NHS Rotherham Clinical Commissioning Governing Body

Operational Executive – 12 October 2015

Strategic Clinical Executive – 14 October 2015

GP Members Committee (GPMC) –

Clinical Commissioning Group Governing Body - 4 November 2015

Working Together, Review of Children's surgery and anaesthesia

Lead Executive:	**Chris Edwards, Chief Officer**
Lead Officer:	**Jacqui Tuffnell, Head of Co-commissioning**
Lead GP:	**Richard Cullen, Executive GP**

Purpose:

To update the governing body of the progress of the Working Together programme and specific update in relation to children's surgery and anaesthesia.

Background:

Working Together is a programme of work which all the CCGs in South Yorkshire, Wakefield CCG, Hardwick CCG and North Derbyshire CCG have committed to work on collaboratively. Review of children's services is one of the key priorities of the programme and has been independently reviewed and endorsed by the Yorkshire & Humber Clinical Senate. It highlights a number of challenges facing our local services (see Appendix 2) which require further work to establish a sustainable configuration of services across the patch, in order to overcome these challenges now and for the future.

Analysis of key issues and of risks

- On self assessment: a majority of providers are not meeting the national standards set out for providing Children's Surgery
- There is a shortage of appropriately trained medical staff in provider organisations
- There are unsustainable medical rotas and significant workforce develop issues which means that maintaining the existing model of service provides a significant challenge

Patient, Public and Stakeholder Involvement:

Involving and encouraging participation from patients, carers and the public in the Working Together programme is critical to development and shaping of any local changes. This work will be led by Working Together but influenced, developed and delivered with the support of CCG engagement and communications experts, lay members and patient and carer voice groups across mid and south Yorkshire and North Derbyshire.

Equality Impact:

An assessment will be undertaken as part of the options appraisal

Financial Implications:

The financial impact will be understood at the next stage which will be reported to the Governing Body.

Human Resource Implications:

N/A at this stage but dependent upon the option which is finally approved there are likely to be workforce implications
Procurement:
N/A
Approval history:
OE & Accountable Officers group
Recommendations:
Governing Body is asked to: • Note the work to date • Consider and approve the case for change • Support the next phase of delivery

Working Together
Transformation Programme
Review of Children's Surgery & Anaesthesia

1. Purpose and Context

The purpose of this paper is to brief Governing Body Members on the outcome of the first phase of the review of Children's Surgery and Anaesthesia across South Yorkshire, Bassetlaw and North Derbyshire, which we have undertaken together with our partner CCGs within our collaborative programme *Working Together*.

This paper aims to provide an overview of the Case for Change for Children's services across *Working Together* providing detail of both the local and national context surrounding Children's Surgery.

Although reference to some of the key clinical considerations are highlighted within this paper, it is not intended to provide detailed operational or financial modelling at this stage but rather the rationale within the Case for Change for the proposed strategic direction of Children's Surgery and Anaesthesia services; the main drivers are to improve quality for all our local populations and provide safe and sustainable services. The work undertaken to date provides a comprehensive baseline assessment and review of best practice and suggests next stages in taking the review forward.

The paper is seeking Governing Body support to progress this work to the next stage, which will include further engagement with patients and the public and key stakeholders, development of options and a full business case for the transformation of Children's Surgery and Anaesthesia provision across South Yorkshire, Bassetlaw and North Derbyshire. Governing Body will be asked to review and approve any proposed plans for the future as they are developed.

The paper is presented for approval.

2. Background

We know from the review and work undertaken to date that there is variation in provision; and a significant challenge in providing services in the future within their current configuration. Additionally, from the collation of the self-assessment against standards there is significant variation in providers' abilities in meeting core standards for the provision of Children's Surgery, with only 40% of the provision across the footprint meeting the national standards.

This can lead to a variation in the quality of provision available and potentially impact on clinical outcomes, as the care can vary dependant on where services are located.

There are also dissimilarities in the thresholds for referral to services; therefore, the patient journey and provision available will vary dependant on where services are accessed, and at what time, and on what day.

There are problems with developing and sustaining workforce skills, as well as issues with the further development of the Paediatric workforce for both Anaesthesia and Surgery.

Clinicians are identifying that the current configuration is not consistent or sustainable in the short, medium or long term, and that there are variations in the services available.

The economic case for change is demonstrated by the flat growth rate in resource and cost pressure within the NHS.

A needs assessment has been undertaken, which outlines the trajectory of need for future provision as well as some of the challenges to the current administrative data, workforce planning and measures of clinical outcomes.

The solutions and size of changes needed are yet to be determined and need further exploration and will be the focus in the next stage of this work; development of options and full business case.

Given the quality and workforce issues there would need to be a change in the provision; this could include changes in local access.

The Children's Surgery project has been supported by the Yorkshire and Humber Strategic Clinical Network and the work to date was referred to the Yorkshire and the Humber Clinical Senate for consideration and their recommendations are discussed in section 5 of this paper.

3. Key Messages from the baseline review for Governing Body Members:

- On self assessment: a majority of providers are not meeting the national standards set out for providing Children's Surgery
- There is a shortage of appropriately trained medical staff in provider organisations
- There are unsustainable medical rotas and significant workforce develop issues which means that maintaining the existing model of service provides a significant challenge

The outline of the approach to improve children's surgery services for all our local populations is taking place in 3 phases. Governing Bodies will be consulted at each stage and at key milestones for their support and approval.

Phase 1 January – September 2015

The development of the Case for Change including:

- Engaging with key stakeholders
- Undertaking a baseline assessment of current services
- Forming consensus of the issues
- Identifying best practice models
- Specifying the pathways that should be in place to meet standards
- Exploring strengths and benefits of potential models
- Considering our populations needs for the future
- Seeking external clinical scrutiny of the work to date (Senate)

Phase 2 October – September 16

The development of Options and full Business Case including:

- Implementation of communication and engagement strategy - Pre – engagement with patient and the public, key stakeholders (overview and Scrutiny Committees) and staff
- Development of regional service specification & Gap analysis against existing provision
- Development of options and formal assessment
- Development of full business case including activity and financial impact
- Formal consultation
- Consideration of implementation options

Phase 3 October – March 2017

Implementation and mobilisation of preferred Option

4. Work to date (phase 1)

4.1 What have we done?

Over the past year we have been talking with doctors, nurses and healthcare staff in hospitals, NHS staff who commission hospital and GP services, and data and clinical experts about what the future of Children's Surgical care should look like:

- We asked hospitals to look at the national core standards for providing children's surgery and assess how they were doing against these standards
- We gathered data on the numbers of people needing the service and assessed what the numbers might look like in the future
- We asked hospitals to gather information on their current workforce
- We met with hospitals to assess and agree all the information and their current challenges
- We held a series of workshops with staff and stakeholders to look at and agree the issues
- We worked with clinical experts to agree possible high level options to consider for the future.

4.2 What do we know from the review work undertaken to date?

The review across the *Working Together* footprint has provided a baseline of the current profile of surgical care. The self-assessment of the national core standards has identified opportunities for improving the quality and reducing inequality of access to care.

This review has identified that children's surgical care services across the Working Together footprint face a number of challenges which commissioners are required to respond to; we know that there are challenges to workforce and in meeting standards and that the impact of demographic changes mean there is greater demand on provision.

4.3 What we know from elsewhere:

- Evidence to date suggests that the adoption of larger hub and spoke models have been a successful sustainable model in enabling the development of the workforce skills needed.
- Evidence also suggests that tartan models of provision to provide planned development of skills between clinicians on a wider geographical footprint are effective
- To achieve the standards and address the quality issues there would need to be a change in the provision from its current state; this would include changes in local access and some areas providing more care and some providing less.

4.4 What does this mean for each local area?

Through the Case for Change it is clear that there is marked variation in the quality of service across each local health community. There is also evidence of workforce challenges in developing and maintaining skills which can lead to variation in services provided.

There is therefore a strong case for change to look at the options that are available to transform and improve Children's surgical care, to ensure they are as sustainable for the future population. In phase 2 of the project a full business case including options to deliver services will be considered. At this stage it is unclear what the impact will be on each population group within the *Working Together* footprint. Given what we know from exploring what needs to change we would anticipate that some providers will do more and some will do less work; the extent to which this will impact on providers is not yet known. What is clear, however, is the need to change services to continue to provide a safe and sustainable service.

5. Clinical Senate Review

In 2015 the Clinical Senate our work was referred to Yorkshire and the Humber Clinical Senate to provide independent clinical advice on the Case for Change, work to-date and Scenario Appraisal for Children's Surgery (Appendix 2).

The Senate were asked:

1. *To advise on the Case for Change for Children's Surgery and whether this provides a comprehensive review of the issues facing the services and;*

2. *Considering the Case for Change, can the Senate review the three proposed scenarios for service change and advise on any clinical concerns relating to any individual scenario?*

5.1 Senate recommendations

5.1.1. The Senate recommended that there are no major changes required to the Case for Change in terms of its review of the issues facing Children's Surgery and Anaesthesia and that it provided a solid and comprehensive analysis.

5.1.2. The Senate offered a number of suggestions which may help to further improve the document. These include:

i. More focus on individual hospital activity and outcomes within the Working Together geography to demonstrate the local picture
ii. Further emphasis on the problems that the workforce shortages will create in the future
iii. Separating out the issues facing elective surgery and emergency surgery as different solutions are required to the issues.

5.1.3. The Senate raised questions about the geography of the model particularly due to the inclusion of Mid Yorkshire within the geography and their pathways into their tertiary centre at Leeds who are not part of

this programme. There were also wider questions about how the next steps can ensure that there are no artificial boundaries created across the centre of Yorkshire and the Humber.

5.1.4. The Senate also emphasised the need for a good dialogue with patients and the public in Phase 2 of this work. Commissioners need to ensure that there is emphasis in the case for change on how the solutions will work to keep as much of the care pathway as close to home as possible where it is clinically safe to do so. Commissioners need to be mindful of the need to consider the whole pathway of care in their solutions and not solely focus on the surgery aspect.

5.1.5. Scenario 3 is the proposed solution that the Senate supported. The Senate expected that this solution would result in provider level changes to how and where services are delivered. Although the Senate recognised that at this stage the scenario is only setting out the direction of travel rather than detail on the options commissioners may wish to consider providing greater clarity on what would be the next steps if Scenario 3 was supported.

6. Next Steps/Timeframe

The project is now ready to move into the next stage which is development of options, appraisal an the development of a full business case underpinned by formal public consultation if required; there is an acknowledgement that transformation of this kind would need work through with providers and be subject to CCG approval on benefits across the footprint.

Such a programme of work will require commitment from all WT members to ensure that a collective approach is taken to delivery of the next phase of work.

7. Recommendation

Governing Body is asked to:

- Note the work to date
- Consider and approve the case for change
- Support the next phase of delivery

Paper prepared by: Kate Laurance, Head of Commissioning for Children Young and Maternity / WT Programme Children's Surgery & Anaesthesia Project Lead

On behalf of Will Cleary-Gray Working Together Programme Director

30th September 2015

Children's Surgery and Anaesthesia

The Case for Change

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1.0 Introduction

A partnership of the NHS trusts in south and mid Yorkshire, north Derbyshire and north Nottinghamshire, known as the Provider Working Together programme – and a collaboration of commissioners across the same area, known as the Commissioner Working Together programme – have come together to look at how children's surgery should be provided in the future.

Working in this way hopefully patients can continue to receive services that are safe, sustainable and as close to them as possible.

This document sets out the national and local context for the case for change for **children's surgery and anaesthesia** services.

It forms part of the outline business case for any proposed changes to children's surgery and anaesthesia services and builds on existing work and supporting documentation agreed by the provider and commissioner Working Together executive groups. It offers the detail to support the case for change for children's surgical services across the Working Together* footprint.

2.0 What are children's services?

Children's healthcare services are made up of a wide range of community and hospital services. Within hospitals there is a range of specialties, such as general medicine, general surgery, orthopaedics, ear, nose and throat, oral and maxillofacial surgery and ophthalmology. There are also specialised services such as neurosurgery and cardiothoracic.

Children need comprehensive care, so there are also support services, such as occupational therapy, psychology, speech therapy, physiotherapy and audiology.

Children's surgery takes place across general surgery, orthopaedics, ear, nose and throat, oral and maxillofacial and ophthalmology services. Neurosurgery and cardiothoracic surgery only take place at specialist centres.

This case for change is for children's non specialist surgery and anaesthesia services only.

3.0 Why do children's surgery services need to change?

A big challenge for the NHS today is improving care at the same time as more and more people are using its services. People are living longer, technology and how care is delivered is improving.

We know for some services, there won't be enough trained and experienced doctors, nurses and healthcare staff in the future and that the NHS costs more than there is money to run it.

All these factors mean the NHS of the future has to be different.

There is a lot of evidence and guidance on the need to review how health services are provided for children. Many of these are from professional medical bodies and the Department of Health. The desire to improve quality of care, changing patterns and factors relating to health, medical and technical advances, medical staffing issues and increasing public expectations are all reasons behind the need to change.

In particular:

- The numbers of children's doctors coming through medical schools is expected to drop by 45% between 2012 and 2017 and there is an increase in the number of nursing students who need supervision and support.

- The European Working Time Directive - a law which looks after the health and safety of patients and staff by ensuring staff do not work excessively long hours – has impacted on children's services. There is a shortage of medical staff in the service as stated above, making it harder to meet the legal requirements of safe staffing levels.

- One of the more significant changes has been to the training of general surgeons, with a reduction in the children's part of training programme. As a result, as surgeons retire, they are not being replaced by surgeons with the same level of experience in children's surgery therefore less is being done in district general hospitals which means there is an increasing risk of surgical and anaesthetic skills not being up to date or practiced enough. At the same time, specialised centres – such as Sheffield Children's Hospital – are not able to cope with the increasing demands for routine children's surgery.

- The UK has been ranked bottom out of 25 industrialised countries for the wellbeing of children, who are not currently experiencing the best health outcomes compared with Europe or North America.

- It is a time of unprecedented pressure for the NHS. If we are to provide care which is sustainable, effective and give the best outcomes and experience for patients and carers, we must challenge how current services are provided.

- A focus on quality, coupled with the financial pressures on the NHS and care partners (because of NHS funding growth and pressure on local authority funding, along with increasing incidence of long term conditions), means that the provision of services are under the spotlight. We need to look very closely at both children's surgical and non-elective services.

- We need to meet the Royal College of Paediatrics and Child Health ten standards for all general children's services. The RCPCH has said that these should be the main driver for service reconfiguration and change.

- The Royal College of General Practitioners, the Royal College of Nursing and the Royal College of Paediatrics and Child Health are working together to expand on standards for children for young people in emergency care. They have drafted some new standards that will ensure high quality care and diagnosis early on and so reduce unnecessary visits to emergency departments.

- The Royal College of Surgeons has also developed service standards aimed at all children's surgery providers. They recommend that children's surgery services are configured into local provider networks, with clinical leadership, governance and transfer arrangements in place. Care of unusual or complex conditions should be in specialised settings.

4.0 Background to Working Together and the work on children's surgery and anaesthesia.

In August 2013, the commissioners of local healthcare in South Yorkshire and Bassetlaw, Wakefield and North Derbyshire recognised the need to work together to meet the challenges facing the NHS. In the first phase of the commissioner Working Together Programme, the focus was on developing a collective understanding of the issues facing a small number of services, each of which were prioritised following a review of organisations and services through a collective process.

Simultaneously issues had been identified within the provider Working Together Programme in the specialties of ophthalmology, ear, nose and throat, oral and maxillofacial surgery, children's surgery and the acutely unwell child. As both programmes had identified issues in these specialities it was felt a review of these services should be considered jointly, recognising that they would need to ensure that working arrangements were within NHS best practice around change and the law around competition and procurement. This phase also offered partners the opportunity to further build on existing relationships, develop governance arrangements and test approaches to reviewing services and transformational change across a wider geographical area.

The aims of Working Together Children's work-stream are:

- To provide safe and sustainable access to children's surgery and anaesthesia services delivered by trained and competent professionals as close to home as appropriate.
- To improve clinical outcomes and experiences for children and their families.
- To reduce unnecessary referral and interventions.

Initially a structured approach, using both quantitative and qualitative methods, was used to develop a clear understanding of the current provision and potential opportunities to improve the quality and safety of services. In some cases, a slight variation on the methodology was used. This was influenced by the availability of data and agreed local, national and Royal College standards.

The focus in phase one has been:

- Engaging with stakeholders
- Developing an understand of the issues and priorities
- Gaining clinical consensus on the issues
- Exploring the opportunities with providers to collaborate and to work differently
- Developing high level clinical options to support a case for change and wider conversations

5.0 What does the current provision of children's surgery and anaesthesia services look like?

So that we could fully understand how children's surgery and anaesthesia services are currently provided and what the issues were, we carried out the following:

- Asked hospitals to look at the national core standards for providing children's surgery and anaesthesia services and assess how many of the standards they did and didn't meet.
- Gathered data on the number of children having surgery and the numbers and type of staff working in children's surgery in the seven provider trusts in the Working Together area.
- Met with hospitals to assess and agree all the information about the services they provide and their current challenges.
- Held a series of workshops with staff and stakeholders to look at and agree the issues.

- Worked with health experts to identify the future health and care needs for children's surgery.

What we learned:

- Doctors, nurses and healthcare staff all agree that the way children's surgery is provided across the region won't meet their high standards in the future - this needs to change
- Not all services are available in smaller hospitals, which means they need to refer to bigger hospitals these referral process are varied.
- Changes to the numbers of hours that doctors can work means that cover is a mixture of permanent and temporary staff and this affects continuity of care.
- Doctors working in smaller hospitals don't see as many cases as the bigger hospitals, which can mean varying expertise and experience
- There are fewer numbers of trained children's doctors expected to qualify in the next few years.
- The quality of the service isn't the same everywhere – all hospitals must work to high standards but for the reasons above, this is getting harder
- The combination of people living longer, advances in medicine and technology and national funding for the NHS getting tighter means where and how the money is spent on care is under the spotlight
- To achieve the standards and ensure quality remains high, there would need to be a change in how services are provided. This would include potential changes in local provision and therefore access to the services.

The findings of the work so far are set out in detail below. They are grouped into five areas:

- Self-assessment against standards (2012 and 2014 data)
- The current landscape (2014 data)
- Validation meetings with providers
- Agreement on the issues
- Health needs assessment

5.1 Self-assessment against standards (2012 and 2014 data)

In 2012, provider trusts assessed themselves against a range of standards for children's surgery and anaesthesia. This was carried out as part of the children's surgery and anaesthesia network and was consistently done across Yorkshire and the Humber.

We looked at this evidence to identify where there might be areas of concern as a baseline. We applied a weighting system where there was sufficient shared non-compliance against some standards. We found there were variations in compliance across the providers and we also found common themes. These were around surgical and anaesthetic skills, governance, education, and for some trusts, issues with the physical environment.

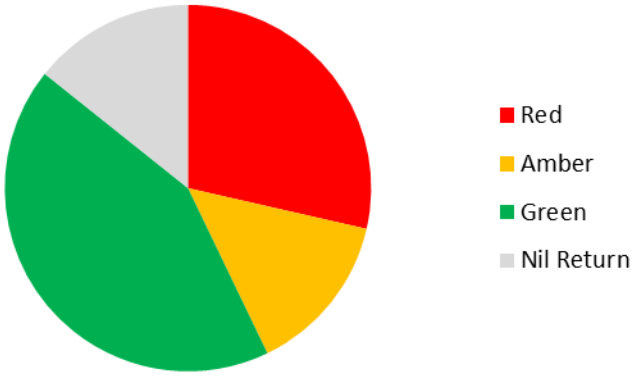
Up to date information was requested in 2014 but has not been consistently received from all the provider trusts. However, with the data provided, we still found the same issues – that there were

variations in compliance and common themes emerged around surgical and anaesthetic skills, governance, education and the physical environment.

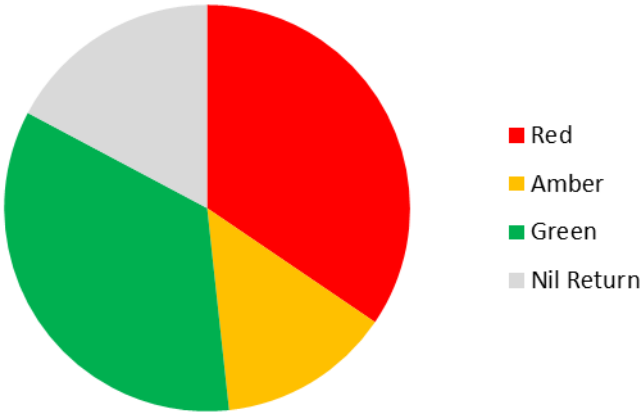
There are a number of providers not meeting the standards and there are high numbers of cases every year (more than 20,000). This would suggest there is a need to review the current provision of services in more detail, with the aim of developing long-term sustainable models of children's surgical care across the area. It is also clear that a collaborative approach to providing children's surgery and anaesthesia should be considered.

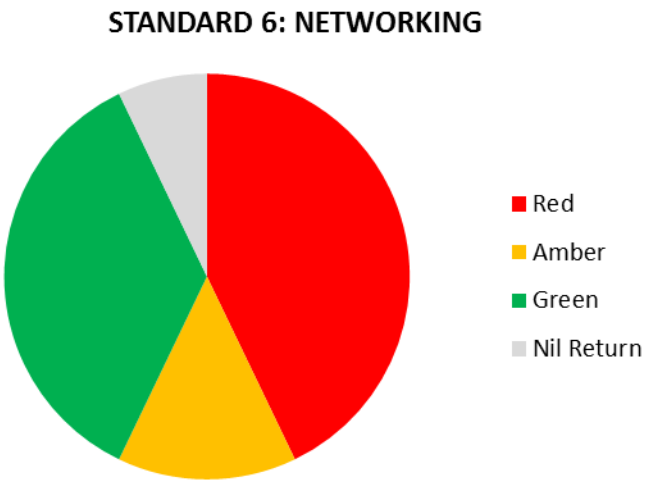
The findings of the 2012 self- assessments and 2014 updated information are below. These are the overall ratings as a percentage across all of the providers self-assessment of their compliance to the national standards

STANDARD 2: INPATIENT CHILDREN'S SURGERY AT A NON-SPECIALIST CENTRE



STANDARD 4: EMERGENCY SURGERY





5.2 The current landscape (2014 data)

Anaesthesia

Guidelines from the Royal College of Anaesthetists and the Association of Paediatric Anaesthetists of Great Britain (2015) aim for comprehensive, quality anaesthetic services dedicated to the care of children and young people.

There was variation in how anaesthetic services were provided for children across the trusts. Some trusts have a small pool of adult anaesthetists who carry out children's work on a routine (once a fortnight) basis, others have experienced children's anaesthetists mixed with adult anaesthetists who have a special interest in children's surgery. Staffing rotas so that there is cover for non-elective work is becoming increasingly difficult.

General paediatric (children's) surgery

General children's surgery refers to common disorders that usually do not need to be carried out in a specialist centre (such as Sheffield Children's Hospital). The surgery usually takes place in a local hospital and is carried out by specialist children's surgeons or general surgeons who mostly operate on adults but have expertise in children's surgery. Specialist children's surgery includes neonatal surgery, specialist surgery (such as gastrostomy, tumour biopsy or resection), and where children have a condition or disorder that requires specialist care (such as lung disease or an endocrine disorder).

The Royal Colleges of Surgeons and Anaesthetists state local hospitals should not carry out occasional children's surgery, recommending that surgeons and anaesthetists should have training and experience in children's surgery to provide non-specialised children's surgery.

There are two requirements for a local children's surgical service – to provide both elective and non-elective surgical care. Elective refers to planned procedures such as: inguinal herniotomy, umbilical herniotomy, orchidopexy for undescended testicle, circumcision and minor soft-tissue abnormalities.

Non-elective refers to unplanned (emergency) procedures such as: acute abdominal pain including appendicitis, obstructed hernias, acute scrotal pathology, minor trauma and abscesses.

General children's surgery takes place in small numbers across all the providers in the area. There are small numbers of elective surgery in most trusts though one trust has no elective surgery. All trusts carry out non-elective surgery in small numbers, some of which takes place out of hours. The total number of non-elective procedures performed out of hours during 2013-2014 was 472 with 52% taking place at Sheffield Children's Hospital

In some trusts, elective surgery is carried out by one surgeon, creating issues with cover, waiting times and sustainability of the service. Another trust reported that their surgeons were competent to provide general surgery for out of hours cover for children only over ten years of age.

For surgeons and anaesthetists who are not routinely carrying out children's surgery but have to provide out-of-hours cover for children, there are no formal "pathways of care" in place which aim to guide doctors on best management and processes of whom to contact for specialist advice e resulting in variation and inequalities across the area.

There is variation in workforce numbers across the trusts and the evidence also points to gaps in training and education, networking and governance arrangements and access to surgeons and anaesthetists who regularly operate on children.

Children's orthopaedic surgery

Children's orthopaedic services encompass the care of children with fractures, soft tissue trauma and conditions of the skeleton which result in deformity and loss of function. Common forearm fractures are usually managed by general orthopaedic surgeons in local hospitals or specialist children's orthopaedic surgeons in specialist centres. Revisions of children's fractures and more complex procedures need specialist treatment.

All of the trusts carry out elective and non-elective orthopaedic services, with all providing a 'hub and spoke' model (except Mid Yorkshire Hospitals). In this model the specialist centre would act as a hub and would normally have four to five specialist paediatric orthopaedic surgeons providing outreach surgery for elective procedures. The local hospital would act as the spoke and would have a children's ward, recovery area and out patient facilities to manage children locally

Small numbers of elective surgery, carried out by consultants from Sheffield Children's Hospital take place in Barnsley, Chesterfield and Rotherham. Most trauma and non-elective work takes place at Sheffield Children's Hospital with only small numbers of simple cases being carried out in the local hospitals by adult orthopaedic surgeons.

There are variations when children are referred for specialist surgery and gaps in training, education, networking and governance.

Children's ear, nose and throat (ENT) surgery

Children's ENT surgery includes myringotomy (creation of a tiny hole in the ear drum to relieve pressure), insertion of grommets (a tiny tube to release thick sticky fluid-"glue ear"), adenoidectomy, tonsillectomy and removal of 'foreign bodies'. With the exception of Doncaster and Bassetlaw Hospitals who have some designated children's lists, all children's ENT surgery is provided across the area by ENT surgeons on mixed adult and child operating lists.

Small numbers of non-elective procedures take place in and out of hours across all the providers, except in Rotherham and Sheffield Teaching Hospitals.

There are variations when children are referred for surgery in the specialist hospital and gaps in training, education, networking, governance and access to surgeons and anaesthetists regularly operating on children.

Children's ophthalmology

Around 90 per cent of children's ophthalmic surgery is for investigation and treatment of amblyopia ('lazy eye') and strabismus (squint). Much of the day to day management of these is carried out in local hospitals as day cases. All other surgery is specialist and carried out in specialist centres.

All the providers offer children's ophthalmic surgery for lazy eye and squints on mixed adult and children's operating lists. Non-elective activity is very small.

Children's oral and maxillofacial surgery (OMFS)

Children's oral and maxillofacial surgery involves surgery on the mouth, face, head and neck and in most cases, is carried out in local hospitals. The majority of procedures are undertaken as elective day cases in otherwise healthy children in local hospitals and comprise of routine dental surgery. More complicated cases – such as cleft lip and palate, head and neck cancer operations, or children with complex medical needs who need surgery usually take place in specialist centres (such as Sheffield Children's Hospital).

There is variation in numbers of elective surgery taking place - from 718 cases in one hospital to 62 in another. Some hospitals provide non-elective care while others do not.

Children's dental surgery

Dental surgery is undertaken at Doncaster and Bassetlaw hospitals, and Rotherham as day cases, no activity was provided by Barnsley, Chesterfield and Mid Yorks which may relate to coding issues. A large proportion of children's dental surgery is done at the Charles Clifford Dental Hospital (part of Sheffield Teaching Hospitals). None of these require general anaesthesia but sedation and are managed in a special children's designated area. Elective surgery is done at weekends.

Children's urology

Most children's urology services are provided in local hospitals by general surgeons and urologists who carry out adult surgery work and children's surgeons as an outreach service

What should be considered next:

- Non-specialist centres should have arrangements for managing and treating simple surgical emergencies in children
- Non-specialist centres should be able to resuscitate and stabilise seriously ill children and infants of all ages before transferring for surgery and or intensive care
- All anaesthetists who work with children should maintain the skills required to provide children's anaesthesia for surgery, stabilisation and children's resuscitation.
- Anaesthetists must recognise and work within the limits of their professional competence as outlined in the Royal College of Anaesthetist's standards.
- There should be arrangements for them to carry out regular surgery in specialist centres. Children's simulator work may also be useful in helping to maintain knowledge and skills

- There should be evidence of appropriate and relevant children's continuing professional development in the appraisal process.
- Hospitals should define the extent of elective and emergency surgery for children and the thresholds for transfer to other centres

5.3 Validation meetings with providers

In 2013, we carried out independent interviews with providers and commissioners, to help identify clinical priority areas. The providers raised some issues, which included:

- There is a local and national shortage of trainees to help with rota cover
- It is difficult for children's services to meet the Royal College guidance (10WTEs for each tier of the medical rota) that can cover current costs.
- This will worsen as more work is done in the community
- It is likely that services could be consolidated across the area

The challenges to the future provision of children's surgery and anaesthesia were identified as:

- Some surgeons limiting the range of surgery they offer or limiting the age range of the children that they will treat. Guidance from the Royal College of Surgeons and Royal College of Anaesthetists has increased focus on clinical governance and this has meant a reduction in the children's component of general surgical training. As a result, surgeons being trained today do not have the same level of experience in children's surgery as those trained in the past.
- . Doctors recognise that service reconfiguration may be needed if we are to make the best use of their time due to limited numbers and that this should be done in a planned and managed way to avoid unplanned and unmanaged changes to referral patterns.
- Ensuring continued local access to local children's surgery and anaesthetic services
- Children's surgery is dependent on the provision of other children's services and vice versa, in particular children's anaesthetic and emergency services. Therefore any changes to individual children's services can have an impact on the overall number of services offered by a hospital.
- There will be a substantial lack of general surgeons and urologists who can provide local general children's surgery unless steps are taken to address succession planning, operational issues and training and ongoing professional development.

5.4 Agreement on the issues and high level options

Several task and finish group meetings were set up as part of the children's surgery and anaesthesia work-stream, these were attended by a range of clinicians and managers across organisations. The joint Working Together programme team asked them to look at the current landscape of children's surgery provision and feed back their thoughts on what the issues were and the case for change. They also explored a range of high level service models that might be able to offer solution to the challenges.

This is what they agreed:

- Children's surgery and anaesthesia services are not sustainable in their current form
- The needs of patients must always be considered first
- Every local hospital needs to be able to stabilise children out of hours, before they can be transferred to another hospital if required.
- There is no consistency in the current provision of services

- A workforce rotating across all hospital sites would be challenging
- ‘Hub and spoke’ or ‘patchwork’ models are viable options
- Centralising children’s surgery is not a viable option due to the cost of a new building and the current estate of Sheffield Children’s Hospital
- Common thresholds could be adopted in each of the specialties and pathways

High level options were discussed with providers and clinicians, and discussions look place around what this would mean for patients. They looked at:

- The option of keeping things as they currently are structurally and exploring how improvements could be made. Areas where improvements could be made include enhanced skills training, better use of information technology such as telemedicine, better sharing of care records, IT systems integration and smarter theatre scheduling.
- Centralisation – Carrying out all children’s surgery centrally in current facilities or in a brand new building.

Having a central base where staff and skills are located and then deciding on other places where surgery could or should take place and developing skills and staff teams to work in those places in a planned way.
The conclusion of the high level options:

- After exploring all the options, it was felt that the first and second options were not real options
- An approach where there is better planning and development of the skills and staff needed as well as planning to provide a service between the areas seemed like the best and most viable way forward
- All those involved in the discussions accept that for children’s surgery to be safe and sustainable some providers will need to do more surgery and others will do less

5.5 Health needs assessment

A health needs assessment was completed by a specialist public health consultant to give some information on what the future need might be for children’s surgery. The comprehensive report concluded that

- There will be more need for surgery in the future as our population grows
- There is further information that needs to be looked at around data recording and what procedures are happening and where
- There is a need to look at clinical outcomes and metrics and everyone monitoring and measuring the same clinical outcomes and quality metrics
- There are not enough staff being trained to provide the workforce needed to provide the care needed in the future and more focus is needed on planning for this workforce
- The options that have been looked at to date, and have been discussed, need exploring more and the ability to be able to work within those models needs to be further considered.

6.0 Conclusion

The challenges described in this document amount to a compelling case to review children’s surgery and anaesthesia services across south and mid Yorkshire, north Derbyshire and north Nottinghamshire.

- There is a potential skill loss because there is an insufficient volume of work within children's surgery and anaesthesia services in local hospitals. There is also a risk of overloading specialist centres with routine referrals. Any review of service models should take into account the future growth in volume of activity predicted across the Working Together footprint as well as the adherence to service standards.
- The case for change has been agreed by medical directors and clinicians across south and mid Yorkshire, north Derbyshire and north Nottinghamshire, citing the workforce challenges and from the evidence from the workforce mapping that has taken place.
- The findings of the self-assessment by trusts against national standards has demonstrated that there is an increasing issue in meeting the standards.
- There is a need for change and transformation within the current configuration of services. Service transformation will be essential in addressing the issues and developing safe and sustainable children's surgery and anaesthesia services.

Ends

Working Together Programme

Children's Services

Case For Change – Children's Surgery and Anesthesia

This document summarises the key activities and outputs from the work which commissioners and acute hospital provider organisations have led across South Yorkshire and Bassetlaw, North Derbyshire and Wakefield to draw together a consensus of the issues facing children's surgery and anesthesia services.

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Contents

1. Executive Summary

Introduction

One of the greatest challenges facing the health service today is the need to improve the quality of care and achieve better value against a backdrop of pressures from rising demand, significant workforce issues and limited resources. These challenges require the health service to evolve and adapt to changing needs and innovations in treatment and to work in very different ways. Commissioners and providers across South Yorkshire and Bassetlaw, North Derbyshire and Wakefield identified key areas of challenge facing Paediatric services that required a collaborative approach to resolve. This has lead to the development of 2 key projects under the Children's Services work-stream.

The Working Together Programs Children's Surgery and Anaesthesia Project Aims are:

1. To provide safe and sustainable access to children's surgery and anaesthesia services delivered by trained and competent professionals as close to home as appropriate.
2. To improve clinical outcomes and experience for children and their families.
3. To reduce unnecessary referral and interventions

This document supports the case for change for the Surgical and Anaesthesia work-stream and the work undertaken jointly by commissioners and acute hospital providers across South Yorkshire and Bassetlaw, North Derbyshire and Wakefield.

What do we know from the work taken forward to date?

- There is a variation in provider's ability to meet core standards for the provision of Children's Surgery and Anaesthesia. This can lead to a variation in the quality of provision available and to potential variation in clinical outcomes dependant on where services are accessed.
- There is variation in thresholds for referral to services therefore the patient journey and provision available will vary dependant on where services are accessed and at what time.
- There are challenges with maintaining and developing workforce skills and expertise to meet the needs of children requiring surgery.

- Clinicians are identifying that the current services configuration is not consistent, safe or sustainable in the short, medium or long term, and that there are variations in the services.
- The economic case for change is demonstrated by the flat growth rate in resource and cost pressure within the NHS.
- Providers and commissioners have considered a range of high level models that could be adopted; their strengths and challenges based upon the current assessment of services have been identified but warrant further evaluation.
- The assessment of need and prediction of future demand is being worked on currently.
- The size of the problem and quantification of changes is yet to be determined.
- To achieve the standards and address the quality issues there would need to be a change in some of the provision from its current state; this would include potential changes in local provision and therefore access.

Key Findings

There is a plethora of information and policy both on a national and local level to support a case for change. The review of children's services across the South Yorkshire and Bassetlaw, North Derbyshire and Wakefield footprint has been developed with an aim of establishing long-term sustainable, high quality models of Children's services.

Not least the workforce challenges facing providers, coupled with the volume of surgical cases per year, also the challenge of adhering to professional standards against the backdrop of a relatively small population of the patch for many specialised services, of which Children's is just one.

Changes in primary care out of hours provision has resulted in increased attendance at emergency care departments.

Financial pressures across the NHS and other care sector partners (driven primarily by flat NHS funding growth and severe pressure on Local Authority funding, plus the impact of an ageing wider population and increased incidence of LTC), along with a reinvigorated focus upon quality (e.g. after the second Francis report) mean that wider issues of acute NHS provision are under scrutiny.

More recently the Dalton review, 2014 provides further impetus towards a new distribution of acute resources, and supports providers to work more collaboratively and

take on new organisational forms that best secure services for patients. Additionally, Simon Stevens' speech as incoming Chief Executive of NHS England called for further examination of how smaller and community hospitals can contribute to the overall care map and the subsequently published Five Year Forward View, 2014 provides a clear mandate for NHS to develop new models of care.

This combination of factors requires a substantial evaluation of **both** children's surgical and children's non-elective services. This is put into further relief when service standards for surgical and acute provision are considered. No evaluation of urgent care pathway has been undertaken so far, the focus has been on surgery and anaesthesia for both non-elective and elective caseloads.

Recommendations

There is a clear case for change for the children's surgery and anaesthesia which should be considered and a decision made to proceed to Phase Two of the project, which will inform any further decisions on the redesign of wider Paediatric Services.

There needs to be clarity on the collective agreement on the findings to date and way forward between both commissioners and providers to progress to Phase Two.

It is recommended that work is completed on the, needs assessment, the thresholds and service pathways by speciality to inform a full service specification, service model and the financial and contract modelling.

2. Case for Change

2.1 Introduction

This document sets out the context for the 'case for change' for Children's Surgery and Anaesthesia, both from a national and local perspective. The children's work stream has 2 project components, one for Surgery and Anaesthesia and one for the Acutely Ill Child. This document will form part of the outline business case for any proposed changes to children's services as part of phase 2 of the project. This document builds on the existing work and supporting documentation including the associated PID which was agreed by both Working Together Programme Executive Groups. It aims to capture in more detail information needed to support the case for change for children's surgical services across the patch. In this first phase of Working Together the focus has concentrated on developing our collective understanding of the issues facing a small number of important services, each of which have been prioritised following a review of

organisations and services' through a collective process, in collaboration with the seven acute hospital providers.

This first phase of Working Together has also offered partners the opportunity to further build on existing collaborative ' relationships, develop governance arrangements and test a programme approach to service review and transformational change across a wider geographical area.

2.2 Background to Children's Services

One of the greatest challenges facing health provision in the UK today is the need to improve quality of care and to achieve better value against a backdrop of pressures from rising demand and limited resources. These challenges require the NHS to evolve and to adapt to changing needs and to innovations in clinical technology.

Children's health care services within the UK comprise of a wide range of community and hospital (tertiary and secondary) services. Hospital-based services encompass specialities from General Medicine, General Surgery, Orthopaedics, ENT, OMFS and Ophthalmology, through to specialised services (e.g. Neurosurgical and Cardio-Thoracic). In addition, a range of support services are required in order to provide comprehensive care to infants, children and young people and their families, including:

- Occupational Therapy
- Psychology (Child Development)
- Speech Therapy
- Physiotherapy
- Audiology

Paediatrics is by its nature a 24/7 service. As every paediatrician, parent or carer knows, the nature of childhood illnesses is that very often there is rapid progression of symptoms and increasing severity of illness in a very short space of time. This can be coupled with an inability of the child or young person to articulate their symptoms.

In August 2013, via the SYCOM forum, it was concluded that the NHS in South Yorkshire and Bassetlaw, Wakefield and North Derbyshire faces challenges in concurrently meeting the needs of an ageing population; to continue to increase productivity; and to further improve the quality and outcomes of care. The arrival of specialised service specifications for implementation in October 2013, coupled with the small population of the patch for many specialised services will also be a challenge for providers. The NHS across this patch recognises it needs to work together to anticipate and respond to these challenges.

The commissioners across South Yorkshire and Bassetlaw, Wakefield and North Derbyshire agreed the need to work together to agree a shared strategy and take action on these challenges.

Fig 1, Working Together Commissioner Footprint

In addition the corresponding Provider Working Together programme brings together acute providers from the same geographical area and includes:

- Barnsley Hospital Foundation Trust
- Chesterfield Royal Hospital Foundation Trust
- Doncaster and Bassetlaw Foundation Trust
- The Rotherham Foundation Trust
- Mid Yorkshire Hospitals
- Sheffield Teaching Hospitals Foundation Trust
- The Sheffield Children's Hospital

Priorities

An initial list of services for joint commissioner working was identified by SYCOM in May 2013, through consideration of local priorities and the list of provider priorities. This long-list was then reviewed against the available evidence, which considered indicators including contractual performance, workforce issues, and patient safety measures in

each area, in order to assess the potential benefits of collaboration. The ensuing short-list was agreed by commissioners:

- Cardiac and Stroke Services
- Urgent and Emergency Care
- Children's Services
- Smaller specialities of ophthalmology, ENT, OMFS

Some of these are more commissioners led, some are more about linking in with existing provider/network work programmes, to be further defined in the individual project objectives and project plans.

Simultaneously projects had been formed within the provider WTP covering the specialties of Ophthalmology, ENT and OMFs and the specialties of Paediatric Surgery and Acute Paediatric Medicine (the acutely unwell child). In each case there is alignment with both the specialties identified by the commissioner WTP with many of the reasons for concern being common. The question was raised by the commissioner sponsors nominated for these specialties about the consolidation of provider and commissioner projects into joint projects.

Agreement was reached between commissioners and providers that the clinical projects outlined above be managed jointly, recognising it would be necessary at points in time to review working arrangements are in line with NHS best practice for change, rules and the law around competition and procurement.

The programme to deliver this joined up approach to commissioning sustainable services into the future is the Working Together Programme the aims of this partnership working between both acute providers and commissioners across South Yorkshire, Wakefield and North Derbyshire is to enable transformational changes to services that they would not achieve on their own. A review of children's services have been identified as a key priority for focussed work by commissioners across the Working Together footprint (fig 1) which would benefit from joint working, thereby strengthening each organisation's ability to ensure patients care is optimal and safe.

A structured approach has been developed to bring together a range of both quantitate and qualitative methodologies to develop a clear understand of current provision and potential opportunities to improve the quality and safety of services developing a clinical and economic case for change. In some cases a slight variation on this agreed methodology was used; influenced by the availability of data, agreed local, national or Royal Collage standards or the appropriateness of undertaking a financial assessment at this stage.

The main focus in phase one has been:

- Engaging with key stakeholders
- Developing an understanding of the issues across the priority areas
- Gain clinical consensus on the issues to be resolved
- Explore willingness of providers to collaborate and to work differently on potential new clinical service options
- Develop high level clinical options to support a case for change and wider engagement

Baseline assessment

A key activity is to develop a baseline assessment of the priorities areas for all providers individually and as a whole to build a landscape map of the current state which included

- Activity
- Finance (where appropriate at this stage)
- Performance
- Quality and outcomes
- Self-assessment against standards

National Context

Children and young people have a right to receive high quality care, delivered by trained and competent professionals in a timely manner and in appropriate settings. There have been a number of reports over recent years, from professional bodies and Department of Health (DH), highlighting the issues that need to be faced in meeting these challenges[1]. In particular, the Children's Surgical Forum[2] concludes that if preventative steps are not taken regarding succession planning and methods to improve operational arrangements to facilitate training and CPD, then there will be a substantial deficiency of general surgeons and urologists capable of providing a local General Children's Surgery service.

Many of the solutions proposed to address these fundamental issues are rooted in service reconfiguration[3]. These include:

- The move to provide more care for long term conditions, and care which had previously been provided in hospital, in the community;

[1] DH. Report of the children and young people's health outcomes forum. 2012 London.
RCPCH. Facing the Future: Standards for Paediatric Services. 2011. London.
DH. Commissioning safe and sustainable specialised paediatric services: a framework of critical interdependencies. 2008. London.
[2] Children's Surgical Forum, Ensuring the provision of general paediatric surgery in the district general hospital 2010. Royal College of Surgeons.
[3] DH. Report of the children and young people's health outcomes forum. 2012 London.

- The need for local provider services to network and provide both 8-until-late and 24 hour access to acute assessment at different sites;
- Robust local networked solutions for children requiring new born, general and specialist surgery;
- Comprehensive mental health services; and
- Safe, sustainable and co-dependent highly specialised services

Parts of the child's patient pathway can encompass provision from specialist centres through district general hospitals through to community service provision and primary care, it is therefore essential to maintain explicit links between commissioners and providers. These links need to be made and maintained between both the specialist elements and those areas of the pathway commissioned by CCG's.

There is a wealth of policy documents, guidance and evidence on the need for health services to fundamentally review the current configuration of services for children. New working time directives, changing epidemiology, medical and technical advances, medical staffing issues, rising public expectations and the desire to improve quality of care are key drivers for change.

The UK has been ranked bottom out of 25 industrialised countries for well being enjoyed by children. Children in the UK are not currently achieving the best health outcomes compared with Europe or North America.

The impact of the European Working Time Directive (EWTD) on the speciality of paediatrics is significant. Paediatrics as a specialty is short of medical staff at all levels and this will impact on achievement of EWTD compliance. Royal College guidance offers suggestions to paediatric services on achieving compliance.

There has been a steady decline in the provision of general paediatric surgery performed in the DGH in recent years. Managed Clinical Networks are a potential solution to ensuring high quality GPS continues to be available in the DGH. Succession planning and ensuring there are interesting career opportunities for surgeons who train in GPS are also key.

This is a time of unprecedented pressure for the NHS, and current service provision models must by necessity be challenged on a fundamental level in order to provide models of care which are sustainable, effective and provide the best outcome and experience for patients and carers.

Children's services are in no way excepted from this – they are subjected to the global issues facing the NHS and the wider UK care sector, and additionally, they face some distinct challenges of their own.

The ability of providers to deliver high quality services has come under significant pressure for a variety of reasons:

Workforce

Implementation of the European Working Time Directive (EWTD) has made it extremely difficult to provide safe and sustainable levels of staffing in many paediatric units.[4]

This is to be coupled with a situation where trainee numbers coming through medical schools are expected to decline by around 45% over the period 2012-2017[5]

There is an increase in the number of nursing students and others requiring supervision and support in clinical environments on top of clinical care requirements.[6]

Surgical Skills

The danger of surgical and anaesthetic skill loss in the surgical workforce at local centres due to reducing numbers of elective procedures (includes recovery and ODP staff).[7]

Conversely, potential overloading of specialised centres with routine children's surgery referrals.[8]

Economic and Political Factors

Changes in primary care out of hours provision has resulted in increased attendance at emergency care departments.[9]

Financial pressures across the NHS and other care sector partners (driven primarily by flat NHS funding growth and severe pressure on Local Authority funding, plus the impact of an ageing wider population and increased incidence of LTC), along with a reinvigorated focus upon quality (e.g. after the second Francis report) mean that wider

[4] RCPCH Facing the Future: A review of paediatric services. 2011
Temple, J Time for training: A review of the impact of the EWTD on the quality of training. 2010
[5] RCPCH Facing the Future: A review of paediatric services. 2011
Temple, J Time for training: A review of the impact of the EWTD on the quality of training. 201
[6] RCN Defining staffing levels for children and young people's services. RCN standards for clinical professionals and service managers .2013
[7] RCS & British Association of Paediatric Surgeons (BAPS) Commissioning guide: Provision of children's surgery. 2013
[8] Children's Surgical Forum, Ensuring the provision of general paediatric surgery in the district general hospital 2010. RC S
[9] RCN Defining staffing levels for children and young people's services. RCN standards for clinical professionals and service managers .2013

issues of acute NHS provision are under scrutiny. This combination of factors requires a substantial evaluation of **both** children's surgical and children's non-elective services.

Children's Policy and Standards Considerations

In 2011 the Royal College of Paediatrics and Child Health (RCPCH) published a set of 10 acute service standards that the college considered to be a minimum for all acute general paediatric services. A key message from the RCPCH is that compliance with safety standards, patient needs and outcomes should be the principle driver for service reconfiguration and change, not workforce supply. However, the link between available workforce and ability to deliver standards cannot be overlooked.

Working with the Royal College of General Practitioners and the Royal College of Nursing, the RCPCH has recently launched a new project, *Facing the Future Together for Child Health*, to look across the care pathway at how we can improve health care and outcomes for children and young people, caring for them as close to home as possible.

The project builds on the Facing the Future standards and the Standards for Children and Young People in Emergency Care, expanding them into care outside the hospital. It aims to ensure there is always high quality care and diagnosis early in the pathway and to reduce unnecessary attendances at emergency departments and admissions to hospital. The draft RCPCH standards are undergoing wider consultation and further detail is expected.

The Royal College of Surgeons RCS also published service standards (2013), which are aimed at local provider networks to ensure that all providers of children's surgery should meet consistent standards. They recommend that all children's surgical services must be configured into local provider networks, which must have appropriate governance systems, clinical leadership and transfer arrangements in place. The care of unusual or complex conditions is concentrated in specialised settings, which is part of the direct specialised commissioning function of NHS England. Analysis against these standards is presented in the local context section of this document.

2.3 The Working Together Picture

Local Context

The Working Together Programme is the vehicle to address some of the challenges that face children's services at a national level, in addressing these there will be implications for CCG commissioned children's services, a potential solution is service

reconfiguration which needs commissioners to work together across a larger footprint to optimise service change.

The Working Together Programme's aim of partnership working between both acute providers and commissioners across South Yorkshire, Wakefield and North Derbyshire seeks to enable transformational changes to services which individual organisations would not be able to achieve on their own. Commissioner and provider WTPs will work jointly to deliver safe, effective and sustainable solutions across Children's Services.

The original strategic case for change was born out of:

- Concerns raised by the medical Directors and CEO from provider Trusts and Commissioner organisations with concerns around quality and sustainability of Children's services
- Recognition that providing children's surgery across 7 sites was not sustainable in the short, medium and long term
- Significant workforce challenges, including reduction in trainee positions and retirement of workforce
- Variation in adherence to national standards amongst the 7 provider sites.
- Variation in thresholds to access services both in and out of hours

Over the past year the working together programme for Surgery and Anaesthesia has jointly worked as commissioners and providers with the SCN and has completed the following:

- A self-assessment of providers against the core standards – See section 2:4– Meeting clinical standards
- Gathered data on activity and workforce across the 7 provider trusts. See section 2:5 – Current Landscape and service provision
- Has undertaken a series of validation meetings with each provider – See section 2:6 – Stakeholder Feedback
- Has run a series of clinical and stakeholder workshops to gain consensus on the issues and to confirm the current position on services. See section 2:7 – Consensus on Issues
- Is undertaking a health needs assessment. See Section 2:8 HNA summary

This case for change will draw on the evidence gathered from the above activity in the remaining sections of this report.

2.4 Meeting Clinical Standards

In 2012, the NHS across Yorkshire and the Humber asked Trusts to complete a self-assessment of compliance across a range of standards for Paediatric Surgery and Anaesthesia, as part of the work of the then-Children's Surgery and Anaesthetic Network. This piece of work was consistently undertaken by all Y&H Trusts, the full results of this has formed an important part of the early analysis for this work-stream and can be found in the following document WTP Current landscape and service provision for paediatric surgery.

Early scoping work involved analysing previous provider self-assessments against the Y&H 2012 Children's Surgery and Anaesthesia standards, to try and identify any areas of common concern as a baseline. A weighting system was applied whereby there were a number of standards where it was felt that there was sufficient shared non-compliance such as to add weight to the Surgical project's case of change.

Whilst variations in compliance existed across Working Together common themes emerged from the analysis in particular areas – surgical and anaesthetic skills, governance and education and some issues around physical environment.

2014 refreshes have not been consistently received from all Trusts, and this data below has been anonymised by Trust reflecting some improvements however these do not detract substantially from the above analysis.

STANDARD 2: INPATIENT CHILDREN'S SURGERY AT A NON-SPECIALIST CENTRE								
No.	**Description**	**A**	**B**	**C**	**D**	**E**	**F**	**G**
2.1.1	All general surgeons who carry out surgery on children are members of paediatric surgical network, clinically overseen by the tertiary centre	**A**	**G**	**R**	**G**	**R**	**G**	
2.14	When a child undergoes anaesthesia and the anaesthetist is assisted by staff who are specific recognised paediatric training and skills in airway support, invasive and non-	**A**	**G**	**R**	**G**	**R**	**G**	

	invasive ventilation, extubation, recovery and paediatric resuscitation and level one safeguarding children.							
2.33	For Anaesthetists' designated to provide elective surgery in children the minimum number of lists to maintain competence is one paediatric list per week or equivalent.	R	A	R	G	R	G	
2.4.5	There is a multi -disciplinary group to co-ordinate, oversee and monitor children's surgical services within the Trust reporting to the Board	G	R	A	G	G	G	G
STANDARD 4: EMERGENCY SURGERY								
4.1.1	Emergency surgery is only undertaken by surgeons and anaesthetists who undertake regular elective work on the relevant age groups (and therefore meet the requirements detailed above) (local)	A	A	R	R	R	G	
4.1.2	Arrangements are in place to ensure continuous cover by staff with the necessary training and continuing experience in paediatric surgery. The surgical and anaesthetic consultants involved in the care of children have drawn up a paediatric surgical on call roster and agreed written criteria for providing emergency surgery for Children. If the roster cannot be staffed the child will need to transfer to the tertiary centre	R	A	R	G	R	G	

4.1.3	In the absence of a separate paediatric rota those anaesthetists who have to provide out of hours cover for emergency surgery in children (with no fixed paediatric list) have received regular training in paediatric resuscitations and there are arrangements for them to undertake regular supernumerary attachments to paediatric lists or secondments to specialist centres in order for them to update and maintain their paediatric knowledge and skills	R	G	R	G	R	G	
4.14	There are fully funded arrangements for all consultants and career grade staff who provide anaesthetic cover for children to participate in CME which relates to paediatric anaesthesia and resuscitation.	G	A	G	G	R	G	
STANDARD 6: NETWORKING								
6.1	All units and permanent staff delivering local paediatric surgery are part of a clinical network in order to promote a comprehensive, integrated and safe local service	R	R	R	R	R	G	G
6.1.2	The Tertiary centre provides clinical leadership, professional peer review to network member to facilitate compliance with agreed standards and service level agreements	A	A	R	G	R	G	

Summary of findings

Whilst variations in compliance exist across South Yorkshire and Bassetlaw, North Derbyshire and Wakefield paediatric surgery providers, common themes emerged from the analysis in particular areas – surgical and anaesthetic skills, governance and education and some issues around the physical environment.

With a number of providers not meeting the above standards it is clear that a collaborative approach to providing Children's Surgery and Anaesthesia should be considered.

Coupled with the high volumes of cases per year (20,000+), this provides a clear case for reviewing current provision in greater detail, with the aim of establishing long-term sustainable models of surgical care across the area

2.5 Current Landscape and Service Provision

This section describes the current landscape of Surgery and Anaesthesia, with points to consider and recommendations for each area.

2.5.1 Anaesthesia Provision

When considering the provision of anaesthesia in children, the Royal College of Anaesthetists recommends that the following areas should be addressed:

- Organisation and administration (governance and network arrangements)
- Staffing requirements
- Training and education
- Equipment, support services and facilities
- Audit quality improvement and research

Guidelines have been developed and updated (RCoA 2015)[10] in association with APAGBI (Association of Paediatric Anaesthetists of Great Britain and Ireland) with the goal of ensuring comprehensive, quality anaesthetic services dedicated to the care of children and young people are in place.

Summary of Findings

Barnsley	Four core anaesthetists who routinely (1 per fortnight) undertake elective lists. Named children's lead anaesthetist
Chesterfield	Headcount of 23 and a WTE vacancy of 2.3 at consultant level. There is a paediatric lead and elective surgery / radiology is performed routinely between 10 consultants. Anaesthetic coverage is increased by splitting intensive and general anaesthesia rotas with children's experienced anaesthetists on anaesthetic rota (two on call consultant anaesthetists per day, 1 in ITU and 1 general) although OOH activity can have anaesthetists doing paediatric cases on call with no regular lists. Equally these generic staff

[10] www.rcoa.ac.uk/gpas2015 gpas@rcoa.ac.uk

	may be called upon to support a child's care. Good maintenance of PACU/ODP skills, BLS Trust updates.
DBH	There are 4 paediatric anaesthetists who routinely anaesthetise for the planned lists, but almost all in the team will anaesthetise children if required when on-call.
Mid Yorks	12 anaesthetists with special interest in paediatrics have a 1/3 of their job plan identified as paediatrics. However OOH dependent upon the rota they may not be available. PACU currently rely on agency staff due to a high number of vacancies within the service. Therefore not all PACU nurses have PiLs
Rotherham	Consultants -- 19 full time (F/T) and 3 part time (P/T) Registrar St4 upwards 4 F/T and 1 P/T St1 to St 3 – 4 SHO F/T and 2 F/T Supernumerary Associate specialist 3 F/T Specialty Doctors 7 F/T and 1 P/T

2.5.2 General and Paediatric Surgery

Background

General paediatric surgery (GPS) is the surgical treatment of relatively common disorders that usually do not require the resources of specialist surgical centres. This surgery may take place in a local hospital and can be performed by specialist paediatric surgeons or general surgeons who primarily operate on adults but have expertise in paediatric surgery. Standards of care have been defined for non-specialised surgical services for children and it is accepted that surgeons and anaesthetists should not undertake occasional paediatric practice. It is recommended that every local hospital should have a surgeon with training and experience in paediatric surgery who will provide a non-specialised paediatric surgery service.
GPS commonly includes:

Elective	**Non -Elective**
• Inguinal herniotomy • Umbilical herniotomy • Orchidopexy for undescended testicle • Circumcision • Minor soft-tissue abnormalities	• Acute abdominal pain including appendicitis • Obstructed hernias • Acute scrotal pathology • Minor trauma • Abscesses

Most surgical procedures performed on children are elective, relatively straightforward and performed in the district general hospital (DGH) with appropriate resources or it may take place in a specialist paediatric surgery centre. However, if the patient is very young, has existing comorbidities, or the receiving unit does not have medical/clinical staff with the appropriate skills to manage the child/ young person, the child must be

treated by a unit with the appropriate competencies and skills. Specialised paediatric surgery services cover the following three areas:

- Neonatal surgery;
- The management of infants and children with conditions requiring specialist surgical expertise (gastrostomy/fundoplication, tumour biopsy/resection);
- The management of infants and children with relatively straightforward surgical conditions (inguinal hernia) who have an associated disorder which requires management in a specialist centre (chronic lung disease, metabolic /endocrine disorder, altered airway pathology).

There is an overlap between paediatric surgery and all of the other surgical specialties involving children (in particular urology and general surgery).

Summary of GPS Findings per DGH Provider 2013/14

Service Provision Activity

- General Surgery in small numbers is delivered in all providers
- No elective surgery delivered in Barnsley – but 83 NE cases
- Small amounts of elective activity in providers with the exception of SCH
- Disproportionate amount of non-elective activity across DGHs (figure 2)
- Out of hours activity – top procedures acute abdomen & fixation of testes

Figure 2: Demonstrating disproportionate amount of non-elective activity across DGHs 2013/14

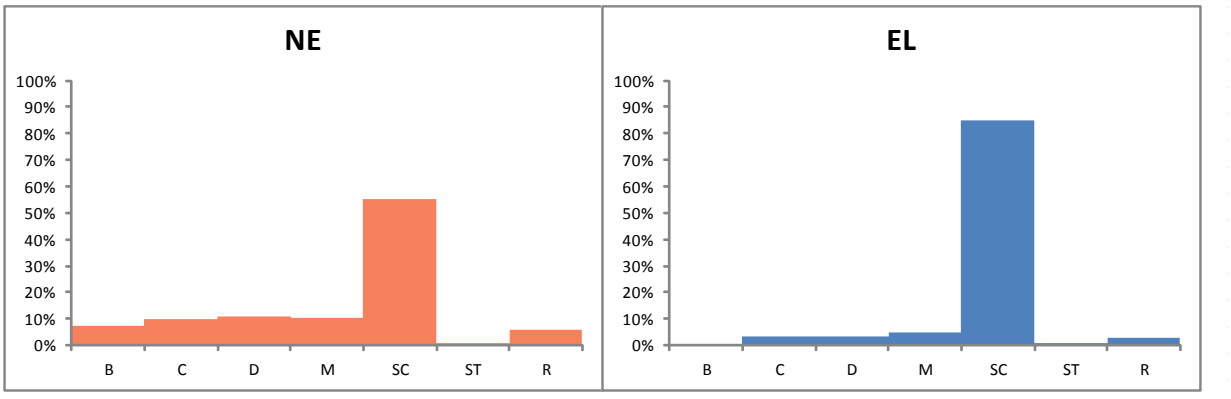


Table 1. Source: Combined Trust Theatres Data Extracts, 2013-14 FY, Age 0-18

			In Hours	OOH	Unknown	Total	% of Total
General Surgery	BHNFT	EL					
		NE	46	37		83	7.8%
		Other / UNK		2		2	
		BHNFT Total	46	39		85	2.7%
	CRH	EL	71			71	
		NE			112	112	0.0%
		Other / UNK					
		CRH Total	71		112	183	5.7%
	DBH	EL	60	3		63	
		NE	59	64	1	124	13.6%
		Other / UNK					
		DBH Total	119	67	1	187	5.8%
	MYH	EL	99	1		100	
		NE	35	84		119	17.8%
		Other / UNK	1	1		2	
		MYH Total	135	86		221	6.9%
	SCH	EL	1552	157	1	1710	
		NE	390	246		636	52.1%
		Other / UNK					
		SCH Total	1942	403	1	2346	73.2%
	STH	EL	11	1		12	
		NE	6	6		12	1.3%
		Other / UNK		1		1	
		STH Total	17	8		25	0.8%
	TRFT	EL	52			52	
		NE	30	35		65	7.4%
		Other / UNK	18	22		40	
		TRFT Total	100	57		157	4.9%
	General Surgery Total		2430	660	114	3204	

Table 2: Out of hours GPS activity for removal of appendix and fixation of testes 2013/14

2013/14	Number of children	
	Appendix	Fixation of testes
Barnsley	21	2
Chesterfield	17	8
DBH	14	-
Mid Yorks	15	-
Rotherham	12	-
Sheffield Children's	25	See below

From the theatre data 6 cases stated excision of normal appendix.

Table 3. Torsion of Testes – number of cases referred to SCH NHS FT for surgery during 2013 and 2014

Commissioner Geographical Location	In Hours	OOH	Total
Barnsley	4	1	5
Bassetlaw	6	4	10
Doncaster	19	6	25
East Leicestershire	1		1
North Derbyshire	4	3	7
North Lincs	2	1	3
Rotherham	4	3	7
Sheffield	28	19	47
Wakefield	1		1
Total for 2013	69	37	106
Barnsley		4	4
Bassetlaw	5	1	6
Doncaster	6	4	10
Hardwick	1		1
Huddersfield		1	1
North Derbyshire	4	1	5
Rotherham	4	4	8
Sheffield	17	18	35
Wakefield	1		1
Unknown		2	2
Total	38	35	73

Currently pathways of care do not exist for either of these conditions (appendicectomy, fixation of testes) which will be undertaken and managed by surgeons and anaesthetists whom may not routinely undertake elective children's surgery therefore variation and inequalities may exist.

Standards

- Gaps in relation to formal consistent thresholds, training and education, networking and governance arrangements.
- Access to surgeons / anaesthetists regularly working on children

Workforce

There is a variation in current provisions evidenced in the snapshot workforce data below. Workforce planning discussions also evidence pressures due to the surgeon age profile across the footprint.

Barnsley	All elective GPS is performed at SCH NHSFT however substantial numbers of non - elective cases are undertaken locally. Note from theatre data 21 cases occurred out of hours for excision of appendix (normal+ - abnormal) whilst 5 for either fixation of testis or excision of lesion (see table 1).
Chesterfield	Small numbers of elective surgery provided by a single surgeon (0.2 WTE) from QMC Nottingham on an SLA therefore issues with cover and sustainability. OP clinic 1per week provided in a dedicated children's OPD. Dedicated children's day-case unit staffed by paediatric nurses however theatre lists tend to be mixed with children cohorted together. There is a screened area in the second PACU for children this is often shared with adults. There is an ODP and recovery nurse designated as paediatric leads Small numbers of non-elective surgery however from theatre data 17 cases occurred out of hours for excision of appendix, whilst 10 for fixation of testis.
DBH	Small numbers of elective surgery & issues with cover and waiting times single consultant service. Potential significant issue reported by DBH as newly recruited surgeons declare competence only to provide general surgery out of hours cover for children > 10years Activity predominantly on one site DRI with occasional case at BDGH. No fixed children's lists, children cohorted on mixed children/adult lists and OP clinics.
Mid Yorks	Small numbers of elective surgery undertaken by two surgeons, within MY. Majority of cases at Pinderfield's Hospital and one list at Dewsbury when paediatric nurse is present. All surgery in children under 2 years old is performed at LTHT. There are approx. 5 general surgery patients per month. Considerable numbers of non-elective work of which 15 excisions of appendix occurred out of hours.
Rotherham	Small numbers of elective surgery undertaken by 1 general surgeon due to retire in 3/12 with no succession plans therefore issues with future provision and sustainability arise. Small numbers of non-elective surgery however from theatre data 12 cases occurred out of hours for excision of appendix.

2.5.3 Paediatric Orthopaedic Surgery

Paediatric orthopaedic services encompass the care of children with fractures; soft tissue trauma; and conditions of the skeleton (congenital and acquired), resulting in deformity and loss of function. The commonest of forearm fractures are generally managed at local hospitals by general orthopaedic surgeons or by specialist paediatric orthopaedic surgeons in tertiary providers. All revision procedures on children's

fractures and difficult primary procedures (due to the complexity of the fracture) require specialist intervention.

Summary of Orthopaedic Findings per DGH Provider 2013/14

Trauma and Orthopaedic Service Provision

- Orthopaedics is delivered in all providers on all sites (elective & non elective).
- Elective work provided as a “Hub and Spoke” arrangement with exception of MYH (see below)

Barnsley	Mr Fernandez from Sheffield undertakes elective surgery alternate Monday mornings utilising local theatre facilities and support services workforce. Outpatient clinics are undertaken in the afternoons. Small numbers of elective work provided on mixed lists using adult DSU with designated screen areas in recovery and DSU waiting area
Chesterfield	Mr Davies from Sheffield provides specialist outreach surgery. Both fracture clinic and theatre lists are mixed lists with children cohorted. Small numbers of elective cases. 10 local surgeons providing non- elective paediatric care. 1WTE vacancy at associate specialist
DBH	A split service post contract exists for Mr Madan between Sheffield and Doncaster and Bassetlaw providing good links and communication with the tertiary centre. A small amount of trauma is undertaken, but only the simple cases. Others are transferred to SCH. Mixed children’s and adult lists 2 per fortnight – children cohorted. 3 clinics per week
Mid Yorks	Threshold age range of 2 years for simple cases, complex and < 2years referred to LTHT.
Rotherham	Mr Giles from Sheffield provides elective surgery. Trauma and non-elective work goes to Sheffield.

Activity

- Small amounts of elective activity in Barnsley, Chesterfield, Rotherham, STH.
- Non-elective out of hour’s activity is for reduction and manipulation of fractures.

Table 4. Source: Combined Trust Theatres Data Extracts, 2013-14 FY, Age 0-18

			In Hours	OOH	Unknown	Total	% of Total	
Trauma & Orthopaedics	BHNFT	EL	121	2		123		
		NE	96	33		129		5.6%
		Other / UNK		1		1		
		BHNFT Total	217	36		253	6.1%	
	CRH	EL	121			121		
		NE	109	2	75	186		0.3%
		Other / UNK						
		CRH Total	230	2	75	307	7.4%	
	DBH	EL	282	22		304		
		NE	297	117	1	415		19.8%
		Other / UNK		1		1		
		DBH Total	579	140	1	720	17.2%	
	MYH	EL	434	13		447		
		NE	261	95		356		16.0%
		Other / UNK	8	4		12		
		MYH Total	703	112		815	19.5%	
	SCH	EL	1126	19		1145		
		NE	298	272		570		45.9%
		Other / UNK						
		SCH Total	1424	291		1715	41.1%	
	STH	EL	18	1		19		
		NE	6	3		9		0.5%
		Other / UNK						
		STH Total	24	4		28	0.7%	
	TRFT	EL	138	1		139		
		NE	80	70	1	151		11.8%
		Other / UNK	25	22		47		
		TRFT Total	243	93	1	337	8.1%	
	Trauma & Orthopaedics Total		3420	678	77	4175		

Standards

- Gaps in relation to formal consistent thresholds, training and education, networking and governance arrangements.
- Access to surgeons / anaesthetists regularly working on children

2.5.4 Paediatric ENT

Children's ENT surgery is provided in DGH's across SYMYND it is delivered by ENT surgeons on mixed adult / children theatre lists with children co-horted, with the exception of DBH which has one designated children's list per week. Children's ENT surgical provision within DGH's consists of the following surgical procedures:

- Myringotomy and insertion of grommets
- Adenoidectomy

- Tonsilectomy
- Removal of foreign body

Summary of ENT Findings per DGH Provider 2013/14

ENT Service Provision

- ENT Surgery is delivered in all providers on mixed lists (children cohorted) with the exception of DBH

Provider	Comments
Barnsley	Paediatric nurse available for pre-assessment and main children's lists (ENT).
Chesterfield	4 surgeons providing 1 WTE consultant post. Seven mixed theatre lists and 2 clinics per week. Note specialised head and neck cancer surgery transferring to STH April 2015
DBH	Sustainable service with a designated consultant team of 3 surgeons. Some designated children's lists – 1.25 per week Children cohorted at the beginning of the mixed lists. 5 clinics per week
Mid Yorks	65% of paediatric cases are undertaken at Pinderfield's Hospital by two surgeons 5 – 6 lists a week.
Rotherham	Elective surgery is referred to Doncaster, the rest is day surgery

Activity

- Small amounts of non-elective work provided both in and out of hours across all providers with the exception of TRFT and STH

Table 5. Source: Combined Trust Theatres Data Extracts, 2013-14 FY, Age 0-18

			In Hours	OOH	Unknown	Total	% of Total	
ENT	BHNFT	EL	369	1		370		
		NE	4	4		8		4.7%
		Other / UNK						
		BHNFT Total	373	5		378	7.9%	
	CRH	EL	316			316		
		NE	3		20	23		0.0%
		Other / UNK						
		CRH Total	319		20	339	7.1%	
	DBH	EL	921	20		941		
		NE	30	16		46		18.6%
		Other / UNK						
		DBH Total	951	36		987	20.6%	
	MYH	EL	912	4		916		
		NE	13	9		22		10.5%
		Other / UNK	2	1		3		
		MYH Total	927	14		941	19.6%	
	SCH	EL	1442	307	1	1750		
		NE	122	57	1	180		66.3%
		Other / UNK						
		SCH Total	1564	364	2	1930	40.2%	
	STH	EL	11			11		
		NE						0.0%
		Other / UNK						
		STH Total	11			11	0.2%	
	TRFT	EL	215			215		
		NE						0.0%
		Other / UNK						
		TRFT Total	215			215	4.5%	
	ENT Total		4360	419	22	4801		

Standards

- Gaps in relation to formal consistent thresholds, training and education, networking and governance arrangements.
- Access to surgeons / anaesthetists regularly working on children

WTP Speciality Collaborative Workstream

- Happening simultaneously –
-

2.5.5 Paediatric Ophthalmology

Approximately 90% of the paediatric ophthalmic[11] workload comprises the investigation and treatment of amblyopia (“lazy eye”) and strabismus (squint) and much of the day to

[11] http://www.yhscg.nhs.uk/SSNDS-Version-3/23%20Specialised%20Services%20for%20Children.pdf

day management of these conditions is undertaken in local hospitals on a day case basis. The remaining cover visual disturbances which can be cerebral, congenital (e.g. congenital cataract, glaucoma and optic nerve disorders); retinopathy of prematurity; inherited retinal dystrophies or acquired retinoblastoma. Specialist facilities and access to other specialised paediatric services (paediatric anaesthesia) are required managing these patients.

Summary of Ophthalmology Findings per DGH Provider 2013/14

Service Provision and activity

- Ophthalmology Surgery is delivered in all providers predominantly as day case on mixed lists (children cohorted). Non elective activity very small in paediatrics.

Table 6. Source: Combined Trust Theatres Data Extracts, 2013-14 FY, Age 0-18

			In Hours	OOH	Unknown	Total	% of Total	
Ophthalmology	BHNFT	EL	53			53		
		NE						0.0%
		Other / UNK						
		BHNFT Total	53			53	5.4%	
	CRH	EL	46			46		
		NE			1	1		0.0%
		Other / UNK						
		CRH Total	46		1	47	4.8%	
	DBH	EL	183			183		
		NE		1		1		11.1%
		Other / UNK						
		DBH Total	183	1		184	18.9%	
	MYH	EL	145			145		
		NE	3	3		6		33.3%
		Other / UNK						
		MYH Total	148	3		151	15.5%	
	SCH	EL	445	10		455		
		NE	25	4		29		44.4%
		Other / UNK						
		SCH Total	470	14		484	49.7%	
	STH	EL	4			4		
		NE						0.0%
		Other / UNK						
		STH Total	4			4	0.4%	
	TRFT	EL	48			48		
		NE		1		1		11.1%
		Other / UNK	2			2		
		TRFT Total	50	1		51	5.2%	
	Ophthalmology Total		954	19	1	974		

Ophthalmology	Comments
Barnsley	SLA exists between Rotherham and Barnsley for elective work OOH referred to SCH Ophthalmology
Chesterfield	Two surgeons providing 1WTE for paediatrics. Two mixed lists per week and 1 clinic. Mixed adult and children lists – 2.5 per week. Vacancies 1WTE at consultant level, 1WTE at associate specialist, 2 WTE at staff grade
DBH	Five consultants undertake OP clinics, but only one designated surgeon undertakes the surgery. Single consultant service can present issues with cover, achievement of waiting time targets etc. Numbers relatively small. Issues with capacity in ophthalmology generally One dedicated children's list per fortnight. 7 clinics per week.
Mid Yorks	
Rotherham	
Sheffield Teaching	No dedicated OPD however separate waiting area
Sheffield Children's	

2.5.6 Oral and Maxillofacial Surgery

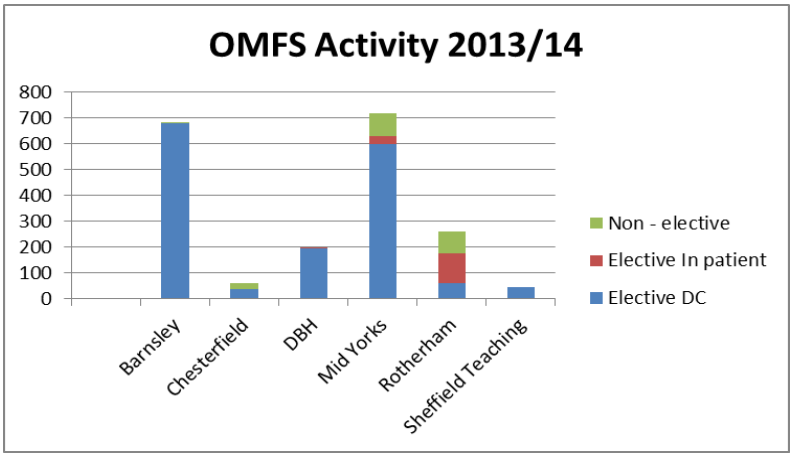
Oral and Maxillofacial Surgery is a major provider of paediatric services for children requiring surgery involving the mouth, face, head and neck. The majority of elective and non-elective procedures are undertaken in otherwise healthy children in District General Hospitals. Complex maxillofacial paediatric surgery is undertaken in specialist centres following referral from outlying units. This includes surgery for cleft lip and palate, craniofacial surgery, craniofacial trauma, paediatric head and neck oncology (including skull base surgery and management of complex vascular malformations). Children with significant co-morbidity requiring otherwise routine surgery may require referral to specialist centres where appropriate specialist paediatric services are available.

Table 7: OMFS surgical activity for 2013/14 submitted by provider

NHS Provider	Elective DC	Elective In patient	Non – elective	Total	
Barnsley	681	0	1	682	Includes Poswillos, maxfax, restorative dentistry, excludes orthodontics
Chesterfield	37	1	24	62	3 clinicians providing 2WTE Mixed theatre list – 5 per week 1 clinic per week. Note specialised head and

					neck cancer surgery transferring to STH April 2015
DBH	193	2	0	195	1.25 lists per week. Designated children's lists in the Children's Day case Surgical Unit Day case Surgical Unit staffed by the paediatric nursing team One consultant provides the service, which can present difficulties with cover and the achievement of targets (cancellations). No unplanned service 1 OP clinic per week
Mid Yorks	600	30	88	718	Two lists per week comprising of adults and children, with paediatrics cohorted first followed by adults.
Rotherham	61	114	86	261	Cases from Bassetlaw for oral surgery on Friday afternoon list.
Sheffield Teaching	46	0	0	46	
Sheffield Children's	322	55	328	705	

Figure 3: Graph of OMFS surgical activity for 2013/14 submitted by provider

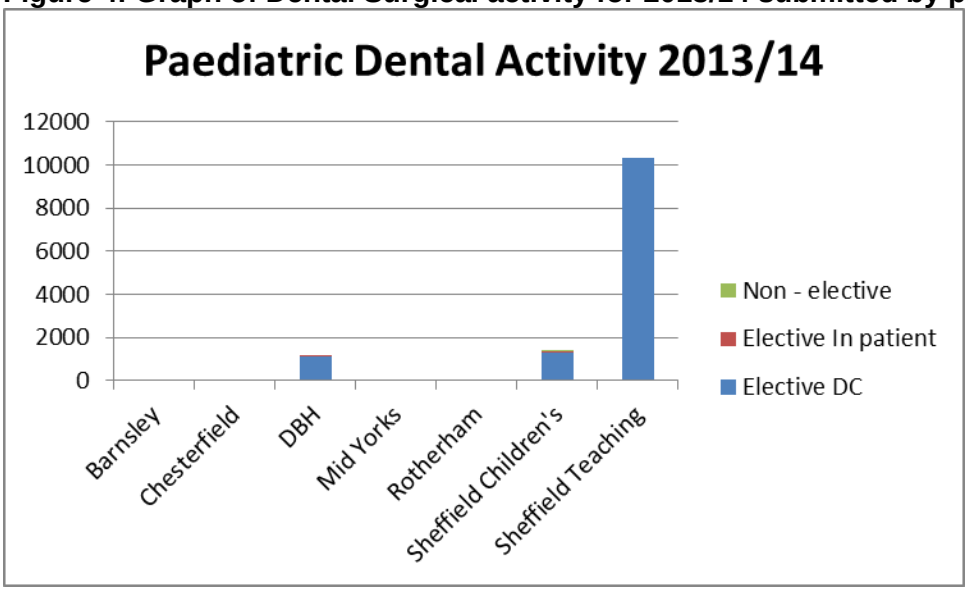


2.5.7 Paediatric Dentistry

Table 8: Dental Surgical activity for 2013/14 submitted by provider

	Elective DC	Elective In patient	Non - elective	Total	Comments
Barnsley					not provided
Chesterfield					not provided
DBH	1096	3	0	1099	1 dentist employed by the Trust plus four that do sessional work. 2.5 Poswillo lists per week. Mixed referrals – there is a feeling that some single extractions could be done in dental surgeries. Long waiting times – not achieving 4 week wait, currently 13 weeks wait. In hour's weekend lists.
Mid Yorks					not provided
Rotherham					1000 cases of elective work per year, 800 – 900 OP paediatric dentistry
Sheffield Children's	1314	25	2	1341	
Sheffield Teaching	10300	0	0	10300	Paediatric dentistry department at CCDH

Figure 4: Graph of Dental Surgical activity for 2013/14 submitted by provider



A large proportion of paediatric dentistry will go to the Charles Clifford Dental Hospital (CCDH) in Sheffield and none of these treatments involve general anaesthesia. Relative analgesia (Entonox) is used in the Special care clinic in CCDH for children attending. The clinic is in a private area and children remain there after the procedure until they are well enough to go home. Elective dental work performed at weekends.

Note a number of providers Barnsley, Chesterfield and Mid Yorks NHS FT did not provide any activity information. When Chi MAT activity was reviewed for years 2011/12 and 2012/13 all three of these providers had no activity for this coding. This could be due to a coding error occurring locally although this accounts for three years' worth of activity. Moving forward the recommendation would be to enhance the data collection methodologies to ensure there are robust mechanisms to monitor, plan and commission future services.

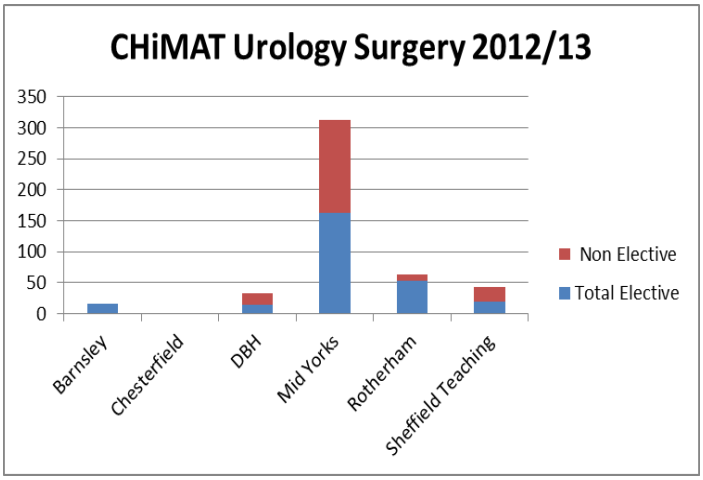
2.5.8 Paediatric Urology

The majority of urology surgery services for children (e.g. orchidopexy, circumcision, hernia repair) are provided in local DGH's by general surgeons (adults) / urologists (adult) and paediatric surgeons as an outreach service. s. No data was submitted by providers for paediatric urology it is assumed this data will be included in the general surgery submissions.

Table 9: CHiMAT activity for Paediatric urology 2012/13

	Total Elective	Non Elective	Total	
Barnsley	17	*	17	
Chesterfield	*	*	*	
DBH	15	18	33	
Mid Yorks	162	151	313	Urology – some urology undertaken at Pinderfield's Hospital; however children under 2 years are referred to LTHT.
Rotherham	53	10	63	
Sheffield Teaching	20	24	44	

Figure 5: Graph depicting CHiMAT activity for Paediatric urology 2012/13



Summary of findings

There is variation in the workforce across sites and there is variation in the activity provided across sites and for populations. Some of these variations can be explained and others cannot be at this stage. There is a need to consider the activity by area against need.

There is a requirement to refine and develop service models that offer solutions in sustaining workforce skills. Models would need to ensure the volume of activity is sufficient for clinicians to maintain skills and competency and consider succession planning for sustainability.

Clear service specifications determining thresholds, urgency criteria and care pathways need to be developed for the elective and non- elective work.

What we do know that needs considering is that:-

Non-specialist centres should generally have arrangements for managing and treating simple surgical emergencies in children; in addition, they should be able to resuscitate and stabilise seriously ill infants and children of all ages prior to transfer for surgery and/or intensive care.

All anaesthetists who work with children should maintain appropriate clinical skills. In paediatric anaesthesia as in all areas of practice, anaesthetists must recognise and work within the limits of their professional competence. Some anaesthetists working in non-specialist centres will not have regular children's lists but may have both daytime

and out-of-hours responsibility to provide care for children requiring emergency surgery. There should be arrangements for undertaking regular supernumerary attachments to lists or secondments to specialist centres. Paediatric simulator work may also be useful in helping to maintain paediatric knowledge and skills. There should be evidence of appropriate and relevant paediatric CPD in the five-year revalidation cycle.

Hospitals should define the extent of elective and emergency surgical provision for children and the thresholds for transfer to other centres. An appropriately constituted committee consisting of a paediatrician, anaesthetist, surgeon, senior children's nurse and other relevant health professionals and managers should formulate and review these policies. The committee should be responsible for the overall management, governance, and quality improvement of anaesthetic and surgical services for children and should report directly to the hospital board. A representative from this committee should also liaise with the regional network lead for surgery and anaesthesia and provide input to regional audit, standards and care pathways.

2.6 Stakeholder Feedback

As an integral part of the baseline assessment the Working Together Programme has worked with providers and commissioners via an independent company to identify clinical priority areas, in interviews back in February 2013, 4 out of 7 CEOs in provider organisations raised concerns about the future of paediatric services in their trust. The key concerns highlighted at this point in time reflect the national position of children's services, and are as follows;

The difficulty in acute paediatric services with rotas that meet latest Royal College guidance (10 WTEs for each tier of the medical rota (RCPHP 2011) that can cover its costs with current levels of activity-based income.

- The exacerbation of this problem as more work is shifted (appropriately) to community settings.
- The shortage locally (and nationally) in trainees to fill rotas, even if they were affordable which compromises quality.
- The likelihood for consolidating to fewer services across the patch.

The challenges to the future provision of children's surgical services are summarized below:

- Changes in surgical clinical practice influenced by guidance from the RCS and RCoA have increased the focus on clinical governance. One of the more significant changes has been to the training of general surgeons with a reduction in the paediatric component of general surgical training. As a result as surgeons retire they are not replaced by surgeons with the same level experience in paediatric surgery. There is evidence that concern about the ability to provide to provide safe and effective surgery for children has caused some surgeons to limit the range of surgery

that they offer, or limit the age range of children that they treat leading to changes in "activity flows" and problems in capacity planning.

- Avoiding unplanned unmanageable changes to referral patterns for children's surgery. There is recognition among clinicians that service reconfiguration of services may be required to make the best use of clinical manpower and that this needs to be addressed strategically.
- The need to ensure continued access to local surgical and anaesthetic services.
- The provision of children's surgery is dependent on the provision of other children's services and vice versa, in particular paediatric anaesthetic and emergency department services. Therefore changes to individual services can have an impact on the overall "portfolio" of services offered by a particular Trust.

The Children's Surgical Forum[12] concludes there will be a substantial deficiency of general surgeons and urologists capable of providing a local General Children's Surgery service if preventative steps are not taken regarding succession planning and methods to improve operational arrangements to facilitate training and CPD.

Summary of findings

There is a national workforce shortage and these results in difficulties in acute paediatric rotas that meet the Royal College Guidance of 10 WTEs for each tier of the medical rota.

In addition in excess of 50% of CEOs interviewed raised concerns about the future of paediatric services in their organisation.

2.7 Consensus on Issues

Task and finish groups have been established as part of this work stream and to consider the issues of:-

- Consensus and confirming the current landscape and the case for clinical change.
- A range of high level service models that could offer solutions given the current challenges
- Thresholds and priority areas of speciality

Consensus has been established on the following between stakeholders within the task and finish groups

- Needs of the patient needs to be considered 1st in all models.

[12] Children's Surgical Forum, Ensuring the provision of general paediatric surgery in the district general hospital 2010. Royal College of Surgeons.

- Every DGH needs to be able to stabilise pending transfer at every out of hours site
- There is no consistency in the current service provision.
- Discussions on the ability of workforce to move to patient or patients to move to a site have been debated, a rotating workforce would be challenging.
- Hub and spoke models or tartan models are viable options, that need further development
- Centralisation is not a viable option due to existing estate issues and patient pathway issues.
- Common thresholds could be adopted in some of the specialities/pathway areas.
- Children's surgery and anaesthesia is not sustainable in its current form.

High Level Options Discussed

Based upon the discussions and their outputs around the various groups, a number of high level options emerged which could be summarised as follows:

A. Status Quo

Options appraisals would normally consider a pure 'no change' scenario as a matter of course. However, in addition to this, opting to keep things as they are structurally but explore how improvements could be made through a number of improvement initiatives emerged as a clear option for consideration. Potential improvement areas include enhanced skills training (e.g. airway management), better use of information technology such as telemedicine, better sharing of care records, IT systems integration and smarter theatre scheduling (e.g. tonsillectomy early on list, etc.).

B. Centralisation

All surgery undertaken centrally using either the current facilities or a brand new build (presumably on the M1 / M18 corridor)

C. Some form of "Hub and Spoke" model with a number of potential (and four main) iterations:

- 3 Hubs including Sheffield Children's
- 3 Hubs excluding Sheffield Children's (but with a defined role still for SCH)

Both these would need to consider either

- Moving the child to the Hub, or
- Moving the team (either from specialist centre or creation of area wide team rota) to the child

Other models were described which might best be considered as variants of / adjuncts to the 3 main options above, i.e.

Tiered approach with specialist centres / certain sites being able to manage certain levels of complexity (whether all the time or determined by time of day / week) – how would this fit with the various hub and spoke models, for example – would it be a natural consequence of a hub model?

"Tartan" and / or Matrix Models where there may be clustered or local solutions, taking some or all aspects of the above, according to (sub) speciality, local resources, local populations complexity, child's development, etc., essentially a patchwork of more localised solutions dependent upon a range of factors.

Summary of findings

- Stakeholders have explored all of the above options, consultation with providers has ruled out Option A: Status Quo and Option B: Centralisation.

- It has been accepted that a blended approach of a hub and spoke, tiered approach and tartan model would be viable and would warrant further evaluation.

- It has also been accepted that a network model could support in the development and maintenance of the workforce.

- There is a level of certainty from all stakeholders that for Children's surgery and anaesthesia services to be sustainable and safe for the future given the needs of the population there would be a requirement for some providers will take on more surgery , some providers will do less and some may do no or minimum surgery.

2.8 Health Needs Assessment

Will be available end of May 2015.

3. Conclusion

When national and local context is considered including the challenges around workforce, and adherence to the quality standards, and the challenges faced in attaining them and the wider changes are put together, they amount to a compelling case to review Children's services across the South Yorkshire and Bassetlaw, North Derbyshire and Wakefield area through the Working Together Programme (WTP).

This document takes the view that there are sufficient differences between the nature of, and the particular issues facing, different elements of Children's services (e.g. Surgical and Urgent / Emergency Care) that they should form distinct work-streams within a wider project.

As cited above, surgical and anaesthesia services face the twin pressures of a potential skill loss in DGHs where the volume of work coming through is insufficient to maintain surgical or anaesthetic skills, and a risk of overloading of specialist centres with routine referrals. Any review of service models will need to be cognisant of two main factors; volume of activity across the Working Together area, and adherence of the various local providers to accepted service standards.

In the context of change needed this is likely to mean;

- A growth in provision in some areas
- A reduction in provision in some areas
- New patient pathways being established

There is therefore a need for change and transformation within the current configuration of services. Service transformation is essential in addressing the issues identified and in developing safe and sustainable services for Surgery and Anaesthesia.

The clinical case for change has been demonstrated by medical directors and clinicians across the programme footprint and from workforce mapping.

The ability to maintain standards and growing concern around decrease in ability to meet standards was demonstrated by the assessment exercise undertaken.

The economic case for change is demonstrated by the flat growth rate in resource and cost pressure within the NHS

The needs assessment and predicted modelling may indicate a growth rate in need (this is yet to be demonstrated)

A network model based on a "hub and spoke" arrangement whereby high risk elective and non –elective surgery will be provided by specialist surgeons and low risk day surgery at local general sites on dedicated children's lists needs to be explored further. To achieve this robust pathways and protocols need formulating for the transfer of children self- presenting at local sites with an emergency surgical need.

Working Together Programme

Non- specialised Children's Surgery and Anaesthesia– Scenario Appraisal

05/8/15

Draft

August 2015

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Core leadership	04/08/15	V3	Review and

			comments

Contents

1. Executive Summary

It is important that commissioners review the case for change for Children's Surgery and Anaesthesia within the South Yorkshire Mid Yorkshire and North Derbyshire (SYMYND) footprint and consider if provision commissioned is equitable, safe and sustainable for the future. The case for change and subsequent Health Needs Assessment takes into account consideration of quality aspects of the service, draws on national and regional guidance and clinical best practice on services, which set out the national standards for Children's Surgical services.

If a transformation scenario is supported, then location considerations will draw on demographic information, and take into account the impact of provision in different locations according to access, deliverability, cost and clinical quality.

The purpose of this document is not to provide the detail of the next phase of work but to add to the case for change and provide commissioners with a limited number of options on which to progress this project to the next phase. At which point there will be much wider stakeholder engagement and extensive patient and public involvement.

The options to be considered by commissioners are:

Scenario 1.	Do nothing
Scenario 2.	Continue to deliver the services within the current form and from the current sites across the working together footprint, with a focus on improving performance and quality against standards
Scenario 3.	Transform Surgical and Anaesthesia provision in the wider context of SYMYNDWTP footprint and change the service model and pathways to improve performance and quality

1.1 Preferred option

Members of the project team have reviewed high level options and considered the application of them in line with best practice and national models of configuration of Children's Surgical Services, taking on board feedback from the clinical community and sub groups within the Working Together programme.

It is the recommendation to the Programme Executive Group consider the work up of option 3 to provide wider transformational change in the context of the vision for this programme of work *Equitable, Safe and Sustainable Services*

2 Evaluating the high level scenarios

For the purpose of the high level scenario appraisal, Working Together programme commissioners have developed an evaluation criteria to use as part of the decision making process to highlight risks and issues and benefits with the various scenarios.

These criteria are shown below:

Table 1 – Working Together scenario evaluation criteria

Criteria	Indicator
Quality	Impact on premature / avoidable deaths Impact on staffing levels Patient safety – conforming with best practice/Guidelines and standards Patient experience e.g. complaints and feedback
Access	Impact on population weighted average travel time Feedback from patients and public – i.e. acceptability, willingness to travel
Affordability	Up front capital and other non-recurring costs required to implement reconfiguration Assessment of ongoing financial viability of hospital sites Assessment of affordability within commissioners allocations Total value of each option incorporating future capital and revenue implications
Deliverability	Workforce experience/quality (attractiveness for employment) Assessment of ease of delivering option in terms of public and stakeholder acceptability Assessment of ease of creating required capacity shifts within timescales (workforce and physical facilities) Degree of integration across acute, primary, and community services

3. Scenario Appraisal

3.1

Within the case for change there is an evidence of variation in provision, which can lead to variation in quality, clinical outcomes and performance against standards. The key messages from phase 1 are as follows:

There is a variation in the ability of provision to meet core standards for Children's Surgery and Anaesthesia. This is evidenced by the assessment of providers against Royal College Standards

There is variation in thresholds for referral to services, therefore the patient journey and provision available will vary dependant on where services are accessed and at what time. Evidenced by the confirm and challenge event and subsequent work within the task and finish group.

There are challenges with maintaining and developing workforce skills and expertise to meet the needs of children requiring surgery. Evidenced by the position from trusts that the current workforce is not sustainable and the skills to undertake certain procedures is reliant upon minimal or diminishing workforce skills.

Clinicians are identifying that the current service configuration is not consistent, safe or sustainable in the short, medium or long term, and that there are significant variations in the services. This has been raised by medical Directors and supported by managers of trusts.

The economic case for change is demonstrated by the flat growth rate in resource and cost pressure within the NHS. There is not an option to look to additional investment as a solution.

The assessment of need and prediction of future demand identifies a growth rate in line with population growth.

We also know that:

- Evidence to date suggest that the adoption of network approaches to enable collaboration in terms of workforce may offer some solutions
- That hub and spoke models have been adopted in other areas successfully to enable the delivery of sub speciality provision over larger footprints.

Risks and Issues - Scenario 1- Do nothing

Category	Risk/Issue	RAG	Mitigation
Quality	Non Compliance with RC standards evident at a DGH level		None identified - challenges given the changes in workforce, and the national shortage of specialised staff coming through training.
Quality and Safety	Changes in pathways and local provision driven by changes in staff skills and workforce retention and recruitment		None identified
Quality and Safety	There needs to be a critical mass of patients receiving treatment within some of the surgical sub specialities to ensure that staff have enough exposure to operating on patients regularly those with co morbidities and the younger age thresholds are of particular challenge		Reduce the number of people that deliver particular challenging sub speciality procedures so they each treat more patients. However this would reduce the flexibility and skillset of the team and may make it more difficult to cover rotas 24/7. This would also mean a move in provision to a site where the skills are available, which isn't an option due to capacity in other centres or clinical need for intervention within a certain time period (non elective).
Deliverability	Staffing shortages and loss of skill will mean that ability to respond to clinical		None identified

	need reduces		

Benefits - Scenario 1- Do nothing

Category	Benefit
Access	The impact on people from low incomes and deprived areas is assumed to be impacted upon if services move because the skills simply are not located within local centres anymore as it would involve changes to their current healthcare provision.
Affordability	There would be expected outflows of patients to other more skilled sites, so the viability of the local service and the local acute hospital trusts would change.
Deliverability	As we have an assessment of local need across the patch political and public perspective would need to be considered if a decision was taken to continue within the current form and predicted diminishing skills
Deliverability	Other areas of local hospital Paediatric Services may be effected and transport services would be effected if pathways changed due to not responded.

Risks and Issues - Scenario 2- Continue to deliver the provision within the current form and with the current providers but develop a network approach and improve quality with a focus on improving performance against standards

Category	Risk/Issue	RAG	Mitigation
Quality	Staffing shortages and change in staff skills and expertise		Investment in services – Investment into a Clinical Network and investment into workforce planning and skills development
Affordability	Currently commissioners and providers are required to deliver significant cost savings, and this investment in		None identified

	existing services may prove to be prohibitive.		
Deliverability	Staffing shortages within the provision may continue to be challenging		None identified Even with investment, the workforce development and skills development timeframe will not respond sufficiently to meet growth in need

Benefits – Scenario 2 - Continue to deliver within the current form and with the current providers but develop a managed clinical network to

- Agree guidelines and protocols are in place for managing the full patient pathway and address unwarranted clinical variation.
- Improve access and egress to/from services at the right time.
- Provide a forum and clinical leadership for training and education, sharing best practice and development of the service.
- Ensure processes are in place to identify and monitor network risks and critical incidents.
- Address strategic issues by monitoring and predicting trends in patient flows, matching capacity to demand, workforce and succession planning.

Category	Benefit
Access	The impact on people from low incomes and deprived areas is assumed to be minimal with this option as it would not involve changes to their current healthcare provision.
Affordability	Consideration of the funded network.
Deliverability	There would be no need for extensive public or patient engagement and limited changes In model or pathways
Deliverability	Staff would not have to move to another site – they could continue to work at their local hospital site.

Risks and Issues - Scenario 3 - Transform Surgical and Anaesthesia provision in the wider context of SYMYND WTP footprint and change the service model and pathways to improve performance and quality. This would mean configuring children's surgery services into local provider network considering a blended model of Hub and Spoke as well as Tartan model to be defined by speciality and in line with meeting standards. This would mean this model would need to meet the emerging service specification. This proposal would mean a change in configuration and some patient pathways dependant on the speciality, presenting condition and determining the ability to meet thresholds. It would mean for some elective sub specialities there would be little or no change, however in other areas there would be change in the model or a need to take a different pathway of care that meets the clinical quality needs specified.

Category	Risk/Issue	RAG	Mitigation
Quality & Safety	Ability to skill up staff and develop skills across sites and provide a lead skills development from a hub would enhance quality but be challenging as there would be a need to collaborate		Consider the development of a clinical network for S&A. Ensure collaborative agreements are embedded within contractual arrangements
Access	If services were to be reconfigured, there would be a proportion of patients who may have to travel further. Including possibly		This needs to be investigated further as part of the next phase of work looking at possible options. Patients and the public

	longer patient journeys or longer ambulance travel times		would need to be reassured that travel times by embrace, blue light ambulance are fully understood and planned for.
Deliverability	There would be a need for extensive patient and public engagement as this would mean a change in where services are delivered but with overall benefits to patients		Overall outcomes will need to be worked on and the impact of changes should demonstrate overall acceptability even though there is significant change

Benefits - Scenario 3 - Transform Surgical and Anaesthesia provision in the wider context of SYMYND WTP footprint and change the service model and pathways to improve performance, quality and sustainability

Category	Benefit
Quality and Safety	Reconfiguration of services, to a more hub and spoke model has the potential to deliver improvements to quality and safety to the service. Also to make the service more resilient.
Quality and Safety	A more specialist site as a hub or several hub configurations fits with the national evidence base for best practice services, which should improve quality and outcomes. This should contribute to a much improved assessment against standards
Quality and Safety	Combining the services into a blended model including hub and spoke and elements of a tartan model would improve Paediatric skills on a local level for elective provision
Affordability	There are economies of scale to be sought from this transformation/reconfiguration. The transfers and number of interventions may reduce, however it should be noted that a full cost benefit analysis should be

	made available as part of the option appraisal phase of the project.

5. Conclusion and recommendations

This high level options appraisal sets out the options, risks and benefits for Children's surgical and anaesthesia services within the Working Together footprint. The project team are reviewing this work, and undertaken a high level criteria assessment to form a preferred option for phase 2 of the project.

Through consideration of these criteria, and careful review of the benefits and risks associated with service delivery the project team recommend that Option 3 (Transform Surgical and Anaesthesia provision in the wider context of South Yorkshire WTP footprint and change the service model and pathways to improve performance and quality, consider Hub and Spoke or Tartan model) should be considered by the Children's Core Leaders group and then by the Programme Executive Group (PEG) as the preferred option.

The Working Together Executive will be asked to review the proposals in light of feedback from the Yorkshire and the Humber Clinical Senate.

Working Together Programme: Children's Work-stream

Best Practice Guidance for the Configuration and Provision of Children's Surgery.

Linda Daniel
August 2015

This best practice document is based on a review of literature and standards published by Royal Colleges and other bodies in relation to both the elective and non-elective children's surgery pathway.

Best Practice Guidance for the Provision and Configuration of Children's Surgery.

CONTENTS

1. INTRODUCTION AND CONTEXT

Surgery on children is carried out in tertiary centres by paediatric surgeons and in some specialities e.g. plastic surgery by 'adult' surgeons (surgeons who primarily operate on adults but who also operate on children). In addition to this, a significant amount of relatively straight forward general, orthopaedic, urology and ENT surgery is carried out by 'adult 'surgeons in DGH's. Most surgical procedures performed on children are elective, relatively straightforward and performed in the district general hospitals as day case procedures. However children can become acutely ill requiring surgery very rapidly but have greater potential for full recovery. Their greater vulnerability means that the effects of delays intervening or errors when commencing treatment can be amplified to a considerable degree. The children's surgical pathway encompasses primary, secondary and in certain cases tertiary care. This best practice document is based on a review of literature and standards published by Royal Colleges and other bodies in relation to both the elective and non-elective children's surgery pathway.

1.1 Challenges to the future provision of DGH services

Over the last decade, a number of key documents published by the Royal Colleges have highlighted the issues and challenges facing the provision of children's surgery in the DGH's[1]. At a Yorkshire and Humber level these challenges have been raised by stakeholders (surgeons, anaesthetists, Trust managers and commissioners) and identified as the key drivers for the Working Together Programme at meetings in 2014 summarised below.

- Providing a comprehensive range of effective and sustainable children's surgery and anaesthetic services.

  Changes in clinical practice has been influenced in recent years by guidance from the Royal College of Surgeons (RCS) and Royal College of Anaesthetist (RCoA) and an increased focus on clinical governance.

  One of the more significant changes has been to the training of general surgeons, with a reduction in the paediatric component of general surgical training. Individual general surgical trainees have been given free remit to choose any subspecialty area, and there has been no attempt to match the numbers training in any given sub-specialty area to the needs of the service. As a result, as surgeons retire, they are not being replaced by surgeons with the same level of experience in paediatric surgery.

  There is evidence that concern about the ability to provide safe and effective surgery for children has caused some surgeons to limit the range of surgery that they offer, or limit the age range of children that they treat.

[1]RCPCH. Facing the Future: Standards for Paediatric Services. 2011. London.

Royal College of Surgeons National Confidential Enquiry into Patient Outcome and Death. Surgery in Children: are we there yet? NCEPOD 2011

Children's Surgical Forum, Ensuring the provision of general paediatric surgery in the district general hospital RCS 2010

Children's Surgical Forum, Surgery for Children: delivering a First Class Service. RCS 2007

- Avoiding unplanned unmanageable changes to referral patterns for children's surgery. Within the region there is evidence that the issues identified above have resulted in unplanned changes to service provision and 'activity flows' away from smaller DGH's towards larger centres, leading to problems in capacity planning. There is recognition among clinicians that transformation of services may be required to make best use of clinical manpower, and that this needs to be addressed strategically.

- The need to ensue continues access to local surgical and anaesthetic services.

  A central principle of the NHS is to provide services to ensure children are treated safely in an appropriate environment that is as close to home as possible. Commissioners are central to shaping NHS services and, when making decisions regarding services needed in their area will have improving patient outcomes at the forefront of their minds.

- The need to consider clinical interdependencies

  The provision of children's surgical and anaesthetic services is dependent on the provision of other children's services and vice versa; in particular the provision of a number of children's services relies on the provision of paediatric anaesthetic services. Therefore, changes to individual services can have an impact on the overall 'portfolio' of services offered by a particular Trust.

- Implementation of the Standards for Children's Surgery and Anaesthesia lead to challenges that are beyond the ability of individual organisations to solve.

  There is widespread recognition that meeting the standards in full may be a challenge for some Trusts. The view among clinicians is that there are options for addressing these (e.g. through the provision of in reach and outreach services, joint training, education and audit), but that this would require joint working. There is also the view that for the standards to be effective, they should be monitored by people who understand the services and who are able to make informed assessment against compliance; ideally peers. Also, that the standards will need to be reassessed in light of changes to national clinical guidance, in order to remain relevant.

1.2 How do these challenges affect Children's Surgery and Anaesthesia?

The overwhelming view from attendees at stakeholder meetings was that

- There is a need for change 'continuing as we are is not sustainable'.
- Ensuring good quality and sustainable provision of services in future and implementation of standards would require cross-organisational working.
- There is lack of co-ordination across pathways and patient flows are not managed.
- The interdependencies of children's services are complex.
- There is a need for managerial leadership and clinical leadership across organisations.

2. CHILDREN'S SURGERY SERVICE MODELS: LITERATURE REVIEW

When considering the commissioning of children's surgical services, children should be treated locally where safely possible and centrally where necessary. The RCPCH and RCS advocate provision of children's surgical services configured into local provider networks[2] [3]which must have appropriate governance systems, clinical leadership and transfer arrangements in place. The standards[4] highlighted that complex care should be centralised, day surgery where possible should be maximised, and "occasional practice" should be viewed as undesirable especially if elective. The care of unusual or complex conditions is concentrated in specialised settings, which is part of the direct specialised commissioning function of NHS England[5]. This expectation by the RCS is that the majority of children's surgical services should be designed and delivered as part of an appropriately resourced network that works closely with clinicians from all disciplines and with commissioners, for the benefit of children and their carer's. The operational detail is left for local commissioners and providers to determine, however there are some very clear principles namely:

- The network must have a clear governance infrastructure and refer to national standards and outcomes of care.
- There should be an identified clinical network lead.
- There must be regular (at least annual) network review of patient outcomes and experience.
- From a CCG point of view the RCS suggest that a network is supported by contractual agreements that specify service requirements and outcomes and has appropriate administrative and financial resources.
- The network will therefore need to work closely with commissioners regarding objectives and work plans.
- Section 6 of this 2013 publication sets out the standards in detail, including detailed standards and suggested measurement criteria in each of 5 domains – Configuration / Governance & leadership / Education and training / Patients and families / Delivery and environment of care.
- Finally the RCS set out a view that the number of specialist paediatric surgeons should be increased.

Reviewing the literature available the following is a summary of operational models.

2.1 East Midlands Commissioning Framework: A network approach to General Paediatric Surgery in the East Midlands.

The East Midlands Strategic Clinical Network in conjunction with specialised commissioners have developed a commissioning framework for General Paediatric Surgery. The delivery model for GPS will vary from provider to provider, based on local work-force and out-reach

[2] Royal College of Paediatrics and Child Health:. Bringing Networks to Life – An RCPCH guide to implementing clinical networks. London, RCPCH, 2012.
[3] Children's Surgical Forum: Ensuring the provision of general paediatric surgery in the district general hospital. London, The Royal College of Surgeons, 2010
[4] Children's Surgical Forum: Standards for Children's Surgery. London The Royal College of Surgeons, 2013.
[5] NHS England. NHS Standard Contract for Paediatric Surgery: surgery (and surgical pathology, anaesthesia and pain). London, NHS England ,2013. http://www.england.nhs.uk/npc-crg/group-e/e02/.

arrangements from tertiary units, with the one aim that the standard of care is equivalent in all units and the best interests of the child are paramount. As a minimum, services should be age appropriate, safe and effective and delivered as locally as possible by appropriately trained professionals with the right education, training, knowledge and skills. All units will contribute to the GPS Clinical Network, which will have a remit for driving continuous quality improvement and support commissioning in the oversight and monitoring of standards.

In summary: The principles of both the elective and emergency GPS models are:

• All children will be treated by appropriately trained professionals – i.e. staff with the right education, training, knowledge and skills to provide high quality care in an environment suitable for their needs which is genuinely child centred.

• All surgical specialties involved with children will be organised effectively to ensure that routine services are available locally.

• All units contribute to a clinically managed network with regional MDT meetings and regional audit programme.

• All units will be measured against regional quality/performance standards to ensure the same standard of service is achieved in all units.

Consensus was reached between those involved in the review that GPS will be delivered either by outreach from paediatric surgeons from the specialist centres via a formal service level agreement, or by Trusts with adult surgeons who have appropriate competencies and supporting infrastructure to undertake GPS safely and sustainably. The requirements to assess competency and infrastructure are stipulated in the clinical standards.

The Children's Surgical Forum (2010) does not make recommendations regarding a particular lower age limit or volume of cases undertaken to assure competency. The guidance stipulates that occasional practice is undesirable and that safe practice is dependent upon the appropriate competencies within an individual Trust. Therefore no formal thresholds are in place.

Furthermore Trusts are required to ensure that the competencies of adult surgeons undertaking surgery on children are monitored as part of annual appraisal and re-validation.

The advocacy for the introduction of clinically managed networks for children's surgery is widely evident in a plethora of recent Royal College and DH guidance. It was the view of the review team that in order for GPS to continue to be delivered safely, and for there to be robust collaborative work-force planning, the commissioning framework must be supported by a clinically managed network.

The establishment of a network enables centralised monitoring of performance and outcomes, ensuring that there is equity of provision, such that a child treated in any unit within the network receives equivalent high quality standards of care. The network enables a regional approach to increased quality, and will include enhanced productivity and efficiency through cost effective pathways which get it right first time. In order to promote a comprehensive and integrated approach to GPS, all units delivering GPS will be expected to

be part of the GPS Network and participate in Network meetings. The Network will provide clinical leadership and professional peer review to Network members in order to facilitate compliance with the model and clinical standards.

2.2 National Steering Group for Specialised Children's Services 2009 Scottish Government Document[6].

This report was commissioned to review the totality of children's care, rather than just surgical, however section 7 sets out considerations around surgical models of care and briefly laid out below:

Joint Regional Appointments

A specialist surgeon has a dual appointment between a specialist hospital and another centre. This currently exists in orthopaedics in the SYB. This post must be in addition to staffing complement of the specialist centre, since withdrawal of an existing slot will weaken that specialist base. Such posts, moreover, conform to the projected status of MCNs with the ambition of fusion of local and regional planning. It has advantages over the out-reach model in that the integration of the practitioner into both hospitals seems to yield a better level of investment, and ability to produce clinical leadership than one given "visitor/out-reach" status.

Benefits:

- Local patients have access to specialist on a regular albeit less than whole time basis.
- Provides in-house support for the non-specialist staff and improves training opportunities.
- Promotes opportunities to give advice and share clinical opinion with potential is for general upskilling.
- Facilitates communication with specialist centres and allows earlier repatriation of complicated children into their own locality with options on local follow-up.

Dis-benefits:

- Increased travel – cost and lost clinical time.
- Lack of a 24/7 emergency cover of a consistent level,
- Administrative difficulty in managerial terms of creating a job "shared" by different budget holders with possibly differing levels of commitment to that appointment.
- Organisational clinical governance arrangements need to be absolutely clear.

[6] http://www.specialchildrensservices.scot.nhs.uk/Documents/org00005.pdf

Joint appointment to several hospitals

This is a variation of Joint Regional appointment (above) which allows a single surgeon to support more than one district general hospital when these are suitably located geographically.

Benefits:

- Local standards are maintained at a specialist hospital level, a permanent 'paediatric surgical presence', directly or indirectly, is provided in the DGH.
- Communication channels between other adult general surgeons looking after children and paediatricians, and between the DGH and Specialist Hospital are facilitated.
- Formal and informal paediatric surgical CPD can be a regular feature for surgical and paediatric staff

Specialist Out-Reach with Local Lead

A way to provide specialist presence and specialty support for a non-specialist unit. Such an arrangement is helped by geographic proximity of the "recipient" unit to the "donor" unit. Both elements of this model are important, as it tends to focus strongly on the elective component alone, leaving emergency provision as a very separate set of problems. This would need careful thought

Network of DGHs

In England there are, in densely populated urban areas, multiple hospitals relatively close to each other, and it is being proposed that the lead children's surgeons of each form a network which provides continuous availability of clinical expertise.

In-House Lead General Surgeon

- As a model of service delivery this represents status quo, which as outlined earlier is not sustainable, due to the difficulties besetting succession on account of the changes to preparatory training.

DGH Specialist with in reach to specialist centre

- The appointment of a paediatric surgeon to a large DGH with elective clinical sessions in the specialist hospital might be a model which appropriate for specific locations.
- This would cater well for elective surgery and share the same limits for emergency surgery as the other models, but for the fact that the surgeon would be able to provide a rostered emergency cover for children in the DGH if he/she so wished, and a purely elective service in the specialist centre.

Tiered Levels of Care

- At its heart this is simply a method of grouping age, complexity of condition, and available facilities and support, into categories which may allow hospitals to determine their current and future service strategy.

- It was suggested such tiering may help direct a planning process to areas where there is either sufficiency or inadequacy of resource for the population.

2.3 NW England – Dr Anne Hoskins presentation to the NCEPOD conference following the 2011 report.

Three issues led to the establishment of the networked model

- year on year increase in children being referred to children's hospital for surgery
- limited no of procedures being carried out by surgeons in some DGH
- Different models of paediatric surgery care and networks across the northwest.

The NW SHA led the development of a paediatric surgical network - region wide. This included a network director with support and the network had a core role around establishment and monitoring of standards and performance. There was alignment with the quality observatory.

The network role is to

- set standards
- monitor and evaluate
- define what surgery being undertaken and timing
- explore concentration of services across network (some specialise in x, some in y)
- education and competency maintenance

2.4 Hub and spoke – networks. McNally / SW England

Ideally a hub and spoke model, with surgical centres drawing patients from surrounding centres, allows the NHS to accurately redistribute its resources and manpower according to the need to create equality. McNally[7] made a clear recommendation for a paediatric surgical provider network across SW England.

This followed an external Review of General Paediatric Surgical Services in the South West in 2008. That review recommended retaining the existing service model - "hub & spoke" but to strengthen it by the creation of a Paediatric Surgical Network.

Tertiary centre

- Tertiary Paediatric Surgery Department at Bristol Royal Hospital for Children (BRHC), 4 paediatric surgeons and 2 paediatric urologists.

[7] https://www.rcseng.ac.uk/surgeons/supporting-surgeons/regional/docs/janet-mcnally-session-2

- The tertiary centre provides 24 Hour Emergency Service supported by a NICU, PICU and full range of paediatric specialists

- The tertiary centre clinicians doesn't routinely operate in DGH (large geographic footprint across the SW)

- "Hub & spoke" model with outreach clinics throughout region

- Neonatal and Paediatric Retrieval Teams

- BRHC always available for consultation/backup

General Paediatric Surgery in the ten DGHs in SW England

- General surgeons and/or urologists with an interest in paediatric surgery perform general paediatric surgery of childhood

- Elective surgery: inguinal hernias, hydroceles, palpable undescended testes, umbilical hernias, circumcision

- Emergency surgery: appendicitis, pyloric stenosis, acute scrotum, intussusception & incarcerated hernias in some hospitals

- There are no specialist paediatric surgeons in the DGH's in the SW.

The network is intended to strengthen collaboration between DGH's and specialist paediatric centres, to move care closer to home where possible, to ensure timely succession planning for key clinicians and ensure high quality training and to ensure good quality audit of outcomes.

The network has developed 60 standards for Paediatric surgery with the involvement of all DGH and the specialist centre. There is an ongoing programme of self -assessment against these standards. The network has strong paediatric anaesthetist support, a strong nurses' forum and has been felt to improve collaboration and engagement between sites.

The presentation highlights that some fundamental issues such as succession planning have not yet been solved, and there is a sense of less responsibility to local population.

Being watchful of potential dangers of hub and spoke.

There is a body of evidence that patients have a better survival if their operation is in a high-volume surgical centre. It should be noted that this observation is highly procedure specific. There is research (for eg lung cancer surgery[8]) showing that patients first seen at a surgical centre are more likely to have surgery than patients who were not first seen in a non-surgical centre.

[8] Thorax 2011;66:1078–84.

A 2015 study in Nottingham[9] tested a hypothesis of whether surgical patients first seen in the "hub" of a hub and spoke model were more likely to receive surgery than patients first seen in a "spoke". **The hypothesis was proven; the study concluded that surgical centres that serve the largest catchment populations have high resection rates for patients first seen in their own centre but, in contrast, low resection rates for patients first seen at the surrounding centres they serv**e.

The Khakwani study demonstrates the need to ensure that service design facilitates all patients, including those first seen at non-surgical centres, to have equal access to surgery. The study has highlighted the key role that the surgical centres with large catchment populations can play in improving the surgical resection rates in England and the need to provide equal access to this service. Obviously this was research done in the context of adults and lung cancer, perhaps a generalisable point was that if a hub and spoke model is adopted, attention will be required to patients seen in the spoke centres getting equitable care.

2.5 Monitor – 2015. International Models of Acute Care

Monitor[10] recently published a document exploring some international models of acute care and other potential service innovations.

This explored a number of potential models for future service design and configuration. Many of these were well beyond paediatric surgery, but the general lessons are applicable.

Networks, transfers systems and protocols

- **The most important enabler of the tiered system was the use of networks, facilitated through shared clinical governance and formal patient transfers and protocols**. However, the degree to which networks are used locally to optimise care delivery varies considerably.

Standards, protocols and risk tiering

- **This is particularly common in maternity care, but obviously has implications beyond this**. One of the challenges to tiering in maternity is identifying patients who shift from low to high risk during a care episode. The importance of clearly defined networks and protocols for the support offered by higher risk units, the communication between units to notify of risk changes, and patient transfer or the transfer of staff in, should a greater degree of risk tiering be introduced in the NHS. This has obvious implications if care for a population is shared across many providers in a network of care.

[9] Khakwani A, et al. Thorax 2015;70:146–151.

[10] Exploring international acute care models. Monitor 2015

- Matching clinical standards to risk tiers is important; given the important role clinical standards have in driving service design. There will be issues in ensuring that the NHS regulatory regime supports any networked model.

Links between surgery, paediatrics and primary care and a shared electronic record, which links almost all paediatric providers.

- This may have length of stay advantages[11] and may facilitate faster decision making, reduced duplication of testing, better chronic disease management and safer transfer and hand offs.

Exploring the scope for increasing the use of technology to improve efficiency and patient outcomes within the NHS.

- Technology may enable care to be delivered remotely. For example, the Monitor report found use of electronic intensive care units (eICUs) in the USA. In the US system, spoke sites are supported to provide intensive care services through an eICU hub site. The system uses two-way cameras, video monitors, microphones and a smart alarm connected by high speed data lines (annex 14 to the Monitor report)

- This type of system has also been shown to work for other services such as stroke and dermatology. Obviously the cost of the technology and the benefit it would yield are important return on investment questions, as are ensuring high clinical engagement, shared clinical governance and responsibility arrangements.

Different approaches both to employment arrangements and the use of specific roles.

- **Employment arrangements for clinicians can give providers more flexibility. Credentialing across many sites, admission rights at multiple hospitals.**

- Examples of this contractual model exist in France, Germany, US, and Canada. This may provide greater flexibility to the acute providers for ensuring sufficient clinical cover in and out of hours. The flexibility offered by group practice arrangements may enable clinicians to look after higher volumes of patients across a wider geographical area within a specialty, and so enable better skill development opportunities.

The NCEPOD 2011 Report picked up on this theme and used the phrase **NHS Passport as a means of facilitating Cross-site work** and enabling flexible movement between hospitals for short-term work. This would enable cover for emergencies and absences in short notice and ensure support for clinicians to extend and reinforce their skills

Different role definition could also allow for greater flexibility.

- **Exploring the notion of "practicing at the top of licence"** and transferring responsibility to a cheaper resource – **nurse / doctor substitution etc.**

Obviously these are not new concepts. It is unknown the extent to which they have been explored locally. These specific examples should necessarily be taken forward in the NHS,

[11] Kahn, J.M. (2011) 'The use and misuse of ICU telemedicine', JAMA, 305 (21), 2227–28

especially where they do not reflect the direction of travel locally. However, it does suggest that in service lines there may be some scope for thinking creatively.

3.0 CONFIGURATION OF SERVICES.

The RCS[12] recommend children are treated as close to home as possible by staff with the right skills at centres with the right facilities. Surgical services should therefore be planned and organised to enable children to access routine surgical services locally that meet standards; whilst unusual or complex conditions are concentrated in specialised settings. As a minimum clinical standard set all local DGH services must have the ability to assess, diagnose, resuscitate and stabilise children who require emergency surgical care.

Developing condition-specific guidelines for surgical teams provides a framework by which hospitals could elect to provide a certain level of care (based upon age, condition complexity, and available facilities). This model of risk tiering would require the support of a surgical network to facilitate collaborative working, routes of communication and agreed thresholds for patient transfer for elective and emergency surgery and support commissioning by overseeing and monitoring performance /outcomes. All providers contribute to the network with regional MDT meetings, training and any opportunities for inter-network audit.

An example of a tiering[13]:

The small DGHs should be able to provide resuscitation and stabilisation of all infants and children with surgical conditions. It should be able to provide elective children's surgery depending on the availability of suitably trained surgeons, anaesthetists and other resources. Normally, neonates and infants would not be offered elective surgery. Management of urgent and emergency surgical problems in young children (<5 years) will depend on the training and experience of the available surgeon and anaesthetist and may require transfer to an intermediate or regional centre.

The intermediate centre (large DGH or university hospital) should be large enough to employ specialist paediatric surgeons to undertake GPS or general surgeons with an interest in paediatric surgery who will provide emergency and elective GPS including babies but not normally neonates. There will need to be post-operative care to level 2 PCC.

The specialist or regional/tertiary centre should provide the full range of paediatric surgical care including neonatal, urological and cancer surgery, supported by neonatal and paediatric intensive care and full retrieval facilities. Care will be provided by specialist paediatric surgeons and anaesthetists. General paediatric surgeons from these centres may provide outreach clinics and operating lists in network hospitals.

3.1 Networks

The majority of children's surgical services should be designed and delivered as part of an appropriately resourced network that works closely with clinicians from all disciplines and

[12] Children's Surgical Forum Standards for Children's Surgery RCS 2013
[13] Children's Surgical Forum Surgery for Children: delivering a First Class Service. RCS 2007

commissioners, for the benefit of children and their carer's. This network may link and may be supported by Strategic Clinical Networks for Children and Maternity (SCN).

The network must have an identified clinical lead and clear governance infrastructure and refer to national standards and outcomes of care. There must be regular (at least annual) network review of patient outcomes and experience. Supported by contractual agreements that specify service requirements and outcomes the network will work closely with commissioners regarding objectives and work plans to:

- Agree guidelines and protocols are in place for managing the full patient pathway and address unwarranted clinical variation.
- Improve access and egress to/from services at the right time.
- Provide a forum and clinical leadership for training and education, sharing best practice and development of the service.
- Ensure processes are in place to identify and monitor network risks and critical incidents.
- Address strategic issues by monitoring and predicting trends in patient flows, matching capacity to demand, workforce and succession planning.

4.0 ORGANISATION AND PROVISION OF CARE: HOSPITAL WIDE

4.1 Governance and leadership

All hospitals that provide surgery for children should have clear operational policies regarding who can operate on and anaesthetise children for elective and emergency surgery, taking into account on-going clinical experience, the age of the child, the complexity of surgery and any co-morbidities. These policies may differ between surgical specialities.[14]

Within hospitals providing surgical services for children there must be a commitment from the executive team and senior staff to the provision of a high quality children's surgical service, with a multidisciplinary children's surgery committee reporting to the board.

There is a designated lead responsible for developing children's surgical services provision within their organisation and a defined governance structure to assure the quality of overall care, champion and monitor improvements in the surgical and anaesthetic services. This will be facilitated by regular and systematic capture of patient and carer-reported outcomes, including those admitted for unscheduled care. There is a regular MDT review of patient's outcomes (mortality and morbidity, incident near misses) and experience at least annually[15]. The service should submit data on request to agreed regional networks and national audits.

[14] National Confidential Enquiry into Patient Outcome and Death. Surgery in Children: are we there yet? NCEPOD 2011

[15] Royal College Surgeon Children's Surgical Forum. Standards for Children's Surgery. RCS.2013

4.2 Workforce education and training

Mechanisms are in place to assess staff competency and identify training needs. Provision is made in job plans for all staff to participate in training and CPD activities. Networks support, develop and provide CPD. Medical royal colleges set standards for CPD in their respective specialties and provide guidance and tools to support doctors in planning and managing their CPD activities

Surgeons

All surgeons caring for children and young people should undertake an appropriate level of paediatric clinical activity that is sufficient to maintain minimum competencies (as defined by respective Royal colleges) and consistent with their job plans. Mechanisms across clinical networks should be in place to ensure staff competency and identify training needs. Networks should support and develop staff and, when possible, provide continuing professional development (CPD).

Anaesthetists

Anaesthetists, who have completed a UK CCT on the 2010 curriculum, will have successfully undertaken higher or advanced units of paediatric anaesthetic training in the final 3 years of their programme. Normally, this would also be true for anaesthetists still on the 2007 curriculum, but this should be verified at appointment. Anaesthetists appointed from other training schemes or who are moving from another employer must have their paediatric competence assessed for equivalence, usually by a College or Network representative at appointment. Where competence is difficult to assess or considered inadequate, a period of additional training must be arranged as for surgeons described above[16]. Anaesthetists with no regular paediatric commitment but who have to provide out of-hours cover for emergency surgery or stabilisation of children prior to transfer maintain their skills in paediatric resuscitation and an appropriate level of CPD in paediatric anaesthesia to meet the requirements of the job

Paediatricians

Universal care (PCC level 1) 24/7 middle grade cover should be provided by a paediatrician in training who has achieved all level 1 RCPCH competencies and passed the MRCPCH examination (typically ST4 or above).

Enhanced care (PCC level 2) 24/7 middle grade cover should be provided by a paediatrician in training who has achieved all level 2 RCPCH competencies (typically ST6 or above). Non-consultant, non-training doctors (staff grade and speciality doctors) and Advanced Nurse Practitioners (ANP's) may be able to provide equivalent expertise and relevant competencies with appropriate training.[17]

Support staff[18]

The staff assisting the anaesthetist (operating practitioners/assistants anaesthetic/ theatre/ recovery nurses) must have competency and skill in paediatric airway support,

- Invasive and non-invasive ventilation
- Extubation

[16] The Royal College of Anaesthetists (2015) Guidelines for the Provision of Anaesthetic Services. Paediatric anaesthesia services http://www.rcoa.ac.uk/docs/GPAS-Paeds.pdf

[17] RCPCH (2014) High Dependency Care for Children: A Time to Move On. RCPCH

[18] Y&H SCN Standards for Children's Surgery and Anaesthesia. 2015

- Recovery
- Resuscitation
- Safeguarding

Nursing[19]

Ambulatory care (Emergency departments, outpatients, assessment units minor injury units day care and day Surgery. The RCN[20] have identified all staff to be trained in:
Paediatric life support
Safeguarding to level 3
Communication with children and parents
Pain management
Recognition of the sick child

In patient wards the RCN have identified the following trained children's nurses to patient ratio's:
1:3 for children under 2 years
1:4 for children 2 years and over
1:5 at night

There must be a minimum ratio of 1:1 nurses experienced in the post anaesthetic care of children in every area where children are being recovered from anaesthesia.

Generic Training

Paediatric Life Support[21]

Pain management policies are in place and all staff must have basic paediatric resuscitation and life support competencies. The hospital must have sufficient staff with Advanced Paediatric Life Support competencies to maintain a paediatric resuscitation team. All anaesthetists/surgeons must ensure that they have appropriate annual training in paediatric life support/resuscitation. At least one nurse per shift will be trained in advanced paediatric life support (EPLS / APLS).

Pain Management[22]

Staff caring for children must be competent in assessment of pain (verbal and non-verbal), use of pain assessment tools suitable for the age and development of child and be able to provide analgesia in a timely manner.

All registered nurses (RNs and RN-Cs) must have received formal training in the use of paediatric pain assessment tools.

Safeguarding[23]

Five levels of competence have been identified by the intercollegiate working group. All staff including non-clinical managers working in health care settings must have as a minimum level 1 safeguarding of children training. Anaesthetists should undertake level 2

[19] Royal College of Nursing. Defining staffing levels for children and young people's services.2013
[20] Royal College of Nursing (2013) Defining staffing levels for children and young people service RCN
[21] Royal College Surgeon Children's Surgical Forum. Standards for Children's Surgery. RCS.2013
[22] RCS Standards for Non-specialist Emergency Surgical care of children (consultation document) RCS 2015
[23] Intercollegiate Document: Safeguarding Children &Young People Roles and Competences for healthcare Staff RCPCH 2014

with the lead consultant ideally working towards level 3. Staff working with children, young people and/or their parents/carers and who could potentially contribute to assessing, planning, intervening and evaluating the needs of a require level 3 training. Clinical Training must be updated annually.

4.3 Patients and family

Children and families are able to access, at all times, a dedicated member of staff with whom they can discuss (or arrange discussion with the relevant clinician) treatment options, diagnostic findings, expected recovery timescales, complications, etc. There must be a system of communicating the name of the responsible consultant(s) to parent's and families and to enable access to a dedicated member of staff throughout the admission.

The service has arrangements to provide support services such as translation, play therapy and other necessary therapies, social care, interfaith, advocacy advice and support, health visitors and liaison nurses. They should also be involved in the decision to operate and the consent process.

The processes and environment in which surgical and anaesthetic care are delivered should ensure that distress is minimised and parental access is encouraged, e.g. to anaesthetic and recovery areas. Arrangements must be in place to ensure that appropriate and understandable information is provided to parents, including after they have left the hospital and subsequent sources of support. There must be frequent communication with the family throughout the hospital stay, at all times ensuring patient privacy and confidentiality. The service has mechanisms to receive feedback from patients and supporters. The service has mechanisms to receive feedback from patients and supporters.

5.0 DELIVERY AND ENVIRONMENT OF CARE

Children should be treated in safe, suitably staffed and equipped, child and family-friendly environments. A full range of paediatric equipment is available in theatres, recovery areas and all other areas where children are anaesthetised as specified in the RCA standards.

Surgery must be performed by clinicians with the appropriate competencies. This infers completion of a dedicated training programme in paediatric surgery to Certificate of Completion of Training (CCT) level or attainment of a CCT in another relevant surgical specialty, such as general surgery. The range of competencies attained by an individual is specified in the respective curriculum.

5.1 Distinction between elective and non-elective surgical provision.

Most elective surgical procedures performed on children are scheduled relatively straight forward and performed in DGH's as day case procedures. The predictability of elective care results in this service being provided by a core team of staff with a commitment to paediatric care.

Certain non-elective clinical presentations have quite a low intervention rate and a prime function of this service is assessment and diagnosis. Whilst it is not possible to separate this

clinical function entirely from treatment, there is a very reasonable public expectation that accurate assessment of care needs to be locally available. In particular, for every child requiring operative intervention, there are at least an equal number simply in need of assessment and, in the case of suspected appendicitis, for every child undergoing surgery there will be 3 or 4 not requiring surgical interventions but still in need of identical evaluation[24]. It is for children such as these that an imposition of prolonged travel, through a lack of a local service, is a very unsatisfactory prospect.

Other conditions have an inherent urgency, which also makes delays associated with protracted travel, undesirable (testicular torsion is such an example, where the condition is predominantly in the peripubertal cohort of boys and it is entirely within the scope of an adult general surgeon or urologist for effective treatment within the obligate 6 to 12 hour time period from presentation to testicular necrosis.

The inclusion of medical paediatrics is recommended in all cases of:

- Emergency conditions in children less than 5years,
- Diagnostic uncertainty in children of all ages and
- In the case of children of all ages requiring stabilisation.

As the current syllabus of medical paediatrics includes topics such as diagnosis and management of abdominal pain these clinicians can contribute to peri-operative care of children with surgical illness and assist in the management of co-morbidity. Because of expertise in the management of sepsis and their resuscitative skills in children of all ages, paediatricians are useful partners, along with anaesthetists, in the management of both the critically ill child, but also in younger children and the more complicated aspects of fluid and pain management in surgical patients.

5.2 Elective care standards

Elective surgery for children should, whenever possible, be scheduled on dedicated children's theatre lists. Where this is not possible, cases are scheduled considering the needs of children and carers.
A named consultant paediatrician must be available for liaison and immediate cover, for example in cases of children requiring on-going care following resuscitation, and to advise on safeguarding issues. While such situations are rare, the level of cover should ensure attendance within 20-30 minutes.

5.3 Day Surgery

Children's surgery is provided on a day-case basis wherever practical A named consultant surgeon is responsible for care and a paediatric-trained consultant anaesthetist is present for day-case surgery but can delegate to other grades as appropriate.

A minimum of two registered children's nurses are present in day surgical areas. The outcomes of day-case activity is audited and reviewed. Processes are in place to facilitate transfer within the network should complications arise

[24]National Steering Group for Specialised Children's Services 2009 Scottish Government
http://www.specialchildrensservices.scot.nhs.uk/Documents/org00005.pdf

5.4 Emergency care

The critically ill child with an immediate life-threatening condition is assessed by a senior clinician and the decision to operate or transfer is made promptly, according to network arrangements. Emergency surgery is normally undertaken in hospitals with comprehensive paediatric facilities, 24/7 paediatric cover, children's nursing support and paediatric-competent anaesthetic support. For emergency surgical conditions not requiring immediate intervention, children should not normally wait longer than 12 hours from decision to operate to undergoing surgery, and should be scheduled with consideration for the needs of children and carers.

Surgeons and anaesthetists taking part in an emergency rota that includes children must have appropriate training and competence to handle their immediate surgical and anaesthetic care. Currently standards for non-specialist emergency surgical care of children developed by the RCS are out for consultation incorporating all aspects of the child's pathway from pre-hospital care to discharge.

There is trust/network/health board-wide audit of emergency surgery in children. Emergency children's surgical practice is audited at least annually using routinely collected data. Examples: Time between admission/decision to operate and the operation taking place, length of stay, morbidity and mortality. Audit should include children's surgical transfers and untoward incidents including unplanned re-admissions and unplanned admissions to a critical care unit. Emergency children's surgery is included in inter-network audit of children's surgery.

5.5 Emergency department

Children have access to a child friendly environment in emergency departments. The ED rota includes sufficient cover for emergencies in children at any time.

5.6 Transfers

The critically ill child with an immediate life-threatening condition must be assessed by a senior clinician and the decision to operate or transfer is made promptly, according to network arrangements.

Critical Transfers

These describe transfers of patients from one hospital to another for immediate life-saving intervention at a specialist centre, often (but not exclusively) requiring the use of a retrieval or specialised ambulance transport system. For example, children being transferred for care within an intensive care facility would often be transported by paediatric retrieval teams and not the local Ambulance Service. It is expected that the referring hospital would send suitably trained and senior staff to manage the child on route.

Immediate Transfers

These are emergency transfers of patients from one hospital to another for life or limb saving treatment (ambulance dispatch within the hour) or management, where the patient's

clinical condition must necessitate the use of a fully equipped Accident and Emergency vehicle.

Clinical Transfers

These describe transfers of patients undertaken when the patient's condition is not critical or immediate and their clinical condition does not necessitate the use of a fully equipped Accident and Emergency vehicle. This may also describe transfers of patients with limited mobility, who are monitored and require transportation for assessments, appointments and/or medical investigations. These transfers should be undertaken by the hospital PTS provider – if the statutory ambulance service is used then they will be extra-contractual journeys (chargeable) and would be carried out within 4 hours.

Non-urgent transfers

These describe transfers between hospitals where the patient does not fall into either the critical, immediate or clinical transfer categories. Where a patient is clinically stable, but requires a transfer to another hospital, the responsible clinician must decide the safest and most timely mode of transfer between hospitals, whether through a hospital's transport provider, by a private vehicle or public transport

5.7 Diagnostics[25]

Hospital inpatients must have scheduled seven-day access to diagnostic services such as x-ray, ultrasound, computerised tomography (CT), magnetic resonance imaging (MRI), echocardiography, endoscopy, bronchoscopy and pathology. Consultant-directed diagnostic tests and completed reporting will be available seven days a week:

- Within 1 hour for critical patients
- Within 12 hours for urgent patients
- Within 24 hours for non-urgent patients

Supporting information:

- It is expected that all hospitals have access to radiology, haematology, biochemistry, microbiology and histopathology

5.8 Anaesthetic and recovery areas

The anaesthetic room is child friendly and parents are supported in comforting their children during induction. In the recovery area, there is a physical separation between children and adult patients. Parents/carers are able to be present with their child when they wake up.

5.9 In –patient Wards

The on-going care of inpatients/postoperative patients is managed by consultant surgeons, with support from consultant paediatricians where necessary, on children's wards staffed by

[25] NHS Services: Seven days a Week Forum. Clinical Standards date accessed 10.06.15 http://www.england.nhs.uk/wp-content/uploads/2013/12/clinical-standards1.pdf

registered children's nurses and senior surgical trainees (or surgical trust doctors with equivalent competencies).

5.10 Outpatient departments

Whenever possible, children should, be seen in designated children's clinics. When this is not possible, cases should be scheduled with consideration for the needs of children and carers.

6.0 SPECIALITY SPECIFIC GUIDANCE[26].

6.1 General Paediatric Surgery (GPS)

GPS involves relatively common disorders that do not require a specialist unit. Urologists perform some general surgery, largely confined to circumcision, and orchidopexy. In DGHs that provide elective GPS, sub-specialisation has evolved with elective surgery provided by one or two general surgeons. In contrast all DGH consultant general surgeons who contribute to the on-call emergency rota have a commitment to provide the emergency surgical service for children in their local population. Emergency and elective workloads differ in the types of conditions treated, age of children and resources required.

Elective care

The most common elective conditions are inguinal hernia, congenital hydrocele, maldescent of the testis, conditions of the foreskin and umbilical hernia. It is recommended that orchidopexy should be performed at age one year or as soon as diagnosed thereafter. Circumcision, is rarely indicated before five years of age and only occasionally afterwards. Other conditions managed by the general surgeon include the removal of skin and subcutaneous soft tissue abnormalities. Depending on local expertise, the practice may be widened to include endoscopic procedures.

Emergency

The most common emergency procedures are appendicectomy (laparoscopic or open), fixation of testes for torsion and incision, and drainage of abscesses. Less common conditions are irreducible inguinal hernia, the acute abdomen from other causes and trauma. All DGH consultant general surgeons who contribute to the on-call emergency rota have a commitment to provide the emergency surgical service for children. If an appropriately trained surgeon is not available nor would be available within the time required to manage a child with a surgical condition, the child should be transferred. Most emergencies occur in older children and can be managed by general surgeons who have not had specific GPS training.

Surgeons

Trusts must ensure that surgeons performing GPS are assessed in this area as part of their annual appraisal/re-validation. Newly appointed surgeons undertaking GPS must have at least 6 months paediatric surgical experience (ST 4 – 6) otherwise, they will be required to

[26] Children's Surgical Forum Surgery for Children: Delivering a First Class Service RCS 2007

participate in 1 day case list per week (supervised) for 6 months, or until deemed competent, in the specialist centres, providing exposure to GPS[27].

6.2 Urology

Responsibility for childhood urological disorders is shared among specialist paediatric urologists, paediatric surgeons with an interest in urology and adult urologists whose practice includes children.

The emergency workload is low, mainly acute scrotal pathology (notably testicular torsion and trauma), and, in specialist paediatric urology, the management of acute obstruction and infection.

The bulk of the elective non-specialised workload consists of surgery of minor or intermediate complexity (for example, circumcision, orchidopexy, hydrocele surgery), of which an estimated 90% can be undertaken on a day case basis.

More specialised routine surgery includes treatment for urinary tract obstruction, open and endoscopic correction of vesico-ureteric reflux and correction of hypospadias.

Complex specialised paediatric urology includes bladder reconstruction and the management of conditions such as posterior urethral valves and disorders of sex development

6.3 Orthopaedics

Most fracture care should be performed in the DGHs and is generally provided by surgeons who have a mixed adult and children's practice.

For more complex care, a network model is required. In this model the tertiary centre would act as the hub. Such a centre would normally have four to six specialist paediatric orthopaedic surgeons and dedicated fracture clinics. The centre would be capable of treating the multiple-injured child and would have a paediatric ED and critical care unit for all major specialties. The tertiary centre would normally be expected to treat problems such as major limb reconstruction, spinal deformity and neuromuscular disease.

The DGH would act as the spoke and should have a paediatric ward and recovery zone. The hub and spoke(s) would interact. Speciality clinicians would either visit the DGH or surgeons could operate in the tertiary centre. Arrangements for the treatment of complex cases would be discussed at local level. Elective surgery is provided by consultant orthopaedic surgeons in DGHs with an interest in paediatrics and in tertiary centres with dedicated paediatric orthopaedic surgeons.

6.4 Ophthalmology

Approximately 90% of the paediatric ophthalmic[28] workload comprises the investigation and treatment of amblyopia ("lazy eye"), strabismus (squint), and nasolacrimal duct obstruction and

[27] http://www.emsenatescn.nhs.uk/strategic-clinical-networks/maternity-and-childrens/east-midlands-general-paediatric-surgery-network/

[28] http://www.yhscg.nhs.uk/SSNDS-Version-3/23%20Specialised%20Services%20for%20Children.pdf

much of the day to day management of these conditions is undertaken in local hospitals on a day case basis.

Consultant ophthalmologists who have undertaken core professional training and are on the specialist register carry out much of the hospital-based care of children with eye disease. Most units will contain one ophthalmologist with sub-specialty training in paediatric ophthalmology and strabismus and who will act as the lead clinician for children within the unit.

Serious visual loss in childhood is uncommon, with 6 of every 10,000 children born in the UK each year becoming severely visually impaired or blind by their 16th birthday.[29] Specialist tertiary facilities and access to other specialised paediatric services (paediatric anaesthesia) are required managing these patients.

6.5 Oral and maxillofacial surgery

Oral and maxillofacial surgery is a major provider of paediatric services for children requiring surgery involving the mouth, face, head and neck. The majority of procedures are undertaken as elective day cases in otherwise healthy children in DGHs and largely comprise routine dento-alveolar surgery. A proportion of more complex cases requiring hospital admission and overnight stay including orthognathic (facial deformity) surgery are also routinely undertaken in this setting.

Emergency care in children forms approximately 20–25% of all maxillofacial emergency admissions and usually occurs in children without significant co-morbidity. The majority of admissions involve facial lacerations, dog bites, fractures and orofacial infection and are managed in the DGH.

Complex maxillofacial paediatric surgery is usually undertaken in specialist centres following tertiary referral. This includes craniofacial deformity, cleft lip and palate, and paediatric head and neck oncology. Children with significant co-morbidity require referral to specialist centres where appropriate specialist paediatric services are available.

6.6 Otorhinolaryngology

The majority of ENT surgery cases are performed as day cases on healthy children. The routine elective case load includes minor ear procedures, tonsillectomy and adenoidectomy. The majority of ENT surgeons undertaking routine, elective and emergency ENT practice will have a workload more than sufficient to maintain clinical competence.

Most ENT emergencies also occur in children without other problems and are a small proportion of the total workload. Emergency work includes the management of foreign bodies in the ear, nose and throat, infections secondary to ear and sinonasal disease, head and neck abscesses and the arrest of bleeding following adenotonsillar surgery.

Provision of care

Most ENT surgeons are involved in general paediatric otorhinolaryngology, with very few purely paediatric ENT surgeons in the UK. It is recommended by the RCS that ENT routine elective surgery should continue in DGHs however children with general ENT conditions requiring emergency admission should only be admitted to units where both on-site ENT

[29] Children's Surgical forum Surgery for Children: Delivering a First Class Service RCS 2007

and acute paediatric services are available. Some less urgent non-elective "emergencies"(for example, foreign body in the ear) may be managed in a routine outpatient clinic or on the next available operating session.

At present most specialist centres generally have only one or two paediatric otorhinolaryngologists, making a 24-hour emergency airway service difficult to maintain, this is a particular issue in the WTP footprint.

7.0 MONITORING ACTIVITY AND OUTCOMES

It is recognised that simply measuring mortality for GPS alone is not an indicator of quality outcomes, and a networked approach looking across a number of outcome indicators will provide commissioners with a more holistic measure of assurance regarding the continued safety and quality of GPS provision.
The East Midlands GPS Commissioning Framework proposes the following clinical outcomes and activity measures[30]:

General Performance Measures	
Elective Care	**Comments**
Number of day case elective procedures performed per consultant on children.	
Number of cancelled children's operations per consultant	
28 day readmission rates	
Number of unplanned overnight admissions following day case surgery	
Number of unplanned admissions to a paediatric critical care unit (L2 or L3)	
Number of near critical incidents and SUI's reported	
Number of never events	
Number of written complaints	
Emergency Care	**Comments**
Number of transfers a) Performed by Embrace	

[30] http://www.emsenatescn.nhs.uk/strategic-clinical-networks/maternity-and-childrens/east-midlands-general-paediatric-surgery-network/

b) Performed by local team	
Destination of the child a) Tertiary provider b) Hub provider	
28 day mortality	
28 day readmission	
Number of near critical incidents and SUI's reported	
Number of never events	
Number of written complaints	
Sub-speciality specific – Outcome \Measures	
General paediatric surgery	
Age at orchidopexy	
Re-do orchidopexy	
Testicular loss following	
Length of stay for appendicectomy	
Orthopaedics	
Supracondylar fractures with vascular compromise – time taken from decision to transfer to transfer	
ENT	
Numbers of secondary post tonsillectomy bleed.	

8.0 AUDIT

Children's Surgery and anaesthesia is included routinely in multi-disciplinary departmental audit and there is a mechanism to learn from incidents and complaints, which should incorporate:

a) a method to regularly analyse/review
b) major complications, including deaths following discharge from hospital [i]
c) Outcomes
d) Critical and untoward incidents reviews of perioperative

APPENDIX

FIGURE 1

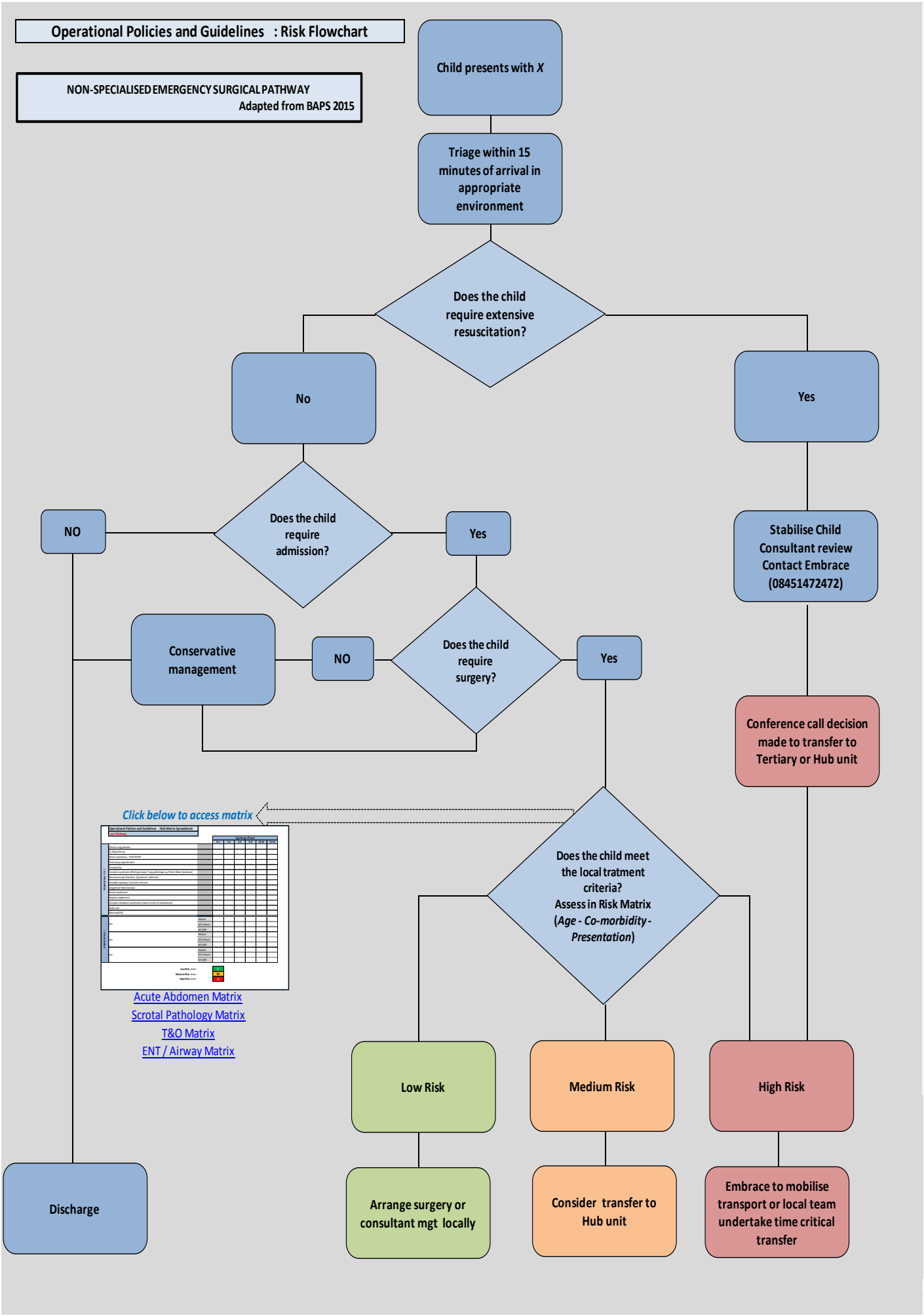
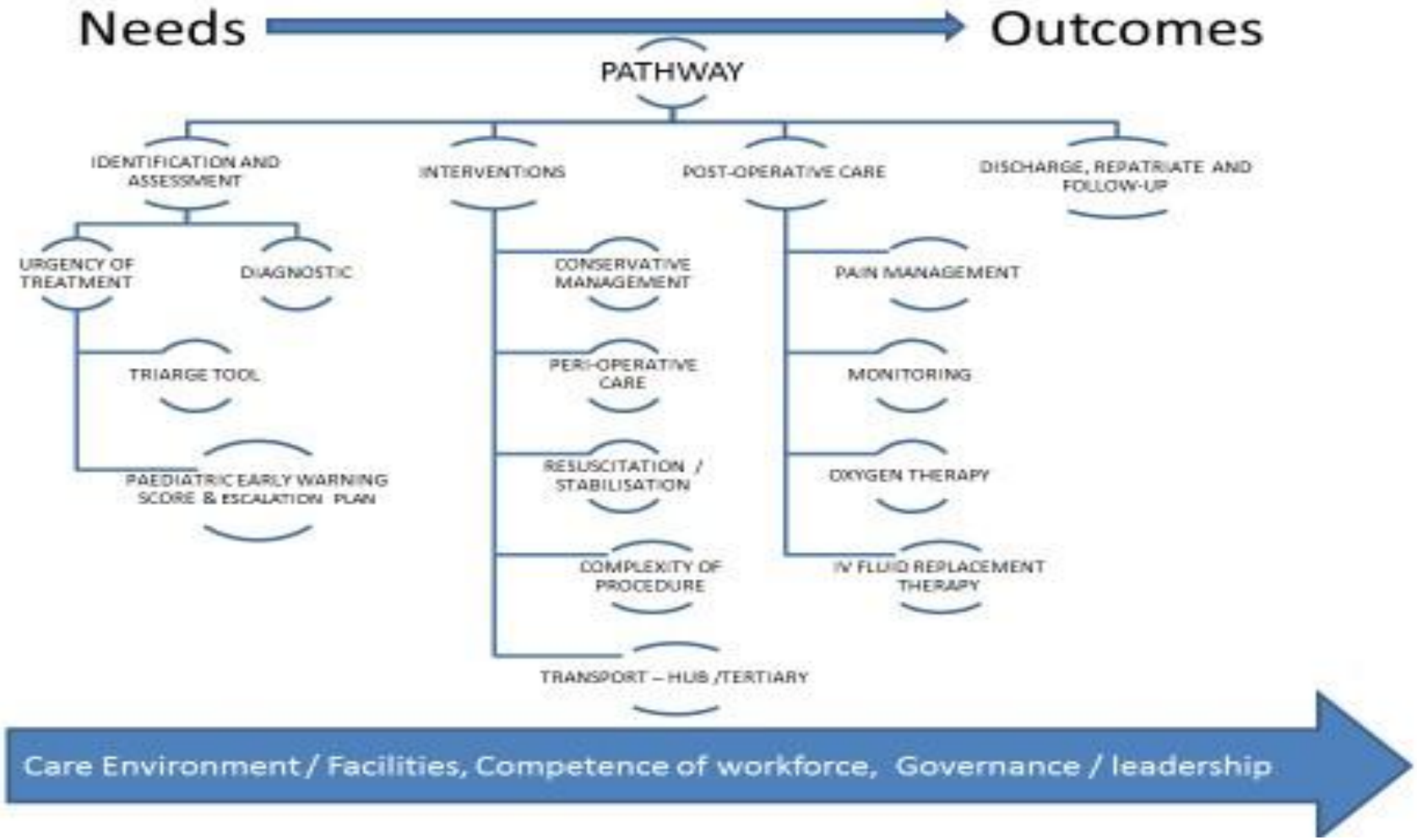

Operational Policies and Guidelines : Risk Flowchart
NON-SPECIALISED EMERGENCY SURGICAL PATHWAY
Adapted from BAPS 2015
Child presents with X
Triage within 15 minutes of arrival in appropriate environment
Does the child require extensive resuscitation?
No
Yes
Does the child require admission?
NO
Yes
Stabilise Child
Consultant review
Contact Embrace (08451472472)
Conservative management
NO
Does the child require surgery?
Yes
Conference call decision made to transfer to Tertiary or Hub unit
Click below to access matrix
Does the child meet the local tratment criteria?
Assess in Risk Matrix
(Age - Co-morbidity - Presentation)
Acute Abdomen Matrix
Scrotal Pathology Matrix
T&O Matrix
ENT / Airway Matrix
Low Risk
Medium Risk
High Risk
Discharge
Arrange surgery or consultant mgt locally
Consider transfer to Hub unit
Embrace to mobilise transport or local team undertake time critical transfer

FIGURE 2:


Needs
Outcomes
PATHWAY
IDENTIFICATION AND ASSESSMENT
INTERVENTIONS
POST-OPERATIVE CARE
DISCHARGE, REPATRIATE AND FOLLOW-UP
URGENCY OF TREATMENT
DIAGNOSTIC
TRIARGE TOOL
PAEDIATRIC EARLY WARNING SCORE & ESCALATION PLAN
CONSERVATIVE MANAGEMENT
PERI-OPERATIVE CARE
RESUSCITATION / STABILISATION
COMPLEXITY OF PROCEDURE
TRANSPORT – HUB /TERTIARY
PAIN MANAGEMENT
MONITORING
OXYGEN THERAPY
IV FLUID REPLACEMENT THERAPY
Care Environment / Facilities, Competence of workforce, Governance / leadership

Health Needs Assessment

Paediatric Surgical Care

July 2015

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Document control

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Health Needs Assessment

Paediatric surgical care

For the Commissioner Working Together Programme Paediatrics Surgery and Anaesthesia

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Executive Summary and Recommendations

It is widely reported that surgery for children faces a future skills crisis and that the current model of surgical and anesthetic care is not sustainable. Providers and commissioners have agreed to work collaboratively on areas where there is mutual agreement on a shared priority – surgical care is one of these areas. This health needs assessment was commissioned to as part of the second phase of the Working Together Programme. The principal objectives at the outset were to make some projections about future need for surgery and to answer a number of analytic questions. With the data available it was not possible to answer all of the questions that were set out.

This report sets out an assessment of current and possible future need for surgical care, based principally on CCG level data. The footprint is as per the Commissioner side of the working together programme.

The number of conditions requiring surgery is large. There is not a reliable indicator of need for all types of surgical care, and for specific conditions, diagnoses of groups of patients there isn't readily available epidemiological data to assess incidence or prevalence. Population and activity are thus used as proxies of need.

This has mainly been a desktop exercise, pulling together available demographic data, activity data and available evidence or recommendations on "best practice". There has been no contextualisation with clinicians or service providers. This was a function of available resources for the HNA and an assumption this was being undertaken within the Working Together programme. That this contextualisation hasn't happened is a flaw of this HNA.

Questions addressed –A number of analytic questions were considered, these are set out in section 3

Data sources and methods - Section 4 sets out the data used and the analytic methods. The data used is provider and CCG level administrative data on activity, and ONS and other data on populations. These come with significant weaknesses and caveats. These are set out in full in section 4.

Analysis - section 5 sets out an analysis of available data. This is in three parts. Part a gives a description of surgical activity for children aged 0-17 in one year, across all providers giving some insight into the nature of workload going through the theatres. Part b gives an analysis of the per capita level of activity across the CCGs. Part c gives a projection of activity at CCG level out to 2022, this assumes that the baseline years for which activity data is available is representative and that growth in activity is driven by population.

Importantly it was not possible to draw any conclusions about flow of patients and or transfers of care with the available data; nor is it possible to make any comment about "risky" procedures. Some of the questions may be answerable; to undertake this would require the procurement of a fresh dataset from HSCIC.

A number of specific questions are explored in detail. It was not possible to answer all the questions we had set out to answer at the outset.

Effectiveness and cost effectiveness of services - Section 6 is incomplete. It is a section about the effectiveness and cost effectiveness of services. However, given that the administrative data readily available to describe activity doesn't have any outcome measures, it is not possible to make any comment about quality and or outcomes of care with the available data. Thus it is not possible to comment on effectiveness or cost effectiveness.

Workforce - Section 7 sets out some information on workforce, a core concern of the programme. Many have highlighted the major disconnects between strategic goals and workforce trends. The important caveat to this whole section is the large data gaps in the availability of information on workforce.

The key points of recent Centre for Workforce Intelligence reports are set out. It is unknown whether the CfWI recommendations carry weight and hold true locally. Nor is it clear whether the data that the CfWI hold on workforce are robust. The CfWI data does not take account of changes to future service

delivery models or the impact of productivity and new ways of working, which are likely to impact on the future consultant workforce.
The extent to which (current and) future workforce challenges can be solved with networks of care is unclear. To maximise productivity there may also be a need for a sustained focus on issues such as:

- training numbers, including the time requirements for consultants to train STs,
- succession planning,
- skill mix development across medical and non medical workforce,
- Possibly extending the roles of professionals not currently involved in surgical care pathways.

Obviously that would have knock on consequences elsewhere.

"what good looks like" - Section 8 sets out a brief summary of some of the key points raised through Royal College and similar bodies. There are a number of highly relevant planning documents. Some of these might have already been considered through different parts of the Working Together programme.

Options for service change and reconfiguration - Section 9 sets out some potential options for service models. It is based on a rapid review of available literature, & RCS and other standards. It doesn't purport to be a comprehensive review of potential models. Given that the Working Together Programme is already focused on a large multiple Trust / multiple CCG population, the emphasis here is on networks of care. This chimes with the recommendations of Royal Colleges and other bodies. Given that changing the service model may require reconfiguration, this section also sets out some of the available evidence around reconfiguration.

The RCS have made clear recommendations about the need for managed clinical networks.

The Scottish review of children's services and the NCEPOD 2011 report made suggestions about a number of ways of enacting networks, and a number of

specific recommendations about innovations in the care model. These include *Joint Regional Appointment, Specialist Out-Reach with Local Lead, Network of DGHs, In-House Lead General Surgeon, DGH Specialist with inreach to specialist centre, Tiered Levels of Care, Joint appointment to several hospitals and joint specialist/non-specialist working*

In the North West the role of the network role is to set standards, monitor and evaluate, define what surgery being undertaken and timing, explore concentration of services across network (some specialise in x, some in y) and education and competency maintenance

In the SW there is a defined managed network. This is based on a hub and spoke model with clearly defined roles for the hub (specialist centre) and spokes.,

Monitor have highlighted a number of innovations in service models including networks, transfers systems and protocols; standards, protocols and risk tiering; links between surgery, paediatrics and primary care and a shared electronic record; different approaches both to employment arrangements and the use of specific roles. NHS Passport as a means of facilitating Cross -site work; different role definition to allow for greater flexibility.

It seems accepted that status quo is not an option. It seems accepted that the further development of a managed clinical network is a definite direction of travel. Whether that would require provider level reconfiguration is not clear.

The drivers of any reconfiguration should be set out very clearly, and many have argued that the “technical” case for change is often considerably less important than winning the trust of non NHS stakeholders.

It seems clear that the key drivers to this programme are not necessarily about cost, but are about ability to provide safe surgical care services to children in South Yorkshire and surrounding areas; to maintain safe staff cover, especially out of hours and across multiple sites.

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children in South Yorkshire and surrounding areas; to maintain safe staff cover, especially out of hours and across multiple sites.

The main options for this seem to be managed clinical network with no real change to organisational infrastructure, hub and spoke mode (with or without lead provider contracting) , tartan model .

Any significant service change is likely to be resisted (by commisisoners and providers, who may choose to focus on here and now operational problems).

these options are not necessarily mutually exclusive. Within each potential configuration there are a number of service level innovations, some of which are highlighted in this report

If a hub and spoke model is adopted there may be a necessity to define issues such as age and other cut offs that would define the criteria for referral to a specialist in a specialist centre. Similarly network agreement would be needed on determining for example that all elective work should be done at the specialist centre with emergency work being undertaken in a spoke; or whether this might apply to children under a certain age. Specialist advice would be needed in determining how to arrive at such cut offs. It will also be necessary to directly and overtly address barriers to the development of networks. Chiefly these may be a commercial environment, the “primacy” of individual organisation boards and rigid contractual arrangements.
The predilection of the current surgical and anaesthetic workforce or provider trusts, towards any significant service change or network development is not known. Similarly the predilection of the public is not known.

The implications of any reconfiguration should be considered as broadly as possible. For example impacts on travel times and costs, family life, social services, district nursing, language support and schooling provision. It may be useful to consider these separately for inpatient care and follow-up/outpatient care.

Recommendations

Recommendation - further questions on activity

Stakeholders should specify any further questions they would wish to explore. It would be likely an additional (fresh) set of activity data should be procured if fresh analysis is needed. Some initial thoughts on specification are appended.

It will be possible to further interrogate routinely available data, but that should be question led by stakeholders.

Recommendation – further analysis on projections

As with the analysis of the theatre data, the projections below may lead to a number of subsequent questions. Stakeholders are asked to consider what further analysis would be warranted.

Recommendation – quality and outcome recording.

It is recommended that a group of clinicians consider the issue of routine recording of quality and outcomes, the data that is readily collected now and make a proposal on the most appropriate data to use to monitor outcomes and quality. This may be superseded by a national policy agenda as the RCS are considering this issue.

Recommendation – commissioning input into workforce planning

Local commissioners should have input into workforce planning decisions that are under the authority of Health Education England, particularly around issues of future need, models of care, configuration of services and organizations and a population focused approach.

Recommendation – workforce census.

Given the very limited data about the medical (or other) workforce, with little available beyond informal intelligence and anecdote, but the widespread acknowledgement that future workforce intelligence and planning is a high priority, it is recommended that a full census is undertaken. This should include issues such as skill mix and the interface between generalist and specialist clinical skills.

Recommendation – Royal College Standards

It is recommended that ALL of these RCS and similar documents are considered together as service models are considered and developed
It is unknown the extent to which the currently agreed YH Standards are in line with the available Royal College and similar advice. There may be benefit in updating the locally agreed standards; this should be considered by both clinicians and commissioners.

Recommendation – 2015 Consultation on emergency care

CCGs should consider contributing to the consultation.

Recommendations – networks, standards and models of care, reconfiguration

Networks of care are recommended almost universally. It is recommended that the established and developing clinical standards (RCS, RCoA, NCEPOD and other recommendations) are used, as the basis for this formal establishment of a formal managed network.

There may be resource, clinical, workforce planning, service and provider configuration issues to consider. Many aspects of a managed network can be established with no reconfiguration.

No specific recommendations are made about service configuration, as this is the point of the Working Together Programme. The two main viable options are the hub and spoke model (lead provider or current contracting framework) or the tartan model (some specialise in x, some in y).

A number of innovations around the network of care are possible. Some of them are set out here. These should be considered on their merit. For each potential innovation the key questions are:

- **What are the potential benefits of these model**
- **What are the potential risks, limitations and trade-offs? Trade off between choice / travel time and ability to maintain safe cover.**
- **What incentives or rules would be needed for these models to work across local (or even regional) health economies and across different types of providers?**

1. Introduction

The Royal College of Surgeons have definitively defined the scope of "Paediatric surgery[1]". It is assumed this definition is uncontested. There are a number of factors leading to this HNA. These include:

- The development of the YH Children's Surgical Standards;
- The perceived ability of providers to meet core Royal College standards
- Some specific concerns around access to OOH surgical cover and concerns about future surgical and anaesthetic workforce,
- providers with low numbers of procedures and questions around whether numbers were enough to maintain competence,
- Concerns about mid procedure transfer from one site to another.
- Future workforce as key staff retire. Succession planning and workforce capacity.

The Working Together programme has a provider arm and a commissioner arm; inevitably there are some divergences between these reflecting the different pressures and perspectives. Providers and commissioners have agreed to work collaboratively on areas where there is mutual agreement on a shared priority – surgical care is one of these areas. A previous paper considered by the Working Together Programme Board (Dr Ruth Speare Jan 2015) had set out a proposed scope and methodology for a Health Needs Assessment for paediatric surgical care, to explore:

- The distinction between need, supply and demand
- The characteristics of the population served
- Patient flows and logistical issues for clinicians, parents and children
- Capacity and staffing issues

[1] https://www.rcseng.ac.uk/media/media-background-briefings-and-statistics/the-surgical-specialties-4-2013-paediatric-surgery

The paper had recommended conducting a detailed health needs assessment to explore some of these issues in more detail. This process was considered part of the wider Working Together programme leading to a decision by the Programme Board in June 2015.

2 Aim of health needs assessment (HNA)

The overall aim of any health needs assessment is to provide information to plan, negotiate and change services for the better and to improve health in other ways.

This HNA is broadly focused on what can be concluded from available data on population, service activity, the available workforce and the available literature and evidence based standards on paediatric surgery. The structure of the HNA is broadly similar to that recommended by Birmingham university[2] in their seminal advice on the matter. We have adapted this slightly.

This has principally been a desktop exercise. This HNA has not undertaken any aspect of clinical & patient engagement, or corporate / comparative needs assessment – as would normally be the case. There has been no contextualisation with local clinicians. The data that was available was limited and superficial, and many compromised were made – this is explored in section 4. This was a function of the available resources to conduct the work.

This report sets out an assessment of current and possible future need for surgical care, based principally on CCG level data. The footprint is as per the Commissioner side of the working together programme.

[2] http://www.birmingham.ac.uk/research/activity/mds/projects/HaPS/PHEB/HCNA/intro/index.aspx

Indicators of need

The number of conditions requiring surgery is large. There is not a reliable indicator of need for all types of surgical care, and for specific conditions, diagnoses of groups of patients there isn't readily available epidemiological data to assess incidence or prevalence. Population and activity are thus used as proxies of need.

This is imperfect as it ignores the notion of supply and preference sensitive care (ie considering variability in care levels between populations that might not be attributable to true patient need but might be attributable to patient preferences or differences in supply). This is well documented.

Deprivation may be a proxy for need. For example it has previously been demonstrated that children living in more deprived areas are more likely to have an unplanned (emergency) admission to hospital[3]. Unplanned hospital admission rates among 0-15 year olds are more than 30% higher in the most deprived one fifth wards compared to the least deprived one fifth wards. Whilst this holds true in acute medical, it is not known whether it holds in surgical patients – elective or emergency. Outpatient conversion ratio (ie conversion from pre operative OP appt to surgical episode) may also be an interesting indicator of how sensitive GP referrals are for elective care.

There is no ready way to test any of the above with any degree of robustness with the data in the format that is readily available. An assumption is made that (beyond population growth) the basic underlying population level need is relatively static, ie growth can be accounted for by population change alone.

This has mainly been a desktop exercise, pulling together available demographic data, activity data and available evidence or recommendations on "best practice". There has been no contextualisation with clinicians or service providers. This was a function of available resources for the HNA and an assumption this was being undertaken within the Working Together programme. That this contextualisation hasn't happened is a flaw of this HNA.

[3] For example Enhancing healthcare for children and young people in northern Ireland (from birth to 18 years) http://www.dhsspsni.gov.uk/p-consultation-document.pdf

3 Analytic questions for this HNA

At the outset a number of analytic questions were agreed. These are listed below.

- volume - what procedures make up volume
- Volume per capita across sub specialties and across CCGs
- What diagnoses makes up the volume of care
- Risky procedures – where and when are they happening
- Exploring a link between deprivation and the per capita volume of emergency and elective surgery for patients in the most deprived vs. least deprived populations. Testing a hypothesis that patients in more deprived areas receive less care.
- Highlight trends in activity over time.
- In and out of hours elective and emergency activity – across the whole geography and by provider.
- For OOH emergency surgery...where are pt coming from and where are they being treated – this question is based on an observation that only small cohort of patients that would need to be moved OOH
- Patient flow. From where are patients travelling to different centres for which procedures or specialties.
- Transfer from one site to another. Exploring a notion that there may be a cohort of children that can be managed more conservatively if first seen in one hospital out of hours but may benefit from transfer the following day.
- Past trends and forward projections for activity levels – at sub specialty level.
- Travel times, based on postcode data.

The analysis undertaken was with the data that was available. A definitive decision was taken to NOT procure fresh data.

With the data that was available it was not possible to answer a number of the questions set out above. The reasons for this are explored in section 4. It IS possible to undertake further analysis, but this would require the specification of a fresh data set.

4 Data and methods

a) Population in scope

CCGs included in scope are: Barnsley, Rotherham, Sheffield, Doncaster, North Kirklees, Wakefield, Bassetlaw, Hardwick, N Derbyshire

Trusts included in scope are: Barnsley, Chesterfield, Doncaster & Bassetlaw, Mid Yorkshire, Sheffield Children's, and Sheffield Teaching.

b) Population data

Population projections estimates have been made out to 2021. These was based on the resident population projections by CCG using ONS 2012 sub national population projections for Clinical Commissioning Groups in England .Population projections are calculated using a variety of different data sources including registrations of births and deaths, extracts from Patient Register Data System. They provide an indication of the future size and age structure of the population if recent demographic trends continued.

The data was then further manipulated by applying the annual change in each individual age in the projected resident population to current registered CCG populations. This gives registered population projections using CCG capitation data. The rationale for this was based on experience of CCG preferences for registered populations. There is often a discrepancy between registered and resident – resident CCG populations can vary greatly to the registered CCG population due to how the location of GP practices within CCG's relate to various geographical boundaries.

For now, these projections were undertaken for the 0-17 population as a whole, for each CCG individually. There are a number of technical and statistical reasons for this.

Caveats with population projections

Population projections are subject to a number of not insubstantial caveats. The projections are not forecasts and do not take any account of future government policies, changing economic circumstances or the capacity of an area to accommodate the change in population.

Population projections become increasingly uncertain the further they are carried forward, and particularly so for smaller geographies and are known to over project the number of births at a national level.

We would (strongly) recommend that no projection is made at a smaller geography than CCG or in more granular age bands. Even these come with a large health warning.

d) Activity data

Activity data was supplied in two formats. CCG level (and provider) HES data; and a set of data on theatre activity.

CCG level activity data

CCG and provider level data was available through CHiMAT data; this was based on HES data. This was an extract at subspecialty level, split by elective / non elective and age band over a time period of two years: 2011/12 and 2012/13.

The data was supplied as a count of FCEs. There was no further breakdown beneath sub specialty level. The meta data sheet describing how this data is formed is available on request.

A CCG level split was provided, and a provider level split was provided. It was not readily possible to obtain a reliable up to date denominator population for hospital catchment areas, thus CCG level data was used to forward project activity as there ARE reliable denominator populations.

Which patients were included in the SCN dataset.

The data used for commissioner level analysis is specified as follows - Elective and Emergency Admitted Patient Care (APC) admissions for Specified Specialties within Yorkshire and the Humber, Patients under 18 Resident in one of the specified CCGs AND - Treated in a specified provider – the providers for which data was included are:

RCB	YORK TEACHING HOSPITAL NHS FOUNDATION TRUST
RCD	HARROGATE AND DISTRICT NHS FOUNDATION TRUST
RJL	NORTHERN LINCOLNSHIRE AND GOOLE NHS FOUNDATION TRUST
RV9	HUMBER NHS FOUNDATION TRUST
RWA	HULL AND EAST YORKSHIRE HOSPITALS NHS TRUST
RCU	SHEFFIELD CHILDREN'S NHS FOUNDATION TRUST
RFF	BARNSLEY HOSPITAL NHS FOUNDATION TRUST
RFR	THE ROTHERHAM NHS FOUNDATION TRUST
RHQ	SHEFFIELD TEACHING HOSPITALS NHS FOUNDATION TRUST
RP5	DONCASTER AND BASSETLAW HOSPITALS NHS FOUNDATION TRUST
RXE	ROTHERHAM DONCASTER AND SOUTH HUMBER NHS FOUNDATION TRUST
RAE	BRADFORD TEACHING HOSPITALS NHS FOUNDATION TRUST
RCF	AIREDALE NHS FOUNDATION TRUST
RGD	LEEDS AND YORK PARTNERSHIP NHS FOUNDATION TRUST
RR8	LEEDS TEACHING HOSPITALS NHS TRUST
RWY	CALDERDALE AND HUDDERSFIELD NHS FOUNDATION TRUST
RXF	MID YORKSHIRE HOSPITALS NHS TRUST
RXG	SOUTH WEST YORKSHIRE PARTNERSHIP NHS FOUNDATION TRUST
RY6	LEEDS COMMUNITY HEALTHCARE NHS TRUST
RFS	CHESTERFIELD ROYAL HOSPITAL NHS FOUNDATION TRUST

Excluded from this – on the basis of the specification – is

- TAD - Bradford District Care Trust
- TAH - Sheffield Health and Social Care NHS Foundation Trust

By implication – the SCN dataset supplied will not include admissions of children resident in N Derbyshire CCG to Nottingham University Hospitals, or a tertiary centre in Birmingham or Manchester. Out of area admissions are excluded from scope. This is of bearing for CCGs where there are boundary issues; it is also of bearing where specialised (mostly elective) care is a consideration.

The full data specification on which the commissioner level projections are based is appended.

Theatre data used to provide a more detailed description of current activity.

Providers had previously indicated that they felt the HES data did not accurately capture activity precisely enough and thus for 2013/14 a set of theatre data for all providers was derived.

This dataset was put together for all patients aged 0 – 18 having a surgical procedure at any one of the trusts involved in the catchment area in the financial year 13/14. The fields included in this dataset include:

- Trust
- Weekday
- Hours since 00:00 (ie time of procedure)
- OOH or in hours
- Specialty – code and name
- Admission method (emergency / elective)
- Three procedure fields
- Age and age band
- Postcode – first three digits.

Some of these datasets re removed to preserve economisation

It is of note that the theatre dataset supplied is the basis of what is submitted to HES and informs PBR payment mechanism. This is a mechanism used to pay hospitals, and there are always concerns about its epidemiological or clinical accuracy.

Administrative data such as this is often criticised for being inaccurate. Following the procedure, the surgical notes are coded by the Trust clinical coders. It is this data set that was examined. The dataset is a function of what surgeon's record on operative notes and what coders write into the database. Following this the trust adds a number of fields and submit a frozen extract to HSCIC. This is then turned into the HES return that is used in PBR for payment by results and contract monitoring. It is also used for health service planning. As the data is administrative, there are always caveats with regard to the clinical accuracy.

However, there is no other available data source that is available at this scale, providing some insight into every episode of care in a hospital.

As this data is based on provider level data, it simply reflects flow through the theatre. The first half of postcode being used to identify geographical distribution or CCG of registration / residence. It is not possible to put activity against a denominator population.

Each entry describes a surgical procedure undertaken in a theatre. Activity may therefore reflect part of a broader FCE or might be the main procedure in the FCE. It is not possible to determine this from the data.

With this data set it is possible to describe surgical activity at each trust, and across the population more broadly for a single year.

Caveats and cautions with the theatre data set

Whilst the theatre data supplied is significantly more detailed and granular than the CCG level data from CHIMAT / SCN, there are a number of important residual caveats.

- **It is messy / partially cleaned**, for example many different labels given to same thing. This is possibly a function of the way in which things were recorded in different trusts. With the time available for this analysis it was not possible to clean the data set.
- **Cross boundary and background geographies** - with the available data it is impossible to draw any conclusions about cross boundary issues - for example North Lincolnshire and NE Lincolnshire. Children from these areas may well be referred to Sheffield for any specialised or more complex work. It is unknown whether these patients are IN the theatre data set. There is no denominator population.
- **The activity is based on the whole provider, not the hospital** - eg it does not separate Doncaster Hospital from Bassetlaw nor does it separate Pinderfield's from Dewsbury. Whilst the theatre data has identified postcodes, in almost all records only the first three digits are present (ie DB4) thus it is not reliably possible to assign a CCG on the basis of this.
- **Deprivation analysis is impossible** - Equally with only first three digits it is not possible to undertake any deprivation analysis.
- **The theatre data does not capture the amount of anaesthesia / sedation / procedures undertaken in radiology, Outpatients or ED**. HES data was requested for radiology by the CCGs, nothing was

received. This is most likely a function of coding mechanisms that are in existence.

- **There is no diagnostic coding** present in the theatre data supplied. Thus it is not possible to report on underlying diagnoses of children receiving surgical care.
- With the level of data, it is **not possible to make any description of transfer** from one site to another.
- **There is no outcome data**. Outcomes from surgical care are a difficult and complex issue to describe, particularly with routine administrative data. Suggestions often include complication rate (not collected within administrative data), re-op within x days (would be technically possible but not within this data set), technical success of procedure (not recorded in administrative data), patient recorded outcome (not recorded).

An assumption is made that 13/14 is representative year – it is not possible to test that assumption, but the validity of the assumption is subject to a number of factors such as service and pathway changes within trusts and between different trusts, other reorganisations and a range of other issues. This is not testable.

5 Analysis of available data. Population projections, activity projections, description of activity

a) Descriptive data for paediatric surgical activity 2013/14

Using the theatre data supplied a number of simple descriptive analysis was undertaken of paediatric surgery across the provider network. Some of the caveats and limitations of the available source data are described in the previous section. That said, a deliberate decision was made to NOT source a fresh set of data.

A number of questions were explored, with the analysis set out below.

This data should all be contextualised with the knowledge that (using the CCGs in scope) there are approx 500,000 people registered with a GP in the CCGs within the Working Together programme.

Volume across each of the providers by surgical specialty

The first three tables summarises the total volume of procedures in a year by trust and specialty.

Top line activity through each trust

Sum of Counter				
Trust	EL	NE	KN / blank	Grand Total
SCH	9400	3202		12602
MYH	3334	933	106	4373
DBH	2886	657	3	3546
BHNFT	1230	229	7	1466
TRFT	829	305	117	1251
CRH	714	376		1090
STH	846	41		891
Grand Total	19239	5743	174	25219

Volume of all surgical procedures by specialty and trust 13/14

Sum of Counter	Trust							
Spec Name	SCH	MYH	DBH	BHNFT	TRFT	CRH	STH	Grand Total
ENT	1930	941	987	378	215	339	11	4801
Trauma & Orthopaedics	1715	815	720			268		3518
Paediatric Surgery	2346							2346
PAEDIATRIC DENTISTRY	454		1099				626	2179
ORAL SURGERY	427	277	236	676		108	109	1833
PLASTIC SURGERY	688	752					22	1462
Gastroenterology	1028							1028
OPHTHALMOLOGY	484	151	184	53		47	4	923
Exodontia	821							821
GENERAL SURGERY		221	187	85		183	13	689
Oncology	679							679
PAED DENTISTRY		640						640
Neurosurgery	457						21	478
ORAL					382			382
UROLOGY		294	32	2		19	8	355
ORTHO					337			337
Paediatric Neurology	264							264
PAEDIATRICS	228	6	11	4				249
NULL		235				1		236
Radiology	232							232
TRAUMA AND ORTHOPAEDICS				184				184
GENSUR					157			157
Respiratory Medicine	156							156
Scoliosis	147							147
GYNAECOLOGY		35	31	11		40	13	130
EUT	125							125
Maxillo-Facial Surgery	45					40	1	86
Burns	72							72
UROL					70			70
PAEDIATRIC/ORTHOPAEDICS				69				69
Neuro-Disability	51							51
OPHTH					51			51
Ritual Circumcision	51							51
Rheumatology	49							49
Obstetrics			42			5		47
Paediatric Trauma And Orthopaedics						39		39
GYNAE					28			28
ORTHOPAEDIC							28	28
Clinical Haematology	20							20
Immunology	19							19
Cystic Fibrosis	18							18
Medical Oncology	18							18
Critical Care	16							16
Metabolic Bone Disease	15							15
Pain Clinic	13							13
COLORECTAL SURGERY							12	12
							11	11
GENERAL MEDICINE	5		1	1				7
PODIATRY			6					6
STEREOTACTIC RADIOSURGERY							6	6
Anaesthetics		4				1		5
Endocrinology	5							5
Haemophilia	5							5
Metabolics	5							5
VASCULAR SURGERY			4				1	5
PAEDMED					4			4
BREAST SURGERY			3					3
OBSIP					3			3
OBSTETRICS (INPATIENT)				3				3
(blank)			1		2			3
ANAES					2			2
Audiological Medicine	2							2
Dermatology	2							2
GYNAECOLOGY ONCOLOGY							2	2
MIDWIFE EPISODE			2					2
Respiratory	2							2
RESTORATIVE DENTISTRY		2						2
TB	2							2
Allergy	1							1
CARDIAC SURGERY							1	1
Constipation	1							1
Developmental Assessment	1							1
NEPHROLOGY							1	1
Neurofibromatosis	1							1
Ryegate Respite Care	1							1
Stereotactics	1							1
THORACIC SURGERY							1	1
Grand Total	12602	4373	3546	1466	1251	1090	891	25219

There are 25.2k procedures undertaken. Just less than half of these are in SCH. The main volume specialties are as would be expected – ENT, T&O, General, dentistry, oral surgery, plastics, gastro, ophthalmology and exodontia. It should be noted that some specialties appear to be entered twice – this is on account of slightly different annotation in the excel spreadsheet.
Most of the oral surgery is related to tooth extraction.

Top 30 procedures by volume

The top 30 procedures recorded by volume across each of the providers.

Sum of Counter	Trust							
Proc 1 Desc	SCH	MYH	DBH	BHNFT	TRFT	CRH	STH	Grand Total
Extraction of multiple teeth NEC		626		502		2	137	1267
EXTRACTION OF MULTIPLE TEETH NEC	1263							1263
SIMPLE EXTRACTION OF TOOTH: EXTRACTION OF MULTIPLE TEETH NEC			1021					1021
UNSPECIFIED	664							664
(blank)	605		7	11	6	1		630
OTHER SPECIFIED	604							604
MAGNETIC RESONANCE IMAGING OF HEAD	548							548
FIBREOPTIC ENDOSCOPIC EXAMINATION OF UPPER GASTRO	484							484
EXCISION OF TONSIL: BILATERAL DISSECTION TONSILLECTOMY			383					383
BILATERAL COBLATION TONSILLECTOMY	303							303
CIRCUMCISION	269							269
INTUBATION OF OESOPHAGUS FOR PH MANOMETRY	255							255
BILATERAL DISSECTION TONSILLECTOMY	250							250
MYRINGOTOMY WITH INSERTION OF VENTILATION TUBE THR	249							249
MAGNETIC RESONANCE IMAGING NEC	242							242
SIMPLE EXTRACTION OF TOOTH: UNSPECIFIED			240					240
DRAINAGE OF MIDDLE EAR: MYRINGOTOMY WITH INSERTION OF VENTILATION TUBE THROUGH TYMP			227					227
TONSILLECTOMY		138				61		199
INJECTION OF THERAPEUTIC SUBSTANCE INTO CEREBROSPIN	184							184
Myringotomy and insertion of short term grommet		179						179
REMOVAL OF INTERNAL FIXATION FROM BONE NEC	174							174
RESTORATION OF PART OF TOOTH USING FILLING NEC		8					160	168
APPLICATION OF FISSURE SEALANT		2					162	164
Tonsillectomy and adenoidectomy		161						161
Standard circumcision		155			1			156
Bilateral dissection tonsillectomy		4		141			3	148
MANIPULATION OF FRACTURE OF BONE NEC	145							145
DIAGNOSTIC EXTRACTION OF BONE MARROW NEC	140							140
SEE COMMENTS BOX		140						140
OTHER SPECIFIED SIMPLE EXTRACTION OF TOOTH							136	136
UNILATERAL HERNIOTOMY	130							130

30 procedures accounted for 11.1k procedures overall or 44% of the total surgical activity in one year.

It should be noted that there may be other recorded activity for each of these procedures elsewhere in the dataset but recorded with a slightly different name. With the time available it was not possible to resolve this – that would have taken a forensic clean of 25,000 records.

It can be seen that dental procedures feature heavily. Further investigation might be warranted whether some of the simple tooth extractions should be undertaken within community dentistry.

It should also be noted that for 630 of the activity records there is no recorded procedure. This may warrant further investigation.

Main procedures by specialty

An analysis was undertaken of the main procedures by specialty.

For pragmatic reasons, only specialties with >100 procedures recorded (across all of the trusts collectively) was undertaken. The full analysis is available on request. It has not been included here as it is difficult and messy to simply present.

In and out of hours surgery

Non elective								
Sum of Counter	Trust							
Timeband	SCH	MYH	DBH	BHNFT	TRFT	CRH	STH	Grand Total
Weekday : Blank	3				21	1		25
Weekday : In Hours	8655	3222	2513	1046	817	823	714	17790
Weekday : OOH 00:00 - 08:00	1		3		1			5
Weekday : OOH 18:00 - 00:00	54	6	4	1	1	2		68
Weekend : Blank	1							1
Weekend : In Hours	684	104	365	183	6	3		1345
Weekend : OOH 00:00 - 08:00			1					1
Weekend : OOH 18:00 - 00:00	2	2						4
Grand Total	9400	3334	2886	1230	846	829	714	19239
Elective								
Sum of Counter	Trust							
Timeband	SCH	MYH	DBH	BHNFT	TRFT	CRH	STH	Grand Total
Weekday : Blank	2		3	176	2			183
Weekday : In Hours	2261	579	416	113	162	150	23	3704
Weekday : OOH 00:00 - 08:00	40	20	22		12	6	3	103
Weekday : OOH 18:00 - 00:00	365	99	66		49	35	8	622
Weekend : Blank	1			85			1	87
Weekend : In Hours	384	198	125	2	56	30	5	800
Weekend : OOH 00:00 - 08:00	23	9	5		6	2		45
Weekend : OOH 18:00 - 00:00	126	28	20		18	6	1	199
Grand Total	3202	933	657	376	305	229	41	5743
174 unknown								
59 blank								

Elective surgical care

19.2k of the 25.1k total (76%) procedures were elective.

Of these:

- 17.8k procedures were coded as weekday in hours (92.5%)
- 5 coded as weekday OOH, midnight to 08:00 (0.35%)
- 1.3k were weekend in hours (7%)
- 5 were weekend OOH

Non elective surgical

5.7k of the total 25.2k procedures were non elective, c24%.

Of these:

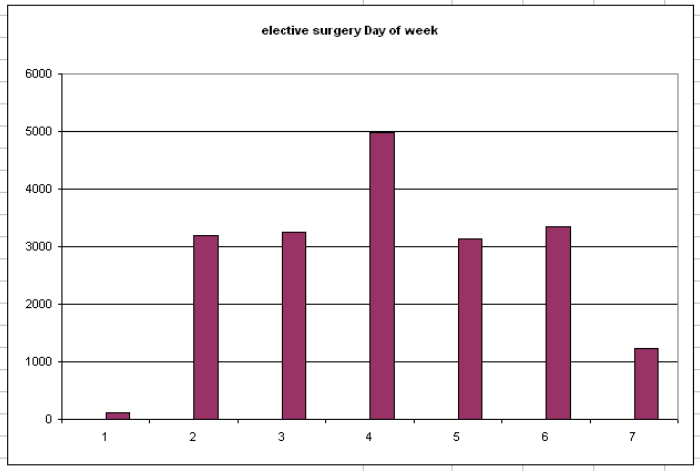
- 3.7k were weekday in hours (64.5%)
- 103 were weekday OOH – midnight to 8am (1.8%)
- 622 were weekday OOH – 6pm to midnight (10.8%)
- 800 were weekend in hours (14%)
- 45 were weekend OOH – – midnight to 8am (0.8%)
- 199 were weekday OOH – 6pm to midnight (3.5%)

Day of week

The tables below highlight day of week for each trust for both elective and non elective care.

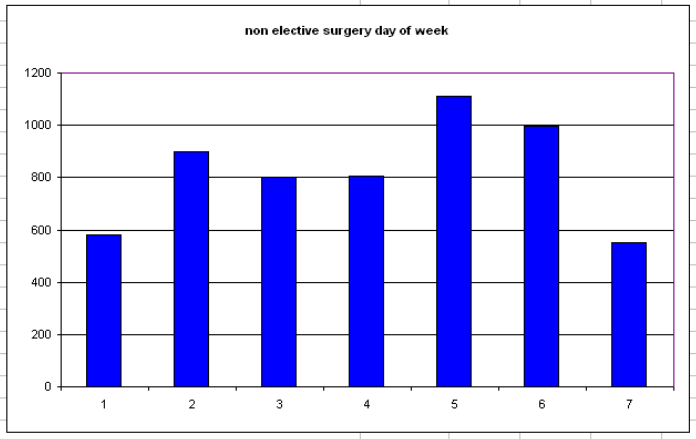
The graphs are for all trusts combined

Sum of Counter	Weekday 1							
Trust	1	2	3	4	5	6	7	Grand Total
SCH	50	1532	2010	1830	1566	1775	637	9400
MYH	48	631	493	625	576	903	58	3334
DBH	18	385	192	1171	489	283	348	2886
BHNFT		119	164	606	128	30	183	1230
STH		184	148	188	202	118	6	846
TRFT		142	124	351	109	100	3	829
CRH		201	117	208	57	131		714
Grand Total	116	3194	3248	4979	3127	3340	1235	19239



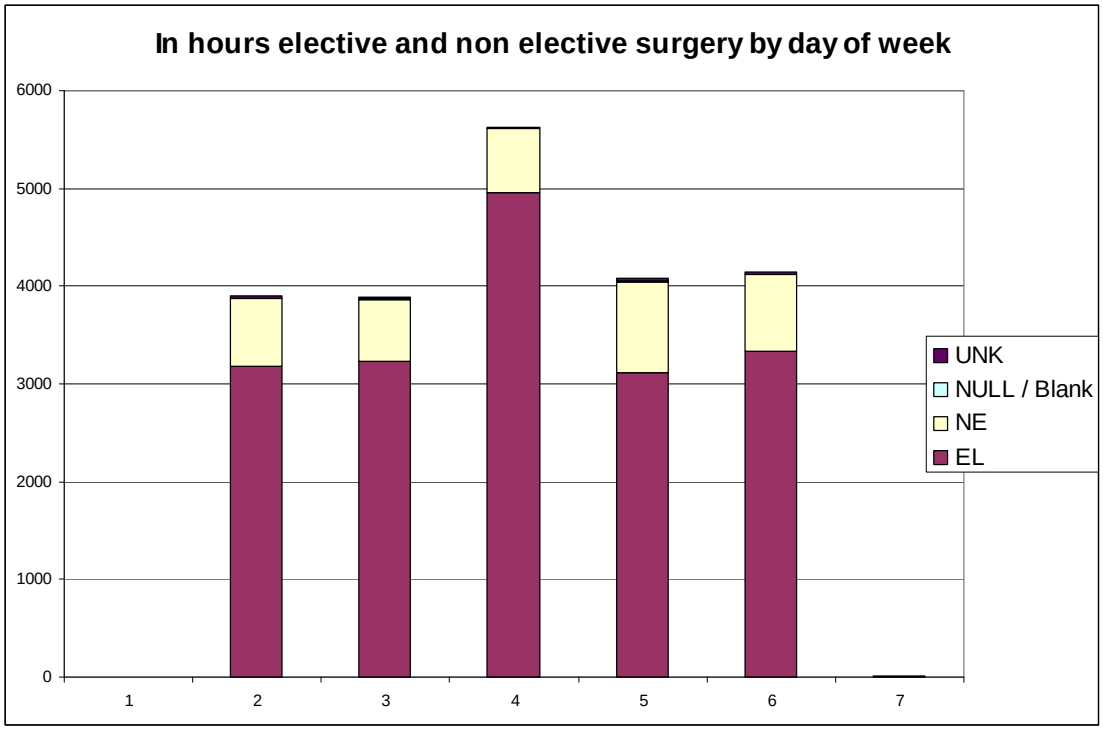
Non Elective

Sum of Counter	Weekday 1							
Trust	1	2	3	4	5	6	7	Grand Total
SCH	255	491	402	438	745	592	279	3202
MYH	141	157	138	132	117	154	94	933
DBH	78	98	105	89	129	86	72	657
CRH	45	68	55	57	41	68	42	376
TRFT	40	48	47	45	39	46	40	305
BHNFT	19	34	50	36	30	41	19	229
STH	3	5	6	7	8	8	4	41
Grand Total	581	901	803	804	1109	995	550	5743

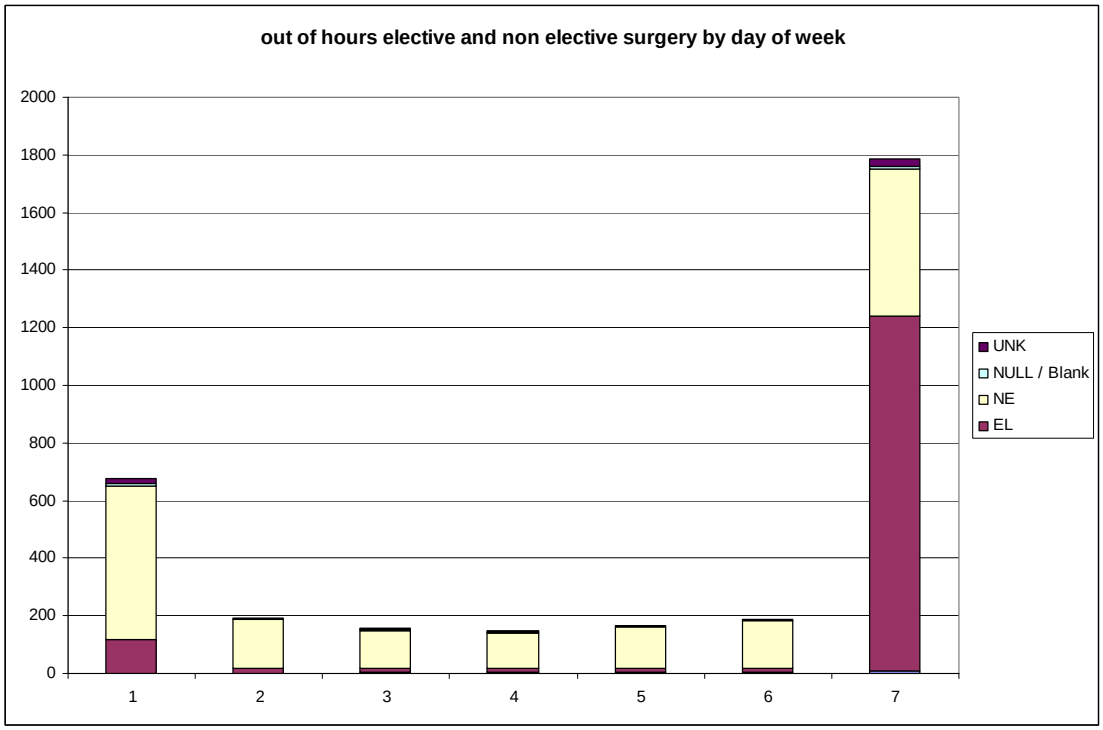


In and out of hours surgery

Elective



Non elective



Activity by age band

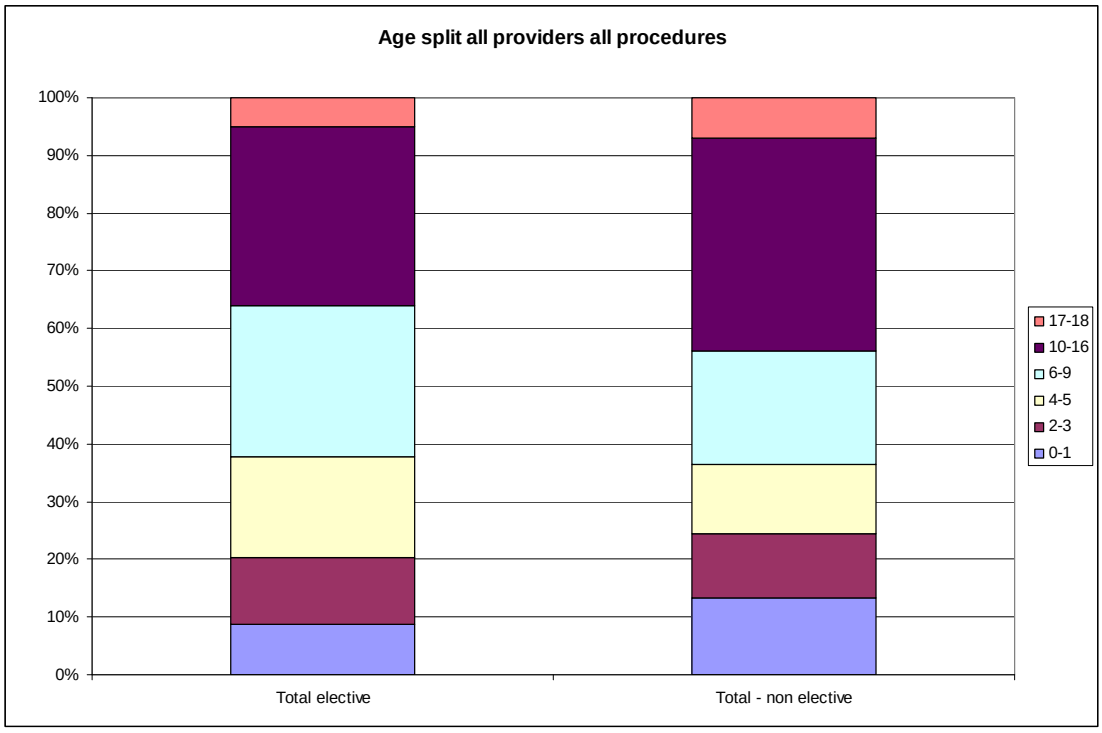
These can be split down by provider and by procedure or specialty. But it would be fiddly and difficult to neatly present the data. It should also be question led.

elective

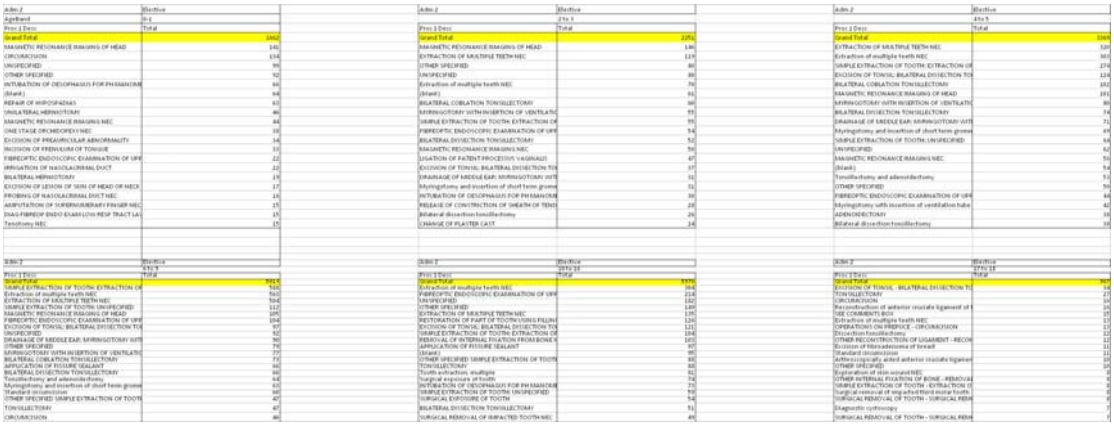
Sum of Counter	Trust							
AgeBand	SCH	MYH	DBH	BHNFT	STH	TRFT	CRH	Grand Total elective
0-1	1490	109	36	3		2	22	1662
2-3	1461	356	217	113	1	55	48	2251
4-5	1539	614	673	297	9	111	126	3369
6-9	2082	944	1081	400	228	128	151	5014
10-16	2726	966	622	417	608	385	252	5976
17-18	102	345	257			148	115	967
Grand Total	9400	3334	2886	1230	846	829	714	19239

non elective

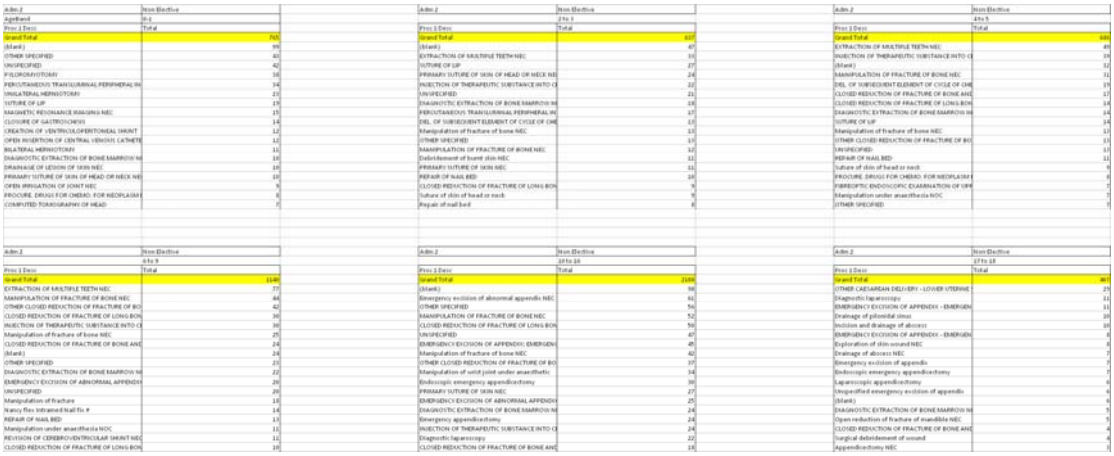
Sum of Counter	Trust							
AgeBand	SCH	MYH	DBH	BHNFT	STH	TRFT	CRH	Grand Total - non elective
0-1	723	28	7	5	2			765
2-3	449	92	38	16	26	16		637
4-5	425	82	75	46	39	19		686
6-9	600	186	149	76	79	50		1140
10-16	971	423	272	147	110	144	41	2108
17-18	34	122	116	86	49			407
Grand Total	3202	933	657	376	305	229	41	5743



Main elective procedures by age band



Main non elective procedures by age band



Recommendation - further questions on activity

Stakeholders should specify any further questions they would wish to explore. It would be likely an additional (fresh) set of activity data should be procured if fresh analysis is needed. Some initial thoughts on specification are appended.

It will be possible to further interrogate routinely available data, but that should be question led by stakeholders.

b) **Per capita volume**

Absolute volume – number of procedures

The table below shows the absolute volume of procedures for both emergency and elective surgery, for all of the CCGs within the footprint. This is also split by age over two years. This is the SCN data.

ALL SY and surround	Emergency Under 1 year	Emergency 01 to 02 years	Emergency 03 to 04 years	Emergency 05 to 12 years	Emergency 13 to 15 years	Emergency 16 to 17 years	Totals
Year 11 / 12	310	680	676	2870	1432	1537	7505
ENT	19	75	118	184	78	147	621
general surgery	0	0	14	529	349	664	1556
gynaecology	0	0	0	0	34	264	298
ophthalmology	0	0	0	10	0	0	10
oral surgery	0	93	98	152	32	40	415
orthopaedics	21	186	254	1279	531	249	2520
paediatric dentistry	0	0	0	0	0	0	0
paediatric surgery	226	145	124	457	282	6	1240
plastics	44	181	68	195	116	106	710
urology	0	0	0	64	10	61	135
anaesthesia	0	0	0	0	0	0	0
Year 12 / 13	312	583	595	2649	1214	1528	6881
ENT	17	78	144	270	87	114	710
general surgery	0	0	7	542	332	687	1568
gynaecology	0	0	0	0	30	226	256
ophthalmology	0	8	0	12	0	0	20
oral surgery	0	43	70	116	21	67	317
orthopaedics	15	139	210	960	423	252	1999
paediatric dentistry	0	0	0	0	0	0	0
paediatric surgery	251	153	115	556	258	9	1342
plastics	29	162	49	129	50	93	512
urology	0	0	0	64	13	80	157
anaesthesia	0	0	0	0	0	0	0
Grand Total	622	1263	1271	5519	2646	3065	14386

ALL SY and surround	Elective Under 1 year	Elective 01 to 02 years	Elective 03 to 04 years	Elective 05 to 12 years	Elective 13 to 15 years	Elective 16 to 17 years	Totals
Year 11 / 12	827	1656	2625	8891	2960	2024	18983
ENT	122	425	924	2152	504	309	4436
general surgery	0	17	34	96	33	173	353
gynaecology	0	0	0	0	91	268	359
ophthalmology	41	213	199	406	117	79	1055
oral surgery	0	70	338	1685	747	386	3226
orthopaedics	72	149	197	848	629	402	2297
paediatric dentistry	0	34	430	2033	264	14	2775
paediatric surgery	475	519	344	1118	343	71	2870
plastics	117	213	127	421	211	223	1312
urology	0	16	32	132	21	99	300
anaesthesia	0	0	0	0	0	0	0
Year 12 / 13	989	1765	2755	9185	2923	1819	19436
ENT	277	447	1052	2290	466	261	4793
general surgery	0	18	15	69	26	219	347
gynaecology	0	0	0	0	49	182	231
ophthalmology	50	266	237	475	100	81	1209
oral surgery	0	86	345	1716	782	360	3289
orthopaedics	61	115	179	795	619	388	2157
paediatric dentistry	0	36	396	2080	237	19	2768
paediatric surgery	518	574	410	1252	381	60	3195
plastics	83	205	89	390	244	162	1173
urology	0	18	32	118	13	87	268
anaesthesia	0	0	0	0	6	0	6
Grand Total	1816	3421	5380	18076	5883	3843	38419

Per capita volume – no of procedures per 100,000 people aged 0-17

The table below shows the variability in elective and emergency surgery per 100,000 people aged 0-17 for 2012/13.

This is based in the SCN activity data supplied with a population denominator. It is presented here by CCG (registered population).

The data presented are RATES not numbers. It is the number of procedures (in people aged 0-17) per 100,000 people aged 0-17.

Per capita activity 12/13 - number of FCE / 100,000 people aged 0-17									
Emergency Per capita activity 12/13 - number of FCE / 100,000 people aged 0-17									
Emergency Per capit	Wakefield	Sheffield	Rotherham	N Kirklees	N Derbysh	N Hardwicl	Doncaster	Barnsley	Bassetlaw
ENT	119	181	142	142	70	62	198	75	89
General surgery	430	110	543	428	256	313	245	477	170
Gynaecology	45	64	94	35	30	80	84	31	20
Ophthalmology	0	14	0	0	0	0	0	0	0
Oral surgery	143	88	104	83	24	0	60	37	0
Orthopaedics	475	366	568	413	354	420	584	466	552
Paediatric surgery	50	744	238	67	140	52	138	143	94
Plastics	279	240	24	196	24	0	12	38	0
Urology	95	26	12	74	7	0	7	0	0
Total emergency surgery in patients 0-17 / 100,000 people aged 0-17	240	241	241	242	243	245	246	249	251
Elective Per capita activity 12/13 - number of FCE / 100,000 people aged 0-17									
Elective Per capita a	Wakefield	Sheffield	Rotherham	N Kirklees	N Derbysh	N Hardwicl	Doncaster	Barnsley	Bassetlaw
ENT	903	997	1,014	950	770	1,017	856	1,000	845
General surgery	99	28	112	145	60	50	44	43	125
Gynaecology	16	42	148	36	84	75	7	66	188
Ophthalmology	167	311	254	169	180	139	258	218	217
Oral surgery	349	456	1,960	301	340	244	561	1,265	313
Orthopaedics	351	491	572	356	401	383	468	475	528
Paediatric dentistry	61	1,282	235	86	221	221	1,161	164	626
Paediatric surgery	389	1,075	538	394	369	360	575	625	561
Plastics	429	310	187	312	155	72	190	183	132
Urology	156	18	115	104	26	37	8	29	0
Total elective surgery in patients 0-17 / 100,000 people aged 0-17	430	431	431	433	435	437	440	444	449

Some caution should be used in interpretation of the variation, the codes used within the HES dataset may vary from place to place.

In addition the numerator is based on CCG of registration, there may be some boundary issues in terms of patients registered with Hardwick CCG (for example) receiving treatment in a hospital not included in the original dataset.

c) Projections – population and activity

The SCN CCG level data that was used for forward projection is based on the number of patients (0-17) resident in each of the CCGs of interest being treated – at sub specialty level – as emergency or elective patient. (The meta data on which this extract is based is available).

Although the source data (from SCN / CHiMAT) is split by age band, the forward projection is NOT age band split. This is purely from the perspective of the simplicity of data presentation. It WOULD be possible to project forward in other ways.

The methods for this projection were simple. As the two years for which data was available wasn't robust enough to allow a trend to be plotted. Thus the two years were averaged. **An assumption was then made that underlying growth would be in line with population growth alone – ie there is no change in fundamental population need for surgical care.**

Thus the growth in activity for each of the sub specialties was modelled based on the year 0 population rate of activity, then growth in line with expected population growth based on our pop growth estimates.

There are a number of significant uncertainties about the inherent uncertainties about these projections; both in the numerator and the denominator. The denominator uncertainty is explained by the issues regarding population projection explored above. The numerator uncertainty rests on 11/12 and 12/13 being representative years and there being limited to no longer term underlying trend of increased activity outwith what could be explained by only population growth. With only 2 years data it is not possible to resolve this uncertainty.

This section gives future projections for population and activity at sub specialty level at CCG level for each of nine CCGs.

Each sheet gives

- A population projection for the 0-17 population – this is the projected registered population by each CCG.
- % population growth over a 10 year period in the 0-17 population – based on ONS projections.
- Estimated annual growth (number of patients).
- Estimated number of FCEs for each year in each of the surgical sub specialties, for the 0-17 population registered in that CCG. This is split by emergency and elective.

Obviously it is not possible to future proof this to any future changes to NHS administrative boundaries.

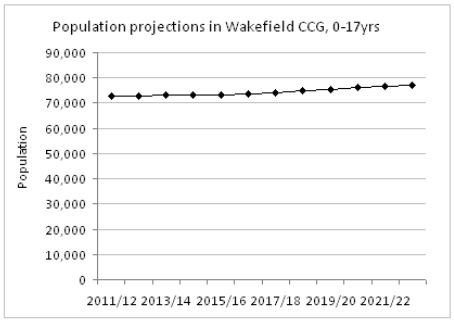
The methods and data sources are described in more detail in section 4, as are a number of important caveats to interpretation.

Recommendation – further analysis on projections
As with the analysis of the theatre data, the projections below may lead to a number of subsequent questions. Stakeholders are asked to consider what further analysis would be warranted.

NHS Wakefield CCG projections

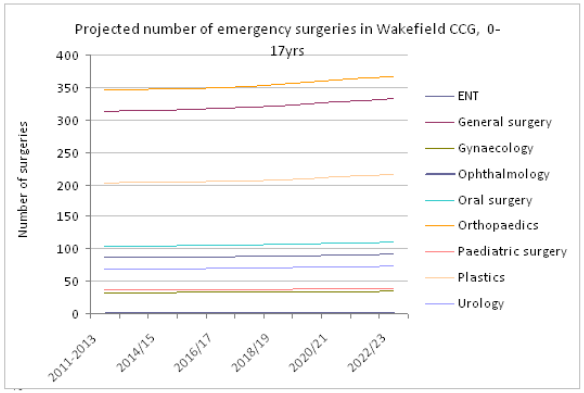
0-17yr population

Year	Population	Change
2011/12	72,960	-
2012/13	72,878	-82
2013/14	73,115	237
2014/15	73,193	78
2015/16	73,393	200
2016/17	73,846	453
2017/18	74,206	360
2018/19	74,742	536
2019/20	75,396	655
2020/21	76,156	760
2021/22	76,852	696
2022/23	77,281	429
projected growth in 0-17 pop in 10 year period 13/14 to 22/23	5.70 %	

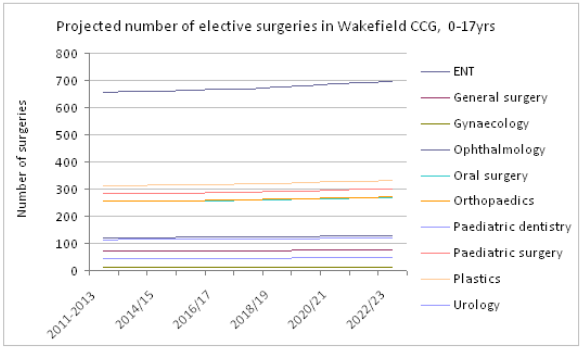


Over the next 10 years the population of patients registered to Wakefield CCG aged 0-17yrs is estimated to increase by an average of 393 patients per year to 77,281 by 2022/23

Emergency	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	87	87	87	87	88	88	89	89	90	91	92	0.5
General surgery	314	314	315	316	317	319	321	324	327	330	332	1.9
Gynaecology	33	33	33	33	33	33	33	34	34	34	34	0.2
Ophthalmology	0	0	0	0	0	0	0	0	0	0	0	0.0
Oral surgery	104	104	104	105	105	106	107	108	109	110	110	0.6
Orthopaedics	346	347	347	348	350	352	355	358	361	365	367	2.1
Paediatric surgery	37	37	37	37	37	37	37	38	38	38	39	0.2
Plastics	203	204	204	204	206	207	208	210	212	214	215	1.2
Urology	69	69	69	69	70	70	71	71	72	73	73	0.4
Total	**1,191**	**1,194**	**1,195**	**1,199**	**1,206**	**1,212**	**1,221**	**1,231**	**1,244**	**1,255**	**1,262**	**7.1**
Projected growth % 13/14 to 22/23												**5.70**



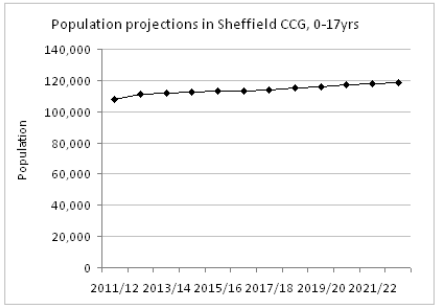
Elective	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	658	660	660	662	666	670	674	680	687	693	697	3.9
General surgery	72	72	72	72	73	73	74	74	75	76	76	0.4
Gynaecology	12	12	12	12	12	12	12	12	12	12	12	0.1
Ophthalmology	122	122	122	122	123	124	125	126	127	128	129	0.7
Oral surgery	255	255	255	256	258	259	261	263	266	268	270	1.5
Orthopaedics	256	257	257	258	259	261	262	265	267	270	271	1.5
Paediatric dentistry	45	45	45	45	45	45	46	46	46	47	47	0.3
Paediatric surgery	284	284	285	285	287	289	291	293	296	299	300	1.7
Plastics	313	314	314	315	317	319	321	324	327	330	332	1.9
Urology	114	114	114	115	115	116	117	118	119	120	121	0.7
Total	**2,129**	**2,134**	**2,137**	**2,142**	**2,156**	**2,166**	**2,182**	**2,201**	**2,223**	**2,243**	**2,256**	**12.7**
Projected growth % 13/14 to 22/23												**5.70**



NHS Sheffield CCG projections

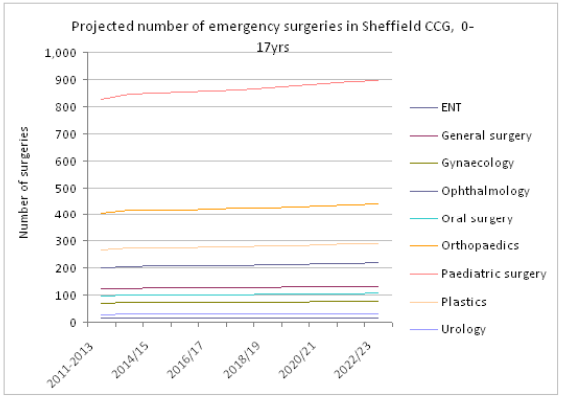
0-17yr population

Year	Population	Change
2011/12	108,020	-
2012/13	111,040	3021
2013/14	112,059	1019
2014/15	112,557	498
2015/16	112,922	365
2016/17	113,492	570
2017/18	114,195	703
2018/19	115,035	841
2019/20	116,011	976
2020/21	117,064	1052
2021/22	118,088	1025
2022/23	118,766	677
projected growth in 0-17 pop in 10 year period 13/14 to 22/23	5.985 %	

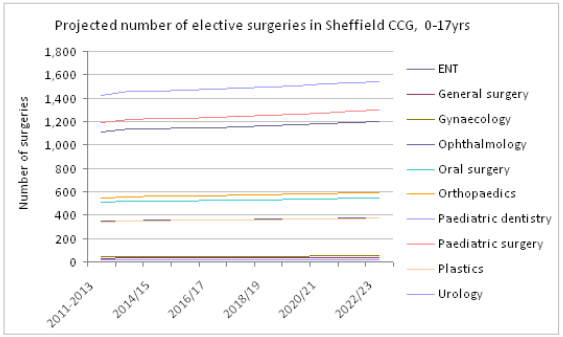


Over the next 10 years the population of patients registered to Sheffield CCG aged 0-17yrs is estimated to increase by an average of 977 patients per year to 118,766 by 2022/23

Emergency	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	202	206	207	208	209	210	212	213	215	217	218	1.7
General surgery	123	125	126	126	127	128	129	130	131	132	133	1.0
Gynaecology	71	73	73	73	74	74	75	75	76	77	77	0.6
Ophthalmology	15	15	15	15	16	16	16	16	16	16	16	0.1
Oral surgery	98	100	101	101	102	102	103	104	105	106	106	0.8
Orthopaedics	406	415	417	419	421	423	426	430	434	438	440	3.4
Paediatric surgery	826	845	849	852	856	861	868	875	883	891	896	7.0
Plastics	267	273	274	275	277	278	280	283	285	288	290	2.3
Urology	29	29	29	29	30	30	30	30	30	31	31	0.2
Total	**2,036**	**2,083**	**2,092**	**2,099**	**2,109**	**2,122**	**2,138**	**2,156**	**2,176**	**2,195**	**2,207**	**17.2**
Projected growth % 13/14 to 22/23												**5.98**



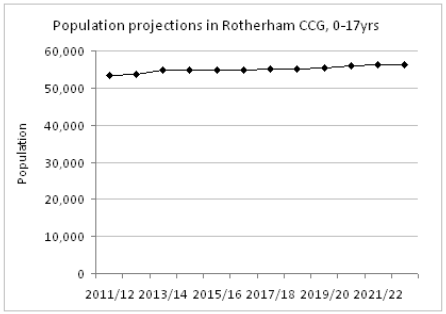
Elective	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	1,108	1,133	1,138	1,142	1,148	1,155	1,163	1,173	1,184	1,194	1,201	9.3
General surgery	31	32	32	32	32	32	33	33	33	33	34	0.3
Gynaecology	47	48	48	48	48	48	49	49	50	50	50	0.4
Ophthalmology	346	353	355	356	358	360	363	366	369	372	375	2.9
Oral surgery	507	518	520	522	525	528	532	536	541	546	549	4.3
Orthopaedics	546	558	561	562	565	569	573	578	583	588	591	4.6
Paediatric dentistry	1,423	1,456	1,462	1,467	1,474	1,484	1,495	1,507	1,521	1,534	1,543	12.0
Paediatric surgery	1,194	1,221	1,226	1,230	1,237	1,244	1,253	1,264	1,276	1,287	1,294	10.1
Plastics	344	352	354	355	356	359	361	364	368	371	373	2.9
Urology	21	21	21	21	21	21	22	22	22	22	22	0.2
Total	**5,564**	**5,692**	**5,717**	**5,736**	**5,765**	**5,800**	**5,843**	**5,893**	**5,946**	**5,998**	**6,033**	**46.9**
Projected growth % 13/14 to 22/23												**5.98**



NHS Rotherham CCG projections

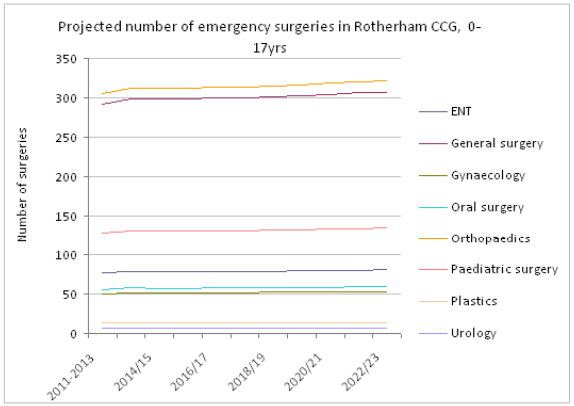
0-17yr population

Year	Population	Change
2011/12	53,278	-
2012/13	53,695	416
2013/14	54,857	1162
2014/15	54,824	-33
2015/16	54,803	-21
2016/17	54,949	146
2017/18	55,015	67
2018/19	55,225	210
2019/20	55,539	314
2020/21	55,895	355
2021/22	56,180	285
2022/23	56,385	205
projected growth in 0-17 pop in 10 year period 13/14 to 22/23	2.784 %	

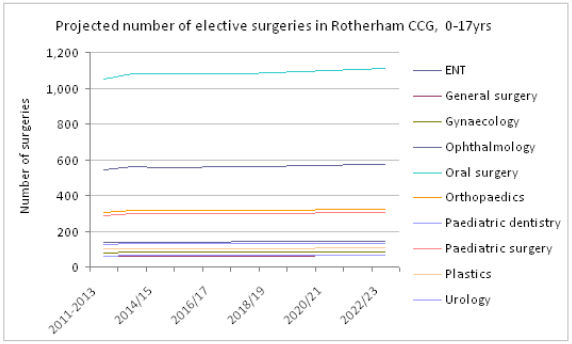


Over the next 10 years the population of patients registered to Rotherham CCG aged 0-17yrs is estimated to increase by an average of 282 patients per year to 56,385 by 2022/23

Emergency	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	77	78	78	78	79	79	79	79	80	80	81	0.4
General surgery	292	299	299	299	299	300	301	303	305	306	307	1.6
Gynaecology	51	52	52	52	52	52	52	52	53	53	53	0.3
Oral surgery	56	57	57	57	58	58	58	58	59	59	59	0.3
Orthopaedics	305	313	313	313	313	314	315	317	319	320	322	1.7
Paediatric surgery	128	131	131	131	131	132	132	133	134	134	135	0.7
Plastics	13	13	13	13	13	13	13	13	14	14	14	0.1
Urology	7	7	7	7	7	7	7	7	7	7	7	0.0
Total	**927**	**951**	**950**	**950**	**952**	**953**	**957**	**963**	**969**	**974**	**977**	5.0
Projected growth % 13/14 to 22/23												**2.78**



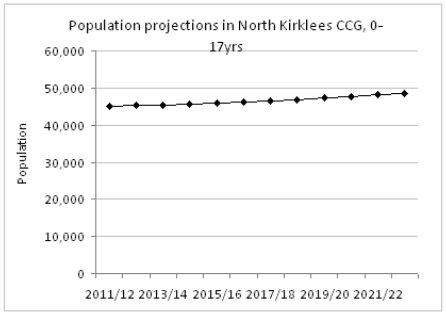
Elective	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	545	558	558	558	559	560	562	565	569	572	574	3.0
General surgery	60	62	62	61	62	62	62	62	63	63	63	0.3
Gynaecology	80	82	81	81	82	82	82	83	83	84	84	0.4
Ophthalmology	137	140	140	140	140	140	141	142	143	143	144	0.7
Oral surgery	1,053	1,079	1,079	1,078	1,081	1,083	1,087	1,093	1,100	1,106	1,110	5.7
Orthopaedics	307	315	315	315	315	316	317	319	321	322	324	1.7
Paediatric dentistry	126	129	129	129	129	130	130	131	132	132	133	0.7
Paediatric surgery	289	296	296	296	297	297	298	300	302	304	305	1.6
Plastics	101	103	103	103	103	103	104	104	105	106	106	0.5
Urology	62	63	63	63	63	63	63	64	64	65	65	0.3
Total	**2,757**	**2,828**	**2,826**	**2,825**	**2,832**	**2,836**	**2,847**	**2,863**	**2,881**	**2,896**	**2,906**	14.9
Projected growth % 13/14 to 22/23												**2.78**



NHS North Kirklees CCG projections

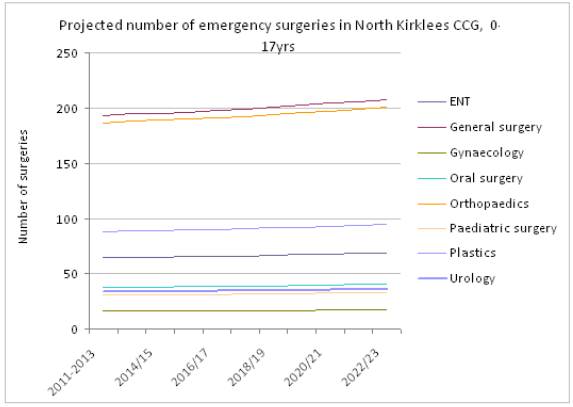
0-17yr population

Year	Population	Change
2011/12	45,051	-
2012/13	45,226	175
2013/14	45,482	257
2014/15	45,618	136
2015/16	45,859	241
2016/17	46,147	287
2017/18	46,437	291
2018/19	46,852	415
2019/20	47,269	417
2020/21	47,693	424
2021/22	48,098	406
2022/23	48,449	350
projected growth in 0-17 pop in 10 year period 13/14 to 22/23	6.522 %	

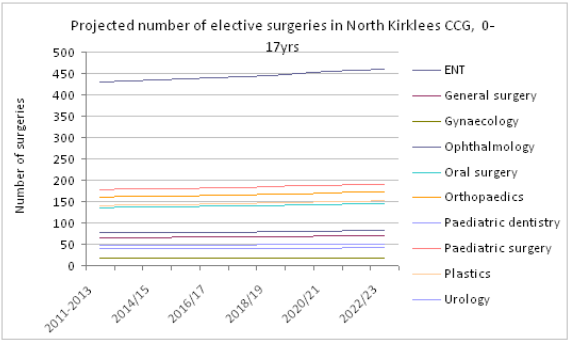


Over the next 10 years the population of patients registered to North Kirklees CCG aged 0-17yrs is estimated to increase by an average of 309 patients per year to 48,449 by 2022/23

Emergency	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	64	64	65	65	65	66	66	67	68	68	69	0
General surgery	194	195	196	197	198	199	201	203	204	206	208	1
Gynaecology	16	16	16	16	16	16	17	17	17	17	17	0
Oral surgery	38	38	38	38	38	39	39	39	40	40	40	0
Orthopaedics	187	188	189	190	191	192	194	196	198	199	201	1
Paediatric surgery	31	31	31	31	31	31	32	32	32	32	33	0
Plastics	89	89	89	90	90	91	92	93	94	94	95	1
Urology	34	34	34	34	34	34	35	35	35	36	36	0
Total	**651**	**655**	**657**	**661**	**665**	**669**	**675**	**681**	**687**	**693**	**698**	**5**
Projected growth % 13/14 to 22/23												**6.52**



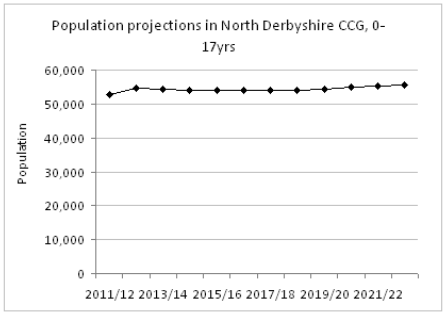
Elective	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	430	433	434	436	439	442	446	450	454	458	461	3
General surgery	66	66	66	67	67	67	68	69	69	70	70	0
Gynaecology	17	17	17	17	17	17	17	17	17	18	18	0
Ophthalmology	77	77	77	78	78	79	79	80	81	82	82	1
Oral surgery	136	137	137	138	139	140	141	142	144	145	146	1
Orthopaedics	161	162	163	164	165	166	167	169	170	172	173	1
Paediatric dentistry	39	39	39	40	40	40	40	41	41	42	42	0
Paediatric surgery	178	179	180	181	182	183	185	186	188	190	191	1
Plastics	141	142	142	143	144	145	146	148	149	150	151	1
Urology	47	47	47	48	48	48	49	49	50	50	50	0
Total	**1,290**	**1,300**	**1,304**	**1,311**	**1,319**	**1,327**	**1,339**	**1,351**	**1,363**	**1,375**	**1,385**	**9**
Projected growth % 13/14 to 22/23												**6.52**



NHS North Derbyshire CCG projections

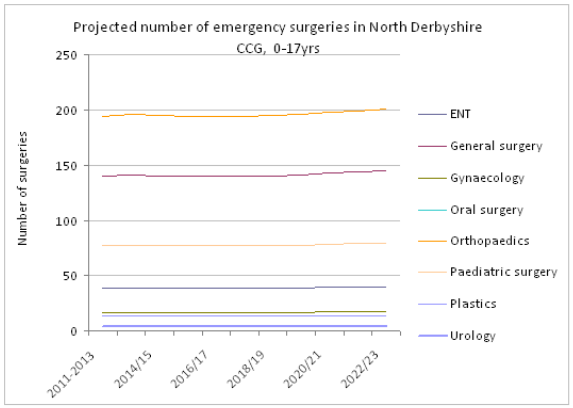
0-17yr population

Year	Population	Change
2011/12	52,911	-
2012/13	54,753	1842
2013/14	54,366	-387
2014/15	54,141	-225
2015/16	54,008	-132
2016/17	53,948	-60
2017/18	53,900	-48
2018/19	54,071	171
2019/20	54,417	346
2020/21	54,907	490
2021/22	55,353	446
2022/23	55,700	347
projected growth in 0-17 pop in 10 year period 13/14 to 22/23	2.454 %	

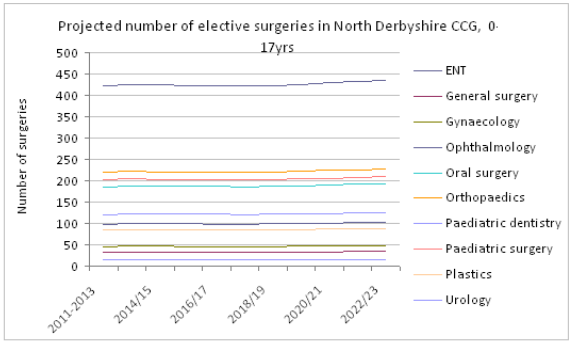


Over the next 10 years the population of patients registered to North Derbyshire CCG aged 0-17yrs is estimated to increase by an average of 254 patients per year to 55,700 by 2022/23

Emergency	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	39	39	39	39	39	39	39	39	39	40	40	0.1
General surgery	140	141	141	140	140	140	141	142	143	144	145	0.5
Gynaecology	17	17	17	17	17	17	17	17	17	17	17	0.1
Oral surgery	13	13	13	13	13	13	13	13	13	13	13	0.0
Orthopaedics	194	196	195	195	194	194	195	196	198	199	201	0.7
Paediatric surgery	77	77	77	77	77	77	77	77	78	79	79	0.3
Plastics	13	13	13	13	13	13	13	13	13	13	13	0.0
Urology	4	4	4	4	4	4	4	4	4	4	4	0.0
Total	**496**	**500**	**498**	**497**	**497**	**496**	**498**	**501**	**505**	**509**	**513**	**2**
Projected growth % 13/14 to 22/23												**2.45**



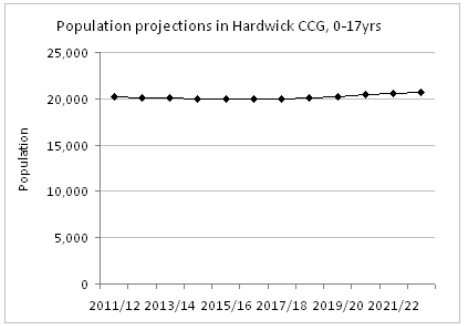
Elective	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	422	426	424	423	422	422	423	426	430	433	436	1.5
General surgery	33	33	33	33	33	33	33	33	34	34	34	0.1
Gynaecology	46	46	46	46	46	46	46	46	47	47	48	0.2
Ophthalmology	99	99	99	99	99	99	99	100	100	101	102	0.3
Oral surgery	186	188	187	187	186	186	187	188	190	191	192	0.6
Orthopaedics	220	222	221	220	220	220	220	222	224	226	227	0.8
Paediatric dentistry	121	122	122	121	121	121	122	122	123	124	125	0.4
Paediatric surgery	202	204	203	203	202	202	203	204	206	208	209	0.7
Plastics	85	86	85	85	85	85	85	86	87	87	88	0.3
Urology	14	14	14	14	14	14	14	14	14	14	14	0.0
Total	**1,427**	**1,441**	**1,435**	**1,431**	**1,430**	**1,428**	**1,433**	**1,442**	**1,455**	**1,467**	**1,476**	**5**
Projected growth % 13/14 to 22/23												**2.45**



NHS Hardwick CCG projections

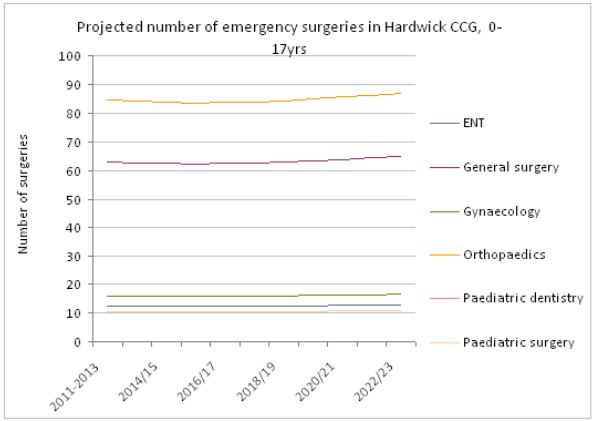
0-17yr population

Year	Population	Change
2011/12	20,197	-
2012/13	20,115	-82
2013/14	20,055	-60
2014/15	19,961	-93
2015/16	19,923	-39
2016/17	19,984	62
2017/18	19,997	13
2018/19	20,109	112
2019/20	20,229	121
2020/21	20,411	181
2021/22	20,574	164
2022/23	20,714	139
projected growth in 0-17 pop in 10 year period 13/14 to 22/23	3.287 %	

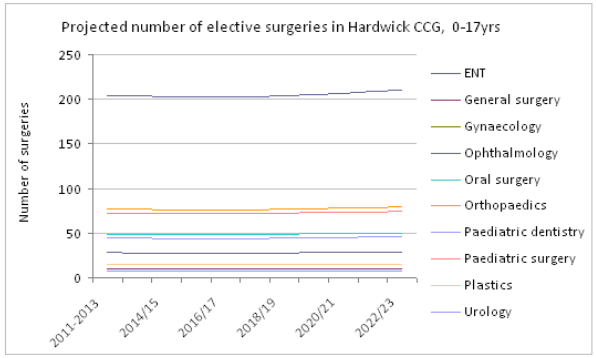


Over the next 10 years the population of patients registered to Hardwick CCG aged 0-17yrs is estimated to increase by an average of 47 patients per year to 20,714 by 2022/23

Emergency	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	13	12	12	12	12	12	12	13	13	13	13	0.0
General surgery	63	63	62	62	62	63	63	63	64	64	65	0.2
Gynaecology	16	16	16	16	16	16	16	16	16	16	16	0.0
Orthopaedics	85	84	84	84	84	84	84	85	86	86	87	0.2
Paediatric dentistry	0	0	0	0	0	0	0	0	0	0	0	0.0
Paediatric surgery	11	10	10	10	10	10	10	11	11	11	11	0.0
Total	**187**	**186**	**185**	**184**	**185**	**185**	**186**	**187**	**189**	**190**	**192**	**0.5**
Projected growth % 13/14 to 22/23												**3.29**



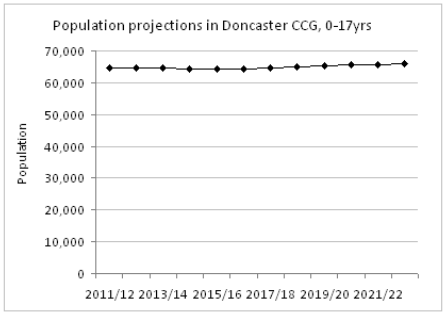
Elective	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	205	203	203	202	203	203	204	205	207	209	210	1
General surgery	10	10	10	10	10	10	10	10	10	10	10	0.0
Gynaecology	15	15	15	15	15	15	15	15	15	15	15	0.0
Ophthalmology	28	28	28	28	28	28	28	28	28	29	29	0.1
Oral surgery	49	49	49	48	49	49	49	49	50	50	50	0.1
Orthopaedics	77	77	76	76	76	76	77	77	78	79	79	0.2
Paediatric dentistry	45	44	44	44	44	44	44	45	45	45	46	0.1
Paediatric surgery	73	72	72	72	72	72	72	73	73	74	75	0.2
Plastics	15	14	14	14	14	14	14	15	15	15	15	0.0
Urology	8	7	7	7	7	7	7	8	8	8	8	0.0
Total	**523**	**520**	**517**	**516**	**518**	**518**	**521**	**524**	**529**	**533**	**537**	1.4
Projected growth % 13/14 to 22/23												**3.29**



NHS Doncaster CCG projections

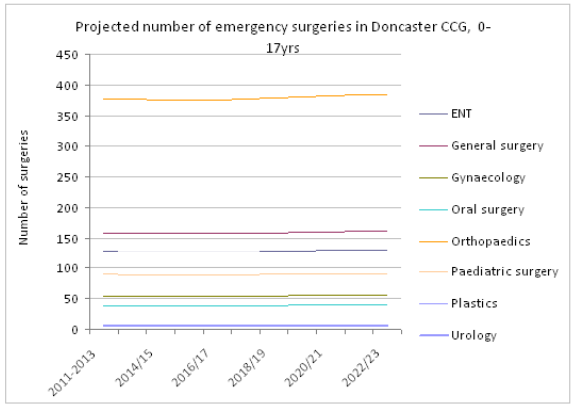
0-17yr population

Year	Population	Change
2011/12	64,798	-
2012/13	64,644	-154
2013/14	64,555	-89
2014/15	64,450	-105
2015/16	64,393	-57
2016/17	64,391	-2
2017/18	64,518	127
2018/19	64,809	291
2019/20	65,161	352
2020/21	65,506	345
2021/22	65,806	300
2022/23	65,944	138
projected growth in 0-17 pop in 10 year period 13/14 to 22/23	2.152 %	

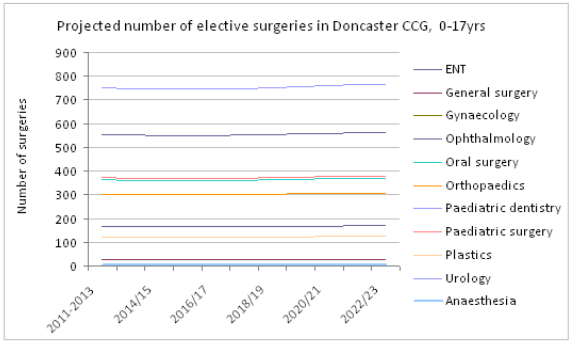


Over the next 10 years the population of patients registered to Doncaster CCG aged 0-17yrs is estimated to increase by an average of 104 patients per year to 65,944 by 2022/23

Emergency	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	128	128	127	127	127	128	128	129	130	130	130	0.2
General surgery	159	158	158	158	158	158	159	160	160	161	161	0.3
Gynaecology	55	54	54	54	54	54	55	55	55	55	56	0.1
Oral surgery	39	39	39	39	39	39	39	39	39	40	40	0.1
Orthopaedics	378	377	376	376	376	376	378	380	382	384	385	0.7
Paediatric surgery	90	89	89	89	89	89	90	90	91	91	91	0.2
Plastics	8	7	7	7	7	7	8	8	8	8	8	0.0
Urology	5	4	4	4	4	4	5	5	5	5	5	0.0
Total	**859**	**857**	**855**	**855**	**855**	**856**	**860**	**865**	**869**	**873**	**875**	1.6
Projected growth % 13/14 to 22/23												2.15



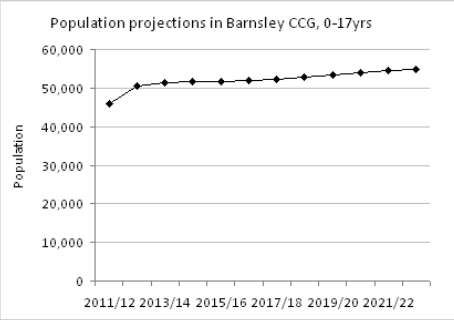
Elective	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	554	552	551	551	551	552	554	557	560	563	564	1.0
General surgery	29	28	28	28	28	28	29	29	29	29	29	0.1
Gynaecology	5	4	4	4	4	4	5	5	5	5	5	0.0
Ophthalmology	167	166	166	166	166	166	167	168	169	169	170	0.3
Oral surgery	363	362	361	361	361	361	363	365	367	369	369	0.7
Orthopaedics	303	302	301	301	301	302	303	305	306	308	308	0.6
Paediatric dentistry	751	749	747	747	747	748	752	756	760	763	765	1.4
Paediatric surgery	372	371	370	370	370	371	373	375	377	378	379	0.7
Plastics	123	122	122	122	122	122	123	123	124	125	125	0.2
Urology	5	5	5	5	5	5	5	5	5	5	5	0.0
Anaesthesia	3	3	3	3	3	3	3	3	3	3	3	0.0
Total	**2,671**	**2,664**	**2,660**	**2,657**	**2,657**	**2,663**	**2,675**	**2,689**	**2,703**	**2,716**	**2,721**	5.0
Projected growth % 13/14 to 22/23												2.15



NHS Barnsley CCG projections

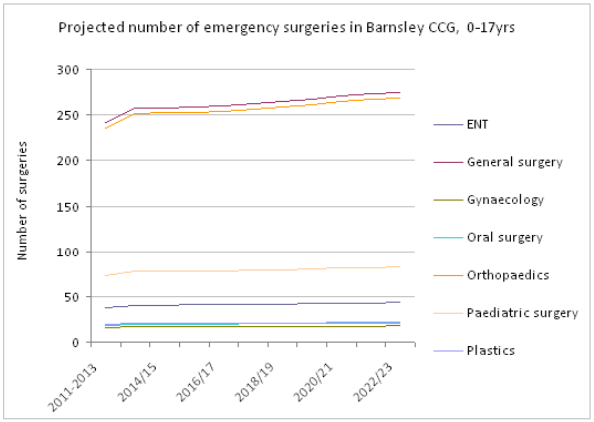
0-17yr population

Year	Population	Change
2011/12	45,875	-
2012/13	50,626	4751
2013/14	51,478	852
2014/15	51,564	86
2015/16	51,719	155
2016/17	51,972	253
2017/18	52,325	353
2018/19	52,832	507
2019/20	53,413	581
2020/21	54,035	622
2021/22	54,559	524
2022/23	54,950	392
projected growth in 0-17 pop in 10 year period 13/14 to 22/23	6.745 %	

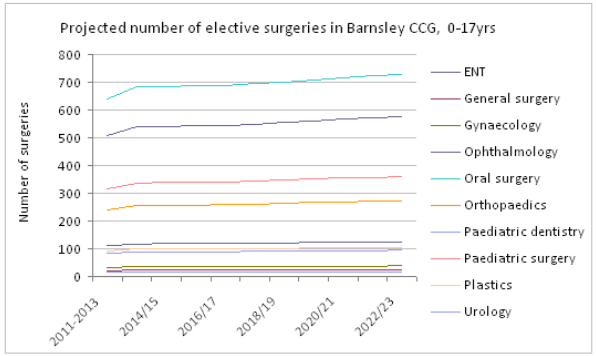


Over the next 10 years the population of patients registered to Barnsley CCG aged 0-17yrs is estimated to increase by an average of 825 patients per year to 54,950 by 2022/23

Emergency	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	38	41	41	41	41	41	42	42	43	43	43	0.5
General surgery	242	258	258	259	260	262	264	267	270	273	275	3.4
Gynaecology	16	17	17	17	17	17	17	17	17	18	18	0.2
Oral surgery	19	20	20	20	20	20	20	20	21	21	21	0.3
Orthopaedics	236	252	252	253	254	256	258	261	264	267	269	3.3
Paediatric surgery	73	77	77	78	78	79	79	80	81	82	83	1.0
Plastics	19	20	20	20	20	21	21	21	21	21	22	0.3
Total	**641**	**684**	**685**	**687**	**690**	**695**	**702**	**710**	**718**	**725**	**730**	**8.9**
Projected growth % 13/14 to 22/23												**6.74**



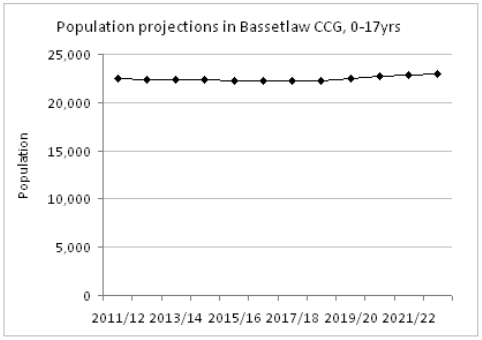
Elective	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	507	540	541	543	546	549	555	561	567	573	577	7.0
General surgery	22	23	24	24	24	24	24	24	25	25	25	0.3
Gynaecology	34	36	36	36	36	36	37	37	38	38	38	0.5
Ophthalmology	111	118	118	118	119	120	121	122	124	125	126	1.5
Oral surgery	641	683	684	687	690	695	701	709	717	724	729	8.9
Orthopaedics	241	257	257	258	259	261	263	266	269	272	274	3.3
Paediatric dentistry	83	89	89	89	89	90	91	92	93	94	95	1.2
Paediatric surgery	317	338	338	339	341	343	347	350	354	358	360	4.4
Plastics	93	99	99	99	100	100	101	102	104	105	105	1.3
Urology	15	15	15	16	16	16	16	16	16	16	17	0.2
Total	**2,060**	**2,198**	**2,201**	**2,208**	**2,219**	**2,234**	**2,256**	**2,280**	**2,307**	**2,329**	**2,346**	28.6
Projected growth % 13/14 to 22/23												**6.74**



NHS Bassetlaw CCG projections

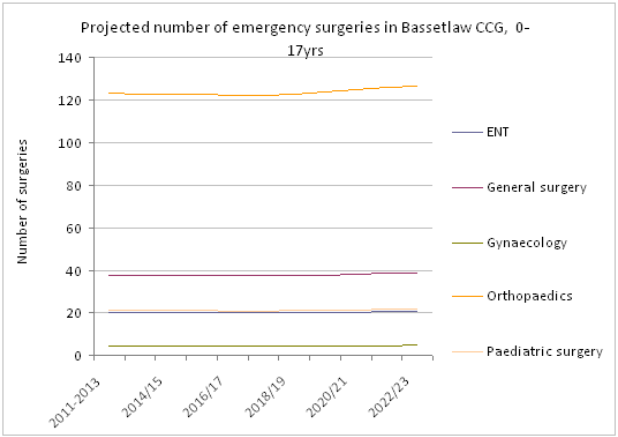
0-17yr population

Year	Population	Change
2011/12	22,500	-
2012/13	22,359	-141
2013/14	22,318	-41
2014/15	22,316	-2
2015/16	22,238	-78
2016/17	22,224	-14
2017/18	22,222	-2
2018/19	22,308	86
2019/20	22,492	184
2020/21	22,689	197
2021/22	22,870	181
2022/23	22,986	116
projected growth in 0-17 pop in 10 year period 13/14 to 22/23	2.995 %	

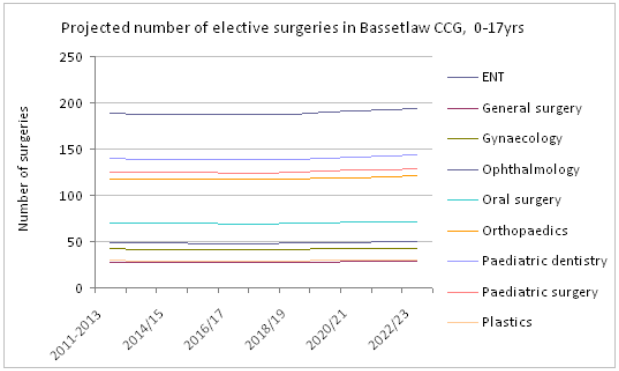


Over the next 10 years the population of patients registered to Bassetlaw CCG aged 0-17yrs is estimated to increase by an average of 44 patients per year to 22,986 by 2022/23

Emergency	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	20	20	20	20	20	20	20	20	20	20	20	0.0
General surgery	38	38	38	38	38	38	38	38	38	39	39	0.1
Gynaecology	5	4	4	4	4	4	4	5	5	5	5	0.0
Orthopaedics	124	123	123	122	122	122	123	124	125	126	127	0.3
Paediatric surgery	21	21	21	21	21	21	21	21	21	21	22	0.1
Total	**207**	**206**	**206**	**205**	**205**	**205**	**206**	**208**	**209**	**211**	**212**	**0.5**
Projected growth % 13/14 to 22/23												**3.00**



Elective	2011-2013	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Average change per year
ENT	189	188	188	187	187	187	188	190	191	193	194	0.5
General surgery	28	28	28	28	28	28	28	28	28	29	29	0.1
Gynaecology	42	42	42	42	42	42	42	42	42	43	43	0.1
Ophthalmology	49	48	48	48	48	48	48	49	49	49	50	0.1
Oral surgery	70	70	70	69	69	69	70	70	71	71	72	0.2
Orthopaedics	118	117	117	117	117	117	117	118	119	120	121	0.3
Paediatric dentistry	140	139	139	139	139	139	139	140	142	143	143	0.3
Paediatric surgery	126	125	125	124	124	124	125	126	127	128	129	0.3
Plastics	30	29	29	29	29	29	29	30	30	30	30	0.1
Total	**791**	**787**	**787**	**784**	**783**	**783**	**786**	**793**	**800**	**806**	**810**	2.0
Projected growth % 13/14 to 22/23												**3.00**



d) Other planned analysis

Flow and transfer of patients from one site to another

With the data in the format it was made available, it was not possible to conduct any analysis.

Deprivation

Similarly it was not possible to conduct any analysis of whether volume of care in a population varied according to deprivation.

Risky procedures or “risky children”

Some concern had been expressed about “risky” procedures being undertaken in some hospitals. It is not known what these risky procedures are, however. Some effort has been made (elsewhere in the Working Together Programme) to unpick some of the low, medium, high risk procedures. This incorporates diagnosis (and diagnostic uncertainty), age, co-morbidity, complexity of surgery, urgency of treatment need, availability of surgical team and supporting services (including potential need for high dependency care).

Diagnostic information is not available, thus it is impossible to make any description of underlying clinical risk; even if it were present it is considered unlikely that this would be possible with administrative data.

The descriptions of “risky” procedures (rightly) includes a number of clinical variables that are not captured adequately in any cut of the administrative data set, in addition to OCPS variables. It is thus not possible to draw any conclusions about the extent to which such “risky” procedures are occurring in any hospital.

With the available administrative data, it was not possible to conduct any analysis on “risky procedures”.

Low volume surgery – especially OOH

Linked to the above, it was not possible to describe which surgeons are doing what procedures; the extent to which there is reliance on general surgeons, or specialist paediatric surgeons, and how this varies from place to place.

Linkage

With the data in the current form, it is not possible to record link to any other dataset; for example outpatient care, ambulance use, primary care.

Such record linkage is technically possible, notwithstanding the IG issues inherent in it, and commissioners may wish to revisit this. It may be most pragmatic to generate a fresh data set.

Some of the above questions MAY be of future interest. Should CCGs or providers wish to explore these or other questions, it is recommended that a fresh dataset is procured from HSCIC. Initial thoughts on the specification of this is set out in the appendix.

6 Clinical and cost effectiveness and cost-effectiveness of services

There is little to no data available on quality or outcomes of surgical care (either proxy surrogate outcomes or patient relevant outcomes). Thus there is no commentary or conclusion in this document on that matter. This is a critical omission and should be a high priority for further discussion and investigation.

This is a difficult area, and it is important to not create an industry of data collection (that comes with expense and opportunity cost).

Complications post surgery are often used as a proxy for quality, they are an imperfect proxy. Readmission post surgical admission is often used as a proxy for complications in the absence of other routinely collected information through HES. Again it is an imperfect proxy as HES poorly registers postoperative complications. Parthasarathy [4] made a number of suggestions to improvements of the routine dataset to identify post operative complications.

Recommendation – quality and outcome recording.

It is recommended that a group of clinicians consider the issue of routine recording of quality and outcomes, the data that is readily collected now and make a proposal on the most appropriate data to use to monitor outcomes and quality. This may be superseded by a national policy agenda as the RCS are considering this issue[5].

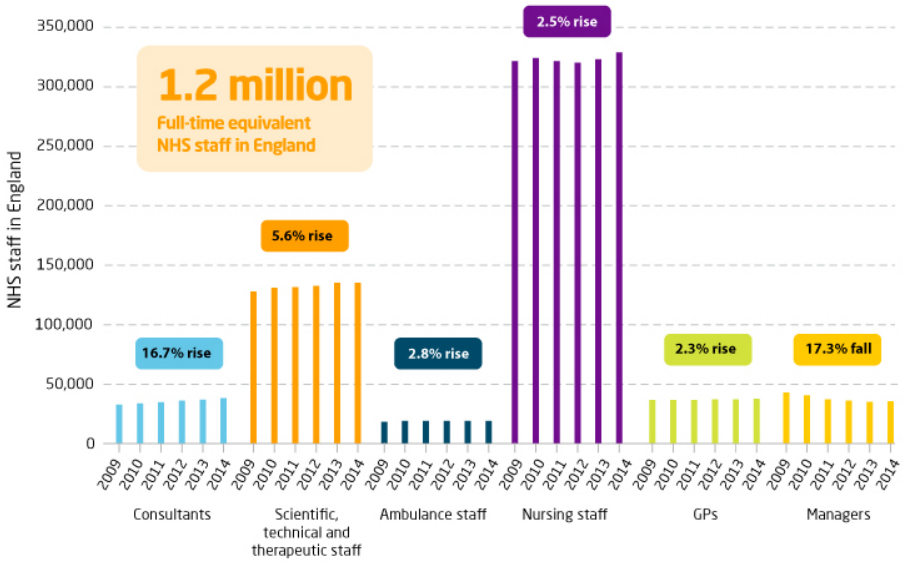
[4] Are we recording postoperative complications correctly? Comparison of NHS Hospital Episode Statistics with the American College of Surgeons National Surgical Quality Improvement Program. Parthasarathy M et al. *BMJ Qual Saf* doi:10.1136/bmjqs-2015-003932

[5] https://www.rcseng.ac.uk/media/media-background-briefings-and-statistics/measuring-surgical-outcomes

7 Workforce

a) Overview

Many have highlighted the major disconnects between strategic goals and workforce trends. Though a point that is applicable to the whole of the NHS workforce, the increase in consultant body has considerably outstripped the rise in GP and other aspects of the NHS workforce over the last 6 years[6].



Obviously this is at odds with a policy ambition of moving care closer to home and might call into question whether the balance between generalist and specialist is correct. The important caveat to this is the large data gaps in the availability of information on workforce[7].

A different model – Not More of the Same

A recent NHS Confederation document – "Not more of the same[8]" – provided some useful insights into the potential mechanisms for workforce planning might be more focused around population health need. A focus was placed on alternative professional roles. Though mainly focused on out of hospital care and especially the General Practice workforce, there may be some mileage in

[6] http://www.kingsfund.org.uk/projects/nhs-in-a-nutshell/nhs-staffing-numbers
[7] http://www.kingsfund.org.uk/publications/workforce-planning-nhs
[8] Not more of the same - Ensuring we have the right workforce for future models of care. NHS Confederation 2015. http://nhsconfed.org/resources/2014/10/not-more-of-the-same

considering the parallels to the surgical and anaesthetic workforce development plans.

Traditional workforce model	Possible alternative workforce model
Demand met by increasing traditional workforce groups, for example, GPs	Demand met by developing new roles, for example, primary care physicians' assistants, primary care paramedics
Demand-led workforce planning models	Workforce planning based on population health needs
Impact of technology, patient empowerment and wellness on workforce plans is unclear	Impact of technology, patient empowerment and wellness factored into workforce planning
Training curricula do not need significant changes	Training curricula will need changes to promote new competencies, for example, health coaching, quality improvement, understanding population health and health economics
Regulatory changes are not required	Regulatory changes are required to support specialists working within the primary/community environment
Predicated on the biomedical model with care centred around health professionals and resources	Predicated on the patient-centred model with care coordinated around the needs of communities and patients

Recommendation – commissioning input into workforce planning

Local commissioners should have input into workforce planning decisions that are under the authority of Health Education England, particularly around issues of future need, models of care, configuration of services and organizations and a population focused approach.

b) paediatric surgical workforce

Traditionally, operations on children were carried out by the same general surgeons and urologists who treated adults. The numbers have dwindled due to retirement, and surgical training has become increasingly focused on specialist paediatric surgery for rare and childhood-specific conditions. RCS reports that no general surgery trainees have undertaken the optional general paediatric surgery exams in past years.

The RCS has also expressed that many NHS Trusts have failed to prioritize paediatric surgical services, and a number of other external factors have resulted in difficulties for paediatric surgeons to travel and operate where they are needed, resulting in patients having to travel to them[9]. With regard to emergency surgery, a RCS survey found that less than half of hospitals were found able to provide an emergency general paediatric surgery service[10] and under sixty per cent (58.3 per cent) were able to offer elective surgical care in GPS despite more hospitals having the infrastructure in place to deliver it. The same survey found that a third of trusts reported that they could not anesthetize children under the age of three. Even in hospitals that reported a lower age limit for anesthesia, the provision of this service varied greatly depending on the skills of the available anesthetists.

Paediatric Surgery is one of the smaller surgical specialties, representing approximately 2 per cent of England's entire surgical workforce. The Royal College of Surgeons of England (*Surgery for Children: Delivering a First Class Service* 2007) report recommends one paediatric surgeon for every 250,000 of the general population.
The NHS workforce is the primary driver of future health costs. Given the substantial changes in population demographics and health care needs, the workforce needs to be fit for purpose. That means responding to immediate

[9] http://www.rcseng.ac.uk/media/publications/docs/general-paediatric-surgery-service-provision-survey

[10] http://www.rcseng.ac.uk/media/medianews/survey-shows-half-of-nhs-hospitals-cannot-provide-emergency-surgery-for-sick-children

needs and financial pressures while adapting to deliver the future care models outlined in the NHS five year forward view.

This requires a robust understanding of the nature of workforce pressures locally and nationally and what can be done to address them in the short and the long term.

Workforce is a critical component of the problem that has been articulated as part of the Working Together programme. Most of the Royal College and other bodies have picked this up, in addition to it being a clear and consistent theme locally, particularly around succession planning for surgeons coming towards retirement age.

One of the issues highlighted in the set up of this piece of health needs assessment was the increasingly specialised nature of training. This can leave more limited capacity, particularly for out of house general surgery.

c) Centre for Workforce Intelligence.

The Centre for Workforce Intelligence has published a number of factsheets relevant to surgery in children. These are briefly summarised in the key points raised below:

Paediatric Surgery: CfWI medical fact sheet and summary sheet – August 2011[11]

- Specific recommendations relating to medical training numbers in Paediatric Surgery in England.
- The FTE consultant workforce expanded by 30.4 per cent during the past five years (Fig 1 of the CfWI 2011 publication - based on the Information Centre (IC, 2011) census).
- **Current position** - NHS Information Centre (2011) census reports that there are 133 full-time equivalent (FTE) (133 headcount) consultant paediatric surgeons employed in England as at September 2010.

[11] http://www.cfwi.org.uk/publications/paediatric-surgery-cfwi-medical-fact-sheet-and-summary-sheet-august-2011

- **Future supply** - RCS recommendations of one paediatric surgeon per 250k pop equates to 209 FTE consultants (209 headcount, based on current participation rates) in England; or a c57% increase based on the existing number of consultants.
- Considering current supply forecasts, the estimate based on the RCS ratio will not be achieved until around 2018.
- The supply of consultants in Paediatric Surgery is forecast to increase to 240 FTE in 2020 (240 headcount), an increase of about 80 per cent. The forecast includes the withdrawal of Hewitt and Johnson National Training Numbers (NTNs) as those trainees complete their CCTs (Joint Committee on Surgical Training).
- The estimated demand for paediatric surgeons is estimated to be just overtaken by the supply late in this decade and may begin to significantly outstrip demand in the following decade.
- This balancing of supply and demand coincides with the period when most of the current doctors in training to CCT in this specialty will complete their CCTs.
- However it is also understood that there is a **decline in the number of general surgeons undertaking supplementary paediatric training** at a time when the demand for paediatric surgeons has increased.
- This change may have an impact on the future demand for paediatric surgeons.
- To avoid undersupply and delay in the progress to a more consultant-present workforce in Paediatric Surgery, **the CfWI recommended that no change be made to the current numbers in training at this time**.
- The CfWI highlighted a number of risks to any workforce planning recommendations.
- **The evidence available does not take account of changes to future service delivery models or the impact of productivity and new ways of working**, which are likely to impact on the future consultant workforce.

anaesthesia: CfWI 2015 In-depth review of the anaesthetics and intensive care medicine workforce[12]

- This study looked ahead 20 years to 2033, to assess whether under four different scenarios there is likely to be a balance between patient demand and workforce supply.
- Under each extreme but plausible scenario considered, patient demand could outstrip workforce supply.
- Baseline demand – which is based on population growth and demographic changes alone – is projected to increase by 25 per cent. This means CfWI modelling projects the number of anaesthetist and intensivist CCT holders in A&ICM would need to rise from approximately 6,100 to approximately 7,600 full time equivalent (FTE) from 2013 to 2033.
- CfWI has presented a series of suggested measures for commissioners to consider that could help to bring patient demand and workforce supply into balance in the future.
- The CfWI **suggests that HEE consider continuing to fill the current number of higher specialty trainee (ST3) posts for anaesthetists and intensivists in England to minimise the risk of short-term undersupply**.
- The CfWI proposes that HEE consider looking at working with commissioners and the relevant specialties and professions, and consider ways in which **changes to the clinical skill mix might help manage the increasing perioperative role**.
- Anaesthetists are becoming more involved in the pre- and postoperative care of patients as well as intraoperative care. **One option to manage the increasing perioperative role would be to train more physician associates/assistants – anaesthesia (PA(A)s) and advanced critical care practitioners (ACCPs) while there is a plentiful supply of CCT holders, so that they have the opportunity to learn as well as deliver service, with a focus on complex decision-making**.

[12] http://www.cfwi.org.uk/publications/in-depth-review-of-the-anaesthetics-and-intensive-care-medicine-workforce

d) Local workforce data

For both the surgical and anaesthetic workforce it is not known (to BMDC) whether the national CfWI data rings true locally. There is ample soft intelligence that there are very immediate and pressing issues in the medical workforce, particularly around the ability to maintain OOH rotas.

As part of a broader census for information from each trust, a set of workforce data was collected. Each trust was asked to complete a template for every specialty. One of the tabs included in this was about workforce – a stipulation of the template was that it should only be relating to staff that care directly for children.

It is not possible to comment on the completeness or quality of this data set. This is particularly so when there is a significant headcount of consultants in a particular specialty at one hospital, but zero recorded in another – for example there are 20.5 WTE consultant anaesthatists receded in Rotherham hospital, 19.4 in SCH and none in MTY. There are also discrepancies between headcount and WTE, and some annotations regarding whether particular portions of the workforce are solely devoted to paediatric work. In addition the way in which different divisions and specialties had been coded varied across each of the trusts. For example: “general surgery #1”, “general surgery #2” – how this should be interpreted and whether 5 trusts interpret this in the same way is not clear. This calls into question the validity of the data.

For the above reasons it is not valid to combine these datasheets to give a picture of the workforce across the whole geography.

e) General issues

It is unknown whether the CfWI recommendations carry weight and hold true locally. Nor is it clear whether the data that the CfWI hold on workforce are robust. The CfWI data does not take account of changes to future service

delivery models or the impact of productivity and new ways of working, which are likely to impact on the future consultant workforce.

The extent to which (current and) future workforce challenges can be solved with networks of care is unclear. To maximise productivity there may also be a need for a sustained focus on issues such as:

- training numbers, including the time requirements for consultants to train STs,
- succession planning,
- skill mix development across medical and non medical workforce,
- Possibly extending the roles of professionals not currently involved in surgical care pathways.

Obviously that would have knock on consequences elsewhere.

Recommendation – workforce census.

Given the very limited data about the medical (or other) workforce, with little available beyond informal intelligence and anecdote, but the widespread acknowledgement that future workforce intelligence and planning is a high priority, it is recommended that a full census is undertaken. This should include issues such as skill mix and the interface between generalist and specialist clinical skills.

8 Evidence and recommendations of Royal Colleges and similar

This section offers a brief summary of some of the key points raised through Royal College and similar bodies. There are a number of highly relevant planning documents. Only summaries of the key points are raised here. Some of these might have already been considered through different parts of the Working Together programme.

A rapid evidence synthesis of readily available evidence and papers on service models and transformation was undertaken. This was principally Royal College recommendations, but a range of other evidence was sought.

The documents considered are set out below. Key points are appended:

a) RCS - Ensuring provision of Paediatric Surgery in DGH - 2010
http://www.rcseng.ac.uk/publications/docs/general-paediatric-surgery-guidance (often referred to as the Teddy Bear document)
Advice for commissioners –
http://www.rcseng.ac.uk/surgeons/surgical-standards/docs/General%20Paediatric%20Surgery%20Guidance%20for%20commissioners%202010.pdf/at_download/file

b) RCS – Children's Surgical Forum. Surgery for Children. A first class service (2007)
http://www.rcseng.ac.uk/publications/docs/CSF.html

c) Standards for Children's Surgery Children's Surgical Forum. RCS 2013
http://www.rcseng.ac.uk/publications/docs/standards-in-childrens-surgery

d) RCS emergency surgery standards for unscheduled care. 2011
https://www.rcseng.ac.uk/publications/docs/emergency-surgery-standards-for-unscheduled-care

e) RCS. 2015. Standards for the non specialist emergency surgical care of children. http://www.rcseng.ac.uk/news/consultation-on-standards-for-non-specialist-emergency-care-of-children#.VVwzyJK9KSP

(these are DRAFT standards for now, this is an active consultation process)

f) RCS Good surgical Practice. 2014 http://www.rcseng.ac.uk/surgeons/surgical-standards/professionalism-surgery/gsp/gsp

g) RCoA – Guidelines for the provision of anaesthetic services. 2015. www.rcoa.ac.uk/gpas2015

h) The Royal College of Paediatrics and Child Health. *Facing the Future: Together for Child Health*. http://www.rcpch.ac.uk/improving-child-health/better-nhs-children/service-standards-and-planning/facing-future-together-c-1

i) NCEPOD. Are we there yet (2011) http://www.ncepod.org.uk/2011sic.htm and http://www.ncepod.org.uk/2011report1/downloads/SIC_fullreport.pdf

j) NHSE - Commissioning safe and sustainable services

k) Scottish review. Better Health, Better Care: National Delivery Plan for Children and Young People's Specialist Services in Scotland. Scottish Government review of paediatric care http://www.gov.scot/Publications/2009/01/16113840/0 specifically section 7 of the follow up report. http://www.specialchildrensservices.scot.nhs.uk/Documents/org00005.pdf

l) Other literature

It is assumed that there is a separate workstream defining what “good” looks like with respect to surgical models of care.

For brevity, the summaries of key documents reviewed are appended.

Recommendation – Royal College Standards

It is recommended that ALL of these RCS and similar documents are considered together as service models are considered and developed

It is unknown the extent to which the currently agreed YH Standards are in line with the available Royal College and similar advice. There may be benefit in updating the locally agreed standards, This should be considered by both clinicians and commissioners.

9 Service design and reconfiguration – evidence and options.

This section sets out some potential options for service models. It is based on a rapid review of available literature, & RCS and other standards. It doesn't purport to be a comprehensive review of potential models. Given that the Working Together Programme is already focused on a large multiple Trust / multiple CCG population, the emphasis here is on networks of care. This chimes with the recommendations of Royal Colleges and other bodies. Given that changing the service model may require reconfiguration, this section also sets out some of the available evidence around reconfiguration.

a) RCS

The 2007 RCS standards[13] highlighted the desirability of care networks and an expectation that commissioners should ensure this happens. The standards highlighted that complex care should be centralised, day surgery where possible should be maximised, "Occasional practice" should be viewed as undesirable – esp if elective. Arrangements should be in place for the critically ill in any unit. Robust transfer arrangements should also be in place – in and out of hours. Finally the RCS set out a view that the number of specialist paediatric surgeons should be increased

In 2013, the RCS[14] reiterated the expectation that the majority of children's surgical services should be designed and delivered as part of an appropriately resourced network that works closely with clinicians from all disciplines and with commissioners, for the benefit of children and their carers. The network must have a clear governance infrastructure and refer to national standards and outcomes of care. There should be an identified clinical network lead. There must be regular (at least annual) network review of patient outcomes and experience. From a CCG point of view the RCS suggest that a network is supported by contractual agreements that specify service requirements and outcomes and has appropriate administrative and financial resources. The

[13] http://www.rcseng.ac.uk/publications/docs/CSF.html
[14] http://www.rcseng.ac.uk/publications/docs/standards-in-childrens-surgery

network will therefore need to work closely with commissioners regarding objectives and work plans. Section 6 of this 2013 publication sets out the standards in detail, including detailed standards and suggested measurement criteria in each of 5 domains – Configuration / Governance & leadership / Education and training / Patients and families / Delivery and environment of care.

In May 2015 RCS set out a consultation on proposed standards for emergency non specialist surgical care. As this is a consultation document we have not provided any detail on the contents here. However, it is an important development and must be fully considered once the consultation is completed and the final standards are published.

The contents cover the following areas

Contents

Recommendation – 2015 Consultation on emergency care

CCGs should consider contributing to the consultation.
http://www.rcseng.ac.uk/news/consultation-on-standards-for-non-specialist-emergency-care-of-children#.VVwzyJK9KSP

b) Scottish Model - Models suggested in the Scottish review of services for children

Section 7 of the 2009 Scottish Government Document[15] sets out considerations around models of care for children. This was a report about the totality of children's care, rather than just surgical. However the general themes are pertinent. These are briefly laid out below:

Joint Regional Appointments

- A specialist surgeon has a dual appointment between a specialist hospital and another centre
- Already exists (Lothian & Tayside / Liverpool.
- provides in-house support for the nonspecialist staff and improves training opportunities.
- facilitates communication with specialist centres and allows earlier repatriation of complicated children into their own locality with options on local follow-up.
- potential is for general upskilling.
- Increased travel – cost and lost clinical time.
- lack of a 24/7 emergency cover of a consistent level,
- administrative difficulty in managerial terms of creating a job "shared" by different budget holders with possibly differing levels of commitment to that appointment.
- Organisational clinical governance arrangements need to be absolutely clear.

[15] http://www.specialchildrensservices.scot.nhs.uk/Documents/org00005.pdf

- crucial that this post is in addition to staffing complement of the specialist centre, since withdrawal of an existing slot will weaken that specialist base.

- May suit a policy of fusion of local and regional planning – meeting the mutual ambition of separate employers.

Specialist Out-Reach with Local Lead

- Both elements of this model are important, as it tends to focus strongly on the elective component alone, leaving emergency provision as a very separate set of problems. This would need careful thought.

- A way to provide specialist presence and specialty support for a non-specialist unit.

- Such an arrangement is helped by geographic proximity of the "recipient" unit to the "donor" unit.

Network of DGHs

- The lead children's surgeons of each DGH in an area form a network which provides continuous availability of clinical expertise.

In-House Lead General Surgeon

- This is a model currently deemed unsatisfactory in that the continuation of the same type of care would appear to be problematic.

- As a model of service delivery, it is in itself entirely appropriate, but the difficulties besetting succession on account of the changes to preparatory training would appear not to favour this way of providing service – at least in the short-term.

DGH Specialist with inreach to specialist centre

- The appointment of a paediatric surgeon to a large DGH with elective clinical sessions in the specialist hospital might be a model which appropriate for specific locations.

- This would cater well for elective surgery and share the same limits for emergency surgery as the other models, but for the fact that the surgeon would be able to provide a rostered emergency cover for children in the DGH if he/she so wished, and a purely elective service in the specialist centre.

Tiered Levels of Care

- At its heart this is simply a method of grouping age, complexity of condition, and available facilities and support, into categories which may allow hospitals to determine their current and future service strategy.

- It was suggested such tiering may help direct a planning process to areas where there is either sufficiency or inadequacy of resource for the population.

Joint appointment to several hospitals

- This allows a single surgeon to support more than one district general hospital when these are suitably located geographically.

Joint specialist/non-specialist working

- The combination of a local General Surgeon with an interest and a joint appointment Specialist Surgeon

- With good communication and working relationships, local standards are maintained at specialist hospital level, a permanent ‘paediatric surgical presence’, directly or indirectly, is provided in the DGH,

communication channels between other adult general surgeons looking after children and paediatricians, and between the DGH and Specialist

- Hospital are facilitated and formal and informal paediatric surgical CPD can be a regular feature for surgical and paediatric staff.

c) NW England – Dr Anne Hoskins presentation to the NCEPOD conference following the 2011 report.

Three issues led to the establishment of the networked model

- year on year increase in children being referred to children's hospital for surgery
- limited no of procedures being carried out by surgeons in some DGH
- Different models of paediatric surgery care and networks across the northwest.

The NW SHA led the development of a paediatric surgical network - region wide. This included a network director with support and the network had a core role around establishment and monitoring of standards and performance. There was alignment with the quality observatory.

The network role is to

- set standards
- monitor and evaluate
- define what surgery being undertaken and timing
- explore concentration of services across network (some specialise in x, some in y)
- education and competency maintenance

d) Hub and spoke – networks. McNally / SW England

Ideally a hub and spoke model, with surgical centres drawing patients from surrounding centres, allows the NHS to accurately redistribute its resources and manpower according to the need to create equality. McNally[16] made a clear recommendation for a paediatric surgical provider network across SW England.

This followed an external Review of General Paediatric Surgical Services in the South West in 2008. That review recommended retaining the existing service model - “hub & spoke” but to strengthen it by the creation of a Paediatric Surgical Network.

Tertiary centre

- Tertiary Paediatric Surgery Department at Bristol Royal Hospital for Children (BRHC), 4 paediatric surgeons and 2 paediatric urologists.
- The tertiary centre provides 24 Hour Emergency Service supported by a NICU, PICU and full range of paediatric specialists
- The tertiary centre clinicians doesn’t routinely operate in DGH (large geographic footprint across the SW)
- “Hub & spoke” model with outreach clinics throughout region
- Neonatal and Paediatric Retrieval Teams
- BRHC always available for consultation/backup

General Paediatric Surgery in the ten DGHs in SW England

- general surgeons and/or urologists with an interest in paediatric surgery perform general paediatric surgery of childhood
- Elective surgery: inguinal hernias, hydrocoeles, palpable undescended testes, umbilical hernias, circumcision

[16] https://www.rcseng.ac.uk/surgeons/supporting-surgeons/regional/docs/janet-mcnally-session-2

- Emergency surgery: appendicitis, pyloric stenosis, acute scrotum, intussusception & incarcerated hernias in some hospitals

- There are no specialist paediatric surgeons in the DGH's in the SW.

The network is intended to strengthen collaboration between DGH's and specialist paediatric centres, to move care closer to home where possible, to ensure timely succession planning for key clinicians and ensure high quality training and to ensure good quality audit of outcomes.

The network has developed 60 standards for Paediatric surgery with the involvement of all DGH and the specialist centre. There is an ongoing programme of self assessment against these standards. The network has strong paediatric anaesthetist support, a strong nurses forum and has been felt to improve collaboration and engagement between sites.

The presentation highlights that some fundamental issues such as succession planning have not yet been solved, and there is a sense of less responsibility to local population.

Being watchful of potential dangers of hub and spoke.

There is a body of evidence that patients have a better survival if their operation is in a high-volume surgical centre. It should be noted that this observation is highly procedure specific. There is research (for eg lung cancer surgery[17]) showing that patients first seen at a surgical centre are more likely to have surgery than patients who were not first seen in a non surgical centre.

A 2015 study in Nottingham[18] tested a hypothesis of whether surgical patients first seen in the "hub" of a hub and spoke model were more likely to receive surgery than patients first seen in a "spoke". **The hypothesis was proven; the study concluded that surgical centres that serve the largest catchment populations have high resection rates for patients first seen**

[17] Thorax 2011;66:1078–84.
[18] Khakwani A, et al. Thorax 2015;70:146–151.

in their own centre but, in contrast, low resection rates for patients first seen at the surrounding centres they serve.

The Khakwani study demonstrates the need to ensure that service design facilitates all patients, including those first seen at non-surgical centres, to have equal access to surgery. The study has highlighted the key role that the surgical centres with large catchment populations can play in improving the surgical resection rates in England and the need to provide equal access to this service. Obviously this was research done in the context of adults and lung cancer, perhaps a generalisable point was that if a hub and spoke model is adopted, attention will be required to patients seen in the spoke centres getting equitable care.

e) Monitor – 2015. International Models of Acute Care

Monitor[19] recently published a document exploring some international models of acute care and other potential service innovations.

This explored a number of potential models for future service design and configuration. Many of these were well beyond paediatric surgery, but the general lessons are applicable.

Networks, transfers systems and protocols

- **The most important enabler of the tiered system was the use of networks, facilitated through shared clinical governance and formal patient transfers and protocols**. However, the degree to which networks are used locally to optimise care delivery varies considerably.

Standards, protocols and risk tiering

- **This is particularly common in maternity care, but obviously has implications beyond this**. One of the challenges to tiering in maternity is identifying patients who shift from low to high risk during a care episode. The importance of clearly defined networks and protocols for the support offered by higher risk units, the communication between units to notify of risk changes, and patient transfer or the transfer of staff in, should a greater degree of risk tiering be introduced in the NHS. This has obvious implications if care for a population is shared across many providers in a network of care.

- Matching clinical standards to risk tiers is important; given the important role clinical standards have in driving service design. There will be issues in ensuring that the NHS regulatory regime supports any networked model.

[19] Exploring international acute care models. Monitor 2015

Links between surgery, paediatrics and primary care and a shared electronic record, which links almost all paediatric providers.

- This may have length of stay advantages[20] and may facilitate faster decision making, reduced duplication of testing, better chronic disease management and safer transfer and hand offs.

Exploring the scope for increasing the use of technology to improve efficiency and patient outcomes within the NHS.

- Technology may enable care to be delivered remotely. For example, the Monitor report found use of electronic intensive care units (eICUs) in the USA. In the US system, spoke sites are supported to provide intensive care services through an eICU hub site. The system uses two-way cameras, video monitors, microphones and a smart alarm connected by high speed data lines (annex 14 to the Monitor report)

- This type of system has also been shown to work for other services such as stroke and dermatology. Obviously the cost of the technology and the benefit it would yield are important return on investment questions, as are ensuring high clinical engagement, shared clinical governance and responsibility arrangements.

Different approaches both to employment arrangements and the use of specific roles.

- **Employment arrangements for clinicians can give providers more flexibility. Credentialing across many sites, admission rights at multiple hospitals.**

- Examples of this contractual model exist in France, Germany, US, and Canada. This may provide greater flexibility to the acute providers for ensuring sufficient clinical cover in and out of hours. The flexibility offered by group practice arrangements may enable clinicians to look

[20] Kahn, J.M. (2011) 'The use and misuse of ICU telemedicine', JAMA, 305 (21), 2227–28

after higher volumes of patients across a wider geographical area within a specialty, and so enable better skill development opportunities.

The NCEPOD 2011 Report picked up on this theme and used the phrase **NHS Passport as a means of facilitating Cross-site work** and enabling flexible movement between hospitals for short-term work. This would enable cover for emergencies and absences in short notice and ensure support for clinicians to extend and reinforce their skills

Different role definition could also allow for greater flexibility.

- **Exploring the notion of "practicing at the top of licence"** and transferring responsibility to a cheaper resource – **nurse / doctor substitution etc.**

Obviously these are not new concepts. It is unknown the extent to which they have been explored locally. These specific examples should necessarily be taken forward in the NHS, especially where they do not reflect the direction of travel locally. However, it does suggest that in service lines there may be some scope for thinking creatively.

f) Existing YH standards

It is understood that local clinical standards exist for paediatric surgery already exists but are not enforced. It is also understood that in phase one of this work some gap analysis was undertaken against each of the agreed surgical standards:

- 1:Specialist Surgical Units
- 2: Inpatient General Paediatric Surgery at a Non-Specialist Centre
- 3: Day Surgery
- 4: Emergency Surgery
- 5: Age threshold for transfer to tertiary centre
- 6: Networking
- 7: Audit Activity
- 8: Parent Carer Participation and Voice

Phase 1 of this programme included A self-assessment of providers against core standards for children surgery and anaesthesia. This was backed up by a series of one to one validation meetings with each provider and a series of clinical workshops with provider organisation; clinicians and mangers to gain consensus of the issues, understand willingness to work differently across working together and identify high level new clinical options.

This self assessment confirmed that there is variation in providers ability to meet core standards; variation in thresholds for referral; significant and very real workforce challenges within DGHs which are unsustainable in the short, medium and long-term.

The first phase of this work identified issues of quality and safety and concluded that to achieve the standards of service for children will mean transformation of current service models.

g) Reconfiguring services – what does the evidence tell us

Regardless of any future model, the Five Year Forward view sets out a vision that future reconfiguration will be necessary.

There is a gradual shift of the rhetoric about the future of hospital care (for eg the RCP Future Hospital Initiative, the Five Year Forward view). This shift of rhetoric is away from the “all-or-nothing” approach to the future of acute hospital care towards hospitals that are more integrated with primary and tertiary care.

Achieving the recommendations of the Royal Colleges and other bodies may not be possible with the current (and potential future) workforce and growing need. Some service change may be required. Obviously exploring options for this is the fundamental point of the Working Together programme.

This section is a very superficial overview of the available evidence on potential service design options for the future. It is based on experience and some (but by no means all) of the available evidence.

Much of the available literature pertains to whole hospital type reconfiguration rather than specific bits of a hospitals business. A great deal of the literature on reconfiguration is drawn from overseas, where the underpinning system and cultures are different. Finally much of the available literature relates to adult services rather than paediatric care. Some judgement and care is therefore required in interpreting available evidence.

Why Strategy Matters Now

Porter and Lee recently set out the five key questions on strategy[21] that all provider organisations (and payers) might ask. The conceit to this piece that as funding gets tighter, providers can rely less and less on tariff income covering costs and thus different models are needed. Success in the future

[21] Why Strategy Matters Now. Porter M, Lee T. N Engl J Med 2015; 372:1681-1684April 30, 2015 DOI:0.1056/NEJMp1502419. http://www.nejm.org/doi/full/10.1056/NEJMp1502419

will require a relentless focus on populations, value and systems; and not on simply maximising volume. Good operational performance remains important but new models are needed.

Porter and Lee suggested six questions of some importance to providers and networks of providers – these are set out below, based on the NEJM article but adapted slightly for the purposes of this work in South Yorkshire.

An important précis to these six questions is the notion of what IS the organisation – is it individual provider or a network of providers.

1 "What is our goal?"

Considering the organization's fundamental purpose and definition of success.

Is the organisation the primary concern or the broader system.

2 "What businesses are we in?"

volume, outcomes, value.

Increasingly value for the population (treated and untreated) will be seen as important. What does this look like in the context of surgery for a population of c500,000 people aged 0-17, in the broader context of paediatric care.

3 "should our scope should be narrowed or broadened"

what set of conditions and patient populations should we compete in?

Can we meet every need of every patient in our catchment who is referred for treatment.

Should we specialise.

Should we collaborate with other providers to specialise in mutually beneficial areas.

4 "In every business where we choose to compete, how will we be different?"

what is our unique proposition.

Can we and should we compete for customers. Might this lead to price or quality erosion and poorly utilized capacity.

Should we develop managed networks across all our capital in the population we serve.

In Porter and Lee language this would be an integrated practice units (IPUs). These were first set out in the HBR article on “the Strategy that Will Fix Health Care”[22].

5 “What synergies can we create across our existing business units and sites?”

All complex organizations require strategies at two levels — for each business unit and for the overall corporation.

larger multisite organizations can amplify patient value through system integration.

Condition-level strategies and system-level strategy should go hand in glove.

Can we sweat our capital assets and make the most of available human labour by collaborating across multiple organisations the collectively serve a larger population.

This may require difficult choices about which unit will specialise in certain forms of care to eliminate duplication and “excess” capacity; inherent in this is shutting down some sites, and shifting care to lower-cost settings. This will require us to confront issues of ego and politics.

6 “What is our appropriate geographic density and scope?”

Does the system have the appropriate concentration and types of services and sites?

Would establishing off-site ambulatory care locations enhance value?

[22] https://hbr.org/2013/10/the-strategy-that-will-fix-health-care

Does the organization's geographic footprint maximize value? How broad a region is needed to assemble the volume in a particular condition required to achieve superior value for patients? Are mergers necessary to build the needed volume, or should the organization expand through partnerships and affiliations?
Such decisions must always revolve around increasing value, rather than revenue alone.
Expanding, merging, and partnering are not strategies, but potential tools for improving value at the condition and system level

Porter and Lee suggest these six questions are interdependent, and the choices must reinforce each other. Making difficult choices should be with the primary goal of value and sustainability not cost control.

General points on the evidence around reconfiguration

Those NHS hospitals are under mounting financial pressure and face a major productivity challenge is well documented. A common belief is that the reconfiguration of hospital services, primarily through rationalising services across sites and shifting services into the community will help resolve these pressures.

Monitor has expressed a view[23] that "*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*". It is of note that little evidence is put forward in this Monitor document to support this.

Imoson 2015

Perhaps the best evidence that is currently available is the 2015 Imoson NIHR study[24] on service reconfiguration based on the experience of the NCAT.

[23] https://www.gov.uk/government/publications/closing-the-nhs-funding-gap-how-to-get-better-value-healthcare-for-patients
[24] 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. Health Services and Delivery Research. Vol 3 (9) March 2015 and The reconfiguration of clinical services - What is the evidence? Kings Fund. Imoson Nov 2014

There are three sections of this study of direct relevance to the Working Together Programme - elective surgical care; emergency care, including surgery; and paediatrics. The NIHR study chimes will with a broader body of evidence on reconfiguration.

The study neatly summarises the available evidence on reconfiguration of health care at service and system level, using a number of clinical areas that are the most common targets of reconfiguration.

The key points raised in the Imoson study can be summarised as follows:

- 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.

- 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.

- 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.

- This study found no evidence to suggest that major reconfiguration 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 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.

The Imoson study found strong evidence that some specialist service reconfiguration (for example vascular surgery and major trauma) can significantly improve clinical outcomes.

There is obviously a wealth of information about the benefits and dis-benefits of reconfiguring services that is not picked up in the Imoson study. One might characterise some of this as opinion rather than evidence. There are a number of major evidence gaps that the Imoson neatly highlights. Chief of these is the hypothesis that reconfiguration will save money, from any perspective. The evidence doesn't bear this out – either through centralising hospital care or replacing them with community services.

Imoson finds that there is good evidence to support the centralisation of many specialist services. There is a clear evidence base underpinning the volume / outcomes hypothesis in many surgical interventions – however this is often procedure specific and there isn't the evidence to generalise from a procedure to a sub speciality. It is also highlighted that the benefits often rely on much more than a simple link between volume and outcomes. The ways of working within and across specialties can be just as important (a message that is true for all services, specialist or not).

Workforce is the other most often cited main driver for service change. The desire to move from a consultant-led to a consultant-delivered service. While there is strong evidence to support the benefits of more consultant-delivered care, particularly for high-risk patients, there is little evidence to say how many senior staff are needed, of what type and for what time periods.

A Bristol analysis in 2012[25] examined whether this promise of large scale reconfiguration led to improvements in care. Between 1997 and 2006 in England a significant number of general hospitals were involved in a merger. The study examined the impact of mergers on a large set of outcomes including financial performance, productivity, waiting times and clinical quality. The study found little evidence that mergers achieved gains other than a reduction in activity. It was concluded that further merger activity may not be the appropriate way of dealing with poorly performing hospitals.

Wider evidence base

The Bristol study concluded that mergers did reduce available capacity, they had little or no impact on clinical quality or productivity. They also appeared to deliver some negative outcomes, such as increased treatment waiting times and a decline in financial performance post-merger.

Fulop[26] conduced in depth interviews with ninety six senior staff in 13 organisations involved in reconfiguration to explore the impact of mergers and the effect on management costs. The study found a number of negative consequences of large scale service change, including loss of management focus, delayed (or non) implementation of developments and difficulties in merging very different cultures. There was limited evidence of any cost savings.

These may be issues of poor execution and implementation, poor match between perceived benefits and actual effect or other untested factors at play.

A recent JAMA editorial[27] pulled together some evidence from the USA on hospital consolidation and concluded that larger size is neither a necessary nor sufficient condition for hospital systems to trim waste and enhance quality. In fact, studies show that greater competition, not consolidation, is more likely to hold down costs and lead to better care.

[25] Can governments do it better? Merger mania and hospital outcomes in the English NHS. 2012. http://www.bristol.ac.uk/media-library/sites/cmpo/migrated/documents/wp281.pdf
[26] http://www.bmj.com/content/325/7358/246
[27] Hospital Consolidation Isnt the Key to Lowering Costs and Raising Quality. Frakt. JAMA. 2015;313(4):345. doi:10.1001/jama.2014.17412.

Tsai and Jha[28] argue that quality improvement comes not from size, but from leadership. Smaller institutions can implement inexpensive but highly effective quality improvements, such as surgical checklists, as well if not better than larger organizations can.

Though not an issue in the UK on account of national tariff, a 2012 evidence synthesis[29] found that larger consolidated providers led to higher prices and a greater concentration of provider power.

The extent to which these lessons are transferable from macro service change to any change in paediatric surgery service models of pathways needs careful thought.

Recurring themes in the literature on reconfiguration

There are some recurring themes in the literature on reconfiguration drawn from across the world. These are:

- Reproviding services is expensive – we don't understand the economics of alternative models of care, particularly "community care", we should build the transition and implementation costs of any reconfiguration into the estimation of costs and benefits.

- Reconfiguration doesn't always mean fewer staff – the extent to which reconfiguration of surgical care will reduce demand / need is unknown. When combined with a move to 7 day care, it is likely to require the same or more staff.

- Bigger doesn't mean cheaper - The available evidence suggests that the optimum size of a hospital in terms of releasing economies of scale is only 200 beds – about half the size of a small District General Hospital (DGH) – and that when a threshold of about 650 beds is reached diseconomies of scale begin[30].

[28] http://jama.jamanetwork.com/article.aspx?articleid=1884584
[29] http://www.rwjf.org/en/research-publications/find-rwjf-research/2012/06/the-impact-of-hospital-consolidation.html
[30] http://www.euro.who.int/__data/assets/pdf_file/0020/108821/hosbrief170202.pdf

- There is also no clear evidence to suggest that, as the range of services a hospital offers expands, the cost per unit reduces (so-called economies of scope)[31].

- Monitor, concerned that smaller hospitals may be financially disadvantaged, have not found any correlation between trust size and financial performance[32].

- Reconfiguration can lead to financial failure - Finally, the reconfiguration of clinical services can present a governance and performance risk and be a contributory factor in financial failure[33].

Reconfiguration and the Working Together Programme

It seems accepted that status quo is not an option. It seems accepted that the further development of a managed clinical network is a definite direction of travel. Whether that would require provider level reconfiguration is not clear.

The drivers of any reconfiguration should be set out very clearly, and many have argued that the "technical" case for change is often considerably less important than winning the trust of non NHS stakeholders.

It seems clear that the key drivers to this programme are not necessarily about cost, but are about ability to provide safe surgical care services to children in South Yorkshire and surrounding areas; to maintain safe staff cover, especially out of hours and across multiple sites.

The main options for this seem to be managed clinical network with no real change to organisational infrastructure, hub and spoke mode (with or without lead provider contracting) , tartan model .

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[31] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/303160/Monitor_Economies_of_Scale_and_Scope_-_FINAL_REPORT_0_0.pdf

[32] https://www.gov.uk/government/consultations/challenges-facing-small-acute-nhs-hospitals

[33] http://archive.audit-commission.gov.uk/auditcommission/nationalstudies/health/financialmanagement/Pages/financialfailureinthenhs.aspx.html

Any significant service change is likely to be resisted (by commisisoners and providers, who may choose to focus on here and now operational problems).

These are not necessarily mutually exclusive. Within each potential configuration there are a number of service level innovations, some of which are highlighted in this report

If a hub and spoke model is adopted there may be a necessity to define issues such as age and other cut offs that would define the criteria for referral to a specialist in a specialist centre. Similarly network agreement would be needed on determining for example that all elective work should be done at the specialist centre with emergency work being undertaken in a spoke; or whether this might apply to children under a certain age. Specialist advice would be needed in determining how to arrive at such cut offs.
There may be barriers to networks – such as:

- a competitive environment and commercial relationships between providers
- a lack of financial support outside the boundaries of a single provider (the trust board or the CCG is the statutory body – thus ultimately the body which will carry responsibility)
- Rigid contractual arrangements

This would need to be set against much of the available evidence that suggests managed clinical networks MUST be

- An interconnected system of providers
- Not limited by boundaries
- Multidirectional flow (not hub & spoke)
- Contractual agreements specifying service requirements and outcomes

The predilection of the current surgical and anaesthetic workforce, or provider trusts, towards any significant service change or network development is not known. Similarly the predilection of the public is not known.

The implications of any reconfiguration should be considered as broadly as possible. For example impacts on travel times and costs, family life, social services, district nursing, language support and schooling provision. It may be useful to consider these separately for inpatient care and follow-up/outpatient care.

Recommendations – networks, standards and models of care, reconfiguration

Networks of care are recommended almost universally. It is recommended that the established and developing clinical standards (RCS, RCoA, NCEPOD and other recommendations) are used, as the basis for this formal establishment of a formal managed network.

There may be resource, clinical, workforce planning, service and provider configuration issues to consider. Many aspects of a managed network can be established with no reconfiguration.

No specific recommendations are made about service configuration, as this is the point of the Working Together Programme. The two main viable options are the hub and spoke model (lead provider or current contracting framework) or the tartan model (some specialise in x, some in y).

A number of innovations around the network of care are possible. Some of them are set out here. These should be considered on their merit. For each potential innovation the key questions are:

- **What are the potential benefits of these model**
- **What are the potential risks, limitations and trade-offs? Trade off between choice / travel time and ability to maintain safe cover.**
- **What incentives or rules would be needed for these models to work across local (or even regional) health economies and across different types of providers?**

10 Summary and recommendations

It is widely reported that surgery for children faces a future skills crisis and that the current model of surgical and anaeshtetic care is not sustainable. Providers and commissioners have agreed to work collaboratively on areas where there is mutual agreement on a shared priority – surgical care is one of these areas. This health needs assessment was commissioned to as part of the second phase of the Working Together Programme. The principal objectives at the outset were to make some projections about future need for surgery and to answer a number of analytic questions. With the data available it was not possible to answer all of the questions that were set out.

This report sets out an assessment of current and possible future need for surgical care, based principally on CCG level data. The footprint is as per the Commissioner side of the working together programme.

The number of conditions requiring surgery is large. There is not a reliable indicator of need for all types of surgical care, and for specific conditions, diagnoses of groups of patients there isn't readily available epidemiological data to assess incidence or prevalence. Population and activity are thus used as proxies of need.

This has mainly been a desktop exercise, pulling together available demographic data, activity data and available evidence or recommendations on "best practice". There has been no contextualisation with clinicians or service providers. This was a function of available resources for the HNA and an assumption this was being undertaken within the Working Together programme. That this contextualisation hasn't happened is a flaw of this HNA.

Questions addressed –A number of analytic questions were considered, these are set out in section 3

Data sources and methods - Section 4 sets out the data used and the analytic methods. The data used is provider and CCG level administrative data on activity, and ONS and other data on populations. These come with significant weaknesses and caveats. These are set out in full in section 4.

Analysis - section 5 sets out an analysis of available data. This is in three parts. Part a gives a description of surgical activity for children aged 0-17 in one year, across all providers giving some insight into the nature of workload going through the theatres. Part b gives an analysis of the per capita level of activity across the CCGs. Part c gives a projection of activity at CCG level out to 2022, this assumes that the baseline years for which activity data is available is representative and that growth in activity is driven by population.

Importantly It was not possible to draw any conclusions about flow of patients and or transfers of care with the available data; nor is it possible to make any comment about “risky” procedures. Some of the questions may be answerable; to undertake this would require the procurement of a fresh dataset from HSCIC.

A number of specific questions are explored in detail. It was not possible to answer all the questions we had set out to answer at the outset.

Effectiveness and cost effectiveness of services - Section 6 is incomplete. It is a section about the effectiveness and cost effectiveness of services. However, given that the administrative data readily available to describe activity doesn’t have any outcome measures, it is not possible to make any comment about quality and or outcomes of care with the available data. Thus it is not possible to comment on effectiveness or cost effectiveness.

Workforce - Section 7 sets out some information on workforce, a core concern of the programme. Many have highlighted the major disconnects between strategic goals and workforce trends. The important caveat to this whole section is the large data gaps in the availability of information on workforce.

The key points of recent Centre for Workforce Intelligence reports are set out. It is unknown whether the CfWI recommendations carry weight and hold true locally. Nor is it clear whether the data that the CfWI hold on workforce are

robust. The CfWI data does not take account of changes to future service delivery models or the impact of productivity and new ways of working, which are likely to impact on the future consultant workforce.
The extent to which (current and) future workforce challenges can be solved with networks of care is unclear. To maximise productivity there may also be a need for a sustained focus on issues such as:

- training numbers, including the time requirements for consultants to train STs,
- succession planning,
- skill mix development across medical and non medical workforce,
- Possibly extending the roles of professionals not currently involved in surgical care pathways.

Obviously that would have knock on consequences elsewhere.

“what good looks like” - Section 8 sets out a brief summary of some of the key points raised through Royal College and similar bodies. There are a number of highly relevant planning documents. Some of these might have already been considered through different parts of the Working Together programme.

Options for service change and reconfiguration - Section 9 sets out some potential options for service models. It is based on a rapid review of available literature, & RCS and other standards. It doesn’t purport to be a comprehensive review of potential models. Given that the Working Together Programme is already focused on a large multiple Trust / multiple CCG population, the emphasis here is on networks of care. This chimes with the recommendations of Royal Colleges and other bodies. Given that changing the service model may require reconfiguration, this section also sets out some of the available evidence around reconfiguration.

The RCS have made clear recommendations about the need for managed clinical networks.

The Scottish review of children's services and the NCEPOD 2011 report made suggestions about a number of ways of enacting networks, and a number of specific recommendations about innovations in the care model. These include *Joint Regional Appointment, Specialist Out-Reach with Local Lead, Network of DGHs, In-House Lead General Surgeon, DGH Specialist with inreach to specialist centre, Tiered Levels of Care, Joint appointment to several hospitals and joint specialist/non-specialist working*

In the North West the role of the network role is to set standards, monitor and evaluate, define what surgery being undertaken and timing, explore concentration of services across network (some specialise in x, some in y) and education and competency maintenance

In the SW there is a defined managed network. This is based on a hub and spoke model with clearly defined roles for the hub (specialist centre) and spokes.,

Monitor have highlighted a number of innovations in service models including networks, transfers systems and protocols; standards, protocols and risk tiering; links between surgery, paediatrics and primary care and a shared electronic record; different approaches both to employment arrangements and the use of specific roles. NHS Passport as a means of facilitating Cross -site work; different role definition to allow for greater flexibility.

It seems accepted that status quo is not an option. It seems accepted that the further development of a managed clinical network is a definite direction of travel. Whether that would require provider level reconfiguration is not clear.

The drivers of any reconfiguration should be set out very clearly, and many have argued that the "technical" case for change is often considerably less important than winning the trust of non NHS stakeholders.

It seems clear that the key drivers to this programme are not necessarily about cost, but are about ability to provide safe surgical care services to children in South Yorkshire and surrounding areas; to maintain safe staff cover, especially out of hours and across multiple sites.

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The main options for this seem to be managed clinical network with no real change to organisational infrastructure, hub and spoke mode (with or without lead provider contracting) , tartan model .

Any significant service change is likely to be resisted (by commisisoners and providers, who may choose to focus on here and now operational problems).

these options are not necessarily mutually exclusive. Within each potential configuration there are a number of service level innovations, some of which are highlighted in this report

If a hub and spoke model is adopted there may be a necessity to define issues such as age and other cut offs that would define the criteria for referral to a specialist in a specialist centre. Similarly network agreement would be needed on determining for example that all elective work should be done at the specialist centre with emergency work being undertaken in a spoke; or whether this might apply to children under a certain age. Specialist advice would be needed in determining how to arrive at such cut offs. It will also be necessary to directly and overtly address barriers to the development of networks. Chiefly these may be a commercial environment, the “primacy” of individual organisation boards and rigid contractual arrangements.
The predilection of the current surgical and anaesthetic workforce or provider trusts, towards any significant service change or network development is not known. Similarly the predilection of the public is not known.

The implications of any reconfiguration should be considered as broadly as possible. For example impacts on travel times and costs, family life, social services, district nursing, language support and schooling provision. It may be useful to consider these separately for inpatient care and follow-up/outpatient care.

Recommendations

Recommendation - further questions on activity

Stakeholders should specify any further questions they would wish to explore. It would be likely an additional (fresh) set of activity data should be procured if fresh analysis is needed. Some initial thoughts on specification are appended.

It will be possible to further interrogate routinely available data, but that should be question led by stakeholders.

Recommendation – further analysis on projections

As with the analysis of the theatre data, the projections below may lead to a number of subsequent questions. Stakeholders are asked to consider what further analysis would be warranted.

Recommendation – quality and outcome recording.

It is recommended that a group of clinicians consider the issue of routine recording of quality and outcomes, the data that is readily collected now and make a proposal on the most appropriate data to use to monitor outcomes and quality. This may be superseded by a national policy agenda as the RCS are considering this issue.

Recommendation – commissioning input into workforce planning

Local commissioners should have input into workforce planning decisions that are under the authority of Health Education England, particularly around issues of future need, models of care, configuration of services and organizations and a population focused approach.

Recommendation – workforce census.

Given the very limited data about the medical (or other) workforce, with little available beyond informal intelligence and anecdote, but the widespread acknowledgement that future workforce intelligence and planning is a high priority, it is recommended that a full census is undertaken. This should include issues such as skill mix and the interface between generalist and specialist clinical skills.

Recommendation – Royal College Standards

It is recommended that ALL of these RCS and similar documents are considered together as service models are considered and developed

It is unknown the extent to which the currently agreed YH Standards are in line with the available Royal College and similar advice. There may be benefit in updating the locally agreed standards; this should be considered by both clinicians and commissioners.

Recommendation – 2015 Consultation on emergency care

CCGs should consider contributing to the consultation.
http://www.rcseng.ac.uk/news/consultation-on-standards-for-non-specialist-emergency-care-of-children#.VVwzyJK9KSP

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Appendices

Appendix 1 summaries of Royal College and other guidance.

a) RCS - Ensuring provision of Paediatric Surgery in DGH - 2010[34]

This sets out guidance for commissioners and service planners

Focus is placed on general surgery capacity (as opposed to specialists)

General Paediatric Surgery – (GPS) is described as non-specialised children's surgery that can be performed by specialist paediatric surgeons or by surgeons who primarily operate on adults but have expertise in paediatric surgery.

It commonly includes

Elective - Inguinal herniotomy, Umbilical herniotomy, Orchidopexy for undescended testicle, Circumcision, Minor soft-tissue abnormalities

Emergency - Acute abdominal pain including appendicitis, Obstructed hernias, Acute scrotal pathology, Minor trauma, Abscesses

If the patient is very young or complex, or co morbidities – **this may warrant transferring to specialist as agreed through local network protocols**.

The RCS picked up that there are recurrent questions of service sustainability– possibly lack of succession planning.

Issues commonly highlighted include

On site anaesthetist – resus and stabilisation

Paediatricians – underpins elective surgery provision

Managed clinical network (MCN)

This document sets out core features of MCN

RCS also published specific advice for commissioners on general paediatric surgery in DGH settings[35]. This specifically recommended the development of managed clinical networks. This was defined as an interconnected system of service providers, which allows collaborative working and the development of standards of care, routes of communication and agreed thresholds for patient transfer for elective and emergency surgery. The network is supported by

[34] http://www.rcseng.ac.uk/publications/docs/general-paediatric-surgery-guidance (often referred to as the Teddy Bear document)

[35] http://www.rcseng.ac.uk/surgeons/surgical-standards/docs/General%20Paediatric%20Surgery%20Guidance%20for%20commissioners%202010.pdf/at_download/file

contractual agreements that specify service requirements and outcomes and is appropriately resourced on an administrative and financial basis.

the common standards include core pathways of care[36], service planning across a large footprint, predicting trends in patient flow, avoidance of inappropriate competition, matching capacity to demand, workforce planning, focus on quality, care closer to home where possible, audit and measuring agreed outcomes.

Whatever the larger model, the RCS have recommended that all acute trusts have arrangements with on-site anaesthetists for resuscitation and stabilisation of seriously ill children prior to any transfer (if that happens); and the presence of on-site paediatricians and other children's' services underpins the provision of
Elective surgery within the DGH.
The commissioning advice sets out a number of other more detailed points.

Managed clinical networks

In general common and simple procedures should be undertaken as close to home as possible.

Less common and more complex procedures being undertaken in a more distant specialized centre.

Over centralization can have drawbacks in that the "specialist centre" may find its capital and capacity filled by operations that could be safely undertaken in a DGH and have less capacity for what should be in the specialized unit.

The RCS have already recommended that to ensuring the provision of general paediatric surgery in the district general hospital NHS commissioners, Trusts and specialist units work together formally to set standards, share skills and ensure patients get treated in the most appropriate hospitals.

[36] some examples - http://www.rcseng.ac.uk/service_delivery/children2019s-surgical-forum

RCS recommend that all children’s surgical services must be configured into local provider networks, which must have appropriate governance systems, clinical leadership and transfer arrangements in place.

b) RCS – Children's Surgical Forum. Surgery for Children. A first class service (2007)[37]

The document acknowledges that it may no longer be possible to treat children in the ways to which the population is accustomed. There is a clear recommendation towards managed networks of care that maintain the best quality of treatment. The CSF has brought up to date the thinking on the organisation and delivery of surgical care. The document provides a definitive guide on standards for all those responsible for the delivery of surgical care. This is a crucial document from the perspective of service planning. It sets out planning guidance covering:

- Standards of care
- Environment, staffing, workforce
- Ensuring standards – governance and audit
- Specifics re children – consent / protection / communication / pain / transition

And covers the following domains

- Service delivery
- Workload
- Workforce
- Provision
- Commissioning
- Models – supra regional / regional / DGH / single specialty / ISTC / emergency / day case
- Anasthesia
- Crucial
- Neonatal
- Fetal
- Disability and special needs
- Training, education and skills
- Specialty specific planning guidance is also included.

Key points

[37] http://www.rcseng.ac.uk/publications/docs/CSF.html

- Organisation of care networks – commissioners must ensure this happens
- Centralise complex – (focused on outcomes)
- More day surgery where possible
- “Occasional practice” is undesirable – esp if elective. Volume important, but little evidence on which to guide this.
- Concentrate cardiac and neuro – clearer evidence base here.
- Arrangements should be in place for the critically ill in any unit.
- Robust transfer arrangements should also be in place – in and out of hours.
- No of specialist paediatric surgeons should be increased

Section 2 - service delivery – workload and workforce

Key points:

Workload will go up (principally driven by population growth)

Workforce is problematic – subspecialisation is leading to reduced availability of surgeons who will work on adults and children (Ref 3 of the 2007 CSF / RSC document) suggests that the volume of work undertaken by a surgeon to maintain skills in working with younger children should be the equivalent of 100 cases a year. It is difficult to find evidence to support this.

An active surgeon who deals with the same type of work in adults would not necessarily need to treat large numbers of children for successful outcomes.

Treatment at DGH vs specialist centre

Throughout the surgical specialties, increasing numbers of younger children are being transferred to regional centres for emergency and elective surgery with little attention to planning or provision of adequate resources.

Figure 1 highlights this – increasing no of FCEs in “specialist centres” and decreasing no of FCEs in DGH.

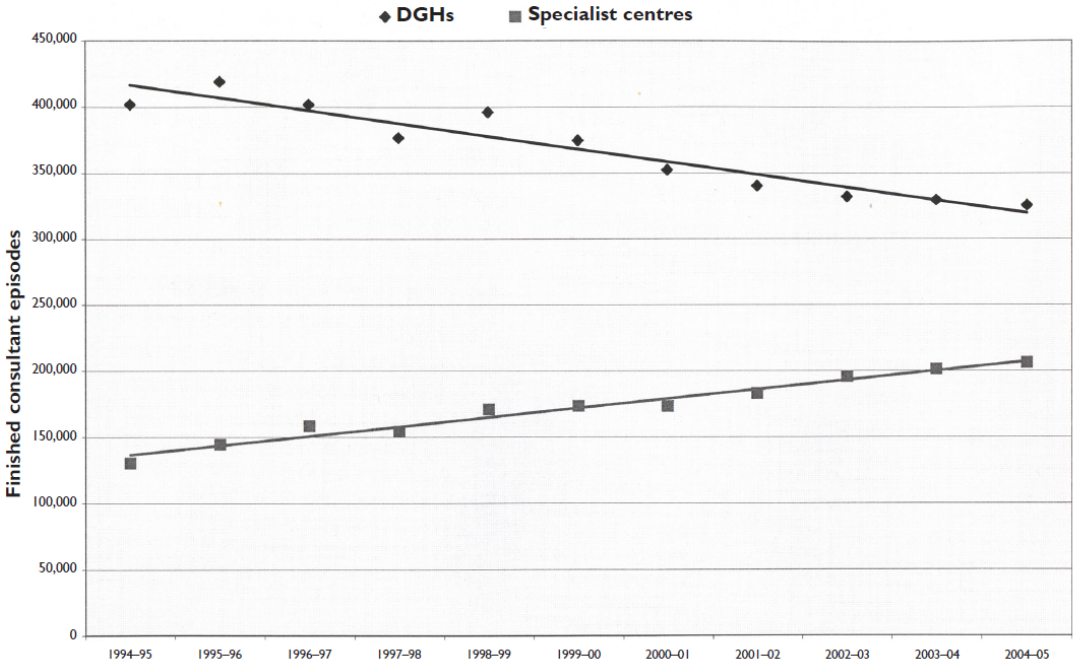

Figure 1: The trend of increasing work in the specialist hospital is mirrored by a decreasing trend in DGHs. (Source: Department of Health. *Trends in Children's Surgery 1994–2005: Evidence form Hospital Episode Statistics Data.* London: DH; February 2007. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsStatistics/DH_066322.)

This was most marked in those aged 0–4 years.

At specialty level this trend was most apparent in trauma and orthopaedics, plastic surgery, ophthalmology and cardiac surgery.

General paediatric surgery showed a decrease in FCEs both in specialist centres and DGHs, probably an effect of changes in practice.

Raises a number of issues in providing surgery for children at DGH level and this is a training and recruitment problem.

In general surgery there is increasing sub-specialisation with a very low take-up of training opportunities in general paediatric surgery. As a result, routine surgical operations are increasingly being moved to tertiary centres thereby de-skilling staff in the DGH where many clinicians, concerned about occasional practice, refer ever more procedures to specialist centres.

section 5 - Commissioning paediatric surgical services

Key points:

Where specialist commissioners find excessive flows of routine services to a specialist unit, they should work with local commissioners, Trusts and

clinicians to encourage and support local Trusts to retain or restore services wherever possible.
surgery for children is most commonly commissioned as part of overall service level agreements. Once tariff issues have been resolved, payment by results may support correct remuneration for activity undertaken within these commissions.
a greater likelihood of the CSF's service delivery recommendations being implemented if children's surgery was commissioned independently of overall surgical commissions. This would simplify planning and delivery to meet the needs of children.
Commissioners must also consider associated resources for the delivery of children's surgery (for example, transport arrangements for inter- or intra-hospital transfer, accommodation facilities for parents and carers, etc).

section 6 covers Models of care,
Key points:
6.1 Supra-regional centres
The care of certain unusual and complex conditions (such as congenital heart disease, gastrointestinal malformations, craniofacial abnormalities, spinal deformity, bladder exstrophy, transplant surgery and musculoskeletal tumours) is rightly concentrated on a single or small group of hospitals where comprehensive skills and regular experience are available for those affected. Special funding arrangements for such services are usually in place

6.2 Regional centres
These hospitals provide a comprehensive range of specialist children's surgical services on a regional, sub regional or supra-regional basis. Surgical services for children are supported by specialist facilities including paediatrics, anaesthesia, critical care, radiology, pathology and other diagnostic services. In addition to functioning as tertiary referral centres, specialist children's hospitals also meet the needs of local children by providing a range of DGH-type surgical services.
Dedicated children's hospitals have much to offer local hospital clinicians in terms of mentorship and maintenance of skills. The CSF encourages

secondment of local hospital specialists to regional units and this includes nursing staff. Such arrangements need to be recognised in consultant job plans and CPD. Specialist centres and DGH Trusts must allow this. (Chapter 3.)

6.3 District general hospitals

Children and their families must be able to access minor / routine surgery and outpatient facilities for more specialised conditions locally. Surgical services should therefore be planned on the assumption that those DGHs that meet national standards will continue to play an important role.

Larger DGHs and the majority of medium-sized DGHs will be able to sustain the staffing establishment needed to provide resident paediatric cover to support surgical activity.

Smaller district hospitals or those serving isolated populations can experience difficulties in providing safe and high quality services for children but local services must be provided for remote areas.

Rationalisation of services for children can only be justified on the basis of clinical need and with suitable networks in place for transfer.

Wider assistance is needed at DH level to support the provision of children's services to the local population.

Children's surgery should be defined as an 'essential service' and steps should be taken to protect it from competition, contestability and reforms such as payment by results. Inpatient paediatric beds and 24-hour paediatric cover have already been withdrawn or restricted in some smaller DGHs.

As a result, children may need to travel considerable distances for day case procedures of a minor nature. If there are defined, robust cover arrangements in place, the surgical care of children can continue in the absence of resident paediatricians. See section 6.7.

6.4 Single surgical specialty hospitals

Many of the hospitals devoted to a single surgical specialty have acquired national or international reputations as centres of excellence. Children have been among those to benefit from their important contribution to patient care, surgical innovation and specialist training.

Obvious examples are the specialist orthopaedic hospitals that were established between the two world wars.

Some specialist surgical units (for example, for neurosurgery) are still located within adult centres that do not have paediatric cover on site. The single specialty model of inpatient provision is increasingly seen as outdated.

Because of the lack of paediatric support facilities (eg critical care, children's wards) and the lack of paediatric specialists (particularly anaesthetists and nurses), the authors of the 1989 NCEPOD report concluded that 'the needs of children in single surgical specialty units are not always fully met'.

6.5 Independent sector hospitals and treatment centres

The first wave of ISTC contracts did not include provision of surgery for children. However, with any further expansion of the ISTC programme, second wave contracts may do so.

The section on day case surgery, below, outlines how services can be provided in hospitals both with and without inpatient paediatric cover. All units will need to follow these recommendations closely.

It is clear that minor and routine surgery for children undertaken in the independent sector could further undermine paediatric provision in local DGHs.

6.6 Emergency care

Not every DGH needs to provide emergency surgical care for children. A comprehensive emergency surgical service can be achieved by concentrating services for a larger population and networking among local hospitals.

Emergency surgery in children should only take place in hospitals that have inpatient children's facilities and provide regular elective surgical care. They should be part of a clinical network providing access to tertiary services and critical care.

All teams undertaking emergency surgical care of children in DGHs should have received training in this and should regularly update their skills in the care of the critically ill child.

The skills of the entire emergency team need to be used to assess patients presenting as an emergency. The decision to treat younger patients or those

requiring more complex interventions at the local DGH must be taken bearing in mind the skill and expertise of the professionals on site and the availability of supporting staff and resources.
Appropriate transfer arrangements should be made if the required skills are not available locally. The DH provides comprehensive information about emergency treatment of children (ref 22 – Acutely Ill Child)

6.7 Day case surgery

There is an increasing trend for day case surgery in children.
The following safeguards must be observed when treating children on this basis:
Although the consultant surgeon will remain responsible for care of the child, the assessment and conduct of day case surgery may be undertaken by senior experienced trainees or other career grade surgeons.
An experienced paediatric-trained consultant anaesthetist must be present.
Parents and carers should receive clear instructions on follow up and written information on arrangements to deal with any post-operative emergency (including out-of-hours contact telephone numbers).
Day case sessions must be staffed by children's nurses.
Units must develop and implement a pain management policy that includes advice on pain assessment and management at home and the provision of 'take home' analgesia.
Play specialists should be available and the environment should be child- and family-friendly.
The pattern of day case activity should be audited and regularly reviewed.
There is prior arrangement with a nearby hospital where critical care facilities are available for the transfer of patients should complications arise.

Additional standards for centres undertaking day case children's surgery without inpatient paediatrics include:

The surgery should be undertaken by a surgeon experienced in the condition.
The surgeon must remain at the hospital until arrangements have been made for the discharge of all patients or (exceptionally) patients have been transferred to the surgeon's base hospital.

At least one member of the team involved in treating day cases should hold the *APLS*/*EPLS* certificate and other team members must have up-to-date basic skills for paediatric resuscitation.
While the child is in the unit, at least one member of staff with up-to-date skills in basic paediatric life support should be present.
A neighbouring children's service should take formal responsibility for the children being managed in the unit.
Agreed and robust arrangements should be in place for paediatric assistance and transfer if required.

section 7 covers paediatric anaesthesia services

Key points:

The bulk of anaesthetic activity in children is non-specialist and occurs in DGHs.
Most operations are elective, straightforward and undertaken on relatively fit patients. Children with significant medical problems, those undergoing complex procedures, neonates and small infants are usually referred to specialist units or tertiary centres (refs 35–38)
Nevertheless, DGHs should have arrangements for managing and treating simple surgical emergencies and should be able to resuscitate and stabilise seriously ill children, prior to their transfer.
At all times anaesthesia in children should be undertaken or supervised by consultants who have undergone appropriate training in paediatric anaesthesia.
They should have regular and relevant paediatric practice sufficient to maintain core competencies. Children may also be anaesthetised by staff grade or associate specialist anaesthetists, provided they fulfil the same criteria and there is a nominated supervising consultant.
When trainees anaesthetise children they should be supervised by a consultant with appropriate experience.
All consultant anaesthetists with a CCT will have obtained basic paediatric anaesthetic training, after which they should, as a minimum, be competent to provide anaesthesia for straightforward elective and emergency surgery in otherwise fit and healthy children who have reached their fifth birthday.

However, there will be consultants who have acquired more advanced competencies, thus allowing provision of a more extensive anaesthetic service. Unless there is no requirement to anaesthetise, resuscitate or stabilise children it is expected that these competencies will need to be sustained through regular exposure, CPD and/or refresher courses.
When a child undergoes anaesthesia, the anaesthetist must be assisted by dedicated staff (operating department practitioners, assistants, anaesthetic nurses) with specific paediatric skills and training.

c) Standards for Children's Surgery Children's Surgical Forum. RCS 2013[38]

Networks

The majority of children's surgical services should be designed and delivered as part of an appropriately resourced network that works closely with clinicians from all disciplines and with commissioners, for the benefit of children and their carers. The network must have a clear governance infrastructure and refer to national standards and outcomes of care.

There must be an identified clinical network lead. There must be regular (at least annual) network review of patient outcomes and experience.

The network is supported by contractual agreements that specify service requirements and outcomes and has appropriate administrative and financial resources. The network will therefore need to work closely with commissioners regarding objectives and work plans.

Governance and leadership

Within hospitals providing surgical services for children there must be a commitment from the executive team and senior staff to the provision of a high quality children's surgical service, with a multidisciplinary children's surgery committee reporting to the board.

There must be a defined governance structure to assure the quality of overall care and encourage and monitor improvements in the surgical and anaesthetic services. This will be facilitated by regular and systematic capture of patient and carer-reported outcomes, including those admitted for unscheduled care.

The service should submit data on request to agreed regional networks and national audits.

Education and training

All clinicians caring for children and young people in a surgical or anaesthetic context should undertake an appropriate level of paediatric clinical activity that is sufficient to maintain minimum competencies (as defined by their respective medical royal colleges) and consistent with their job plans.

[38] http://www.rcseng.ac.uk/publications/docs/standards-in-childrens-surgery

This requires both time and financial support and should be a feature of regular annual review of practice at appraisal.

Mechanisms across clinical networks should be in place to ensure staff competency and identify training needs.

Networks should support and develop staff and, when possible, provide continuing professional development (CPD).

Elective care

Elective surgery for children should, whenever possible, be scheduled on dedicated children's theatre lists.

Where this is not possible, cases are scheduled considering the needs of children and carers.

A named consultant paediatrician must be available for liaison and immediate cover, for example in cases of children requiring on-going care following resuscitation, and to advise on safeguarding issues. While such situations are rare, the level of cover should ensure attendance within 20-30 minutes.

Emergency care

For emergency surgical conditions not requiring immediate intervention, children should not normally wait longer than 12 hours from decision to operate to undergoing surgery, and should be scheduled with consideration for the needs of children and carers. Surgeons and anaesthetists taking part in an emergency rota that includes children must have appropriate training and competence to handle their immediate surgical and anaesthetic care.

There should be a policy to support clinicians if unexpected circumstances require that they must act beyond their practised competences and are undertaking life-saving interventions in children who cannot be transferred or who cannot wait until a designated surgeon or anaesthetist is available.

There must be immediate access to senior paediatric support when required.

Hospitals admitting emergencies must have the required resources and equipment to stabilise and resuscitate infants and children at all times.

Emergency children's surgical practice is audited at least annually using routinely collected data, and clinical governance data such as sudden untoward incidents.

Day surgery

Day surgery should be provided for children whenever practical, with a named consultant surgeon responsible for care.
As with inpatient surgery, a named consultant paediatrician should be available for liaison and immediate advice and cover, and outcomes should be audited and reviewed.
When day surgery is undertaken in a centre without inpatient paediatrics, a neighbouring children's service must take formal responsibility for the children being managed in the unit, and there should be a clear plan for transfer should this be necessary. This may require a (formal) service level agreement to be in place.

Section 6 of this 2013 publication sets out the standards in detail, including detailed standards and suggested measurement criteria in each of 5 domains

- Configuration
- Governance and leadership
- Education and training
- Patients and families
- Delivery and environment of care

d) RCS emergency surgery standards for unscheduled care. 2011[39]

This is the result of a working group comprising experts from all surgical and related specialties. The report is aimed at commissioners, planners and service providers, and provides standards for the care of unscheduled adult and paediatric surgical patients.

The standards describe how a safe, responsive and high quality surgical service can be provided by prioritising the care of this group of patients.

Key points:

The delivery of emergency surgical care is currently sub-optimal.

There has been a lack of investment in, and understanding of, the risks of this type of surgery and the associated workload.

Mortality varies two-fold between units for surgical emergencies.

In general surgery alone emergency cases account for 14,000 admissions to intensive care in England and Wales annually, carrying a mortality rate of over 25% and intensive care costs of at least £ 88 million

Commissioners, planners, providers and clinicians need to understand the specific requirements of patients receiving unscheduled surgical care and to ensure pre-, peri- and post-operative assessment arrangements are improved in order to secure better outcomes.

The key elements of a high quality emergency surgical service are:

- Dedicated clinical and managerial leadership
- Effective multidisciplinary team working.
- prioritisation of acutely ill patients over elective activity – day to day activity, service levels and availability of staff, training, service prioritisation and governance standards.
- A defined governance structure with a focus on outcomes, audit and regular review of practice.
- A consultant-led service – ability and capacity for timely input.
- agreed protocols to assess and manage risk, matching the seniority of
- The attending clinician with the clinical needs of the patient.
- Adequate resources – access to emergency theatres & pre / post-operative care arrangements, including the early involvement of

[39] https://www.rcseng.ac.uk/publications/docs/emergency-surgery-standards-for-unscheduled-care

anaesthetists and critical care specialists and resources where required.

e) RCS. 2015. Standards for the non specialist emergency surgical care of children[40].

this is DRAFT guidance and a consultation. It warrants careful consideraiton but is not considered in detail here.

f) RCS Good surgical Practice. 2014 [41]

Principally standard for clinical practice

g) RCoA – Guidelines for the provision of anaesthetic services. 2015. [42]

Key points (relevant to planning, particularly workforce)

All patients undergoing anaesthesia must be under the care of a consultant anaesthetist, whose name is recorded as part of the anaesthetic record.

An appropriately trained and experienced anaesthetist must be present throughout the conduct of all general and regional anaesthesia for operative procedures, including those procedures requiring intravenous sedation.

All non-consultant anaesthetists should be appropriately supervised.

Anaesthetists should never work beyond the level of their skill and knowledge, and departments should ensure that each job plan ensures patient safety first at all times.

Staff with suitable skills should always be available to help with the case mix of patients at all times.

All patients requiring the services of an anaesthetist must undergo appropriate pre-operative assessment and be seen by a member of the anaesthetic team before any procedure

[40] http://www.rcseng.ac.uk/news/consultation-on-standards-for-non-specialist-emergency-care-of-children#.VVwzyJK9KSP
[41] http://www.rcseng.ac.uk/surgeons/surgical-standards/professionalism-surgery/gsp/gsp
[42] www.rcoa.ac.uk/gpas2015

Appropriately trained and competent staff must provide care for all patients recovering from anaesthesia or sedation.
Departments of anaesthesia must contribute to an acute pain relief service and either have or provide access to a non-acute ('chronic') pain service with nominated lead consultants for each.[5]
Where inter-hospital transfers require an anaesthetist, appropriately trained staff, dedicated equipment and satisfactory safety and personal insurance arrangements must be in place.

There is a specific section on paediatric anaesthesia in the 2014 update, setting out specific recommendations for children and young people[43].

[43] http://www.rcoa.ac.uk/system/files/GPAS-2014-10-PAEDIATRICS_0.pdf

h) The Royal College of Paediatrics and Child Health. *Facing the Future: Together for Child Health*.[44]

The RCPCH collaborated with RCGP and the RCN to develop this new set of standards for child health. Standards one to six focus on supporting primary care to care safely for the child in the community, preventing unnecessary attendance at an emergency department or unnecessary admission to hospital. Standards five to eight focus on reducing the length of stay and enabling these children to go home again as safely and as quickly as appropriate (while preventing unnecessary reattendances and readmissions). Standards nine to 11 look more widely at connecting the whole system, streamlining the patient journey and improving the patient experience.

[44] http://www.rcpch.ac.uk/improving-child-health/better-nhs-children/service-standards-and-planning/facing-future-together-c-1

i) NCEPOD. Are we there yet (2011)[45]

This enquiry focused on surgery in children

The focus of audit was Deaths within 30 days of an operation in patients 17 years and younger 2008 - 2010

n=597 across 373 hospitals

standard NCEPOD methodology (surgeon questionnaire, anaesthetist questionnaire

, organisational questionnaire)

Third NCEPOD report in this area

Finds improvements since previous reports in % receiving good quality care

71% received good care. 29% was less than good

"Good" is not equivalent to "outstanding" or "excellent"

Majority of deaths in specialist centres, v few in DGH - reflects complexity of patients cared for. May also reflect transfer issues.... which (arguably) may have been foreseeable

These issues were picked up in NCEPOD prior 1999 report.

Characterisation of hospitals

V small <1500 admissions a year. 15%

Small 1501 - 2500 per yr, 34%

Medium - 2501-5000 admit per yr - 47%

Large >5000 admit per yr - 5%

Of a 220 hospital sample

NCEPOD themes that were picked up

Organisation of Care and networks

160/267 hospitals not in a network of care

Organisation of care was found to be wanting across all types of hospital

Lots of room for improvement

? that organisations tended to be insular. Even if the clinicians were in informal networks this wasn't supported by organisational commitment to networked care

[45] http://www.ncepod.org.uk/2011sic.htm and http://www.ncepod.org.uk/2011report1/downloads/SIC_fullreport.pdf

maybe complicated by competitive FT Envt, and tariff arrangements still further

Peer Review of Data – NCEPOD identified there was not much peer review of data.

Widespread Nature of Care

NCEPOD found that 98 hospitals did <500 procedures on children and some of these performed v few procedures. Questions about the ability to maintain skills?

Transfers of Care/ Inter-Hospital Transfer

NCEPOD found that 10 hospitals in the review (n=267) did not have a policy in place for transfer of care.

There were outstanding questions with regard to the frequency with which transfers happen; completeness of documentation when it does happen. This is moderated by some significant historic improvements in neonatal and PICU

Management of the Sick Child in context of whole child, not just the surgery

Existence of a policy for escalation from juniors to senior doctors

Clear identification of trigger points in this policy

With clear and unequivocal understanding of the nature of the early warning system

Not just physiological parameters (easy to measure, thus appealing)

Complex area. See Shortland's slides. V helpful.

Clinical Governance and Audit

"All hospitals that undertake surgery in children must hold regular multidisciplinary audit and morbidity and mortality meetings that include children and should collect information on clinical outcomes related to the surgical care of children"

53% stated they had such meetings

Individual Care that was seen as highest risk

Necrotising Enterocolitis - MDT decision making. Further research needed - both medical and surgical management difficult

Congenital cardiac surgery - level of care assessed as generally good

Neurosurgery - Safe and Sustainable should have sorted this.

Standards of peripherative care

51/267 hospitals did NOT have a policy on the seriously ill child

How is quality and outcomes measured?

By who / when / peer review of data / using case note review and SEA

Readily available clinical and administrative data (with all the caveats)

Not just docs, but all in team

Organisational components

53% hospitals doing audits and M&M meetings (47% were NOT - is this ok)

Limited evidence re clinical discussion evidenced in only a third of notes reviews of the deaths. This is perhaps an issue in ability of trust to fulfil duty of candour

126/378 sets of notes reviewed had evidence of clinical discussion of factors pertinent to the death

j) NHSE - Commissioning safe and sustainable services

Focused on links that need to be present at trust level

The aim of this project has been to support the commissioning of safe and sustainable specialised paediatric services.

There is a recognition of the complexity of the relationships between services and a recognition that change in one service will have consequential effects for others. Service inter-dependency works in two directions: between specialised services themselves and also with less specialised services

	Specialised Paediatric Service	A BMT	B Clinical haemo	C Immun	D Met Med	E Onc	F Burns	G Infect Dis	H Resp Med	I Cardio	J Card Surg	K Neuro	L Neuro Surg	M Major Trauma	N Spec Ortho & Spinal	O Neph	P Uro	Q Endo	R Gastro	S ENT Airway	T Neonato	U Spec Paed Surg	V Paed Crit Care	W Spec Paed Anaesth
1	Blood and Marrow Transplant					3		2	3	1		1				3			2			3		1
2	Clinical Haematology (Non-malignant)			1						1													2	1
3	Immunological Disorder	2	1					3	2							1			3			1	1	1
4	Metabolic Medicine		2						1	2		2				1								1
5	Oncology (inc Haemato-oncology)	1						1	3	1	1	3	3*	1	1	3	2	1	2	1				
6	Burns											1		3		1								
7	Infectious Diseases			2					1	1		1							1				2	1
8	Respiratory Medicine			1				2		3		1						1	3	3		3*	3	1
9	Cardiology								1		3*	1										1		1
10	Cardiothoracic Surgery		1						2			2				1				2	1	3		
11	Neurology		1	1	2			1	2	1			3*		1	1		1	1	2		1		1
12	Neurosurgery					3								3*	2	1	1	2		2	1	2		
13	Major Trauma (inc Maxfax and Plastics)		1							2	2	1			1	1	2							
14	Spec Ortho and Spinal Surgery					1			2	1		2	1				1					1	3*	
15	Nephrology		2	2	1	1		1	2	3		2			2		3*	2	2	2	3			
16	Urology					2										3*		2				3		1
17	Endocrinology												1										1	1
18	Gastroenterology			2	1			2														3	1	1
19	ENT (Airway)								3	2	2	1		1								2		
20	Neonatology									2												3		1
21	Specialised Paediatric Surgery		3			1			3	1	1	2	3	1	3		3	3	3	1	3			
22	Paediatric Critical Care		3	1	2			1	3	3		2	3	2		2	1		1					
23	Specialised Paediatric Anaesthesia		1						1	1								1		1	1	1		

Red Relationships

Requires co location with paed critical care and anaesthesia

The key area for the project was that of Red relationships between services – that is those, in our terms, that require co-location

Amber relationships

Amber 3 and 3* relationships will be achieved by co-location, and this should generally be the expectation as there are important clinical linkages between services. However, unlike Red relationships, there is some flexibility in terms of service location. Examples of the type of clinical conditions involved in Amber 3 relationships are shown below

k) Scottish review. Better Health, Better Care: National Delivery Plan for Children and Young People's Specialist Services in Scotland. Scottish Government review of paediatric care[46]
section 4 covers surgery. A good overview presentation here.

100. Although specialist surgical procedures in children are chiefly undertaken in the main children's hospitals, surgery for more routine conditions has usually been performed in the District General Hospital, thereby maintaining local access.

101. Changes in surgical training and loss, through retirement, of senior general surgeons with paediatric experience, are increasingly threatening this pattern. In the absence of intervention the current trend could require many more children to travel to specialist hospitals for technically straightforward and low risk procedures.

102. Links are increasingly being created between the specialist centres and their regional District General Hospitals with a view to strengthening local surgical care. These arrangements require to be adequately resourced through the appointment of surgeons trained in the general surgery of childhood who have a regional remit to support local services.

103. There is a need for agreed pathways of care that bring consistency and clarity, particularly in emergency situations, regarding the respective roles of the local and specialist hospitals.

104. It is recognised that the delivery of good surgical services for children in a District General Hospital is greatly strengthened where there is a close working relationship between surgical staff and the in-house paediatric medical services. The maintenance of local surgical services will be dependent on the existence of such a whole team approach to this patient group.

[46] http://www.gov.scot/Publications/2009/01/16113840/0

The Scottish Government committed to:

investment in additional consultant posts, working at a regional level, to support local general surgical services for children;

publish care pathways to ensure the safe, consistent management of common surgical conditions and

encourage effective collaboration between paediatric medical and surgical services within local hospitals

One of the follow ups from the initial Scottish review was the establishment of a National Steering Group for Specialist Children's Services[47]. This covers all children's services. Section 7 of the 2009 document covers Models of Care.

[47] http://www.specialchildrensservices.scot.nhs.uk/Documents/org00005.pdf

l) Other literature

A rapid literature review identified a number of other documents that may be of bearing to this work as it progresses. These have NOT been reviewed in any detail – mostly they are of relevance to adult surgery, some are dated.

- Audit Commission, 2003. Waiting for Elective Admission: Review of the National Findings. London: Audit Commission.
- Audit Commission, 1998. Audit Commission Update. Day Surgery Follow-up: Progress against indicators from a shortcut to better services. London: Audit Commission.
- Senate of Surgery of Great Britain and Ireland, 2003. Reconfiguration of Surgical, Accident and Emergency Services in the UK. Glasgow: Senate of Surgery Secretariat.
- The Royal College of Surgeons of England, 2000. The Provision of Elective Surgical Services. London: The Royal College of Surgeons of England.
- The Royal College of Surgeons of England, 2005. Developing a Modern Surgical Workforce. London: The Royal College of Surgeons of England.
- Audit Commission, 2003. Operating Theatres: Review of National Findings. London: Audit Commission.
- Audit Commission, 2003. Acute Hospital Portfolio Reviews, 2003. London: Audit Commission.
- Department of Health, 2004. Day Surgery: Operational Guide. Waiting, Booking and Choice. London: Department of Health.
- The Academy of Medical Royal Colleges. The Benefits of Consultant-Delivered Care. AoMRC; 2012. www.aomrc.org.uk/publications/statements/docview/9450-the-benefits-of-consultant-delivered-care.html (accessed January 2015).
- Aylin P, Yunus A, Bottle A, Majeed A, Bell D. Weekend mortality for emergency admissions. A large, multicentre study. Qual Saf Health Care 2010;19:213–17. http://dx.doi.org/10.1136/ qshc.2008.028639

- Bell CM, Redelmeier DA. Mortality among patients admitted to hospitals on weekends as compared with weekdays. N Engl J Med 2001;345:663–8. http://dx.doi.org/10.1056/NEJMsa003376
- Freemantle N, Richardson M, Wood J, Ray D, Khosla S, Shahian D, et al. Weekend hospitalization and additional risk of death: an analysis of inpatient data. J R Soc Med 2012;105:74–84. http://dx.doi.org/10.1258/jrsm.2012.120009

The Royal College of Surgeons of England and Department of Health. The Higher Risk General Surgical Patient: Towards Improved Care for a Forgotten Group. 2011

Appendix - Data specification for the SCN Dataset

Elective and Emergency Admitted Patient Care (APC) admissions for Specified Specialties * within Yorkshire and the Humber for Under 18s			
Hospital Episode Statistics			
Count of Inpatient admissions			
All persons under 18			
CCG residence codes:	CCG_RESIDENCE IN ('02N','02P','02Q','02W','02R','02T','02X','02Y','03A','03Y','03E','03F','02V','03G','03C','04J','03H','03J','03K','03L','03M','03N','03Q','03R')		
Provider codes:	LEFT(PROCODE,3) IN ('RAE','RCB','RCD','RCF','RCU','RFF','RFR','RGD','RHQ','RJL','RP5','RR8','RV9','RWA','RWY','RX8','RXE','RXF','RXG','RY6','RFS')		
2011/12 - 2012/13			
			GF note
Inpatient Admissions:			RX* does not appear to exist
Main Specialty*	MAINSPEF IN(	100 – general surgery	
		171 – paediatric surgery	
		101 – urology	
		110 – orthopaedics	
		120 – ENT	
		130 – ophthalmology	
		140 – oral surgery	
		142 – paediatric dentistry	
		502 – gynaecology	
		160 – plastics	
		190 – anaesthesia)	
All Operative procedures:	Opertn_1-20 = H30.1	Radiological reduction of intussusception of colon using barium enema	
Count of first finished episode	Epistat = 3 AND EPIORDER = 1		
Ordinary admissions:	Classpat IN (1,2,5)		
Elective Admissions:	ADMIMETH IN ('11','12','13')		
Emergency Admissions:	ADMIMETH IN ('22','23','24','28')		
For Under 18s:	STARTAGE_CALC < 18		
Numbers less than 6 have been suppressed as indicated by *			
Kazem Khundakar	kaz.khundakar@phe.gov.uk		
Barbara Coyle	barbara.coyle@phe.gov.uk		
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If further data is being sought - Initial thought on what data might be needed to more robustly forward plan

from HSCIC or from PHE

for each of the last three full years for which data is available.

for all patients resident with the CCGs of interest.

Any provider – not just YH providers.

For patients aged 18 or less at time of admission

count of IP admits

count of OP attendances - first and follow up

including the following fields

- CCG
- provider
- GP Practice Code
- MSOA? / LSOA? / postcode – (deprivaiton analysis)

Children's Surgery and Anaesthesia Health Needs Assessment

The first draft of the needs assessment was presented to the core leaders group in May, a final version is due to be signed off in June.

The needs assessment gives an overview of :

- Modelled predicted activity needed by CCG based on previous demand and by speciality
- An outline of workforce challenges and considerations
- An overview of good practice and national guidance to inform service configuration

The Health Needs Assessment came with a number of recommendations that the core team agreed needed further investigation to inform the programme of work and next steps, the proposed next steps are outlined enclosed.

The core leaders group are asked to consider and agree these next steps to progress these recommendations.

Kate Laurance – on behalf of Working Together Team

Health Needs Assessment (Paediatric Surgical and Anaesthesia) Care Recommendations

Recommendation	Proposed Next Steps	Owner
1. Further questions on activity Stakeholders should specify any further questions they would wish to explore. It would be likely an additional (fresh) set of activity data should be procured if fresh analysis is needed. Some initial thoughts on specification are appended. It will be possible to further interrogate routinely available data, but that should be question led by stakeholders.	• To request an activity and data set from each CCG in line with the recommended data set, giving a more accurate picture of activity by CCG which is split by sub speciality	WTP – SMT to progress at CCG level through information and contracting teams. To be completed Sept 15
2. Further analysis on projections As with the analysis of the theatre data, the projections may lead to a number of subsequent questions. Stakeholders are asked to consider what further analysis would be warranted.	• There are further questions raised on recording given and it appears evident that there is variation in the use of codes locally. It is recommended that for some areas consideration to grouping activity by clinical pathway is given to give the best possible overview of care received (for example Gen Surgery and Pad surgery) • Further capturing of the case mix by the large sub speciality grouping would also give further information on the clinical needs.	WTP – team KL/ JS/LD To be completed August 15 WTP- team KL/LD/JS

3. Quality and outcome recording It is recommended that a group of clinicians consider the issue of routine recording of quality and outcomes, the data that is readily collected now and make a proposal on the most appropriate data to use to monitor outcomes and quality. This may be superseded by a national policy agenda as the RCS are considering this issue.	• That any current consistent source of clinical quality and outcome data is identified. • That further thought is given by a sub group of clinicians to proposed quality and outcome metrics.	WTP team KL/LD and JS with support from WTP SMT WTP team through task and finish and SCN Complete September 15
4. Commissioning input into workforce planning Local commissioners should have input into workforce planning decisions that are under the authority of Health Education England, particularly around issues of future need, models of care, configuration of services and organisations and a population focused approach.	• Following full workforce census, engage at a strategic level through WTP team	WTP – Programme Team
5. Workforce census Given the very limited data about the medical (or other) workforce, with little available beyond informal intelligence and anecdote, but the widespread acknowledgement that future workforce intelligence and planning is a high priority, it is recommended that a full census is undertaken. This should include issues such as skill mix and the interface between generalist and specialist clinical skills.	• Workforce specification developed to enable the collation of workforce profile to be collated across the provider footprint. This will include the skill mix covering all surgical care pathways.	WTP- Programme Team Provider JS Complete October 15

6. Royal College Standards It is recommended that ALL of these RCS and similar documents are considered together as service models are considered and developed. It is unknown the extent to which the currently agreed YH Standards are in line with the available Royal College and similar advice. There may be benefit in updating the locally agreed standards; this should be considered by both clinicians and commissioners.	• Best practice review to be developed and tested by clinicians. This will then underpin the development of a core service specification and guide thinking on the development of models of care.	WTP – Programme team LD and SCN Complete Sept 15
7. 2015 Consultation on emergency care CCGs should consider contributing to the consultation.	• Responses have been undertaken at local CCG level.	
8. networks, standards and models of care, reconfiguration Networks of care are recommended almost universally. It is recommended that the established and developing clinical standards (RCS, RCoA, NCEPOD and other recommendations) are used, as the basis for this formal establishment of a formal managed network. There may be resource, clinical, workforce planning, service and provider configuration issues to consider. Many aspects of a managed network can be established with no reconfiguration. No specific recommendations are made about service configuration, as this is the point of the Working Together Programme. The two main viable options are the hub and spoke model (lead provider or current contracting framework) or the tartan model (some	• Best practice review to cover key recommendations on improving standards, further support on implementation and supporting a network approach will need considering by NHSE, Provider Trusts and CCG's	WTP- Programme team/ SMT and NHSE.

specialise in x, some in y). A number of innovations around the network of care are possible. These should be considered on their merit. For each potential innovation the key questions are: • What are the potential benefits of these model • What are the potential risks, limitations and trade-offs? Trade off between choice / travel time and ability to maintain safe cover. • What incentives or rules would be needed for these models to work across local (or even regional) health economies and across different types of providers?	• Consideration to be given to models and configuration following the specification and pathway development. An appraisal and benefits realisation exercise to be undertaken on options following pathway development when thresholds will be determined.	WTP – Programme Team