



**INNOVATION AGENCY**  
Academic Health Science Network  
for the North West Coast

**UCLPartners**  
Academic Health Science Partnership

# UNDERSTANDING THE PERFORMANCE AND POTENTIAL OF SPECIALIST HOSPITALS

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**NOVEMBER 2018**

# EXECUTIVE SUMMARY

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## **All specialist hospitals are unique but they are similar in that they bring or have the potential to bring value into the system in terms of improving quality standards.**

A number of specialist trusts are rolling out treatments that have proven clinical value (as judged by NICE) but have not yet received financial viability approval. When these treatment methods are refined, they then receive financial approval from commissioners and can be rolled out more widely to patients. This should be recognised as giving much benefit to the patients and the healthcare system.

Specialist trusts are leading crosscutting work streams in their local system, which are adding much value to partners. However, there is sometimes a tension in the system with other providers interpreting a leadership role as an attempt to take more control.

Specialist trusts cite their international expertise but more work could be done to formalise these links and spread good practice from the UK. These comparisons could be used by Specialised Commissioning to ensure performance and standards are truly the best in class.

Innovation and its adoption, which is commonly demonstrated in specialist hospitals, creates a culture that can attract the best staff, bring in the best research/researchers and develop better outcomes for patients. The focus on this area could be replicated in other hospitals, supported by AHSNs.

Indicators such as CQC ratings, Friends and Family Test, staff survey and other measures of performance and patient experience consistently show high scores for specialist trusts. It is thought this is helped by a more focused provision of services and by the smaller size of specialist trusts, which enables greater staff engagement, a feeling of community; and by a great sense of pride in clinical specialism.

The study shows that there are many examples of specialist hospitals sharing expertise, pursuing adoption of standardised pathways or outcome improvement and undertaking leadership roles. A large proportion of this existing involvement is based on the use of their internal funding provision. Many specialist hospitals recognise they are on a transformational journey; adapting to changing healthcare policy, financial funding priorities and their engagement roles with the rest of the healthcare system.

Many expressed the need to formalise this wider 'public service responsibility role' with a mechanism for commissioners to formally contract with specific providers to assist with the development and redesign of commissioned services; the adoption and implementation of service innovation; and assistance with the improvement of outcomes.

However, supporting permissions, service delivery adoption infrastructure and pump priming financial support are required to ensure that transitions to new care models are embedded.

# RECOMMENDATIONS

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1. Our interviews have shown that many of the specialist trusts who are successfully innovating employ a senior level post to lead this function and link into supportive agencies such as AHSNs, NIHR infrastructure etc, as well as appropriate commercial partnerships (as strongly evidenced by The Christie Hospital NHS Foundation Trust experience). This approach should be adopted in a systematic manner across specialist hospitals and into the wider hospital sector.

**Recommendation:** All trusts should consider the development of senior level post with a designated innovation role.

2. The majority of specialist trusts said they would welcome the development of a more systematic best practice approach to help fast track service innovations of value with availability of expert advice.

**Recommendation:** The AHSN Network should take the lead in collaboration with Specialised Commissioners and the specialist trusts group on the development of a best practice approach to service innovation and a supporting expert team capability that is accessible to all trusts.

3. A role for Specialised Commissioners may be to formalise international links and benchmark specialist trusts against international best in class standards for innovation and performance to ensure world-leading services.

**Recommendation:** Specialised Commissioners should consider supporting the international benchmarking of specialist trusts, using some of the service outcomes standards as part of the core specification with all providers.

4. The current role of some specialist trusts in funding and improving financial efficiencies of innovative treatments, which benefit patients, should be celebrated and recognised in the system.

**Recommendation:** A pump priming innovation fund should be established by NHS England to be accessed via bids from specialist trusts and other providers, to take forward wider service advances, on the condition they help to promote the roll out of the service innovation.

5. The narrower condition/treatment focus in most specialist trusts has allowed an enhanced focus on a supportive, collegiate culture where colleagues can unite around a theme and share a common language.

**Recommendation:** We recommend that the proposed NHS Confederation work explores whether this culture could be replicated in other provider organisations.

6. Where specialist hospitals have adopted population health roles as part of their mission, this is valued by the system and may be a role that more specialist hospitals would like to promote into their system and/or at a national level. In Merseyside, specialist trusts are integrated into their STP and leading a number of work streams on population health to benefit the health and care system. In some areas, AHSNs are helping to form a bridge between specialist hospitals and the wider NHS including STPs.

**Recommendation:** NHS England should consider how specialist hospitals could provide a supportive population health management role in STP work around the standardisation of care pathways and adoption of prevention activities.

7. Although many of the specialist hospitals are national and sometimes global leaders in translating their discovery science and clinical expertise into innovative treatments, they are often unaware of the national policies, levers and funding streams that might encourage faster adoption and spread.

**Recommendation:** Every specialist hospital should establish a formalised partnership with their local AHSN to take forward service innovation and accelerate adoption and spread.



# SECTION ONE: INTRODUCTION

## 1.1 INTRODUCTION

Specialist hospitals are widely recognised for their excellence within individual specialties, including rare and complex cases. The contribution that specialist hospitals provide to the English healthcare system has previously been documented in several reports from the Federation of Specialist Hospitals, namely:

- Harnessing the potential of specialist hospitals 2009
- A report on the outcomes achieved by specialist hospitals May 2014
- Driving innovation in the NHS November 2015
- Building a successful NHS workforce October 2016

These reports are available on request by emailing: [secretariat@fsh.uk.net](mailto:secretariat@fsh.uk.net)

The value of specialist hospitals has been well documented in many of these reports with examples of how they have achieved high quality and service standards, pioneered new treatments and developed a global reputation for research and service innovation. These reports have contained case studies outlining both excellent service innovation and in many cases, clinical services excellence.

It is recognised that specialist hospitals consistently perform well and are seen as demonstrating a stronger culture of service innovation. It was felt by both the Federation of Specialist Hospitals and a number of the Academic Health Science Networks that a deeper understanding of the performance of specialist hospitals would be helpful in:

- a) Spreading any learning to other organisations and
- b) Gaining a greater understanding of how specialist hospitals can use their strengths to better connect with and benefit other providers in the wider NHS in their integrated care systems and place-based health and care systems.

## 1.2 APPROACH TAKEN

The Federation of Specialist Hospitals commissioned the Innovation Agency (AHSN for the North West Coast) and UCLPartners to undertake this study. Both organisations are contiguous with two main clusters of specialist hospitals. The analysis and supporting co-ordination of this report has been supported by Paul Wood, independent management consultant. See Appendix 4 for a list of specialist hospitals aligned with AHSNs.

The study has involved the following activities:

- 1) A series of structured interviews with a selection of stand-alone specialist hospitals and specialist services that are part of a wider group of hospitals. In total, 12 out of 21 specialist hospitals have contributed to this study. In addition, three chief executives/chairs of larger trusts with specialist services that are now part of their larger group of hospitals were interviewed.
- 2) A series of structured interviews was undertaken with leading stakeholders in the NHS, NHSI, Specialised Commissioning, Shelford Group, NIHR and a regional transformation partnership leader.

The full list of participants in the interview process is included in Appendix 2.

- 3) Comparative analysis of the current published information around the performance of specialist hospitals and some extracts of published analysis undertaken by the national GIRFT team has been undertaken. We acknowledge the contribution provided by this national team and individual contributions made by specialist trusts to this part of the report.
- 4) Assessment of the relative importance of different factors raised by interviewees supporting the underlying reasons for relatively higher performance.
- 5) Capturing the current roles and activity undertaken by specialist hospitals in the leadership and delivery of wider system transformation work and assessment of the potential of specialist hospitals in testing, developing and disseminating innovation.
- 6) Highlighting case studies of key service innovations or service transformation approaches being adopted by specialist trusts, which have potential wider relevance or which could be spread into the wider health sector.

This work was undertaken during the period July to September 2018.

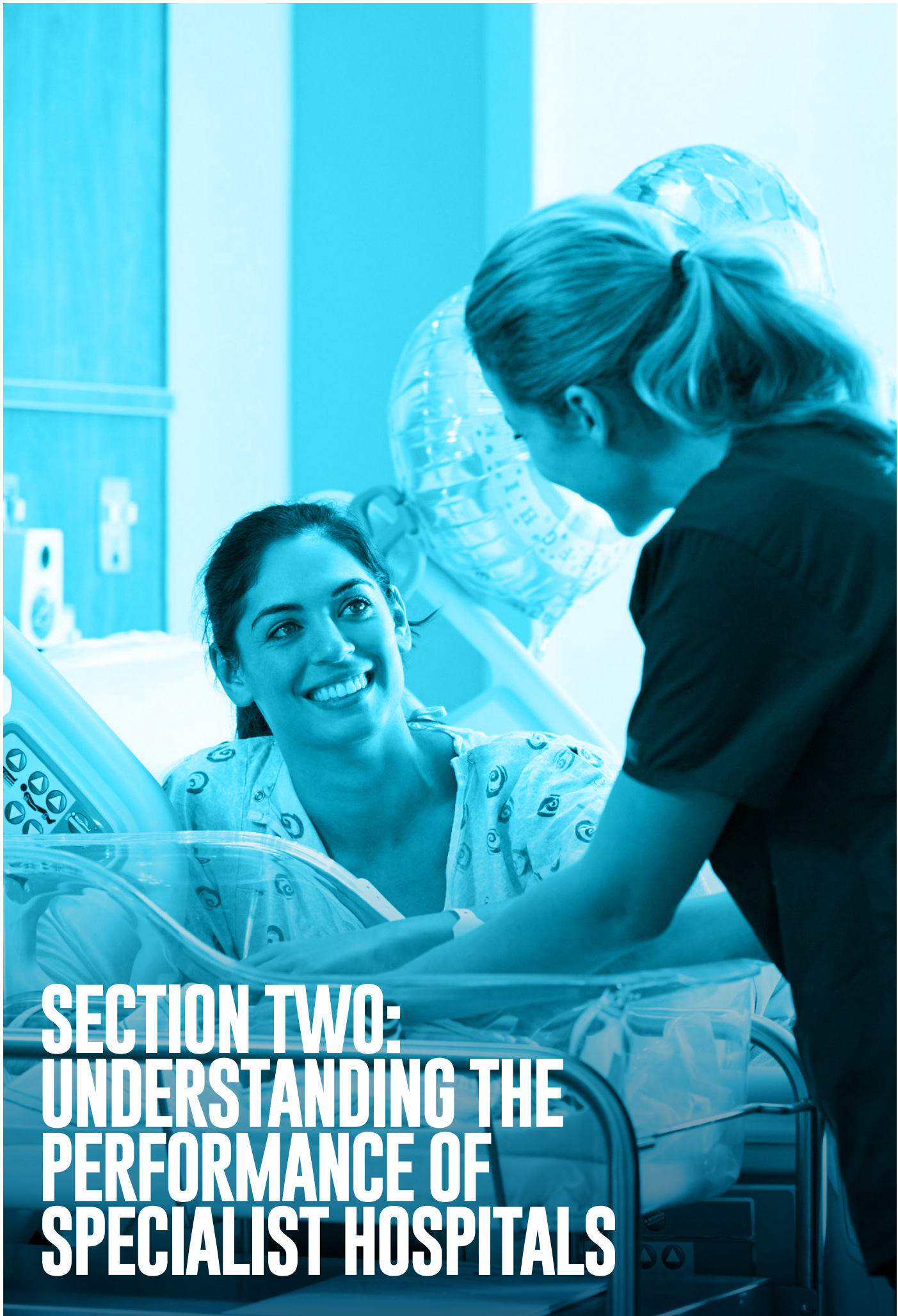
## 1.3 STRUCTURE OF THE REPORT

The report structure is as follows:

Section 2: An understanding of specialist hospitals' performance and the underlying factors, which may explain relatively higher performance; this section covers a short summary of the availability of the relevant data on the performance of specialist and other aligned hospitals.

Section 3: A summary of the roles that specialist hospitals are undertaking in regional STPs (Strategic Transformation Partnerships) or national roles in which they are promoting or leading service innovation or improvement initiatives. This section also covers some of the key areas highlighted where specialist hospitals could either extend or develop their role in systems based place based care or service transformation work.

Section 4: A description of the scale of service innovation taking place and an overview of the potential of specialist hospitals in disseminating innovation.



**SECTION TWO:  
UNDERSTANDING THE  
PERFORMANCE OF  
SPECIALIST HOSPITALS**

## 2.1 INTRODUCTION

Our interviews highlighted that there are at least four dimensions of performance in which specialist hospitals can be considered. These are:

- 1) Performance against the regulatory provider license framework that is monitored by NHS Improvement.
- 2) Comparisons with similar specialist service providers internationally in particular in the areas of cancer, orthopaedics and children's services. Although published information in this area is limited, clusters of specialist trusts are undertaking this comparative performance on a regular basis, as part of their service innovation focus and an aim to provide world class performance, service standards and outcomes.
- 3) Calibre of applied scientific research undertaken across specialist hospitals in conjunction with local academics and researchers.
- 4) Effectiveness of specialist hospital roles in contributing towards improving the wider health system performance through:
  - reducing the scale of unwarranted performance variation
  - leading the standardisation of specific pathways
  - leadership roles in the development of clinical care networks

## 2.2 AVAILABILITY AND USE OF INFORMATION

A review of information that is readily available suggests that current performance metrics are focused around service access targets, CQC ratings, and patient satisfaction levels.

The NHS Specialised Commissioning function collects and reviews differential performance of all providers they fund, focusing on financial performance, time to treat and other quality indicator dashboards. Any comparative performance review is on an individual provider basis against agreed service activity contract terms and compliance with the delivery of any prescribed service specification or commission of specialist hospitals as a group.

Specialist trusts are providing many of the benchmarks of qualitative best practice or standards used in improving value initiatives such as Getting It Right First Time (GIRFT).

### 2.2.1 INTERNATIONAL BENCHMARKING – EVIDENCE ON OUTCOMES

For many specialist trusts, there are few UK providers with a similar patient case mix on which to compare outcomes on a like for like for basis. A few specialist trusts compare their outcomes performance with a peer group of international provider comparators.

Several specialist trusts gave examples where their outcomes for particular services are known to be best in the world or compare favourably with 'best in class'. However, as commented by interviewees, meaningful comparisons on outcomes data are often limited to just a few indicators on cancer survival rates and PROM style indicators around orthopaedic surgery.

There is limited published international benchmarking information around specialist hospitals used by the national Specialised Commissioning function as part of their performance intelligence or evaluation of investment levels. This is an area for consideration by clusters of specialist hospitals in partnership with the national Specialised Commissioner.

In terms of performance and contribution to the wider system, as outlined later (section 3), there is a wide spectrum of different roles being played by specialist hospitals in their local systems or with a national focus, with limited defined measurement or contribution.

Clinical Excellence awards may be viewed as an indicator of high service standards, outcomes and service capability. However, they rely heavily on individual self-reporting and often do not reflect system benefits. Information is not currently reported by grouping of specialist hospitals as compared with large teaching or acute hospitals. Clinical Research ratings are linked to their associated alliances with universities.

### 2.2.2 GIRFT REPORTS – EVIDENCE AROUND BEST PRACTICE PATHWAYS

Evidence of compliance to best practice standards and appropriate reduction or increase in care and resource use is beginning to emerge as part of the GIRFT report and supporting processes. We outline in Section 3 the pioneering role that certain specialist hospitals have made already to the development of this performance review and improvement approach. As outlined by one interviewee, there is an overriding need to develop the evidence base of NHS service outcomes and standards.

"There is a real opportunity using the evidence base for supporting innovation to make a significant impact far in excess of their relative size. It is important to encourage specialist hospitals to deliver this and to understand that innovation is part and parcel of what they should be doing.

## 2.3 OPERATIONAL COMPARATIVE PERFORMANCE

Hypothesis: Specialist hospitals are achieving higher performance ratings against the areas of common performance measurement.

In an attempt to test this hypothesis, we have used the NHS Improvement performance datasets and other readily available datasets. Overall analysis of the cumulative performance in the final quarter of 2017/18, indicates that a large cohort of both stand-alone specialist hospitals and specialist hospitals that are part of a wider hospital group do record higher levels of performance ratings in the areas routinely measured by the NHS sector.

As outlined below, although a greater proportion of specialist trusts have good to outstanding CQC ratings, this is not a consistent picture across the board.

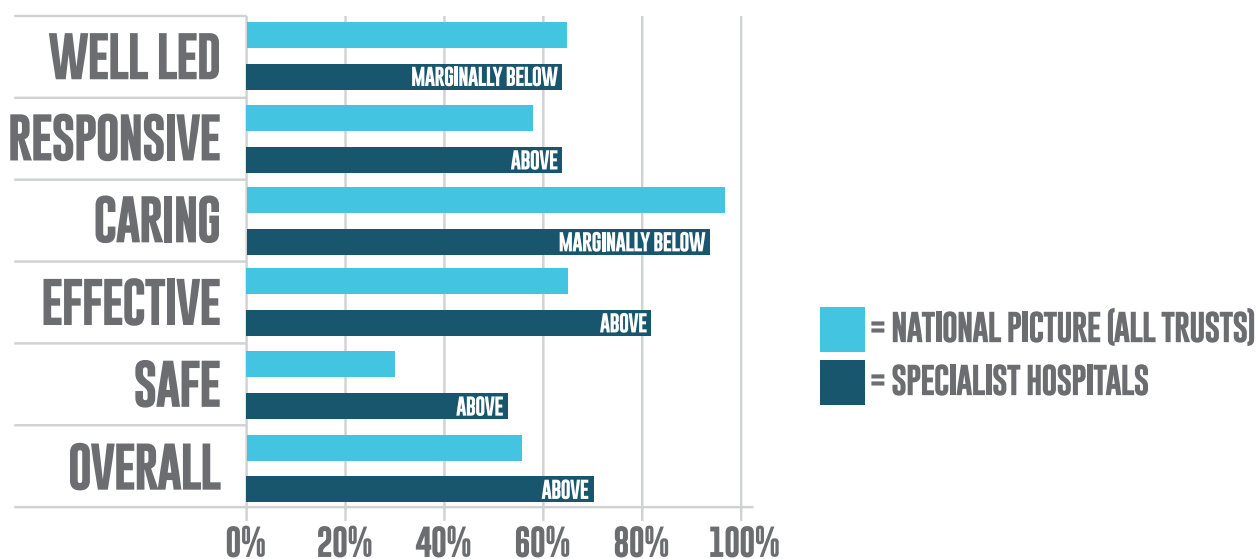
## 2.4 CQC RATINGS PERFORMANCE

In total, 71 per cent of specialist trusts are rated good or outstanding compared to 56 per cent of all trust providers group.

The chart below summarises the profile of CQC ratings as at final quarter of 17/18:

The review of the current CQC ratings database for all providers as at July 2018, suggests that:

- Stand-alone specialist hospitals group has a higher level of overall good and outstanding ratings than the other hospital provider groups
- Specialist hospitals record higher levels of good and outstanding ratings on safe, resource effective, responsive ratings compared to all other trusts groups
- Specialist trusts group have a similar profile of good and similar ratings on Well Led and Caring compared with other NHS trusts groups
- Specialist hospitals that are part of a larger group of hospitals appear to perform well on CQC ratings – four out of five.



## 2.5 FINANCIAL CONTROLS TOTAL POSITION

Table 1 below summarises the targeted financial position of NHS trusts in 17/18 compared to the actual reported within the NHS Improvement reporting framework. It shows that specialist hospitals in overall net return delivered a higher surplus position than expected in the region of £265m. This is compared with non-specialist trusts' reported deficit position increasing by £422m.

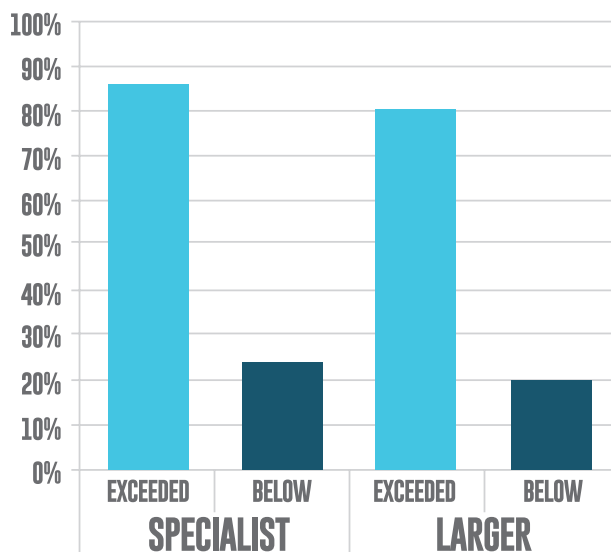
GROUP CATAGORY	YEAR TO DATE TARGET (£M)	ACTUAL £M	VARIANCE	% OF TRUSTS ACHIEVED
Non Specialist Trusts Group	- 937.6	- 1359.62	- 422.02	67%
Specialist Hospitals Group	25.8	248.22	222.42	76%
Specialist Hospitals Part of Larger Hospital Groups	12.3	45.1	32.8	80%
Overall Provider Sector	- 899.5	- 1066.3	- 166.8	



## SOURCE: NHS I QUARTERLY REPORTS

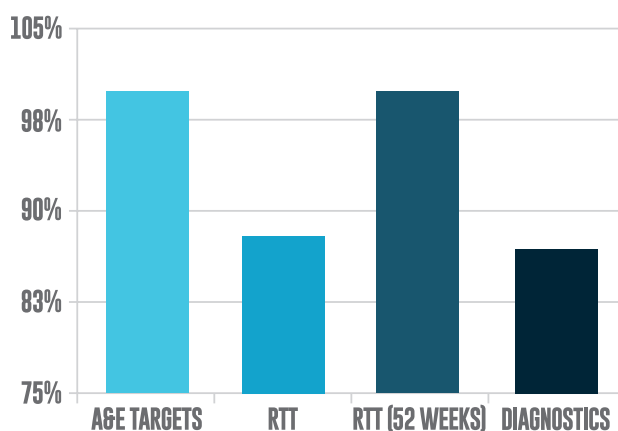
The chart below shows that 75 to 80 per cent of specialist hospitals achieved their financial control position compared with 67 per cent of all other trusts.

**Chart: Proportion of stand-alone specialist trusts exceeding their financial control target compared to their specialist providers that are part of larger group**



## 2.6 SERVICE ACCESS PERFORMANCE

Specialist trusts perform well above the average across all the service access performance measures.



SUMMARY TABLE	A&E TARGETS (%)	RTT COMPLETE (%)	RTT (52 WEEKS) NO	DIAGNOSTICS W TIME (%)
National Average Non Specialist Hospitals	83.55 %	86.78 %	526.80	2.13 %
Specialist Hospitals Group	97.20 %	85.90 %	4.94 %	1.28 %
% of Specialist Hospitals - Above National Average	6 out of 6	15 out of 17	17 out of 17	14 out of 16
Overall Provider Sector National Average Performance	100 %	88 %	100%	87 %
Specialist Hospitals Within Larger Groups	62.1 %	68.96 %	40.8	1.28

## 2.7 NATIONAL CANCER TARGETS

Reported performance in this area is overall well above the national average among all providers. Chart 3 below illustrates the profile.

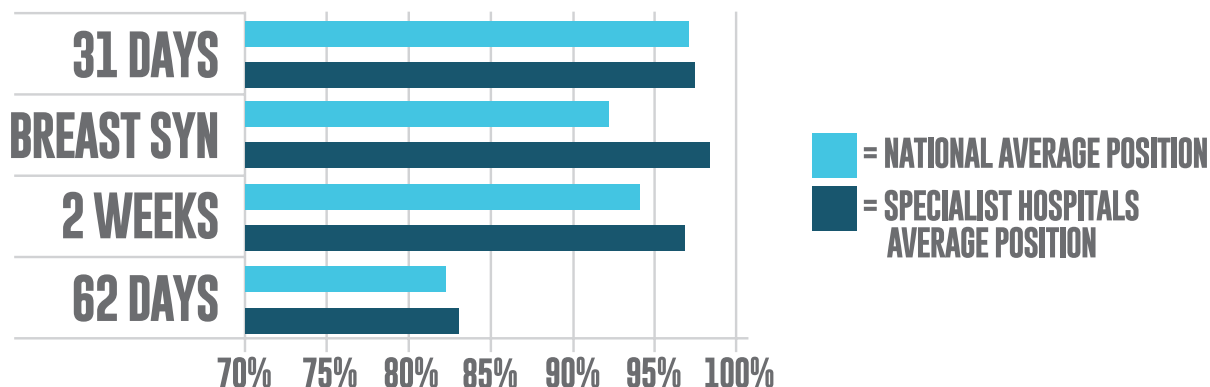


Table 3: Supporting Summary Table – Cancer Targets Performance

SPECIALIST HOSPITAL TRUST	CANCER 62 DAYS (%)	CANCER 2 WEEKS (%)	CANCER BREAST SYN	CANCER 31 DAYS
No. of Trusts	15 %	11 %	2 %	15 %
Average Position (Spec Hospitals)	83.1 %	96.7 %	98.4 %	97.5 %
National Average Position	82.3 %	94.1 %	92.3 %	97.2 %
% of Specialist Hospitals - Above The National Average Performance Level	8 out of 15	9 out of 11	2 out of 5	12 out of 15

## 2.8 PATIENT EXPERIENCE RATING

The majority of specialist trusts perform very well against the national patient experience ratings. The majority of specialist trusts record an above average percentage of recommendations re Friends and Family Test and all score highly in the inpatient survey.

Table 4: Summary Position on Patient Experience Rating

TRUST PROVIDER GROUPINGS	FRIENDS & FAMILY TEST (% RECOMMENDED)	IN PATIENT SURVEY (EXPERIENCE RATING OUT OF 10)
National Average (All Trusts)	96.0 %	8.20
Stand-Alone Specialist Hospitals	95.8 %	8.87
Specialist Hospitals as part of a larger group	94.3 %	8.18
No of specialist hospitals above the national average rating	13 out of 17	13 out of 13

Source: NHS Inpatient Survey and Friends & Family Test

Orthopaedic trusts perform in the top upper quartile, top 10 percent. As outlined by many specialist trusts, the single client or service focus provides the opportunity to focus on patients and families' experience of the key pathways and the quality.

## 2.9 KEY REASONS FOR SPECIALIST TRUSTS PERFORMING WELL

The level of empirical and longitudinal evidence based around the key factors underpinning the higher levels of performance ratings is very limited. But the views of specialist trusts providers and system leaders interviewed were relatively consistent on the key factors that they see every day that are underlying factors in delivering a higher level of performance. Table 4 below summarises the key reasons given for the higher performance levels. None of these key factors is unique to specialist hospitals but many interviewees believe a higher number is evident in these providers.

**Table 4: Summary of the key reasons provided for higher performance**

SPECIALIST HOSPITAL TRUST	% MENTIONED BY SPECIALIST TRUST INTERVIEWEES	% MENTIONED BY OTHER STAKEHOLDER INTERVIEWEES
Single Specialty / Client Group Focus	80 %	100 %
Culture of Research / Service Excellence & Continuous Improvement of Patient Services	100 %	80 %
Focus on scheduled Patient Care Interventions Rather Than Emergency /unscheduled	70 %	90 %
Clinical & Managerial Leadership Capability	100 %	80 %
Calibre of Staff & Their Focus on Outcome Excellence	100 %	100 %
Sense of Identity / Staff Motivation Linked to Culture	90 %	60 %
Funding Position of Specialist Trusts	50 %	80 %
Co-Location of Specialist Services	50 %	30 %
Smaller Size of the Organisation	80 %	80 %

**Source: Interviews held with specialist trust leaders and other system stakeholders and factors highlighted for the good performance**

## 2.10 KEY REASONS: VIEWS OF SPECIALIST HOSPITAL LEADERS & SYSTEM LEADERS

### Single specialty focus & scale of scheduled workload

The most common observation made by nearly all interviewees is the inherent advantage that specialist hospitals have in being able to focus both clinical leadership and management on a single specialty focus that is predominantly around scheduled care.

This is compared with the typical DGH or large hospital role of managing the scale of non-elective/emergency activity with up to 90 service specialty lines in major teaching hospitals.



So, that's one of the real drivers from the financial performance that I think allows specialist organisations to be much more planned, to work to standard operating procedures much more, to be clear about end to end processes and so the relative efficiency becomes quite clear.

I think being a single specialty organisation means that we can focus what we do and also, are protected from the pressures of other specialties. So, if we think for example about our A&E performance, I think we are consistently the best performing hospital in London and that is by focus of our specialism. So, not only are ophthalmic patients rarely admitted when they come to A&E, we're also not having to make difficult decisions in terms of prioritising ophthalmic patients attending A&E compared with other people perhaps coming in with more critical life-threatening illnesses.

**MOORFIELDS EYE HOSPITAL**





Due to the specialism they can focus, ensure that things happen and having this clear focus means that staff and clinicians easily understand each other, which helps them to accelerate innovation and improved performance, partly due to the peer support.

**THE WALTON CENTRE NHS FOUNDATION TRUST**

Due to the size of the trust there is the opportunity for clinicians to coalesce around something in common. This size and focus allows some headspace for staff, compared to big DGHs who are always fighting fires.

**ALDER HEY CHILDREN'S NHS FOUNDATION TRUST**



Specialist hospitals have the inherent advantage of being able to focus scheduled care of a limited number of service lines rather than 90 plus of typical large hospitals or DGHs that are managing large volumes of emergency activity, every day.

**NHS IMPROVEMENT LEADER**

Particularly how do you optimise specialist services as part of a busy organisation? How do you ensure that you maintain the quality as you start to bring in new translational medicines and translational innovation is an interesting topic. We are having quite an active discussion with NHSE about excess treatment costs."

**GUY'S & ST THOMAS' NHS FOUNDATION TRUST**



**Culture, research & continuous improvement**

The culture developed by many specialist trusts was highlighted by many as one of the key differences that results in better outcomes and performance levels. Both the scale and focus of research and the drive for continuous improvement was also raised by many specialist trusts as a major contributing factor.



The philosophy is that the trust is one big team and the execs are very visible, which is not the case in bigger trusts. The culture has developed over the last 10 years and our vision is to be the best. Cardiac procedures, surgery and cancer are all subject to national scrutiny and this means that there is a competitive consultant environment, which breeds excellence. Staff know that what they say will be taken seriously and the workforce is like a family, who all know each other.

**LIVERPOOL HEART AND CHEST HOSPITAL NHS FOUNDATION TRUST**



I think what's so exciting for me in my organisation is if we can add that culture of really supporting innovation and improvement and it becomes part of what we do, bottom up as opposed to sort of top down, I think the opportunities that will be unlocked will be massive.

**MOORFIELDS EYE HOSPITAL NHS FOUNDATION TRUST**



## Clinical & managerial leadership



The trust has an unstinting focus on leadership and quality and there is an in-depth understanding by all staff of the work of the organisation. The trust is robust in measurement, assessment and monitoring and sees itself as being on a continuous improvement journey. As the trust is small, there is exec engagement with staff. The trust listens to its staff; a huddle is held every day with executive team, clinical and back office teams, including HR, medical engineering and others.

### LIVERPOOL HEART & CHEST HOSPITAL NHS FOUNDATION TRUST

The trust has a robust clinical leadership model and has an external governance review in place. Staff don't have to ask for permission for making changes that will improve safety, care or patient experience issues.

### ALDER HEY CHILDREN'S NHS FOUNDATION TRUST

I guess the thing that particularly differentiated between that and some of the previous ratings was assessments around leadership and two particular things came out quite strongly if you read through our CQC report.

### BIRMINGHAM WOMEN'S & CHILDREN'S NHS FOUNDATION TRUST

It is clear from viewing the performance of NHS providers, although specialist hospitals have many inherent advantages, these would not be harnessed if they didn't have a very strong calibre of leadership.

### NHS IMPROVEMENT



## Culture, research & continuous improvement

All specialist hospital stakeholders highlighted their aligned culture throughout the workforce as one of the major factors in performing well both on process measurements and clinical service outcomes.



Smaller specialist hospitals have a particular work ethic, focused on making them centres of excellence.

We tend to be reasonably comfortable that we can deliver on the process; it gives us the time and the capacity to focus on the outcome measures. So, I don't know that I could evidence this but the fact that we don't have to get our clinicians spending huge amounts of time prioritising who they allocate theatre time to in order to meet RTT, means they have got time to think about their PROM indicators, the appropriate clinical outcome measures for their patients and to focus their discussions and their time on that.

About 50 per cent of our focus is given to research and the application of how we can advance treatments and services for the benefit of our local population.

### ROYAL NATIONAL ORTHOPAEDIC HOSPITAL NHS TRUST

All staff, no matter what professional grouping, are encouraged to be engaged in either research or service innovation and improvement.

### THE CHRISTIE NHS FOUNDATION TRUST

The difference with working in a specialist hospital was that our clinicians - and I don't just mean doctors - but nurses, AHPs and everyone were travelling round the country, travelling round the world presenting examples of their research and service innovation that they were doing; they were learning what other people were doing.



### ALDER HEY CHILDREN'S NHS FOUNDATION TRUST

## Calibre of staff & alignment of motivation to focus on outcomes

A major underlying factor of their relative success raised by all interviewees from specialist hospitals is the calibre of staff they attract and their motivation to undertake research and service innovation. It is seen by many as an important differential that facilitates the higher performance levels and delivery of service excellence.

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I couldn't point you to any evidence of this, but I wonder whether it has a positive impact in terms of the staff as well. Our clinical staff are more motivated because they've got the time to focus on clinical indicators rather than RTT, which is understandable. The process measures which are important are understandably less likely to motivate a clinician than a conversation about outcomes.

### MOORFIELDS EYE HOSPITAL NHS FOUNDATION TRUST

Commitment of staff and outlook. Staff are mission driven and have a quasi-religious belief that the trust has a special role. There is uniqueness in what they do and for patients, the care is better. This creates the characteristics. Facilities are antiquated but patient experience is always in the upper 90 per cent in surveys. As they deal in end-stage disease, they are the last station for many patients and many will die. They are grateful for their care and staff reflect that approach.

### ROYAL BROMPTON & HAREFIELD NHS FOUNDATION TRUST

Unlike the rest of the hospital sector, our ability to recruit the most capable of staff and retain them is one of our greatest strengths; our temporary staff cost profile represents less than one per cent of our total trust costs. We have never had to use a large temporary staff profile.

### THE CHRISTIE NHS FOUNDATION TRUST

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The viability of specialist institutions does seem to be stronger than it is for some of our smaller DGHs where there is little population movement, it is difficult to recruit, disconnected from the academic mainstream and their core can become isolated and nucleus hard to maintain.

We are surrounded by a few of the best academic institutions in the world. So, there are smart people everywhere.

### UNIVERSITY COLLEGE LONDON HOSPITALS FOUNDATION TRUST

I think that something else that differentiates specialist hospitals from other organisations, even university teaching hospitals, is that generally staff satisfaction levels are much higher. They are always in the high 90s which possibly reinforces the narrative that life is easier and better and nicer; but you can flip that over and say well what is it about a positive experience that people are having?

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### MOORFIELDS EYE HOSPITAL NHS FOUNDATION TRUST

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I think the fact that we do perform consistently well in specialist hospitals on things like staff surveys and friends and family feedback is something that's embedded in the culture, the patient experience side of the things, and the organisation's pride in what it does. And that's I think what binds us rather than the clinical speciality – it's the cultural thing we are really analysing here.

### ROYAL NATIONAL ORTHOPAEDIC HOSPITAL NHS TRUST

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We have constantly engaged patients and carers in the design of our services and regular monitoring of performance. As a result of this we provide service consultations in many local hospitals and have developed our chemo@work service offering.

### THE CLATTERBRIDGE CANCER CENTRE NHS FOUNDATION TRUST

## Financial funding profile

The scale of financial funding available to most specialist hospitals was considered by many of the system-wide stakeholders as a major contributing factor. Historically, the margins received for undertaking specialised services work have been very different – in many instances based on local price negotiation. Up until recently, they have not experienced the capping of prices or the application of marginal tariff rates for increased activity. The national model hospital work has shown that the margins for undertaking non-specialist emergency work have been eroded over the years with changes in non-elective PbR tariffs and the ceilings placed on income received for increasing non elective activity.

However, the picture for specialist trusts is varied; some are dependent on block contracts that have not kept pace with clinical developments. In addition, the move of some contractual activity to local CCG basis is changing the certainty of specialist trusts' income base alongside the cash constraints being imposed on specialised commissioning budgets.



Clearly people are exercised about the size of the specialised services budget.

There is a general feeling that they do tend to attract more money rather than if they were focusing on elderly or chronic long term conditions needs.



### STP LEAD

It should be noted however, that the evidence based on funding per capita is not currently used by NHS commissioning bodies and those patients who are both frail and have chronic long term conditions are the same patients who benefit from the services provided by specialist hospitals.

However, as raised by many interviewees, the real issue is the scale of focus and subsequent investment in population health management compared with the provision of treatments.

## International specialist provider benchmarking

Many of the specialist hospitals have an international reputation built up over decades of both research and service innovation. The track record on treatment advances and developing services is recognised as world class in several areas of ophthalmology, cancer, orthopaedics and cardiac procedures.

The wider publication of the international benchmarking of service outcomes in these service areas appears limited to organisations' annual reports but more importantly, it is not currently used by national or local commissioners to set standards that become a baseline for commissioning of services.

The use of international standards benchmarking around service model standards and outcomes expected was raised by several stakeholders as a major deficiency in the current English healthcare commissioning system. As outlined later, it is a perceived 'public responsibility' role that all specialist hospitals, if they are to remain relevant in the future, need to undertake, to support their role as change agents for regional and national commissioning systems.



Several specialist hospitals record and monitor their outcomes against an international peer group.

In the context of RNOH, this provider records low infection rates (less than 0.19%), largest scoliosis unit in Europe, one of the largest sarcoma units in the world. A unique treatment of patients from as young as six months all the way throughout their life. They are producing outcomes that set a benchmark, which others could follow.

If you then take into account their wider R and D, teaching and training role – RNOH trains 15-20% of orthopedic surgeons in the country – their role in training is a benefit to the wider system.

### ROYAL NATIONAL ORTHOPAEDIC HOSPITAL NHS TRUST OUTCOMES POSITION – INTERNATIONAL COMPARISON



There is good evidence that high volume centres have better outcomes, particularly in the areas of ileal pouch surgery and polyposis services, and only a specialist hospital can be a high volume centre in some of the more niche areas, listed above. St Mark's Hospital cares for the largest number of patients with Type 3 intestinal failure in the country. As a result, we have established treatment protocols for complications that are only rarely seen in low volume centres and the survival rates for patients on home parenteral nutrition are some of the best in the world.

"Studies have demonstrated improved outcomes for patients having colorectal cancer surgery provided at higher volume centres (Huo et al, 2017).

### ST MARK'S HOSPITAL EXPERIENCE

A blue-tinted photograph of a hospital hallway. In the center, a person in a white lab coat is seen from behind, walking away. To the right, another person is standing near a medical cart. The hallway is lined with doors and has overhead fluorescent lighting. The overall atmosphere is clinical and professional.

**SECTION THREE:  
SPECIALIST HOSPITAL  
ROLES IN STRATEGIC  
TRANSFORMATION  
PARTNERSHIPS  
AND SYSTEM WIDE  
TRANSFORMATION**



### 3.1 ROLES UNDERTAKEN BY SPECIALIST HOSPITALS

Historically, certain specialist hospitals have worked together in national provider alliances, which help with the review and testing of new service pathways and treatments through to their involvement in setting standards. The major alliances highlighted in this interview programme were:

- Orthopaedic specialist trusts alliance that has evolved into the establishment of the GIRFT team and review processes hosted by Royal National Orthopaedic Hospital
- Children trusts alliance that has been involved in national service policy formation and the commissioning of new services and standard setting
- Cancer provider alliances that have led the development of new service advances and have supported specific commissioning initiatives
- Other specialist hospitals' input into developing national service standards and new service models for NHS England

The recent roles described by specialist hospitals highlight the potential leadership and advisory roles that are still being undertaken by specialist hospitals as part of their wider responsibilities to provide expertise and service planning leadership that will benefit the wider NHS. Some key examples highlighted are below:



Members of the specialist children hospitals group worked together to develop an appropriate product, national standard and the development of care bundles to provide a safety monitor for children's services.

There was previously no equivalent for children. It started like many other service innovations from the interests and ideas of an individual clinician and chief nurse at Birmingham Children's Hospital. The paediatric alliance was used to take soundings with colleagues to see if there was interest in developing a product and approach.

There was initial work undertaken by Alder Hey, GOSH and Birmingham Children's Hospital. A joint team looked at what safety monitoring might look like, to review other existing service models - UK-wide, locally and internationally. They looked at some of the work that has happened particularly in the care bundle approach and with the paediatric early warning tools to build a set of standards and best practice.

NHS England then supported a rollout of equivalent safety monitoring for children and the care bundle approach. The children alliance is now involved in evaluating its application nationally – taking it from creation through testing, adoption and spread.

#### WORK OF THE CHILDREN SPECIALIST HOSPITALS ALLIANCE - DEVELOPMENT OF THE CHILDREN SAFETY MONITOR



### 3.2 LEADERSHIP AND DEVELOPMENT OF NATIONAL IMPROVEMENT APPROACH – GIRFT

The inherent capability of specialist hospitals is also shown by the evolution of the orthopaedic specialist trusts alliance and leadership from RNOH clinicians and managers to the development of the GIRFT team. This team is now providing leadership in national programmes identifying the best in class pathways and setting out outcome benchmarks.

Summarised below are the outcomes achieved to date from the focus on specialist orthopaedic pathways. However, with the expansion of the programme into many other areas, it is notable that all specialist and teaching hospitals are contributing to the programmes around formulating 'what good looks like'. These programmes are using the expertise across the system but particularly specialist hospitals to improve service innovation, outcomes and patient pathways.

## Case study – Impact of the orthopaedic services improvement and reducing unwarranted variations GIRFT

As outlined by Professor Tim Briggs, the potential value of harnessing the expertise and clinical leadership of specialist hospitals to help raise the bar of the whole system has been evidenced by the impact of applying GIRFT principles to orthopaedics. The extract below illustrates the reported progress.

### Extract: Impact to date of the GIRFT orthopaedic study

- Reduced length of stay, reduced readmission rates, reduction in litigation in orthopedics (bucking the trend)
- Cost saving in the last three years of over £79m in reduced litigation costs alone. Reduction in number of centres carrying out low volume of interventions. Great examples in neurology, paediatric surgery, cardiothoracic surgery
- Number of patients over the age of 60 requiring knee replacements in a year has now reduced in some centres from 28 per cent of their patients to two per cent because of implementing the best practice and revised pathways. Similarly, for hip replacement in patients over 70, a significant drive to use evidence base for patients needing knee and hip replacements has resulted in better outcomes for patients and better procurement costs. This would suggest that investment in MSK programmes can go further in virtually every trust in the country

This role of leading an evidence based improvement approach across target areas both nationally and at a regional level has the potential for growing into a large-scale service innovation, as part of the solutions development work. There is a potential role in leading and executing specific service change and innovation for strategic commissioners, either in clusters or in individual specialist trusts working with other providers in a partnership model.

The style of approach may have to be adapted to lead service change around medical or cancer services particularly for patient pathways involving various co-morbidities. However, the requirement for the role clearly exists as illustrated by the work of specialist GIRFT teams and the existing work being undertaken by specialist cancer trusts.

It was raised by several specialist trusts that although GIRFT work is welcome to raise standards, there is a danger that unless undertaken in genuine partnership with all providers it could be perceived as simply promoting the service excellence of specialist trusts.

### A comment from GOSH highlights this point:

“There’s a fine line between us as specialist hospitals stepping out to do that and having fertile ground and willingness of other players to partner and form a partnership. The reason being that without that readiness it starts to be perceived as arrogance rather than a genuine partnership for the benefit of our shared patients.”

## 3.3 OVERALL PICTURE –CHALLENGES FACED BY SPECIALIST TRUSTS

Discussions with specialist trusts and system wide leaders highlights that although there are some compelling stories and effective approaches taking place, across the NHS system we are still poor at rolling out best practice and enhancing standards and patient outcomes. There are some individual examples of how some of the recommendations outlined in the FSH report Driving Innovation Forward, are being executed but the wider position is of inconsistent application. As outlined by many, the barriers to innovation and system wide transformation as highlighted in the 2011 Department of Health report Innovation, Health and Wealth still exist. These barriers can be categorised as follows:

- Leadership culture (both clinical and managerial) to support innovation and system wide transformation is inconsistent or lacking;
- Commissioners (both specialised and CCGs) lack the tools or capability to drive innovation forward in their commissioning and contracting work;
- Lack of effective and systematic innovation architecture available to support large scale innovations;
- System financial incentives are not geared towards rewarding the innovators and can act as a disincentive to adoption; but it is acknowledged that the Innovation and Technology Tariff/Payment introduced for 2017-19 has potential for development in this regard, alongside assistance from AHSNs.
- Poor access to and use of evidence, data and metrics around service innovation.

The interviews undertaken for this report have identified that there is a mixed picture of the real involvement or contribution provided by specialist hospitals.

As outlined in the case study below, specialist hospitals around Liverpool are all providing major leadership roles in developing further standardised networks of care services and taking forward the implementation of standardised care pathways. Other specialist hospitals are beginning to lead strategic reviews of their specialty across their local system that is not confined to tertiary pathways. Some are also leading on improving service provision or service reconfiguration – acting as the ‘honest broker’.

For some specialist trusts, their logical role in strategic transformation partnership working is more difficult due to their national service coverage (eg GOSH, Royal Brompton). Others outlined the resistance from other providers in the development of a networked care model due to perceptions of a take-over of particular services rather than helping to raise standards.

As outlined by one specialist hospital, there are tensions around the roll out of standardisation of pathway protocols and service models.

“I do think we enter a room and there’s an element of understandable tension because we have this network model. It’s sometimes harder for us to have those collaborative conversations with other providers because their understandable first assumption is that we want to acquire them which is rarely the motivation.”

## Specialised commissioning perspective - lack of alignment

Several expressed concerns about the perceived non-alignment of their roles and service portfolio in the context of the specialised commissioning agenda around developing and implementing standard service specifications.

“Are we attempting to commission services on the basis of known world class standards or lowest common denominator?”

“Where do we start with the commissioning system; I have rarely seen any commissioners take action to improve the standards and outcomes of particular services when information on poor outcomes is evident?”

“Our commissioning system needs urgent reform – otherwise the inherent strengths of services provided by specialist hospitals/centres will be eroded.”

## Commissioners' perspective

The other perspective outlined is that specialist hospitals are a legacy of having no coherent provider strategy and not being aligned with the need to provide modern medicine or elective care.

The view was expressed that some stand-alone specialist hospitals may not be relevant as a service provider model given the direction of travel of locally based service commissioning. However, others highlighted single specialty hospitals as having the potential to lead, provide or manage services that are focused on the health management of a particular population segment.

## Contribution of specialist hospitals

Despite the inherent difficulties and challenges of system wide transformation work, several specialist hospitals can point to how they now have emergent or established leadership roles within their regional STP process. Some have established leadership positions with permission to engage the wider system in specific service innovation initiatives or to roll out best practice standards that can benefit patients across all hospitals or the wider system.

Each specialist hospital is unique in its service capability or inherent strengths but all possess a culture and a workforce who are passionate about improving services, delivering service excellence and advancing treatments or services.

We outline below some notable examples that illustrate both the capability and range of roles that many specialist hospitals are undertaking. These include work with STPs; national service development; and in some cases, international experience in raising service standards and helping other healthcare systems. These demonstrate:

- How specialist trusts can lead a system wide review and service pathway standardisation programme
- How specialists trusts can lead and facilitate the collaborative working of many providers and commissioners to develop population health management approaches and design services to support prevention and detection
- How specialist trusts have developed standardised models of care across a large care network involving many hospitals and large populations

## System leadership roles – spread of standardisation of best practice pathways and population health management work

Although specialist hospitals may have had difficulty in dispelling the myths of specialism elitism or tensions with other providers, there are excellent examples of how specialist trusts are leading system wide transformation and helping to standardise key pathways. The roles being undertaken by four Merseyside based specialist trusts highlights the potential leadership role that can be undertaken and the value they bring to engaging with population health management issues and solutions.

An extract of the roles is below.

TRUST	DESCRIPTION OF ROLE
Alder Hey NHS Foundation Trust	<p>Leading a women and children's work stream, which is setting up a route map to develop a hub and spoke service.</p> <p>Working with commissioners in assisting the development of a revised children service model network.</p> <p>Providing training support, eg anaesthetist training.</p>
Liverpool Heart and Chest Hospital NHS Foundation Trust	<p>There is a clear, defined role for the cardiac specialism in the STP and this work stream has been running for three years.</p> <p>The trust provides work stream leadership and it is governed by a strong Board including third sector stakeholders, academia, the networks, primary care. RightCare data is used. LHCH have funded this work stream for three years but have not done this as a 'feather in their cap'; they have focused half the work on prevention to change population health in the longer term and they are proud of this.</p> <p>They have led the clinical network. "Working with primary care helps LHCH clinicians to understand their issues and for primary care to understand the issues of the consultants."</p>
The Walton Centre NHS Foundation Trust	<p>STP work is very positive, as they have been working collaboratively for years. The STP has helped The Walton Centre to standardise pathways, joining the dots across the system to support patients and trusts. Spreading pathways that they do well – eg first seizure; and in acute trusts, pathways for headache</p> <p>National pathway – back pain evaluation of pain management not drugs</p> <p>Community pain management – taking a medicines management role</p> <p>Parkinson's disease and MS - the trust has been asked to lead on standardising pathways</p> <p>The trust has built good relationships regionally, providing neurologists to all hospitals in a network of local outreach care with standardised pathways</p>
The Clatterbridge Cancer Centre NHS Foundation Trust	<p>A leadership role in the development of the Cancer Alliance across STP population</p> <p>Specialists working in a local outreach standardised service model</p> <p>Working with GPs and system providers on development of prevention health plans and use of staff. Innovation occurring with the design and delivery of chem@workplace</p> <p>Developing the capabilities of MDTs around cancer therapy programmes</p> <p>Development of closer to home plans with Specialised Commissioning team</p> <p>Transforming Cancer Care Team development re internal transformation alongside changes to roles to support population health management approaches</p>

### Roll out of the Moorfields clinical service model

One of the best examples of dissemination of service innovation is the development across 30 plus hospitals of the virtual glaucoma and cataract service model that is improving outcomes at Moorfields Eye Hospital NHS Foundation Trust.

Moorfields participated in the national Vanguard programme and were keen to share knowledge about their network model. Their view was that adopting a standardised approach by sharing learning was applicable to every speciality rather than just ophthalmology.

"So, I think because we have the time to think differently and I suppose actually for us there is an element of survival of our independence, this forced us to think differently about our model. This meant we were able to innovate and then share it more widely. And I think it's something that we definitely have the potential to do more of; if I was going to be a bit self-critical on reflection I'm not sure we always do that as effectively as we could do."

### 3.4 OTHER ROLES FOR SPECIALIST HOSPITALS

The survey also revealed the potential breadth of roles that specialist trust leaders are undertaking, for instance:

- National clinical lead roles for cancer and oncology acute services
- National roles in leading the review of maternity services
- Vanguard roles in sharing best practice re cancer collaboratives
- Leadership of the STP secondary care service model and reconfiguration options
- Leadership facilitation role around exploring a future provider federation model being explored in Birmingham and Solihull
- The Christie Hospital leadership role in the Manchester-wide cancer service strategy development and working with local authorities and health commissioners
- The Christie Hospital outcome improvement partner role, helping other hospitals to deliver service and outcome improvement
- Recent invitation for St Mark's clinical team to lead and strengthen the local STP work focus on raising service standards
- Work of GOSH on genetics

All specialist hospitals consulted could highlight areas where they are beginning to make a significant contribution to STPs.

### 3.5 RECOGNITION OF NEW ROLES FOR SPECIALIST HOSPITALS IN POPULATION HEALTH MANAGEMENT

Several specialist hospitals identified that changes are required in engagement with the wider system to make the service portfolio relevant to population health management and the use of staff in prevention.

"I think particularly with this most recent policy shift to population, this has probably been the single biggest challenge especially to specialist hospitals. I think when we were operating in the environment as we were 10 years ago, actually it was pretty much dominated by secondary and tertiary as a system and therefore we could relate to and engage with other providers that were sort of similar to us, but not single specialty. I think this latest shift to thinking about the population has been more difficult."

The specialist cancer trusts are embracing this agenda and being proactive with their clinicians taking on prevention and detection roles within the development of place based health.

### 3.6 CONCLUSIONS

Overall, we would conclude that there is an appetite among specialist hospitals to share expertise, pursue adoption of standardised pathways or outcome improvement and undertake leadership roles across systems and networks. A large proportion of the existing involvement is based on the use of their internal funding provision. Many specialist hospitals recognise they are on a transformational journey; adapting to changing healthcare policy, financial funding priorities and their engagement roles with the rest of the healthcare system.

Many expressed the need to formalise this wider public responsibility with a mechanism for commissioners to formally contract with specific providers to assist with the development and redesign of commissioned services, the adoption and implementation of service innovation and assistance with the improvement of outcomes.

However, supporting permissions and pump priming financial support are required to ensure that transitions to new care models become embedded.

RING



**SECTION 4:  
SERVICE INNOVATION  
WITHIN SPECIALIST  
HOSPITALS AND HOW  
WE CAN IMPROVE THE  
DISSEMINATION AND  
ADOPTION OF INNOVATION**

As outlined in many previous reports, specialist hospitals have a long established culture of research and service innovation. We outline in this section the approaches of trusts to developing a service innovation culture and taking forward major innovations. We summarise the key themes and lessons of value to the wider system.

This section also summarises the key areas highlighted by participants as areas for improvement in the development of service innovation, dissemination of opportunities and subsequent adoption.

## 4.1 WHAT ARE SPECIALIST HOSPITALS DOING WITH REGARD TO SERVICE INNOVATION?

The interview programme has suggested that all specialist hospitals are undertaking many service innovation initiatives. Much of this activity is financed by specialist trusts themselves with some pump priming support from AHSNs or other modernisation monies.

The table below summarises some areas of service innovation either in the pipeline or which have been adopted.

**Table 1 – Examples of specialist trusts’ major service innovation**

SPECIALIST TRUSTS	SERVICE INNOVATION ACTIVITY
<b>NORTH WEST TRUSTS</b>	
Liverpool Heart and Chest Hospital NHS Foundation Trust	<ul style="list-style-type: none"> <li>• Patient pathway redesigns using process improvement techniques</li> <li>• Workforce roles redesign and development of a single system wide workforce</li> <li>• Robotics innovation</li> <li>• CareCube scheduling tool taken to the commercial market that supports all their service delivery models</li> <li>• Clinical service model redesign – use of day case model for cardiac procedures</li> </ul>
The Walton Centre NHS Foundation Trust	<ul style="list-style-type: none"> <li>• Ongoing development of the outreach network model</li> <li>• Artificial intelligence application in redesign of rehabilitation service models</li> </ul>
Alder Hey NHS Foundation Trust	<ul style="list-style-type: none"> <li>• Partnership working with Toronto Sick Kids</li> <li>• Development of a regional network of children services in line with known best practice children models in Philadelphia</li> </ul>
The Christie NHS Foundation Trust	<ul style="list-style-type: none"> <li>• Proton beam therapy centre – first one in the UK</li> <li>• Big data project with several commercial partners, university and research bodies</li> <li>• Large commercial partnerships that have funded service innovation in diagnostic imaging service models and pathology services (international partnerships)</li> </ul>
The Clatterbridge Cancer Centre NHS Foundation Trust	<ul style="list-style-type: none"> <li>• Ongoing development of their outreach care network model</li> <li>• Development of a chemo@work service model</li> <li>• Digital transformation plans – implication of pathways and facilitating local working across the whole cancer care network</li> </ul>

**Table 1 – Examples of specialist trusts’ major service innovation . Continued...**

SPECIALIST TRUSTS	SERVICE INNOVATION ACTIVITY
<b>OTHER TRUSTS</b>	
Royal National Orthopaedic Hospital NHS Trust	<ul style="list-style-type: none"> <li>• Implants developments – established source of new devices</li> <li>• Assisted living technologies – and development of specific products</li> <li>• Digital diagnostic pathology lab ideas</li> </ul>
Moorfields Eye Hospital NHS Foundation Trust	<ul style="list-style-type: none"> <li>• Roll out of their virtual cataract and glaucoma service model</li> <li>• AI retinal diagnostics with Google Deepmind</li> </ul>
St Mark’s Hospital	<ul style="list-style-type: none"> <li>• Development of two novel techniques, in conjunction with The Royal National Orthopaedic Hospital, Stanmore, to allow a select group of patients to be offered re-sectional surgery where in the past they had been deemed inoperable. Both techniques have been published in peer-reviewed journals.</li> <li>• Develop the polyposis registry in the UK (also the second largest in the world) that provides advice and guidance service by telephone</li> <li>• A smartphone app has been developed which provides current published management guidelines for polyposis syndromes in a user-friendly format. This has been downloaded over 2500 times worldwide</li> <li>• Development of the largest biofeedback team in the world</li> </ul>
Birmingham Women’s and Children’s NHS Foundation Trust	<ul style="list-style-type: none"> <li>• Development of innovative devices that facilitate improved theatre productivity; and improving the early warning systems in intensive care</li> <li>• Development of a health partners alliance working with the University of Birmingham and University Hospitals Birmingham NHS FT and West Midlands AHSN</li> <li>• Involvement in genomics project</li> <li>• Projects with technology and pharma commercial partners</li> </ul>
Great Ormond Street Hospital for Children NHS Foundation Trust (GOSH)	<ul style="list-style-type: none"> <li>• Focus on being research based hospital</li> <li>• Rheumatology Dept has enhanced both outreach and transition with a seamless children and young persons’ highly specialised service that has created a significant national network. Neurologists and neurosurgeons within the epilepsy framework have advanced nationally to provide equity of access to highly specialised diagnostic therapeutic options around rare and uncommon epilepsies even to the point of surgical treatments for epilepsy</li> </ul>

The interview process highlighted a significant range of both small and large service innovation projects that are being pursued by specialist hospitals, many in partnership with commercial organisations including both SMEs and much larger industry partners.

The key themes of service innovation are reflecting the focus of technology development (AI technology, digital diagnostic testing); the growth of population health management; self-care treatment approaches; improving future predictive planning; and operational issues such as the need to improve scheduling and patient flow management.



## 4.2 TYPE OF APPROACH

All specialist hospitals interviewed said that their culture emphasised staff engagement, encouraging staff to explore and pursue research opportunities and service innovation ideas. This is combined with an emphasis on organisational strategies and specialist hospital service planning on research and service innovation. However, few could articulate a systematic approach for assessing service innovation ideas or disseminating evaluated projects into full-scale adoption.

Several of the larger specialist trusts do have more formalised processes and as much focus is given to research and innovation as it is to operational service delivery. Many are engaging clinicians and patient groups but few are formally evaluating ideas and developing a dissemination pathway.

The other key specialist trust approaches are:

- Many trusts have invested in a Director of Innovation or equivalent as a way of demonstrating the priority given to innovation and research
- Many of the trusts are refreshing their service strategy, engaging both staff and a wide spectrum of external stakeholders; they all talk about service innovation, pioneering patient care and sharing knowledge
- Specialist hospitals are using their local AHSN and/or AHSC for facilitation and innovation development support and development of commercial partners. Hackathons are particularly valued by both staff and trusts in working with their AHSNs to develop specific innovations
- Innovation hubs have been developed with the support of AHSNs to explore the use of new technologies and datasets in service innovation
- Joint working of front line clinicians, researchers and academics that leads to service innovation proposals and use of evidence based assessments
- Cancer specialist trusts outlined the extensive use of clinical trials to inform service treatment advances and new pathways
- Training and use of improvement methodologies and toolkits
- Development of long established commercial partnerships by certain specialist trusts in supporting their clinical service models

### Big data application to improve service innovation and outcomes

Several specialist trusts highlighted they are pursuing big data improvement projects. As an example of the scale and ambition, The Christie Hospital's real time data outcomes project is aimed at improving clinical outcomes with faster access to comprehensive patient data and reduced variability in care.

Patient reported outcome data (PROMs) is currently available for a small number of patients. The Christie are exploring how this could be extended to the majority of patients and linked to other relevant patient data including genomics and radiomics.

In partnership with several partners, the Christie project is exploring natural language processing and machine learning to make this data widely usable. They are also attempting to use a greater breadth of data to fill the gap in outcomes such as with primary care data.

Through collaboration with global software company SAP, they are undertaking a proof of concept to support the sustainable delivery of a comprehensive digital enterprise strategy.

The key features of this innovative work is to:

- Integrate data from four disease sites - head and neck, lung, colorectal and gynaecology patients and present a comprehensive view of their pathway within the trust for each patient with one of these cancers. This will be available to the clinical teams in real time;
- A data interrogation tool will be provided alongside this to allow cohorts of patients to be identified with key criteria supporting the faster identification of patients suitable for clinical trials;
- Explore the use of Natural Language Processing (NLP) for unstructured data like radiology, pathology or genomics reports.

The project is still at the early development stage but is an important part of the trust's service innovation culture.

## 4.3 SCALE OF ROLL OUT ADOPTION AND DISSEMINATION

Although there is no shortage of ideas and service innovation initiatives it is interesting to reflect on how many are being disseminated into the wider system. Some of those interviewed, including the Specialised Commissioning finance team, highlighted that with one or two exceptions the specialist trusts lack both capacity and capability to take many of the innovations forward at pace or scale.

Key issues raised were:

- Insufficient capacity and infrastructure to take forward service innovations that were shown in the Vanguard initiative to accelerate the uptake of new approaches
- The need for a coherent national approach and policy for supporting innovation
- The need to improve the quality of good clinical research of service innovations that have the capacity to become a commissioned service
- Technical expertise to develop and apply for intellectual property protection and patents
- The capacity to support clinical staff through service product development phases and then translation into the wider NHS market
- Limited availability of economic modelling and systematic assessment of propositions around potential commercial value as well as NHS system value
- Developing the right financial support and partnership collaborations to take forward propositions and support roll out
- The funds to support change management and an improvement science approach to embed service innovation and realise the return on investment



“So, we have enterprising tools, we have improving patient experience and we have the discovery element around research. I’m not sure that we are very good at formalising and building the ground works to build an innovative hospital. I think that happens from the fact that we attract innovative people because of our BRC status, because of our university and our research agenda. So, I think it’s not that we’ve necessarily built a whizzy way of doing it. I think they’ve come here because that is the nature of what Moorfields and the Institute do.

“I don’t think we’ve got the structures and processes. I don’t think it has come because we set up cultures and process but probably a bit of the learning we need to do is we would benefit from having a little bit of structure.”

### THE NEED FOR STRUCTURE AND PROCESSES TO SUPPORT INNOVATION

“Taking it from the idea, the sandpit-session, it is a challenge in a special institution just dealing with niche complex patients. How do you ensure that addressing one need is also addressing the mass population burden – that we are not just going to sort out one spinal cord injury patient a year compared to the provision of treatment option that is going to benefit the wider population and in some cases whole of Europe?

“It’s how to translate into a much broader patient population. So, you have to consider that factor in the 100 ideas that you take forward to the next stage.”

### NEED FOR EVALUATION SUPPORT – UNDERSTANDING THE POPULATION HEALTH IMPACT

“How do you then take it to the next stage of investment? Often that requires money, a scale of investment. It requires a bigger grant or consideration of the commercial side of things. And often I’ve found a lot of barriers along the way in terms of how the NHS can really unlock investment and support those ideas coming through and the governance arrangements around that and understand why they are all there.”

### RNOH CHALLENGES – TAKING FORWARD A CONCEPT TO POTENTIAL COMMERCIAL VALUE

“I don’t think our issue is getting innovation in technology or drugs into the organisation. The biggest challenge, which came out very clearly from the Accelerated Access Review, is how to standardise and generalise that in a way that supports clinicians. So it’s the change management process as much as the technology that matters. It’s in the improvement science agenda where the biggest strides are to be made going forward.”

### NEED FOR INVESTMENT IN CHANGE MANAGEMENT AND IMPROVEMENT SCIENCE

“Our ability to benefit from that in terms of commercialisation has been poor and we are in the process of creating a strategy to improve our capacity where appropriate and relevant to commercialise that sort of discovery.

“We are starting to think about this stuff, starting to think about not just the discovery because in our business there is no point in discovering if it’s not made accessible. I think a risk not just for GOSH and children’s complex disease but the whole sector - these discoveries in rare diseases are going to be bloody expensive. We are going to need a whole new model around access.”

### IMPROVING THE ACCESSIBILITY OF NEW TREATMENTS - GOSH PERSPECTIVE



## 4.4 WAYS IN WHICH SERVICE INNOVATIONS ARE CURRENTLY SPREAD

The approach to spreading service innovations in most instances is relatively low key, unless there is a commercial venture partnership or a plan to use staff networks. Few are using the STP process, with the exception of the roles outlined by specialist trusts across the Cheshire and Merseyside STP. Several of the larger specialist trusts have well established commercial joint ventures that are generating significant dividends, which are being ploughed back into patient care.

However, as outlined in the interviews, there are limitations on the use of reported surpluses and they have to resort to using their charitable funds. The scale of charitable funds varies significantly between specialist trusts.

Several specialist trusts have a significant national training role, for example:

- Twenty per cent of orthopaedic surgeons in the UK have come through Stanmore training rotation. They provide insight into specialist services and involvement in some of the service innovations
- A similar picture in Moorfields and ophthalmology, where a large proportion of trainees and clinical staff have some exposure to the centre as part of their training and are aware of the newer treatment advances. Moorfields have used this network to spread their virtual diagnosis and assessment service
- Innovations have spread through external networking of clinicians in both the UK and internationally, eg Liverpool Heart and Chest Hospital's day case model with the introduction of business style lounges, originated from a service approach in the Netherlands; and their use of real time scheduling and a tele-tracking system of a patient's needs and journey originated from private sector manufacturing applications
- Use of commercial partnerships to promote the service innovation concept and management of support with regard to their roll out. For example, Liverpool Heart and Chest Hospital set up a joint venture company to promote and roll out the CareCube scheduling tool (see case study). The trust has an equity stake and the aim is to grow the company turnover and customer base with a view to a sale in five to ten years to realise a value to the trust
- Use of commercial partners to undertake engagement of patient groups in the co-design of ideas (RNOH example)
- Engagement with the Specialised Commissioning team by The Clatterbridge Cancer Centre in their development of their care closer to home service model, to increase engagement and support.

## Key comments on service innovation



“With Teen (Teenager) Tech, a small engagement company, we recently have been showcasing and doing workshops at the teen tech event. It's a fantastic organisation and it is amazing because what they do is promote science and technology to kids aged 10 to 17. They engage in schools, create competitions arrange work experience and so on. And we have engaged with them for the last two years and we are team tech at the NHS and the idea is to bring healthcare technologies and the appetite for healthcare technologies to those young individuals.”

### RNOH APPROACH TO SERVICE IDEAS TESTING

A CEO view of the requirement for further support on incentivisation of the right service innovation: “I guess we were saying earlier in all of that policy narrative that incentivisation funding is going to be around populations, but we still often think about one scientific breakthrough that initially helps two people, then hopefully spreads to a bigger population base. So, I think there's more we need to do to think about how we incentivise staff and organisations to do population based research and the use of this to develop service innovation.

“But there is also that service delivery process. And again, I don't think at the moment we incentivise and we don't celebrate it. I think my observation, being an academic is that the scientific gene discovery is always celebrated and promoted more than you've completely radically changed the patient's experience in clinic.”

### NEED TO ENCOURAGE AND INCENTIVISE POPULATION BASED RESEARCH AND SERVICE DELIVERY INNOVATION

View expressed by Specialised Commissioning: “We seem to have a real paucity of clinicians leading good research at the moment in the UK. So, we need to generate that and re-generate that. So, for us, if there's any new innovation it's got good evidence and it's got a sound basis then we have a methodology to roll it out across the system quite rapidly. If you look at what we achieved with hep C drugs for example, the way we changed the system very, very rapidly. So, being a single commissioner helps a lot. But what's holding us back is the evidence - the paucity of good quality clinical research at the moment coming out of UK centres. We need to support clinical evidence and research that is focused on the impact on patient populations.”

### PAUCITY OF GOOD CLINICAL EVIDENCE AROUND SERVICE INNOVATIONS

“Whilst we have done this I don't think we're great at spreading service innovation. The thing we do which is not always necessarily by design - half the UK's ophthalmologists come through us at some stage. They then pick up whatever they do here and take that all over the country and you can tell that happens by research collaboration. But that's a good opportunity and many specialist trusts have that, particularly London specialist trusts have the opportunity to drive leadership.”

### MOORFIELDS' EXPERIENCE IN THEIR CATARACT AND VIRTUAL GLAUCOMA CLINICS



# CONCLUSIONS & RECOMMENDATIONS

1. Our interviews have shown that many of the specialist trusts who are successfully innovating employ a senior level post to lead this function and link into supportive agencies such as AHSNs, NIHR infrastructure etc, as well as appropriate commercial partnerships (as strongly evidenced by The Christie Hospital NHS Foundation Trust experience). This approach should be adopted in a systematic manner across specialist hospitals and into the wider hospital sector.

**Recommendation:** All trusts should consider the development of senior level post with a designated innovation role.

2. The majority of specialist trusts said they would welcome the development of a more systematic best practice approach to help fast track service innovations of value with availability of expert advice.

**Recommendation:** The AHSN Network should take the lead in collaboration with Specialised Commissioners and the specialist trusts group on the development of a best practice approach to service innovation and a supporting expert team capability that is accessible to all trusts.

3. A role for Specialised Commissioners may be to formalise international links and benchmark specialist trusts against international best in class standards for innovation and performance to ensure world-leading services.

**Recommendation:** Specialised Commissioners should consider supporting the international benchmarking of specialist trusts, using some of the service outcomes standards as part of the core specification with all providers.

4. The current role of some specialist trusts in funding and improving financial efficiencies of innovative treatments, which benefit patients, should be celebrated and recognised in the system.

**Recommendation:** A pump priming innovation fund should be established by NHS England to be accessed via bids from

specialist trusts and other providers, to take forward wider service advances, on the condition they help to promote the roll out of the service innovation.

5. The narrower condition/treatment focus in most specialist trusts has allowed an enhanced focus on a supportive, collegiate culture where colleagues can unite around a theme and share a common language.

**Recommendation:** We recommend that the proposed NHS Confederation work explores whether this culture could be replicated in other provider organisations.

6. Where specialist hospitals have adopted population health roles as part of their mission, this is valued by the system and may be a role that more specialist hospitals would like to promote into their system and/or at a national level. In Merseyside, specialist trusts are integrated into their STP and leading a number of work streams on population health to benefit the health and care system. In some areas, AHSNs are helping to form a bridge between specialist hospitals and the wider NHS including STPs.

**Recommendation:** NHS England should consider how specialist hospitals could provide a supportive population health management role in STP work around the standardisation of care pathways and adoption of prevention activities.

7. Although many of the specialist hospitals are national and sometimes global leaders in translating their discovery science and clinical expertise into innovative treatments, they are often unaware of the national policies, levers and funding streams that might encourage faster adoption and spread.

**Recommendation:** Every specialist hospital should establish a formalised partnership with their local AHSN to take forward service innovation and accelerate adoption and spread.

## APPENDIX 1 – ACRONYMS USED IN THE REPORT

NICE	National Institute for Health and Care Excellence
AHSN	Academic Health Science Network
AHSC	Academic Health Science Centre
NIHR	National Institute for Health Research
NHS I	NHS Improvement
UCL	University College London
GIRFT	Getting It Right First Time
CQC	Care Quality Commission
RTT	Referral Time to Treatment
A&E	Accident and Emergency
PROM	Patient Reported Outcome Measure
RNOH	Royal National Orthopaedic Hospital
R & D	Research and Development
GOSH	Great Ormond Street Hospital
LHCH	Liverpool Heart and Chest Hospital
BRC	Biomedical Research Centre
STP	Strategic Transformation Partnership

## APPENDIX 2 – INTERVIEW PARTICIPANTS

SPECIALIST TRUSTS	NAME AND TITLE
Birmingham Women's and Children's NHS Foundation Trust	Dr Vin Diwakar, Paediatric Consultant and former Medical Director. Currently Medical Director NHS London Matt Boazman, Director for Strategy and Innovation
Royal National Orthopaedic Hospital NHS Trust	Rob Hurd, Chief Executive Dr Rui Loureiro, Head of Clinical Research and Head of Institute of Orthopaedics
Moorfields Eye Hospital NHS Foundation Trust	David Probert, Chief Executive Johanna Moss, Director of Strategy and Business Development
Alder Hey Children's NHS Foundation Trust	Louise Shepherd, Chief Executive Dr Steve Ryder, Medical Director
Liverpool Heart and Chest Hospital NHS Foundation Trust	Jane Tomkinson, Chief Executive Dr Raphael Perry, Medical Director Sue Pemberton, Nursing Director Mark Jackson, Director of Research and Innovation
The Walton Centre NHS Foundation Trust	Hayley Citrine, Chief Executive Dr Andrew Nicolson, Medical Director
Royal Brompton and Harefield NHS Foundation Trust	Robert Bell, Chief Executive
The Christie NHS Foundation Trust	Roger Spencer, Chief Executive Wes Dale, Head of Research and Facilitation Professor Rob Bristow, Chief Academic Officer Professor John Radford, Director of Research
The Clatterbridge Cancer Centre NHS Foundation Trust	Anna Farrar, Interim Chief Executive Dr Sheena Khanduri, Medical Director
St Mark's Hospital (part of North West London Hospitals NHS Trust)	Prof Omar Faiz, Clinical Director Mr Simon Crawford, Deputy CEO (NWLUH) Miss Carolynne Vaisey, Colorectal Surgeon, Mr Matthew Fitzpatrick, Divisional General Manager for Surgery and St Mark's William Banister, General Manager, St Mark's Surgery Directorate
Great Ormond Street Hospital for Children NHS Foundation Trust	Peter Steer, Chief Executive
OTHER STAKEHOLDERS INTERVIEWED:	
University College London NHS Foundation Trust	Professor Marcel Levi, Chief Executive
NHS England Specialist Commissioning	Dr James Palmer, Medical Director Jonathan Powell, Director of Finance
Department of Health and National Institute for Health Research	Dr Louise Wood, Director of Science, Research and Evidence
North London Partners STP (5 CCGs in North Central London)	Will Huxter, Director of Strategy and former Regional Director Specialised Commissioning London
Guy's and St Thomas' NHS Foundation Trust	Hugh Taylor, Chair Dr Ian Abbs, Medical Director
Federation of Specialist Hospitals	Professor Tim Briggs, Chair
NHS Improvement	Kathy McClean, Medical Director
Shelford Group	Nick Kirby, Managing Director

# APPENDIX 3 – CASE STUDIES

## CASE STUDY 1

### USING MACHINE LEARNING TO DETECT COMMON EYE DISEASES: A COLLABORATION BETWEEN MOORFIELDS EYE HOSPITAL AND GOOGLE DEEPMIND

Moorfields Eye Hospital, University College London and Google DeepMind have collaborated to develop a new machine-learning system that is as good as the best human experts at detecting eye problems and referring patients for treatment.

#### Why is this important?

More than 285 million people worldwide live with some form of sight loss, including more than two million people in the UK. Eye diseases remain one of the biggest causes of sight loss, and many can be prevented with early detection and treatment.

By speeding up diagnosis for patients with eye diseases, treatment can be started sooner, increasing the chance of saving individuals sight.

#### The challenge

The challenge is to speed up the time it takes for patients to be seen to discuss diagnosis and treatment of eye health complaints following an optical coherence tomography (OCT) scan.

Ophthalmologists use these highly complex scans to help diagnose common eye diseases. However, their complexity means the scans can take eye health professionals a long time to analyse, affecting how quickly patients can be seen to discuss outcomes.

#### Actions taken

Moorfields Eye Hospital, University College London and Google DeepMind teamed up to investigate whether AI technology could help improve the care of patients with sight-threatening diseases, such as age-related macular degeneration and diabetic eye disease, by making the analysis of OCT scans faster without losing any of the accuracy in diagnosis.

Machine learning systems were trained to identify ten features of eye disease from OCT scans. The system was then able to recommend a referral decision based on the most urgent conditions detected.

To establish whether the AI system was making correct referrals, clinicians also viewed the same OCT scans and made their own referral decisions.

As well as giving a diagnosis decision, the system also provides information explaining how it arrived at its recommendation, as well as a confidence rating expressed as a percentage.

The system is adaptable to different types of eye scanner, which could significantly increase the number of people who benefit from this technology, as it can still be used even as OCT scanners are upgraded or replaced over time.



#### Outcomes

The AI system developed can recommend the correct referral decision for over 50 eye diseases with 94 per cent accuracy, matching world-leading eye experts.

#### Plans for the future

This research now needs to go through clinical trials to explore how this technology might improve patient care in practice, and regulatory approval is needed before it can be used in hospitals and other clinical settings.

If clinical trials are successful in demonstrating that the technology can be used safely and effectively, Moorfields Eye Hospital will be able to use an eventual, regulatory-approved product, free across all 30 of their UK hospitals and community clinics, for an initial period of five years.

The work which has gone into this project will also help accelerate wider NHS research for many years to come.

Reference: Clinically applicable deep learning for diagnosis and referral in retinal disease. Jeffrey De Fauw, Joseph R Ledsam, Olaf Ronneberger. Nature Medicine volume 24, pages 1342–1350 (2018).

## CASE STUDY 2

### DEVELOPMENT OF A HIGH VOLUME, AMBULATORY CARE MODEL USING AN INNOVATIVE SCHEDULING AND TRACKING TOOL BASED ON LEAN MANAGEMENT PRINCIPLES

#### Context

An ambulatory day case service has been developed by Liverpool Heart and Chest Hospital in partnership with CareCube that has radically changed the experience of patients requiring cardiac procedures. It is supported by an innovative, integrated scheduling platform to improve safety, resource utilisation and efficiency in cardiology.

#### Summary: The change proposition and service innovation

In reviewing their planned care processes and feedback from patients, the trust decided to redesign their planned care pathways. They researched internationally what others were doing and visited Amsterdam to view at first hand a very different style of providing day cases. This involved the use of patient lounges and a different approach to carrying out diagnostic investigations that allowed patients to remain in their own clothes.

The trust adopted the concept and took it further, creating an airport-style lounge where patients could relax between investigations or invasive procedures. They enjoy a café environment with wifi and massage services. Liverpool Heart and Chest Hospital collaborated with experts from within both healthcare and automotive sectors to develop a multi-function scheduling platform enabling real time co-ordination and tracking of patient interventions.

#### Why this is important:

The demand for cardiology procedures has grown dramatically, not just because we have an ageing population, but also due to the availability of new procedures. In the last 10 years, death rates have halved in the UK through excellent clinical interventions. However, it is essential to optimise resources in order to deliver this care efficiently while maintaining a high standard of care. Cardiology has evolved as a speciality based on evidence based medicine and robust clinical data, yet when it comes to effective use of resources, healthcare organisations are not using this outcome evidence to change service delivery approaches.

#### The challenge:

Patients undergoing cardiology procedures arrive at the catheter lab through different routes, for instance as elective cases, inter-hospital acute transfers or in ambulances and schedules change constantly throughout the day. Delivering clinical care to every patient with a high standard of both clinical and patient engagement, is a challenge for all such centres.

#### Actions taken:

Liverpool Heart and Chest Hospital collaborated with CareCube, who have expertise in delivering a process flow solution that link actions and people, bringing learnings from the automotive and healthcare industries. Engaging with the whole multi-disciplinary team, regardless of role or location, led to the development of a single platform covering the entire patient journey within the hospital. Aside from clinical outcomes, the system supports timely decision-making, safety standards, maximized use of resources, and the ability to visualise outcomes through front-end reporting data that drives continued improvement.

#### Outcomes:

With 360 people in the multi-disciplinary team networked real-time in what is a dynamic space, communication is improved, linking each patient to the most effective pathway. Liverpool Heart and Chest Hospital is rated 'outstanding' by the CQC and this is borne out by this innovative work. The Cath lab now delivers checklists and team briefs about all patients, has reduced turnaround times between patients to nine minutes, and routinely allocates 100 per cent of lab sessions. Data is needed for many reasons and by different teams – such as the daily safety huddle, weekly cath lab meeting, or data for audit/reporting, compliance with NatSSIPs and LocSSIPs audit data. Here, all data is in one platform.

#### Testimonial:

Jeanette Broome, Cath Lab Manager said: "CareCube has allowed a single platform that is accessible for consultants, ANPs, PAs, scheduling teams and clinical teams to allow safe, visible planning of both planned and emergency procedures with up to date list changes available to all. It gives a platform to share relevant and vital information for individual patient procedures. It offers a unique, interactive checklist process, which complies with NatSSIPs and LocSSIPs and includes patient participation.

"Data is readily available which gives the ability to feedback to teams daily and drive quality improvements and efficiency between the wards and Cath Lab areas."

## CASE STUDY 3

### PROTON BEAM THERAPY SERVICE INNOVATION AT A COMPREHENSIVE CANCER CENTRE

#### Background and evolution

From 2018, The Christie is home to the UK's first high-energy NHS proton beam therapy centre. This is an advanced form of radiotherapy using protons rather than X-rays. Proton beam therapy directs the radiation treatment to precisely where it is needed with minimal damage to surrounding tissue, reducing the possible long-term side effects. As a result, it is particularly beneficial to patients with hard to treat tumours close to sensitive areas such as the brain or the spine, and to children whose tissues are still developing.

The NHS currently pays for some patients to be treated overseas but this option is tough for patients. Treatment typically lasts six weeks and patients are without their wider families and support networks. Indeed, some patients are too unwell to travel overseas.

The NHS in England has provided £250m for a national proton beam therapy service with two centres, one at The Christie in Manchester, and one at University College London Hospitals NHS Foundation Trust.

#### Key stakeholders

Patients have been very involved in the development of this service, helping to design the patient environment, patient care and wrap around support services. This complex and innovative project in terms of construction, physics and engineering, radiotherapy training and familiarisation, treatment planning, clinical support, international collaboration and research has required the co-ordination of a complex network of stakeholders.

#### What stage is service innovation?

The Christie team has been central to developing the UK service, producing clinical protocols and pathways for NHS England. Their position as a specialist NHS comprehensive cancer centre with over 100 years of innovation and a well-earned international reputation has enabled them to overcome many unique challenges arising from this project.

- **Equipment complexity:** The cyclotron accelerates protons to two-thirds the speed of light, at temperatures only 3 degrees above absolute zero. The gantries guiding the beam are three stories high. The radiotherapy department is the largest in the UK and therefore had the breadth and depth of physics and engineering expertise to assist Varian, the equipment manufacturer, install and commission the equipment.
- **Treatment planning:** Radiotherapy treatment plans are developed by highly expert multi-disciplinary teams. The critical mass of clinicians, physicists, radiographers and other specialists at The Christie mean they can specialise in specific areas, ensuring that each patient will receive the very best plan.

- **Complexity of paediatric patient pathway** – The exceptional level of planning across all stages of the paediatric patient journey, from reception through to the preparation of patients, scanning and treatment delivery, demonstrates that outstanding results are achieved when there is a critical mass of expertise.
- **National workforce shortages:** As a specialist centre, they have access to a large pool of expert staff, including radiographers, to ensure a resilient service in both the existing radiotherapy service and the new proton beam therapy service.
- **Wider patient requirements:** Patients receiving proton beam therapy have other health and non-health needs; locating the centre at The Christie gives patients and families access to an unparalleled range of clinical and support groups helping to provide a comprehensive wrap around service and ensuring best outcomes.
- **Dedicated research facilities and programme:** Proton beam therapy is still in its infancy and there are a number of scientific and technological challenges to be addressed for it to achieve its full potential. The research team has a programme of activities and a dedicated £6m research room (funded by The Christie charity) aiming to tackle these key scientific and technological challenges.

This expert knowledge and experience will be available to others through The Christie International Proton School. Their multidisciplinary team includes clinical (radiation) oncologists, radiation therapists and non-clinical specialists in oncology, dosimetry, radiotherapy physics, and engineering, as well as experts in commissioning, project management, capital and building development and equipment commissioning, providing specialist proton education to the clinical and academic communities.

#### Expected benefits of the innovation proposed

The UK's first high-energy NHS proton beam therapy centre at The Christie is expected to deliver many benefits for patients:

- **Wider access and speedier referral process** for patients who will clinically benefit from proton beam therapy, with treatment much closer to home.
- **Fewer side effects and better long-term outcomes** for patients, particularly children, with cancers close to areas such as the brain and spine.



Co-location of the service within a specialist NHS comprehensive cancer centre ensures:

- Access to specialist clinical experience with rare cancers and expert knowledge of patient pathways providing better opportunities for trials and outcome data collection.
- Integration with other services including chemotherapy, X-ray therapy, surgery, an-aesthesia, emergency/critical care, onsite diagnostics and specialised paediatric, teenage/young adult, and older adult oncology services.
- Comprehensive patient information, wrap around support and accommodation.
- Resilience if there are any gantry issues or the proton beam is not available.
- Advanced imaging capabilities, upgradable as technology develops.
- Integration of the clinical service with their research trial infrastructure and outcome tracking from referral through to follow up. This approach will ensure that the NHS becomes a world leader in the evidence-based use of proton beam therapy.

### **Lessons learned and plans for the future**

The Christie team is committed to actively sharing knowledge and expertise, including the many crucial lessons learned, through the Christie International Proton School. Once the new service is operational, there are plans for further innovation and groundbreaking opportunities:

- Collect highly detailed outcomes data from every patient treated for many years to come. This UK approach will be unique in the world. The data collected will enable clinicians to enhance and deliver innovative treatments for future patients.
- With dedicated research facilities and expertise, the prospect of exciting developments and further innovation are very strong as exceptional minds from The Christie and The University of Manchester work together to harness the full potential of proton beam therapy.

## CASE STUDY 4

### CHEMO@WORK SERVICE INNOVATION FROM THE CLATTERBRIDGE CANCER CENTRE

#### How the idea developed

The Clatterbridge Cancer Centre NHS Foundation Trust have been providing for a number of years a specialist nurses support service for treating patients at home with chemotherapy. Patient feedback on the use of the service highlighted a need to support certain patients getting back to work as quickly as possible or reducing their time away from work. In particular, this affected those patients who had to take time off work to attend local hospitals or the specialist cancer centre and had difficulties with access to public transport.

Responding to the feedback, the trust took the decision to explore the feasibility of extending the chemotherapy support service into the workplace with an initial selected number of patients.

They secured some AHSN pump priming support over a 15-month period to develop the service. The extension into the workplace began in the early part of 2018 and at present is only available for patients receiving Trastuzumab (Herceptin), or other treatments delivered by subcutaneous injection.

#### Use of the service

There are currently around 12 to 16 patients using the service and receiving treatment in the workplace; this number is expected to increase as people extend their working lives into their late sixties and early seventies. In the future, clinicians will explore the extension of the service to other cancer treatments such as SACT (systemic anti-cancer therapy) and developing immunotherapy treatments.

#### Challenges overcome to develop the service proposition

The response from employers to the proposed service was 100 per cent positive and they were all willing to make available a suitable room to be adapted as a treatment room, meeting health and safety standards expected for chemotherapy interventions. Both large and small employers have converted a room to a suitable standard.

The greatest challenge was to put in place the appropriate legal contractual, service liability and governance framework required to provide cancer treatments in many different outside of hospital settings. This took more than six months of review, consultation with authorities and support from legal experts. Now, a contractual and suitable governance framework is in place, so the service can be rolled out more quickly to further workplaces following agreement by patients and employers.

The other major activity is around ensuring there are sufficient numbers of trained staff to deliver the service, in particular advanced practitioner nurse roles.

#### Areas of support required – lessons learnt










In terms of reviewing this service innovation, the case for this service like many others could have benefited from some upfront economic modelling around the potential impact for particular communities to share with commissioners. In addition, early guidance on addressing service liability and clinical governance implications would have reduced the timelines involved in the feasibility testing.

#### Outcomes to date













The service is still its initial year, but it is proposed to undertake an annual patient audit and survey and to publish abstracts of this patient audit around this innovative workplace treatment service.

In addition, the trust is exploring with AHSNs the need to support the impact assessment with some economic modelling.

# APPENDIX 4 - ALIGNMENT OF SPECIALIST HOSPITALS WITH AHSNS

FEDERATION MEMBERS:	AHSN:
<p>The Christie NHS Foundation Trust <a href="http://www.christie.nhs.uk">www.christie.nhs.uk</a></p>	 <p>Health Innovation Manchester</p> <p><a href="http://www.healthinnovationmanchester.com">www.healthinnovationmanchester.com</a></p>
<p>The Clatterbridge Cancer Centre NHS Foundation Trust <a href="http://www.clatterbridgecc.nhs.uk">www.clatterbridgecc.nhs.uk</a></p>	 <p><b>INNOVATION AGENCY</b> Academic Health Science Network for the North West Coast</p> <p><a href="http://www.innovationagencynwc.nhs.uk">www.innovationagencynwc.nhs.uk</a></p>
<p>Liverpool Heart and Chest Hospital NHS Foundation Trust <a href="http://www.lhch.nhs.uk">www.lhch.nhs.uk</a></p>	 <p><b>INNOVATION AGENCY</b> Academic Health Science Network for the North West Coast</p> <p><a href="http://www.innovationagencynwc.nhs.uk">www.innovationagencynwc.nhs.uk</a></p>
<p>Moorfields Eye Hospital NHS Foundation Trust <a href="http://www.moorfields.nhs.uk">www.moorfields.nhs.uk</a></p>	 <p><b>UCLPartners</b> Academic Health Science Partnership <a href="http://www.uclpartners.com">www.uclpartners.com</a></p>
<p>Royal Brompton and Harefield NHS Foundation Trust <a href="http://www.rbht.nhs.uk">www.rbht.nhs.uk</a></p>	 <p><b>IMPERIAL COLLEGE HEALTH PARTNERS</b></p> <p><a href="http://www.imperialcollegehealthpartners.com">www.imperialcollegehealthpartners.com</a></p>
<p>Royal National Orthopaedic Hospital NHS Trust* <a href="http://www.rnoh.nhs.uk">www.rnoh.nhs.uk</a></p>	 <p><b>UCLPartners</b> Academic Health Science Partnership <a href="http://www.uclpartners.com">www.uclpartners.com</a></p>
<p>Royal Papworth Hospital NHS Foundation Trust <a href="http://www.royalpapworth.nhs.uk">www.royalpapworth.nhs.uk</a></p>	 <p><b>eahsn</b> Eastern Academic Health Science Network</p> <p><a href="http://www.eahsn.org">www.eahsn.org</a></p>
<p>St Mark's Hospital and Academic Institute <a href="http://www.stmarkshospital.nhs.uk">www.stmarkshospital.nhs.uk</a></p>	 <p><b>IMPERIAL COLLEGE HEALTH PARTNERS</b></p> <p><a href="http://www.imperialcollegehealthpartners.com">www.imperialcollegehealthpartners.com</a></p>
<p>The Walton Centre NHS Foundation Trust <a href="http://www.thewaltoncentre.nhs.uk">www.thewaltoncentre.nhs.uk</a></p>	 <p><b>INNOVATION AGENCY</b> Academic Health Science Network for the North West Coast</p> <p><a href="http://www.innovationagencynwc.nhs.uk">www.innovationagencynwc.nhs.uk</a></p>
<p>Queen Victoria Hospital NHS Foundation Trust <a href="http://www.qvh.nhs.uk">www.qvh.nhs.uk</a></p>	<p><b>Kent Surrey Sussex Academic Health Science Network</b></p> <p><a href="http://www.kssahsn.net">www.kssahsn.net</a></p>

\*Also a member of the Specialist Orthopaedic Alliance Group

SPECIALIST ORTHOPAEDIC ALLIANCE GROUP MEMBERS:	AHSN:
Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust <a href="http://www.rjah.nhs.uk">www.rjah.nhs.uk</a>	 <b>west midlands</b> <small>ACADEMIC HEALTH SCIENCE NETWORK</small> <a href="http://www.wmahsn.org">www.wmahsn.org</a>
Royal National Orthopaedic Hospital NHS Trust* <a href="http://www.rnoh.nhs.uk">www.rnoh.nhs.uk</a>	 <b>UCLPartners</b> <small>Academic Health Science Partnership</small> <a href="http://www.uclpartners.com">www.uclpartners.com</a>
Royal Orthopaedic Hospital NHS Foundation Trust (Birmingham) <a href="http://www.roh.nhs.uk">www.roh.nhs.uk</a>	 <b>west midlands</b> <small>ACADEMIC HEALTH SCIENCE NETWORK</small> <a href="http://www.wmahsn.org">www.wmahsn.org</a>
Nuffield Orthopaedic Centre, Oxford <a href="http://www.ouh.nhs.uk/hospitals/noc">www.ouh.nhs.uk/hospitals/noc</a>	 <b>Oxford</b> <small>Academic Health Science Network</small> <a href="http://www.oxfordahsn.org">www.oxfordahsn.org</a>
Wrightington Hospital <a href="http://www.wwl.nhs.uk/hospitals/wrightington">www.wwl.nhs.uk/hospitals/wrightington</a>	 <b>Health Innovation Manchester</b> <a href="http://www.healthinnovationmanchester.com">www.healthinnovationmanchester.com</a>
NON-MEMBERS:	AHSN:
Alder Hey Children's NHS Foundation Trust <a href="http://www.alderhey.nhs.uk">www.alderhey.nhs.uk</a>	 <b>INNOVATION AGENCY</b> <small>Academic Health Science Network for the North West Coast</small> <a href="http://www.innovationagencynwc.nhs.uk">www.innovationagencynwc.nhs.uk</a>
Birmingham Women and Children's NHS Foundation Trust <a href="http://www.bwc.nhs.uk">www.bwc.nhs.uk</a>	 <b>west midlands</b> <small>ACADEMIC HEALTH SCIENCE NETWORK</small> <a href="http://www.wmahsn.org">www.wmahsn.org</a>
Great Ormond Street Hospital for Children NHS Foundation Trust <a href="http://www.gosh.nhs.uk">www.gosh.nhs.uk</a>	 <b>UCLPartners</b> <small>Academic Health Science Partnership</small> <a href="http://www.uclpartners.com">www.uclpartners.com</a>
Liverpool Women's Hospital <a href="http://www.liverpoolwomens.nhs.uk">www.liverpoolwomens.nhs.uk</a>	 <b>INNOVATION AGENCY</b> <small>Academic Health Science Network for the North West Coast</small> <a href="http://www.innovationagencynwc.nhs.uk">www.innovationagencynwc.nhs.uk</a>
National Hospital for Neurology and Neurosurgery <a href="http://www.uclh.nhs.uk/ourservices/ourhospitals/nhnn">www.uclh.nhs.uk/ourservices/ourhospitals/nhnn</a>	 <b>UCLPartners</b> <small>Academic Health Science Partnership</small> <a href="http://www.uclpartners.com">www.uclpartners.com</a>
Royal Marsden <a href="http://www.royalmarsden.nhs.uk">www.royalmarsden.nhs.uk</a>	 <b>IMPERIAL COLLEGE HEALTH PARTNERS</b> <a href="http://www.imperialcollegehealthpartners.com">www.imperialcollegehealthpartners.com</a>
Sheffield Children's Hospital <a href="http://www.sheffieldchildrens.nhs.uk">www.sheffieldchildrens.nhs.uk</a>	 <b>YORKSHIRE &amp; HUMBER</b> <small>ACADEMIC HEALTH SCIENCE NETWORK</small> <a href="http://www.yhahsn.org.uk">www.yhahsn.org.uk</a>



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