four tests apply in all cases: support from general practitioner commissioners; strengthened public and patient engagement; clarity on the clinical evidence base; and consistency with current and prospective patient choice.

flows into specialist or tertiary centres) to be a source of 'independent, strategic advice and guidance to commissioners and other stakeholders to assist them to make the best decisions about healthcare for the populations they represent'.[22] The guidance suggests that this will include:

> *Providing clinical leadership and credibility. Understanding the reasons why clinical services are achieving current clinical outcomes and advising when there is potential for improvement through significant reconfiguration of services.*
>
> *Taking a proactive role in promoting and overseeing major service change, for example advising on the complex and challenging issues that may arise from service reconfiguration within their areas.*
>
> *p. 4*[23]

The membership of a Clinical Senate is locally determined. A recent analysis by the *Health Service Journal*[24] showed large acute providers account for 22% of all membership of the 12 Clinical Senates, followed by the local area teams – 12%. Small acute providers make up only 7% and mental health trusts less than 4%. Further details on the membership of Clinical Senates are available in *Appendix 1*.

Many proposals meet public opposition during the consultation period. The process allows for proposals to be referred by a local Overview and Scrutiny Committee (OSC), convened by the local authority, to the Secretary of State for approval. The Secretary of State may then call on the advice of the Independent Reconfiguration Panel (IRP) when making a decision.

Report structure

The report is structured as follows. In *Chapter 2* we describe our methods, including the project timeline and approach. *Chapter 3* explores the role of the NCAT and the process of conducting reviews. The main findings from our research and analysis are described in *Chapter 4*. This chapter is split into a number of sections, one for each significant clinical area. For each key clinical service area we review the relevant NCAT activity, the NCAT's advice and the evidence base used by the NCAT. We compare and contrast this with the evidence found through our literature search. *Chapter 4* also includes an overview of all the NCAT reviews studied as part of this research. In *Chapter 5* we discuss our key insights and in *Chapter 6* we set out our overarching conclusions and research recommendations.

Chapter 2 Methods

This project used a multilevel qualitative approach involving an in-depth content analysis of NCAT reviews using NVivo for Windows (version 10); guidance produced by the NCAT; interviews with a small sample of NCAT reviewers; a focused review of documentation submitted to the NCAT; additional analysis of proposal implementation rates; and a literature synthesis of the evidence emerging from the qualitative analysis. The project stages are detailed in *Table 1*.

Data collection and analysis

Information used in the study came from five sources: NCAT reviews, interviews with four NCAT reviewers, guidance produced by the NCAT (in two specialty areas), the documentation submitted to the NCAT in advance of a visit (for a small number of reviews) and documentation on the implementation of the proposals available in the public domain (board minutes, trust websites and newsletters, local and national news articles and public engagement websites).

The National Clinical Advisory Team steering group

We established a steering group with nine members including the chairperson of the NCAT, two senior academics, an executive-level NHS manager of a large acute trust and representatives from the medical Royal Colleges, NHS England, the IRP and the Foundation Trust Network. We also invited a senior representative from National Voices to provide advice on patient and public involvement.

Interviews

Interviews were conducted with four NCAT reviewers including the first NCAT chairperson and the current NCAT chairperson. A semistructured interview schedule was used incorporating questions on their relationship and involvement with the NCAT, the typical NCAT review process, their use of evidence, the decision-making process and the strengths and weakness of the NCAT approach. The full topic guide is detailed in *Appendix 5*.

TABLE 1 Research timeline

Project stage	Timing	Description
Stage 1: set-up	April 2013	Project initiation; obtaining the NCAT reviews; identification of steering group members
Stage 2: development of coding framework	May to June 2013	Development of coding scheme (confirmed by steering group)
Stage 3: content analysis and literature synthesis	June to November 2013	Content analysis of the NCAT reviews; interviews with NCAT reviewers; detailed literature synthesis
Stage 4: NCAT synthesis	November 2013 to January 2014	Synthesis of the NCAT reviews; review of documentation submitted to the NCAT; analysis of proposal implementation rates
Stage 5: publication and dissemination	Ongoing	Final report; further dissemination

Analysis of the National Clinical Advisory Team reviews

Of the 124 reviews produced by the NCAT between 2007 and 2012, 123 were analysed by the research team. The outstanding review of vascular surgery was not supplied during the analysis phase of the project. The process involved two stages:

- thematic coding of 123 reviews using NVivo involving a mixture of deductive and inductive reasoning to develop a coding framework refined after drawing on advice from the steering group
- a summary document produced for each review outlining the key service changes, core drivers for change, the NCAT positions in key service areas, and an assessment of the quality of the NCAT report.

Stage 1: thematic coding

The coding framework developed by the research team sought to capture information detailed in the reviews against nine broad categories (see *Appendix 4* for full coding structure):

- drivers of the case for change
- anticipated/expected outcomes (as outlined in the case for change)
- impact assessment (as outlined in the case for change)
- quality of engagement (as outlined in the case for change)
- degree of support from the NCAT for the case for change
- NCAT decision-making (evidence used by the NCAT to reach its decision)
- NCAT recommendations
- transition issues
- key contextual issues.

Our coding scheme also addressed the attributes of the NCAT reviews pertinent to our research questions, such as:

- organisation
- location [by Strategic Health Authority (SHA)]
- scale of reconfiguration
- specialty
- type of document (NCAT report, desk review, supporting documents)
- conclusion (did the NCAT support, support with conditions, not support the reconfiguration?)
- name and job title of the reviewers
- timing of the NCAT's engagement (prior to public engagement, during, after).

Once the reviews were coded we used the framework to query data in the NVivo database, searching for key words across all the reviews or within individual codes. Examples of these include:

- searching within the code 'inability to provide safe level of cover – junior doctors' for instances where numbers of trainees were identified as an issue
- querying the NVivo database for the search terms 'Junior doctor', 'medical cover', 'European working time directive' or 'EWTD'
- filtering the NVivo database for drivers of change including 'unsafe practice', 'poor outcomes', 'workforce issues' and 'finance'
- querying the NVivo database within the code 'NCAT additional comments' for instances of NCAT reviewers commenting on a lack of robust modelling or lack of data
- querying the NVivo database within the code 'quality of engagement' to identify instances where the NCAT comments on stakeholder engagement at a local, national or political level
- using the query terms 'Serious untoward incident' OR 'Serious incident' OR 'SUI' or 'SI' to identify instances where the review mention safety concerns specifically relating to serious untoward incidents (SUIs).

Stage 2: summary of reviews

A short two-page summary of all 123 reviews was produced by the research team following the initial thematic analysis. This additional analysis was undertaken to distil the service change under review, the key drivers of change, any other issues highlighted by the NCAT and the NCAT's stated positions in key service areas, as the NCAT reviews varied significantly in their structure, tone and level of detail.

Following the second level of analysis, the findings from the reviews were synthesised within eight specialty areas congruent with the literature search:

- A&E, urgent and emergency care, emergency surgery, acute medicine
- paediatric and neonatal care
- specialist services (including vascular surgery, trauma, stroke, oncology and specialist orthopaedic)
- elective surgery (including orthopaedics)
- maternity
- primary and out-of-hospital care (including intermediate care and geriatric)
- mental health
- whole trust or health system.

The data within the summary sheets were interrogated to draw out emerging themes from across the NCAT reviews and conduct a detailed analysis of the drivers of reconfiguration. This was integrated with the data coded in NVivo to produce an overall synthesis.

Implementation of reconfiguration proposals

As part of our research, we investigated what had happened after the NCAT review and whether or not the proposals reviewed by the NCAT had been implemented. This revealed that a significant proportion of proposals had not been implemented as planned. In some cases these were partially implemented. For example, in a whole-system review, an acute site that was expected to lose A&E, maternity and paediatrics services might have lost only maternity services. We classified some processes as 'stalled'. We did this where we could find no evidence of active engagement with stakeholders on the original reconfiguration proposals. The proposals 'in progress' were most frequently cases in which there had been a successful outcome to consultation but proposals were still being implemented, for example waiting for new facilities to be built that would house the reconfigured service.

Literature search

A literature synthesis is not a systematic review or a meta-analysis. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2009 checklist,[25] nevertheless, contains important steps regarding the structure and content of a review that we have followed where relevant. In particular, we have taken note of the need for a clear rationale, objectives, study selection and data collection processes, data extraction reporting, synthesis of results, summary of the evidence, limitations and conclusions.

Rationale and objectives

The targeted literature search sought to identify evidence to supplement the themes emerging from the qualitative content analysis of the NCAT reviews. Our objectives were to identify the evidence and positions outlined in the NCAT reviews and conduct a targeted search of academic journals, grey literature, national policies, guidelines and clinical standards within health-care literature.

Alongside the targeted literature search, we conducted an extensive search of the medical and nursing Royal College websites to obtain relevant clinical standards and guidance. We found relevant documentation from the following organisations: Royal College of Paediatrics and Child Health (RCPCH),

Royal College of Physicians (RCP), Royal College of Anaesthetists (RCoA), College of Emergency Medicine (CEM), Royal College of Obstetricians and Gynaecologists (RCOG), Royal College of Surgeons of England (RCS), Royal College of Nursing (RCN), Royal College of Midwives (RCM), Royal College of Psychiatrists (RCPsych) and the Academy of Medical Royal Colleges (AoMRC).

Initial search strategy

An initial search of the literature on reconfiguration from 1983 to 2013 was conducted across relevant library and external databases as detailed below:

- The King's Fund Information and Knowledge Service database
- Department of Health Data
- PubMed
- Europe PubMed Central.

A series of keywords were used to search within the title/abstract fields as well as mapping these keywords to medical subject heading (MESH) terms (see *Appendix 6*). In total, 236 articles and reports were identified as a result of the initial search. The journal abstracts, book summaries and reports were reviewed by the research team and relevant articles were added to the Zotero management software (Roy Rosenzweig Center for History and New Media, George Mason University, Fairfax, VA, USA). Full texts of the articles and reports were obtained for the references added to the database and notes were made within the software. These articles were used to inform the literature review about general reconfiguration; however, the searches were unable to identify articles pertinent to the specialties identified from the analysis and synthesis of the NCAT reviews.

Refined search strategy

The initial search did not identify literature that could be used to support or reject the positions outlined by the NCAT in its reviews. A second detailed literature search was undertaken within a number of specialty areas, outlined below:

- acute medicine
- A&E
- emergency care or urgent care
- elective surgery
- intermediate care
- mental health
- maternity
- paediatric
- trauma
- emergency surgery
- neonatal care
- stroke, heart and cardiac care.

The second phase of our literature search was designed to search for literature pertaining to the configuration of different specialties. We searched PubMed using a combination of search strings in the format:

(reconfiguration[title/abstract] OR reorganisation[title/abstract] OR redesign[title/abstract] OR sustainability [title/abstract] OR centralisation[title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (acute medicine[title/abstract] OR acute medical[title/abstract]).

We retained the first part of the string – before the AND operator – for every search and replaced the terms afterwards with synonyms for the relevant specialty. The full search strings for each search yielded is listed in *Appendix 7*.

After conducting this search we reviewed the titles and abstracts of all the literature found by the search to determine whether or not it was pertinent. A relatively low number of pertinent sources were found by our PubMed search.

Following advice from the steering group we refined the specialty categories further into eight categories:

- A&E, urgent and emergency care, emergency surgery, acute medicine
- paediatric care
- specialist services (including vascular surgery, trauma, stroke, oncology and specialist orthopaedic services)
- elective surgery (including orthopaedics)
- maternity
- primary and out-of-hospital care (including intermediate care and geriatric services)
- mental health
- whole trust or health system.

In addition to the second literature search, a large proportion of articles were identified through hand-searching and snowballing to identify relevant articles and grey literature. This involved members of the research team scanning the references of relevant articles, and conducting internet searches and keyword searches of PubMed and Google Scholar (http://scholar.google.co.uk). We also sought advice on relevant sources from the steering group and used our own knowledge of the literature. Citations were imported and stored using Zotero Reference Manager (version 4.0) and the Zotero extensions for Google Chrome (www.google.co.uk/chrome/) and Mozilla Firefox (www.mozilla.org/en-US/firefox/desktop/). Duplicate citations were merged.

In total, 504 references were identified within the specialty areas:

- general reconfiguration (83 references)
- A&E, urgent care, emergency surgery, acute medicine (131 references)
- elective surgery (19 references)
- maternity (48 references)
- mental health (71 references)
- paediatric and neonatal care (36 references)
- primary, community and intermediate care (51 references)
- specialist services
    - stroke – 15 references
    - trauma – 28 references
    - vascular surgery – 22 references.

Study limitations

This study has a number of limitations associated with the main source material, the NCAT reports, as well as the methodological approach used to conduct this research.

Not a comprehensive sample of all reconfigurations

The use of the NCAT to provide clinical assurance of significant service change was encouraged and not mandated. Thus, the 123 NCAT reviews analysed as part of this study are not a comprehensive sample of all of the clinical reconfigurations conducted within the NHS in England. This is exemplified by the bias we found in the geographical spread of the reviews, with a large proportion of reviews taking place in London, Yorkshire and the Humber, the North West, and East and West Midlands. The NCAT was not brought in to

review many proposals in the South West, South Central and North East. In one SHA this was because it had access to another source of clinical assurance within the region.

Reliance on a partial view of the process

Within the reports we reviewed, the format and level of detail articulated on the proposed reconfiguration and the drivers of change varied greatly. In addition, the reviews only provided the NCAT's perspective on the case for change. The NCAT tended to articulate clearly the information gleaned from the documents submitted by the project team and obtained during visits, and from 2009 onwards the format of the NCAT reports was formalised in a template (see *Appendix 8*). This included a section stating the views expressed during the visit, as well as a discussion and analysis section containing the NCAT's analysis of the reconfiguration.

These aspects could affect our findings, as the source material is not representative; however, the number of reviews is large and they cover all available reviews that the NCAT conducted over 6 years. In addition, the information gleaned from the reviews and our conclusions has been contextualised and validated by an extensive literature search, interviews with NCAT reviewers and information provided by the NCAT steering group.

Literature search

We chose to conduct a targeted literature search to identify whether or not the positions detailed in the NCAT reviews were substantiated by clinical standards, guidelines and the health-care research literature. This narrow focus has limitations as it may have excluded some aspects of service delivery that were not covered by the NCAT in the reviews it conducted. This focus was needed to enable a meaningful assessment of specialties covered by the NCAT reviews in a limited time frame, and our findings were reviewed by the NCAT steering group to ensure that the main aspects of each specialty were included.

Implementation of reconfiguration proposals

Our knowledge of whether or not the proposals have been implemented successfully was based on searching information available in the public domain, and most of the source material was contained in local and national news articles, press releases and board papers from hospital trusts and commissioners [primary care trusts (PCTs) and Clinical Commissioning Groups], official 'reconfiguration' websites and local opposition websites, and papers from local authority and oversight and scrutiny committee board meetings. As a result, the assessment of implementation is subject to some caveats and may not be complete. In some cases, we were unable to find any information on a proposed reconfiguration, and these have been noted in each specialty section (see *Chapter 4*).

Chapter 3 The role of the National Clinical Advisory Team

In this section we explore the NCAT review process. We begin with a description of how the NCAT and its review process work. We then identify some of the challenges faced by the NCAT in conducting its reviews before ending with an assessment of the strengths and weaknesses of the NCAT review process.

History of the National Clinical Advisory Team

The NCAT was established by Professor Sir George Alberti in 2007. At the time, Professor Alberti was the National Director for Emergency Access. As National Director, Professor Alberti travelled the country helping to make the clinical case for changes to A&E and emergency services and providing advice to trusts seeking to change services. The NCAT evolved out of this as Professor Alberti's advice on emergency access grew into wider advice about service reconfiguration. In 2007, Professor Alberti started to involve other senior clinicians, including the subsequent chairperson of the NCAT (Dr Christopher Clough) and named this group the National Clinical Advisory Team. The NCAT was originally funded through the SHAs, and then received a grant from NHS England until April 2014.

The NCAT chairperson (working 2 days per week) and part-time administrative support were provided at a cost of approximately £80,000–100,000 per year. This cost included payment of some reviewers (usually those who were retired) for the time associated with attending a review and travel expenses.

The National Clinical Advisory Team process

The request for NCAT advice came predominantly from the project team leading the reconfiguration, sometimes at the prompting of Gateway or the SHA. The NCAT was most commonly called in to assess local proposals prior to public consultation. The NCAT would then field a small number, generally around two to three clinicians, to provide this advice. In most cases the NCAT reviewed key local documentation, including the case for change and the supporting business case and strategies. It also made a visit lasting 1 or 2 days and met key stakeholders including local clinical and managerial leaders as well as patient and public representatives. The NCAT then produced a report laying out its assessment of the proposals. This was not a public document, but on some occasions it was made public. These reports have been a key source of evidence in this research.

The NCAT also requested supporting documentation on the proposal under review. Further details on the NCAT process are detailed in *Appendix 1*.

National Clinical Advisory Team review reports

Over the last 3 years the NCAT used a consistent structure for reports (see *Appendix 8*). This included capturing who the NCAT had spoken to, the documentation seen and a summary of the views that the NCAT had heard expressed by local stakeholders, as well as the NCAT's view on the local proposals. Reports were written by one member of a visiting team or divided among the team to write. Nearly all of the reports reflected a consensus view from those who visited.

The reports tended to be high level and did not include detail on the proposals themselves, particularly the underlying staffing and activity assumptions. Often there was no audit trail to demonstrate the evidence that the NCAT had used to support its conclusions. In the absence of supporting documentation, the reports can be difficult to follow.

The NCAT had pressure to amend reports from those who requested or received visits.

> *I have only 'had soft requests' to change opinions – to which I have generally said 'softly no'.*
>
> *NCAT*

> *We sent X our report and they kept refuting things – 'can't say that, you mustn't talk about that' . . . I re-wrote the report four times because the people commissioning the report required us to make the changes. So I re-wrote it and after the fourth iteration it was accepted. It said the same thing but in different words. The words they commented on were always the words to do with service provision and the things that really mattered were completely ignored.*
>
> *NCAT*

There were also occasions where the NCAT needed to bring in the SHA to negotiate over the final report between a trust and NCAT visitors.

National Clinical Advisory Team's use of supporting external evidence

The NCAT did not keep a systematic checklist for its visits. The expectation was that NCAT reviewers should know what good service in their specialty looks like and know about relevant College publications.

> *There are other pieces of evidence that experienced reviewers will assemble using their intuitive judgement hopefully backed by statistical and rational examination. Intuitive judgement is helpful where the data are unequivocal.*
>
> *NCAT*

The NCAT had started to summarise the relevant evidence base to inform visits and its first evidence summary covered children's and maternity services. Both the RCOG and the RCM signed up to this summary. The NCAT also produced a draft evidence summary for emergency medicine, which was held back to avoid conflicting with the Urgent and Emergency Care Review.

Links with other bodies

The NCAT had relationships with bodies also routinely involved in reconfiguration such as OGC Gateway, the IRP and the Department of Health. It had no particular relationship with other regulatory bodies such as Monitor, the Care Quality Commission (CQC) or the NHS Trust Development Authority.

Strengths and weaknesses of the National Clinical Advisory Team process

The quality of a NCAT review was highly interdependent with (a) with the quality of work being done at a local level and (b) the way in which local teams engaged with the NCAT. These were major challenges for the NCAT. It was evident from discussions with the NCAT and reviews of some of the evidence submitted to the NCAT that there were many occasions when the quality of both (a) and (b) was poor.

> *Some project teams regard NCAT as a box to be ticked. They think 'how are we going to pull the wool over the eyes of these guys'.*
>
> *NCAT*

The time frames within which the NCAT had to work were often tight, for example in the case of one project that wanted to go to consultation in September, but expected a visit in August.

> *Often, the last thing they think about is clinical assurance.*
>
> *NCAT*

Even with very tight timescales, the NCAT tried to offer advice rather than sending project teams away and/or delaying the process.

Strengths

Despite the challenges described above, the NCAT review process had a number of significant strengths.

Independent clinical voice to support difficult change

As our research highlights, reconfiguring clinical services is a process fraught with difficulty. A key factor influencing local acceptance of change is a strong clinical case supported by clinicians.[26] The NCAT review provided a mechanism to validate and strengthen the clinical case.

> *It was a very good way of giving clinically-based advice on services which counteracted very well the more managerial financial approach. This is an essential balance. Any time you're suggesting a major reconfiguration there should be an NCAT or NCAT-like review to say whether it makes clinical sense.*
>
> *NCAT*

> *[T]he support of NCAT, independent body, can lend legitimacy to local reconfiguration argument.*
>
> *NCAT*

Some might argue that this is a role that the Royal Colleges could have, but, as much of its guidance reveals, they have professional as well as patient interests at their heart.

> *In the past, the colleges have done this and do continue to do this. But NCAT has grown a reputation for being independent and having a certain authority so they will use us. Whereas the Colleges might be seen to be advocating from their own position and therefore be biased.*
>
> *NCAT*

The NCAT saw particular strength in being a national clinical body not influenced by local agenda. As one reviewer put it to us 'we are not marking our own homework'. This is a potential risk as Clinical Senates take over the NCAT's role, as there is more likely to be an overlap in clinical representation between the senate and local reconfigurations.

Peer review and support rather than formal inspection

The NCAT review process was best typified as the provision of 'peer support and review' rather than a formal inspection. Those we interviewed saw this informality as a strength. It also helped to speed up the process.

> *The culture should be about peer support/review rather than a top-down 'thou shalt'. It is helpful to draw on professional expertise/opinion, rather than something coming down from on high.*
>
> *NCAT*

A facilitator of improvement of the reconfiguration process as a whole

A striking feature of the NCAT reviews was that they did not just speak to the clinical case for change but considered the reconfiguration process as a whole. The NCAT reviews frequently encouraged local teams to take a whole-system perspective and set out a long-term vision. As we discuss in our analysis of the reviews, the NCAT often challenged the quality of the underlying modelling and analysis. It also commented on the robustness of transition arrangements.

> *I always start the visit by asking 'What are you doing? Why are you doing this? I get them to articulate that clearly because the number of times that I have been through the evidence a number of times and I can't decide what they're doing. It's not just me being a bit thick, it's because the vision has not been clearly articulated. Sometimes it's been wrapped up in so much disagreement and politics that they've not been able to clearly say it.*
>
> *NCAT*

> *Our greatest contribution is to think things that haven't been thought of by the project team – omissions, unforeseen circumstances, political risks. Not only the clinical case. The whole process: various iterations of plans, engagement required, implementation. We don't take a view about business; we take a global view of whether this is sensible, practical etc. Everything is so interdependent.*
>
> *NCAT*

Weaknesses

The NCAT also had a number of notable weaknesses. In some cases these are the 'flip side' of its strengths. For example, although there were clear benefits to the NCAT operating more informally, its recommendations could be ignored. Although the NCAT provided important clinical validation for difficult reconfiguration proposals, a lack of robust challenge to local proposals raised questions about the 'added value' of the NCAT process.

National Clinical Advisory Team recommendations have no formal authority

Although the use of the NCAT was seen as 'best practice', there were no statutory or formal requirements for NHS teams to take NCAT proposals on board.

> *From my experience, if the NCAT report meets serious resistance it's possible all our work and opinions will go to waste. There's no obligation for bodies that commission NCAT reports to act on or publish the report. Or take any notice. It is a sort of weakness that they don't publish NCAT reports. Some do.*
>
> *NCAT*

The NCAT's influence depended on the local SHA reconfiguration teams, firstly whether or not they engaged the NCAT in the first place, and secondly through the degree to which the SHA then supported the NCAT's recommendations. With the loss of SHAs, the NCAT's authority was diminished further.

> *We used to get a lot of 'why do you need to ask for a NCAT review?' My answer was 'I don't want to just take your word, I want an external point of view'.*
>
> *SHA reconfiguration lead*

Little signposting to the underlying evidence and best practice

The decision-making in NCAT reviews often lacked a clear audit trail to the evidence being brought to bear. In addition, despite arguing that the NCAT brought something different from the Royal Colleges, and that professional guidance often has a degree of self-interest, the NCAT rarely cited anything other than professional guidance or made any critical assessment of the degree to which the guidance was underpinned by a firm evidence base.

> *The colleges are quite major in standards and evidence used by NCAT, including on staffing. Because everyone on the NCAT team are usually keen college people.*
>
> *NCAT*

We were particularly surprised by the lack of reference to the findings of the National Confidential Enquiry into Patient Outcome and Death (NCEPOD), given that this provides such a rich source of evidence for change around emergency care. They also missed an opportunity to signpost innovation or best practice.

Validating rather than challenging proposals

Our analysis of reviews also shows that the NCAT almost always supported the local reconfiguration proposals.

> *Do you ever go in and say 'no, there shouldn't be a change?' No. We have recommended the trust make a number of changes to the proposal before going ahead.*
>
> *NCAT*

Although the NCAT may have added value to the local 'process' as suggested above by the NCAT chairperson and our subsequent analysis, this lack of challenge to local proposals questions the 'independence' of the NCAT.

Limited number of reviewers and resources to call on

A final but important weakness was the limited resource available to the NCAT. The team was highly reliant on the goodwill and enthusiasm of its chairperson. Its small budget was largely spent on the expenses for the visiting reviewers. It had no core administrative or research team able to strengthen the evidence the NCAT called on, the analysis it undertook or the reports it wrote. Although the NCAT chairperson had considerable experience, many of the reviewers undertook relatively small numbers of reviews.

The future of the National Clinical Advisory Team and the provision of clinical assurance to service reconfiguration

The NCAT ceased to operate from April 2014, and its role passed to Clinical Senates.[23] Clinical Senates were established across the country from April 2013 and will be a source of strategic clinical advice to those undertaking clinical reconfiguration. More information on Clinical Senates can be found in *Chapter 1* and *Appendix 1*.

Chapter 4 Main findings

Introduction

This section sets out our key findings. We begin with an analysis of all of the NCAT reviews conducted between 2007 and 2012. This includes the numbers of reviews, the timing, the geographical location, the type of clinical services under review, the drivers for change, and the eventual outcome of the reconfiguration proposals.

For each key clinical service area we review the NCAT activity, advice and the evidence base used by the NCAT in its reviews. We compare and contrast this with the evidence found through our literature search. This breakdown at a specialty level is an important aspect of this research. Most commentary on reconfiguration tends to be at hospital level, but the key drivers of change and evidence of benefits tend to be at specialty/service level. Our research confirms that there are significant differences between specialties/services, reinforcing the importance of analysis. However, in order not to lose a whole-trust or -health system perspective, we have included an analysis at this level too.

We consider, separately, reviews of:

- whole-trust or -health systems (which will include some or all of the services below)
- urgent and emergency care, including the configuration of acute medicine and surgery
- elective surgical care
- primary and out-of-hospital care – in so far as it influences hospital activity
- maternity
- paediatrics
- specialist acute services – including vascular, trauma and stroke
- mental health services.

We then draw conclusions about what this tells us about the current pressures to reconfigure services and the evidence base that sits underneath this.

Section 1: overview of all National Clinical Advisory Team reviews

The NCAT conducted 124 reviews between 2007 and 2012. One hundred and twenty-three reviews were submitted for analysis as part of this study (*Figure 2*). The highest number of reviews conducted in 1 year was 28 in 2011 and the smallest was six in 2007, the first year of operation. The number of reviews fell in 2012 and there was a further significant drop in 2013, when only 13 reviews were conducted. The 2013 reviews were outside the scope of this study. The NCAT chairperson attributes this drop to the recent system changes, particularly the abolition of the SHAs, who were a major commissioner of the NCAT's advice. *Table 2* provides a summary of reviews by specialty. There is some variation between the specialties but nothing from which we could derive definitive conclusions. This is discussed further in each of the specialty sections (sections 2–9).

As seen in *Table 3*, the NCAT's work has an uneven geographic spread, with a high concentration in London and very little activity in areas such as the south-west and north-east. It was evident from our discussions with members of the NCAT that this is primarily linked to the propensity of each SHA to call on the NCAT's advice. For example, a reconfiguration stocktake by NHS Midlands and East SHA cluster (in early 2013) counted 16 ongoing reconfigurations in the cluster, of which the NCAT had reviewed only six.

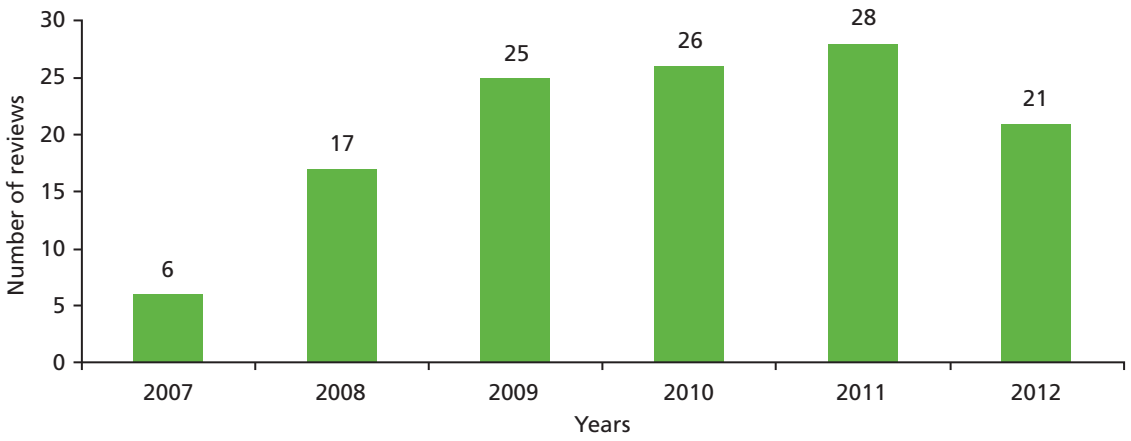

FIGURE 2 National Clinical Advisory Team activity over time.

TABLE 2 Annual number of NCAT reviews in each specialty

Year	Whole trust or health system	A&E, urgent and emergency care	Elective surgery	Primary and out-of-hospital care	Maternity care	Paediatric and neonatal care	Specialist care	Mental health care
2007	3	3	3	3	6	4	0	0
2008	3	4	1	1	1	1	7	7
2009	6	9	4	4	6	4	7	7
2010	5	11	4	4	5	5	6	6
2011	4	7	1	1	7	6	11	11
2012	6	11	5	5	9	7	1	1

TABLE 3 The NCAT's activity by SHA area

SHA area	Number of reviews
London	26
Yorkshire and the Humber	18
South Central	6
North East	6
North West	17
East of England	11
South East Coast	9
West Midlands	13
East Midlands	14
South West	2
National	1
Total	123

Thus, although the work of the NCAT provides a significant insight into NHS clinical reconfiguration activity, it is not comprehensive in its overview.

Tables 4 and *5* show how the NCAT's activity is spread across the different SHA areas for each specialty. This shows that NCAT reviews in some specialties were more geographically concentrated than others. This is discussed further in each of the specialty sections (sections 2–9).

There have been multiple reviews of the same service reconfiguration. In total, the 123 reviews feature 108 reconfigurations. Each reconfiguration may also involve one or more specialty area.

We attributed each reconfiguration to the different specialties involved, as displayed in *Table 6*. This analysis shows that the most commonly reconfigured services are A&E and supporting urgent and emergency care services (31% of reconfigurations), often as part of a whole-system reconfiguration. Twenty per cent of reconfigurations were of primary, community and intermediate care services. Half of these were alongside changes to A&E, urgent and emergency care. Elective services featured in 10% of all reconfigurations, always alongside A&E, urgent and emergency care services.

Apart from the various specialist services, the next most frequent were mental health services (23%). In contrast to the others, they were always reconfigured on their own with just a single exception.

Maternity services (22%) were mostly but not always being reconfigured at the same time as paediatric services. Paediatric reconfigurations made up just 15% of all the reconfigurations, and almost always co-occurred with maternity. This implies that an important relationship exists between the services, which we explore in the relevant sections of the report.

Specialist services feature in 28% of the reconfigurations, but they include reconfigurations of distinctly different services, particularly vascular surgery, stroke services and major trauma services. A range of other services also come under this heading, including unique reviews of specialist hospital rebuilds and two sexual health services. For a more detailed analysis of specialist reconfiguration, see section 8 on specialist acute services.

TABLE 4 The NCAT's specialty activity by SHA area

SHA area	Whole system	A&E, urgent and emergency care	Elective surgery	Primary and out-of-hospital care	Maternity care	Paediatric and neonatal care	Specialist care	Mental health care
London	8	10	7	4	9	8	11	4
Yorkshire and the Humber	5	6	5	7	7	5	2	3
South Central	4	4	2	3	4	3	3	0
North East	2	5	0	0	0	2	1	0
North West	3	5	1	5	3	3	3	7
East of England	0	2	0	3	1	1	2	3
South East Coast	2	2	2	2	2	1	3	3
West Midlands	2	3	1	0	5	3	3	4
East Midlands	1	8	0	4	3	1	2	2
South West	0	0	0	0	0	0	1	1
National	0	0	0	0	0	0	1	0
Total	27	45	18	28	34	27	32	27

TABLE 5 Reconfigurations that the NCAT reviewed, by SHA area

SHA area	Whole system	A&E, urgent and emergency care	Elective surgery	Primary, community and intermediate care	Maternity care	Paediatric and neonatal care	Specialist care	Mental health care
London	5	6	4	3	6	5	10	4
Yorkshire and the Humber	2	3	2	5	4	2	2	3
South Central	2	2	1	1	2	2	2	0
North East	2	5	0	0	0	2	1	0
North West	2	4	1	4	2	2	3	6
East of England	0	2	0	3	1	1	2	3
South East Coast	2	2	2	2	2	1	3	3
West Midlands	1	2	1	0	4	2	3	3
East Midlands	1	8	0	4	3	1	2	2
South West	0	0	0	0	0	0	1	1
National	0	0	0	0	0	0	1	0
Total	17	34	11	22	24	18	30	25

TABLE 6 National Clinical Advisory Team reconfigurations by specialty

	Whole system	A&E, urgent and emergency	Paediatric and neonatal care	Specialist care	Elective	Maternity	Primary, community and intermediate	Mental health
Whole system	17	17	8	6	10	8	7	1
A&E, urgent and emergency	17	34	9	7	11	9	12	1
Paediatric and neonatal	8	9	18	4	5	14	3	0
Specialist	6	7	4	30	5	2	1	0
Elective	10	11	5	5	11	7	5	0
Maternity	8	9	14	2	7	24	4	0
Primary, community and intermediate	7	12	3	1	5	4	22	0
Mental health	1	1	0	0	0	0	0	25

Repeated visits were far more frequent in whole-system reviews, where there were 10 repeat visits (always featuring A&E, paediatrics and maternity). There was a second visit to two maternity and paediatric reconfigurations, one maternity and two different mental health reconfigurations. The NCAT was much more likely to attend for a second or third review when the reconfiguration involved multiple sites and services.

The changes being proposed

Nearly all of the proposals to reconfigure services involved some degree of service rationalisation or centralisation. For specialist and mental health services, proposals frequently involved the rationalisation of inpatient activity on to fewer sites. In mental health services, this was often accompanied by development of community services or teams. For district general hospital and community hospital services, the proposals often resulted in services moving towards treating patients who had less serious conditions or carried less clinical risk.

- A&E → urgent care centre (UCC)/minor injury unit (MIU).
- Acute/emergency medicine → non-acute or rehabilitation.
- Acute/emergency surgery → elective inpatient surgery → day surgery.
- Consultant-led obstetrics → midwife-led birthing unit (MLBU).
- Inpatient paediatrics → paediatric assessment unit (PAU).
- Community beds → community teams.

The drivers of reconfiguration

All the NCAT reviews describe the key drivers of the reconfiguration proposals. The two dominant drivers were workforce and finance (*Figure 3*). Finance featured in 62 (57%) proposals, while workforce featured in 53 (49%). Twenty-four (22%) reconfiguration proposals were driven by both workforce and finance.

Workforce pressures manifested themselves in a variety of different ways. These included:

- A desire to move towards a consultant-delivered service and/or the number of consultants being below minimum numbers recommended by Royal Colleges.

  NCAT: *Consolidating some services on to fewer sites would enable the consolidation of the associated workforce; improving the service available to patients and, in particular, supporting a move towards 24/7 consultant presence in key specialties of the emergency care system (e.g. in the emergency departments of major centres and at least 16 hours of cover/day for others).*

  NCAT: *Consultant cover for acute specialties is also thin at [X] with nine physicians taking part in the acute medicine rota, and it is only due to the commitment of staff at both sites that reasonable services are being maintained. Staffing is better at [YYYY] although they are still short of the eight Emergency Physicians (four currently in post) to staff A&E which is recommended by the CEM.*

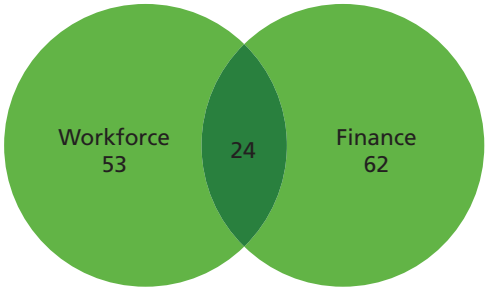

FIGURE 3 Number of reconfiguration proposals driven by workforce and/or finance.

- Difficulties in recruiting, particularly to consultant, middle-grade or non-career grade posts, resulting in the high use of locum staff.

  NCAT: *The acute trust does have problems of recruitment of doctors, particularly at middle grade.*

- Junior doctor posts providing inadequate training experience, resulting in loss of training status.

  NCAT: *A review of paediatric postgraduate training at [X] in October 2010 was highly critical raising concerns not only about the quality of training but also about patient safety in A&E, the in-patient paediatric and neonatal services, the report contained the comment that the consultants were 'holding together an unsustainable service' . . . In September 2010, trainees were withdrawn from [X].*

- The number of junior doctors being insufficient to staff the necessary 24/7 rotas (compliant with EWTD).

The availability of doctors in training was an issue in 31 out of the 53 reconfigurations where workforce was a driver. This included current or anticipated difficulties in filling junior doctor rotas. It is notable how the significance of this issue varies across the different specialties (*Table 7*). It is a feature of two-thirds of paediatric reconfigurations (12/18) but only 1/25 of the mental health reconfigurations.

Financial pressures were expressed in a number of ways. They included the need to achieve specific savings targets; anticipated gaps in resources as demand grows while allocations stagnate; and the effect of shifting activity out of hospital to deliver 'care closer to home'. A couple of reviews mentioned the need to cover payments for private finance initiatives.

> *The key driver to change is that the [X] health economy is facing £119M financial gap by 2013/14.*
>
> *NCAT*

> *Although there were a number of reasons for this, the team felt this was an important contribution towards the necessary reduction in maternity costs at [X].*
>
> *NCAT*

TABLE 7 Reviews citing availability of trainee doctors as a driver

Service area	Number/total reconfigurations
Whole system	11/17
A&E	16/34
Paediatric	12/18
Specialist	8/30
Elective	6/11
Maternity	13/24
Primary and out of hospital	7/22
Mental health	1/25

The next biggest driver was safety, which featured in 20 reconfigurations, including eight maternity, six paediatrics and four A&E. Safety issues were not present in primary and out-of-hospital care or mental health proposals. Examples of the type of issues identified are given below. They include concerns about the current safety of services as well as concerns about their future safety.

> *There was considerable anxiety surrounding recent tragic SI's [serious incidents], six–seven since August 2012. We heard that 40 hour consultant presence was provided but this appears to be 'cover' with local presence. The 40 hours are basically 9–5, Monday–Friday with significant on call requests. The midwifery team felt supported by the consultant staff but were conscious of the fragility of the system surrounding the competence, capability and availability of temporary midwifery and medical staff.*
>
> NCAT

> *More recently a letter from BAPM [British Association of Perinatal Medicine] expressed concerns about neonatal care at [X] Hospital. A neonatal death was reported to the Coroner who raised questions about neonatal resuscitation at [X] Hospital. Two Serious Untoward Incidences (SUI) were investigated, again raising questions about neonatal care.*
>
> NCAT

> *Thus the case for change here is predominantly clinically based, driven by the need to close the critical care unit at X which may potentially be unsafe, and secondly to provide modern fully supported acute medical care which certainly could not function without on-site critical care facilities.*
>
> NCAT

The fourth of the core drivers of service reconfiguration, access, was notable by its absence from many of the service proposals. Access issues both positive and negative were identified in only 34 reviews. Many of these references were observations on the negative implications of proposed changes to access.

> *The challenge is that presently the [X] Hospital is a small hospital providing services for a population of about 100,000. It is some distance from the main district hospitals – 20 miles from [X], 40 miles from [X] and 20 miles from [X].*
>
> NCAT

> *The population served by [X] hospital is probably of the order of 45–50,000. There is a huge subclass of people with great need who have no cars, who use the hospital as their primary care centre. This is aggravated by the fact that both GP [general practitioner] surgeries have been relocated out of town.*
>
> NCAT

Access was a more positive driver of out-of-hospital developments, often referred to under the banner of the 'care closer to home' agenda.

> *The new [X] hospital is 2 1/2 miles from the city centre so there is a need to provide services for patients who need urgent care closer to their homes.*
>
> NCAT

> *There are six reasons for changing the way that care is delivered in [X] . . . The hospital is not always the answer, more care can be delivered in community settings, and patients may benefit from care closer to home.*
>
> NCAT

There was one example of a specialist service development driven by access issues.

> *The case for change seems to be driven more by the need to create a second specialist centre closer to women in [X]. In view of the distances to travel, and the quality of the road infrastructure in [X], this would be a strong driver for change . . .*
>
> NCAT

Another significant driver was estates. This featured in 16 reviews, including six primary and out-of-hospital care, five mental health and four A&E.

> *There are huge premises issues for GPs. We have seen strategies come and go. There was a plan for five super centres but nothing happened. Our practice is not fit for purpose – patients have to climb stairs, there is no lift. We have been begging for 10 years now for new premises.*
>
> *NCAT*

Policy was also a driver in 14 reconfigurations: eight primary and out-of-hospital care and six mental health. Examples of this include several references to national policy documents such as *Our Health, Our Care, Our Say* in primary and out-of-hospital services and frequent references to the *No Health without Mental Health* strategy in mental health.

Implementation of reconfiguration proposals

As part of our research, we investigated what had happened after the NCAT review and whether or not the proposals reviewed by the NCAT had been implemented (*Figure 4*). This revealed that a significant proportion of proposals had not been implemented as planned. Only 62 (57%) of the 108 reconfigurations had so far been implemented in full. Nine (8%) were partially implemented. For example, in a whole-system review, an acute site that was expected to lose A&E, maternity and paediatrics services might only have lost maternity services. Thirteen (12%) were 'stalled', that is, we could find no evidence of active engagement with stakeholders on the original reconfiguration proposals. The 18 proposals classified as 'in progress' were, most frequently, cases in which there had been a successful outcome to consultation but proposals were still being implemented, for example waiting for new facilities to be built that would house the reconfigured service.

Many reconfigurations encountered public or clinical opposition that we found reported in local and national news. Campaigners were often concerned that the proposed changes would reduce access to services or increase waiting times in A&E departments, or that downgrading 'anchor' services such as A&E or maternity would lead to further closures over time. Out of the implemented reconfigurations, we found evidence that eight encountered significant public and political opposition, characterised by websites and the use of social media such as Twitter (www.twitter.com) and Facebook (www.facebook.com), petitions delivered to 10 Downing Street, rallies and public meetings. These campaigns were often supported by local members of parliament (MPs) and councillors. This activity tended to slow the approval process as additional clinical or judicial reviews were conducted. Two partially implemented reconfigurations also encountered opposition from the public and local politicians, focusing on the ability of the remaining A&E department to cope with demand in one case and concerns around accessibility to the remaining site in the other case. In the stalled reconfiguration, significant clinical opposition from commissioners led to the formal withdrawal of the plan.

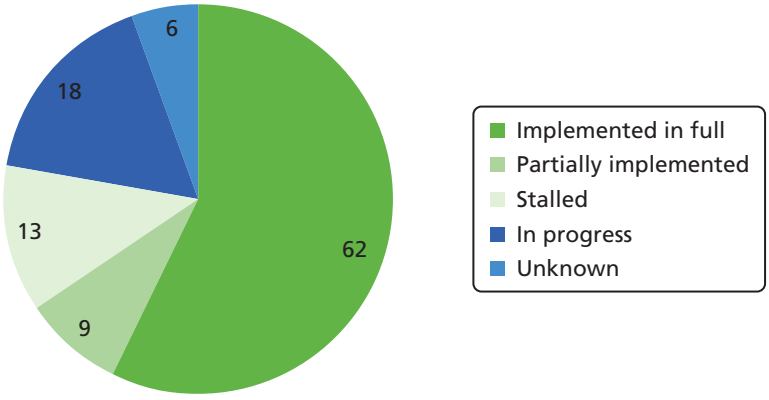

FIGURE 4 Implementation of all reconfigurations reviewed by the NCAT.

We have analysed the reconfiguration outcome by year and by region (*Table 8* and *Figure 5*). The analysis by year suggests that more recent proposals have had a less successful outcome, though the numbers are small. The regional analysis suggests that some areas, London and Yorkshire and the Humber, have had less success than others.

Public opposition to change was frequently highlighted by the NCAT and referred to specifically in 41 reviews. However, of the 13 proposals that subsequently stalled, in only six did the NCAT note local public opposition. This may well be because the NCAT is generally engaged prior to public consultation.

Clinical engagement and support for proposals

The NCAT frequently reflected on the level of clinical engagement to proposals (we found 144 references in 70 reviews). Good clinical engagement was seen as critical to delivering good outcomes. The reviews included positive comments on the degree of clinical engagement as well as negative ones.

> *The visitors were impressed by the recognition that good clinical leadership is key to the success of the strategic plans.*
>
> *NCAT*

TABLE 8 Reconfiguration implementation by year of first NCAT review

Implementation of reconfigurations by year of first NCAT review	2007	2008	2009	2010	2011	2012	Total
Implemented in full	1	12	12	13	19	5	62
In progress	1	2	4	2	3	6	18
Partially implemented	2	1	1	1	3	1	9
Stalled	2	2	2	3	1	3	13
Unknown	0	0	4	2	0	0	6
Total	6	17	23	21	26	15	108

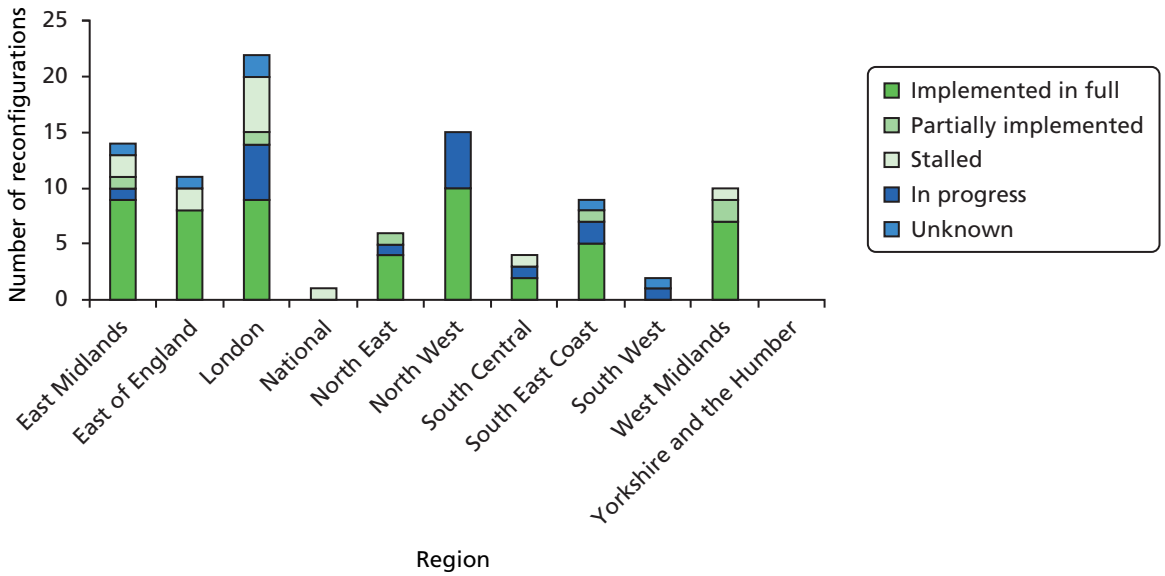

FIGURE 5 Regional implementation of 108 reconfigurations seen by the NCAT.

> *We were impressed that all the vascular surgeons we met were both highly motivated and proud of their service. They were keen to support the new service model.*
>
> *NCAT*

Negative comments were often associated with multisite working and a difficulty in engaging clinical staff from primary and community care.

> *The theme of lack of collaboration between the sites is evident within the business case which addresses the provision of clinical care from X perspective alone.*
>
> *NCAT*

> *I am concerned that the opinions in the two units are so entrenched and different that a specific project . . . will be required to take this forward.*
>
> *NCAT*

> *We were concerned about the relatively late involvement of wider groups of clinicians in the development of the plans and the lack of involvement and interest of many, particularly in primary care.*
>
> *NCAT*

For areas that experienced multiple reviews, the NCAT would often comment on any changes in the level of engagement.

> *Following the previous NCAT visit, the commissioners and clinicians have worked very closely together to initiate the Clinical Services Review. An important driver was the fact that management merger had taken place but integration of clinical teams across the hospitals had not.*
>
> *NCAT*

Section 2: the National Clinical Advisory Team reviews of a whole trust or health system

During the period 2007–12, the NCAT conducted 27 whole-trust or -health system reviews for a total of 17 reconfigurations of whole trusts or health economies. Ten reviews were repeats of earlier visits, as either proposals had moved on or circumstances had changed. On some occasions there were several years between reviews of the same area.

What change was being proposed?

All of the proposals to reconfigure services involved some degree of service rationalisation/centralisation across multiple hospital sites, often within the same trust.

In most cases this involved services moving towards treating patients who had less serious conditions or carried less clinical risk.

- A&E → UCC/MIU.
- Acute/emergency medicine → non-acute or rehabilitation.
- Acute/emergency surgery → elective inpatient surgery → day surgery.
- Consultant-led obstetrics → MLBU.
- Inpatient paediatrics → PAU.

All of the reconfigurations involved proposals to change A&E, and urgent and emergency care services. Seven of the reconfigurations involved specific proposals for change in primary and community services. Six of the reconfigurations focused entirely on hospital services and their reconfiguration across multiple hospital sites.

There were a few examples of service models that did not conform to this general path of 'downgrading' but instead involved the concentration of services through service swaps between hospital sites. This included:

- a 'swap' of obstetrics for acute surgery
- a 'swap' of stroke for acute surgery
- the placing of a stroke unit alongside specialist elective inpatient with no A&E.

Timing and geography

The number of whole-trust-system reviews has been pretty consistent over time. From 2009 to 2012, the NCAT undertook four or more whole-trust-system reviews per year (see *Table 2*).

The geographical pattern of NCAT activity in this type of reconfiguration is very uneven. London and Yorkshire and the Humber account for 13 out of the 27 reviews. Two SHAs did not use the NCAT's advice in this area at all and one SHA used it only once (see *Table 4*).

Key drivers for change

The two most significant drivers of change detailed in the NCAT reviews of whole trusts or systems were finance and workforce.

Finance was a key driver in 19 out of 27 reviews. The majority of NCAT reviews mentioned financial pressures within the health system, ranging from saving money by concentrating services on to fewer sites to redesigning services deemed unsustainable in their current form.

> *Key drivers for change were financial and a need to deliver higher quality services within a reduced financial envelope . . .*
>
> *NCAT*

> *The case for change is a financial imperative to create affordable health services because of the year on year debt accrual . . .*
>
> *NCAT*

> *. . . this is an ambitious plan to look at the whole health-care system . . . and was a response to the financial difficulties faced by the PCT . . . the financial position showed a reported deficit of £36.7M.*
>
> *NCAT*

An equally significant driver of change was workforce, present in 19 out of 27 reviews. This was evident throughout the reviews, with many references to shortages of middle-grade and senior clinical staff. Many references related to specific services or specialties of particular concern, but in several reports the NCAT reported overall concerns about staffing at hospital/trust level.

> *. . . the Trust has re-examined services across its three major sites. It was obvious that all services could not safely be provided everywhere and that resources and senior staff were spread too thinly . . . there are still too many single handed consultants in subspecialties.*
>
> *NCAT*

Recurring themes included concerns about the impact of the EWTD alongside the need to provide access to earlier consultant referral, and cover 24/7:

> *. . . [with] the need to provide experienced clinicians earlier in pathways of care and the impact of the European Working Time Directive it has been recognised by the trust that the position is precarious and ultimately unsustainable.*
>
> *NCAT*

Overall, although workforce and finance drivers were referenced equally within the reviews, workforce factors were discussed in greater depth.

Although many of the reviews talked about change delivering safer, higher-quality services, specific current safety concerns were raised in only four out of 27 reviews. In one case, feedback from Royal College visits was referenced; in another case the NCAT formed its own view that the current service model was unsafe. In some of the multiple reviews of the same locality, the core drivers shifted over time. In one instance, a desire to design a sustainable model of care for the future shifted to the incapacity to staff the current model, particularly within local financial constraints.

Access was a minor driver within the whole-trust-system reviews, mentioned infrequently within reports and usually in the opening description taken from the business plan or case for change articulating why the proposals were needed. However, it did not seem to play a part in the proposed service changes.

> *The key drivers for change were identified as . . . 3. Access – ensuring that every [person] had appropriate access to services.*
>
> *NCAT*

As discussed on page 70 in the implementation of proposals section, access to services was a major concern of those objecting to reconfiguration.

Key literature

There is a dearth of evidence to support the planning of whole-system or -hospital change. As Edwards said in 1999, 'Little research has been done that highlights the central issues of hospital planning: how many hospitals we need, what services each should offer, how they should relate to each other, and how, once these issues are resolved, they should be organised, staffed, and managed' (p. 1363).[1]

Writing at the same time as Edwards, the Joint Consultants Committee (JCC)[27] pointed out that 'Over the years, hospitals have developed in a haphazard way. Many have emerged from Victorian Hospitals or workhouses, some are the legacy of local political figures, and all are supported by local communities often resistant to suggestions of rationalisation or merger' (p. 8).

The JCC argued that the ideal hospital would serve a population of 450,000 to 500,000. At the time only 10% of hospitals were this size. At this size, the JCC said, a hospital would have sufficient staffing to provide the full range of acute specialties, including acute medicine, acute surgery, trauma and orthopaedics, obstetrics and gynaecology, paediatrics and a full anaesthetic service including critical care. However, as Edwards suggests, these assertions were based primarily on professional judgement rather than research-based evidence. There has been no significant attempt since to try to define an 'ideal' catchment population for a hospital.

However, many are questioning the future viability of the traditional district general hospital model.[28–30] Ham suggests that the combination of service decentralisation as services shift to the community and service centralisation, as some specialist services become concentrated in fewer centres, alongside financial and market pressures, threatens the viability of the district general hospital: 'District General Hospitals have formed the backbone of NHS hospital care . . . Today many of these hospitals face an uncertain future' (p. 1331).[28]

More recently, the RCP[30] has called for a radical review of the organisation of hospital services.

Yet some of the factors seen to be core drivers for change are contested. Proposals to centralise services are often justified on the basis of studies that link the volume of activity to the outcome achieved. However, as Harrison[31] and others[32] have pointed out, the relationship between volume and outcome is

far from linear, often disappears after relatively small volumes, and changes over time. Other factors, such as ways of working and supporting infrastructure, can be just as, if not more, important.

The relationship between volume/size and efficiency is not clear, though there is little current evidence to draw on. The most significant work, by Posnett, is now over 10 years old. This concluded that 'On the basis of available research evidence, bigger is not better: at present there is no reason to believe that further concentration in the provision of hospitals will lead to automatic gains in efficiency or patient outcomes' (p. 1065).[13]

One of the primary drivers to reconfigure services, from a professional perspective, has been workforce. The professional bodies argue that current staffing levels are 'unsafe'.[11] A significant issue is the aspiration to move from a consultant-led service, in which trainees deliver much of the frontline care, particularly for emergency patients, to a consultant-delivered service. The lack of consultant presence has been a particular concern as hospitals manage an ageing and increasingly frail population.

There is also mounting evidence from national reviews, such as the NCEPOD, that lack of consultant presence is a threat to patient safety.[33,34] In 2012, the AoMRC[35] set out a number of minimum service standards to drive greater consultant engagement 24/7 in the delivery of direct patient care. Meeting these standards, AoMRC suggests, could result in a concentration of acute services: 'Implementing these standards also needs to be considered in the wider context of large-scale service reconfiguration. Regionalisation and concentration of acute services in a smaller number of centres may be needed to maximise quality and improve efficiency and productivity' (p. 26).

Finally, a key factor in determining the configuration of hospital services is the clinical codependency between different services. This can result in a domino effect whereby the loss of one service can go on to destabilise the whole acute service provision in a hospital. A key question is what is the 'de minimis' set of acute services in a hospital, particularly to support local A&E services. There have been a number of attempts to describe this.[36,37] In both instances the model included A&E, acute medical care, critical care and diagnostics including computerised tomography (CT) scanning. The Healthcare for London model also included paediatric assessment. A similar model was set out in *Keeping the NHS Local*[38] based on the service model at a hospital called Bishop Auckland. The NCAT reviewed services at this hospital 5 years later in 2008. Bishop Auckland was running services with tiny numbers of medical staff; for example, there was only one consultant, supported by trust grades, in critical care and no on-site consultant cover for A&E. The NCAT concluded that the service was not viable. This configuration of services may face difficulties recruiting and retaining adequate number of staff. However, the very small numbers at Bishop Auckland suggest that the trust had chosen not to invest in staff for that site. A related issue is the financial viability of this service model. Analysis carried out as part of the Healthcare for London process[39] suggested that the current tariff structure made it difficult for this configuration of services to be financially viable.

It is interesting to draw in some international comparisons at this point. Between 1998 and 2008 the number of acute hospitals decreased significantly all over Europe. Two hundred and seventy-four acute care hospitals were closed in Germany, 249 in France and 130 in Italy; their number almost halved in Latvia and Estonia and decreased by about one-third in Hungary, Slovakia and Switzerland.[40] Between 1998 and 2008, the number of acute care hospital beds per 100,000 populations in Europe registered an average reduction of 18%.[40] However, the UK has one of the lowest numbers of acute hospital beds per 100,000 in Europe: 239 beds per 100,000 versus a European Union average of 361 beds and a European Region average of 461 beds.[41]

The UK also has much larger hospitals. The average hospital in England serves a population of around 300,000, based on 172 hospitals with A&Es and supporting inpatient services. This compares with an average 'general hospital' in the European Union that in 2011 served a population of 54,000. Even in the Netherlands, which has a comparatively low number of hospitals, a 'general hospital' served a population

of 170,000. [The figures for average catchments are calculated from World Health Organization (WHO) statistics of general hospital numbers per 100,000.[41]] 'General hospitals' are defined by the WHO as 'establishments providing diagnostic and medical treatment (both surgical and non-surgical) to in-patients with a wide variety of medical conditions'.[42]

In this context it is hard to see why the Royal Colleges would call for minimum hospital catchment sizes of 500,000. One explanation may be the comparatively small number of doctors per head of population. In 2012, the UK had 279 practising physicians [including hospital doctors and general practictioners (GPs)] per 100,000 population, while the European Union average was 334.[42] In Germany, the number was 382 and in Spain it was 399 practising physicians per 100,000 population;[42] this is nearly 40% more doctors per head of population than the UK.

Evidence used by the National Clinical Advisory Team to support conclusions

It was striking how little the NCAT reviews made any reference to an evidence base in their assertions, which tend to be rather non-specific.

> *It was clear to the NCAT team that the status quo was no longer acceptable; this was on the grounds of potential safety issues and sustainability of services in the future.*
>
> *NCAT*

In general, the NCAT did not suggest a minimum population size for a hospital, although in one review it said 'Consensus that for population of 500 k a large district general hospital style hospital, able to deliver all the usual secondary facilities, is required'. In another, it questioned the sustainability of a hospital with a catchment of 167,000 as 'being on the threshold of providing the sort of activity which would drive the complex and integrated services required of a district general hospital'.

In one review there was a striking but unusual (for the NCAT) observation of 'strategic reconfiguration of acute sites – an important but insufficient approach' to improve health and well-being. In this review the NCAT argued that the area under review needed to pay more attention to out-of-hospital care and the ways of working.

National Clinical Advisory Team findings and conclusions

There were no instances of the NCAT expressing outright opposition to local proposals, but in the majority of cases proposals were supported subject to caveats. A recurrent theme was a challenge to the depth and quality of the analysis underpinning proposals, particularly the degree to which the NCAT was supported by robust activity and workforce modelling, and/or taken account of interdependencies with other services. There were instances where the NCAT suggested delaying public consultation until further work had been done.

> *Whilst there are plans to review the O&G and Paediatrics Services at [X] separately from the Clinical Services Review, they should form an integral part of the whole Clinical Services Strategy. Not having the results of these reviews ready in time for the proposed consultation in November 2010 risks increasing scepticism from the public and cynics.*
>
> *It was also disappointing that there appears to be no definite plans to review the Critical Care and Anaesthetic Services at [X] and this should be carried out now as well, rather than waiting for the outcome of the O&G review. The visitors felt that on this basis, consideration should be given to delay the public consultation until the whole-system review has been carried out. This will allow time for more detailed work to be carried out in the other clinical work streams to develop clinical pathways and for the finance teams to cost the schemes.*
>
> *NCAT*

One of the most commonly expressed anxieties was whether or not there was enough capacity in the local health economy to accommodate the reconfigured services.

> *The bed reduction numbers planned are substantial and there are risks that the other services required will not be in place to enable this bed reduction to take place safely. Additionally clinical behaviours will need to change to meet the targets of admission avoidance. A regular review of the risk assessment will be necessary to ensure that patients are not put at risk because there are insufficient acute beds . . .*
>
> *NCAT*

Allied to this, as many proposals depended on supporting change in the community to reduce the use of hospitals, there was general concern about the robustness of proposals to deliver this. A common plea was for change in the community to happen first and to provide evidence of community services' capacity to reduce acute demand.

Where services were to be reconfigured across multiple sites, the NCAT frequently commented on the quality of clinical and managerial relationships across the sites and sought reassurance that joint working would be improved.

> *The present situation is one where there appears to be two hospitals providing separate services rather than a single trust. Working as a single trust should help the work that needs to be done to create fairer services for all in . . .*
>
> *NCAT*

The NCAT sometimes questioned the long-term sustainability of proposals, especially where there were efforts to retain services on small sites.

> *Thus whilst I can say that the clinical model is acceptable (with certain provisos as above) all bets will be off if the work commissioned through the turnaround process or the SHA's review of that work makes the judgement that these plans are not affordable. If restructuring is required – in particular a revision of services provided on the two hospital sites either in the face of financial uncertainty or a breakdown in clinical commitment to these ongoing plans – a further NCAT review will be required to ensure the clinical safety and quality of any new arrangements.*
>
> *NCAT*

Implementation of proposals

Of the 17 clinical reconfigurations – begun since 2007 – one set of changes has stalled completely, 10 have been implemented as originally proposed and, of the remainder, six have been implemented partially or are still in progress (*Table 9*). For example, a site planned to be elective only has ended up retaining A&E and acute medicine but has lost obstetrics. In another reconfiguration, where stroke services and emergency surgery were due to be centralised, only the changes to stroke services have taken place.

TABLE 9 Implementation of whole-trust or -health system reconfigurations reviewed by the NCAT

Whole-system implementation	Number
Implemented in full	10
In progress	3
Partially implemented	3
Stalled	1
Total	17

A key finding is the degree to which service models changed over time and the length of time it took for changes to happen. Good examples are the proposed changes in North and South London. In both areas the NCAT conducted its first reviews in 2007 and in both areas the original proposals are still to be fully implemented. Change is also taking a long time to deliver, often between 5 to 10 years, which may be partly explained by the degree of opposition many reconfigurations encountered.

Analysis of the evidence

What can we deduce from patterns of National Clinical Advisory Team activity and local outcomes?

Proposals to reconfigure services across whole health economies and trusts with multiple hospital sites have formed less than one-fifth of the overall workload of the NCAT. The evidence from the NCAT reviews and subsequent implementation is that this type and scale of change is very hard to execute. Over 40% of the whole-system-trust proposals considered by the NCAT has not been implemented in full. Six of the 17 reconfigurations took over 5 years to deliver any change, and a number of these areas had been attempting to reconfigure services for some years previously. Although the public and political obstacles to change of this type are well known, the NCAT reviews would suggest that in many instances this is not helped by the poor quality of the underpinning analysis.

To what degree does the National Clinical Advisory Team's position reflect the underlying evidence base?

Whole-hospital and -system change is an area in which there is little robust evidence. As we discuss below, there is much more evidence to guide change in specific service areas, for example the benefits of consultant-delivered care in emergency and maternity care. The primary source of evidence called on by the NCAT has been professional guidance that has little research evidence to support it. It is notable that the minimum size proposed for a hospital by the professional bodies in England is significantly larger than international comparators. As we find later in maternity services, the professional debate about the ideal configuration of service is largely driven by the available workforce.

The evidence gaps

More longitudinal studies are needed to track the economic and quality benefits of whole-hospital and -system change, even though the evolving nature of service change and the lack of the necessary financial and quality information can make this difficult.[3] More research is also needed to explore different staffing models. International case studies could be particularly helpful.

Section 3: accident and emergency, urgent and emergency care (including the reconfiguration of acute medicine and surgery)

Introduction

In this section we look at A&E, urgent and emergency care services and the hospital services that support and sit behind these services, including acute medicine, surgery and critical care.

Accident and emergency, urgent and emergency services make up the largest category of all the reviews (37% total). During the period 2007–12, the NCAT conducted 45 reviews of 34 proposals to reconfigure A&E, urgent and emergency services. Ten reviews were repeat visits, some taking place several years after the original proposals. The number of NCAT reviews conducted each year more than doubled, from four in 2008 to between seven and 11 reviews per year from 2009 onwards, showing an increasing trend towards reviewing urgent/emergency care services (see *Table 2*).

Twenty-seven reviews looked at urgent and emergency care as part of a whole-system reconfiguration; five reviews involved reconfiguring primary, community and intermediate care services. The NCAT reviews of urgent and emergency services were relatively evenly spread geographically, but London had the highest number (see *Table 4*).

What change was being proposed?

Within 34 reconfigurations, the NCAT considered:

- 20 proposals seeking to reconfigure emergency services across hospital sites
- 11 proposals to separate emergency services from elective care to create 'hot' and 'cold' sites
- nine proposals to downgrade emergency (A&E) departments to UCCs or MIUs
- seven proposals to develop new UCCs or MIUs
- six proposals to close or relocate walk-in centres.

Drivers for reconfiguration

There were three main drivers of change in A&E, emergency surgery and acute services identified by the NCAT in its reviews: finance, workforce and safety.

Finance

Financial pressures were the most significant driver of change, featuring in 29 out of the 34 reconfigurations of urgent and emergency care. As discussed earlier, as a result of the overlap with whole-hospital-trust reviews, overall pressures on the sustainability of the health system were often cited, with growing A&E activity potentially undermining plans to restore financial balance or make additional savings.

> *. . . a requirement to save £104M over the next 3 years of which £45M needs to be identified within this year . . . [We have] identified £35M as a recurrent saving and a component of this will be found from reconfiguration – £9–10M.*
>
> *NCAT*

Workforce

Workforce was the next major driver, featuring in 20 of the 34 reconfigurations. In 17 reconfigurations the over-riding issue involved insufficient staffing, including in A&E departments, with Royal College guidelines on recommended numbers often referenced:

> *For acute surgery, the numbers of patients are many fewer than that for acute medicine. There is a uniform view that acute surgery should be concentrated on two sites as soon as possible. Currently there are inadequate numbers of experienced surgeons to allow 24-hour cover on all sites and this situation will deteriorate with the full implementation of the EWTD.*
>
> *NCAT*

Recruitment issues were a significant issue in this area:

> *. . . We struggle for A&E cover throughout the trust at mid-grade level – vacancies at some sites are never filled.*
>
> *NCAT*

In one example, the lack of cover led to the prospect of an unplanned A&E closure, and the trust wished to expedite public consultation in order to avoid this:

> *It was important to go to public consultation as soon as possible. It is already proving difficult to sustain adequate cover in the A&E department, and a delay to public consultation . . . may lead to an emergency closure, which the PCT wishes to avoid.*
>
> *NCAT*

Finance and workforce drivers co-occurred in 15 reconfigurations in this area.

Safety

Safety concerns were raised in four reconfigurations, ranging from an emergency department with unsafe out-of-hours surgical cover, concerns around clinical governance across hospital sites and one organisation based in a rural area without access, to support from acute medicine and critical care services.

> *We heard from the medical director that out-of-hours surgery and assessment cannot be carried out safely.*
>
> *NCAT*

Access did not appear to be a driver in most reconfigurations; in a few instances, the reports raise issues about access services via public transport:

> *The local bus service is erratic and it is difficult to get around the county. In particular public transport . . . involves lengthy journeys, thus making it difficult to visit patients admitted to the acute hospitals.*
>
> *NCAT*

Other drivers

Estates: moving services from inadequate facilities was mentioned in four reconfigurations.

> *. . . this model would provide a primary care estate fit for purpose.*
>
> *NCAT*

Finally, several proposals couched the reconfiguration within a broader strategy to redirect activity from acute services into primary/community services.

Literature

Emergency activity trends and government policy

Recent activity trends and government policy set important context for any review of evidence in this area. Urgent and emergency care activity has been rising. Attendances at A&E departments have grown by 1.3% per year,[43] but there has been much more striking growth in attendances to walk-in centres and MIUs, which have been growing by 12% annually since 2002–3.[43]

The outcome of a first-stage review of urgent and emergency care services in England[44] was published in November 2013. The report outlined five main proposals:

- improvement of access to information and support for people to self-care
- enhancement of NHS 111 telephone service
- development of urgent care services outside hospital including better access to GP, primary and community services; greater use of health-care professionals including community pharmacists and paramedics
- rationalisation of hospital emergency departments into two levels – emergency centres and major emergency centres with a range of highly specialist services
- development of broader emergency care networks.

The findings and recommendations of the Keogh Review are broadly consistent with the advice given by the NCAT – particularly the focus on a 'whole-system' approach and the development of emergency care networks. The review has also highlighted[43] the considerable variation in outcomes for patients depending on the time of day or the day of the week that they are admitted to hospital as an emergency. A key challenge for emergency services is to ensure appropriate senior staffing 24/7. The proposals for a two-tier approach to emergency departments are new (*Box 1*).

BOX 1 Keogh[43] proposals for emergency and major emergency centres

Emergency centres will be capable of assessing and initiating treatment for all patients. We anticipate that Emergency Centres in remote and rural communities, distant from more specialist services, will expect almost all patients to be directed or taken to them for initial assessment. Suitable patients will be managed by the local hospital services on the same site as the emergency centre. Those needing specialist treatments after assessment will be transferred; indeed critical care transfers will be a core part of the new system. In more urban areas, where specialist services are much closer, the assessment and commencement of treatment will often be undertaken by paramedics, followed by direct transfer to the specialist centre best suited to the patient's needs. This will, in turn, reduce demand at urban emergency centres.

Major emergency centres will be larger units, capable of assessing and initiating treatment for all patients and providing a range of specialist services. Major emergency centres will have consistent levels of senior staffing and access to specialist equipment and expertise. Transfer from a major emergency centre will be rare, with the exception of patients returning to community settings closer to home when they are well on the road to recovery from major illness and injury.

At this stage the Keogh proposals do not describe how they expect these centres to be staffed, yet expectations around this will be a significant determinant of the final configuration of services. Phase 2 of the review, which is ongoing, seeks to develop a framework for the implementation of the proposed changes.[42]

In the following sections we explore some of the staffing pressures and the issues that will determine who is 'suitable' to be treated in a hospital with an emergency centre, but first we explore the evidence around out-of-hospital urgent care services, an area where the NCAT has generally taken a rather sceptical view about the capacity of out-of-hospital services to divert activity from A&E, a view that appears to be supported by the existing evidence.

Out-of-hospital services

The Keogh review[43] found that 40% of patients are discharged from A&E without treatment and concluded that a significant proportion of patients attending A&E services could be treated by urgent care services outside hospital or within primary care. As described earlier, the NCAT has frequently challenged the assumptions about the amount of activity that can be diverted from A&E, made in reconfiguration proposals. There are two issues at play: firstly, what proportion of A&E activity can safely be seen in a community setting, and secondly, what impact alternative community services will have on A&E attendances.

The guidance on the reconfiguration of urgent and emergency care provided by the NCAT, drawing on work by the Primary Care Foundation,[45] suggests that between 10% and 30% of attendances would be more appropriately managed in a primary/community setting. A large 1994 study[46] found that subjective assessments by clinicians of the proportion of the workload that could be managed in general practice varied between 7% and 89%. The study's more objective diagnostic-based methodology arrived at a figure of 23%. A small 2012 study[47] (sample of fewer than 300) found that 30% of presenting conditions to A&E were suitable to be treated by a GP, and over two-thirds did not require the resources of a type 1 emergency department. The study suggests that attendees are not presenting to the emergency department because it is more convenient than other services or because they expect to be seen quicker. The availability or the perceived availability of primary care services for immediate care may also be contributing to demands for emergency department services. In all of the above, the local geography and relative service access can be expected to play a significant part.

There is so far little evidence[48–50] that the provision of alternative out-of-hospital care urgent care facilities will reduce hospital A&E attendances, an assertion borne out by national attendance figures to A&E, which have continued to rise despite the fact that attendances to out-of-hospital alternatives have been growing rapidly. Even colocated walk-in facilities are seen to have variable impact on A&E attendances and performance.[50,51] Redirection away from A&E has also had variable results and there are questions over the safety of this type of intervention, as patients redirected from A&E to primary care do not always attend the appointments made for them.[45] However, there is evidence[52] to suggest that ambulance services would have the potential to meet a higher proportion of urgent and emergency care demand and prevent onward transportation to hospital if they had appropriately trained staff.[43]

In addition to out-of-hospital care, the NCAT reviews identified a set of core questions faced by providers reconfiguring A&E, urgent and emergency care services, and acute medicine and surgery.

Accident and emergency

1. How should A&E departments be staffed?
2. What services are needed to support an A&E?
3. What is the impact of centralising A&E services?

Acute medicine

1. How should acute medical services be staffed?
2. What services are needed to support acute medicine?

Acute surgery

1. How should acute surgical services be staffed?
2. What services are needed to support acute surgery?

Accident and emergency services

Leadership and staffing (including for rural areas)

The CEM[53] argues that every emergency department should be staffed by at least 10 working-time equivalent consultants to provide a consultant presence in the emergency department 16 hours per day, 7 days per week. In 2009, the average number of consultants for each department was just over four. The College cites evidence to demonstrate that increased consultant input reduces the likelihood of admission and improves the patient experience, findings borne out by other studies.[48] The College also draws on international comparisons. For example, it says that in Australasia a typical emergency department seeing 60,000–80,000 patients per annum would be staffed by 14 consultants, who primarily deliver the service. The UK model is still heavily reliant on doctors-in-training to deliver frontline care.

A key issue for the future will be the staffing model for emergency centres and major emergency centres proposed by Keogh.

Services for children

Children account for around one-quarter of all A&E attendances.[54] There is evidence that doctors without specialist paediatric training are more likely to make a clinical error.[55] The RCPCH recommends that all A&E departments with > 16,000 annual paediatric visits have at least one specialist trained in paediatric emergency medicine available at peak times.[56]

Other supporting services

Accident and emergency departments are dependent on a number of supporting services which should be available 24 hours per day, 7 days per week. These services are outlined in *Table 10* and differ slightly according to the reference cited.

The CEM lists seven key specialties required to provide support to A&E departments: critical care, radiology and diagnostic imaging, laboratory services, acute medicine, orthopaedics, general surgery and paediatrics. Where paediatrics, general surgery and orthopaedics are not available, it is stated that on-site 'robust and safe' policies must be in place to ensure rapid access to senior opinion and that transfer must be available.[57] However, the RCS states that inpatient paediatrics and specialist children's facilities are required if children are admitted as emergencies.[58]

The RCS questions the long-term sustainability of A&E without on-site surgery as it affects the ability to maintain critical care facilities. In hospitals without on-site surgery, they advise that access to surgical opinion should be obtained through a defined network, and should not be reliant on visiting surgeons undertaking elective work.[59] However, the CEM states that A&E services can be maintained without on-site acute surgery as long as access to surgical opinion and anaesthetic cover is available 24/7.[57]

Although emergency surgery is not listed as a key supporting specialty for A&E services, the RCoA state that without emergency surgery it is more difficult to staff an intensive care unit (ICU) which may limit the type of emergency medical patients who can be admitted.[60]

The NCEPOD recommends that acutely ill patients undergo an initial assessment in a dedicated emergency assessment unit (EAU).[61]

Distance to hospital

A few studies suggest that increasing distance to hospital is associated with an increased risk of mortality once illness severity has been taken into account. Nichol *et al.* found that there was a 1% increase for each 10 km increase in distance, with the effect amplified in people with respiratory distress.[72] The authors suggest that this association should be taken into account when closing local emergency departments, as it may pose a greater risk of mortality for a small number of patients with a life-threatening emergency in some patient groups and should be offset against evidence that improved outcomes occur at higher volumes.

Impact of centralising services

The evidence discussed above suggests that centralising A&E services will ensure that there is sufficient staffing to provide consultant-delivered services and provide a critical mass of support services including critical care, diagnostic and laboratory services, acute medicine and acute surgery. A study conducted

TABLE 10 Guidance on supporting services for A&E departments

Supporting service	NCAT	CEM	AoMRC[14]	RCS[58]
Critical care (including anaesthetics/intensive care)	✓	✓ (essential)	✓	✓
Radiology (including CT, imaging, ultrasound) (24 hours)	✓	✓ (essential)	✓	
Laboratory services	✓	✓ (essential)	✓	
Acute medicine	✓	✓ (essential)	✓	
Acute orthopaedics	✓	✓	✓	
General (acute) surgery	✓	✓	✓	✓
Paediatrics	✓	✓	✓	✓
Emergency assessment units	✓			

in Sheffield assessing the effect of centralising A&E services over a 3-year period[15] found that centralising services from three sites to one improved the levels of A&E consultant cover, time to admission, teaching and research at the trust. However, the change resulted in additional workload on acute medicine services; the case-mix of patients became more acute, leading to deterioration in the waiting time to see a clinician. In addition, the costs of the service increased. This finding reinforces concerns, often expressed by the NCAT in reviews, that 'receiving' sites have adequate capacity to deal with the increased workload post reconfiguration.

Acute medicine

Staffing

The NCEPOD[34,61,62] consistently identifies lack of consultant input as a contributor to poor-quality care and recommends active consultant engagement at all stages of the care pathway, including[61] that patients admitted as an emergency should be seen by a consultant within 12 hours. Early senior review is also recommended by the RCP.[8] In its acute care toolkit,[63] the RCP shows how 10 consultants can deliver early assessment by a consultant 7 days a week.

The RCP has highlighted[64] wide variation in the number of consultant physicians per head of population across the country. It found a correlation between consultant staffing levels and hospital standardised mortality ratios. They also found that staffing for district general hospitals is much more challenging than for teaching hospitals. It described a 'vicious cycle' where the vacancy levels in smaller hospitals increase the workload for trainees and consultants, thus making the posts less attractive to potential applicants.

On-site critical care

The NCEPOD recommends that sick and deteriorating medical patients must be identified early and have rapid access to critical care.[34] The NCEPOD suggests that use of critical care outreach teams can facilitate early identification. In 2002, after surveying doctors in hospitals without critical care facilities, the RCP said that[65] acutely ill medical patients should not be admitted to a hospital without critical care. Fifty-four per cent of those responding to the RCP survey had identified clinical risks as the result of lack of access critical care facilities or anaesthetic cover.

Computerised tomography and magnetic resonance imaging scanning

In two reviews of emergency admissions, the NCEPOD[61,62] identified that lack of access to magnetic resonance imaging (MRI) and CT scanning was a 'substantial' problem and recommended that hospitals which admit patients as an emergency must have access to plain radiology and CT scanning 24 hours per day.

On-site surgery

A key debate around the provision of acute medical care is the degree to which it requires onsite surgical support. The RCS specifies that there should be 24-hour on-site surgical opinion (ST3 level or above) in hospitals accepting unselected medical emergencies except in exceptional cases.[58] If surgery is off-site it says that strictly audited clinical pathways must be in place. In 2002, after surveying doctors in hospitals without on-site surgical services, the RCP recommended that hospitals that do not have an on-site surgical service should:

- not admit patients who might require urgent surgical intervention
- ensure that there are agreed arrangements to provide surgical opinions in a timely and appropriate manner, but that this should ideally not involve transferring the patient to another hospital.[65]

Acute surgery

Staffing

In 1997, in its seminal report *Who Operates When?*, the NCEPOD[66] recommended that all hospitals admitting emergency surgical patients must be of sufficient size to provide and staff 24-hour operating rooms, and other critical care services, 24/7. The NCEPOD concluded: 'With regard to individual patients, the authors and advisory groups identified several themes concerning sub-optimal standards of delivery of care. These mainly concerned delays in admission and surgery, inappropriate grades of surgeon (too junior), failure of preoperative preparation, lack of communication between specialists and inappropriate operations. These problems have all been identified in previous NCEPOD reports and recommendations made repetitively' (p. 6).

The RCS,[58] in its 2011 standards for unscheduled care, make the following staffing recommendations (summarised).

- As a minimum, a specialty trainee (ST3 or above) or a trust doctor with equivalent ability is available within 30 minutes to treat acutely unwell patients and is able to escalate concerns to a consultant.
- The optimum E-WTD compliant rota requires 10 trainee doctors working three 9-hour shifts every 24 hours. According to the RCP, many hospitals do not have enough staff to enable trainee rotas to work on a 1 : 10 rota 24/7.[67] The RCP states that trainees must not work more than 1 night in 8 as it is 'impossible' to provide training. Reducing the rota to 1 : 8 is also difficult if numbers of full shifts are not reduced between 22.00 and 08.00.
- A consultant is available at all times to give telephone advice and can attend their base site within 30 minutes.

The RCoA has developed specialty specific guidance which acknowledges that, unlike the RCP ideal rota, which is based on 5-day working, anaesthesia must plan for acute surgical intervention 24/7. It supports the consultant-led 'extended day' of between 08.00 and 22.00 for acute surgical services,[68] which can improve patient care and training opportunities. This is supported by the NCEPOD.

The College has not set out minimum staffing numbers needed to achieve these standards, stating that staffing levels depend on factors such as the case-mix and numbers of patients.[69] Although there is no guidance produced in the UK, the Association of Anaesthetists of Great Britain and Ireland produced guidance on staffing levels for safe anaesthesia provision in Ireland stating that any hospital with a 24/7 emergency theatre, maternity unit or ICU must have 24/7 on-site anaesthetic cover from non-consultant hospital doctors (NCHDs), with a minimum of two consultant anaesthetists on-call in hospitals with all three specialties and at least one consultant on-call in other hospitals.[70]

On-site critical care

The NCEPOD enquiries demonstrate that lack of access to critical care beds can be a key factor in perioperative death. In its 2011 report,[71] it suggests that the pattern of critical care beds in the UK may not be maximally efficient, with high numbers of units operating with fewer than six beds. The RCS also requires hospitals undertaking surgery to have the appropriate level 2 and level 3 intensive care provision to support the anticipated emergency surgical workload.

Other key supporting services

Surgical units need access to acute medicine for patients with comorbidities or who develop acute medical complications. The RCP recommends that alongside midwifery units (AMUs) are established in hospitals to consolidate clinical and support services in a ' "fit for purpose" single setting – staffed by clinical staff with competencies in acute medical care and supported by in-reach from specialist multidisciplinary teams' (p. xi).[37] It states that the AMU clinical team, working alongside the critical care team, should co-ordinate medical care for patients who develop an acute medical illness while in hospital. Ideally, these teams should be co-located with the emergency department on an 'emergency floor'.

24/7 working

Recent studies have indicated that the quality and safety of health services varies between weekdays and the weekend in the UK. A large study of over 4 million emergency admissions found that patients admitted at the weekend had 10% higher odds of dying, compared with patients admitted on a weekday.[73,74] These findings were supported by Freemantle *et al.*, who found that both emergency and elective weekend admissions were associated with an increased risk of death in the following 30 days.[75] The authors suggest that these findings may be the result of reduced availability of senior staff and access to diagnostics.

Evidence used by the National Clinical Advisory Team to support conclusions

The NCAT makes a number of unqualified statements throughout the reviews – citing 'evidence' or examples of good practice but without providing any references in almost all instances. Many of its statements are supported by the literature, but these are not signposted in its reports.

National Clinical Advisory Team findings and conclusions

Out of the 45 reviews, the NCAT made recommendations in 40 cases:

- seven reviews – full NCAT support for the proposals
- 26 reviews – the NCAT supported the proposals with certain conditions
- five reviews – the NCAT did not support the proposals
- two reviews – the NCAT rejected the proposals initially.

Out of the remaining five reviews where the NCAT did not make an overall judgement on the proposal:

- Two reviews were informal visits undertaken by the NCAT to review progress and offer advice or review current services.
- One review was an implementation review following an earlier NCAT visit.
- One review was requested by the Secretary of State to advise the SHA following an earlier NCAT visit.
- One review was a special visit request by the trust special administrator to provide commentary on emerging plans developed by an external clinical reference group.

In the five cases where the NCAT rejected the proposals for reconfiguration, these were the result of unclear plans; for example, the NCAT highlighted that there were 'inconsistencies between documents' and that it was 'not entirely clear what the final plans will be'. In other instances, it rejected the proposals as insufficiently developed to go to public consultation or commented that it was unable to make a judgement based on the incomplete information provided. In two further cases, the proposals were initially rejected. The NCAT subsequently supported the proposal after a follow-up visit 6 months later, once its suggestions had been implemented. In the other case, the proposal was supported once additional information was provided.

Following analysis of the 33 reviews supported by the NCAT, wholly or with conditions, its position on the following key service areas is summarised in the analysis below:

- centralising emergency (A&E) departments
- 24/7 consultant-delivered A&E services
- A&E key clinical dependencies (24/7 support)
- acute medicine: staffing
- acute medicine: clinical dependencies
- acute surgery: staffing.

Centralising emergency (accident and emergency) departments

The NCAT offers fairly consistent support to proposals seeking to centralise A&E departments on to fewer sites, supporting the case for change with conditions in seven out of nine reviews. It makes reference to ensuring that services are sustainable, with sufficient numbers of consultants available to provide high-quality care 24/7 (or a minimum of 16 hours per day, 7 days a week) and access to supporting services. For example, in one review the NCAT states that:

> *Overall there is a strong case for moving from three sites to two. Staffing is inadequate to provide three high quality services round the clock. Nationally it is apparent that one A&E department can serve 400,000 to 500,000 population and two sites would be appropriate for this population.*
>
> *NCAT*

The NCAT also states that closing A&E departments should take place alongside improvements to urgent care and primary care services, recommending that a UCC or MIU is opened on the losing site alongside measures to improve and integrate these services with GP out-of-hours care.

24/7 consultant-delivered accident and emergency services

The NCAT strongly supports providing consultant-delivered services; ideally, departments should work towards 24-hour, 7-day-a-week cover, with 16 hours of consultant cover as a minimum.

> *Thus it is recommended that there should be a consultant emergency physician present in A&E from 8 a.m. to midnight every day of the week. This requires 10 to 12 consultants for a large department.*
>
> *NCAT*

Accident and emergency key clinical dependencies (24/7 support)

In the draft guidance for the reconfiguration of urgent and emergency care that the NCAT produced, it is stated that:

> *[A&E department should be] supported by a hospital with the appropriate multidisciplinary team, diagnostic support (e.g. 24-hour CT scanning) anaesthesia/critical care and acute medicine. Ideally surgery and orthopaedics should be on the same site but there are successful and safe units where this is not the case. Where surgical opinion is not available on site, arrangements for urgent surgical opinion and other specialist opinion should be clear.*
>
> *NCAT*

Within the reviews, paediatrics is included as a key clinical dependency alongside diagnostics, anaesthesia/critical care and laboratory services.

Acute medicine: staffing

Across the reviews, the NCAT refers to the appropriate staffing levels for acute medicine and access to urgent assessment. In one review it states that a minimum of eight consultants are needed to provide continuous cover. In other reviews, the NCAT makes reference to the time from referrals to assessment by a senior clinician within acute medicine:

> *There should be a commitment to see all patients referred to medicine from the emergency department within one hour and that person should be an experienced specialist registrar or consultant.*
>
> *NCAT*

The NCAT also reiterates its support for centralising acute services to ensure that there are sufficient acute physicians to provide the levels of cover detailed above.

> *None of the acute hospitals in [X] have enough acute physicians (if any) and the other physicians who participate in acute medicine are based on MAU when 'on take' due to shortage of numbers and other duties. By concentrating on fewer sites this could and should be remedied.*
>
> *NCAT*

Acute medicine: clinical dependencies

The NCAT states that the key clinical dependencies for acute medicine are radiology (i.e. CT and MRI scans), critical care/anaesthesia and access to surgical opinion available 24/7. In the case of critical care, the NCAT advises that a level 2 high-dependency unit (HDU) is an acceptable minimum level of cover. For example:

> *We suggest that in the first instance the majority of acute medicine continues at [X] supported by a high-dependency unit (HDU), i.e. level 2 intensive care, rather than full, i.e. level 3, intensive care. There will need to be an anaesthetic presence on site, rapid availability of a consultant surgical opinion and radiology all available 24/7.*
>
> *NCAT*

Acute surgery: staffing

As the quote above shows, the NCAT supports rapid access to consultant acute surgical opinion, which should be available 24/7. In one review, the reviewers specify the type of staff who have the expertise to staff an acute general rota:

> *The acute general surgical rota should be staffed by surgeons with the appropriate expertise, that is general surgeons and/or upper gastrointestinal and colorectal surgeons. This may mean that specialist surgeons e.g. breast surgeons and vascular surgeons are no longer on the acute rota.*
>
> *NCAT*

Acute surgery: clinical dependencies

As is the case for acute medicine, the NCAT supports the position that access to critical care/anaesthesia and acute medicine should be available 24/7 for acute surgery.

National Clinical Advisory Team challenges to proposals

The vast majority of proposals were supported with a number of caveats. The NCAT frequently points out that the plans need to form part of wider, long-term strategy or vision for the local health economy, including primary care/community services, with planned developments taking place in advance or alongside hospital reconfigurations. In most cases it also advises establishing an urgent and emergency care board to ensure that all the relevant organisations are involved.

> *I suggest strongly that improvements in community care, particularly for older people and those with long term conditions, precede the hospital changes so that there will be a decreased number of people requiring hospital emergency care.*
>
> *NCAT*

> *Inevitably much of the emphasis on the strategy so far has focused on the acute care setting because of the political considerations. However the true gains for improving the health of the local population are to be had elsewhere . . . there may be an opportunity to consider the development of strong community based services, which reach into hospitals and acute care providers, rather than the traditional model.*
>
> *NCAT*

Issues around public engagement were also mentioned by the NCAT in a number of reviews; in particular, it often stresses that the plans need to be clearly articulated to the public, outlining the changes, what they mean for services in each hospital site and the impact that they may have on issues such as access to services.

> *Communication with the public should be clear and simple, explaining exactly what services are available and what patients should be seen where.*
>
> *NCAT*

> *The public need to know which hospital to go to when they have a problem. This strategy needs to be clearly communicated over the coming months and years so that people do not present themselves inappropriately at the wrong site.*
>
> *NCAT*

The NCAT also suggests that discussions with the local ambulance trust take place to ensure that the impact on its services are understood and taken into account. This aspect was seen as key to the success of some of the more complex multisite reconfigurations to ensure that patients are transported to the right site (i.e. the trauma or stroke hub).

Underdeveloped workforce planning is another caveat that the NCAT refer to in its recommendations. Centralising acute services to secure sustainable surgical rotas was supported by the NCAT, but it cautions that these plans need to be robust. The NCAT also highlights the lack of data on patient flows and A&E/urgent care usage provided within proposals, and advise collating this information.

> *As a matter of urgency they should look again at the bed numbers provided for acute care to ensure that a safe service will continue with the commissioning of the new facilities . . . this will require a whole-systems approach which should review the patient flows between hospitals . . .*
>
> *NCAT*

Implementation of proposals

Of the 34 A&E/emergency service reconfigurations reviewed by the NCAT, 20 have been fully implemented, four were partially implemented, six are still in progress and three have stalled. We could not confidently confirm the outcome of one reconfiguration (*Table 11*).

A deeper analysis reveals that out of the implemented reconfigurations, eight proposals set out plans to separate acute and elective services, four proposals involved downgrading an A&E department, a further five related to closing or relocating walk-in centres and two involved developing a new MIU or UCC.

Looking at the partially implemented reconfigurations, two proposals involved plans to downgrade an A&E to a UCC/MIU and two proposals sought to separate acute and elective services. In one instance, plans to transfer elective surgery and open a MIU have taken place but a planned MLBU has not opened.

TABLE 11 Implementation of A&E, urgent and emergency care reconfigurations reviewed by the NCAT

A&E, urgent and emergency care implementation	Number
Implemented in full	20
In progress	6
Partially implemented	4
Stalled	3
Unknown	1
Total	34

Within the stalled or partially implemented reconfigurations, all encountered significant levels of public and political opposition to the proposed changes. As with the whole-hospital proposals, these tended to involve well-organised public campaign groups holding frequent public meetings and rallies with a 'save our hospital' website, supported by local politicians. Although all of these reconfigurations involved wider clinical services, the campaigns usually focused on challenging the loss or downgrading of A&E departments. The NCAT often recognised public concerns and commented on how these could be addressed:

> *Not surprisingly major concerns were expressed by the public . . . and their elected representatives. These ranged from not wanting to lose their full A&E services to fearing that they would lose their hospital altogether . . . local services should be strengthened as an urgent priority before the hospital changes occur . . . this will increase credibility with the public – and with professionals.*
>
> *NCAT*

In the stalled reconfigurations these objections led to further independent reviews followed by the involvement of the Secretary of State for Health, lengthening the process by several years.

Analysis of the evidence

What can we deduce from patterns of National Clinical Advisory Team activity and the local outcomes?

The reconfiguration of urgent and emergency care services is by far the largest area of NCAT activity, an element of over one-third of all reviews. This may, in part, be as a result of the history of the NCAT and the role of Sir George Alberti as National Clinical Director for emergency care, but it is also likely to be because of the pivotal nature of emergency services, the pressures for change faced by them – particularly around workforce – and their interdependence with other service areas.

The closure or downgrading of an A&E and its supporting emergency services is highly contentious. Many people see change to these services as a direct threat to their own personal safety. Service change is also complex and often involves multiple trusts. So, it is perhaps not surprising that there were a very high proportion of repeat reviews and a significant number of proposals failing to be fully implemented or taking a significant time to progress.

To what degree does the National Clinical Advisory Team's position reflect the underlying evidence base?

In *Table 12* we summarise the position adopted by the NCAT and the relevant evidence to see whether or not it is supported by evidence. Given the alignment between the NCAT and the proposals it reviewed, this is also a proxy test of the degree to which the changes being taken forward by the NHS are supported by evidence.

The NCAT was largely supportive of the proposals to centralise emergency (A&E) departments alongside increasing access to colocated UCCs and minor injury centres and GP out-of-hours services. In most cases this support has been tempered by a number of caveats concerning workforce plans, the quality and clarity of the case for changes and the need to embed reconfigurations within a wider framework of community and primary care services within the locality. The evidence underpinning these changes is not as clear, indicating that while centralising emergency departments improves access to senior consultant opinion and the ability to staff rotas, it places a greater burden on to acute medicine and does not appear to save costs. In light of financial pressures playing a major role in driving reconfiguration, this suggests that centralising alone may not generate the anticipated financial savings. The evidence would also suggest caution, as has the NCAT, on the degree to which primary and community-based alternatives to A&E will reduce demand.

TABLE 12 The NCAT's position against evidence for A&E, urgent and emergency care

Proposals/issue	NCAT position	Department of Health and professional guidance	Supported by/other evidence
Centralising emergency (A&E) departments	Supported in most cases alongside improved access to primary/urgent care	Supported (Keogh)	Mixed – improved senior cover/teaching, but greater acute workload, time to see clinician, cost
24/7 consultant-delivered A&E services	Supported	Supported (CEM – minimum 16 hours per day, 7 days per week)	Yes – better quality and training; costs increase
A&E key clinical dependencies (24/7 support)	• anaesthesia/critical care • diagnostic imaging • laboratory services • acute medicine • acute surgery • paediatrics	Supported	Yes – improves outcomes
Acute medicine: staffing	All patients seen within 1 hour by a specialist registrar or consultant	Early assessment by consultant – 10 consultants, 7 days a week	Yes – NCEPOD consultant within 12 hours
Acute medicine: clinical dependencies	Radiology – CT/MRI Critical care Access to a surgical opinion	Critical care Access to a surgical and other specialists' opinions	Yes – NCEPOD – radiology – CT/MRI + critical care
Acute surgery: staffing	Rapid access to consultant – EWTD compliant rotas	ST3 or above available within 30 minutes, supported by a consultant able to attend within 30 minutes	Yes – NCEPOD
Acute surgery: clinical dependencies	Critical care Acute medicine	Critical care Acute medicine	Yes – NCEPOD
Out-of-hospital alternatives to A&E	Challenge to amount of activity that can be diverted	Support primary and community alternatives including pharmacy	Little evidence to demonstrate that out of hospital alternatives significantly reduce A&E demand

This analysis shows considerable support from the NCAT and from the underlying evidence for a model of care that is consultant led and delivered. Providing 7-day-a-week consultant-delivered services is a key driver of many reconfigurations. The evidence on costs suggests that consultant-delivered services increase costs, although these may be offset by savings elsewhere, for example through reduced length of stay.

The key clinical dependencies required by A&E services are another aspect where the evidence supports the NCAT's position. Ensuring that there is 24/7 access to these services detailed in *Table 12* appears to be almost as crucial as consultant opinion in improving patient outcomes. A smaller critical mass of services is needed to support acute medicine – this includes access to radiology or CT/MRI scans, critical care and surgical opinion. The NCAT clearly outlines in some reviews that the provision of a fully functioning acute medicine service is highly dependent on these specialties, particularly out of hours, which is also supported by professional guidance and the NCEPOD.

The evidence gaps

The evidence to support the reconfiguration of A&E, urgent and emergency care is lacking in three key areas. Primary care and out-of-hospital services have been viewed as a means of reducing emergency admissions and A&E attendances, but there is a lack of evidence to ensure that people make robust planning assumptions about the scale of impact.

We also found little evidence to support the centralisation of A&E services. There is a need to conduct more research exploring the impact of reconfiguration on the cost and quality of services. Linked to this, A&E departments rely on supporting clinical services and these interdependencies should also be investigated further for their impact on clinical outcomes.

Finally, there is a need to thoroughly evaluate models of care providing local access to acute medical care without on-site surgical support, including clinical outcomes and workforce sustainability.

Section 4: elective surgical care

Introduction

This section considers elective surgery services. During the period 2007–12, the NCAT conducted 18 reviews of elective surgery for a total of 11 reconfigurations. There were multiple visits for four reconfigurations, some extending over a number of years. The maximum number of reviews in any one year was five and the minimum was one (see *Table 2*). There was an uneven geographical spread, with a concentration in London and Yorkshire and the Humber – accounting for 12 out of 18 reviews (see *Table 4*).

Seventeen out of 18 reviews were conducted as part of a whole-system reconfiguration, and all 18 were reviewed alongside urgent/emergency care and acute surgery.

What change was being proposed?

All 11 reconfigurations involved the separation of acute and emergency/care from elective/day surgery.

- Nine reconfigurations sought to concentrate emergency surgery on a single site centralising acute services (and the accompanying workforce) on the site with A&E facilities and supporting critical care and diagnostics while improving efficiency at the elective site.
- One case involved plans to reorganise clinical services across seven hospitals to create two major acute hospitals.
- The remaining reconfiguration involved rebuilding a hospital site alongside plans to concentrate emergency and specialist services on one site and elective and rehabilitation services on the other site.

Key drivers for change

There were two main drivers of change within the reviews of elective surgical services, financial pressures and workforce. Finance and workforce drivers co-occurred in six reconfigurations. In all of the reviews, elective surgery was considered as part of a wider review of emergency and acute services. As such, the pressures were not acting on elective services alone. For example, safety concerns were raised in a couple of the reviews involving elective surgery but the concerns did not directly relate to elective surgery services.

Finance

Financial pressures featured in 10 out of 11 reconfigurations. These were framed in a number of ways, including a need to reduce costs or grow income to meet current or anticipated funding gaps. In two instances the proposals state that the income generated from elective work was a consideration in the development of the reconfiguration; for example:

> *[A] need to provide services within vacated wards as . . . this was a PFI initiative requiring an on-going resource stream.*
>
> *NCAT*

Workforce

Workforce drivers were mentioned in seven reconfigurations, with particular pressures arising from providing surgical cover across multiple sites. Reviews refer to the lack of senior surgical cover, citing either

a need to comply with Royal College guidance, a more general move towards consultant-delivered care or an inability to provide 24/7 consultant cover.

Estates

Five reconfigurations cited poor facilities within the existing estate as a driver of change; however, these were always cited alongside finance and or workforce concerns.

Access

No explicit references to access drivers were made in these reviews.

Key literature

The NCAT reviews identified a number of core questions faced by providers when providing standalone elective surgery services.

- Should elective surgery be separated from emergency surgery?
- What services should support elective surgery?
- How should you staff an elective surgical unit?
- What patients are suitable to be treated in an elective surgical unit?

We explore below the available evidence for each of these questions.

Should elective surgery be separated from emergency surgery?

The RCS recommends separating elective surgical admissions from emergency admissions (particularly medical emergencies) wherever possible: 'Separating elective care from emergency pressures through the use of dedicated beds, theatres and staff can if well planned, resourced and managed reduce cancellations, achieve a more predictable workflow, provide excellent training opportunities, increase senior supervision of complex/emergency cases, and therefore improve the quality of care delivered to patients' (p. 2).[59] The RCS also suggests that separating emergency and elective care can result in earlier investigation, definitive treatment and better continuity of care, as well as reducing hospital-acquired infections and length of stay.

There is evidence that separation of the elective surgical workload can improve efficiency and avoid the cancellation of elective activity.[76] However, the efficiency gains can be affected by patient case-mix and demand.[77] Evaluation of the operation of the independent sector treatment centres has also suggested that separating elective surgical care from emergency services could improve the quality of care. One study[78] hypothesised that this might result from the more predictable workflow, which would in turn increase senior supervision of complex cases.

What services should support elective surgery?

The RCS suggests streaming elective care into minor, intermediate and complex. Units providing complex elective surgery or minor/intermediate surgery for higher-risk patients with comorbidities will require 'sufficient critical care support appropriate to patient need' (p. 3).[59] The need for appropriate critical care support is a key finding from NCEPOD reviews[33,71,79] and work done jointly by the Department of Health with the RCS on higher-risk surgical patients.[80] A large American study[81] concluded that the effective management of the complications, including rapid transfer to an ICU, was a key determinant of surgical patient outcomes. Further, the study cited evidence to show that a system of daily rounds in the ICU with a certified intensivist was associated with a reduction in in-hospital mortality by a factor of three, and that an increased nurse-to-patient ratio was associated with a halving of in-hospital mortality. The study also identified the need for interventional cardiologists to manage an acute myocardial infarction as well as timely administration of antibiotics to manage sepsis.

How should you staff an elective surgical unit?

The work done by the RCS and the Department of Health[80] recommends that patients with a predicted hospital mortality of ≥ 5% should have active consultant input in the diagnostic, surgical, anaesthetic and critical care elements of their pathway, while surgical procedures with a predicted mortality of ≥ 10% should be conducted under the direct supervision of a consultant surgeon and consultant anaesthetist unless the responsible consultants have satisfied themselves that their delegated staff have adequate competency, experience and manpower and are adequately free of competing responsibilities.

The NCEPOD recommends that older patients undergoing surgery should have daily input from medicine for the care of older people.[79]

What patients are suitable to be treated in an elective surgical unit?

The implication of the evidence on critical care suggests that any unit without comprehensive critical care facilities and consultant support should not be undertaking complex surgery or accepting 'high-risk' patients. A recent review of 'at risk' patients by the NCEPOD[71] acknowledged that there is no agreed methodology for identifying those patients at high risk of mortality and morbidity but the reviewers used the Revised Cardiac Risk Index of Lee *et al.*[82] for stratifying risk before non-cardiac surgery. This validated index consists of six independent predictors of complications:

- high-risk surgery (intraperitoneal, intrathoracic or suprainguinal vascular procedures)
- ischaemic heart disease
- history of congestive heart failure
- history of cerebrovascular disease
- insulin therapy for diabetes mellitus
- pre-operative creatinine level > 176 µmol/l.

The more predictors a patient has, the greater the risk of perioperative complications. Each predictor adds one point to the final score and is associated with a Lee class and risk of major cardiac complications (myocardial infarction, pulmonary oedema, complete heart block, cardiac arrest).

Evidence used by the National Clinical Advisory Team to support conclusions

The NCAT does not cite any evidence to support its conclusions, which appear to be largely based on professional opinion and best practice – there is no mention of Royal College guidance or other sources of evidence within the reviews. Examples include:

> *. . . there are considerable advantages from an organisational and cost-effectiveness point of view to separating acute from elective surgical care.*
>
> *NCAT*

> *By contrast much elective care is better provided by smaller teams concentrating on a particular group of conditions in a more controlled environment. The separation of emergency from elective work in any specialty has clear organizational advantages.*
>
> *NCAT*

> *Separation of elective care will mean that patients admitted for operation or other care are not displaced by acute patients overflowing from the acute wards. Thus their care can be planned and managed from beginning to end, ensuring that they are assessed and treated on the given date; theatres and beds can be managed efficiently and there is good evidence that hospital acquired infection in such facilities can be near absent when screening and hygiene governance is at a high level.*
>
> *NCAT*

National Clinical Advisory Team findings and conclusions

As seen with other specialties, the NCAT did not expressly oppose any of the proposals considered; in 16 out of 18 cases it supported the proposals subject to varying levels of conditions. One review states that the NCAT supports the proposals without conditions, although this is alongside a number of recommendations; the remaining review of a whole-system proposal does not support or reject the proposal and suggests a further NCAT review once the proposals are more clearly developed.

Separating elective surgery from emergency admissions

The NCAT strongly supports the separation of acute and elective care in all the reviews, for example:

> *Elective care centres can be strongly supported. They do offer the potential for protected surgical treatments away from acute patients, releasing that centre from the pressures of admitting acutely ill patients and the risk of infection.*
>
> *NCAT*

It provides consistent guidance on their benefits in terms of:

- more efficient management of elective care
- more cost-effective
- ability to have small teams concentrating on certain conditions
- high-quality care for patients – fewer cancellations, single rooms, etc.
- better patient safety owing to lower infection rates.

Patient case-mix at elective surgical units

Several of the reviews mention that elective units need to conduct rigorous risk assessments to ensure the appropriate case-mix of patients. For example, one review highlights that critical care services such as a HDU is needed for more complex elective surgery such as hip operations.

> *NCATs concerns about elective centres, as above, are about the case-mix of patients expected to be treated and the requirement for appropriate clinical risk assessments to ensure that only patients that do not need the support of other services such as critical care are treated . . . The range of patients that can be treated in this way would be extended significantly if there is an alongside critical care unit, but that then raises the cost of delivery of the service, and affordability of the system overall.*
>
> *NCAT*

Key supporting services

Within the reviews, the NCAT advises a clear assessment of the critical care support requirements for elective surgery centres, as many will have little access to on-site HDU or ICU support. In one review, the NCAT mentions that in cases where critical care support is not available, other models can 'enhance post-operative recovery and enable the elective site to carry out operations' but they do not provide any additional details.

Several reviews also highlight the need to ensure that there is sufficient capacity for acute services on the remaining sites, once elective care has been centralised. For example, one review states that 'refocusing existing acute services on fewer sites, there must be an increase in the capacity of those sites . . . and the modernisation of working practices.'

Implementation of proposals

Out of 11 reconfigurations of elective surgery (*Table 13*), four have been implemented in full, three are still in progress, three have been partially implemented and one proposal has stalled. It is highly likely that this poor record of implementation is more due to the interdependence of proposals with emergency services which are much more likely to face public opposition. Public opposition was evident in

TABLE 13 Implementation of elective surgery reconfigurations reviewed by the NCAT

Elective implementation	Yes
Implemented in full	4
In progress	3
Partially implemented	3
Stalled	1
Total	11

eight reconfigurations, although these campaigns tended to focus on blocking the downgrade of A&E or maternity services.

Three reconfigurations are still in progress as of January 2014. These involve building a new hospital (NCAT review in 2008), rationalising emergency services on to two sites (NCAT review in 2012) and a whole-system reconfiguration of hospital services across several hospitals (NCAT review in 2012). In two of the three reconfigurations that have been partially implemented, the centralisation of surgical services has not taken place, although other changes have taken place, for example centralising stroke services on one site or the closure of an A&E department.

Analysis of the evidence

What can we deduce from patterns of National Clinical Advisory Team activity and the local outcomes?

Elective surgery was a feature of < 15% of the NCAT's reviews. In nearly all cases, elective surgery was considered alongside changes to acute/emergency care. Most of the proposals involved the separation of elective surgery from acute and emergency services, as a way both to support sustaining services on the 'cold' site, which was often losing an A&E department, and to support the 'hot' site with a critical mass of senior staff, and the services required to support them.

Interestingly, the NCAT's reviews did not demonstrate a desire to reconfigure elective surgery services to create 'focused factories' in elective care, that is units that specialise on one procedure (e.g. cataracts) or specialty (e.g. orthopaedics), despite an evidence base to support this.[83]

To what degree does the National Clinical Advisory Team's position reflect the underlying evidence base?

As can be seen in *Table 14*, the NCAT's position, and by inference local reconfiguration proposals, is supported by the available evidence. Separating elective from emergency admissions can be more efficient and cost-effective. However, there are some studies that indicate that this separation may not reduce costs and can destabilise trusts that rely on elective work if the separation results in the trust losing elective surgery.

Ensuring that only appropriate patients are treated in elective centres is highlighted by the NCAT and professional guidance as well as evidence from the NCEPOD. Conducting a rigorous clinical risk assessment is essential, as high-risk patients may require the facilities of a full level 3 critical care unit, which may not be available on an elective-only site.

Critical care is viewed as a key supporting service by the NCAT, professional guidance and wider research evidence. The NCAT supports the provision of level 2 HDU services, as opposed to full critical care, if patients have been adequately assessed as low risk.

TABLE 14 The NCAT's position and evidence for elective surgery

Key issue	NCAT position	Department of Health and professional guidance	Supported by/other evidence
Separating elective surgery from emergency admissions	Supported (must ensure appropriate patient case-mix)	Supported RCS – cases should be streamed by risk	Improves quality and safety, little evidence on costs and can destabilise trusts
Case-mix of patients at elective surgical units	Ensure rigorous clinical risk assessment of patients to ensure that high-risk patients are not treated	No unit without full critical care facilities should treat 'high-risk' patients	Yes – NCEPOD
Key supporting services (24/7 cover)	Critical care/ICU (can be level 2 HDU if treating low-risk patients)	Critical care/ICU	Yes

The evidence gaps

Although the evidence supporting the separation of elective surgery from acute services on the basis of quality and safety is clear, there is little evidence about the optimum size of such facilities. Further studies into the cost and clinical effectiveness of different service volumes for standalone elective surgical facilities would be beneficial. Consideration could also be given to investigating the consequences of more differentiated models of elective care, such as 'focused factories' for procedures including cataracts, hernias and orthopaedic implants.

Section 5: primary and out-of-hospital care

Introduction

This section considers the NCAT's reviews of primary, community or intermediate care services and the available evidence on diverting activity from acute care settings into primary, community or intermediate care. Between 2007 and 2012, the NCAT conducted 28 reviews of primary, community or intermediate care services. Six reviews were repeat visits, so they covered a total of 22 reconfigurations. In 16 reviews, other services were also being reconfigured, for example A&E, urgent and emergency care or whole hospital/systems. None featured mental health. There is no obvious pattern in terms of the timings of the NCAT primary and community services reviews (see *Table 2*). There was an uneven geographical spread. It is notable that there were no NCAT reviews of community and primary services in the North East, West Midlands or South West (see *Table 4*).

What change was being proposed?

Generally, the proposals reflected the policy direction of delivering 'care closer to home' and included (numbers of proposals in brackets):

- changes to intermediate care beds – reprovide ($n = 7$), open or reopen ($n = 5$), fewer sites ($n = 2$), staffing ($n = 1$)
- develop primary care services ($n = 7$) and community-based services ($n = 10$) – often as part of whole-system reconfiguration
- consolidate primary care services ($n = 2$).

Key drivers for change

Finance

The most significant driver for change was finance, a key driver in 17 out of 28 reviews. Trusts' rationale was that developing new primary and community services would reduce or divert activity away from acute services and, thus, drive down overall costs, a belief reinforced the Department of Health strategy *Our Health, Our Care, Our Say*[84] and also the National Service Frameworks (NSFs) for Long-term Conditions and Older People.[85,86]

Workforce

A common driver for change was a shortage in the appropriate workforce, cited in 11 out of 28 reviews (primarily the 'whole-hospital/-system' reviews). Examples included:

- low numbers of consultant or middle-grade doctors in other service areas, most notably in urgent/emergency care or care of the elderly
- a substantial proportion of local GPs nearing retirement age and a high number of single-handed practices.

Implementing national guidelines/policy

There was also reference to specific national guidelines and/or the policy as driving the need to reconfigure services to provide care closer to home. The *Our Health, Our Care, Our Say* strategy or other national guidance was referred to in 8 out of 28 reviews.

Safety

There was no explicit reference to safety as a key driver for change in this type of review.

Access

In contrast to the other specialties considered in this report, the need to reconfigure services to improve access to care was identified as a driver in six of the 22 reconfigurations.

One review of community service reconfiguration sought to increase the provision of intermediate, step-down care for inpatients, as well as dramatically improve the availability of outpatient services and diagnostic services in the community. It was targeted at the needs of the over-65 age group. The NCAT's assessment of the plans was positive, strongly in favour of opening more intermediate care beds:

> *The overall plans for the further development of services at [X] Community Hospital are a step forward in improving health care and health care facilities for people in that area, and are to be highly commended.*
>
> *NCAT*

Other drivers

- The need to accommodate growing demand for services (owing to changes in the demography of the local population) was mentioned in six reviews.
- Poor quality of estate (i.e. the poor condition of the physical care setting), was mentioned in six reviews.

Key literature

This section reviews the relevant literature regarding primary and community-based services or intermediate care. Specifically, the review aims to answer the questions:

(a) How effective is it to divert activity away from acute care settings to primary, community or intermediate care?
(b) Is there evidence that this leads to financial savings?

Overall, the literature review provides mixed evidence for the assumptions that 'care closer to home' is effective and saves money.

Impact of community-based initiatives including more integrated models of care

There is mixed evidence about the impact of community-based initiatives on rates of hospital admission.[87–91] As *Table 15* demonstrates, the efficacy of many initiatives is disease specific, thus limiting their overall impact.

There are a wide range of reasons why interventions may not be effective. Bardsley *et al.*[88] suggest that poor implementation is a key obstacle to community-based initiatives achieving significant impact on rates of admission, while Roland and Abel[89] point to risks of supply-induced demand and to community-based alternatives sometimes having poorer outcomes than hospital-based care. Philp *et al.*[90] hypothesised that with further development, some of these interventions may prove effective, given that falls, polypharmacy, poor nutrition and lack of exercise are all associated with increased hospital bed use in older people. Edwards[92] and Simmonds *et al.*[93] highlight the current complexity and lack of coherence across and within services, all of which promote unplanned admissions.

It is also important to reflect that other outcome measures for community-based initiatives indicate more positive results for patients/service users. For example, evidence shows that there is high patient satisfaction associated with virtual ward[94] and case management programmes.[95]

Capacity for general practitioners to reduce urgent care demand in and out of hours

The evidence that changes within primary care can have a significant impact on admissions to hospital is also mixed. *Table 16* summarises the evidence provided by Purdy in a review of the evidence on avoiding hospital admissions.[91]

TABLE 15 Summary of evidence on community-based initiatives

Intervention	Impact on unplanned admissions	Disease area/client group	Evidence source
Case management	Reduces	Heart failure and some older frail	Purdy *et al.*,[87] Purdy[91]
Care co-ordination as part of integrated health and social care teams	Reduces	Older frail	Philp *et al.*[90]
Specialist clinics	Reduces	Heart failure	Purdy *et al.*[87]
Education and self-management	Reduces	Adults with asthma and COPD	Purdy *et al.*,[87] Purdy[91]
Exercise and rehabilitation	Reduces	COPD and cardiac	Purdy *et al.*,[87] Philp *et al.*[90]
Telemedicine	Reduces	Heart disease, diabetes, hypertension and older people	Purdy *et al.*[87]
Telecare	No impact	COPD, diabetes, heart failure	Philp *et al.*,[90] Bardsley *et al.*[88]
Virtual wards	No impact	High risk	Bardsley *et al.*[88]
Vaccine programmes	No impact	Asthma, COPD, older people	Purdy *et al.*[87]
Medication reviews	No impact	Older people, people with heart failure or asthma	Purdy *et al.*,[87] Philp *et al.*[90]
Falls prevention	No impact	Older frail	Philp *et al.*[90]
Hospital at Home	Increases	Elderly patients with a mixture of conditions	Purdy *et al.*[87]

COPD, chronic obstructive pulmonary disease.

TABLE 16 Impact of primary care factors on unplanned admissions

Factor	Impact	Disease area/client group
Small and single-handed practices	Depends on condition – can increase admissions	
Continuity of care	Reduce admissions (but some studies less conclusive)	Ambulatory care sensitive conditions
Out-of-hours care – clinician factors	Wide variation in admission rates between GPs	
Out-of-hours care – change in GP contract	None	
Quality of primary care as measured by QOF	Evidence inconclusive	

QOF, Quality and Outcomes Framework.

Capacity for intermediate care beds to reduce demand for acute beds

Intermediate care beds have the potential to reduce length of stay by facilitating a stepped pathway out of hospital (step down) or preventing deterioration that could lead to a hospital stay (step up). It is estimated that England has only half of the intermediate care capacity needed.[96] Although there is no clear correlation between the number of intermediate care beds and the use of hospital beds by older people, the areas with the highest bed use have been found to have excessive lengths of stay for patients for whom hospital was the transition between home and supported living.[97]

Evidence used by the National Clinical Advisory Team to support conclusions

In reviews of this type it was remarkable that NCAT reviewers did not refer to any specific sources of evidence for their recommendations or judgements. There were repeated references to how proposals to deliver care closer to home were congruent with the Department of Health White Paper *Our Health, Our Care, Our Say*.[84] However, as noted above, NCAT reviewers also noted the lack of evidence to support the hypothesis that improved provision in primary and community care can help to avoid admission to acute care.

In a small number of reviews, NCAT reviewers referred to the NSF for older people:

> *Elderly patients with acute medical and surgical problems should receive the same high quality care as other age groups (see NSF for Older People). Thus it is important that those patients with acute needs are directed to the appropriate service provider as soon as possible (right service first time).*
>
> *NCAT*

National Clinical Advisory Team findings and conclusions

Generally, NCAT reviewers agreed with the principle of reconfiguring primary, community-based and intermediate care services in order to care for people closer to home. The NCAT reviewers tended to accept the proposals and none were opposed to them in principle. However, they were circumspect about the resources, infrastructure and readiness of services outside hospital to accommodate the level of anticipated demand.

> *. . . we saw little evidence that the proposed investment in the community and primary care will result in fewer patients presenting to the acute trust and, as yet, the plans for admission avoidance and improved discharge planning have not been agreed and implemented. Presently there is a mismatch between the acute care strategy for reconfiguration and the timing of these community and primary care strategies which, it is hoped, would lead to admission avoidance and earlier discharge back into*

> *the community. We strongly support such interventions, but think the public would need the reassurance that all these steps have been implemented and are working before bed numbers are reduced.*
>
> *NCAT*

In one instance where the NCAT did not support the reconfiguration proposal, NCAT reviewers were strongly critical about the inadequate articulation of the long-term vision for the future of community hospitals in the area. In addition, NCAT reviewers found that there had been a lack of engagement with local GPs and social services.

Summary of the National Clinical Advisory Team's recommendations

National Clinical Advisory Team reviewers made a number of specific recommendations relevant to each service type.

Primary care

- NCAT reviewers identified GPs as key to managing urgent care demand.
- NCAT reviewers often recommended strengthening out-of-hours GP services as a consequence of the above point.

Community-based intermediate care

- Intermediate care beds need to be seen as an integral part of the whole system of care. They are key to reducing demand on acute beds for both 'step-up' and 'step-down' care.
- Acute and community services need to work together when planning intermediate care beds, especially the number and staffing required for both step-up and step-down beds.
- Clear protocols and guidelines should define the appropriate use of intermediate care beds so that intermediate care beds are not misused as a 'dumping ground'.
- Clear criteria should define when it is appropriate to discharge patients home or transfer them to a more acute setting (e.g. triggered by a 'modified early warning' – or MEWS – score).
- Older people's services should be supported by multidisciplinary teams with input from consultants in elderly medicine.
- The colocation of intermediate care service with community-based services were encouraged to improve the co-ordination of care and to integrate teams.
- The NCAT considered GPs able to provide the out-of-hours medical cover for intermediate care beds.

Other National Clinical Advisory Team observations

- NCAT reviewers frequently encouraged better partnership working across primary, community and secondary health care, as well as health and social care.
- They often challenged the robustness of assumptions within business cases – particularly around the anticipated impact of primary or community care strategies.
- They often described proposals about this service type as being poorly worked up or inadequately described.
- They expressed concern about the safety of the 'spot purchase' of community beds.

Implementation of proposals

More than half of the reconfiguration plans reviewed by the NCAT have been implemented in full, and a further seven have been partially implemented or are in progress (*Table 17*).

TABLE 17 Implementation of primary, community and intermediate care reconfigurations reviewed by the NCAT

Primary, community and intermediate care implementation	Number
Implemented in full	12
In progress	4
Partially implemented	3
Stalled	3
Total	22

Overall, reconfigurations have progressed in a relatively straightforward manner with minimal opposition or problems. For example, in one area, beds have been closed at one community hospital and reprovided at another refurbished site and the local press reporting of the changes seems relatively positive.

In contrast, in other sites it is clear that local residents and politicians do not support the closure of facilities for reprovision elsewhere – particularly where older people (and their carers) will face longer journeys as a consequence. One notable case was where the proposed reconfiguration was the permanent closure of beds in two community hospitals alongside a pilot of a service for intermediate care at home. In its review, the NCAT strongly criticised the proposal for not properly articulating the future vision for community hospitals in the area, and there was a lack of local engagement. A press report from April 2011 reveals that the county council health committee wrote to the Secretary of State for Health regarding their concerns about a lack of consultation and, subsequently, the trust had decided to reopen two wards at each of the community hospitals.[98]

Analysis of the evidence

What can we deduce from patterns of National Clinical Advisory Team activity and the local outcomes?

Nearly one-quarter of all reconfigurations reviewed by the NCAT involved change to primary, community or intermediate care, with a core driver of change being finance. Proposals focused on changes to intermediate care services or developments of primary and community services. Nearly all of the reviews anticipated that shifting activity away from hospitals would reduce cost.

One might have expected that change in this area would be easier to implement than in acute hospital care. However, our research suggests that implementation has also been problematic. Changes to community facilities can be just as contentious as acute facilities, and the interdependent nature of some of the acute and community proposals has also been an obstacle.

To what degree does the National Clinical Advisory Team's position reflect the underlying evidence base?

Table 18 summarises the views of the NCAT regarding primary, community and intermediate care. The NCAT's position on primary, community and intermediate care is strongly supported by Department of Health or professional guidance. However, the underlying evidence base regarding the effectiveness of primary, community and intermediate care is mixed. Where these types of intervention do have some impact, this is limited to a specific disease area or client group.

The evidence gaps

We found in a number of NCAT reviews that NHS trusts proposed to develop primary, community and intermediate care services that were delivered closer to home. Proposals were based on the assumption that strengthening these types of services in the community can help reduce more expensive activity in acute care settings, and thus release financial savings. We found some evidence to suggest that interventions in primary, community and intermediate care settings can reduce emergency admissions for

TABLE 18 The NCAT's position against evidence for primary, community and intermediate care

Key proposal/issue	NCAT position	Department of Health and professional guidance	Supported by/other evidence
Capacity for GPs to manage urgent care demand – in and out of hours	GPs can significantly influence urgent care demand – in and out of hours	Strong support	Little evidence out of hours – some evidence 'in hours'
Capacity for intermediate care beds to reduce demand for acute beds	Intermediate care beds (step up and step down) reduce demand for acute beds – providing supported by appropriate guidelines and protocols	Intermediate care speeds up hospital discharge, supports rehabilitation and avoids emergency hospital admissions	Mixed – KF review of the literature showed no clear correlation between use of intermediate care beds and acute beds
Capacity for community-based teams to reduce demand for acute beds	Community-based teams with appropriate support from consultants in elderly medicine can reduce demand for acute beds	Strong support	Mixed – requires whole-system support and well-executed delivery (e.g. case finding and case management)

KF, The King's Fund.

specific disease areas/client groups – and patients and carers report good experiences of them. We found no evidence to suggest that these interventions lead to cost savings through significant admissions avoidance.

It is possible that the limited scale and scope of attempts made so far in primary, community and intermediate care do not yield enough data. Thus, more studies of this type of service change on a larger scale could provide the missing information on cost and quality outcomes.

Section 6: maternity

Introduction

This section covers our findings from the NCAT's reviews of maternity service reconfigurations, and key findings from the literature about maternity service configuration.

The NCAT conducted 34 reviews of 24 reconfigurations involving maternity services. Maternity, therefore, featured in over one-quarter of NCAT reviews and just over one-fifth of the reconfigurations seen by the NCAT. Maternity reconfiguration proposals were most often reviewed at the same time as paediatric reconfiguration plans (21 times). They were part of a wider system reconfiguration with A&E, urgent and emergency care 15 times. There were nine reviews that involved maternity services exclusively.

The geographic spread is consistent with our findings for other service areas. London reconfigurations were reviewed by the NCAT most often, followed by Yorkshire and the Humber and West Midlands. There was a complete absence of the NCAT activity in the South West and the North East, reflecting those areas' general infrequent use of the NCAT as a source of clinical assurance (see *Table 4*).

The NCAT revisited reconfigurations it had previously reviewed on 10 occasions. Eight sets of proposals were reviewed twice, and two of them were reviewed for a third time. The wider system reconfigurations were reviewed over 3 or more years. The repeat visits of more straightforward maternity and paediatric service reconfigurations usually took place within 12–18 months.

The majority of the maternity reviews took place in 2009–12, and there was an increase towards the end of the period. This probably reflects the general increase in the NCAT's activity over a similar period. The single review in 2008 is notable, but the reason for the dip is not clear (see *Table 4*).

What change was being proposed?

Centralisation of obstetrics units

Eighteen of the 24 separate reconfiguration proposals reviewed by the NCAT sought to concentrate consultant-led obstetrics services on to fewer hospital sites, either within or across trusts (*Table 19*). If within a trust, it was frequently from two sites to one. A single exception included one proposal to maintain two obstetrics sites in hospitals serving rural populations. The trust in question was intending to redevelop and maintain acute services in a hospital that in other contexts might have been considered likely to downgrade, having relatively low levels of activity.

The six other reconfigurations did not involve obstetrics changes, but only changes to the midwife-led parts of the service portfolio.

Standalone midwife-led birthing units

Standalone MLBUs were mentioned in a significant number of the reviews, but there was not a consistent picture. There were 12 proposals to create standalone MLBUs, all on sites being prepared to lose consultant-led obstetric services, but there were also four proposals to close existing standalone MLBUs. One of these was the proposed closure of an MLBU opened only 8 years earlier in 2003 to replace the obstetrics units on the site.

Alongside midwife-led birthing units

The creation or expansion of alongside MLBUs was a common feature of plans to reconfigure obstetrics services. The NCAT saw nine plans of this type, but often an implicit assumption behind the centralisation of obstetrics services was that an existing alongside midwife-led unit would also absorb some activity from the site losing obstetrics services.

Key drivers

There were four key drivers of change in maternity services identified by the NCAT in its reviews (*Table 20*).

TABLE 19 Summary of proposed maternity care changes reviewed by the NCAT

What changes were being proposed	Number of reconfigurations
Concentrating consultant-led obstetrics services on to fewer hospital sites	18
Expanding alongside MLBUs	9
Creating or maintaining standalone MLBUs	12
Closure of standalone MLBUs	6
Continuing with two separate consultant-led obstetrics units in a multisite trust	1

TABLE 20 Summary of key drivers in maternity reconfigurations reviewed by the NCAT

Driver	Number of reconfigurations
Workforce	15
Dependency on paediatrics	10
Financial pressure	9
Safety	8

Workforce

The workforce was the key driver of 15 of 24 proposals to reconfigure maternity services. Inadequate consultant cover (particularly to meet RCOG standards) was the primary issue, with sites arguing that they could not recruit or fund the required numbers of consultant staff.

> *This decision in part has been driven by the need to provide more consultant cover on the labour unit in keeping with the recommendations of the Royal College of Obstetrics & Gynaecology. It should enable the Trust to raise consultant hours on the labour unit from 60 to 168 hours.*
>
> *NCAT*

Dependency on paediatrics

Many maternity reconfigurations ($n = 14$) were taking place in the context of concurrent changes to paediatric services. In 10 of these, the NCAT identified the dependency on the paediatric workforce for neonatal life support skills as a major driver of maternity reconfiguration.

In one review, the NCAT reported that the reconfiguration team had debated whether or not this obstetric dependency on paediatrics should dictate the configuration of maternity care. This is a key issue in maternity configuration and we explore it further later in this section.

> *There were conflicting views on the necessity of co-locating consultant-led maternity and paediatric care, but general agreement on the desirability of co-locating consultant-led maternity care, neonatal care and paediatric care as this ensures that services required for children are available to new-born as well as older children.*
>
> *NCAT*

The NCAT reviewed one reconfiguration proposal that involved the final withdrawal of obstetrics some 14 years after paediatric junior medical staff had been withdrawn. The interim solution, unique in the UK according to the NCAT report, had been to train midwives in neonatal resuscitation and have volunteer midwives and paediatric specialists sleeping overnight and at weekends to continue the maternity service. The site eventually deemed this arrangement unsustainable.

Safety

Concerns about the safety of maternity services were identified as drivers behind eight reconfigurations. Evidence of poorer outcomes was provided in three reviews, including one review that included an analysis of the 10 SUIs that had prompted the calling-in of the NCAT for advice. Other live safety issues that prompted NCAT reviews included high rates of poor outcome indicator hypoxic ischaemic encephalopathy (HIE).

In the five other reviews, there were concerns about the capacity of the service to safely staff, and this had led to a number of closures. In one, the midwifery-led service had closed on 82 separate occasions, and received a written notification of failure to comply with CQC regulations.

Similar problems were described in one large-scale review:

> *The basis and rationale for this is the difficulty of adequately staffing twelve units, which has led to unit closures. The closure of units as a result of extreme bed pressures or poor staffing levels causes distress to women who are only informed at the very last minute, sometimes even in labour, that the unit they were expecting to have their baby in is closed.*
>
> *NCAT*

Financial pressures

A significant driver of maternity service reconfiguration was financial pressure. Nine proposals were driven by finance. This occurred when maternity was part of a system-wide reconfiguration plan and/or in proposals to close down standalone MLBUs.

> *Furthermore this review of services (on the basis of a majority decision) recommended that [X] remained closed. Although there were a number of reasons for this, the team felt this was an important contribution towards the necessary reduction in maternity costs.*
>
> *NCAT*

Access

Improving access to services was not a core driver of the maternity reconfigurations. However, proposals to develop MLBUs were frequently designed to preserve local access for women.

Other

Other drivers identified by the NCAT included low activity volumes (five) at maternity units. Four proposals were explicitly designed to make sure that choice of birth location was available for women giving birth. Other reviews mentioned the quality of the birth environment as a reason for change, but this has not the most important driver in those cases.

Key literature

The NCAT reviews identified a number of core questions faced by providers when reconfiguring maternity services.

- Should obstetric units be centralised to provide increased consultant presence?
- Is there a safe and sustainable role for standalone MLBUs?
- Should MLBUs be set up alongside obstetric units?
- Do obstetric units need to be colocated with paediatric inpatient units?

We explore below the available evidence for each of these questions.

In this section we look at evidence to support decisions about the configuration of maternity services, including evidence on staffing and its impact on care quality and safety, as well as the available evidence about the impact of place of birth on outcomes.

It is important to note that the National Institute for Health and Care Excellence (NICE) has just issued draft guidance[99] which clarifies their position on a number of these issues, and in the future we anticipate that this guidance (if accepted) will guide commissioning decisions. The guidance recommends that commissioners and providers should ensure that all women have the choice of four different birth settings:

- obstetric unit
- standalone MLBU
- alongside MLBU
- home birth.

Further recommended by NICE is that low-risk multiparous women (*Box 2*) should be advised to give birth in a midwife-led unit (standalone or alongside) or at home because the rate of intervention is lower and the outcome for the baby is no different from that with an obstetric unit (*Table 21*).[100]

Also recommend by NICE is that nulliparous women should be advised to give birth in a midwife-led unit. However, as there is an increased risk for first-time births planned at home, they recommend that first-time mothers be advised of this risk (*Table 22*).[100]

BOX 2 Risk assessment of pregnancy

Risk assessment of pregnancy

National Institute for Health and Care Excellence guidelines[99] specify a set of pre-existing medical conditions and previous pregnancy complications that indicate an increased risk of complications during labour. They suggest advising women with these indications to give birth in an obstetric unit.

The RCOG recently provided guidance[101] for reconfiguration that included rough estimates of the proportion of pregnancies that can be classified as high/low risk.

- One-third of women can be assessed as at low risk.
- One-sixth of women can be assessed as at high risk.
- Half of women cannot be assessed for risk level – largely first-timers and multiparous women with first-pregnancy complications. Twenty-five per cent of this group will require specialist care prior to labour (e.g. because of fetal growth restriction or maternal hypertension).

TABLE 21 Outcomes for the baby for each planned place of birth for low-risk multiparous women

Incidence per 1000 births	Home	Standalone MLBU	Alongside MLBU	Obstetric unit
Babies without serious medical problems	997.7	997.3	997.6	996.7
Babies with serious medical problems	2.3	2.7	2.4	3.3

Source: Birthplace Study,[100] © BMJ, reproduced under the terms of the Creative Commons Attribution Non-commercial Licence: http://creativecommons.org/licenses/by-nc/2.0/legalcode.

TABLE 22 Outcomes for the baby for each planned place of birth for low-risk nulliparous women

Incidence per 1000 births	Home	Standalone MLBU	Alongside MLBU	Obstetric unit
Babies without serious medical problems	990.7	995.5	995.3	994.7
Babies with serious medical problems	9.3[a]	4.5	4.7	5.3

a Differs significantly from obstetric unit rate.
Source: Birthplace Study,[100] © BMJ, reproduced under the terms of the Creative Commons Attribution Non-commercial Licence: http://creativecommons.org/licenses/by-nc/2.0/legalcode.

Consultant cover in obstetrics units

Maternity services need to be able to respond to emergencies, including unforeseen complications during childbirth. Obstetricians provide interventions such as caesarean sections and instrumental delivery to try to ensure good outcomes for mother and baby. This kind of obstetric emergency activity in maternity units is frequent and constant.[102,103] However, consultant obstetricians have traditionally not been present on labour wards during the night.[104] There is evidence of worse outcomes for mother and baby when delivery takes place out of hours. Interventions and delivery complications were more likely to occur out of hours and so too were emergency caesarean sections.[103] The National Patient Safety Agency (NPSA) found that the most likely time for severe fetal compromise to occur was between 20.00 and 04.00.[104] A retrospective study of births in Scotland found that delivery outside the normal working week was associated with increased risk of neonatal death owing to intrapartum anoxia – extreme oxygen deprivation during birth.[105]

It is argued that the lack of consultant presence offers an explanation for the poorer outcomes. Less experienced operators have been associated with adverse outcomes for instrumental births.[106] Two other studies found that more consultants were associated with improved outcomes, including fewer stillbirths and fewer readmissions.[107,108] Finally, the Centre for Maternal and Child Enquiries (CMACE)[109] discussed instances where consultant review could have made a difference to an outcome of maternal death. It said that the women were not seen by an appropriately trained doctor in time, with a few never being seen by a consultant:

> *The reasons for this were, generally, a lack of awareness of the severity of the women's illness by more junior or locum maternity staff, both doctors and midwives. In a few cases, the consultant(s) did not attend in person until too late and relied on giving advice over the phone.*
>
> *p. 19*

This has led to a conclusion that much greater consultant obstetrician presence on labour wards should be provided. The *Safer Childbirth* guidelines therefore recommend a 60-hour consultant presence for units of 2500–4000 births per year, 98 hours for 4000–5000 births and 168 hours for more than 5000 births per year (*Table 23*).[102]

The capacity to meet Royal College guidance targets is partly dependent on current job planning practices. An example job plan attached to *Safer Childbirth* suggests that a consultant obstetrician would expect to be present on the labour ward for only two half-day sessions.[102] In 2008, the Healthcare Commission[110] was not able to find reliable information about the number of programmed activities that consultants were spending on obstetrics:

> *The extent of the variation in this data is unrealistic and did not provide us with confidence that trusts were clear about how much time their consultants spent on obstetrics. Bearing in mind the importance of obstetric commitment identified above, trusts need to address this with some urgency.*

If obstetric units are to comply with College Guidance, the National Audit Office calculated that the number of consultant obstetricians required would be significantly higher than the number in the workforce presently.[111]

Alongside midwife-led birthing units

As the draft NICE guidance reflects, the available evidence suggests that for women at low risk of complications (see *Box 2* for definition of risk) MLBUs, when provided alongside consultant led obstetric units, are as safe as consultant-led obstetric units and are associated with benefits in terms of patient experience.

The key source of evidence for the NICE guidance is the Birthplace Study of 65,000 low-risk births in England.[100] This study found no significant differences in the likelihood of adverse outcomes for alongside MLBUs and that they were also associated with significantly fewer interventions, including caesarean

TABLE 23 *Safer Childbirth*-proposed consultant staffing targets for obstetric units[102]

Size of unit (births/year)	Consultant presence	Target year of adoption
< 2500	*'Units to continually review staffing to ensure adequate based on local needs'*	
2500–4000	60 hours	By 2009
4000–5000	98 hours	By 2009
5000–6000	168 hours	By 2010
> 6000	168 hours	By 2008

sections, than obstetric units. The RCOG has been very positive about alongside MLBUs because they ensure ease of transfer between low- and higher-risk care.[101]

A Cochrane review of trials comparing midwife-led care, medically led care and other models also found that midwife-led care offered benefits, including fewer interventions and lower likelihood of pre-term births, while there were no differences in other adverse outcomes.[112] Another Cochrane review of trials comparing 'alternative institutional birth environments' with hospital environments finds better outcomes, fewer interventions and better reported patient experience in the alternative settings.[113]

Standalone midwife-led birthing units

The Birthplace Study[100] found that the likelihood of an adverse outcome in a standalone MLBU was not significantly different from that in an obstetric unit and rates of intervention were lower, but that there were high rates of transfer for first-time women.

The likelihood of transfer for first-time mothers in standalone units is around 36%.[99] The transfer rate does decrease for multiparous women – just 9% of their births planned in standalone MLBUs were transferred.[100]

While draft NICE guidance (drawing on the Birthplace Study) recommends that all low-risk women can use a standalone MLBU, the previous NICE guidance suggested that women were told that if something went wrong at home or in a standalone MLU, the outcome could be worse than if they were in an obstetric unit.[99]

The professional bodies RCOG and RCM have supported the provision of intrapartum care in standalone MLBUs,[114] but the RCOG suggests that this applies only for multiparous, low-risk women.[101] The RCM emphasises the reduced interventions and other benefits of standalone units and sees them as valuable choices available to women in a maternity service portfolio.[115] There has been a small increase in their popularity in recent years: the proportion of births delivered there increased from 1.6% to 1.8%.[116] During 2001–13, 30 new units were opened while 24 were closed, leaving 59 in 2013.[116]

Home births

The Birthplace Study, now reflected in the draft NICE guidance, found that there were no significant differences in the likelihood of adverse outcomes for multiparous women giving birth at home compared with obstetric and MLBU settings.[100] The transfer rate from home to hospital for multiparous women was also low and similar to MLBU settings at 12%.[100] A large-scale Dutch study[117] also found that planned home births to low-risk pregnancies were as likely to result in adverse outcomes for mothers as those planned in hospital.

However, the Birthplace Study found that there are higher risks for first-time mothers giving birth at home. Planned first-time home births were found to have fewer interventions but poorer perinatal outcomes, and nearly half are transferred to an obstetric unit during labour (45%).[100]

There is an absence of research utilising experiments to explore the difference between settings. A Cochrane review of planned hospital birth versus home birth found only two trials comparing the two. It argued that there is scope for more experimental research into this area.[118]

Transfer risks

There is an absence of research looking at the risks associated with transferring to obstetric units from other settings. This is highly relevant for the evaluation of midwife-led units and also the way that centralising obstetrics units changes the risks facing mothers who go into labour at home. Fewer units and standalone units being left in their place will mean a greater number of transfers. Understanding and quantifying the risks associated with transfer would help clinicians and mothers make better-informed decisions about whether to give birth at home or in a local standalone MLBU. It would also help commissioners be more confident in the decisions they have to make when configuring maternity services.

One Dutch study found that women who changed risk status from 'low' to 'high' during labour had worse outcomes and that a transfer time from home to hospital in the Netherlands of more than 20 minutes by car was associated with increased risk of mortality and adverse outcomes.[119] One author has suggested that the risks associated with centralising obstetric care are comparable with centralising emergency care – 1% increased mortality per 1 km.[120]

Other facilities and services required for obstetrics

The relationship between the practice of maternity care and paediatric care is close. Once a child is born, they may require basic life support immediately, and, wherever babies are born, this is expected to be provided by midwives if nobody else present possesses the skills. If the baby is born in a hospital setting, where pregnancies assessed as higher risk to mother or child routinely take place, the *Safer Childbirth*[102] guidance states:

> *In addition, in a hospital setting, the birth of a preterm, ill or congenitally abnormal baby may occur and, thus, there must be immediate, on-site availability of clinicians (doctors, advanced neonatal nurse practitioners or midwives) with advanced neonatal life support skills (including endotracheal intubation). The failure to provide this level of support may result in unfavourable outcomes and will fall below an acceptable standard of care.*
>
> *p. 25*

It also states that 'paediatric staff must be competent in neonatal life support' and then states the level of staffing expected for an obstetric unit providing neonatal special care. This includes 24-hour availability (within 30 minutes) of consultants and resident middle-grade doctors trained and assessed in advanced neonatal life support and 'STs years 1–2 and advanced neonatal nurse practitioners (ANNPs): 24-hour cover by a ST1/2 or ANNP who is trained and assessed as competent in neonatal life support and whose only responsibility is to the neonatal and maternity services'.

The use of ANNPs exclusively to provide resident cover advanced resuscitation skills without resident middle-grade doctors has sustained an obstetrics unit delivering 2000 births per year for 10 years in Ashington. This enabled obstetrics to remain open separate from paediatric inpatient services, which were never on site in the first place, and after a paediatric middle-grade post was withdrawn in 1995. We explore the use of ANNPs in neonatal services in further depth in the paediatric section.

Obstetric services are also the setting for pain relief during labour and anaesthetists are currently involved in the care of over 60% of pregnant women.[69] As such, the *Safer Childbirth* guidance insists that obstetrics units must have access have to dedicated obstetric anaesthesia services.[102] The RCA guidance states that consultants in these services must run a minimum of 10 anaesthetic daytime sessions per week.[69] The duty anaesthetist must be on site in units offering epidurals for 24 hours, and ought not to be primarily responsible for elective work or ICU and cardiac arrests in smaller units. An on-call consultant anaesthetist should be available within 30 minutes of the delivery suite at all times.

A HDU in the same hospital as an obstetrics unit is required by the profession's guidance in *Safer Childbirth*,[102] but 'prompt access to a high-dependency unit, intensive care unit and/or resuscitation facilities must be available'. The guidance allows for local circumstances: 'The extent to which these facilities are made available will depend on the workload, case-mix and the local circumstances' (p. 38). However, all obstetrics units are required to offer some high-dependency care, including cardiovascular blood monitoring, pulse oximetry and rapid transfusions.

In response to concerns about the causes of death for women after childbirth, the Confidential Enquiry into Maternal and Child Health (CEMACH) recommended that all facilities should offer access to specialist perinatal mental health teams with the capacity to care for women at risk of postpartum mental illness.[121]

National Clinical Advisory Team findings and conclusions

The NCAT expressed support for proposals to reconfigure maternity services in nearly all cases. It eventually offered its support for 22 out of the 24 reconfiguration proposals that it saw, almost always coming round to the view that progress should have been made with the plans when it revisited the sites.

In 2013, the NCAT produced guidance on the reconfiguration of maternity and children's services. The guidance was intended for their own visitors, as well as commissioners and managers considering reconfiguration. The document deals mainly with maternity services. In our analysis below we draw on this document as well as the positions that the NCAT expressed in its reviews 2007–12.

Centralisation of consultant-led obstetric services

The NCAT has offered consistent support for the centralisation of obstetrics units in order to meet RCOG *Safer Childbirth*[102] recommended minimum consultant staffing levels.

> *There should be a consultant presence on the labour unit commensurate with unit size and in accordance with the recommendations of 'Safer childbirth' (published 2007). This will often favour the creation of obstetric units with more than 2500 births to be clinically sustainable and affordable (see RCOG report).*
>
> *NCAT*

The NCAT has not always stuck to the minimum threshold of 2500 births in their reviews of obstetric service centralisation, but it have supported the move to higher numbers of births per unit. It frequently refer to the long-run *Safer Childbirth* target of 98 hours presence for units with 4000–5000 births per year, and 168 hours presence for units hosting more than 5000 births per year.

In the one case where the commissioners and providers were resistant to centralisation, the NCAT continued to express scepticism that the plan to maintain two separate obstetric units could be sustainable in the long term, even for a rural population. The first time the NCAT reviewed the local plan, it opposed it. The proposals were reviewed again 6 months later, when the NCAT then supported 'making progress' with the modified plans, while maintaining its reservations about sustainability.

Its guidance, written 2 years later, suggests that service quality and safety ought to take precedence over local access in rural areas:

> *NCAT supports the life course approach to women's health care [. . .] this means that women have access to women's health and maternity services close to their homes. In remote and rural areas this can create challenges to service provision and departure from this norm [of access close to women's homes] may be acceptable to both commissioners and service users.*
>
> *NCAT guidance*

On the second occasion that it criticised proposed obstetric centralisation, the NCAT complained that this did not go far enough, planning for a maximum of 6000 births per year per unit at six units and a level of consultant presence short of the relevant *Safer Childbirth* guidelines:

> *However, the restriction on unit size to 6000 births is likely to compound any medium to long term proposals for sustainable benefit and consequently hampers radical thought and solutions . . . the standards to which the maternity services aspire are less rigorous than the RCOG standards and therefore the reconfiguration may not be sustainable in the future in the longer term without plans for further reconfiguration.*
>
> *NCAT*

The NCAT has also noted concerns about the upper limits for obstetric centralisation. Reflecting the *Safer Childbirth* guidance, it states that 'large obstetric units (over 8000) can be advantageous in creating a large obstetric workforce but can cause organisational problems'. It provides anecdotal evidence that the midwifery workforce is less happy working in large units, which it says could be perceived as impersonal by women and their families.

Alongside midwife-led birthing units

The NCAT supports low-risk women being cared for in maternity-led or home environments rather than consultant-led units to improve outcomes and cost-efficiency.

The NCAT consistently supports the creation of midwife-led units alongside consultant-led obstetrics units in order to provide choice of a non-obstetric birth setting for women at low risk of complications while minimising the risks associated with transferring to an obstetric environment during labour.

The NCAT reports that alongside MLBUs bring a range of benefits including better experience, lower costs and rapid transfer for pain relief. It also suggested that they could reduce activity in the consultant unit.

Standalone midwife-led birthing units

The NCAT's position on standalone MLBUs has been more mixed. The NCAT frequently (on nine occasions) supported retaining a standalone MLBU on a site losing its obstetric service or suggested that commissioners explore the option of a standalone MLBUs to replace the current obstetrics service:

> *The team was surprised at the apparent lack of appetite to explore further the possibility of developing a free standing midwife led birthing unit at the [. . .] site alongside a range of maternity services that would remain after removal of in-patient services.*
>
> *NCAT*

On the other hand, the NCAT supported all four reconfigurations seeking to close down standalone MLBUs.

> *A few hundred may have to travel further once for their delivery whilst several thousands would have improved safe and quality care and would have the options provided in maternity matters – home births, obstetric unit births or midwifery lead (co-located) unit births.*
>
> *NCAT*

The NCAT did not maintain a consistent threshold for the sustainability of a standalone MLBU. The NCAT had previously suggested a threshold of 500 births per year for viability but in a later review it suggested 350 births per year. The NCAT's guidance states that standalone units 'are unlikely to be cost-effective unless other services are offered on the same premises e.g. antenatal care and/or the midwifery team has flexible working patterns' (unpublished report). It suggests that midwives could be on call for births within the unit. However, in one review the NCAT reports standalone units struggling to recruit midwives, who prefer to work alongside obstetric services.

As well as standalone MLBU sustainability concerns, the NCAT was worried about safety for certain groups of women. Drawing on the Birthplace Study's[100] findings and NICE's guidance for intrapartum care,[99] the NCAT emphasises the finding that first-time mothers have much higher rates of transfer during labour, mostly for pain relief. The NCAT suggests discouraging this group's use of standalone MLBUs in one review.

The NCAT recommends that all midwife-led units, particularly standalone MLBUs, must have appropriate and clear protocols for obstetric transfer, continuing professional development for midwives and clear clinical governance. In one review, the NCAT welcomed a proposal to integrate the obstetric unit and standalone MLBUs into a clinical network, in which the midwives would rotate through different settings. It supports the idea of maternity networks being coterminus with neonatal and paediatric clinical networks.

Taking its support for both closures and expansion of standalone MLBUs altogether, the NCAT do not see standalone units as **necessary** parts of maternity services portfolios if alongside units exist, but it does see them as valuable assets if they can be made sustainable.

Clinical codependencies

The NCAT also recommends that gynaecological services be provided on the same site as obstetric services. This is particularly an issue for smaller hospitals:

> *NCAT visitors will need to understand the impact on the provision of gynaecological services when consultant obstetricians also provide the local gynaecological services; conversely there is a need for appropriate gynaecological skills and experience in management of some obstetric emergencies (notably massive post-partum haemorrhage).*
>
> *NCAT*

The NCAT says that obstetrics units should be colocated with anaesthetic units in order to provide epidurals and monitoring during labour. It also states that obstetric services should be planned on the same location as hospitals with A&E units.

The major link was with paediatrics. The NCAT consistently recommends that maternity and paediatric inpatient units are colocated. The NCAT did not look at any plans to break the link between obstetric units and the paediatric workforce by adopting a neonatal model, separated from the paediatric inpatient unit relying on ANNPs or other roles to provide advanced life-support skills in a 'standalone obstetric unit'. It did comment on the scenario, however.

One early reviewer was firmly against such a model:

> *This is an untested model and one I personally find concerning – until you achieve resident consultants, your neonatal service is only as safe as the most senior staff member resident . . . ANNPs do not have the diagnostic or problem solving skills of doctors . . . [sic] I was interested and relieved that [the site] seemed already to have rejected this as a possibility.*
>
> *NCAT*

However, the NCAT's position was not always so critical and seems to reflect different reviewers' opinions. Indeed, in its guidance it sounds a much more positive note about ANNP-led units' safety:

> *Obstetric units should always be co-located with neonatal units capable of resuscitating the flat or blue baby. Whilst the skills of midwives and others continue to be developed, the availability of advanced care neonatal nurse practitioners (ANNPs) remains limited and as yet the sustainability of units relying on ANNPs has not been widely tested in England . . . NCAT strongly supports the development of ANNPs, this should be a priority for the Workforce Intelligence Unit and should address the problem of backup requirements (medical cover).*
>
> *NCAT*

Working practices and relationships

On two occasions, the NCAT reviewed multisite trusts and found significant differences and separate working practices between different sites. The NCAT urged them to reconcile differences and create a set of common working practices across the sites.

Implementation of proposals

Just 13 of the 24 maternity reconfigurations that the NCAT reviewed have been implemented in full. Nine have not yet been implemented (*Table 24*).

Underlying these overall numbers, just 9 of the 18 obstetric ward closures have been implemented. Four of the other planned closures have stalled and four remain in progress. We did not find conclusive information on the status of the last planned closure. As might be expected, the closure of MLBUs appears easier to complete – four out of five proposals to close a MLBU have been implemented.

We found evidence of local opposition in local and national news reports for every maternity reconfiguration that the NCAT looked at. Where maternity was part of wider hospital reconfigurations, there were always significant 'save our hospital' campaigns. Narrower maternity reconfigurations still met with significant resistance in the form of demonstrations, petitions, and public criticism from local MPs and council bodies.

The concerns behind opposition to maternity centralisation included worries that maternity would be the 'thin end of the wedge', with other services being lost from the same site. Some campaigns also raised concern over the safety implications for unscheduled labours when travel time increased. One member of the NCAT team who we interviewed reported that people also placed significant value on simply having the option to give birth locally and being able to put the name of their hometown on the birth certificate.

Analysis of the evidence

What can we deduce from patterns of National Clinical Advisory Team activity and the local outcomes?

The evidence from NCAT reviews suggests a continuing and significant trend to centralise obstetric services driven by workforce pressures and the clinical dependence on paediatrics. These workforce pressures in paediatrics are driving maternity service reconfiguration through obstetric units' dependence on paediatric medical staff to resuscitate very ill newborns. We also found evidence of live safety concerns and financial pressures driving maternity reconfiguration.

Like A&E, maternity services are highly valued by their local population, and the NCAT's reviews picked up strong local opposition. As we found for emergency care, a significant proportion (9 of 24) of the proposals to reconfigure maternity services reviewed by the NCAT had yet to be implemented. We concluded that five reconfigurations had stalled outright and four were still in progress. Bearing in mind that these reconfigurations all requested NCAT reviews in 2012, this suggests that maternity reconfiguration can be very protracted and difficult to achieve.

TABLE 24 Implementation of maternity care reconfigurations reviewed by the NCAT

Maternity	Number
Implemented in full	13
In progress	5
Partially implemented	1
Stalled	4
Unknown	1
Total	24

To what degree does the National Clinical Advisory Team's position reflect the underlying evidence base?

As can be seen by our analysis of key issues in *Table 25*, the NCAT's position on maternity services was broadly consistent with the underlying evidence base, and the NCAT frequently cited some of the key professional guidance (including the *Safer Childbirth* guidance from the RCOG and other Royal Colleges) and some of the key broader evidence, in particular the Birthplace Study.

The evidence gaps

We found good evidence to support an increase in the hours of consultant presence in maternity services, but not necessarily to support centralisation to reach greater numbers of consultants per unit. Further research would be beneficial to understand how staffing rotas and job plans might be constructed to meet the objectives of longer consultant labour ward presence with the minimum number of consultants, while maintaining an acceptable work–life balance.

There is a lack of evidence about standalone MLBUs, namely their clinical effectiveness and cost-effectiveness; in particular, the risks associated with transfer time for first-time mothers remain poorly understood. Further research into their safety and sustainability would be welcome. That would form part of work to understand:

- the reasons why almost as many standalone MLBUs have been closing as have opened
- whether or not the examples of diminishing maternal demand for standalone MLBUs after their opening is a widespread phenomenon
- the reasons women choose different birth locations.

TABLE 25 The NCAT's position against the evidence for maternity care

Key issue	NCAT position	Department of Health and professional guidance	Supported by/other evidence
Aim for 24/7 (168 hours') consultant presence in obstetric units	Supported	Supported	Evidence of benefits of senior cover
Minimum consultant numbers to provide cover	Support the RCOG's recommendations	Model nine consultants for 40-hour presence	Lacking evidence on specific staffing numbers
MLBU – alongside obstetric unit	Supported	Supported	Yes
Standalone MLBU	Supported initially, but concern over sustainability and transfer risks	RCOG concern over transfer rate for first-time mothers; RCM	Yes for low-risk women. More evidence needed around transfer risks and sustainability
Home births	Rate should be increased	Choice must be provided	Yes – for low-risk multiparous women Some additional risk for nulliparous women
Access to specialist support for newborn child	Supports co-location with neonatal services to provide. Query ANNP sustainability	Supports colocation with paediatrics to provide BAPM guidelines allow ANNP-reliant hospitals	Use of ANNP-only units shown to be safe, but sustainability unproven
Other key clinical codependencies	Critical care Acute surgery	Required	Yes

BAPM, British Association of Perinatal Medicine.

Section 7: paediatrics

Introduction

This section covers our findings from the NCAT reviews of paediatric and neonatal reconfigurations as well as key findings from the literature.

The NCAT conducted 27 reviews of 18 reconfigurations involving paediatric and neonatal services, accounting for roughly one-fifth of the NCAT's activity between 2007 and 2012. Fourteen out of 18 paediatric reconfigurations also involved maternity services. The four reconfigurations that did not involve maternity changes were a neonatal network reconfiguration, an acute children's services reconfiguration and two whole-system reconfigurations. The number of paediatric NCAT reviews conducted each year has seen an upward trend after a blip in 2008 (see *Table 2*).

The NCAT's reviews of paediatrics were pretty evenly spread, with the exception of London, which had nearly double the number of any other region. Yorkshire and the Humber also had a high number of reviews, but this was driven by two reconfigurations with multiple visits (see *Tables 4* and *6*).

What change was being proposed?

Paediatric inpatient centralisation

Centralisation, or closure, of paediatric inpatient units was the most common feature of proposals reviewed by the NCAT (*Table 26*). Fifteen of the 18 reconfigurations seen by the NCAT at some point included the closure of one or more inpatient units and centralising the services on another/other site(s).

The sites chosen to lose their paediatric inpatient unit would usually be the sites that had the lowest level of activity – the smallest hospitals. This closely follows guidance offered by the RCPCH in its 2011 *Facing the Future* review,[11] which calls for centralisation involving the country's smallest inpatient units and replacement of most of those with PAUs.

Assessment units on 'losing' sites

The second major theme in paediatrics was the implementation of units dedicated to an ambulatory model of care replacing inpatient units. A typical reconfiguration proposal was discussed by the NCAT:

> *The Trust is proposing that the inpatient service at [X] closes; other options have been considered such as the creation of a paediatric assessment unit within limited hours, e.g. 10am to 10pm, or having no paediatric assessment unit but a continuation of outpatient services on site. The clinical risk profile and financial modelling indicate that there is very little to choose between the two latter models, but there was a significant clinical and financial risk with continuing the status quo. Hence it has been concluded that, in order to preserve patient choice, the preferred option would be to transfer inpatient paediatric services to [X] and retain a paediatric assessment unit at [X], opening hours to be decided.*
>
> *NCAT*

TABLE 26 Summary of proposed paediatric and neonatal care changes reviewed by the NCAT

What changes were being proposed	Number of reconfigurations
Centralisation of paediatric inpatient units	15
Retention or creation of standalone PAUs	7
Closure of standalone PAU	1
Reconfiguration of a neonatal network – downgrading LNUs	1
Continuing with two separate paediatric inpatient units in a multisite trust	1

LNU, local neonatal unit.

Just under half (7 out of 15) of the centralisation proposals seen by the NCAT in the period 2007–12 involved creating or keeping a standalone PAU on a site losing its inpatient unit in the same process. PAUs are designed to offer observation, treatment and discharge of children without admitting them as inpatients. Standalone PAUs are distinguished from alongside PAUs, which are set up alongside a paediatric inpatient unit. Any children deemed ill enough to be admitted to hospital must be transferred to an inpatient unit.

However, these replacement standalone units were not always a feature of the proposals seen by the NCAT. Just 7 out of the 15 reconfigurations that involved inpatient unit closure followed this model.

There was no consistent model for the opening hours of PAUs, which are not usually kept open overnight. In one trust wrestling with this issue, the adjacent midwife-led services were a concern to the commissioners, and they felt that maintaining 24/7 PAU opening hours was the preferred option in order to provide backup expertise to colocated midwife-led maternity services. Most other trusts proposed opening hours between 12.00 and 18.00 owing to low expected activity during nights.

Although PAUs were often a feature of the new service configuration, in one case seen by the NCAT the trust was planning to close a standalone PAU. The trust put this down to a decline in activity.

It ought to be noted that other reconfigurations seen by the NCAT might have involved PAUs being retained on the closing sites, but this was not made explicit in the NCAT review. However, we view this to be unlikely because they are such significant parts of the service portfolio.

Exceptions

Other than the aforementioned neonatal network review, there were two other exceptions to the typical proposals. The NCAT twice reviewed the plans of a single trust who were planning to avoid centralisation and retain two paediatric inpatient units.

Key drivers

Workforce

Workforce pressures were by far the most significant driver of paediatric reconfiguration, cited as a significant driver in 16 of the 18 reconfigurations of paediatric services (*Table 27*). The NCAT drew attention to this pressure at the middle grades, which took the form of recruitment difficulties for many trusts:

> *There is a nationwide shortage of middle grade doctors, exacerbated by current immigration restrictions. The working time regulations together with the shortage of doctors have meant that complete staffing of rotas has become extremely difficult across the country.*
>
> *NCAT*

TABLE 27 Summary of key drivers in paediatric and neonatal reconfigurations reviewed by the NCAT

Key driver	Number of reconfigurations
Workforce	16
Financial pressures	8
Safety concerns	6

The workforce pressures were given further strength by the standards and direction set in *Facing the Future*, published by the RCPCH in 2010.[11] The RCPCH recommends a minimum of 10 full-time equivalent (FTE) doctors for every level of seniority (junior, middle grade and consultant) in order to staff a 24/7 rota. Attaining this number of consultant and middle-grade doctors was the rationale for many of the reconfigurations of paediatric services reviewed by the NCAT after 2010:

> *There is a small inpatient paediatric unit at [X], supervised by on-site and on-call junior staff at SHO level without middle tier supervision and on-call at home consultant cover (5 1/2 full time equivalents). These medical staff also provide cover for the small special care baby unit which supports the obstetric unit. The unit had already experienced problems of recruiting and retaining consultants and it was feared that with the coming retirement of the more senior consultants, the unit was under threat. Already there had been an episode where the unit had to close suddenly, not only with consequences for the paediatric unit but also the obstetric unit.*
>
> *NCAT*

Seven reviews included local concern that activity was too low for continued training accreditation, which was driving the plans to reconfigure. As we discuss further, the average length of stay for paediatric admissions has fallen markedly, leaving many units with small numbers of beds. In one review, the low level of activity had triggered the local deanery to remove training posts. In others there were concerns about staff retaining their skills in small units.

Financial drivers

Financial pressures were a driver behind eight reconfiguration plans. These were all in instances where paediatric reconfiguration was occurring as part of a wider system change. The single exception came in a review where the NCAT looked at the option of rapidly reconfiguring paediatric services. The financial pressures had previously driven a wider reconfiguration in this multisite trust, but were also affecting its ability to sustain two separate paediatric inpatient units.

Safety concerns

The shortages of middle-grade and consultant doctors in the workforce had also triggered concerns about the safety of services. Six reviews reported local current safety concerns prompted by patchy and thin medical cover.

Live concerns were present in one of these reviews where the NCAT reviewed serious incidents recently experienced by the trust. The NCAT discussed the standard of neonatal care provided at one of the sites and argued that the concerns raised by this case showed the need to improve working relationships between the sites, regardless of whether or not the paediatric services were centralised:

> *These failures of management in what are standard neonatal emergency situations raise questions of the competence of the staff and safety of this unit. It is an absolute requirement of a neonatal service however small that the staff are competent to assess and stabilize an unexpectedly ill infant. These problems echo the recommendation made in our main report about the urgency of the neonatal teams in the two hospitals collaborating to discuss and agree clinical protocols.*
>
> *NCAT*

Access

Access was not a primary driver of paediatric proposals. However, proposals to develop PAUs were largely driven by a desire to preserve local access to paediatric services.

Key literature

The NCAT reviews identified a number of core questions faced by providers when reconfiguring paediatric and neonatal services.

1. Should paediatric inpatient units be centralised in order to relieve workforce and activity pressures?
2. Should a site identified for paediatric inpatient closure retain a standalone PAU?
3. If so, how should those standalone PAUs be staffed?
4. Is there a way of safely continuing neonatal care on sites without a paediatric inpatient service, bearing in mind the consequences for obstetric services?

We explore below the available evidence for each of these questions.

This section looks at the key guidance and evidence about the configuration of paediatric services in the hospital sector. Overall, there is a very limited evidence base about the way services should be configured, as recognised by the professional body, the RCPCH:

> *Unfortunately, there is very little evidence to underpin different service configurations, with most guidance based on consensus or experience.*
>
> *RCPCH, p. 5*[122]

Paediatric emergency activity trends

Over the past two decades, while the overall number of paediatric emergency admissions has increased, the average length of stay has fallen from 3.8 days in 1996–7 to 1.9 days in 2006–7 when nearly three-quarters (71%) of discharges were happening within 24 hours.[123] The consequence has been a significant reduction in paediatric beds. The current Hospital Episode Statistics show that average length of stay has remained at around the same level for the last 5 years. It stood at 2.1 days in 2012–13.[124] A number of factors are thought to be driving these changes: higher parental anxiety about minor illness, lower thresholds for admission among junior doctors, changes in 'out-of-hours' provision and the 4-hour target requiring early decisions on admission.[125]

Rationalisation of inpatient care

Centralisation has been on the agenda for almost 20 years, having originally been driven by the trends in paediatric activity and a desire to maintain trainees' exposure to less common childhood diseases.[126,127] As described below, workforce issues are the more pressing driver. Responding to these pressures, the RCPCH recommends the closure of ≥ 48 smaller paediatric inpatient units.[11]

A major issue has been the implementation of the EWTD, which limits the hours that doctors can work in a given time period and so drives up the number of doctors required to provide 24-hour cover. The AoMRC recommends a minimum of 10 FTE doctors to provide 24/7 cover sustainably.[60] In paediatrics, only 28% of all rotas were staffed by 10 or more FTE doctors in 2012.[128]

The severe pressures in the middle-grade workforce reported by the NCAT in many reviews have consistently been shown up in the RCPCH's national rota compliance and vacancies surveys over the last 5 years. If the responding wards, non-compliance with the EWTD has been most common pressure on middle-grade ('tier 2') rotas since 2010, and the vacancy rate on that rota remained the highest at 15.2%.[129] The pressure is only slightly less acute for the consultant tier in paediatric inpatient units. In 2007 the RCPCH reported an average shortfall of five consultants per hospital and there has been little growth in numbers since then.[60] In the period 2009–11, there was 'modest growth' in consultant numbers of 4.7%, with an increase in part-time working.[128]

Responding to this pressure with traditional working practices means increasing the number of doctors employed by every unit and/or reducing the number of units. The RCPCH's modelling in *Facing the Future*[11] suggests that even with a reduction in the number of inpatient units, the consultant workforce

would need to grow by > 50% from 2011 levels, from 3000 to 4500 FTEs.[11] Some would argue that there is a degree of professional self-interest driving this conclusion and there should be greater exploration of alternative ways of working, such as use of extended nursing roles instead of junior doctors and resident consultants forming part of the middle-grade rota (the latter of which is an exception permitted by *Facing the Future* standards).[130] However, these solutions take time and can be hard to deliver.[131]

Paediatric assessment units

The pressures on inpatient services have prompted searches for new service models that are able to avoid inpatient admission. One such model is the PAU.[125] PAUs 'provide a rapid specialist consultation for acutely ill children, in support of primary care services and A&E departments, and provide in effect admission facilities for periods measured in hours rather than days' (p. 138).[132] PAUs provide an attractive service option given the high proportion (71%) of emergency paediatric admissions leaving within 24 hours and the high and increasing number of paediatric emergency admissions from A&E departments.[121] Conditions particularly suitable for this type of treatment include breathing difficulties, fever, diarrhoea and vomiting, abdominal pain, seizures and rash.[125]

Paediatric assessment units can be either colocated with paediatric inpatient services or the emergency department, or standalone units, linked to paediatric inpatient units but on a separate hospital site.[125] The RCPCH recommends converting at least 32 of the inpatient units suggested for closure to short-stay paediatric units, to enable hospitals to offer children treatment without admitting them overnight.[11] However, College guidance recommends that all sites providing an emergency paediatric service (this includes alternative models such as the assessment units) must have access to anaesthetic and surgical support[122] as well as access to radiology and laboratory services, but these need not be on site.[122]

A systematic review of 25 studies of 'acute assessment units' for paediatrics found that they can be a generally safe alternative to (overnight) emergency admission. The studies found that around 40–60% of children attending them did not require inpatient admission.[132] Of those who were discharged from the assessment unit (rather than being admitted), only around 7% were found to return to hospital.[132] One of the studies was an evaluation that found that within 3 years there was a reduction of 47% of paediatric inpatient admissions after a PAU was introduced into the area.[133] However, applying these figures to standalone PAUs suggests that 40–60% of children seen there would need to be transferred to local inpatient units.

The RCPCH stipulates[130] that consultants should be 'available' to a standalone unit, but this need not involve consultants being present; their opinion can be obtained via telephone. However, there is evidence that staffing by consultants could be beneficial. Increasing the number of consultants in an emergency department reduces admissions, and means shorter waits and fewer complaints.[134] Similarly, a small-scale prospective study of the differences between trainees' (middle grade) and consultants' clinical decision-making in a PAU found that consultants were quicker and discharged more patients home without readmission or clinical incident.[135] The RCPCH also recommends that all children staying for more than 8 hours at a PAU should have consultant review of their case before further treatment decisions are made.[130]

Alternative staffing models for PAUs have been explored, for example the use of advanced nurse practitioners to provide the service, supported remotely by consultants, and use of colocated A&E middle-grade doctors to provide emergency medical cover as and when required.[125] A RCPCH survey from 2013 showed that 46 PAUs rely on remote access to consultant opinion by telephone, and 33 have access to consultants in person.[136] One recent small prospective study compared outcomes for patients seen by paediatric nurse practitioners (PNPs) with those seen by doctors and found that they were indeed comparable, with no statistically significant differences in discharge or reattendance rates.[137] RCN standards require PAUs to be staffed by at least two children's nurses at all times.[138] Other professional body standards require access to anaesthetic and surgical services for children anywhere that the emergency care of children happens – this includes PAUs.[122]

We could find little evidence about the safety of standalone PAUs. Given the figures above, without an effective triage system to signpost children to the appropriate service, a significant number may require transfer from a PAU to an inpatient unit, especially as parents are poor judges of the severity of their child's illness.[139] However, key vital signs are a good differentiator of the acutely sick child[140] and so safety would be enhanced with clear protocols for transfer. The emergence of a more tiered approach to paediatric care, in which the care of the most acutely ill child is centralised, suggests the need for formal networks[39,60] as are currently in place for neonatal services (see following section).

There is also little evidence about the cost-effectiveness of PAUs, particularly standalone units. Although PAUs have been shown to reduce inpatient costs,[132] the additional costs of a PAU, particularly if staffed by consultants, could more than outweigh this.

Neonatal services

Neonatal services in the UK are arranged in managed regional networks of three tiers. Common transfer arrangements and transport services are in place for all units in a network. The most severely ill babies requiring long-term intensive care are transferred to and cared for at a specialist neonatal intensive care unit (NICU). Second-tier neonatal units are designated local neonatal units (LNUs), and they provide intensive care to babies who should require it for shorter periods of time. The bottom tier of units is the special care units (SCUs), where babies are looked after in a local setting, but they have the capacity to stabilise and transfer the sickest babies.[141] Dedicated neonatal paediatricians cover neonatal services only in specialist tertiary NICUs; medical cover in LNUs and SCUs is provided by paediatricians.[141–144]

Babies born in hospital settings must sometimes be resuscitated and stabilised before being transferred to a better-equipped place of care. The *Safer Childbirth* standards state that advanced life support skills must be available on the hospital site where obstetrics services are being provided.[102] As such, any plans to change service configuration that affect paediatric inpatient units is likely to affect the dependent neonatal service, and, consequently, any obstetric service on the same site.

A small number of units across the UK and internationally have been experimenting with a service that depends on ANNPs rather than middle-grade paediatricians to provide neonatal care and to provide the resuscitation and stabilisation cover needed on sites with obstetrics units.[145] The British Association of Perinatal Medicine (BAPM) standards for neonatal care allow for special care baby (level 1) units that rely on ANNPs to staff merged tiers 1 and 2 rotas, with the input of on-call consultants from elsewhere as necessary.[141]

Evaluations of ANNPs have been very positive, comparing favourably with the care provided by medical teams in resuscitation, some diagnostic tasks and their cost-efficiency.[146–149] Although the retention of ANNPs has been very high, recruitment problems have been reported and may persist for the small number of units relying on them to sustain obstetric and neonatal services meeting national standards.[145,146] The difficulty in recruiting may be reduced somewhat if the model was more widely used and opportunities for training or employment became more widely available. One review of the ANNP role to date recommended 'a more structured approach to the career trajectory of ANNPs'.[145]

National Clinical Advisory Team findings and conclusions

In all but two cases the NCAT supported the proposals to reconfigure paediatric services, either wholly or with conditions. The NCAT expressed serious concerns (effectively opposition) over the plans in two of the sites that they visited. Overall, the dominant theme was centralisation of paediatric inpatient units and the NCAT was clearly an advocate for this.

In 2013, the NCAT produced guidance on the reconfiguration of maternity and children's services. The guidance was intended for their own visitors as well as commissioners and managers considering reconfiguration. The document deals mainly with maternity services but also includes material relevant to paediatric services. In the analysis below we draw on this document as well as the positions that the NCAT expressed in its reviews.

Centralisation of inpatient units

The NCAT has supported centralising paediatric inpatient units on the grounds that it would solve workforce problems and the risks to the sustainability of small units. The NCAT refers frequently in its reviews to the service standards in *Facing the Future*,[130] including the assumption that 10 FTEs is the minimum number of doctors required to support a 24/7 rota. The NCAT has also stated that low volumes of clinical activity were a clinical risk even if staffing problems could be resolved.

> *When doctors are only seeing very few cases, the evidence is that they do not maintain their expertise. Even if it were possible to recruit and retain a trained workforce to support the inpatient activity, it may not be in the best interests of children if they are being looked after by doctors who cannot maintain their clinical skills.*
>
> *NCAT*

In its guidance, the NCAT states:

> *There will be a continuing need to rationalise paediatric inpatient services to maximise the effectiveness of the available paediatric medical workforce . . . NCAT supports this direction of travel as it will improve the overall quality of care by improving access to senior opinion and creating robust trainee rotas.*
>
> *NCAT Guidance*

When supporting proposals to centralise paediatric inpatient services, the NCAT frequently seeks assurance that the new location can accommodate the increased inpatient beds and has sufficient space to meet the accommodation needs of parents wishing to stay with children overnight.

The NCAT also justified centralisation on the grounds that low activity in a paediatric inpatient unit represents a clinical risk:

> *Despite the interim arrangements in place for paediatric/neonatal cover the current service at [X] represents a clinical risk and because of the low volume of the paediatric service would continue to do so even if the staffing problems could be resolved. For this reason it is accepted by all parties that the in-patient paediatric service must move to [X].*
>
> *NCAT*

The NCAT opposed only one centralisation, but this was on the grounds that historic poor relationships between the units would cause significant problems for the trust, despite severe workforce pressures that included the withdrawal of an intake of middle-grade trainees and failure to recruit replacements for outgoing staff. In the second review that the NCAT opposed, it did so because the trust was resisting centralising two paediatric inpatient units. This was part of a wider whole-system review that took place in a rural area. It were worried that the two-site model could not be sustained into the future, but it still recommended that the trust and commissioners proceed with the reconfiguration.

Colocation with other services

The NCAT consistently recommends that paediatric inpatient services be colocated with obstetrics and neonatal units. It has also taken the position that inpatient paediatrics ought to be colocated with acute surgery services. This reflects (but in its review the NCAT did not cite) the RCPCH standard requiring surgical competencies on all sites delivering emergency paediatric care.[150] The NCAT also recommends that paediatric inpatient units should be supported by a HDU and an ICU.

Paediatric Assessment Units

The NCAT has been broadly supportive of the concept of PAUs, designed to provide ambulatory care to children and avoid inpatient admission, including 'standalone' assessment units as a local service alternative to inpatient units.

The NCAT was consistently supportive of replacing of inpatient units with standalone PAUs when this was suggested. Even before the publication of *Facing the Future*, the NCAT suggested that the option be explored for the site losing inpatient services in a planned centralisation in 2007. For standalone PAUs, remote from an inpatient unit, the NCAT says that appropriate protocols should be in place for the stabilisation and transfer of children from the PAU to the inpatient unit. In a small number of reviews, the NCAT has given advice about opening hours but do not have a consistent position as to what these should be. However, it has consistently said that PAUs should not be open 24 hours per day, on one occasion specifically saying that the deaneries would not support middle-grade trainees covering the units during the night when there is little opportunity for consultant supervision.

This reveals an inconsistency about staffing these standalone units. It implies that the NCAT assumes that staffing cover will be provided by middle grades. In another review, the NCAT states that:

> *Whether or not a paediatric assessment and observation area is retained at the other site will need careful consideration. Such a unit would require on-site consultant presence, and in order for it to work efficiently and safely should be planned in the context of out-patient provision.*
>
> *NCAT*

In the single review of plans to close a standalone assessment unit, it accepted that the unit could not be sustained with such low activity. In the absence of a paediatric assessment service, the NCAT said that A&E staff must be competent in paediatric assessment and would benefit from neonatal life support training for rare attendances of those types. Emergency anaesthetic teams would also need to be trained in paediatric assessment and stabilisation. The NCAT also suggested that community children's nursing teams be set up so that children discharged home could be seen there by professionals with paediatric expertise, rather than returning to hospital.

Paediatric networks

The NCAT has supported the creation of regional paediatric networks on the basis that they enable paediatricians to maintain skills and share best practice. This is in line with the AoMRC's recommendations,[60] although the NCAT made no reference to them.

> *We strongly support the creation of a paediatric network for [X]. This will help the development of children's healthcare policies in the [SHA Area]; ensure that high standards are maintained and that there are training opportunities for all staff within the network.*
>
> *NCAT*

Neonatal care

The NCAT's key reference points for neonatal services are the guidance provided by the BAPM *Service Standards for Hospitals Providing Neonatal Care*[141] and the Department of Health's *Toolkit for High Quality Neonatal Services*.[143] Reflecting those guidelines, the NCAT requires that consultant cover for all units must be dedicated to one site. The NCAT supported the immediate reconfiguration of a neonatal service where paediatric consultants were providing neonatal cover across two sites. The NCAT also frequently states that separating paediatric and neonatal rotas was desirable, but it has not insisted on this except for the tertiary centres – NICUs (level 3 units).

The NCAT undertook only one review of neonatal services by itself. The NCAT's key recommendations included the strengthening of links between the LNU (level 2 unit) and the NICU (level 3 unit). For example, each LNU (level 2 unit) should have monthly visits from a designated neonatologist from the tertiary unit. They said that neonatal consultants at tertiary centres should have the development of neonatal networks as a responsibility in their job plans. The NCAT also responded to concerns that networks deskilled the staff at non-tertiary units:

> *There is little evidence that this is a real problem and, if it is, the answer cannot be to hold back a small volume of intensive care work to give staff experience.*
>
> *NCAT*

Implementation of proposals

Only eight of the 18 paediatric reconfiguration proposals have been implemented in full (*Table 28*). One has been partially implemented, and nine have not – they are either stalled or in progress.

The fully implemented reconfigurations include seven centralisations, four of which involve new standalone PAUs. The final fully implemented proposal was the one maintaining the status quo with separate units.

The partially implemented reconfiguration in paediatrics was a reconfiguration where just one of two proposed inpatient unit to PAU conversions went ahead.

The stalled reconfigurations all involve centralisation and closure of an inpatient unit, except in the single case where a standalone PAU was to be closed down. Two of the reconfigurations still in progress were paediatric reconfigurations that the NCAT had visited twice. The final two were very protracted whole-system reconfigurations, visited three times by the NCAT.

The paediatric reconfigurations met with similar public opposition to maternity reconfigurations as they were frequently reconfigured at the same time. On the few occasions that the NCAT reviewed changes to the paediatric services (very few cases), there was a campaign resisting that and other changes to the whole range of services.

As with the closely related maternity services, public opponents raised concerns that reconfigurations involving paediatrics were the thin end of the wedge and would lead to future service reductions. Other concerns raised by local stakeholders were inconvenient travel times and the availability of accommodation for parents who would need to stay with children admitted to centralised inpatient units. The only exception to the universal opposition was a planned change to the way a neonatal network operated, for which we could find no opposition.

TABLE 28 Implementation of paediatric and neonatal care reconfigurations reviewed by the NCAT

Paediatrics	Number
Implemented in full	8
In progress	5
Partially implemented	1
Stalled	4
Total	18

Analysis of the evidence

What can we deduce from patterns of National Clinical Advisory Team activity and the local outcomes?

Medical workforce pressures, alongside changes in paediatric activity, are driving the centralisation of paediatric inpatient services. The RCPCH's *Facing the Future* review[11] has added further impetus with its recommendations to close small inpatient units and replace them with PAUs. The NCAT has generally supported this centralisation agenda.

In common with emergency and maternity proposals, and despite these pressures, this area of reconfiguration has a poor history of successful implementation. Over half (10 out of 18) of the reconfigurations reviewed by the NCAT have yet to be implemented.

To what degree does the National Clinical Advisory Team's position reflect the underlying evidence base?

As can be seen in *Table 29*, the NCAT's position has been broadly consistent with the evidence. However, as highlighted above, this is an area generally lacking in evidence. Paediatric services have not been subject to national clinical audits such as the NCEPOD, and there is a dearth of evaluations of service change or the emerging PAUs.

The evidence gaps

We could find little evidence to support clinical and economic benefits of the centralisation of paediatric inpatient units and the replacement of smaller units with standalone PAUs. There is also a lack of consensus over staffing standalone PAUs. Some standalone PAUs would have consultant leadership, while others would be led by PNPs. This would affect the outcome of any evaluation and so would need to be seen as distinctly different models. A key issue is the best way to link standalone PAUs to their parent inpatient units and other paediatric services in the surrounding areas. Pilots and/or evaluations of managed

TABLE 29 The NCAT's position against evidence for paediatric and neonatal care

Key issue	NCAT position	Department of Health and professional guidance	Supported by/other evidence
Centralisation of paediatric inpatient units	Supported ≥ 10 FTEs each medical rota	Supported ≥ 10 FTEs each medical rota	Lacking evidence to support outcomes and financial improvement
Replacing inpatient units with standalone PAUs	Supported	Supported	Significant percentage of activity appropriate but little evidence of safety and VFM standalone units
Staffing of PAU	Assumption is that paediatric middle grade or above	Consultants need to be 'available' but not needed on site	Consultants quicker decision-makers. Have used nurses supported by A&E and remote consultants
Key clinical codependencies	Obstetrics and neonatal units Critical care	Required	Lacking evidence that links to outcomes
Separate rotas for neonatal and paediatric services	Required L3, good practice L2 and L1	Required L3	Yes
Continued provision of neonatal service without paediatricians	No proven alternative sustainable models ANNP model safe but unsustainable	BAPM guidance allow ANNP-reliant hospitals	ANNPs shown to be safe, but sustainability in question

VFM, value for money.

paediatric networks might show whether or not they would be valuable in light of the expected high rate of transfer from standalone PAU to inpatient unit.

Section 8: specialist acute services (including vascular surgery, trauma and stroke)

Introduction

The NCAT has undertaken 32 reviews of specialist services, of which 20 (67%) involved just three services: vascular surgery, 11 reviews; stroke, nine reviews; and major trauma, five reviews. Ten reviews involved a wide range of other specialist services (*Table 30*). In the 32 reviews there were only two revisits, both where specialist services were part of a broader whole-system review.

There was a concentration of reviews in London [10 reviews (33%)], the rest being relatively evenly distributed across the country (see *Table 4*). There was one national review, for paediatric cardiac surgery. The number of specialist reviews grew from seven in 2008 to 11 in 2011, but then fell away to only one in 2012 (see *Table 2*).

Summary of findings

We focus our analysis on vascular surgery, stroke and trauma and draw more general conclusions from the reviews of the other specialist services.

Vascular surgery

The changes proposed to vascular services

The proposals involved the centralisation of vascular surgical services alongside the creation of vascular clinical networks and the designation of vascular surgery and screening centres.

TABLE 30 Summary of specialist services reviewed by the NCAT

Specialist service mentioned in review	Number
Vascular surgery	11
Stroke	9
Trauma	5
Sexual health	2
PPCI	1
Specialist services	1
Renal services	1
Paediatric cardiac surgery	1
Paediatric oncology	1
Specialist paediatrics – children's hospital rebuild	1
Single hospital rebuild	1
Hospital merger	1
Ophthalmology	1
Haemophilia	1
Gynae-oncology	1

PCCI, primary percutaneous coronary intervention.

Key drivers for change

National and regional programmes of vascular service development have been the key drivers of change, including the national programme for the accreditation of abdominal aneurysm screening centres. These initiatives were in turn driven by the evidence of a volume/outcome relationship in vascular surgery, discussed further below. Thus, the primary driver of the centralisation of vascular services was a desire to improve patient outcomes through the reconfiguration of services.

The National Clinical Advisory Team's position

The NCAT consistently supported proposals to centralise vascular services. The NCAT referenced the need for a minimum population of 800,000 for screening centres or an 'arterial hub' in a number of reviews, but in others suggested a minimum population of 500,000 for a vascular surgery centre and in another said that the aim should be to serve a population of at least 1 million. A couple of reviews included proposals that two providers could work together to create the necessary critical mass. In one case this included a joint emergency rota to cover two sites. The NCAT did not support these proposals.

The NCAT's specific recommendations in reviews of vascular services included the following:

- Vascular surgery should be done only by accredited vascular surgeons.
- The ideal minimum number of surgeons to deliver full-time emergency and elective services is eight but a couple of reviews supported proposals for surgical rotas based on six surgeons.
- There is a need to collocate vascular surgery with interventional radiology and critical care services.
- Interventional radiology services should have a minimum of six interventional radiologists.
- Vascular surgery centres are ideally colocated with trauma centres.
- Services should be subject to a formal audit programme.

The NCAT considered one proposal for a vascular centre to be on a cold site. The decision on this was to be left to 'an expert clinical panel'.

The NCAT made little explicit reference to any supporting evidence when making its recommendations.

Professional guidance and evidence from the literature

There is strong evidence to support the link between hospital and surgeon volumes and outcome for vascular surgery.[151–154] The NCEPOD reviewed the treatment of a key vascular procedure, abdominal aortic aneurysms (AAAs), in 2005.[155] The NCEPOD found a considerable number of hospitals undertaking small numbers of AAAs and concluded that, given its own findings and other evidence, 'serious consideration' should be given to concentrating elective open aortic aneurysm surgery into fewer hospitals and that only surgeons with vascular expertise should operate on emergency aortic aneurysm patients. The NCEPOD also put forward evidence that patients with ruptured aortic aneurysm can be transferred safely for journeys of more than 1 hour by road, or over 25 miles. Since then, there has been a drive to centralise services, and there is emerging evidence that this centralisation of vascular services in the UK is resulting in better outcomes.[156]

The Vascular Society for Great Britain and Ireland (VSGBI) has used the available evidence to underpin its professional guidance including setting a benchmark maximum mortality rate for the treatment of AAAs.[157] As a specialist service, since April 2013, vascular services have been commissioned by NHS England. The NHS England[158] standard contract for specialised services draws heavily on the VSGBI and the NCEPOD guidance, as well as available evidence, and includes the following recommendations (*Box 3*). The contract also sets out target outcomes, access times and minimum volumes for vascular surgery centres.

BOX 3 Extracts from NHS England's standard contract for specialised vascular services

A minimum population of 800,000 is considered necessary for an AAA screening programme and is often considered the minimum population required for a centralised vascular service. This is based on the number of patients needed to provide a comprehensive emergency service and maintain competence among vascular specialists and nursing staff, the most efficient use of specialist equipment, staff and facilities, and the improvement in patient outcome that is associated with increasing caseload.

The VSGBI and NCEPOD guidance on the provision of emergency and elective vascular surgery services states that the best outcomes are achieved in specialist vascular units with dedicated vascular teams available 24 hours a day, seven days a week. The VSGBI recommends fewer and higher volume units. The evidence supports minimum numbers of elective procedures that vascular units should undertake and links surgeon elective volume with outcome.

Each surgeon will need to have an appropriate arterial workload (e.g. in the region of 10 AAA emergency and elective procedures per surgeon per year and commensurate numbers of lower limb and carotid procedures), which will necessitate an appropriate catchment area to generate sufficient case volume.

A 24/7 vascular interventional radiology rota may need to be organised on a network-wide basis to ensure that interventional radiology services for other specialties, in local hospitals, are not destabilised. All participants in the rota must have the appropriate skills and competencies to undertake the full range of vascular interventional radiological procedures. Emergency access to vascular interventional radiology must be within 1 hour from initial consultation to intervention. Where appropriate, day case and first-line diagnostics procedures will be provided locally.

The network may also agree that low-risk peripheral vascular interventions can be undertaken locally, to utilise local skills and local interventional vascular radiology capacity. The scope of this local provision must be clearly defined and the activity must be included in the network audit arrangements.

Vascular services link to a range of other clinical specialties and services:

Co-located services

- Intensive care.
- Interventional vascular radiology.

Interdependent services

- Stroke surgery and vascular opinion on stroke management.
- Limb salvage surgery.
- Diabetes specialist hospital services and diabetic community services.
- Renal inpatient units.
- Interventional cardiology.
- Cardiac surgery.
- Thoracic surgery.
- Major trauma centres and trauma units.

Related services

- Rehabilitation services.
- Limb fitting service.

BOX 3 Extracts from NHS England's standard contract for specialised vascular services (*continued*)

Relevant networks and screening programmes include

- Cardiac/stroke networks.
- Renal networks.
- Critical Care networks.
- Trauma networks.
- AAA screening programme.

Analysis

As *Table 31* shows, the position taken by the NCAT on vascular surgery is largely in line with key guidance and the evidence base. What is more notable is what was missing in NCAT's reviews. This is an area rich in detailed guidance underpinned by good evidence, yet this is often missing from NCAT's reviews and commentary.

Stroke services

The changes proposed to stroke services

The majority of proposals involved the concentration of acute stroke services and the designation of hospitals either as hyper-acute stroke units, able to offer CT scanning and thrombolysis 24/7, or as local stroke units. This included two region-wide reconfigurations of stroke services. There was one proposal to create a stroke centre in an elective hospital (chosen to maximise local access).

The key drivers for change

The primary driver of the regional initiatives was an ambition to improve outcomes from stroke. In the majority of other cases, stroke formed part of a local reconfiguration of acute services across multiple sites – often to achieve a critical mass of acute activity on a site.

TABLE 31 The NCAT's position against evidence for vascular surgery services

Key issue	NCAT position	Department of Health and professional guidance	Supported by/other evidence
Minimum population size for a vascular centre	Between 500,000 and 1 million	800,000 (screening centre)	Yes – to achieve minimum numbers of procedures
Maximum travel time to treatment	Not specified	Within 1 hour	Yes
Minimum number surgeons for 24/7 rota	Six to eight surgeons	Six surgeons	Absolute numbers not – key is access to surgeon 24/7
Key clinical codependencies	Interventional radiology	Interventional radiology	Yes
	Critical care	Critical care	
Minimum workload for vascular surgeon	Not specified	10 AAA em and el procedures/year plus 'commensurate number of lower limb and carotid procedures'	Yes
Benchmark mortality rate	Not specified	Yes	Yes

The National Clinical Advisory Team's position

The position adopted by the NCAT across the nine reviews of stroke services is summarised below.

- The NCAT consistently supported the centralisation of stroke services, but in one review, where the consequence was that there would be a 60-minute journey time to the hyper-acute stroke centre and 150-minute onset to treatment time, the NCAT said that this was too long: 'Time is brain'. The NCAT recommended 'tighter' (but not specified) time frames in urban centres and 'uniform door to treatment time which is monitored as a performance standard'.
- Hyper-acute stroke services need to be colocated with critical care and neurological services, and have 24/7 access to neuroradiology.
- Stroke services should be delivered from same site as general medical services given the comorbidities of many stroke patients.
- Stroke does not need to be delivered on the same site as acute surgery.

Professional guidance and evidence from the literature

In 2007, the Department of Health set out a national strategy for stroke[159] drawing on the available evidence. This included two systematic reviews[160,161] that demonstrated better outcomes for patients with stroke if treated by multidisciplinary teams that exclusively manage stroke patients in a dedicated ward (stroke, acute, rehabilitation, comprehensive), with a mobile stroke team or within a generic disability service (mixed rehabilitation ward).

The Department of Health strategy set out their expected standards of care (*Box 4*), including the following:

BOX 4 Extracts from the Department of Health's *National Stroke Strategy*[159]

All stroke patients have prompt access to an acute stroke unit and spend the majority of their time at hospital in a stroke unit with high-quality stroke specialist care.

- Hyper-acute stroke services provide, as a minimum, 24-hour access to brain imaging, expert interpretation and the opinion of a consultant stroke specialist, and thrombolysis is given to those who can benefit.
- Specialist neuro-intensivist care including interventional neuroradiology/neurosurgery expertise is rapidly available.
- Specialist nursing is available for monitoring of patients.
- 'Appropriately qualified clinicians are available to address respiratory, swallowing, dietary and communication issues' (p. 30).

'The majority of stroke patients will require high-dependency care on an acute stroke unit for the first 24 hours of the illness. Most stroke progression occurs within the first 24 hours and so prompt access to an acute stroke unit is needed. Effective early management of stroke will reduce the need for intensive care beds. However, a small proportion of patients will require intensive care during the duration of their hospital admission' (p. 31).

'Commissioners to ensure that protocols are in place for the rapid transfer of people with suspected acute stroke to a hyper-acute stroke unit. This will need discussion across a network of stroke service providers to agree which centre(s) will provide these services (and their catchment areas)' (p. 27).

'People who have had strokes access high-quality rehabilitation and, with their carer, receive support from stroke-skilled services as soon as possible after they have a stroke, available in hospital, immediately after transfer from hospital and for as long as they need it' (p. 36).

The Department of Health strategy acknowledged that the existing pattern of services with limited numbers of specialist staff would make it difficult to implement the model proposed for rapid thrombolysis treatment in all hospitals. They proposed the development of hyper-acute centres in a 'hub-and-spoke model' supported by an increase in the range of clinicians able to provide specialist acute input, for example acute physicians and specialist nurses.

The hub-and-spoke model proposed by the Department of Health has since been implemented in London (and reviewed by the NCAT). The new model has been formally evaluated.[16] The conclusion of this before-and-after study was that London's centralised model for acute stroke care had reduced mortality for a reduced cost per patient, predominantly as a result of reduced hospital length of stay. However, the authors recognise the limitations of a before-and-after study versus a randomised control trial and noted that further research would be required to assess whether or not the London model is viable in other geographical and clinical settings.

A recent Cochrane review[162] of stroke care concluded the following:

> *People with acute stroke are more likely to survive, return home and regain independence if they receive organised inpatient (stroke unit) care. This is typically provided by a co-ordinated multidisciplinary team operating within a discrete stroke ward that can offer a substantial period of rehabilitation if required . . .*
>
> *Since the original publication of this review, stroke services in many developed countries have undergone substantial reorganisation in line with national strategies and clinical practice guidelines to enable improvements in access to stroke unit care. More recently, stroke services in many countries have been further reorganised to reflect a two-tiered (or hub-and-spoke) model of care in which a central 'comprehensive stroke centre' (or 'hyper-acute stroke unit') is equipped with facilities for acute intravenous or intra-arterial treatments, intensive monitoring, advanced imaging and neurosurgery. These then serve a number of 'primary stroke centres' or stroke units within a hospital network or geographical location. Although this approach seems almost intuitive to many stroke clinicians, it has never been formally tested in randomised controlled trials. Until such trials are available, stroke services should ensure that every stroke patient receives the core service characteristics identified in the randomised trials.*
>
> *Stroke Unit Trialists' collaboration. Organised inpatient (stroke unit) care for stroke.* Cochrane Database Syst Rev *2013;**9**:CD000197. Copyright © 2013 by John Wiley & Sons, Inc. Reprinted with permission of John Wiley & Sons, Inc.*

A key issue in stroke care is the time to treatment. As one NCAT review pointed out, 'time is brain'. One study estimated[163] that 1.9 million neurons are lost for each minute that a stroke is untreated. The current evidence points to benefits for patients being treated with thrombolysis within a 3-hour window but that a more favourable outcome may be achieved if delivered within 90 minutes of stroke onset.[164]

Cochrane have also looked at the evidence for early supported discharge, which offers people rehabilitation in their own homes. The review[165] concluded that early supported discharge services could reduce long-term dependency as well as reduce length of hospital stay.

Analysis of the evidence

As *Table 32* shows, the position taken by the NCAT is largely in line with key guidance and the evidence base. One key issue is that the hub and spoke model for stroke care with HASUs and supporting stroke units advocated by the Department of Health and supported by the NCAT is yet to be supported by robust evidence. There is also a lack of consistency with respect to travel times. The NCAT has argued that a 60-minute travel time is too long, although the Department of Health is not specific on this point and the evidence points to a window of 90 minutes within which to deliver thrombolysis.

TABLE 32 The NCAT's position against evidence for stroke services

Key issue	NCAT position	Department of Health and professional guidance	Supported by/other evidence
All stroke patients to receive care in a stroke unit with appropriate specialist support	Supports	Supports	Yes
Two-tier model of care – with centralised hub providing 24/7 scanning + thrombolysis	Supports	Supports	Not yet proven
Maximum travel time to treatment	60-minute travel time to hyperacute stroke unit too long	'Prompt access'	Thrombolysis should be delivered within 90 minutes of stroke onset
Key clinical codependencies	Neuroradiology	Neuroradiology	Yes
	Critical care	Critical care	
	General medicine		

Major trauma services

The changes proposed to trauma services

The proposals were three region-wide initiatives, centralising trauma services into designated major trauma centres and the creation of trauma networks, as well as two proposals to centralise trauma on to one site within multisite trusts. In one case this involved the separation of trauma from elective orthopaedic services.

The key drivers for change

The primary driver of the regional initiatives was an ambition to improve outcomes from major trauma. In the two other cases trauma services formed part of a local reconfiguration of acute services across multiple sites. In both of these instances workforce was a key driver and centralisation facilitated dedicated rotas for major trauma care.

The National Clinical Advisory Team's position

The position adopted by the NCAT across the five reviews of major trauma services is summarised below.

- The NCAT consistently supported the centralisation of major trauma care.
- Units will achieve better results with a minimum of 250 cases of major trauma, but one review suggested that care would be more cost-effective with 500–1000 cases, and one did not dispute local assertion that required a minimum of 500 cases.
- Patient should be stabilised or treated within 45 minutes of their injury.
- Major trauma centres should be colocated with hyper-acute stroke units, as it would maximise the use of neurosurgeons and 24/7 imaging services.
- All amputation of hand and foot cases should go to the major trauma centre.
- There should be share protocols and guidelines across the trauma network.

Professional guidance and evidence from the literature

Providing care for patients in trauma centres that are part of a formalised system of trauma care can result in a significant decrease in mortality.[166,167] There is some debate about the contribution that higher volumes of cases make to the improved outcomes. Some studies have shown clear linkages between trauma centre volumes and outcomes,[168] while others[169] maintain that the way in which care is organised and delivered is more important. The RCS,[170] citing Nathens *et al.*,[168] recommends that, as a minimum, major trauma centres should admit more than 250 critically injured patients per year, but later guidance

from the RCS suggested a minimum of 400–600 cases and serving a population of 2–3 million.[171] In the USA, the American College of Surgeons[172] requires hospitals seeking accreditation as a major trauma centre to admit over 240 cases of major trauma per year. There is mixed evidence about the impact of travel times on trauma outcomes. One study of major trauma in Scotland[173] suggested that longer travel times did not worsen outcomes, whereas other studies[72] have suggested that increased travel times do have an adverse impact on outcomes.

The UK has been slow to adopt these formalised systems of trauma care, and, in 2007, the NCEPOD, in its report *Trauma: Who Cares?*,[174] found suboptimal care in 60% of the major trauma patients covered by their review.

In 2010, the NHS Clinical Advisory Group on trauma published evidence-based advice[175] for SHAs to help them to design and implement trauma networks across England. A summary of the key recommendations in this advice is provided in *Box 5*. While the guidance references the RCS recommendation that trauma centres should see a minimum of 250 critically ill people each year, it is not a formal recommendation in the report.

BOX 5 Summary of key recommendations from Regional Networks for Major Trauma: NHS Clinical Advisory Group[175] on Trauma

- Each region needs to identify and designate at least one hospital to act as a major trauma centre, supported and linked via a trauma network to local trauma units.
- All patients identified as major trauma (using a trauma triage tool) should be taken to a major trauma centre (MTC).
- Those who are within 45 minutes travelling time from the centre should be taken there directly, bypassing other units. Patients further than 45 minutes from the centre should be stabilised first in their local trauma unit (TU).
- Trained trauma team present 24 hours a day for the immediate reception of the patient. The trauma team leader should be a consultant in the MTC and, in the TU, should be at least ST4 or equivalent competency who will attend within 30 minutes by a consultant.
- 24-hour access to a fully staffed and equipped emergency theatre.

For emergency radiology facilities:

- CT co-located in the emergency department.
- MRI scanning available 24 hours a day at major trauma centres.
- Agreed tele-radiology facilities between all trauma units and the major trauma centre within a network.

For emergency trauma surgery:

- Should be performed by a consultant surgeon with appropriate skills and experience.
- All patients requiring acute intervention for haemorrhage control must be in a definitive management area (operating room or intervention suite) within 60 minutes.

For neurosurgery and spinal cord injury:

- Neurosurgery consultants should be available for consultation to the trauma network 24 hours a day.
- Patients with severe head or spinal cord injury should be managed in a neurosciences centre, irrespective of the need for surgical intervention.

Contains extracts from Regional Networks for Major Trauma: NHS Clinical Advisory Group. 2010. URL: www.webarchive.org.uk/wayback/archive/20130309131144/http://www.excellence.eastmidlands.nhs.uk/welcome/improving-care/emergency-urgent-care/major-trauma/nhs-clinical-advisory-group/.

Regional trauma networks went live across England in April 2012. From April 2013 major trauma has been commissioned by NHS England. The service specification set out in their standard contract[176] draws heavily on the clinical advisory group's work.

Analysis of the evidence

As *Table 33* shows, the position taken by the NCAT is largely in line with key guidance, though in general the NCAT's recommendations lacked specificity. There was perhaps a missed opportunity to highlight and signpost some of the key components of a safe trauma service. It is also notable that there is a degree of misalignment between professional guidance and the evidence, for example on minimum numbers of cases and travel times.

Implementation of proposals

Overall, specialist reconfigurations have been successfully implemented (*Table 34*). There are 18 fully implemented reconfiguration proposals that the NCAT reviewed in these specialist areas. Exceptionally, no reconfigurations stalled. Just two were partially implemented and a single review was in progress at the time of writing.

TABLE 33 The NCAT's position against evidence for trauma services

Key issue	NCAT position	Department of Health and professional guidance	Supported by/other evidence
Trauma services should be part of a formalised system of trauma care with specialist centres for treatment of MTCs	Support	Use of trauma triage tool to identify appropriate patients for MTC + trauma network with teleradiology links and agreed protocols	Yes
Minimum number of cases for MTC	Varied from 250–500	250–600	Some but also evidence that the way in which care is organised as important
Maximum travel time for stabilisation	45 minutes	45 minutes	No clear evidence about travel times to treatment
Trained trauma team available 24/7 led by a consultant in MTC	Not specified	Required	As part of formalised system trauma care
Key clinical codependencies	Not specified but encourage colocation with hyperacute stroke units	24/7 radiology Neurosurgery 24/7 theatres	As part of formalised system of trauma care

MTC, major trauma centre.

TABLE 34 Implementation of specialist care reconfigurations reviewed by the NCAT

Specialist care implementation	Vascular surgery	Trauma	Stroke
Implemented in full	7	5	6
In progress	1	0	0
Partially implemented	1	0	1
Stalled	0	0	0
Total	9	5	7

Other specialist services

Changes proposed

The NCAT considered a wide range of other specialist service proposals from national reconfiguration of paediatric cardiac surgery to local reconfiguration of sexual health services (see *Summary of proposals*, below).

Key drivers

Drivers for change varied and include:

- centralisation of specialist services – achieving more consistent specialist service provision
- improving local access to specialist services
- reproviding specialist services in new estate
- addressing workforce issues.

The National Clinical Advisory Team's position

The NCAT is broadly supportive of most sets of proposals, although often subject to caveats, but in most cases the NCAT does not set out a clear alternative model.

Summary of proposals

1. National reconfiguration of paediatric cardiac surgery services:
    i. Driven by desire to improve outcomes through rationalisation of current services.
    ii. The NCAT supports rationalisation of services but encourages more thinking about model of care in local district general hospital and workforce development.

2. Reconfiguration of gynaecological cancer services including establishment of second centre for treating patients with gynaecological cancer:
    i. Driven by desire to increase local access to specialist services.
    ii. The NCAT questions proposals and suggests further work and analysis.

3. Hub-and-spoke model for region-wide haemophilia services:
    i. Driven by a mix of workforce issues and current inconsistency of service provision across the region.
    ii. The NCAT supports high-level proposals but seeks more detail on how strategy will be operationalised.

4. Critical assessment of current configuration of paediatric oncology services:
    i. Driven by concerns about current configuration meeting key guidelines and standards.
    ii. The NCAT questions current model but does not present clear alternative.

5. Development of a more local renal service:
    i. Driven by lack of local access to renal service.
    ii. The NCAT is generally supportive – says that renal services need to be colocated with vascular surgery and specialist radiology.

6. Rebuild of a specialists children's hospital with greater links proposed to local children's services:
    i. Driven by poor quality of estate.
    ii. The NCAT is generally supportive.

7. Rebuild of a specialist orthopaedic hospital:

    i. Driven by poor quality of estate.
    ii. The NCAT sets out a wide range of detailed recommendations about ideal service model for children and adults – drawing on College guidance.

8. Reconfiguration of local ophthalmology service from one to two sites:

    i. Driven by closure of current single site.
    ii. The NCAT is supportive of changes.

9. Tiered model for sexual health services that is to be the subject of a procurement exercise:

    i. Driven by current services struggling to meet demand.
    ii. The NCAT challenges service model and is sceptical of the benefits of tendering services for external provision.

10. Strategic reconfiguration of community based sexual health services:

    i. Driven by workforce issues – struggling to staff all community sites.
    ii. The NCAT is generally supportive of proposals with some caveats.

Section 9: mental health services

Introduction

In this section we look at mental health services reviewed by the NCAT over the period 2007–12.

Summary of the National Clinical Advisory Team reviews

Twenty-two per cent of NCAT reviews involved mental health services (27 out of 123 reviews in total), which is a substantial proportion of its work. The 27 reviews covered 25 reconfigurations for 23 organisations/health economies. Two reconfigurations of services required a repeat visit. Only one review was conducted as part of a whole-system reconfiguration; the other proposals were standalone (see *Table 6*). Looking at the frequency of reviews by year, a large proportion of reviews were carried out in 2012 (see *Table 2*).

What change was being proposed?

Out of the 25 service reconfigurations reviewed by the NCAT, 18 considered proposals to close inpatient wards or beds, reproviding a smaller service on another site or centralising existing services on to fewer sites with more appropriate facilities such as provision of single rooms. These resources released would be used to enhance mental health services in the community or improve staffing on existing inpatient sites.

> *The proposal is to reinvest resources from the existing ward into community based services. The small number of current admissions can be redirected to enhanced community services (home, enhanced residential and nursing care) and to the inpatient service.*
>
> *NCAT*

The scale of change is detailed in 11 out of 18 reconfigurations:

- seven small-scale changes (e.g. closing 15 older adult mental health beds on single site; closing 40 beds while reducing the number of sites from six to four; reducing the number of beds on individual wards)
- four larger scale changes – closing 77 beds; closing 85 beds; closing up to 116 beds (county wide); closing 220 to 280 beds (county wide).

In the remaining seven reconfigurations, the proposals did not specify the size of the closures, either stating plans to close a small number of wards, or stating plans to rationalise the number of sites with an unspecified reduction in bed numbers.

Eight reconfigurations considered plans to develop new services or redevelop an existing service, such as dementia services or the Improving Access to Psychological Therapies (IAPT) service. As mentioned above, in three instances the proposals also featured plans to reduce inpatient bed numbers. In the remaining five reconfigurations, the NCAT was asked to review the clinical need for the development of new models of care which would impact on staffing levels, such the development of new community mental teams resulting in potential redundancies within inpatient services.

Key drivers

Finance

Financial drivers were the most commonly cited driver of change, mentioned in 24 out of 27 reviews. Most proposals cited the need to release resources by closing underused inpatient services, condensing services on to fewer sites or reducing overall bed numbers.

> *. . . the excessive running costs of keeping a single unit open in an otherwise almost empty building.*
>
> *NCAT*

> *Benchmarking data shows that there are more beds [X] for older adults in particular than is warranted for the needs adjusted population . . . the costs of empty beds in the system equate to about £700K for 16 beds, so 48 beds would cost £2.1M.*
>
> *NCAT*

A number of the NCAT reviews explicitly tie ward/bed closures to releasing money to develop or enhance community provision. Reallocating resources into the 'community' are raised in many proposals. Examples include increasing the staff-to-patient ratio in order to manage complex/high-intensity needs; increasing staffing in key community teams (e.g. crisis intervention and community dementia teams); or supporting training, travel costs and support services.

> *The Trust case can be summarised briefly, as too great a proportion of the money being invested by [X] commissioners was being spent on inpatient services, meaning that too little was being spent on community services.*
>
> *NCAT*

Workforce

Alongside financial drivers, many proposals talked about centralising inpatient services or colocating inpatient wards alongside acute services to standardise care, concentrate staff expertise, improve access to other acute services 24/7 and increase capacity within community mental health teams.

> *Focussing revenue and capital resources on a smaller number of inpatient wards will allow better skill mix on the wards thus reducing need for agency staff and associated issues of discontinuity of approach . . .*
>
> *NCAT*

These justifications cannot be seen in isolation from the financial or workforce drivers and are likely to have been the key element in the argument for reconfiguration.

> *. . . current inpatients are dispersed over a large number of sites and many do not have the critical mass needed to support a wide spectrum of services following the development of more community services. The proposal is to rationalise the number of places and to develop new hospital services on fewer sites.*
>
> *NCAT*

Implementing national guidelines/policy

Implementing best practice outlined in national guidelines or policy documents was a key driver in six out of 27 reviews. Certain documents were mentioned frequently, such as *New Horizons: A Shared Vision for Mental Health*[177] and *No Health without Mental Health*.[178] The Department of Health strategy, *Living Well with Dementia*, published in 2009, was cited by several proposals in their justification for reconfiguring older adult mental health services.[179]

Estates

Improving the physical environment of inpatient wards was a driver in five out of 27 reviews, particularly around 2008–9, which can be linked to policy reports at the time highlighting avoidable deaths in inpatient facilities, rates of violence and poor, untherapeutic environments.

> *The inpatient facilities . . . do not meet modern standards for inpatient care . . . sleeping accommodation is provided in 4-bedded bays; there are no ensuite facilities, very limited day-living space and restricted suitable outdoor space.*
>
> *NCAT*

Safety

In one review, staff vacancies of 42% (14 of out 33 posts were vacant) led to clinical safety concerns prompting the immediate closure of a mental health ward and home treatment team, ahead of the public consultation.

Access

Access featured in four reviews as a driver to improve access to services in the community.

> *The current CMHT [community mental health team] service (single point of access) is available Monday–Friday 09.00–17.00 hours. However for people with more complex needs the community responses are limited . . .*
>
> *NCAT*

Key literature

The NCAT reviews address several key elements of modern mental health services which have developed since the concerted focus by government on mental health since the 1990s onwards.[180] These can be categorised as:

- community mental health services
- financial impact of shifting services into the community
- quality of ward environments
- access to psychological therapies.

The evidence for each of these elements is outlined below.

Community mental health services

In 1999 the Department of Health published the NSF for Mental Health, setting out a programme of mandated change to implement specialist community mental health services – early intervention, assertive outreach, crisis intervention teams – with the aim of reducing inpatient provision and improving patient experience.[181] These were also known as 'functional' teams as each had a particular function in the service system as opposed to the generic teams for adults and older adults. Over the last decade, national policy has moved away from the rigidly prescribed service models detailed in the NSF towards locally determined services with the publication of *New Horizons: Towards a Shared Vision for Mental Health* in 2009.[177]

Some patients with severe and complex mental health problems require long-term support which will involve some element of inpatient provision.[182] In their guidance on rehabilitation services, the RCPsych suggests that inpatient rehabilitation services should be provided as part of a wider clinical network, with short-term hospital or community-based rehabilitation units or access to supported accommodation, 'available in all but the smallest services'.[182] This is supported by evidence that some service users continue to be admitted to hospital for long periods of time despite the efforts of community rehabilitation teams, and another study showing that 1% of people with severe mental health needs require inpatient rehabilitation services.[181,183,184]

The development of assertive outreach teams led to closures of traditional inpatient rehabilitation services. A survey of consultants in rehabilitation psychiatry in 2007 found that 30% of rehabilitation services had been redeveloped as assertive outreach teams, resulting in a net loss of inpatient rehabilitation services.[181]

Crisis resolution and home treatment (CRHT) teams work with service users to help them remain in the community during periods of mental health crisis, and facilitate discharge back into the community following inpatient admissions. Unlike for assertive outreach teams, there is strong evidence that CRHT teams reduce acute admissions.[185] A study conducted in 2006 found that crisis resolution teams were associated with reductions in admissions of between 10% and 23% and bed use of 10%.[186]

Integrated community and acute teams working together can facilitate the delivery of high-quality, holistic care, with greater continuity between physical and mental health services. There is evidence in the literature to support this position. Naylor and Bell highlight case studies of integrated acute care teams, with CRHT or other community mental health teams working alongside staff from acute services to provide mental health services.[187] The authors report that this integrated structure can provide more cost-effective, high-quality care. A report produced by the National Audit Office supports close working between community and inpatient teams, with community staff retaining some level of responsibility during admissions as well as facilitating discharge back into the community.[185]

Financial impact of shifting services into the community

In recent decades mental health services have transformed from mainly acute inpatient and institutional provision to care provided in community settings. The evidence indicates that the costs of community-based mental health services are similar to those for inpatient settings, particularly for users with moderate mental health needs.[188] Moving services into the community does not generate cost savings, although these services may be more cost-effective in the long term.[188–190] The quality of care provided by community mental health teams appears to be closely related to levels of expenditure and 'community-based models of care are largely equivalent in cost to the services that they replace'.[188]

This transformation in service delivery led to a reduction in bed numbers of over 60% between 1987 and 2010;[189] however, there was little evidence supporting the centralisation or colocation of inpatient mental health services on the basis of cost. Closing inpatient settings can reduce overheads and release funds to improve community mental health services. A recent review by The King's Fund observed an unforeseen growth in demand for beds from service users with complex needs which has led to a rise in use of mental health beds provided by the private sector and out-of-area placements.[189]

Quality of ward environments

There is evidence that the physical environment of care is important both to ensure that hospital environments are safe for service users and staff and to facilitate recovery. Ensuring that acutely mentally unwell users have access to outdoor space, single-sex environments and their own room can prevent suicide, reduce violence and aid recovery and discharge.[191] A review by the National Patient Safety Agency (NPSA) into safe acute psychiatry details several studies that demonstrate improved behaviour and aggressive behaviour in purpose-built facilities with single rooms with access to natural light and ventilation.[192] The National Confidential Inquiry into Suicide and Homicide by People with Mental Illness (NCISH) recommends removing non-collapsible curtain rails and low-lying ligature points. Implementing these recommendations has been shown to result in lower suicide rates of between 17% and 22% and they form part of the NPSA toolkit on preventing suicide.[193,194]

Access to psychological therapies

The IAPT programme was established in 2005 by the Department of Health to implement NICE guidance for people with depression and anxiety disorders by increasing access to psychological therapy services for adults.[195] There is strong evidence to support the effectiveness of these interventions. NICE guidance published in 2004 systematically reviewed the findings from randomised clinical trials and concluded that cognitive–behavioural therapy is effective in treating depression and anxiety and that access to these therapies should be widely available.[196,197] Layard further outlined the case to expand access to psychological therapies based on recovery rates, acceptability to patients and cost-effectiveness of psychological therapies compared to treatment with drugs.[198] An evaluation of the first pilot sites conducted in 2009 reported recovery rates of 56%, which were maintained 10 months post treatment.[199] A progress report in 2012 provided initial evidence that recovery rates for people completing a course of treatment have increased from 17% to over 45% over the first 3 years of the programme.[200]

Evidence used by the National Clinical Advisory Team to support conclusions

The reports produced by the NCAT often refer to policy documents in the introduction or context sections, for example the NSF for older people (five reviews) and mental health (three reviews), the *Next Stage Review* (five reviews) and *New Horizons: Towards a Shared Vision for Mental Health* (one review). However, they do not tie any specific comments or recommendations to these documents, or reference other pieces of evidence or professional guidance. The dementia strategy, published in 2009, was cited by several proposals in their justification for reconfiguring older adult mental health services (four reviews). In one case, the NCAT specifically questions this assumption, making the point that crisis intervention teams in acute care have no evidence base in dementia care.

The NCAT reviewers make general references to good practice but do not state what evidence they are based on. For example:

> *There is widespread evidence that treatment delivered in less institutional settings is more effective, with better outcomes, particularly psychologically and socially.*
>
> *NCAT*

Several NCAT reviewers refer to data from the Audit Commission's Mental Health Benchmarking Club, which enables organisations to access comparative performance data and share best practice in mental health.

The National Clinical Advisory Team findings and conclusions

The NCAT supported proposals to reconfigure mental health services, either fully or with conditions, in 25 of the 27 reviews; it opposed the plans in one proposal to retender the provision of adult mental health services and IAPT services, and does not state its outright support or opposition to a proposal to close a personality disorder service, although the tone of the review indicates that this is not supported.

Out of the reviews the NCAT supported, 11 were supported in full and 14 with conditions. Where full support was given, the NCAT often commented that the proposed model was consistent with national policy. For example:

> *The proposed model of the new service is consistent with Department of Health policy and with Lord Darzi's Next Stage Review.*
>
> *NCAT*

In other instances it supports the clinical case for change:

> *The case for the development of the CHRTs and the reduction in bed numbers at [X] is sound and follows significant investment in community services . . . this pattern of change is consistent with national policy and good clinical practice.*
>
> *NCAT*

It also highlights evidence of positive public engagement or strong clinical engagement across primary and secondary care organisations.

The NCAT has offered consistent positions on aspects of the mental health services under review, which are described in more detail below.

Centralising or colocating inpatient mental health services

The NCAT is supportive of centralising inpatient services, closing a proportion of inpatient beds and enhancing community provision across the proposals. Reviewers also point out the economies generated by reducing the number of inpatient sites, and benefits of colocating inpatient sites alongside other inpatient services.

> *Although it is possible to support isolated in-patient units, there are significant diseconomies in doing so, as clustered units are able to provide staffing and other logistical support to each other. Particularly in the current economic climate, services should wherever possible be grouped together, provided that they remain reasonably accessible to the populations they serve.*
>
> *NCAT*

Community-based mental health services

The NCAT consistently stresses that plans for community services should be a high priority which should be developed alongside inpatient reconfigurations. It makes specific reference to improving rehabilitation services in the community, before closing inpatient rehabilitation beds.

> *It is important that the parallel work stream looking at the development of the community service model and services retains momentum and has appropriate stakeholder input.*
>
> *NCAT*

Improved access to evidence-based psychological therapies

In the proposals seeking to improve access to psychological therapies, the NCAT supports widening access to evidence-based interventions as part of the IAPT programme.

> *The focus [should be] on therapies that have a good evidence base for efficacy, including CBT approaches for depression, anxiety and PTSD and a reasonable spread of other evidence based therapies e.g. dialectical behaviour therapy.*
>
> *NCAT*

Among the 14 reviews the NCAT supported with conditions, there are some common challenges the NCAT make to the proposals around workforce, overall mental health strategy and ensuring that plans are based on robust data.

Workforce

The NCAT advises greater development of workforce plans/modelling in all the reviews supported with conditions. Examples include:

> *The trust should ensure that the workforce strategy is able to deliver the required knowledge and skills that staff require in the new service model.*
>
> *NCAT*

Wider mental health strategy

In several reviews the NCAT clearly notes that proposals to reconfigure services should form part of a wider vision for mental health services in the area, and should not be developed in isolation from other community services. For example:

> *. . . the case for change needs to be part of a wider vision for mental health services . . . that incorporates the whole care pathway including community services.*
>
> *NCAT*

Robust planning and use of data

The NCAT often comments on a lack of detail in the proposals, in either the proposed enhancement of community services or the insufficient analysis of current and future inpatient bed usage, for example 'The Trust should undertake further analysis of the bed numbers as the business case develops . . .'

In the proposal rejected by the NCAT it questions how the organisation plan to enhance existing access to psychological therapies, pointing out that it is unclear how these services will be funded and configured: 'There is a need to develop and draft more concrete outcomes and service specifications which might be more relevant for consultation.' The reviewers raise concerns that multiple providers could fragment services and lead to gaps in provision.

In some cases, the reviewers recommend that additional analysis is undertaken to assess the trade-offs between greater critical mass of services and access to local services.

> *Patient benefit (more support nearer home) [should] be more clearly articulated so that the benefits and downsides (slightly longer travel time) for patients . . . who are admitted into the inpatient service can be better weighed up . . .*
>
> *NCAT*

Other challenges

Although commenting on public consultations falls outside the NCAT's standard remit, it frequently provides advice on these aspects of the proposals, for example highlighting the need to ensure that there is meaningful involvement of the public and patient involvement groups:

> *The PCT should describe clearly for the public the preferred choice for reconfiguring mental health services and why it is necessary. The public should be asked in what way they wish services to be improved.*
>
> *NCAT*

The NCAT is generally supportive of reducing bed numbers alongside improvements in community services; in one instance the reviewers point out that the service currently has high bed occupancy rates and long lengths of stay, which suggest that the service would not cope with fewer beds unless significant changes are made.

Overall, the NCAT reviewers appear to challenge proposals more frequently in later reviews, either providing their own suggestions, or taking a more critical view of proposals. This might reflect a growth in confidence or that the changes were less clearly mandated/evidence based.

Implementation of proposals

Out of 25 reconfigurations, 16 have been implemented, one has been partly implemented, five are in progress and three reconfigurations have stalled. Nine successful proposals involved plans to close wards or beds and, of the reviews where we had information on the scale of change, two successful proposals involved larger-scale plans to reduce bed numbers by between 77 and 100 beds, while four involved plans for small-scale ward/bed closures of 15–25 beds (*Table 35*).

Changes to mental health services did not generate as much public opposition as other services; in several examples the NCAT commented on reconfigurations that had achieved consensus across all stakeholders.

> *There is a rare degree of unanimity among the chief protagonists . . . about the need for change and the direction of travel.*
>
> *NCAT*

Interestingly, all three stalled reconfigurations encountered some resistance from staff and patients. In one case, concerns raised by local clinicians and patient groups during the public consultation resulted in a decision to retain existing psychological services. The remaining two reconfigurations of inpatient mental health services encountered opposition as part of a general campaign to retain a wide range of services located within a community hospital.

Analysis of the evidence

What can we deduce from patterns of National Clinical Advisory Team activity and the local outcomes?

Mental health services accounted for 22% of the reviews that the NCAT conducted between 2007 and 2012, a significant proportion of all the NCAT reviews. In the earlier reviews, a major driver of this activity appears to have been directed centrally from policy guidelines requiring disinvestment of inpatient beds and reinvestment into community teams. In later reviews, the proposals move away from implementing mandated government strategy towards redeveloping mental health services along care pathways.

The high record of successful implementation, with nearly all reviews implemented, suggests that it is significantly easier to take forward mental health reconfigurations despite the lack of data informing these changes which the NCAT highlights in a number of reviews. This may in part be due to the small size of most proposals, frequently closing wards rather than whole hospitals.

TABLE 35 Implementation of mental health reconfigurations reviewed by the NCAT

Mental health implementation	Number
Implemented in full	16
In progress	5
Partially implemented	1
Stalled	3
Total	25

To what degree does the National Clinical Advisory Team's position reflect the underlying evidence base?

Table 36 summarises the key components of the mental health service reconfigurations alongside the position adopted by the NCAT in its reviews and the underlying evidence. This table is not comprehensive and features only the services reviewed by the NCAT. It demonstrates that in these areas the NCAT's position is closely aligned to national policy, only deviating from the underlying evidence at the same points as policy and professional guidance. The NCAT supports integrated acute and community teams, CRHT teams and wider access to psychological therapies which aligns with the evidence. However, policy and evidence diverge around centralising inpatient services, where there is little evidence to call on, and the use of assertive outreach teams where the evidence on the effectiveness is mixed.

The evidence gaps

The provision of inpatient mental services has undergone major change in recent years and more robust evidence is required to underpin the centralisation and colocation of inpatient services. We found little evidence indicating whether centralised services are cost-effective, improve staffing levels or enhance access other acute services. Patient access, clinical outcomes and quality of care also require further investigation.

As communities seek to develop mental health services tailored to their locality, more research should be undertaken to help organisations model future demand for inpatient beds and community services.

TABLE 36 The NCAT's position against evidence for mental health care

Key issue	NCAT position	Department of Health and professional guidance	Supported by/other evidence
Centralising IP mental health services, reducing bed numbers	Supportive – economies of scale, staffing and access to acute services	Supportive with greater community provision	Little evidence found
Community-based mental health services	Supportive – services closer to patients, more responsive	National guidance supportive RPsych – recommend retaining some IP provision	Some evidence they produce the same or better outcomes at similar cost. May shift costs on to other community services; not enough support for those with severe mental health needs
Assertive outreach teams	Supportive but recommend some local access to rehabilitation beds are retained	Supportive RPsych – recommend retaining some IP provision for severely ill patients	Mixed (no evidence it reduces admissions)
CRHT teams	Can be highly effective	Supportive	Yes – can reduce hospital admissions, but need appropriate skill-mix, 24/7 access
Improved access to evidence-based psychological therapies	Supportive	Supportive	Yes – improves recovery rates

IP, inpatient.

Chapter 5 Key insights

This research aims to determine what the reviews of reconfigurations undertaken by the NCAT can tell us about the current pressures for reconfiguration within the NHS in England and the solutions proposed. It sets out to assess the quality of evidence used by the NHS and the NCAT in making and reviewing the case for change, respectively, any key evidence gaps, and the opportunities to strengthen the clinical case for change. We have also taken the opportunity to review the process adopted by the NCAT, its strengths and weaknesses and what this teaches us about the best way to review the clinical case for change within the NHS. Our aim throughout this analysis is to deepen our understanding of the reconfiguration process and provide new insight into the clinical evidence base used by the NHS, how it should be assured and the gaps that exist.

The current pressures for reconfiguration within the NHS and the solutions proposed

The evidence from the NCAT reviews is that there are significant pressures to reconfigure services within the NHS in England. As we highlight at the outset, England is not alone in facing these pressures, but it is striking that English hospitals are, on average, much larger than their European counterparts and the number of beds per head of population lower.

Some service areas have been more vulnerable to reconfiguration than others. The following list ranks the services, with those that have been most subject to reconfiguration first:

1. emergency services driven by finance and medical workforce pressures
2. mental health driven by finance and policy imperatives
3. maternity driven by medical and midwifery workforce pressures and safety concerns
4. primary and community driven by finance/demand management
5. paediatric services driven by medical and specialist nursing workforce pressures and finance
6. whole-hospital or -system change driven by workforce and finance
7. elective surgery driven by finance and their interdependence with emergency services
8. elements of specialist services – vascular, stroke and trauma driven by evidence on outcomes and medical workforce pressures.

As we observed at the beginning of this report, the NCAT has not reviewed all reconfigurations and missed some areas of the country entirely. However, we can be confident that the following is a good indication of current pressures, particularly the drivers of change, given their relative consistency across all reviews. A comparatively small proportion of all the NCAT reviews were attempts to reconfigure whole trusts or whole systems, while the largest number of reviews related to urgent and emergency care, followed by mental health services.

Most of the reconfiguration proposals involved the centralisation of services on to fewer sites, with downgraded models of care left on the sites to lose services. As we noted in our whole-hospital/-systems analysis, this involved services moving towards treating patients who had less serious conditions or carried less clinical risk.

- A&E → UCC/MIU
- acute/emergency medicine → non-acute or rehabilitation
- acute/emergency surgery → elective inpatient surgery → day surgery
- consultant-led obstetrics → MLBU
- inpatient paediatrics → PAU
- community beds → community teams.

In the case of mental health, proposals primarily involved rationalising inpatient provision alongside the development of community-based services and teams.

The impression from the reviews was that a number of the service models, such as the UCC, PAU or MLBU, often acted as a 'consolation prize' for sites losing acute services. As we discuss later, more evidence is needed about these models, their clinical effectiveness and their cost-effectiveness.

Drivers for reconfiguration

The primary drivers of reconfiguration have been workforce (in particular the medical workforce) and finance. Improving outcomes and safety issues have so far been subsidiary drivers, though many make the link between staffing and clinical safety. Access was notable by its absence. Policy has also been a notable driver in some areas, for example mental health and community services.

Financial drivers

Finance was the most frequently cited driver of reconfiguration and a core driver of mental health service reconfiguration in particular. As the NHS faces unprecedented financial pressures over the next 5 years, the pressures to reconfigure services on financial grounds are likely to grow. In a recent publication that sets out how NHS providers might bridge the prospective funding gap, Monitor said 'The evidence suggests that reconfiguring services and integrating care more effectively across providers could yield productivity improvements in the region of £2.4 billion to £4 billion by 2021' (p. 2).[201] This is a matter of concern given the lack of evidence that reconfiguration will deliver significant savings. This is a critical evidence gap and one that should be filled urgently. It is possible that the NHS could pursue a path of reconfiguring services that will worsen rather than ameliorate the financial pressures.

Workforce drivers

Workforce pressures and, in particular, medical workforce pressures are also likely to grow. As we explored earlier, availability of medical trainees is a major component of the workforce pressures. The UK's traditional reliance on doctors in training to provide frontline medical cover in all hospitals (particularly at night) has meant that the application of the EWTD has had more impact here than in other European countries.[202] After over 10 years of expansion in the numbers of medical trainees, in part to address the comparatively low numbers of doctors in the UK as well as ease the pressures created by the EWTD, current workforce planning assumptions suggest reductions.[203] As a result, hospitals in which junior doctor rotas are already under pressure may find that rotas become impossible to sustain. More evidence is needed about alternative staffing models that could reduce reliance on junior doctors. The UK is distinctively different from other countries in our reliance on junior doctors, where qualified consultants provide core medical cover. The UK has also experimented with using extended nursing roles as a substitute for junior doctors, in particular in emergency medicine. There could be useful research into different staffing models, from the UK and abroad, to assess the degree to which they could be applied to the UK.

Safety considerations

Given the emphasis put on reconfiguration as a means to improve quality and safety, it is surprising that safety and quality issues have been a relatively weak driver of clinical service reconfiguration for core general hospital services. However, for specialist services such vascular surgery, where there is clear evidence of the quality gains from service reconfiguration, quality and safety considerations have driven change.

The increased focus on safety following the Francis Inquiry to Mid Staffordshire Hospital and the strengthened role of the CQC in identifying failures in quality may strengthen safety issues as a driver. There has been some thought that the CQC would inspect against College standards. If this were to happen, it could be a major trigger for further reconfiguration.

Policy drivers

Centrally directed policy may also add further pressure to reconfigure services. As we identify in our analysis of urgent and emergency care, the Keogh Review is likely to drive change in A&E provision. Specialist services are also likely to experience further reconfiguration; the latest planning guidance from NHS England states 'Our strategy for specialised services is still in the early stages of development, but we can foresee a concentration of expertise in some 15 to 30 centres for most aspects of specialised care' (p. 17).[204]

Access as driver

As we noted earlier, access was notable by its absence as a driver of change. In most cases, in the trade-off between access, quality, money and workforce, access was the dimension to lose out. This is despite the value that the public place on local access, evidenced through their frequent opposition to change.

Public and political opposition to change

A key issue to arise in our review of pressures to reconfigure services was how strong the countervailing pressure *not* to reconfigure was, pressure that came from the public and politicians. This political pressure is evident in the NCAT's reviews and came through strongly in our interviews with NCAT reviewers.

> *People that propose the changes we look at are often not very smart in framing the development of these proposals as a collaborative and iterative process involving service users. They present their ideas for consultation when they've decided what needs to be done. That misses out a very important conversation about what should be done. And it excites people who will oppose it. And it doesn't engage the workforce. This could make the whole process fall down. It is a failure to not realise this. Unless you can understand the argument from the opposing position and articulate an intelligent response to that and see what gains are, you will have a very difficult time. Especially with the impact of public opposition and political pressure.*
>
> *NCAT*

As our analysis reveals, significant numbers of the proposals reviewed by the NCAT have yet to be implemented and change can take many years. In contrast, it was notable that there was a high record of success in implementing proposals within mental health services that fail to capture the public interest in the same way.

It is also striking that none of the reconfigurations reviewed by the NCAT was prompted by patient or public pressure for improved services. As one member of the steering group (see *Appendix 11*) for this research pointed out, this says a great deal about the gap between the rhetoric and the reality of the 'patient and public engagement' agenda.

The quality of the evidence used by the NHS and the National Clinical Advisory Team in making and reviewing the case for change, respectively

The key sources of evidence cited in the NCAT's reviews were professional and policy guidance. As our analysis shows, the position taken by NCAT reviewers rarely contradicted that of the professional bodies. The NCAT also rarely contradicted the proposals made by the NHS – nearly all proposals were supported. By inference, and perhaps not surprisingly, the NHS reconfiguration proposals were also closely aligned to the guidance issued by the Royal Colleges and national bodies such as the Department of Health and NHS England.

But to what degree are professional guidance and policy underpinned by wider research evidence? Our analysis found a large degree of agreement between the two. A key area of synergy is the ambition to achieve more consultant-delivered care 24/7. There is a compelling evidence base, in particular from the work of the NCEPOD, of the benefits to patient outcomes that would derive from this. However, not one of the proposals suggested ending the reliance on junior doctors to provide frontline cover. Proposals

frequently sought to strengthen junior doctor as well as senior doctor numbers rather than driving a shift from consultant-led to consultant-delivered service.

It was also notable what a different order of evidence sat alongside specialist service reconfigurations of vascular surgery, trauma and stroke. For these specialties there was strong evidence of the benefits of service rationalisation, with many studies to call on, whereas for paediatrics and maternity reconfiguration there was little, if any, direct evidence to support the reconfiguration of services. One reason for this could be the diagnostic clarity associated with these services and therefore the capacity to attribute outcome to intervention. A point made to us during our research was the degree to which diagnostic and disease complexity hampers good outcome assessments for general medical services. The comparatively small numbers of deaths, say in paediatric or maternity services, can also make it hard to gather robust outcome data.

We also found examples of evidence contradicting the 'received' position. The most significant is the evidence about the impact that primary and community-based care can have on demand for acute hospital care. The policy position is optimistic about the potential to reduce demand for hospital care through community and primary care developments, and the evidence from the NCAT reviews is that the NHS tends to reflect this in the assumptions that underpin reconfigurations. The NCAT frequently highlighted the importance of changes in primary and community care as a means to help control demand on hospitals but, in line with the evidence, it often expressed scepticism about the scale of potential impact on hospital activity. Of course, we should not lose sight of the gains in the quality of the patient experience from strengthened services in the community. The real challenge this poses is to the economic case for reconfiguration.

Other instances where the evidence provides a potential challenge to professional/policy guidance include:

- the overall quality benefits of centralising A&E services
- the two-tier model for stroke services
- defining a minimum number of cases for a major trauma centre
- the use of assertive outreach teams in mental health services as a means to reduce inpatient admissions.

There are also key areas where evidence is lacking. As we highlight on a number of occasions, the process of reconfiguration is rarely subject to any sort of economic or quality-based evaluation. This is a significant and important evidence gap. Reconfiguration is not without risk. There are known risks from additional travel times. The process of reconfiguration presents a major organisational distraction and one that can precipitate financial failure.[205] There are also major uncertainties about the clinical models being put forward to sustain local access, most notably the proposed PAUs, which we could find little evidence to support.

> *So often reconfiguration is driven by professions with specific interests. Whereas it should be what needs to be done to improve quality and then how does it need to be best delivered? You can see the professional interests coming through in proposals. The problem is we don't have the evidence of impact of reconfiguration for general medicine, obstetrics, paediatrics, maternity – other than NCEPOD.*
>
> *NCAT*

As the quote above suggests, in the absence of evidence around reconfiguration, reconfiguration is frequently driven by the medical workforce and achieving, for example, the minimum consultant staffing numbers recommended by the Royal Colleges. Yet as we explored in our analysis of the maternity reviews this number is not of itself evidence based and is dependent on a number of other factors. In the case of maternity, these factors include individual job plans and the number of sessions devoted to labour ward cover. This, in turn, is dependent on a model of working that assumes consultants are providing support to

both maternity and gynaecology services. We summarise in our conclusion the areas where further research would be beneficial to help fill the evidence gap.

Lack of innovation and new ways of working

There was a notable absence of attempts to redesign services or use new ways of working to address the pressures faced. As we suggest earlier, some of the workforce pressures, particularly around junior doctor cover, could be addressed with enhanced roles for nurses. There is experience of this in a number of specialties including paediatrics and emergency care, yet trusts are being left to drive these solutions themselves.

Another example of a lack of innovation was the absence of proposals to create 'focused factories' in elective care, that is units that specialise in one procedure (e.g. cataracts) or specialty (e.g. orthopaedics), despite an evidence base to support this.[83]

The lack of innovation and proposals that articulate how the quality of care will be improved was an issue noted by one of the NCAT reviewers we interviewed.

> *I made the point in that report that if you have two small paediatric units and you want to merge them to combine their strengths on a different site, it is not a process of just saying you'll just be travelling to another place. You will just have the same bad service delivered in another place.*
>
> *NCAT*

He expanded on the point in the review that he references. We include his commentary here as he makes a compelling case for the need to look beyond the reconfiguration of services as means to improve the quality of clinical care.

> *During the last two decades evidence of the extent of this harm has been documented in developed healthcare systems worldwide. Similar levels of failure have been observed in acute services provided in hospitals in the UK, Europe and North America. For example ten per cent of patients admitted acutely suffer harm and in at least half this harm is avoidable . . . It is now clear that the prevention of these service failures depends on far more than the effort and skills of individuals and that organisational, cultural and systems defences are some of the most influential preventative factors. It is also probable that events outside of the main sites of acute care are far more influential in determining the health and wellbeing of populations. Despite this knowledge the focus for improvement tends to be predominantly on strategic reconfiguration of acute sites. This is an important but insufficient approach.*
>
> *NCAT*

This research highlights a tendency to equate centralisation of services with improvement of services and little exploration of how the anticipated improvements will be achieved in practice. Innovative alternatives to reconfiguration are also underexplored, with a notable absence of national support for developing new roles to help manage reconfiguration pressures.

Chapter 6 Conclusion and research recommendations

This research provides novel insight into clinical service and hospital reconfiguration in England, what is driving it, the evidence that sits behind it, and, to a limited extent, its outcomes (in terms of success of implementation).

To our knowledge, this is the first review of such a large number of reconfigurations, certainly in the UK. This research also provides the first major assessment of reconfiguration proposals against the available evidence, including the evidence that might support or otherwise current professional and policy guidance. However, the NCAT reviews we have studied are both geographically biased and influenced by the origins of the NCAT, evolving as it did out of work on urgent and emergency care. The reviews also represent the NCAT's view of the reconfiguration process. This research has not triangulated the NCAT's reviews with the documentation and experience of those undertaking the reviews. That said, we feel confident that the reviews provide reliable insight into the core drivers of reconfiguration and the solutions proposed.

Subject to the caveats above, we can draw the following conclusions. Since 2007 the primary drivers of service reconfiguration have been medical workforce and financial pressures. Quality drivers have been subsidiary and often linked to workforce numbers. It is the limits to medical workforce numbers and financial considerations, not quality or access, that have set the reconfiguration agenda. The patient voice, rather than advocating and driving change, has been a major obstacle to the changes proposed. A significant proportion of reconfiguration proposals fail to be implemented as planned. We support the conclusion of Spurgeon *et al.*[3] that reconfiguration is not a singular event but a continuing process. Our research also supports the findings of the IRP[26] that the NHS is often poor at making the case for change.

The future economic environment for the NHS, alongside a reduction in hospital doctor training numbers, suggests that the pressures to reconfigure hospital, mental health and community services can be expected to grow. There will be further policy pressures to reconfigure emergency and specialist services. The strengthened role of the CQC in hospital quality inspection, especially if inspecting against College standards, could be an additional catalyst for service reconfiguration.

Although there is some good evidence to support many of the reconfiguration proposals reviewed, in particular the reconfiguration of specialist services, there are notable evidence gaps and some contradictions between the available evidence and what is proposed. The most significant is the absence of evidence that service reconfiguration can deliver significant savings. It is a matter of concern that, if a primary driver of reconfiguration is finance, there is very limited evidence to suggest that reconfiguration will deliver significant savings, and could cost more or even precipitate financial failure. Hospital reconfigurations are rarely evaluated for their economic or other benefits. Although there are notable methodological challenges to doing this,[3] these should not discourage future attempts. There is also a significant gap in the evidence about safe staffing models and the appropriate balance of junior and senior medical as well as other clinical staff.

The reconfiguration of clinical services represents a major organisational distraction, can carry significant financial risk and is likely to face significant public opposition. At the same time, clinical safety can be severely compromised by suboptimal staffing levels. The challenge faced by the NHS is judging when reconfiguration provides the best means to address workforce and safety issues. At the moment, the evidence appears to be lacking to help find novel solutions that can help to avoid the need for service reconfiguration and/or use reconfiguration as a means to deliver significant savings.

In our view, the following would help to address the current evidence gap.

Suggestions for future research

Evaluation of different staffing models, particularly alternatives to junior doctor cover

More evidence is needed about alternative staffing models that could reduce reliance on junior doctors and help to deliver more consultant-delivered care. There could be useful research into different staffing models, from the UK and abroad, to assess the degree to which they could be applied to the UK. For example, there is a strong case to increase the hours of consultant presence in maternity services, but not necessarily to support centralisation to reach greater numbers of consultants per unit. Further research would be welcome to understand how staffing rotas and job plans might be constructed to help to sustain local services.

Longitudinal studies of whole-hospital reconfigurations, including the centralisation of accident and emergency services, to assess the economic and quality benefits

More longitudinal studies are needed to track the economic and quality benefits of whole-hospital reconfigurations, including the centralisation of A&E services. There is a particular need to evaluate models of care providing local access to acute medical care without onsite surgical support, including clinical outcomes and workforce sustainability.

Impact of enhanced primary and community care services on acute hospital care

Primary care and out-of-hospital services have been viewed as a means of significantly reducing emergency admissions and A&E attendances, but we found little evidence to help people make robust planning assumptions about the scale of impact. It is possible that the limited scale and scope of attempts made so far in primary, community and intermediate care do not yield enough data. Thus, more studies of this type of service change on a larger scale could provide the missing information on cost and quality outcomes.

Standalone elective surgery facilities

Further studies into the cost-effectiveness and clinical effectiveness of different service volumes for standalone elective surgical facilities would be beneficial. Consideration could also be given to investigating the consequences of more differentiated models of elective care such as ‘focused factories’ for procedures including cataracts, hernias and orthopaedic implants.

Evaluations of clinical models, for example standalone paediatric assessment units and standalone midwife-led birthing units

There is a need for continued research into standalone MLBUs and their clinical and financial sustainability. In particular, the risks associated with transfer time remain poorly understood. Research into their sustainability would include work to understand:

- the reasons why almost as many standalone MLBUs have been closing as have opened
- whether or not the examples of diminishing maternal demand for standalone MLBUs after their opening are a widespread phenomenon
- the reasons why women choose different birth locations.

We could find little evidence to support clinical and economic benefits of the centralisation of paediatric inpatient units and the replacement of smaller units with standalone PAUs. There is also a lack of consensus over staffing standalone PAUs. Some standalone PAUs have consultant leadership, whereas others would be led by PNPs. This would affect the outcome of any evaluation and so would need to be seen as distinctly different models. A key issue is the best way to link standalone PAUs to their parent inpatient units and other paediatric services in the surrounding areas. Pilots and/or evaluations of managed paediatric networks might show whether or not they would be valuable in light of the high expected rate of transfer from standalone PAU to inpatient unit.

Mental health services

More robust evidence is required to underpin the centralisation and colocation of inpatient services. We found little evidence indicating whether centralised services are cost-effective, improve staffing levels or enhance access other acute services. Patient access, clinical outcomes and quality of care also require further investigation.

Overall

There is a need to establish a deeper understanding of the trade-offs between quality, cost and access – both the underlying evidence as well as the public's willingness to trade-off one dimension against the other for different service areas. Experience suggests that the trade-offs that the public are willing to make are very different from those of NHS managers or professionals. A better knowledge of these differences would be beneficial for NHS managers and professionals.

Improving the process of clinical review

Although our analysis highlights that the NCAT and its processes had some major shortcomings, it also had notable strengths. The steering group for this research, all with significant direct experience of reconfigurations, were unanimous in their view that the NCAT, or an equivalent mechanism to review and validate clinical proposals, was an important resource. People taking forward reconfigurations in the NHS needed to be encouraged to make use of expert clinical advice.

The current guidance from NHS England is that this advice will come from the newly established clinical senates. Although the clinical senates will have the advantage of local knowledge and be well placed to identify any issues arising from clinical interdependencies, they will also face challenges. The Senates may be perceived to have inherent conflicts of interest. The membership is currently dominated by clinicians from the larger acute trusts,[24] who could be seen to have a vested interest in driving forward the closure or downgrading of smaller acute trusts. Perhaps more importantly, there is no formal requirement for commissioners and trusts to take on board their views.

In our view, maintaining a body of national expertise including a central repository of information with examples of best practice that clinical senates can draw on would be advantageous. It would be particularly valuable if it could provide not only clinical insight and advice but also advice about the process of public and clinical engagement. It is evident from the NCAT reviews that poorly conducted processes, often lacking local clinical buy-in, are at least one reason that many reconfigurations fail to be implemented. This body could also proactively seek out and evaluate innovative means to sustain local access to services as well as setting out the evidence base in a way that would be helpful to local commissioners and trusts. Finally, they could offer training to people in the local senates that undertake clinical reviews of this kind. The Health Gateway Review team could also strengthen the clinical dimension of their reviews including checking that clinical senates and strategic clinical networks are engaged.

There would also be benefits from new national guidance in this area setting out expectations around how clinical reviews should be conducted, the information to be made available to clinical review teams and how their advice should be acted upon.

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Contributions of authors

Candace Imison, **Lara Sonola**, **Matthew Honeyman** and **Shilpa Ross** engaged in study design, data analysis, interpretation and report writing.

Candace Imison and **Nigel Edwards** edited the final report.

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Appendix 1 National Clinical Advisory Team review process

In this appendix we explore the NCAT review process in greater detail and provide additional information on Health Gateway reviews and the membership of clinical senates.

How National Clinical Advisory Team reviews are conducted

Early process (2007)

The initial reviews were conducted solely by the NCAT chairperson, usually on the request of the local PCT or SHA. During the review, the chairperson would try to get underneath the detail of the processes of care.

> *I would receive lots of detailed info about numbers, time of day, waiting times, etc. We asked for all that in advance. Sometimes we got it. On the whole, trusts were very helpful.*
>
> *NCAT*

The outcome of the visit would be a report that would go to the trust. Sometimes it would be shared with the Secretary of State.

Current process

The process from 2009 onwards was more formalised. The first contact tended to come from the reconfiguration project manager or responsible officer, sometimes at the prompting of Gateway or the SHA. As noted above, however, there was no statutory requirement for the NHS to engage the NCAT. This put the NCAT at the beck and call of the NHS rather than the other way round.

Initiators of reviews

We identified 'initiators' for 104 reviews. Sixty-six were called for by SHAs, 28 by PCTs and 10 by the providers themselves. Four were jointly initiated by SHA/PCT and provider, and another four came from national Specialised Commissioning Groups.

Supporting documentation

A key issue for the NCAT was the supporting documentation provided by the areas they review. A pro forma provided by the NCAT set out the information required (see *Appendices 2* and *3*). The NCAT always asked for staffing information, as this is such a critical driver of change. As reconfigurations can be long, 10- to 15-year processes, the NCAT also asked for background information (*Box 6*). Our analysis shows that the amount and quality of evidence provided to NCAT was variable.

Selection of reviewers

Between 2007 and 2012 the NCAT used 65 different reviewers. The NCAT chairperson participated in 52 reviews. *Figure 6* shows the number of reviews per reviewer excluding the NCAT chairperson. A significant number of reviewers conducted only one or two reviews. Reviewers were selected by the NCAT chairperson and were not subject to a formal appointment process. Although a number of reviewers had links with the Royal Colleges it was important to the NCAT that the reviewers expressed an 'independent' rather than a College view.

BOX 6 Evidence provided to the NCAT to support its reviews

Majority of reviews

- Terms of reference of the local review.
- Local business cases and strategies (which may include some of the information below – particularly activity modelling).
- Minutes of relevant stakeholder meetings.
- Supporting working group reports.

Minority of reviews

- Local activity analysis.
- Staffing numbers and rotas.
- Feedback from local stakeholders including local public and patient surveys.
- Local needs assessments.
- Local feasibility studies.
- Detailed service specifications for the proposed services.
- Other reviews conducted by clinicians – often from the Royal Colleges.
- Details of local SUIs and their root cause analysis (very exceptionally – few cases only).

There are instances where no evidence was been provided pre visit.

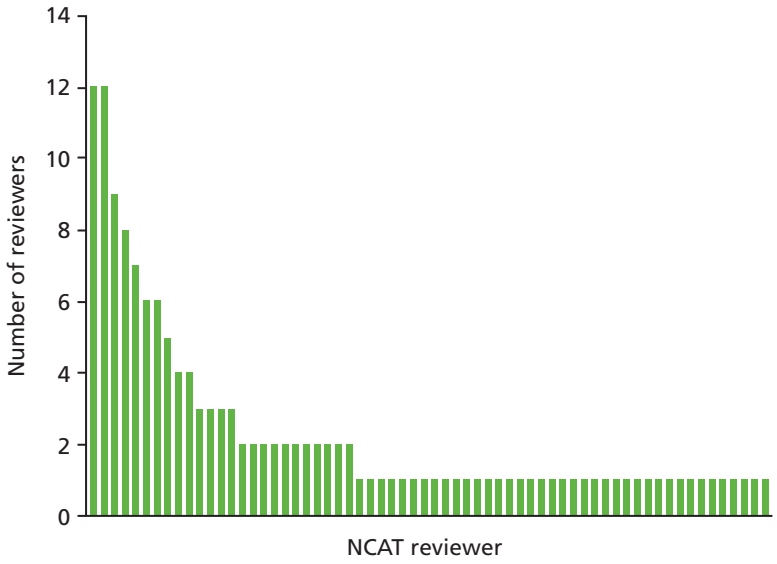

FIGURE 6 Number of reviews per NCAT reviewer (2007–12).

In the beginning there was a generic selection approach. Any NCAT clinician could undertake a review, regardless of specialty, but the NCAT chairperson thought that specialty could bring authority and buy-in from the people the NCAT was reviewing.

> *I've tried to involve more and different types of clinician, such as nurses, therapists and midwives. Before I was appointed, midwives did not do maternity services.*
>
> *NCAT*

The NCAT chairperson also brought in people with non-clinical backgrounds, including hospital managers. The stature of NCAT reviewers was also important. Large, more complex reviews required people able to operate at that level. The NCAT chairperson tried to do many reviews himself earlier on in his tenure. He wanted to see his visitors in action and achieve consistency in the review process. He would accompany new reviewers on their first visit to ensure they were able to undertake their brief.

> *I think I've got a fairly rounded view. I am able to handle the politics, whereas some of the visitors can be quite rigid. There are some other world views we must consider. The workforce plans for the college are important but they mustn't drive the whole process.*
>
> *NCAT*

Review scope and timeframes

The NCAT's role varied from very early advice through to the post-hoc role of advocating change. The majority of reviews were conducted prior to public consultation as shown in *Table 37*.

If the NCAT's involvement was requested before public consultation, it took on the statutory assurance role.

> *The earlier we get involved the better; it takes us a long time to understand the patch and all the details and to learn what isn't being said in the papers and what referral patterns are.*
>
> *NCAT*

As *Table 38* shows, the majority of reviews were supported by formal or informal visits, but the NCAT also conducted 17 desktop reviews.

TABLE 37 Timing of NCAT engagement (2007–12)

Timing of review	Number
Prior to public consultation	93
During public engagement	10
Unknown	10
No public engagement	8
After reconfiguration	1
After public engagement	1

TABLE 38 Type of NCAT reviews

Review type	Number
Formal visit	92
Desktop review	17
Informal visit	12
Special visit	2

In the main, the NCAT preferred to visit if it could.

> *Generally the initial information given to us is not robust. One aspect is the culture within the organisations. This will be known to project teams but not evident in the papers. Going to an anonymous committee room and looking at the paperwork is not the real deal (not a good insight into how care is delivered and how teams work).*
>
> *NCAT*

The evidence from the reports is that the NCAT met a wide range of stakeholders. There was always a senior clinician, usually the medical director, but the number and range of clinicians varied. Visits, which generally lasted 1 or 2 days, involved meeting around 40 people, of which over half were usually clinical staff (doctors, nurses and therapists). The remainder were those leading the service change from within the providers and commissioners, and other key local stakeholders, generally at board level and immediately below. Most visits included a meeting with patient and/or public representatives but the numbers of these representatives were small, often about 2–3 people. Local GPs were regularly spoken to. A relatively small minority of reviews involved meeting only the project team, circa five people.

Desktop reviews tended to be used when the NCAT was called in late in the process, for example where it was reviewing business cases for 'say' a merger, or in one case a national project with a high standard of evidence built into it and a large amount of supporting documentation.

The Health Gateway Review process

Health Gateway Reviews provide assurance to programme and project owners that their project is on course to deliver the desired outcomes, on time and within budget. The Gateway review forms part of the assurance process for managing successful service reconfigurations endorsed by NHS England and is provided free of charge by a team hosted by the Cabinet Office with funding provided by the Department of Health.

Gateway Reviews are carried out by a team of experts selected from a pool of over 300 accredited reviewers with health and/or independent expertise. Visits are usually conducted over 2 to 4 days by three or four reviewers. The review team produce a confidential report for Senior Responsible Owner (SRO) giving an assessment of the programme or project and any recommendations going forward. The review team retain a copy but the reports are not shared with the Department of Health or NHS England.

Membership of clinical senates

The membership of clinical senates is locally determined, although guidance from NHS England has outlined the core steering group.[23] Each senate is chaired by a clinician and is expected to include clinicians from Clinical Commissioning Groups, community, primary and secondary care organisations as well as local representatives from public health, social care, public and patient groups and the relevant NHS England area team.

The guidance[23] indicates that clinical senates will be supported by a team including a strategic clinical network and senate associate director with overall general management responsibility for the strategic clinical network and the clinical senate in a given patch. The associate director, and the chairperson of the clinical senate, would report to and be professionally accountable to the NHS England area team medical director. Involvement of all area team medical directors and nurse directors is encouraged in the leadership of both strategic clinical networks and senates. Clinical senates would have access to a part-time manager and a part-time personal assistant (PA). Although these core posts will be common to all network support teams, individual teams may also be supplemented using local funding.

Appendix 2 Pro forma for organisations requesting a National Clinical Advisory Team review

NHS next stage review: leading local change

Notification of impending reconfiguration scheme

Date of referral.

Strategic Health Authority.

Strategic Health Authority Lead (name and full contact details).

Name and contact details of programme manager.

Name of Scheme and a very short description (3 lines or so) of the scheme (type of care, number of patients and facilities involved).

NHS Organisations affected.

Local Authority Health Overview and Scrutiny Committees affected.

Indicative time scales (including likely timing of public consultation).

National Clinical Advisory Team (please specify the nature of the NCAT support requested i.e. 1st assurance of scheme or more detailed engagement).

Timing of NCAT assurance.

Appendix 3 Information required to inform a National Clinical Advisory Team visit

- Programme Initiation Document.
- Outline business case or similar.
- The case for change.**
- Agendas and minutes of significant meetings of clinicians and with the public.**
- Presentations of the project team outlining the reconfiguration.
- If not contained within the above, a description of the health needs assessment of the population involved (demographics, significant health problems of the population, case mix attending local health services).**
- Current activity and resources (including bed numbers) of the health services involved.
- Performance data to include patient activity and flows, bed occupancy and average length of stay, clinical governance information such as SUIs, relevant patient outcomes, clinical and patient related, operative complications, etc.**
- Workforce to include present workforce, medical, nursing, therapies, etc. on a specialty basis and where relevant workforce related to activity and beds, numbers of grades and trainees, evidence of educational assessments, deanery and nursing college reports**
- Description of ancillary and supportive services, e.g. critical care for all acute services, neonatal services for maternity services.
- The options for change describing clearly the as is position and the changes envisaged with impact on beds, workforce, etc.**
- Plans for public consultation with draft public consultation document.
- Previous service assessments, either from specialist societies, previous NCAT visits, CQC reports, Gateway and Monitor reports.

**essential documents.

Appendix 4 National Clinical Advisory Team reviews: coding framework/structure

The case for change: drivers

(Core drivers articulated in case for change as to why current service model is not sustainable).

- Drivers for change.
    - Poor outcomes (e.g. summary hospital-level Indicators, readmission rates, length of stay, post-operative complications).
    - Patient/family experience [i.e. poor experiences (complaints) as a driver].
    - Unsafe practice (is the current service safe?).
    - Failure to meet quality and safety standards.
        - Compliance with Royal College/Deanery guidance.
        - Compliance with CQC essential standards of quality and safety (e.g. medicines management, cleanliness and infection control).
        - Compliance with other best practice guidance (e.g. meeting minimum volume of patients/cases).
    - Workforce issues.
        - Inability to provide safe level of cover 24/7 for junior doctors (How does the site provide overnight care/define 24/7 cover?).
        - Inability to provide safe level of cover 24/7 for consultants/other workforce (How does the site provide overnight care/define 24/7 cover?).
        - Inability to provide timely access to specialists.
        - Other workforce issues.
- Inadequate facilities/supporting resources (e.g. diagnostics, pathology, etc.).
- Finance (affordability issues).
- Estates (quality of existing physical environment).
- Centralisation (too many sites or similar services located in the area).
- Service adjacency issues (interdependencies between specialties, e.g. maternity and paediatrics).
- Lack of patient choice.
- Size of service/critical mass (whether the size of the service affects its sustainability or if they see enough patients).
- Access.
- Other drivers (additional evidence that the current model is not fit for purpose, other than those mentioned above).
- Conclusions about service sustainability.
    - Meeting future population needs.

The case for change: anticipated/expected outcomes

(What are the anticipated outcomes of service reconfiguration articulated in the case for change, e.g. improved safety, patient experience, etc.)?

- Improved quality of physical environment.
  - Evidence on how will be delivered.
- Improved clinical outcomes.
  - Evidence on how will be delivered.
- Meeting/exceeding minimum quality and safety standards.
  - Evidence on how will be delivered.
- Improved access to diagnostics and other support services.
  - Evidence on how will be delivered.
- Improved medical cover.
  - Evidence on how will be delivered.
- Improved financial position.
  - Evidence on how will be delivered.
- Improved access to services in the community.
  - Evidence on how will be delivered.
- Improved patient and family experience (i.e. reconfiguration will lead to more compassionate care, care with dignity, more involvement, etc.).
  - Evidence on how will be delivered.
- Creation of a clinical network.

The case for change: impact assessment

(Quality of impact assessment, e.g. what impact will the changes have on patients?)

- Impact on patients (What is the impact of the proposed reconfiguration on patients?)
  - Access (e.g. car parking, public transport, travel times, etc.).
  - Choice (does it promote patient choice?).
  - Overall experience.
  - Any explicit trade-offs?
- Health inequalities impact assessment.
- Impact on the interface between the hospital and the community.

Quality of engagement (detailed in the case for change)

- Local stakeholders (e.g. GPs, public/patients and staff).
  - Stakeholder dissent (local).
- National stakeholders (Department of Health, other government departments, regulatory/supervisory bodies, etc.).
  - Stakeholder dissent (national).
- Political stakeholders.
  - Stakeholder dissent (political).

National Clinical Advisory Team: degree of support from NCAT for the case for change

(To what extent does NCAT support the case for change?).

- NCAT agreement with the case for case.
  - Agree.
  - Agree with challenges.
    - What were the key challenges made?
  - Disagree.
- What was NCAT's assessment of the degree to which Lansley's four tests have been met?
  - Clarity of clinical evidence base.
  - GP/commissioner support.
  - Improved or strengthened public engagement.
  - Support for patient choice.
- NCAT judgement on quality of clinical evidence.
- NCAT assessment of clinician support.
- NCAT additional comments *(Has NCAT made any additional comments on the proposed reconfiguration e.g. scope, scale, timeframe)*.
  - Impact on other providers and sustainability.
  - Workforce planning.

National Clinical Advisory Team decision-making

(What evidence has NCAT used to reach their decision; is there a clear audit trail of the process?)

- Evidence used by NCAT in their assessment of NHS case.
    - Use of outcome indicators.
    - Use of peer reviewed literature.
    - Compliance with national service standards.
    - NCAT/author's own experience and/or judgement.
    - NCAT unable to cite any specific evidence (i.e. lack of evidence).
    - NCAT assessment of current best practice.
    - Workforce issues.
    - Service adjacency issues.
    - Patient choice.
    - Safety.
    - Centralisation.
    - Service adjacency.
    - Service sustainability.
    - Patient access.
    - Networks and provider working relationships.
    - User voice.
    - Finance issues.
    - Patient experience.
- Audit trail of the decision-making process.
    - Evidence that a wide range of staff were interviewed.
    - Evidence that a wide range of documents were reviewed.
    - Partial audit trail.
- NCAT terms of reference for review. (What were NCAT's ToR for the review?)
- How the benefits will be realised.

1. NCAT recommendations.
2. Transition issues *(Commentary by NCAT on the transition process)*.
3. Key contextual issues.

- Transport issues.
- Provide configuration.

Review characteristics

- Organisation.
- Location (by SHA).
- Scale (e.g. ward/service/multiple service/whole organisation/whole locality/whole region).
- Specialty.
- Type of document (NCAT report, desk review, informal review, special visit).
- Scale of reconfiguration (ward/service/multiple service/whole organisation/whole region).
- NCAT conclusion (support/support with conditions/not supported).
- Name/credentials of the reviewers.
- Timing of NCAT engagement (prior to public engagement, during, after).

Appendix 5 National Clinical Advisory Team interview topic guide

Background

- Interviewee's particular relationship and experience with NCAT.
    - How many reviews have they personally been involved in – approximately.
    - How many reviews have they overseen – approximately.

Can they describe a typical National Clinical Advisory Team review process?

If they have not mentioned any from list below – then explore further:

- timescales – being approached through report write-up
- selection/number of reviewers
- decision-making process and how recommendations are reached
- managing differences of opinion
- how evidence obtained/reviewed? Desk review versus visit
- how NCAT judge case for change evidence
- the evidence that NCAT use
- quality assurance processes – peer/team review.

What do they think are the strengths of the National Clinical Advisory Team review process?

(a) From the perspective of those leading the reconfiguration.
(b) From the perspective of those overseeing/quality assuring the reconfiguration process.

What are the challenges?

(a) From the perspective of those leading the reconfiguration.
(b) From the perspective of those overseeing/quality assuring the reconfiguration process.

In their view – what will be the impact of the new commissioning/regulatory framework on the process of reconfiguration?

What are the implications for NCAT?

Given the new context – what role do they think NCAT should play and what would help it do this role most effectively?

Appendix 6 Initial search strings

Search dates: 31 July 2014, 1 August 2014, 6 August 2014, 10 September 2014, 25 September 2014.

Search strings:

The King's Fund database:

(reconfiguration or reorganisation or redesign or sustainability or centralisation or decentralisation or organisational change or service relocation or mergers) AND (outcome or outcomes).

OR

(medical consultants or medical staff or midwives or workforce or staff or staffing or access or specialist or specialists).

OR

(volume or care pathways or case load or workload or list sizes).

OR

(quality or effectiveness or evaluation or reviews or validity).

OR

(safety or risk).

OR

(European Union directives and working hours) or kw: EWTD.

Department of Health Data

(Su: (reorganisation or sustainability or centralisation or decentralisation or organisational change or service relocation or mergers) OR freetext: (reconfiguration)).

AND

su: (health outcomes OR clinical outcomes OR outcomes).

OR su: (medical consultants or medical staff or midwives or workforce or staff or staffing).

OR su: (volume or care pathways or case load or workload or list sizes).

OR su: (quality or effectiveness or evaluation or reviews or validity).

OR su: (patient safety or risk management).

PubMed

[Title/Abstract] (reconfiguration OR configuration OR redesign OR sustainability OR centralisation OR concentration OR decentralisation OR fragmentation) and Title/abstract (outcome OR outcomes) AND Great Britain [MeSH] AND (Models, Organizational OR State Medicine/organization and administration OR Organization and Administration) [MeSH].

OR

[Title] (reconfiguration OR configuration OR redesign OR sustainability OR centralisation OR concentration OR decentralisation OR fragmentation) and [Title] (outcome OR outcomes) AND Great Britain [MeSH].

OR

Outcome Assessment (Health Care)[Majr] AND [Title/Abstract] (reconfiguration OR configuration OR redesign OR sustainability OR centralisation OR concentration OR decentralisation OR fragmentation) AND Great Britain [MeSH].

OR

Centralized hospital services [MeSH] AND ((outcome assessment (health care) [MeSH Majr]) OR (Title/Abstract] outcome OR outcomes)) AND Great Britain [MeSH].

Reconfiguration and staffing

(reconfiguration OR configuration OR redesign OR sustainability OR centralisation OR concentration OR decentralisation OR fragmentation) [Title/Abstract] AND (health manpower or health personnel) [MeSH Major] AND Great Britain [MeSH].

Reconfiguration and volume

(reconfiguration OR configuration OR redesign OR sustainability OR centralisation OR concentration OR decentralisation OR fragmentation) [Title/Abstract] AND ((workload [MeSH Major]) OR (volume OR volumes OR patient numbers OR patient flow OR patient flows OR number of cases) [Title/Abstract]) AND Great Britain [MeSH].

Reconfiguration and quality

(reconfiguration OR configuration OR redesign OR sustainability OR centralisation OR concentration OR decentralisation OR fragmentation) [Title/Abstract] AND quality of health care [MeSH Major] AND Great Britain [MeSH].

Reconfiguration and safety

Safety [Title/Abstract] AND ((reconfiguration OR configuration OR redesign OR sustainability OR centralisation OR concentration OR decentralisation OR fragmentation) [Title/Abstract] OR (Models, Organizational OR State Medicine/organization and administration OR Organization and Administration) [MeSH]) AND Great Britain [MeSH].

Reconfiguration [Title/Abstract].

Appendix 7 Specialty search strings used to search PubMed

Specialty	String	Number of results	Results after sifting	Time span of original results
Search date: 4 October 2013				
Acute medicine	(reconfiguration[title/abstract] OR reorganisation [title/abstract] OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation [title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (acute medicine [title/abstract] OR acute medical[title/abstract])	16	8	1994–2013
Accident and emergency	(reconfiguration[title/abstract] OR reorganisation [title/abstract] OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation [title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (accident and emergency[title/abstract] OR accident & emergency [title/abstract])	42	7	1986–2013
Emergency care or urgent care	(reconfiguration[title/abstract] OR reorganisation [title/abstract] OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation [title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (emergency care [title/abstract] OR urgent care[title/abstract])	45	11	1986–2013
Elective surgery	(reconfiguration[title/abstract] OR reorganisation [title/abstract]) OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation [title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract] AND (elective surgery [title/abstract] OR elective care [title/abstract])	19	4	N/A–2013
Intermediate care	(reconfiguration[title/abstract] OR reorganisation [title/abstract] OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation[title/ abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (intermediate care [title/abstract])	7	3	N/A–2013
Mental health	(reconfiguration[title/abstract] OR reorganisation [title/abstract] OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation [title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (mental health [title/abstract] OR psychiatry[title/abstract])	376	31	1972–2013
Maternity	(reconfiguration[title/abstract] OR reorganisation [title/abstract] OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation [title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (maternity [title/abstract] OR obstetrics[title/abstract])	95	31	1970–2013
Paediatric	(reconfiguration[title/abstract] OR reorganisation [title/abstract] OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation [title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (paediatric[title/ abstract])	91	26	1984–2013

APPENDIX 7

Specialty	String	Number of results	Results after sifting	Time span of original results
Trauma	(reconfiguration[title/abstract] OR reorganisation [title/abstract] OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation [title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (trauma services [title/abstract] OR trauma[title/abstract] OR trauma surgery[title/abstract])	303	22	1993–2013
Second search				
Emergency surgery	(reconfiguration[title/abstract] OR reorganisation [title/abstract] OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation [title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (emergency surgery[title/abstract])	8	3	1981–2013
Neonatal care	(reconfiguration[title/abstract] OR reorganisation [title/abstract] OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation [title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (NEONATAL[title/abstract])	367	5	
Stroke, heart and cardiac care	(reconfiguration[title/abstract] OR reorganisation [title/abstract] OR redesign[title/abstract] OR sustainability[title/abstract] OR centralisation [title/abstract] OR decentralisation[title/abstract] OR configuration[title/abstract]) AND (stroke care [title/abstract] OR cardiac care[title/abstract] OR heart care[title/abstract] OR cardiac unit [title/abstract] OR stroke unit[title/abstract])	29	6	1989–2013

N/A, not applicable.

Appendix 8 National Clinical Advisory Team report template

To:

Date:

Venue(s):

NCAT visitors:

Introduction: *(who commissioned review, what processes are in play, dates for public consultation, etc.)*.

Background to review:

- case for change
- proposals
- expected outcome.

Documents received:

People met:

Views expressed: discussion and analysis.

To include (where appropriate).

- quality check
    - patient safety
    - patient related/clinical outcomes
    - patient experience.
- consider impact on wider issues, for example
    - health inequalities
    - health of the population.
- reference relevant evidence
    - guidelines
    - best practice.

Conclusions *(should follow from above, and include whether reconfiguration meets Secretary of State criteria: a clear clinical evidence base, which focuses on improved outcomes for patients)*.

Recommendations (should follow from conclusions, but there will often be fewer recommendations than conclusions).

To include

- *Support for the proposals*.
    - *explicit basis for support or non-support (reference evidence)*
    - *if not supported: further work required or potential alternatives approach/models*.

Appendix 9 National Clinical Advisory Team guidance on reconfiguration of maternity and children's services

Introduction

The purpose of this document is to brief NCAT visitors on the guidance and evidence available to help make a judgement when clinically assuring reconfiguration of maternity and children's services. In addition it should help commissioners and providers when considering reconfiguring services and should enable them to meet the standards expected by NCAT. Maternity and children's services have been considered together in view of their close linkage and dependence on each other. This advisory note is not intended to be exhaustive and is neither pre nor proscriptive. Its evidence base was reviewed by a NCAT advisory group (see *Appendix 1*) who are either NCAT visitors (senior clinicians in paediatrics, neonatologist, obstetrics and midwifery) and others with expertise in reconfiguration (SHA leads, NHS Confederation).

Guidance and evidence basis

The following national and College reports were reviewed by the NCAT advisory group and thought to have significance. They often build on previous work which is referenced. Those of particular importance to reconfiguration are starred***.

- Birth Centres Resource: A Practical Guide, RCM, 2010.***
- Toolkit for High Quality Neonatal Services, DH, 2009.
- High Quality Women's Healthcare: A proposal for Change, RCOG 2011.***
- Neonatal National Quality Dashboards 2012.
- NICE Quality Standards – Specialist Neonatal Care, NICE 2010.
- Responding to a proposal for merger or reconfiguration of Maternity Services provision in England: A good practice guide, RCM, 2010.***
- Facing the Future: Standards for Paediatric Services, RCPCH, 2011.***
- Socioeconomic Value of the Midwife, RCM, 2010.
- Standards for Birth Centres in England, RCM, 2009.
- Sustainable Maternity Services in Scotland.
- Birthplace in England Study report, NIHR SDO, 2011.***
- Delivering Quality Imaging Services for Children, National Imaging Board, 2012.

Group members have advised that the additional reports are pertinent to any service review.

- Quality and Safety standards for small and remote paediatric units RCPCH 2011.***
- Short stay Paediatric Assessment Units – advice for Commissioners and Providers, RCPCH 2009.***
- You're welcome quality criteria, making health services young people friendly DH 2007.
- Right care, right place 1st time – joint statement by RCGP, RCN, RCPCH, CEM on the urgent and emergency care of children and young people RCPCH 2011.
- Standards for providing a 24 hour interventional radiology service, RCR 2008.***
- Safer Childbirth, Minimum standards for the organisation and delivery of care in labour, RCOG, RCM, RCA, RCPCH;RCOG 2007.***
- RCPCH guidance on the role of the consultant paediatrician in providing acute care in the hospital, 2009.
- Standards for Maternity Care – Report of a Working Party – page 30 relates to staffing 2008.

- A Charter for Paediatricians 2004.
- General paediatric Surgery – Guidance for Commissioners, RCS England 2010.
- National Confidential Enquiries: Maternal Deaths, Stillbirths and Neonatal Deaths, Perioperative Deaths.
- Safe Births; Everybody's business. King's Fund 2008.
- Making sense of commissioning Maternity Services in England – some issues for Clinical Commissioning Groups to consider. NCT, RCM and RCOG 2012.
- The Mandate: A mandate from the Government to the NHS Commissioning Board April 2013 to March 2015.
- Department of Health Choice Framework 2012–2013, 2013–2014.

Commentary

The advisory group has supported many of the conclusions and general recommendations of the above reports and advises that visitors and those involved with delivery and/or reconfiguring maternity and children's services should acquaint themselves with their recommendations. The advisory group has suggested that NCAT visitors should be informed by sufficient information on which to make a safe judgement. The following is a list of desirable documentation:

- NCAT visits should be informed by appropriate locality based data and information. Ideally this should be data collected and recorded on a Maternity Dashboard: Clinical Performance and Governance Score Card.
- NCAT visitors require the following information:
    - The case for change which should include demographics of patient population and the strategic needs assessment, methods of public engagement including children and young people.
    - Numbers of births at the unit(s) under scrutiny and whether the birth rate is rising or falling. Births activity should be broken down into those in hospital unit, freestanding midwifery unit (FMU) if available, alongside midwifery unit (AMU) and, home birth.
    - What choices are offered to women for antenatal care, intrapartum care and postnatal care?
    - Description of the normal care pathway and analysis of the reasons that women leave the pathway in that particular population.
    - Numbers of births overall under midwifery led care.
    - Caesarean section rate (emergency and planned), assisted delivery rate (including failed instrumental delivery), theatre capacity.
    - Normal care pathway and analysis of the reasons that women leave the pathway in that particular population.
    - Numbers of 1 : 1 care in labour, and birth to midwife ratio – suggest changing this to – How does the service ensure every woman has a named midwife responsible for ensuring she has personalised 1 : 1 care throughout her AN, labour and PN care?
    - Transfer rates during labour (FMU or AMU to hospital and Home to hospital).
    - Number of instances of labour ward beds blocked by postnatal women.
    - Duration of any temporary closures of a maternity unit.
    - Percentage of women with episiotomy or tear sutured.
    - Percentage of women readmitted within two weeks of discharge.
    - Average number of contacts with midwife after going home.
    - Normal delivery rates.
    - Complications (Serious Untoward Incidents and Adverse Incidents) including perinatal mortality and morbidity, meconium aspiration, hypoxic-ischaemic encephalopathy, maternal mortality and morbidity including intensive care admissions, severe post-partum haemorrhage [requiring ≥ 4 unit blood transfusion], third degree tears, shoulder dystocia, surgical site infection, surgical never events.
    - Complaints and compliments about maternity and children's services – What are the results of the 'friends and family test' and how will reconfiguration improve on these?

- Description of facilities available (e.g. inpatient beds and/or paediatric assessment unit).
- Medical work force (number of consultants, trainees, vacant posts and evidence of locum use for consultants and trainees over past year.
- Nursing and midwifery and perioperative workforce with breakdown of grades, number of supervisors, students, agency/bank usage.
- Relationship of the paediatric service with the emergency service.
- Paediatric surgical services (emergency and unplanned – inpatient/day case).
- Child Adolescent Mental Health Service provision.
- A description of the clinical network arrangements between units.
- Availability of multidisciplinary diabetic clinics, multiple pregnancy clinics, early pregnancy units, bereavement services.
- Paediatric admissions (cold cases, acute, paediatric assessment unit activity).
- For both services geography and distance to adjacent units and availability of tertiary care with evidence of patient flows within the locality.
- Ambulance protocols for maternity and children's services.
- CQC and other reports from regulatory bodies.
- Postgraduate Deans and GMC reports, Nursing and Midwifery Council educational reviews and local midwifery training HEI reports and other evidence about training.
- NHS Staff Survey results.
- Evidence of the contribution that general practice makes to the delivery of the maternity care pathway locally, including early pregnancy assessment and urgent care services.
- Any other local plans for realignment of other services (e.g. Trauma centres, A&E and urgent care provision, hot/cold surgery sites, diagnostics, etc.), which may impact on availability of support such as critical care and imaging for women, babies and children.
- Trend analysis of local midwifery good practice and conversely practice of concern, drawn from Local Supervisory Authority Midwifery Officers statutory annual audit visit report.
- What initiatives do the services have in place to reduce the incidence and impact of post natal depression in terms of early diagnosis and intervention?

Conclusions of the advisory group

1. The NCAT supports Informed choice – maternity services should offer low risk women where appropriate the choice of home birth and a midwife led service (alongside or free-standing midwife led unit). Low risk women should be given full information and advice including the known small risks of neonatal mortality or serious morbidity associated with all birth settings. Nulliparous women should be informed of their increased likelihood of transfer if they plan birth in an environment other than an obstetric unit.
2. Commissioners of maternity and neonatal services should aim for a significant increase in low risk women accessing maternity services and giving birth outside of obstetric units in any of the alternatives (AMU, FMU or home birth). There is good evidence that such an aim will improve outcomes and be cost-effective. High transfer rates of nulliparous women is to be expected and this will need to be considered in any new service specification. The majority of the transfers are for pain relief in labour. Commissioners should consider commissioning services targeted at vulnerable and disadvantaged groups, and services that provide safe effective care with a better quality experience for women. One of the most successful models of care NCAT has encountered is that of the obstetric unit with an alongside midwife led birthing unit, which can keep the benefits of providing midwife led care but has the capability of seamless transfer of women in labour if clinical intervention is required.
3. Obstetric units should be readily available to all women choosing a birthing unit. Their main function is to provide the care for high risk mothers to be, and the management of complicated labour (including pain relief). There should be a consultant presence on the labour unit commensurate with unit size and in accordance with the recommendation of 'Safer Childbirth' (published 2007). This will often favour the creation of obstetric units with more than 2500 births to be clinically sustainable and

affordable (see RCOG report). Trainee rotas should ensure the necessary exposure to an appropriate case load and with appropriate consultant supervision and formal assessment of competence.

4. The NCAT visitors will need to understand the impact on the provision of gynaecological services when consultant obstetricians also provide the local gynaecological services; conversely there is a need for appropriate gynaecological skills and experience in management of some obstetric emergencies (notably massive post-partum haemorrhage).
5. The NCAT supports the life course approach to women's health care (RCOG 2011). This means that women have access to women's health and maternity services close to their homes. In remote and rural areas this can create challenges to service provision and departure from this norm may be acceptable to both commissioners and service users. The place where women give birth is one part of overall maternity services, most of which can be provided locally (e.g. antenatal clinics, breast feeding support services). These services may not necessarily be co-located with the birthing unit.
6. The advisory group noted that there is still much work to be done in the area of risk assessment and identification of women who may develop complications. Better processes will help clearer risk stratification and enable better informed maternal choice with the expectation of that will increase the proportion of births not requiring medical assistance.
7. Large obstetric units (e.g. > 8000 births) can be advantageous in creating a large obstetric workforce but can cause organisational problems. They may be perceived as impersonal to women and their families. There is anecdotal evidence that the midwifery workforce is less happy working within large centres.
8. FMUs are often very small. Most support less than 400 births year. They are unlikely to be cost-effective unless other services are offered on the same premises (e.g. antenatal care and/or the midwifery team has flexible working patterns). Some FMUs can be supported by teams of community based midwives who provide antenatal and postnatal care and are then on call for any births within the unit.
9. Obstetric units should always be co-located with neonatal units capable of resuscitating the flat or blue baby. Whilst the skills of midwives and others continue to be developed, the availability of advanced care neonatal nurse practitioners (ANNPs) remains limited and as yet the sustainability of units relying on ANNPs has not been widely tested in England. Hence most obstetric units will continue to depend on paediatricians (and dedicated neonatologists) for resuscitation and stabilisation of babies, for the foreseeable future. Higher level neonatal units (level 2 and 3) will continue to be designated by the regional neonatal network and are not further discussed here. The NCAT strongly supports the development of ANNPs, this should be a priority for the Workforce Intelligence Unit and should address the problem of backup requirements (medical cover).
10. The NCAT acknowledges the workforce pressures addressed in the RCPCH report (Facing the Future). There will be a continuing need to rationalise paediatric inpatient services to maximise the effectiveness of the available paediatric medical workforce and provide better access to paediatric subspecialty services. The NCAT supports this direction of travel as it will improve the overall quality of care by improving access to senior opinion and creating robust trainee rotas. Wherever possible, children's services should continue to be provided locally, but this will mean considering other service models. Paediatric assessment units (with or without observation beds) can provide an effective service. Standards for PAUs have been agreed (see Facing the Future – RCPCH). The withdrawal of continuous inpatient paediatric care from a hospital will often mean the loss of on-site 24/7 paediatric medical cover and this can cause problems for smaller hospitals that have obstetric units (and neonatal units). A number of solutions have emerged to this problem (other than moving the obstetric provision) – these may challenge the affordability, sustainability and quality of the service (e.g. overnight on site consultant paediatricians, advanced resuscitation skills for nurses and midwives) and need careful analysis.
11. Commissioners should recognise that if maternity services reconfigure staff may require education and training which supports them to work confidently in the new model. This may be particularly true in areas developing homebirth services or FMUs. It is also important that training in dealing with emergency situations is tailored appropriately to the setting in which the situation will occur.

12. It is very important that, where a range of homebirth, FMU, AMU and obstetric services are provided, the commissioner assure themselves that governance, communication and team working especially in relation to referrals and transfers is of high quality and ensures safe and effective care. Wherever possible training should be multidisciplinary. It will be particularly important that commissioners consider these issues if purchasing maternity and neonatal services from a range of providers. Local maternity and children's services networks are one way to achieve effective liaison between services and consider clinical outcome objectives.

Summary

The NCAT's intention is not to prescribe or proscribe different service models but to encourage creative solutions to tricky issues which may be driven by the need to create a sustainable, affordable workforce which is appropriately located and deployed to meet the needs of the local population. The principle remains that of putting patients at the centre of everything, localising services where possible but centralising when necessary. Effective early engagement with patients and the public is the single most important factor for successful reconfiguration. One of the intentions of this briefing note is to highlight some of the more contentious areas and to suggest possible solutions that will need to be openly discussed with the public.

Appendix 10 National Clinical Advisory Team reviews summary sheet

NCAT review: summary sheet

Name of review:

Number of review:

Stage of reconfiguration when NCAT review took place:

Specialities considered: *Check against columns 'Specialty 1' through to 'Specialty 6' from the NVIVO table*

A&E, urgent and emergency care, emergency surgery, acute medicine	☐	Paediatric and neonatal care	☐
Specialist services (incl. Vascular surgery, trauma, stroke, oncology, specialist orthopaedic)	☐	Elective surgery (incl. orthopaedics)	☐
Maternity	☐	Primary care/community care (incl. intermediate care and geriatric)	☐
Mental Health	☐	Whole hospital/system	☐

NCAT Terms of Reference:

NCAT Informal visit ☐

NCAT Formal visit ☐

NCAT special visit (national reconfigurations, etc.) ☐

What service change is under review?

Why does it need to happen?

What are the core drivers for reconfiguration? Why is 'no change' not an option?

What reasons are articulated for example – current staffing cannot safely sustain the current pattern of services; there are concerns about the quality of the current pattern of services; rationalising services will save money and improve quality of services

Have NCAT specifically highlighted any key drivers?

Has NCAT stated any positions on key service areas/specialities in this review? What are they?

Brief comment on quality of NCAT report:

What have they based their decision-making on? Examples include local clinical views, GP views, patient views, national standards, etc.

Appendix 11 Project steering group

The project steering group consisted of nine members who all possess expertise on clinical reconfiguration in the NHS. They provided their expert opinion on the project's research methodology, emerging findings and draft reports. The group met twice at The King's Fund's offices to hear presentations and discuss the project findings, and they commented on report drafts and research methodology via e-mail. Group members also provided the details of additional references to be included in the report to fill gaps in the evidence base.

The group's members were:

- Dr Christopher Clough, Chairperson, National Clinical Advisory Team (up to April 2014).
- Professor Tim Evans, Lead Fellow, Future Hospital Commission, Royal College of Physicians.
- Professor Naomi Fulop, Professor of Health Care Organisation and Management, University College London.
- Chris Hopson, Chief Executive, Foundation Trust Network.
- Richard Jeavons, Chief Executive, IRP.
- David McNally, Deputy Director of Patient Experience, NHS England.
- Dr Mark Spencer, Medical Director, NHS North West London.
- Professor Terence Stephenson, Chairman, AoMRC.
- Jeremy Taylor, Chief Executive, National Voices.

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