NHS Improvement

Advice to the Competition and Markets Authority

Merger of University Hospitals Birmingham NHS Foundation Trust and Heart of England NHS Foundation Trust

July 2017

We support providers to give patients safe, high quality, compassionate care within local health systems that are financially sustainable.

Summary

NHS Improvement's[1] advice to the Competition and Markets Authority (CMA) is that there are important relevant patient benefits from the merger of University Hospitals Birmingham NHS Foundation Trust (University Hospitals Birmingham) and Heart of England NHS Foundation Trust (Heart of England) and these should be taken into account in the CMA's assessment of the merger.[2]

The leadership team from University Hospitals Birmingham at Heart of England have already provided the stability, structure, governance and financial leadership necessary to deliver actual improvements in clinical quality and operational and financial performance which are significant. Patients are being diagnosed and treated more quickly, which means better outcomes. Safety is improving, with new procedures in place to monitor clinical quality and give senior managers and the board clear sight into problems. University Hospitals Birmingham's leadership are changing the culture at Heart of England to one in which staff members are empowered to improve quality; for example, by proactively reporting problems and being supported to take action to address them.

This case is unusual in that many of the benefits of the merger can be shown already through the improvements that the University Hospitals Birmingham leadership have delivered since it began managing Heart of England 18 months ago – we have not previously been able to advise the CMA with this degree of certainty.

The intervention of the University Hospitals Birmingham leadership was urgently required as Heart of England had repeatedly been unable to respond to a range of regulatory measures. A natural conclusion from this would be that competition has ceased playing a meaningful role in driving quality of care for patients in the area. The significant improvements which have been delivered since October 2015 clearly indicate that the University Hospitals Birmingham intervention was the right solution

[1] Since 1 April 2016, Monitor and the NHS Trust Development Authority have operated as a single integrated organisation known as NHS Improvement. This document is published in exercise of functions conferred on Monitor by the Health and Social Care Act 2012. The 2012 Act refers to Monitor, but for consistency we refer to NHS Improvement throughout this document.

[2] For the purposes of this advice, when we refer to merger we mean the acquisition of Heart of England by University Hospitals Birmingham and the steps preparatory to that, including the appointment of the University Hospitals Birmingham executive team to leadership positions at Heart of England. In our view this appointment is most easily characterised as a preparatory stage to University Hospitals Birmingham's acquisition of Heart of England, during which the priority was the stabilisation of Heart of England's financial position and the protection of patient safety. Now that Heart of England is stabilised, the parties are able to finalise the merger, including achieving the required regulatory clearances and delivering the full range of potential improvements. In our view the stabilisation phase and completion of the structural aspects of the merger should be viewed as part of the same continuum.

to address Heart of England's difficulties. Going forward, the merger with University Hospitals Birmingham means that Heart of England will retain the leadership and management necessary to embed and sustain these improvements and deliver further improvements over time, as well as creating significant opportunities to transform healthcare services for patients in Birmingham. Heart of England would not be able to deliver these improvements without a merger with University Hospitals Birmingham.

1. Introduction

Following NHS Improvement's requested intervention in October 2015 by University Hospitals Birmingham and subsequent operational and financial stabilisation of Heart of England, the boards of both organisations have resolved to finalise the merger by an acquisition of Heart of England by University Hospitals Birmingham (together referred to as the parties).

This document presents advice from NHS Improvement to the CMA regarding the merger of University Hospitals Birmingham and Heart of England, including the context in which the merger has arisen and our assessment of the benefits for patients. Specifically, we set out:

Section 1: Information about the CMA merger review process and the parties.

Section 2: The context in which the merger has arisen, including:

- the history of problems and regulatory interventions at Heart of England
- the appointment of the University Hospitals Birmingham leadership team to Heart of England
- the decision to finalise the merger by an acquisition
- NHS Improvement's view of the strategic rationale for the acquisition.

Section 3: The CMA framework for assessing relevant patient benefits.

Section 4: NHS Improvement's assessment of the parties' benefits case, including our assessment of:

- relevant patient benefits already delivered and ongoing
- relevant patient benefits that are likely to be delivered as a result of University Hospitals Birmingham's continuing work to improve Heart of England
- relevant patient benefits in specific service areas that are likely to be delivered within a reasonable timeframe
- additional opportunities that are likely to represent improvements for patients in the longer term.

1.1. The CMA merger review process

The CMA has a function to review mergers involving NHS foundation trusts when they fall within its jurisdiction to ensure that they do not have adverse effects for patients by reducing competition between providers. The CMA merger review process allows for both the effects on competition and the potential benefits of mergers to be taken into account to determine what is in the overall best interests of patients.

On 3 July 2017, the CMA formally notified NHS Improvement under section 79(4) of the Health and Social Care Act 2012 (the 2012 Act) that the CMA had decided to carry out an investigation under Part 3 of the Enterprise Act 2002 of the proposed merger of University Hospitals Birmingham and Heart of England.

Under section 79(5) of the 2012 Act, as soon as reasonably practicable after receiving such a notification from the CMA, NHS Improvement is required to provide the CMA with advice on:

- the effect of the merger on benefits[3] (relevant customer benefits[4]) for people who use healthcare services provided for the purposes of the NHS
- such other matters relating to the merger as NHS Improvement considers appropriate.

This document sets out our advice to the CMA.

1.2. The parties

1.2.1. University Hospitals Birmingham

University Hospitals Birmingham provides acute hospital services including a wide range of planned and emergency services as well as specialist services. The turnover of University Hospitals Birmingham in 2015/16 was about £761 million and it employs more than 9,000 staff. The main site is Queen Elizabeth Hospital Birmingham which has 1,213 inpatient beds, 32 operating theatres and a 100-bed critical care unit. Since the hospital opened in 2010, the trust has opened a further 170 beds in the original Queen Elizabeth Hospital, now known as the Heritage Building, as well as a second ambulatory care facility and two theatres.

University Hospitals Birmingham is a high performing trust and is rated by the Care Quality Commission (CQC) as good overall and outstanding for leadership. The trust is a regional centre for cancer, has the second largest renal dialysis programme in

[3] As defined in section 30(1)(a) of the Enterprise Act 2002.
[4] In this document, we use the term ‘relevant patient benefits’ instead of ‘relevant customer benefits’ but with the same meaning.

the UK, and has the largest solid organ transplantation programme in Europe. It also provides highly specialised cardiac and liver services and is a major specialist centre for burns and plastic surgery. University Hospitals Birmingham has a large critical care unit. The trust is also a regional neuroscience and major trauma centre. Since 2001 the Royal Centre for Defence Medicine, hosted by University Hospitals Birmingham, has been the primary receiving hospital for all military patients who are injured overseas. It hosts the UK's only research institute for surgical reconstruction and microbiology research.

1.2.2. Heart of England

Heart of England provides acute hospital services including a wide range of planned and emergency services as well as specialist services and community services. The turnover of Heart of England in 2015/16 was about £683 million and it employs approximately 11,000 staff. Heart of England operates from three acute hospital sites, Birmingham Heartlands Hospital, Good Hope Hospital and Solihull Hospital, as well as a number of smaller 'satellite' units.

Since 2012, Heart of England has had problems in governance, quality of care and finances. CQC has rated the trust as needing improvement overall. Despite its difficulties, the trust has some areas of high performance; for example, the trust is recognised as a national leader in the treatment of methicillin-resistant *Staphylococcus aureus* (MRSA) and other infectious diseases. Heart of England specialises in treating a range of conditions including heart and kidney disease and is home to the West Midlands Adult Cystic Fibrosis Centre and weight management clinic and research centre.

2. Context for the merger

The merger of University Hospitals Birmingham and Heart of England has been identified by NHS Improvement as the solution to longstanding governance, quality and financial problems at Heart of England.

NHS Improvement directed Heart of England to appoint the leadership of University Hospitals Birmingham to its executive team in October 2015 because Heart of England had repeatedly failed to improve after three years of regulatory intervention by CQC and NHS Improvement. Given the nature and scale of the challenges at Heart of England and the history of regulatory intervention without improvement, it appears to us that Heart of England, on its own, is unable to respond to competitive incentives or offer a competitive constraint.

Since October 2015, the University Hospitals Birmingham management team have delivered the stability, governance and financial leadership necessary to improve performance and care for patients at Heart of England. This transformation can be seen in improvements in culture and staff morale and adherence to national standards (among other indicators). Significant further clinical and operational improvements are underway as detailed in this document. NHS Improvement is now removing some of the enforcement undertakings previously placed on Heart of England related to governance, referral to treatment (RTT) times and cancer waiting times because we have found that the trust is now in compliance in those areas.

However, the current arrangement is not sustainable given the extent of ongoing support required from University Hospitals Birmingham. To embed and sustain the improvements and deliver the full range of potential benefits the parties are required to become a single entity. The boards of both organisations have resolved to finalise the merger through an acquisition of Heart of England by University Hospitals Birmingham.

In this section we set out a timeline of the escalating problems and regulatory interventions at Heart of England that led to the decision by NHS Improvement to direct Heart of England to appoint the University Hospitals Birmingham leadership team and the impact that has had. This timeline is set out in more detail in Annex 1. We also explain the decision by the boards of University Hospitals Birmingham and Heart of England to finalise the merger by acquisition, and the reasons why NHS Improvement supports this decision.

2.1. History of problems at Heart of England and steps taken to improve safety, quality and finances

Heart of England at one time had a strong reputation for quality and financial performance; the trust offered hospitals where patients chose to be treated and where talented individuals chose to work. However, as described below, problems at the trust started to be identified in 2012 and escalated over the next three years. Heart of England persistently struggled with safety and quality concerns and operational and financial performance, and it failed to address many of these problems despite numerous regulatory interventions.

2.1.1. 2012 to 2013

Signs of serious problems at Heart of England began to surface in 2012 to 2013. At the end of 2013, a CQC inspection found that the trust required improvement and that it had reported five 'never events' in the previous year, which was higher than similarly sized trusts. An independent review of the trust's response to clinical malpractice found organisation-wide deficiencies in leadership and culture that went back as far as 2007.

NHS Improvement began to take regulatory action against Heart of England in December 2013. We imposed enforcement undertakings for Heart of England regularly breaching its A&E department four-hour target and breaching the 12-hour target six times in six quarters.[5] We also found failures of governance and required enhanced reporting and oversight as well as changes to the management structures. Heart of England was also required to develop a clinically-led transformation plan to reconfigure its urgent care services.

In December 2013 the trust was one of 13 hospital trusts named by Dr Foster Intelligence as having higher than expected mortality indicator scores for the period April 2012 to March 2013.

2.1.2. 2014

Throughout 2014, Heart of England failed to improve in response to CQC reports and NHS Improvement's enforcement actions, and deteriorated further with additional breaches in waiting time targets. Additional safety risks were also identified.

[5] The NHS Constitution sets out that a minimum of 95% of patients attending an A&E department in England must be seen, treated and then admitted or discharged in under four hours. This is one of the 'core standards' in the NHS Constitution and the NHS mandate to NHS England, and is generally referred to as the four-hour target. NHS England also monitors how long patients wait in A&E, including the number waiting more than 12 hours for treatment (the 12-hour target).

NHS Improvement and CQC continued to monitor performance and found that although the trust had formulated an action plan and had started to implement it, more needed to be done. CQC produced three further monitoring reports, which reiterated the concerns it had cited in 2013 and identified additional risks to patients.

NHS Improvement took enforcement action in October 2014 and amended Heart of England's licence to require the trust to ensure it had sufficient management and clinical leadership capability and to put in place appropriate governance systems and processes. We imposed additional enforcement undertakings and varied the existing undertakings from December 2013, as Heart of England was breaching a number of targets.

The chief executive resigned in November 2014. CQC conducted an unannounced inspection in December 2014 as the trust was still in breach of its licence conditions and monitoring reports indicated continuing and additional risks at Heart of England. CQC again rated the trust as requires improvement overall. It found that while some progress had been made since CQC's last visit, this was limited and not yet sufficient. In some areas no improvements had been made or services had deteriorated.

Figures released by the NHS Litigation Authority showed Heart of England as having the largest bill for clinical negligence claims in the region in 2013/14. The trust was one of 26 trusts responsible for half the national increase in patients waiting more than four hours in A&E over the 2014/15 winter.

2.1.3. 2015

In February 2015, Heart of England appointed an interim chief executive on a secondment arrangement, and NHS Improvement appointed an improvement director to address our concerns that the trust had insufficient long-term leadership capacity. The trust's financial performance deteriorated and it continued to fail national standards.

During the summer the trust appointed external advisers to investigate the financial problems and help with a recovery plan.

NHS Improvement visited Heart of England in late September 2015 and concluded that the trust had a range of quality, patient safety and clinical care issues.

Further, Heart of England reported a deficit of £35.9 million accrued in the period from April to October 2015. On 1 October, NHS Improvement opened an investigation into the trust's finances, due to the trust reporting a M4 deficit position of £22.5 million against a M4 deficit plan of £7.9 million.

Although Heart of England had made several attempts, the trust had not been able to recruit a substantive chief executive. The interim chief executive resigned and left the trust at the end of October, and the chair stepped down at the end of November.

Heart of England was left with a gap in leadership at a time that robust leadership was critical to drive financial turnaround and improve performance. NHS Improvement had significant concerns that the trust did not have the leadership capacity and capability to deliver the financial plans and performance improvements required.

In October 2015, NHS Improvement directed Heart of England to appoint Dame Julie Moore and Jacqui Smith as Interim Chief Executive and Interim Chair.[6] We considered the appointments were essential to improve Heart of England's performance.

2.1.4. 2016

On arrival, Dame Julie Moore and Jacqui Smith implemented a new operational structure at Heart of England that provided clarity of roles, responsibilities and accountabilities to allow and support the leadership to effect change. Five executive directors joined in 2016 from University Hospitals Birmingham, serving in interim roles while retaining their full responsibilities at University Hospitals Birmingham. Reviews of estates and IT were carried out. Issues highlighted included unacceptable standards of buildings at Heart of England and a lack of a coherent IT strategy with £19 million worth of essential IT infrastructure improvements needed.

By February 2016, Heart of England was meeting all key national mandated standards, except for the A&E four-hour standard. There was also a slight improvement in Heart of England's financial position with the average monthly deficit reduced.

In July 2016, the boards of both trusts met independently to consider options for the future. They agreed that the status quo was unsustainable in the long term and the board of Heart of England expressed the view that the withdrawal of University Hospitals Birmingham support would be highly damaging to the progress made and to its ability to continue on the improvement trajectory. Following a consideration of the available options, both boards mandated the development of a case for change looking at the possible advantages of becoming a single entity.

In October 2016, Heart of England was on target to deliver its control total agreed with NHS England, of £13.6 million. Staff morale had significantly improved and verbal feedback from the CQC's inspection indicated that some significant progress

[6] This direction was made under s111 of the 2012 Act.

had been made in a number of areas across Heart of England, particularly in improving culture and staff morale.

2.2. Appointment of the University Hospitals Birmingham leadership

NHS Improvement directed Heart of England to appoint Dame Julie Moore and Jacqui Smith as Interim Chief Executive and Interim Chair because the University Hospitals Birmingham leadership were and remain uniquely well placed to address the problems faced by Heart of England. The main reasons for appointing the University Hospitals Birmingham leadership were:

- University Hospitals Birmingham is a high performing trust which is rated by CQC as good overall and outstanding on leadership at both a senior management level and an executive level.
- As described in this document, the trust has a culture of safety and improvement through all levels of the organisation. This has led to positive change for patients in practice.
- University Hospitals Birmingham has established clear lines of responsibility and accountability together with leadership that inspires confidence. This has helped to support a culture of innovation which has encouraged staff to take opportunities to enhance the services provided by the trust.[7]

The University Hospitals Birmingham Board also has significant capabilities and transactional experience at both an executive and non-executive level. Over recent years it has successfully delivered a number of large-scale projects, including consolidating two hospital sites into one new site and going live as a major trauma centre. It has also provided resource to help challenged providers such as George Eliot Hospital NHS Trust and Burton Hospitals NHS Foundation Trust. To provide this support and ensure that business as usual does not suffer, the trust has invested in and maintained leadership capacity at both an executive and sub-executive level.[8]

In addition to Dame Julie Moore and Jacqui Smith, other members of the University Hospitals Birmingham leadership have been appointed to executive roles at Heart of England while continuing their duties in running University Hospitals Birmingham:

- Kevin Bolger, Interim Deputy Chief Executive for Improvement
- Dave Rosser, Interim Medical Director

[7] CQC report on University Hospitals Birmingham (published 15 May 2015 in regards to the inspection of 27–30 January 2015).
[8] The University Hospitals Birmingham leadership are strong in their succession planning and strives to develop leadership capacity at the senior levels of the organisation.

- David Burbridge, Interim Director of Corporate Affairs
- Fiona Alexander, Director of Communications.

Julian Miller has also been seconded from University Hospitals Birmingham to the role of Interim Director of Finance at Heart of England.

The University Hospitals Birmingham leadership agreed to these arrangements with the understanding that as part of diagnosing and stabilising urgent problems at Heart of England, they would also identify options for the sustainable future of University Hospitals Birmingham and Heart of England, including a formal acquisition.

2.3. The decision to finalise the merger through acquisition of Heart of England

After 18 months of diagnosis and stabilisation at Heart of England, University Hospitals Birmingham and Heart of England have concluded that finalising the merger is the right thing to do for patients, staff and the public. This will enable the parties to embed and sustain the improvements which University Hospitals Birmingham's leadership has delivered to date at Heart of England and enable them to deliver further improvements in safety and quality across all Heart of England and University Hospitals Birmingham activities.

The boards of the trusts conducted an options appraisal process, in which the options considered included University Hospitals Birmingham and Heart of England combining to form a single entity, a managed exit of the University Hospitals Birmingham leadership from Heart of England, splitting Heart of England into two or more standalone organisations, entering into a shared services agreement, and entering into an alliance or federation arrangement.

The boards approved the single entity option because they concluded that none of the other options would deliver a comparable level of benefits, and all except the single entity option relied heavily on Heart of England's ability to recruit a capable and effective board and senior leadership team, which was felt would be extremely challenging.

The boards concluded that current arrangements were not sustainable because of the risk of confusion of accountabilities caused by executives and senior staff reporting to two boards, and duplication of lines of governance which the boards felt is, at best, wasteful of time and resources and, at worst, poses potential conflicts of interest.

The boards' view was that further significant patient benefits and organisational efficiencies can only be delivered by becoming one organisation. A single entity would provide clarity of leadership, governance and accountability to ensure that

improvements already delivered for Heart of England patients will be embedded and sustained and further improvements will be delivered for patients across both organisations.

The boards also concluded that withdrawing the University Hospitals Birmingham leadership from Heart of England would risk harming the progress that has been made at Heart of England. It could also jeopardise the future viability of the trust's operational and financial performance, which would have a detrimental effect on patients and other providers in the local health system, including University Hospitals Birmingham.

University Hospitals Birmingham is proposing to acquire Heart of England on 1 November 2017. The acquisition will require approvals under both the NHS Improvement transaction assurance regime and the CMA merger regime before it can proceed. NHS Improvement has already assessed the strategic rationale for the acquisition as part of its assurance process and supports the decision, as discussed in the next section.

2.4. NHS Improvement's view of the rationale for the acquisition of Heart of England by University Hospitals Birmingham

NHS Improvement requested the intervention at Heart of England by the University Hospitals Birmingham leadership as the solution to longstanding problems at Heart of England. We recognise that the current arrangement is not sustainable because of the strain on the leadership capacity with the duplication of boards and committees, and the leadership's unwillingness to continue indefinitely. NHS Improvement has very little appetite to return to providing Heart of England with the same level of regulatory intervention that we did previously. It is unlikely that NHS Improvement would be able to appoint a leadership team with the cohesion, experience and situational awareness of the University Hospitals Birmingham leadership.

NHS Improvement therefore supports the acquisition, subject to its assurance process.[9] This process is in its early stages; however, NHS Improvement has

[9] In addition to review by the CMA, mergers and other proposed transactions in the NHS may be subject to an assurance review by NHS Improvement. An assurance review takes place where:

- a proposed transaction could significantly alter the risk profile of a foundation trust (part of our broader responsibilities to ensure foundation trusts comply with the governance and continuity of services conditions of their provider licence)
- the transaction is a 'statutory transaction' which includes a merger or acquisition involving one or more foundation trusts, and separations and dissolutions of foundation trusts; NHS Improvement has a statutory role in approving transactions which are defined as statutory transactions.

More information about NHS Improvement's assurance process is set out in our guidance Supporting NHS providers: guidance on transactions for NHS foundation trusts.

already assessed the strategic rationale for an acquisition and found that it is well reasoned and aligned to the strategic objectives of the Birmingham and Solihull Sustainability and Transformation Partnership. We acknowledge that the acquisition is seeking to address a number of key challenges, including:

- instability or failure at Heart of England that negatively impacts University Hospitals Birmingham
- enabling University Hospitals Birmingham to manage activity across the combined organisation, rather than across two organisations, and allowing it to better manage activity, capacity and flow of patients across the local health economy
- the new trust's combined resources are intended to be used to create a more efficient organisation which will help University Hospitals Birmingham and the local health economy to improve efficiencies
- the proposed phased integration of clinical services within the new trust is expected to contribute to ensuring that secondary and tertiary services are fit for the future and will aim to standardise best clinical practice to address variation in quality and access across the local health economy and improve care and patient experience.

It appears that the University Hospitals Birmingham leadership has the capability, capacity and expertise to successfully execute the acquisition and this will be examined in more detail as part of the assurance process. University Hospitals Birmingham is well placed to do this for a number of reasons, including:

- University Hospitals Birmingham has a history of successfully delivering large-scale projects, including consolidating two hospital sites into one new private finance initiative site and going live as a major trauma centre. Additional managerial capacity that was brought in for these projects was maintained after the projects were completed
- University Hospitals Birmingham has indicated that it is committed to increasing its capability, capacity and expertise in areas where it has identified that there is a need
- University Hospitals Birmingham's Board has benefited from over 18 months' insight into the significant issues and challenges faced by Heart of England.

We recognise that the acquisition is a large undertaking for University Hospitals Birmingham and that there are a number of risks that the trust will need to manage as it moves forward. NHS Improvement will test the plans to address these risks and

complete our detailed work on the financial case and integration planning during July and August. We will seek assurance that risks are carefully identified and managed so that the acquisition is implemented successfully.

3. Framework for assessing patient benefits

NHS Improvement has a statutory duty under section 79(5) of the 2012 Act to provide advice to the CMA on the relevant customer benefits that arise from mergers involving NHS foundation trusts. This advice is provided in accordance with the statutory framework that is set out in the Enterprise Act 2002. In this document we use the term 'relevant patient benefits' instead of 'relevant customer benefits' but with the same meaning.

NHS Improvement assesses whether the benefits proposed by the merger parties would be relevant patient benefits by examining the following three questions:

- Is the proposal likely to represent a real improvement in quality, choice or innovation of services for patients or in value for money for commissioners?
- Is the proposal likely to be delivered within a reasonable period as a result of the merger?
- Is the proposal unlikely to accrue without the merger or a similar lessening of competition?

Our advice on the relevant patient benefits is one input into the decision to be taken by the CMA. The CMA will decide whether the merger would be expected to lead to a substantial lessening of competition and patient choice. If the CMA finds a substantial lessening of competition, it will take our advice into account when considering whether the relevant patient benefits outweigh the reductions in competition and patient choice.

Detailed information on our approach to assessing merger benefits is set out in our guidance *Supporting NHS providers: guidance on merger benefits*.[10]

[10] Available at: https://www.gov.uk/government/publications/supporting-nhs-providers-considering-transactions-and-mergers

4. NHS Improvement's assessment of the parties' benefits case

The parties' notification to the CMA and their benefits case sets out the work they have carried out to date in response to urgent concerns at Heart of England, and their plans to further improve services for patients of both Heart of England and University Hospitals Birmingham.

The parties submitted that the merger would allow them to embed and sustain improvements already made at Heart of England and continue to make progress in services that the University Hospitals Birmingham leadership are already stabilising. They said that the merger would lead to a number of improvements that cut across the entire organisation, as well as improvements in specific service areas. The parties submitted that all these types of improvements should be taken into account as relevant patient benefits.

We assessed the changes made so far and the proposals set out in the benefits case against the framework for analysing whether they are relevant patient benefits.

Our assessment is:

- The University Hospitals Birmingham leadership has already delivered significant improvements for a large number of patients across elective, non-elective and specialised services at Heart of England by starting to address the longstanding problems at Heart of England, and is likely to continue to deliver additional improvements for patients of both Heart of England and University Hospitals Birmingham as a result of the merger. All these improvements mean patients are receiving or will receive safer, higher quality care and they should be taken into account by the CMA as relevant patient benefits:
    - improvements in waiting times for diagnosis and treatment, which now meet national standards
    - improved culture and staff morale
    - improvements in monitoring and taking actions to address clinical quality issues
    - improvements in governance at Heart of England

- stabilising services in urgent need
- improvements in use of clinical IT
- improvements in workforce
- improvements in gastroenterology/hepatology
- improvements in vascular surgery.

- In addition, the merger is likely to result in further improvements for patients across a number of services at both trusts, such as improvements for cardiology and diabetes patients. The parties are in the early stages of planning how these services will be improved. In our view these are likely to represent improvements for patients in the longer term and these opportunities will be lost if the merger does not go forward.

In the sections below, we set out:

1. benefits the University Hospitals Birmingham leadership has already delivered for Heart of England patients (section 4.1)
2. benefits likely to be delivered as a result of continuing work by the University Hospitals Birmingham leadership to improve Heart of England (section 4.2)
3. additional benefits in specific service areas likely to be delivered in a reasonable timeframe (section 4.3)
4. additional opportunities that, in our view, are likely to represent improvements for patients in the longer term (section 4.4).

4.1. Relevant patient benefits already delivered for Heart of England patients

NHS Improvement's view is that the University Hospitals Birmingham leadership has delivered relevant patient benefits by stabilising the most urgent problems at Heart of England and improving the safety and quality of care across the trust. New staff engagement, reporting and governance structures have been put in place and are beginning to foster an improved culture of safety and improvement, which previous CQC reports highlighted was lacking at Heart of England before the leadership of University Hospitals Birmingham took over. Overall, patients are experiencing reduced waiting times for diagnostics and treatment when using Heart of England services.

Many improvements at Heart of England are a work in progress; there is more to do to continue to improve safety and quality for patients and embed the new ways of working that the University Hospitals Birmingham team have introduced. In our view,

if the merger does not proceed, Heart of England would stall in its improvement journey and the improvements already made would fall away. Heart of England would return to a state of regulatory intervention from NHS Improvement, which would need to start again and try to rebuild the leadership of Heart of England over time.

In the sections below, we apply the CMA's framework for assessing relevant patient benefits to the improvements at Heart of England resulting from the intervention of the University Hospitals Birmingham leadership.

4.1.1. Are the changes made so far at Heart of England likely to represent a real improvement in quality, choice or innovation of services for patients or in value for money for commissioners?

In NHS Improvement's view, the University Hospitals Birmingham leadership has already delivered real improvements for patients at Heart of England in the form of improved quality and safety of care. We note that in its most recent inspection, CQC found that Heart of England, while still needing to address some issues, is heading in the right direction with improvements already evidenced in a range of areas. Commissioners have also noted that there is a greater sense of control at the organisation, and improvements to performance against national standards have had a positive impact on patients. For example, improved performance for diagnostics means patients are receiving a diagnosis and commencing treatment sooner.

It is our view that the improvements already delivered have likely affected a significant number of patients at Heart of England who have received better care in terms of improved access, patient experience, outcomes, quality of care and safety.

In this section, we describe the real improvements for patients that the University Hospitals Birmingham leadership has implemented at Heart of England to put the trust firmly on a path to providing better care for patients.

Improvements in waiting times for patients at Heart of England

Since the University Hospitals Birmingham leadership began making changes at Heart of England, NHS Improvement has observed measurable improvements for patients across several metrics. Heart of England is now meeting national targets for RTT times, cancer waiting times and time from referral to diagnostic tests. Our view is that these metrics demonstrate an improving overall picture of increasing quality, safety and performance at Heart of England which is positively impacting on patients in terms of improved access, outcomes, quality of care and safety.

The improvements include:

- **Improved waiting times from referral to treatment:** Heart of England has met the national target of treating at least 92% of patients within 18 weeks of referral in every month[11] since February 2016, across all elective care specialties. At the time the University Hospitals Birmingham leadership team intervened in October 2015, Heart of England had not met this target since at least February 2015. Heart of England's improved performance is in contrast to other trusts in the region which have seen their performance deteriorate during this time.

- **Improved waiting times for cancer patients:** Heart of England has shown improvement for cancer patients, both in waiting times from referral to first consultant appointment and from referral to start of treatment.

    - Heart of England has met the national target of at least 85% of cancer patients starting treatment within 62 days of the date of a fast tracked referral almost every month[12] since the University Hospitals Birmingham leadership team intervened in October 2015. The trust started treatment within 62 days for more than 90% of patients for some months. In the 12 months before October 2015, Heart of England met the target for only five months. This improvement at Heart of England is in contrast to a declining performance nationally for the same period.

    - Heart of England has met the national target of seeing at least 93% of cancer patients within two weeks of an urgent referral from their GP almost every month since the University Hospitals Birmingham leadership team intervened in October 2015. The trust saw more than 95% of patients within two weeks since July 2016. Before the University Hospitals Birmingham leadership team intervened in October 2015, Heart of England's performance had been below the 93% target every month since January 2014. Performance at Heart of England is now above national performance for the same period.

- **Improved waiting times for patients needing diagnostics:** Heart of England has met the national target of performing diagnostic tests for 99% of patients within six weeks of a test request during every month since February 2016. Before the point that the University Hospitals Birmingham leadership

[11] Every month means every month up to and including April 2017, the latest month for which figures were available using NHS Improvement data.
[12] Our data shows a precipitous drop in October 2016 to 50% (see Annex 2). University Hospitals Birmingham has said this appears to be a data error.

team intervened in October 2015, Heart of England had been below target since September 2014.[13]

Commissioners also noted Heart of England's improvement in waiting times for patients. They told us that given the large population that Heart of England serves they consider this is a meaningful benefit for patients.

Improvements in culture and staff morale

There is emerging evidence of widespread improvements in culture and staff morale at Heart of England, which has created an environment in which staff can continuously strive to address problems and improve quality. In our view, this represents real improvements for patients because there is compelling evidence to indicate that a culture of safety and improvement along with higher staff morale leads to better care for patients[14] and this has therefore contributed to the improvements for patients at Heart of England.

There are increasing numbers of Heart of England employees responding positively about the trust in the staff Friends and Family Test. In March 2016, 62% said they would recommend Heart of England as a place to work and 73% said they would recommend it as a place to be treated. This is up from 54% and 64% respectively in October 2015 (see Annex 2).

Further, the percentage of staff having performance appraisals has increased from 38% to 93%. This is a significant improvement in ensuring staff are being supported to develop, are working against key performance metrics, delivering consistently high quality care and services, and working to continuously improve quality.

CQC inspected Heart of England again in September and October 2016 and saw improvements across a range of areas since its December 2015 inspection.[15] The

[13] All figures in this section are based on NHS Improvement data, with the exception of those for Heart of England performance in diagnostics before October 2015, taken from information provided by University Hospitals Birmingham (see Appendix 3 to the benefits case).
[14] See, for example, *Five Year Forward View* (available at: https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf); *A promise to learn – a commitment to act – improving the safety of patients in England*, National Advisory Group on the Safety of Patients in England (available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/226703/Berwick_Report.pdf); *Developing effective leadership in the NHS to maximise the quality of patient care: The need for urgent action*, Chris Roebuck for the King's Fund, 2011 (available at: https://www.kingsfund.org.uk/sites/files/kf/developing-effective-leadership-in-nhs-maximise-the-quality-patient-care-chris-roebuck-kings-fund-may-2011.pdf).
[15] Report published in June 2015. University Hospitals Birmingham's intervention began in October 2015. The second inspection was undertaken in September and October 2016, just under a year after the intervention began. The report was provided to NHS Improvement in July 2017.

trust-wide rating for the well-led domain improved to good,[16] with CQC noting "there is a strong theme of improvement and control from the new leadership of the trust".

- Managers were seen by staff to be knowledgeable, approachable and supportive. Staff said they received good support and received regular communication, with staff participating in team meetings and other forums. The previous inspection found staff felt decisions were taken without consultation and some middle managers were not felt by staff to be supportive of operational staff issues.
- There is a robust vision and strategy for the organisation. Staff felt they had been involved in its development, whereas they previously had said they were unaware of the vision and strategy and could not describe it for their own areas.
- Leaders were clear on the priorities and challenges for the trust.
- Evidence of a positive culture, with staff encouraged to speak freely and raise concerns so action could be taken.
- Cascades of performance information to all levels, with staff able to identify risks and mitigating actions.
- Involvement in local and national audit, using results to take action that will lead to improvement.
- Improved approach to managing complaints, including introducing a 30-day response time and allocating an executive lead (chief nurse).

There is evidence that the improved approach to quality and safety has translated into safer care for patients, such as:

- A major improvement in the management of sepsis[17] patients (finalist in National Patient Safety and Care Awards) through use of an innovative alert system. This has improved STAT[18] administration of antibiotics within one hour of target time to 79%.[19]

[16] The trust was not given an overall rating and the other domains were not given a trust-level rating in the 2017 report, given the differences in scope of the 2014 and 2016 inspections.
[17] Sepsis is a life-threatening condition where the body's response to infection damages other tissues and organs. According to NHS Choices, 37,000 people in England die every year from sepsis. http://www.nhs.uk/Conditions/Blood-poisoning/Pages/Introduction.aspx
[18] STAT is a common medical abbreviation for 'immediate'.
[19] CQC Heart of England NHS Foundation Trust Quality Report, July 2017 and Intensive Care National Audit and Research Centre Annual Quality Reports 2014/15 and 2015/16.

- The proportion of patients receiving assessment for venous thromboembolism (VTE) has improved past the national target of 95% since March 2016.[20]
- There has been a steady reduction in the number of urinary tract infections (UTIs) acquired in hospital at Heart of England since the University Hospitals Birmingham leadership intervened, according to data we examined.[21]
- The number of patients responding to the Friends and Family Test increased by 300% between 2014/15 and 2015/2016, to 205,822 patients. Of these, over 83% were positive reflections of care and treatment, according to University Hospitals Birmingham.

Heart of England was not able to achieve these types of improvements on its own before the involvement of the University Hospitals Birmingham leadership.

We note that there are still areas across the trust that need to improve. For example, the safe domain for urgent and emergency care at Birmingham Heartlands Hospital was downgraded by CQC to inadequate in its latest inspection. Heart of England is still not meeting the four-hour A&E target, in common with many other trusts across England and Wales.[22]

The CQC service-level ratings by site are set out in Annex 3, showing clear improvements since its 2015 inspection report and the areas of improvement still to be delivered.

Improvements in monitoring and taking actions to address clinical quality issues

Based on a decade of expertise in monitoring clinical quality at University Hospitals Birmingham, the leadership team have implemented robust structures and processes for measuring, managing and improving clinical quality for patients at Heart of England. In our view, these changes represent real improvements for patients because they have strengthened oversight of safety and quality and made it more likely that risks and problems will be identified and addressed.

The new structures include:

- Monthly root cause analysis meetings chaired by the chief executive to analyse cases and incidents and put actions in place to address problems. These meetings were highlighted in the latest CQC report as an area of outstanding practice. The parties told us that 181 actions are in progress to fix

[20] VTE occurs when a blood clot (thrombus) in a vein, most commonly the deep veins of the legs, dislodges and travels along the blood vessel. If it becomes lodged (forming an embolism) it will partially or completely block blood flow in the affected vessel.
[21] For details of this improvement see Annex 2.
[22] https://www.england.nhs.uk/statistics/statistical-work-areas/ae-waiting-times-and-activity/

a range of identified issues, including infection outbreaks, unexpected deaths after planned surgery, patient falls, medication delays or errors, and other issues. Implementation is monitored and the learning shared trust-wide.

- Monthly unannounced board of directors governance visits to wards and departments, with action plans developed to address issues identified.
- Monthly clinical quality monitoring group meetings, chaired by the interim medical director, to ensure Heart of England is effectively monitoring quality, safety and clinical effectiveness, taking action in response to clinical indicators, benchmarking against other hospitals, achieving quality objectives and taking action when appropriate.[23]
- Weekly meetings of a new clinical and professional review of incidents group, chaired by the interim medical director, to meet staff across both trusts and share actions and learning.

In addition to these new structures, a number of workstreams are underway to align Heart of England's quality monitoring processes in specific areas with those of University Hospitals Birmingham.

University Hospitals Birmingham told us that the new structures have been well received and embraced by clinical and managerial staff across Heart of England. They said that this is exemplified by how quickly clinical and managerial staff have started to propose cases for review at the root cause analysis meetings which has continued throughout the intervention period.

University Hospitals Birmingham told us that the overall incident reporting rate at Heart of England has increased from about 5,000 incidents reported before quarter two of 2015/16 to an upward trend reaching about 7,000 in quarter three of 2016/17. University Hospitals Birmingham told us that this reflects increased staff confidence and engagement[24] in clinical quality improvement. The latest CQC report also states that Heart of England staff are encouraged to speak freely and to raise concerns so that action can be taken and that they are involved in decisions for making improvements to services.

[23] For details of the types of actions taken in response to these meetings, see Appendix 7 to the benefits case: Papers for Joint UHB/HEFT CQMG Meeting 26 April 2017.
[24] Staff engagement in flagging risk is a critical factor in the quality of care delivered by healthcare organisations. See for instance *A promise to learn – a commitment to act – improving the safety of patients in England*, National Advisory Group on the safety of patients in England (often referred to as the Berwick report), available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/226703/Berwick_Report.pdf

Bringing good governance to Heart of England

The University Hospitals Birmingham leadership has restructured governance at Heart of England to clarify roles and accountabilities and to ensure senior managers and the board have a clear line of sight into performance across all areas. In our view, bringing better governance to Heart of England is a real improvement for patients because good governance is critical to providing safe, high quality care and has led to better care for Heart of England patients.[25]

Before the involvement of University Hospitals Birmingham leadership, Heart of England lacked the leadership skills and capacity to instil a culture of safety and improvement. As discussed above, NHS Improvement had concerns about persistent deficiencies in leadership and governance at Heart of England since late 2013.[26] The same issues were flagged in reports by Ian Kennedy,[27] CQC,[28] the Good Governance Institute and Deloitte.[29] However, previous regulatory action and trust initiatives did not prove successful in addressing these issues.

When the University Hospitals Birmingham leadership intervened, they noted a lack of clarity around roles and accountability and told us that from the board downwards, job roles, responsibilities and lines of accountability were not clearly established, leaving clinical staff confused as to who was responsible for what (this uncertainty was also reflected in CQC's 2015 report on Heart of England[30]).

[25] See, for example, *Five Year Forward View* (available at: https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf); *A promise to learn – a commitment to act – improving the safety of patients in England*, National Advisory Group on the Safety of Patients in England (available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/226703/Berwick_Report.pdf); *Developing effective leadership in the NHS to maximise the quality of patient care: The need for urgent action*, Chris Roebuck for the King's Fund, 2011 (available at: https://www.kingsfund.org.uk/sites/files/kf/developing-effective-leadership-in-nhs-maximise-the-quality-patient-care-chris-roebuck-kings-fund-may-2011.pdf).
[26] For full details of NHS Improvement's previous regulatory interventions and the impact of these, see Annex 1.
[27] Ian Kennedy, *Review of the response of Heart of England NHS Foundation Trust to concerns about Mr Ian Paterson's surgical practice; Lessons to be learned and recommendations* (available at: http://www.heartofengland.nhs.uk/wp-content/uploads/Kennedy-Report-Final.pdf).
[28] CQC Heart of England NHS Foundation Trust Quality Report, 1 June 2015.
[29] Deloitte LLP, Heart of England Foundation Trust, Review of Governance Arrangements: Final Report, Deloitte LLP.
[30] CQC Heart of England NHS Foundation Trust Quality Report, 1 June 2015. CQC noted, for example, that:

- widespread learning from incidents needed to be improved
- the culture in the trust was one of uncertainty due to the number of changes which had occurred
- staffing sickness and attrition rates were impacting negatively on existing staff
- staff could not communicate the trust vision and strategy
- governance arrangements needed to be strengthened to ensure more effective delivery.

University Hospitals Birmingham used the recommendations of the Good Governance Institute to develop a new corporate structure with improved lines of accountability and assurance from ward level up to the board. A new operational delivery structure has been developed and implemented, with the aim of ensuring clear roles, responsibilities and accountabilities across the organisation. Job descriptions have been written or clarified for both clinical and non-clinical staff.

The University Hospitals Birmingham team have streamlined board sub-committees and implemented a programme of regular reporting at Heart of England which allows the board of directors to see performance across clinical quality, workforce and finance to ensure that connections between these areas are considered and acted on in a joined up way.

The changes to governance are aimed at ensuring the board has a clear line of sight to identify service care quality or delivery issues early and provide remedial action to ensure that problems are addressed and patients are receiving high quality care.

Stabilising services in urgent need

When appointed to Heart of England, the University Hospitals Birmingham team began to stabilise certain services that they identified as presenting a risk for patients. University Hospitals Birmingham told us that a key problem with these struggling services was a diminished workforce, and clinicians had identified risks and called for action but these calls were not acted on by the Heart of England management.

In the benefits case, the parties outline examples of how they have progressed with the stabilisation of neurology, interventional radiology and plastic surgery services. There are further steps needed, particularly around recruitment, to ensure that these services are stable in the long-term.

However, the actions taken so far have already placed these services on a path to sustainability and improved performance, and in our view represent real improvements for patients. In both neurology and plastic surgery[31] we have seen improved performance at Heart of England in RTT times, in contrast to the aggregate performance of the region which has seen performance decline (see Annex 2). We describe below how each of these services have been stabilised so far to improve care for patients.

Neurology

Neurology is the study and treatment of nervous system disorders such as multiple sclerosis and epilepsy.

[31] RTT data is not available for interventional radiology as it is provided on a non-elective basis.

Before University Hospitals Birmingham's involvement, the neurology service at Heart of England operated outside the hub and spoke network model that includes University Hospitals Birmingham and other trusts in the West Midlands. We understand that this meant that Heart of England operated in isolation to the neurology network in providing neurology care to its patients, rather than participating in a model with established referral pathways for complex care to a designated specialist hub that has developed staff and expertise to treat complex cases.

Heart of England had only a part-time consultant and one post filled by a locum providing the service. Although the staff complement for the service was three and a half consultants, two of these consultants were on sabbatical for more than a year. Heart of England could not provide on-call arrangements with this staff arrangement, and consequently other Heart of England consultants referred some patients onward to University Hospitals Birmingham. The parties also told us that the service lacked robust mechanisms for governance and continuing professional development.

To decide how to stabilise the service, University Hospitals Birmingham engaged with staff at both trusts. Working with the clinical lead of the service at Heart of England, they have recruited a consultant to a joint post working for Heart of England and University Hospitals Birmingham. Within the next month, they will commence a second round of recruitment for joint posts for consultants and specialist nurses, which will allow the trusts to run nurse-led clinics – for example, for patients with multiple sclerosis – which currently do not exist in this service for Heart of England patients. The absent consultants previously employed by Heart of England have resigned to free up posts. The parties are developing joint pathways and protocols. With the merger, Heart of England will be integrated into the hub and spoke model.

Since stabilisation began at Heart of England, there has been an improvement in RTT times for this specialty, in contrast to the aggregate performance of other hospitals in the region where performance has declined (see Annex 2).

We note that data provided by the parties indicates that there are approximately 5,000 to 6,000 neurology patients treated at Heart of England each year who could benefit from a better service, including shorter wait times.[32]

Interventional radiology

Radiology involves diagnosing and treating a wide range of conditions and diseases. Interventional radiology is a sub-specialty of radiology that uses minimally invasive image-guided techniques. Interventional radiology is used in conjunction with other specialities such as cardiac and vascular to provide surgery without having to use an

[32] Comprising 5,000 to 6,000 outpatients, fewer than 50 day cases and fewer than 10 admissions each year.

open surgical procedure, which has resulted in improved outcomes and reductions in length of stay for patients. This technique is now also used in emergency situations, such as to stem a life-threatening haemorrhage (bleeding). As such, an emergency on-call interventional radiology service is now routinely required for certain patient groups, such as trauma, maternity and vascular patients.

University Hospitals Birmingham submitted that before the leadership involvement there were severe shortages of interventional radiologists at Heart of England. The service was funded for seven whole-time equivalent (WTE) consultants but had 2.6 WTE at the time the University Hospitals Birmingham leadership took over. University Hospitals Birmingham told us this lack of consultants led to delays in access to services, with a direct impact on length of stay for Heart of England patients requiring interventional radiology. Heart of England had to transfer some patients to University Hospitals Birmingham, leading to a change in the patients' clinical team, increased length of stay and potential risk of their condition deteriorating as a result of the transfer.

University Hospitals Birmingham has a highly specialised team of 16 WTE interventional radiology consultants. University Hospitals Birmingham told us that it has a strong history of successful recruitment in a specialty where there are national shortages of staff.

To make the roles at Heart of England more appealing, University Hospitals Birmingham offered a fellowship/sub-specialty training opportunity with access to University Hospitals Birmingham facilities and expertise, and the Heart of England deputy medical director has met with teams at both sites to identify other opportunities to improve recruitment. Two consultants, to fill joint posts, have been successfully recruited so far and will start in October 2017 and January 2018 respectively. However, while recruiting was underway, an existing interventional radiology consultant at Heart of England resigned. Heart of England vascular surgeons are currently supporting the interventional radiology service at Heart of England to sustain the service while recruitment continues. University Hospitals Birmingham told us that the service is now safe but will require ongoing work from management to ensure that necessary changes are made.

Plastic surgery

Plastic surgery is the branch of surgery specialising in repairing and reconstructing missing or damaged tissue and skin, usually because of surgery, illness, injury or an abnormality present from birth. The main aim of plastic surgery is to restore the function of tissues and skin to as close to normal as possible. Improving the appearance of body parts is an important but secondary aim.

Heart of England provides a small service which is part of its general surgery service and sits alongside breast surgery. It has one full-time reconstructive surgeon who

mainly focuses on breast reconstruction surgery and has minimal input into other surgical specialities. The trust also employs two other plastic surgery consultants as locums who are on fixed-term contracts that expire in July and November 2017.

University Hospitals Birmingham is one of the largest plastics services in the UK; it provides specialist tertiary care for the West Midlands and secondary care for central and south Birmingham. University Hospitals Birmingham has 26 WTE consultants. The trust also provides a spoke service to patients being treated at other hospitals in nearby areas.

University Hospitals Birmingham told us that it previously had a service-level agreement with Heart of England in which University Hospitals Birmingham provided its plastic surgery services; however, Heart of England withdrew from the agreement in favour of developing its own service. University Hospitals Birmingham said that Heart of England was not able to develop the service sufficiently to meet local demand, and was not able to substantively recruit consultants for the service. The plastics service at Heart of England is currently embedded within other services rather than operating as a standalone service.

The impact of Heart of England's inability to provide a service across a wider range of plastic surgery specialities is that Heart of England refers patients to University Hospitals Birmingham. Patients who attend Heart of England for trauma will be transferred. University Hospitals Birmingham told us that the service is very fragile and patients have to wait for care – for example, Heart of England orthopaedic/plastic trauma patients are required to wait several days before they can go to University Hospitals Birmingham to receive treatment. The University Hospitals Birmingham hand service has up to 50% of its work coming from the east of the city, but it has no spoke service there to ensure joined up care and outreach services to the local population there because it is Heart of England's area.

University Hospitals Birmingham is now providing support to Heart of England and has agreed a plan to jointly recruit more consultants into the plastics service. Two fixed-term consultants are now in post until the end of August and these can be extended if necessary to cover the interim arrangements. A business case is being developed to fund expansion of the service to four or five WTE consultants and to develop a hub and spoke service from University Hospitals Birmingham to deliver a range of plastics service to other relevant areas in the trust (eg trauma, skin, breast, general plastics).

Since stabilisation activity began at Heart of England, there has been an improvement in RTT times for this specialty, in contrast to the aggregate performance of other hospitals in the region where performance has declined (see Annex 2).

The parties provided data indicating that there are approximately 1,200 to 1,600 plastic surgery patients currently treated at Heart of England each year who could benefit from an improved service there.[33]

They also said that on average over the previous three years, Heart of England referred 3,500 to 4,000 outpatients per year to University Hospitals Birmingham, approximately 1,800 day cases, and 1,900 to 2,400 admitted patients. We note that the number of patients referred onward to University Hospitals Birmingham significantly exceeded the number of patients treated at Heart of England. Some of these patients may have experienced delays or other problems with the transfer of care as a result of the service not being sufficiently developed and joined up.[34]

4.1.2. Are the improvements likely to be realised within a reasonable period as a result of the merger?

The improvements in safety and quality of care highlighted above have already been delivered by the University Hospitals Birmingham leadership team. There is more work to be done in those areas that have already seen improvement, as well as in other areas. NHS Improvement's view is that involvement of the University Hospitals Birmingham team will continue to deliver improvements for Heart of England patients going forward, and this is discussed further in sections 4.2 and 4.3.

4.1.3. Are the improvements unlikely to accrue without the merger or a similar lessening of competition?

NHS Improvement's view is that these improvements were unlikely to accrue without the merger. The University Hospitals Birmingham leadership team have delivered the stability, structure, governance and financial leadership necessary to enable clinicians to deliver quality care for Heart of England patients. The improvements that have been delivered rely on the specific cohesion and credibility of the University Hospitals Birmingham leadership team.

The merger is necessary to embed the improvements made so far, continue their development and ensure they are not lost. In particular:

- the current arrangement is not sustainable and the University Hospitals Birmingham leadership are not willing to continue leading Heart of England without an acquisition

[33] Comprising approximately 1,100 to 1,200 outpatients, around 120 day cases and fewer than 100 admitted patients each year (across years 2013/14, 2014/15 and 2015/16).
[34] It is not possible to further quantify the patients who experienced delays or issues with their transfer of care; however, we note that most of the plastic surgery activity going through Heart of England is ultimately taken on by University Hospitals Birmingham and the new arrangements should help to improve the pathway for all these patients going forward.

- the improvements are the result of the specific expertise and capability of the University Hospitals Birmingham leadership
- without the leadership of University Hospitals Birmingham, Heart of England will not be able to embed and continue to develop the improvements already delivered, and they are likely to fall away.

Current arrangements are not sustainable

As noted, the boards of both organisations have indicated they are not willing to continue with the current situation. The boards believe that the current arrangements are not sustainable because of the risk of confusion of accountabilities caused by executives and senior staff reporting to two boards, and duplication of lines of governance which is, at best, wasteful of time and resources and, at worst, poses potential conflicts of interest. University Hospitals Birmingham has told us that the duplication poses a strain on the executive team, with significant time spent preparing for and attending separate meetings for each trust; some members of the team often start their day at 4 am. The boards' view is that further significant patient benefits and organisational efficiencies can only be delivered by becoming one organisation.

Therefore, if the merger does not proceed, University Hospitals Birmingham will withdraw from managing Heart of England. Heart of England would return to a state of regulatory support from NHS Improvement with a view to rebuilding the leadership of Heart of England over time. As noted, NHS Improvement's view was and remains that it is unlikely to be able to appoint a leadership team with the same cohesion, experience and situational awareness of the University Hospitals Birmingham leadership.

The improvements are the result of the specific expertise and capability of the University Hospitals Birmingham leadership

NHS Improvement's view is that the University Hospitals Birmingham leadership were and still are uniquely well placed to address the issues around leadership and governance at Heart of England. The trust has a history of strong leadership and good governance and a culture of safety and improvement at all levels of the organisation. The trust leadership also know the city and its patients and the particular challenges they face.

The University Hospitals Birmingham board also has significant capacity and transactional experience at both an executive and non-executive level. Over recent years it has successfully delivered a number of large-scale projects, including consolidating two hospital sites into one new site and going live as a major trauma centre. The trust also has provided resource to help other challenged providers such as George Eliot Hospital NHS Trust. To ensure that University Hospitals Birmingham

has not suffered from the leadership's commitment to Heart of England or lesser form of support to other trusts, the trust has invested in and then maintained significant capacity at both an executive and sub-executive level.

Without University Hospitals Birmingham leadership, the improvements already delivered are likely to fall away

Based on the history of leadership and governance problems at Heart of England, and the failure of Heart of England to respond to previous regulatory actions, our view is that Heart of England:

- would not have been able to implement the improvements acting independently
- would not be able to implement the same or a similar level of improvements with another organisation
- would not be able to sustain the improvements already made if the merger does not proceed.

If the University Hospitals Birmingham leadership team were to withdraw, Heart of England would be left without a chief executive, chair and two-thirds of the executive leadership team. Heart of England would be seeking to replace a chief executive with 10 years' experience, in addition to seven other members of the executive team with more than 40 years' experience at board level. University Hospitals Birmingham note that 18% of chief executive roles at acute trusts are filled on an interim or acting basis and that nationally 33% of acute trusts have at least one interim board member or vacancy on their executive team.

In addition to the recruitment challenge, it would take any new cohort of executives considerable time to develop the same degree of situational awareness and sustainable team cohesion.

Without the leadership of University Hospitals Birmingham, Heart of England would not be able to continue to fully develop the improvements already made and they are likely to fall away. As an indication of what may happen, the parties said that there would be a significant impact on clinical staff should University Hospitals Birmingham leave. The parties submitted that key clinical staff would be discouraged and would likely leave Heart of England, placing more services at risk. This would also bring about a further period of uncertainty and decline as staff would be asked to accept yet more change.

In NHS Improvement's view, the improvements made so far at Heart of England are not simply structural – they rely on the commitment of the University Hospitals Birmingham leadership to implement change on an ongoing basis. For these

reasons our advice is that the improvements already delivered are specific to the merger and should be taken into account by the CMA as relevant patient benefits.

4.2. Relevant patient benefits that are likely to be delivered as a result of continuing work by the University Hospitals Birmingham leadership to improve Heart of England

The parties have submitted that the merger would enable the University Hospitals Birmingham leadership to implement additional organisation-wide improvements for patients as part of their continuing work to improve performance at Heart of England.

We agree that the merger will enable University Hospitals Birmingham to be likely to implement further improvements in two key areas:

- implementation and use of a more sophisticated clinical IT system at Heart of England
- recruitment, training and improved capacity and flexibility of workforce.

In our view, these organisation-wide improvements are significant both in terms of their scale and their impact on patients in terms of improved access, patient experience, outcomes, quality of care and safety. In our view they are likely to lead to higher quality care for all patients of Heart of England (covering elective, non-elective and specialised services) and therefore should be taken into account as relevant patient benefits.

In this section, we apply the CMA's framework for assessing relevant patient benefits to the parties' proposals for clinical IT and workforce.

4.2.1. Are the proposals likely to represent a real improvement in quality, choice or innovation of services for patients or in value for money for commissioners?

Clinical IT

University Hospitals Birmingham is one of the most digitally mature trusts in the NHS[35] and has been selected as a global digital exemplar.[36] University Hospitals

[35] University Hospitals Birmingham is ranked second of 239 trusts in the 2015/16 NHS Digital Maturity Survey with an overall score of 89.3: /www.england.nhs.uk/digitaltechnology/info-revolution/maturity-index/

[36] A key component of the Driving Digital Maturity programme led by NHS England is to create global digital exemplars. These centres will be the first in the NHS to be paper free. A global digital exemplar

Birmingham has developed its own tailor-made advanced clinical decision-making system, known as the Prescribing and Information Communication System (PICS). PICS is an electronic, rules-based, decision support system which operates in all inpatient, outpatient and day case areas. It supports full e-prescribing and drug administration for both routine treatments and chemotherapy, requesting and reporting of laboratory investigations, clinical observations and assessments and extensive order communications, including imaging requests and internal referrals. PICS is available for purchase by other healthcare providers.

Heart of England is significantly less digitally mature than University Hospitals Birmingham, placing in the lower quartile of trusts.[37] Heart of England does not have a single electronic patient record system and uses a number of different third-party and bespoke systems.[38] The parties have told us the clinical IT systems at Heart of England are not fit for purpose and require modernisation.[39]

The parties' clinical IT proposals and NHS Improvement's views on whether they represent improvements for patients

The parties propose to implement and embed use of University Hospitals Birmingham's PICS at Heart of England within three years.

NHS Improvement's view is that embedding the use of PICS within the culture at Heart of England, as has been achieved at University Hospitals Birmingham, is likely to result in improvements for patients. In our view, the improvements are likely to be in the areas in which University Hospitals Birmingham has demonstrated improvements through use of its PICS system and which could be replicated at Heart of England. We set out these areas below to indicate how implementation of the PICS system is likely to result in improvements for Heart of England patients.

Reducing errors

University Hospitals Birmingham said use of PICS prevents errors and enables lessons to be learnt by allowing management and staff to analyse and rectify problems. The system is used by all clinicians and professional staff in most clinical

is an internationally recognised NHS care provider delivering exceptional care, efficiently, through the use of world-class digital technology and information flows, both within and beyond their organisation boundary. University Hospitals Birmingham was selected as a global digital exemplar on 7 September 2016. For more information see: www.england.nhs.uk/digitaltechnology/info-revolution/exemplars/

[37] Heart of England's overall score of 53.3 in the 2015/16 NHS Digital Maturity Survey places it 182nd of 239 trusts.

[38] These systems include, for example, iCare (developed in-house), Concerto, Badgernet (maternity), Auditbase, Proton, SystmOne, CareStream Dental, Bookwise, and MSS. Source: FOI 4955 ICT and information systems, dated 28 February 2017 www.heartofengland.nhs.uk/foi-4955-ict-and-information-systems/

[39] Appendix 3 of the parties' benefits case: CQC slides. Presentation from Dame Julie Moore, Interim Chief Executive of Heart of England, to CQC in connection with the October 2016 inspection of Heart of England by CQC.

areas at University Hospitals Birmingham (exceptions are theatres which are currently in development). The parties have told us that PICS has reduced potential errors by 66% and prevents about 146,000 potential errors each year at University Hospitals Birmingham.

The system is able to enforce clinical processes by mandating certain functions. For example, as part of the patient admission process there is a mandatory VTE risk assessment.[40] Rules connected to the VTE risk assessment ensure that:

- anti-embolism stockings are automatically prescribed when required and administration is monitored
- if recommended following assessment, doctors are prompted to make a decision about whether to prescribe enoxaparin medication and PICS will not allow any other medication to be prescribed until the prescription for enoxaparin is either completed or deleted.

As a result of mandating the VTE risk assessment, 99% of University Hospitals Birmingham's inpatients undergo the risk assessment recommended by the National Institute for Health and Care Excellence (NICE).[41] This is above the national target of 95%. The parties also said that the VTE processes enforced through PICS have resulted in a reduction in readmissions at University Hospitals Birmingham due to VTE, and that such readmissions are associated with significant morbidity and mortality.

In further examples of how PICS can reduce errors and lead to better care for patients, completed observations of patients' vital signs at University Hospitals Birmingham have increased from less than 50% in 2010 to nearly 100% in 2014,[42] and the percentage of foundation year 1 junior doctors complying with a policy to prescribe certain medications has risen from 15% to 87% following intervention meetings with junior doctors who were not adhering to trust policy. This was prompted by analysis of the junior doctors' prescribing habits.[43]

[40] VTE includes deep vein thrombosis (DVT) and pulmonary embolism. DVT occurs when a blood clot forms in a vein, most commonly one in the leg. If the clot dislodges it can travel through the bloodstream to the lungs. This is known as pulmonary embolism and can be fatal. People in hospital can be at risk of DVT if they are inactive for long periods of time. DVT can happen at any time during a stay in hospital or in the weeks after leaving hospital.
www.nice.org.uk/guidance/cg92/ifp/chapter/Deep-vein-thrombosis-DVT
[41] In its guidance *Venous thromboembolism in adults: reducing the risk in hospitals* NICE recommends that all patients are assessed within 24 hours of admission to identify those at risk of VTE.
[42] See Appendix 6 of the benefits case: CMA slides – Value of PICS (2 February 2017) for an illustration of the complete set of observations.
[43] Figure 1: Analysis of three different grade junior doctors' performance in prescribing enoxaparin after completing VTE assessment, before and after intervention meeting; Appendix 9 for the parties' submission on patient benefits: Junior doctor clinical dashboard case study.

Reducing missed drug doses

Every drug that is prescribed or administered is recorded in PICS, as are reasons for non-administration. The system provides an audit trail that shows exactly who did what and at what time, which gives visibility of prescribing and administration practices. It is also possible to monitor the individual prescribing practices of medical staff. Monitoring of this data allows early identification of errors, can identify training needs and improve prescribing practices and habits.

The parties have submitted evidence that shows how key interventions using PICS data – including executive team emails, clinical dashboard and missed dose root cause analysis meetings – have led to a reduction in the percentage of missed drug doses over the period from January 2008 to January 2014.[44] The percentage of missed doses of both antibiotic and non-antibiotic medications has approximately halved over this period. Improvements in mortality related to missed drug doses at University Hospitals Birmingham can also be observed from March 2008 to January 2011, with particular improvement observed following the introduction of clinical dashboards and root cause analysis meetings that rely on PICS data.[45]

Efficient early warning of deterioration of inpatient care

PICS can be used to set up alerts for individual physiological parameters. When a member of a clinical team logs into the system, it will automatically alert that member of a patient's current parameters. The parties said that this means clinical teams are alerted sooner to changes in parameters for their patients, which can result in early intervention in patients' care and potentially avoid deterioration in their condition.

It is NHS Improvement's view that the above improvements are likely to be achieved for patients at Heart of England if PICS is implemented and its use is successfully embedded in the culture at Heart of England. The improvements would impact on all services delivered at the trust and every patient is likely to benefit.

Setting targets for continuous improvement

University Hospitals Birmingham maps its performance against a clinical dashboard of indicators which can collate performance in different ways, such as per groups of clinicians (eg junior doctors) or per clinical area (such as an individual ward). The trust has tracked performance over the years and continues to set challenging targets against particular indicators. For example, the trust set an original target for the percentage of patients with at least one complete set of observations every 24

[44] Figure 1: Reduction in missed doses (PICS data); Appendix 10: Prescribing and Information Communication System.
[45] Appendix 6 to the parties' submission on patient benefits: CMA slides – Value of PICS (2 February 2017). Presentation by Dame Julie Moore, Chief Executive of University Hospitals Birmingham and Interim Chief Executive of Heart of England, to the CMA.

hours at 90% set in 2012, rising to 98% of patients having an observation every 12 hours in 2012/13 and 99% every 12 hours in 2014.[46] Once this was reached in 2015 the target was changed to be even more stretching by including a pain assessment to be completed for 85% of patients, and later changed to 90% in 2016. In January 2017, the trust performance against this target was 89%.

The number and complexity of indicators used by the leadership team at University Hospitals Birmingham to monitor and improve performance is rapidly increasing in line with the trust's focus on continuous improvement and suggestions put forward by staff to help them deliver improvements to clinical quality. PICS enables the trust to work at all levels to continuously improve care for patients.

Workforce

University Hospitals Birmingham and Heart of England together have a workforce of approximately 20,000, covering all clinical, clinical support, managerial and back office roles.

We note that University Hospitals Birmingham leadership has already made some changes to Heart of England workforce structures and reporting lines: since April 2016, divisions are service based across the three hospitals of Heart of England, rather than site based, with each division now accountable to the executive director of operations.

The parties' workforce proposals and NHS Improvement's views on whether they represent improvements for patients

The parties submitted that the merger will result in improvements for patients across services due to the opportunities created by combining their workforces. From the parties' benefits case, we identified the following key opportunities relating to the workforce:

- improved recruitment and retention of high quality, appropriately skilled staff, thereby reducing reliance on locum and agency staff[47]
- creating larger pools of staff for particular services to enable improved out-of-hours and on-call arrangements that are more attractive to staff and would

[46] Figure 4: Performance for clinical dashboard indicators at UHB; Appendix 10 of the benefits case: Using PICS to manage and improve quality of care (electronic monitoring system) case study.
[47] NHS Improvement has implemented rules to curb the use of agency staff, noting that the benefits of their reduced use include continuity of care for patients, ensuring that staff work total hours that are safe for patients, better value for money for the NHS and fairness to employed staff. See NHS Improvement, *Working through intermediaries: NHS employees on substantive contracts*, https://improvement.nhs.uk/news-alerts/working-through-agencies-nhs-employees-substantive-contracts/

allow increased sub-specialisation and support the move to seven-day services.

- improved education and training for clinical and non-clinical staff through standardised training programmes and wider offer of training opportunities across the combined organisation.

In NHS Improvement's view, these opportunities created by combining the workforce of the two organisations are likely to lead to real improvements for patients.

Patients at Heart of England are likely to see improvements due to University Hospitals Birmingham's strong ability and track record to recruit and retain staff at a time of national shortages. CQC has noted that University Hospitals Birmingham has strong recruitment practices, where teams are encouraged to over recruit when good candidates present at interview to secure capable individuals when they are available. CQC's 2017 report regarding Heart of England found continuing challenges with workforce, including shortfalls in nursing, medical and dental, non-clinical staff and allied health professionals, and high use of bank, agency and locums.

In our view, University Hospitals Birmingham's strong reputation, the opportunities for professional development offered by its services and track record in recruiting will enhance the merged organisation's ability to fill vacant roles at Heart of England hospitals and will likely reduce spending on locum and agency staff.

We also agree that the larger combined workforce pool is likely to offer greater opportunities for access to sub-specialists for patients that they may not have had previously, as well as enhanced training opportunities for staff. We would expect the trusts, as separate organisations, to strive to be able to achieve some seven-day services; however, we recognise that recruitment problems at Heart of England may prevent this and that combining workforce may allow greater access to out-of-hours services and sub-specialists.

CQC has said that University Hospitals Birmingham prioritise training which has a strong uptake among staff, and the trust and staff together have a positive attitude to training. We expect University Hospitals Birmingham to instil the same positive approach to training at Heart of England hospitals, resulting in a better skilled workforce and higher quality care for patients.

For example, University Hospitals Birmingham submitted a case study regarding its junior doctor clinical dashboard programme.[48] The programme uses IT and informatics capabilities to improve training and monitoring of junior doctors in their day-to-day interactions with patients. This enables senior doctors and leadership to

[48] See Appendix 9 of the parties' submission on patent benefits: Junior doctor clinical dashboard case study.

monitor junior doctors' performance across key areas, such as VTE assessments, and to intervene where there are errors. University Hospitals Birmingham reports that it has seen significant improvements in quality and safety since implementing the programme in November 2011. The merger would mean that, among other potential opportunities, University Hospitals Birmingham could implement the programme at Heart of England hospitals (including the IT system, as described above) and junior doctors would receive consistent feedback across all relevant hospital sites.

4.2.2. Are the improvements in clinical IT and workforce likely to be delivered within a reasonable timeframe?

NHS Improvement's view is that the leadership of the merged organisation is likely to deliver the proposed changes in IT systems and workforce that will benefit patients within a reasonable timeframe. Our view is based on University Hospitals Birmingham's consistently strong performance, the leadership's track record of delivering improvements and high quality care for its own organisation, and what it has already achieved at Heart of England.

Clinical IT

The parties submit that the achievements at University Hospitals Birmingham are replicable, particularly given University Hospitals Birmingham's experience with the system, and propose to implement the system within three years at Heart of England. The parties have identified haematology and oncology as potential departments for early adoption of the system to enable electronic prescribing to be implemented for chemotherapy. It would then be rolled out across other departments at Heart of England in a staged way. The parties said that this staged rollout would allow for clinical champions of the new system to be developed and learning to be disseminated through the organisation in an iterative way. Learning from clinical areas would inform the rollout process and enable adaptions to be made to the system if necessary. This approach was undertaken successfully at University Hospitals Birmingham.

The parties also said that delivering improvements for patients at Heart of England is dependent not only on implementing PICS but also using the information generated through PICS to inform actions that achieve improvements.

In our view, the merger is likely to result in successful implementation of PICS at Heart of England and use of the system to achieve improvements for patients within a reasonable timeframe. We agree that, as well as the importance of data collection and analysis, it is the actions taken as a result of this analysis by the leadership team at University Hospitals Birmingham that has resulted in improvements for patients. The University Hospitals Birmingham leadership has demonstrated its ability to

implement PICS and use it as an improvement tool at its own organisation. Our view is that the leadership team at University Hospitals Birmingham are therefore likely to be capable of achieving this at Heart of England, and delivering the resulting improvements for patients, within the proposed three-year period.

We note that commissioners told us they believe the improvements for patients that result from the clinical IT system will be delivered, based on University Hospitals Birmingham's track record of continuous quality improvement. They suggested the IT and informatics from University Hospitals Birmingham will revolutionise how Heart of England works and will help Heart of England to address quality issues as they arise, rather than retrospectively.

Workforce

In our view, the improvements from a combined workforce, including better recruitment, larger pools of staff allowing greater access to out-of-hours care and sub-specialists, and improved training and development for staff, are likely to be delivered in a reasonable timeframe in the same way as explained for clinical IT above. Our view is based on University Hospitals Birmingham's track record and the improvements it has already started to implement at Heart of England, such as its successful recruiting for posts in neurology and interventional radiology, which were previously challenged services in need of urgent stabilisation, and where recruitment had failed to be successful. Advertising the posts as joint roles working across both trusts, with the attendant benefit of access to University Hospitals Birmingham's expertise and case mix, made these significantly more attractive.

4.2.3. Are the improvements in clinical IT and workforce unlikely to accrue without the merger or a similar lessening of competition?

In our view, the improvements in both clinical IT and workforce are unlikely to accrue without the continued leadership of University Hospitals Birmingham.

The leadership team at University Hospitals Birmingham are uniquely placed, given the significant improvements they have achieved for their patients, to lead the implementation of the clinical IT system at Heart of England.

NHS Improvement's view is that, although PICS is available for purchase by other healthcare providers and could therefore possibly be purchased by Heart of England without the merger, the merger will facilitate the transformation necessary to embed use of the system in Heart of England and result in improvements for patients. We accept the parties' submissions that the value of the system, and the means through which real improvements for patients are realised, is through:

- embedding use of PICS as part of the routine daily practice of every consultant, junior doctor, nurse, allied health professional and manager in the organisation
- not just collecting and analysing data, but taking action to address issues and improve services and quality of care for patients.

Similarly, the improvements already made at Heart of England in recruiting and workforce culture suggest that further improvements through workforce cannot be achieved without the merger, which includes University Hospitals Birmingham using its proven ability to recruit highly qualified staff to reduce vacancies and use of agency staff at Heart of England.

In our view, Heart of England would be unlikely to be able to achieve these improvements if the merger does not go forward and the University Hospitals Birmingham leadership team withdraw from Heart of England.

4.3. Relevant patient benefits in specific service areas

The parties have submitted that the merger would enable the University Hospitals Birmingham leadership to implement additional service-specific improvements that will benefit patients across both organisations. They provided descriptions of five services and examples of the wider opportunities to transform care. Having reviewed these services, we have identified the proposals which we advise the CMA are likely to result in relevant patient benefits. Our advice on these is below. For the remainder, we have described in section 5 what we see as the additional opportunities that are likely to represent improvements for patients in the longer term.

It appears to us that the merger is likely to enable University Hospitals Birmingham to deliver improvements for patients of gastroenterology/hepatology and vascular surgery services. In our view, these service-specific improvements are likely to lead to higher quality care for patients of these services and therefore should be taken into account as relevant patient benefits.

In this section, we apply the CMA's framework for assessing relevant patient benefits to the parties' proposals for gastroenterology/hepatology and vascular surgery. Our assessment of whether the proposals are likely to represent a real improvement for patients is summarised below and set out in more detail in Annex 4 (gastroenterology/hepatology) and Annex 5 (vascular surgery).

4.3.1. Are the proposals likely to represent a real improvement in quality, choice or innovation of services for patients or in value for money for commissioners?

Gastroenterology/hepatology

Gastroenterology services are for patients with acute and long-term medical conditions affecting the gastrointestinal (GI) tract. Care is delivered in both inpatient and outpatient settings, as well as through screening programmes.

Hepatology is a branch of medicine concerned with the study, prevention, diagnosis and management of diseases that affect the liver, gallbladder, biliary tree and pancreas and has developed as a sub-specialty of gastroenterology.

Liver disease comprises the majority of inpatient work for gastroenterologists and many patients initially present and are subsequently readmitted through emergency admission pathways. These patients can be complex, high cost and often have long inpatient stays.

The parties submitted that Birmingham, consistent with its levels of socio-economic deprivation, has some of the highest rates of liver disease and liver-related morbidity and mortality in the country.[49]

Gastroenterology and hepatology are delivered as separate specialties at University Hospitals Birmingham, with hepatology and specialist liver transplant services delivered via a dedicated specialist liver and hepato-pancreato-biliary unit. Heart of England does not have a specialist liver service and hepatology is delivered as part of the gastroenterology service.

The parties' gastroenterology/hepatology proposals and NHS Improvement's views on whether they represent improvements for patients

As set out below and in Annex 4, from the parties' submission we identified two gastroenterology/hepatology proposals as likely improvements for patients:

Higher quality services from the proposed reconfiguration of endoscopy services[50]

The parties told us that both trusts are constrained by available capacity for endoscopy services. Currently, some endoscopy patients experience long waits and elective patients may have appointments rescheduled to accommodate emergency, acute and cancer patients. Both trusts have put in place a variety of measures to

[49] Appendix 13: Pan-Birmingham Hepatology Work Plan of the parties' benefits case.
[50] Endoscopy is a procedure used to investigate symptoms, to remove a small sample of tissue for further analysis (biopsy) and to guide surgery as the insertion of the endoscope gives a view of internal organs. The long, thin, flexible tube with a light source and camera at one end is inserted into the patient's gut and images are relayed to a television screen.

meet existing demand and national waiting time targets (including waiting list initiatives and extended hours in the evenings and at weekends[51]) but the services continue to operate at full capacity and there is no space to accommodate increasing demand.

To address these concerns, and with a view to optimising the trusts' existing estate, the parties propose to:

- centralise endoscopic ultrasonography (EUS) work in gastroenterology at one acute site (to be determined)
- deliver outpatient endoscopy and screening services from a cold site remotely from the trusts (or potentially on the Solihull site)
- deliver elective inpatient and day case endoscopy services at the three Heart of England sites
- streamline and shorten cancer pathways
- work with consultants to create more flexible ways of working across all the sites.

The parties submitted that their best estimate for the number of patients who might benefit from the improvements in endoscopy is approximately 17,000.[52]

NHS Improvement's view is that centralising EUS work on one acute site and offering outpatient and screening endoscopy services from a dedicated site is likely to result in improved patient flow and productivity for these services, reduced waiting times for some patients and improved patient experience.

Streamlined and shorter patient pathways for cancer patients have the potential to enable intervention earlier in the disease and for patients to see improvements in outcomes as a result of being correctly diagnosed and commencing treatment sooner.

We expect workforce-related proposals to be more attractive to staff when led by University Hospitals Birmingham and the trust to have greater success in recruiting

[51] University Hospitals Birmingham runs endoscopy sessions three evenings a week and on Saturdays and Sundays. Its consultant job plans provide for cross-cover from other specialties (such as colorectal, upper GI and hepatology) for endoscopy sessions to prevent lists being dropped. The cost of staffing these extra sessions is approximately £12,800 per week. Nursing and administrative staff are also working standard six-day weeks.
[52] The parties told us that on further reflection the 12,700 patients referred to in Appendix 12 to the parties' benefits submission may be an underestimate across the two trusts as both are currently treating significant numbers of patients over and above the baseline funded activity. Due to the way that activity is recorded in NHS Improvement data, how many patients may benefit from the endoscopy improvements could not be determined.

high calibre staff to the Heart of England sites, particularly where joint appointments are involved, working across both trusts.

These changes are likely to mean improved experience for all patients requiring endoscopy service, and improved access to care (associated with reduced delays) and earlier intervention, which could improve outcomes for some patients.

Community-based and nurse-delivered ambulatory hepatology service

The parties propose to implement at Heart of England a community-based and nurse-delivered hepatology service, similar to that underway at University Hospitals Birmingham. The model would use data to identify and separate patients with chronic liver disease (viral and non-viral) at Heart of England from the general gastroenterology clinic population. These patients would be seen at specialist liver clinics at the three Heart of England sites. Clinics would be staffed by specialist nursing teams. The parties have estimated that there are currently 2,500 admissions at the trusts for acute hepatology per annum. The parties submit this number could be reduced as a result of these proposed changes.

NHS Improvement's view is that the implementation of an ambulatory model of care would deliver improvements for patients associated with reduced admissions and reduced length of stay, from better management of these patients in the community. This is supported by evidence submitted by the parties about reductions in length of stay and admissions from implementation of ambulatory hepatology services at University Hospitals Birmingham and the Glasgow Ambulatory Liver Support Service.[53]

In our view, the parties' proposals are likely to also result in improved identification and management of patients with chronic liver disease by using data to identify and separate patients with chronic liver disease (viral and non-viral) at Heart of England from the general gastroenterology clinic population. Delivering care to these patients from specialist liver clinics located at all three Heart of England sites (as opposed to the current one morning a week service at the Birmingham Heartland Hospital site that is currently available) will improve access to care for these patients and enable care to be delivered closer to patients' homes.

Patients with chronic liver disease will be better managed and this will contribute to reducing admissions rates, as set out above.

We also expect that the new service will help to reduce demand on the tertiary unit at University Hospitals Birmingham that currently exists due to a shortage of other primary and secondary care providers of liver services. Patients at Heart of England should be better managed and less likely to deteriorate and require tertiary care.

[53] More information is provided in Annex 4.

Vascular surgery

Heart of England and University Hospitals Birmingham operate arterial surgical centres (hubs) networked with other hospitals. Both trusts produce good outcomes. Notwithstanding the challenges at Heart of England and the requirement for University Hospitals Birmingham's support, vascular is one of the specialist services that the trust and its clinicians have worked hard to maintain and continue to deliver to a high standard.

As set out below and in Annex 5, from the parties' submission we identified a number of proposals as likely improvements for patients:

Optimising use of the hybrid theatre

Heart of England has a hybrid theatre that combines an operating room with advanced imaging technology. The benefit of the hybrid theatre is that it has staff and equipment to allow specialist consultants to use an interventional radiology technique but then seamlessly switch or progress to performing open surgery, should this be required, without having to transfer to a vascular theatre.

At present the hybrid theatre is only used properly four days per week, mainly due to staffing problems (nursing, theatres, radiographers). We understand that Heart of England has a lack of interventional radiology consultants although it has the hybrid theatre whereas University Hospitals Birmingham have the interventional radiology consultants in post but do not have a hybrid theatre as yet. There are only three such theatres in place in England and Heart of England have the only theatre in the Midlands.

The parties propose to improve access for patients to the hybrid theatre at Heart of England by integrating their services and thereby allowing the parties to start to deliver better pathways for a wider range of patients.

In our view, the proposal is likely to result in greater productivity and better patient experience due to increased access to the theatre for a wider population. It would mean that patients at University Hospitals Birmingham who need to progress their interventional radiology procedure to open surgery, would not be transferred as an emergency to a surgical theatre, as happens at present. It would also make more effective use of highly skilled clinicians by allowing them to focus on the techniques best suited to the hybrid theatre, rather than undertaking procedures such as lower limb angiography, that can be carried out in another setting.

Optimising the organisation of sub-specialties

There are different strengths of expertise in the sub-specialist work carried out by the trusts. For example, the strength at University Hospitals Birmingham is in open aneurysm surgery and lower limb revascularisation. There is strength at Heart of

England in open and endovascular aortic aneurysm surgery which is performed in the state of the art hybrid theatre that is discussed above.

Consolidating these sub-specialties onto single sites will allow a higher volume of patients to be seen by clinicians, meaning they can more easily maintain and develop their expertise and provide improved training and development opportunities for all staff. While the parties already meet the minimum volume requirements in their areas of expertise there is good evidence to support the link between higher volumes and better outcomes.[54] We believe the reorganisation will result in further improvements to the quality of care patients receive.

4.3.2. Are the proposals likely to be delivered within a reasonable timeframe?

In our view, the current plans for these proposals, along with the University Hospitals Birmingham leadership's track record of delivering improvements for their own organisation and Heart of England, demonstrate a likelihood of delivering the improvements in a reasonable timeframe.

Gastroenterology/hepatology

Higher quality services from the proposed reconfiguration of endoscopy services

In our view, the improvements from delivering endoscopy services from the reconfiguring of endoscopy services are likely to be achieved within a reasonable timeframe. The parties have submitted that centralising EUS work on one acute site and offering outpatient and screening endoscopy services from a dedicated site could be achieved within three years. Clinicians at both trusts have been involved in reviewing the gastroenterology service and developing the proposals. An indicative timeframe for key milestones to take the proposals forward has been developed. Actions anticipated in the first three to four months following merger include agreeing consultant job plans, designing clinical rotas, identifying clinical protocols requiring harmonisation, mapping current and future state patient pathways/models of care and commencing work on a business case for service delivery options. While work still needs to be done to confirm future timeframes for approval of business cases and implementation of the service delivery model, we are satisfied that work will commence sufficiently quickly after merger such that implementation within three years appears credible and feasible.

[54] See, for example, *The reconfiguration of clinical services*, The King's Fund, November 2014, pp70–71.

Community-based and nurse-delivered ambulatory hepatology service

The parties have set out the steps that they propose to take to implement the community-based and nurse-delivered ambulatory model of care at Heart of England, including:

- review consultant and specialist nurse job plans across the trusts. This would inform the development of a business case to restructure existing plans to facilitate cross-site working, and would support planning for and quantification of future recruitment needs. Additional hepatology nurse specialists are expected to need to be appointed at the band 6 level under band 7 management to operate the ambulatory clinics
- establish off-site clinics and services that can be delivered closer to the community
- restructure the management of the hepatology service, including appointing a director of liver services responsible for medium/long-term strategy and planning, including outward-facing contact with patient groups, primary care, alcohol and addiction services and other stakeholders.

The parties have established a project group that includes managerial and clinical representation from both sites. The group is using clinically informed targets from PICS to determine the deliverables of the proposal. By the end of July the group expects to have developed a projected timeframe for delivery, identified the relevant stakeholders and people who need to be involved in implementing the proposals, and expects to be in a state of readiness to proceed with developing the requisite business cases if the merger proceeds. The parties expect to undertake the next recruitment round for the gastroenterology/hepatology within the next six months and anticipate this would focus on the future service provision and may involve joint appointments (subject to approvals of relevant business cases).

NHS Improvement's view is that the ambulatory hepatology service proposal is likely to be delivered within a reasonable timeframe for the following reasons: the proposal is expected to be delivered in around 18 months, significant development work has already been undertaken and continues to progress at pace, the proposals are clinically led and developed,[55] the team are in a state of readiness to proceed to development of business cases, and University Hospitals Birmingham has a strong track record of implementing service change.

[55] See, for example, Appendix 11 to the parties' submission on patient benefits: Methodology – Engagement programme.

Vascular surgery

The parties have set out the steps that they propose to take to implement delivery of the proposals for vascular surgery in their benefits case. Work already undertaken includes beginning to align clinical policies, as agreed by the two clinical leads in November 2016.

The parties have told us that clinicians from both parties are beginning a process of joint governance and quality review, which will lead to harmonisation of pathways and protocols and the reorganisation of some sub-specialties. We note that a series of clinical meetings of teams has taken place since January 2017 to support engagement, share activity information and discuss clinical pathways. They are also setting up a staffing model and establishing expectations for cross-site working which they say will take six months.

In NHS Improvement's view the proposals to optimise access to the hybrid theatre and the organisation of sub-specialties are likely to be delivered within a reasonable timeframe as the teams are already engaged in the process and clinicians are working together on clinically-led proposals and plans.

4.3.3. Are the proposals unlikely to be achieved without the merger or a similar lessening of competition?

Gastroenterology/hepatology

Higher quality services from the proposed reconfiguration of endoscopy services

NHS Improvement's view is that the proposals to centralise EUS work on one acute site and offer outpatient and screening endoscopy services from a dedicated site are likely to be facilitated and achieved more quickly by the merger. Both services are currently operating at capacity and are using waiting list initiatives and extended operating hours to meet current demand. The Heart of England facilities and equipment have also suffered from a lack of investment. The parties have also told us that the historical division of services between University Hospitals Birmingham and Heart of England has precluded effective development of clinical networks so far.

Reconfiguration of the endoscopy service without merger would likely require the trusts entering some kind of partnership or similar arrangement to support service reconfiguration across the different sites and delivery of endoscopy in a different way.

In our view achieving the improvements associated with the proposed reconfiguration of endoscopy services through a partnership or similar arrangement would be more difficult than achieving them through a merger. From a practical

perspective we recognise that appropriate governance and reporting arrangements for staff working across multiple sites would be likely to be more difficult to put in place where there are two organisations and two sets of service management teams that would need to agree and co-operate to make the partnership work. We recognise that substantial managerial input would be needed from both parties to design effective and satisfactory working arrangements.

Given the scale of reconfiguration proposed and practical difficulties associated with undertaking it through a partnership arrangement, we have concluded that the endoscopy proposals are likely to be facilitated and achieved more quickly through merger.

Community-based and nurse-delivered ambulatory hepatology service

NHS Improvement's view is that the improvements associated with the parties' ambulatory hepatology proposal are unlikely to be delivered without merger or a similar lessening of competition. Having regard to Heart of England's historical inability to successfully develop a specialist liver service and to separate liver patients from the wider gastroenterology clinic cohorts, it seems unlikely that Heart of England could establish an ambulatory hepatology service independently of University Hospitals Birmingham.

University Hospitals Birmingham has successfully implemented an ambulatory model of care at its own organisation and is therefore well placed to expand this model of care to the Heart of England sites. Further, we consider that implementation of PICS Heart of England will facilitate the identification of patients with chronic liver disease, so they can be directed to the planned specialist liver clinics.

Vascular surgery

NHS Improvement's view is that the vascular surgery proposals and their resulting benefits for patients are unlikely to be delivered without the merger. The parties told us that it is unlikely that separate organisational structures would bring the necessary focus to clinical teams to work in a unified way. We think that the wide-ranging reorganisation of sub-specialties to make the most of the particular strengths of each trust is likely to be too difficult to implement under separate organisational structures.

Moreover, although some joint working could be delivered without a merger this would again require entering partnership arrangements or service-level agreements to support different ways of working and service delivery which would not deliver the same extent of improvements for patients. In our view, it is challenging to see the scale of integration envisaged by all the proposals to vascular surgery being achieved by these kinds of arrangements and the merger is more likely to effectively facilitate the delivery of these improvements.

5. Wider improvements planned from the merger

The parties plan to achieve further improvements in the medium to longer term as a result of the merger. They have told us that the merged organisation will allow them to make the most of opportunities in these services that would not otherwise be available. These services were described in the benefits case and include diabetes, cardiology and nephrology/renal medicine.

We have not assessed these proposals against the CMA framework, as they are in an early stage of development. We understand that further work will be undertaken on these identified services in the coming months to review and redesign these services to maximise their potential benefits for patients.

Nonetheless, in NHS Improvement's view, these proposals set out the wider opportunities created by the proposed merger and are promising examples of what the merged parties have the potential to deliver.

Particular examples of the wider opportunities that could be expected from the merger include:

5.1. Diabetes

Diabetes is a priority area for the sustainability and transformation partnership. The 2017–19 Birmingham CCG has set out why a new community-based care model is needed to better manage demand and improve health outcomes for patients with this chronic condition.

The parties have told us that clinicians at both parties consider community services to be suboptimal and the number of inpatient admissions that can be avoided is a growing problem, due to poor management of diabetes in the community.

The parties say that the merged organisation presents opportunities in diabetes which will ensure future service sustainability. The parties said that unless significant changes are made, current services will be swamped and quality will decline. This requires a co-ordinated approach across pathways and between primary and secondary care.

The parties see opportunities to reduce acute admissions for diabetics by reducing morbidity and complications, such as amputation rates and kidney and eye complications. They are confident that these opportunities will also lead to a more informed, better educated diabetic population.

The benefits case describes proposals to reorganise services for diabetes, including uniformity of access to care for diabetic and bariatric services across the combined catchment area and cross-team working to adopt best practice with consistent pathways and protocols.

The parties also plan to work with GPs and commissioners on community-based solutions and improve expertise in GPs and community teams, to enhance care delivery. The parties want to implement across both trusts a new model of diabetes management that is already in place for Solihull patients since November 2015. An evaluation of the model 15 months after it commenced found that it had led to a reduction in HbA1c[56] for patients, an 8% reduction of inpatient appointments on the same period in 2014 and an 48% reduction in outpatient appointments on the same period in 2014/15. The parties say that the merger will allow this model to be rolled out to patients across the areas covered by both parties more quickly than would otherwise be the case.

5.2. Cardiology

The parties told us that cardiology is a service where a strong case could be made for integration early in the merger to make the most of opportunities that would not otherwise be available.

Both trusts are designated centres for the emergency treatment of heart attacks and both also provide some specialist services such as heart failure and implantable devices. However, University Hospitals Birmingham also provides a significant tertiary specialist service to the region such as adult congenital heart disease (ACHD), transaortic valve implantation (TAVI) and electrophysiology (EP).

Patients at both trusts receive a good service for emergency treatments for heart attack and there are established pathways for patients to access complex specialist care in a timely way, such as TAVI and ACHD services, at University Hospitals Birmingham. However, patients experience different waiting times to access care in EP, implantable devices and heart failure services between the trusts.

The parties submit that there are opportunities to improve patient pathways. The parties also identify areas of opportunity to improve heart failure services by sharing good practice and improving access for patients to services from the other trust, such as the screening programme at University Hospitals Birmingham which results in early appropriate use of implantable devices and the learning from Heart of

[56] Glycated haemoglobin (HbA1c) provides a measure of average blood sugar levels over a period of weeks/months. It is important to measure this for people with diabetes as it is an indicator of a patient's risk of developing diabetes-related complications.

England's dedicated chronic total occlusion service.[57] The parties also point to further improvements that can be made by joining up and harmonising their protocols of care and multidisciplinary team meetings. They believe this will lead to patients accessing consistent high quality care in a more timely way which will lead to reductions in length of stay, improved outcomes and improved patient experience.

5.3. Nephrology/renal medicine

The parties told us the merger will lead to joint working and a consolidation of the renal/nephrology services at each trust with opportunities to streamline satellite dialysis units and better utilise these facilities. This would mean that patients can access the units that are closest to their homes.

The parties told us that the merger will enable improved arrangements for providing dialysis units temporarily closed due to operational issues (such as water or electricity supply problems; as dialysis units are high consumers of these utilities, incidents occur not infrequently). They submit that it will lead to an increased capacity and capability to more easily urgently relocate dialysis patients to other units.

The parties also said that the merger will allow them to more easily share and adopt their particular expertise, such as Heart of England's long established system for chronic kidney disease surveillance, and expertise in home dialysis training and assisted peritoneal dialysis. The parties say that this will lead to the adoption of best practice and better value for money within these services.

5.4. Other services

The parties also identify about 30 other services which they plan to improve. These proposals are at a relatively earlier stage of development.

There are opportunities for streamlining services and better utilising staff and expensive equipment and facilities, such as in urology. Other services, such as ear, nose and throat, upper GI surgery and general surgery, are operating at both trusts at full capacity and they intend to better manage capacity across all the sites by consolidating certain aspects of these services to reduce waiting times for patients and the cost of expensive waiting list initiatives. Some proposals, for example in palliative care, identify the opportunity to develop networked services across Birmingham city. The proposals also recognise they can develop new services by sharing the expertise and staff from the other, such as developing an infectious diseases service at the University Hospitals Birmingham site by building on the well developed and modern service currently provided by Heart of England.

[57] A chronic total occlusion is the complete obstruction of an artery for longer than three months. No blood will flow downstream from the occlusion. Treatment involves a complex angioplasty procedure that not every centre has the staff or equipment to do.

Annex 1: History of failure and regulatory interventions at Heart of England

This annex sets out detailed history demonstrating how quality, financial and governance problems at Heart of England had persisted since they were first identified in mid-2012, and shows that Heart of England was not capable of responding to regulatory intervention.

It is also important to note that Heart of England's difficulties arose in a broader context of the increasingly challenging environment in which both foundation trusts operate. There are significant ongoing financial pressures, a need to achieve performance targets in light of increasing levels of demand, and enhanced scrutiny of the quality of care across the NHS. Heart of England was one of a number of organisations which struggled to achieve its outcome/access targets and their financial plans.

2012 to 2013

Signs of serious problems at Heart of England surfaced in 2012/13. Results of the 2012 NHS staff survey revealed that, compared to the national average, staff were less likely to recommend Heart of England as a place to work or receive treatment. The survey also indicated that the trust was in the bottom 20% of trusts for levels of fairness and effectiveness of incident reporting procedures, levels of training for staff, and levels of staff reporting good communication with senior managers.[58]

In 2013, CQC, as part of its role in monitoring hospital quality metrics,[59] identified elevated risks at Heart of England related to high mortality ratios.[60] CQC also identified areas needing further investigation including higher than average rates of pressure ulcers in patients over 70, urinary tract infections and falls resulting in harm. CQC also noted fluctuating VTE rates.[61]

[58] Care Quality Commission, Heart of England NHS Foundation Trust Data Pack, 3 January 2014.
[59] CQC's 'intelligence monitoring' programme examines available quality metrics to identify risks and help decide where inspections are most appropriate.
[60] Specifically, CQC found elevated risks in the Dr Foster Hospital standardised mortality ratio, the Dr Foster hospital standardised mortality ratio for weekdays and a composite indicator for in-hospital mortality rates in relation to cardiac conditions and procedures.
[61] Care Quality Commission, Heart of England NHS Foundation Trust Data Pack, 3 January 2014.

CQC's inspection of Heart of England in November 2013 found the trust 'required improvement' in four of the five areas it examines: safe, caring, responsive and well-led.[62] The trust had reported five 'Never Events' in the previous year, more than similarly sized trusts.[63] CQC also noted that the trust had a longstanding history of struggling to reduce the time people wait in A&E.[64]

In December 2013, Heart of England published an independent review of its response to clinical malpractice by a breast surgeon who had worked at Heart of England. This found organisation-wide deficiencies in leadership and culture going as far back as 2007.[65]

NHS Improvement first took regulatory action against Heart of England in December 2013, imposing enforcement undertakings for its regular breach of the A&E four-hour target and 12-hour target six times in six quarters. We also found failures of governance and we required enhanced reporting and oversight as well as changes to the management structure at both the Heartlands and Good Hope sites. These new structures aimed to improve how incidents are escalated to management and to involve executive board directors more in the day-to-day running of urgent care services at those sites. NHS Improvement also required Heart of England to develop a clinically-led transformation plan to reconfigure the urgent care services provided at Heartlands and Good Hope.

In December 2013 the trust was one of 13 hospital trusts named by Dr Foster Intelligence as having higher than expected mortality indicator scores for the period April 2012 to March 2013.[66]

2014

Throughout 2014, Heart of England failed to improve in response to CQC reports and NHS Improvement's enforcement actions, and deteriorated further with additional breaches in waiting time targets that are intended to ensure timely and safe treatment of patients. Additional safety risks were also identified.

[62] The trust was rated good in effectiveness. Good Hope Hospital was rated 'inadequate' in relation to A&E, and 'requires improvement' in relation to medical care, maternity and children's care. The Heartlands site was rated 'requires improvement' in relation to A&E, medical care, maternity and outpatients.
[63] Never Events are classified as such because they are so serious that they should never happen.
[64] The inspection report was published in February 2014.
[65] Ian Kennedy. Review of the response of Heart of England NHS Foundation Trust to concerns about Mr Ian Paterson's surgical practice; lessons to be learned; and recommendations. Available at: www.heartofengland.nhs.uk/wp-content/uploads/Kennedy-Report-Final.pdf
[66] *Dr Foster hospital guide 2013*.

NHS Improvement and CQC continued to monitor performance and found that although the trust had formulated an action plan and had started to implement it, more needed to be done.

CQC produced three further monitoring reports during 2014; which broadly reiterated the concerns it had cited in 2013 and identified additional risks to patients.[67, 68]

NHS Improvement took enforcement action in October 2014[69] and amended Heart of England's licence to add a condition requiring the trust to ensure sufficient management capability. Heart of England indicated it would implement an agreed transformation plan to return to sustainable compliance with the A&E target for at least three consecutive quarters. However, Heart of England failed to meet the A&E target for seven consecutive quarters. It was also in breach of RTT targets for elective care and cancer waiting list targets. Heart of England also continued to report higher than expected mortality rates.

NHS Improvement then amended Heart of England's licence conditions to require that it had in place:

- sufficient and effective board, management and clinical leadership capacity and capability
- appropriate governance systems and processes to enable it to address the issues identified and to comply with enforcement undertakings.

We also imposed additional enforcement undertakings requiring Heart of England to: develop and implement a quality improvement plan and mortality action plan; review and revise its RTT improvement plan, agree this with us and update us regularly on RTT performance; implement an approved cancer improvement plan together with updates on performance; develop and implement a governance plan; respond to the recommendations of the 2012 report identifying deficiencies in leadership and culture; and continue implementing its CQC plan.[70]

[67] Additional concerns raised by CQC in 2014 related to in-hospital mortality rates for genitourinary and haematological conditions, patient reported outcome measures (PROMs) in hip replacement, incidence of Never Events, percentage of patients risk assessed for VTE, A&E waiting times breaching the four-hour target and General Medical Council enhanced monitoring.
[68] PROMs in hip replacement, composite mortality ratios, in-hospital mortality ratios in relation to genitourinary, haematological and cardiac conditions were flagged in addition to in-hospital mortality for GI and hepatic conditions and procedures, nephrological and neurological conditions. RTT time was flagged as well as some reported experience criteria in relation to inpatient treatment and maternity, with most previously identified risks still present.
[69] Heart of England NHS Foundation Trust – additional licence condition (21 October 2014).

[70] Heart of England NHS Foundation trust - enforcement undertakings (21 October 2014)

We also varied the existing undertakings from December 2013[71] as Heart of England had now breached its RTT for successive quarters and had been unable to report RTT data since July 2014 due to significant issues in implementing its new elective patient administration system. The trust was also breaching a number of cancer wait times as well as the four-hour A&E waiting time target in successive quarters.

The chief executive resigned in November 2014. CQC conducted an unannounced inspection in December 2014. CQC carried this out because the trust was still in breach of its licence conditions and because of monitoring reports that indicated continuing and additional risks at Heart of England.

CQC again rated the trust as 'requires improvement' overall. CQC found that while some progress had been made since their last visit, this was limited and not yet sufficient. In some areas no improvements had been made or services had deteriorated.

The CQC report, which was published in June 2015, noted (among other things) that:

- widespread learning from incidents needed to be improved
- the culture within the trust was one of uncertainty due to the number of changes which had occurred
- staffing sickness and attrition rates were impacting negatively on existing staff
- staff could not communicate the trust vision and strategy
- governance arrangements needed to be strengthened to ensure more effective delivery
- IT systems needed to be improved to ensure reporting was accurate. The ability of the trust to report against activity was not always available for use at trust level or to their commissioners
- RTT times were not always met. This posed a reputational risk to the trust as well as a risk to patients waiting for treatment.[72]

Data released by the NHS Litigation Authority showed Heart of England as having the largest bill for clinical negligence claims in the region in 2013/14: spending

[71] Heart of England NHS Foundation Trust - amendments to enforcement undertakings published 20 Dec 2013 (21 October 2014)
[72] CQC Heart of England NHS Foundation Trust Quality Report, 1 June 2015.

£13.9 million in claims and £1.5 million in associated legal fees. The previous year it spent £14.3 million.

The trust was one of 26 trusts responsible for half the national increase in patients waiting more than four hours in A&E over the 2014/15 winter.

2015

In February 2015, Heart of England appointed an interim chief executive on a secondment arrangement, and NHS Improvement appointed an improvement director. This appointment was made by NHS Improvement to address concerns that the trust had insufficient long-term leadership capacity.

The trust's financial performance deteriorated and over the summer the trust appointed external advisers to investigate the financial problems and help with a recovery plan. The trust continued to fail national standards for A&E, RTT and cancer waiting times.

NHS Improvement visited Heart of England in late September 2015 and concluded that the trust had a range of quality, patient safety and clinical care issues. The quality problems included (but were not limited to):

- higher than expected mortality rates
- unmet RTT, diagnostics and cancer targets, resulting in patients waiting longer to receive care
- high levels of staff vacancies with poor prospects of recruitment to some key clinical positions
- a lack of continuity, stability and quality of leadership and governance at board level
- poor handovers and care pathways
- a lack of good communication between departments, and between the trust and other trusts;
- poor reporting and escalation of problems
- unclear governance processes and lack of ability to address problems
- inadequate IT systems;
- a backlog of handling complaints.

Further, Heart of England reported a deficit of £35.9 million accrued in the period from April to October 2015. On 1 October 2015, NHS Improvement opened an investigation into the trust's finances, due to the trust reporting an M4 deficit position of £22.5 million against an M4 deficit plan of £7.9 million.

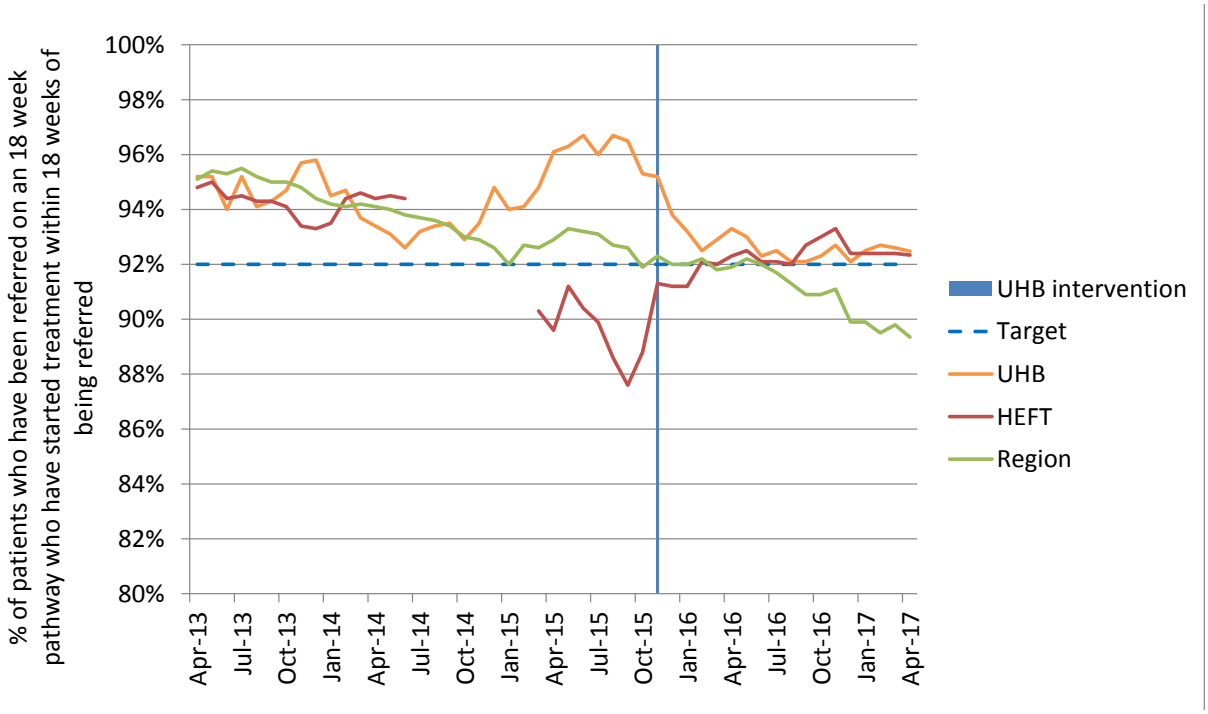
Despite several attempts the trusts had not been able to recruit a substantive chief executive. The interim chief executive resigned and left the trust at the end of October 2015, and the chair stepped down at the end of November.

Heart of England was left with a gap in leadership at a time when robust leadership was critical to drive financial turnaround and continuing performance improvement. NHS Improvement had significant concerns that the trust did not have the leadership capacity and capability to deliver the financial plans and performance improvements required. The executive team was small and many members were relatively inexperienced. Sub-executive leadership lacked capability and capacity and were heavily reliant on interim support.

Annex 2: Improvements at Heart of England

RTT performance (all specialties)

- Measure: All patients referred on an 18-week pathway who start treatment within 18 weeks of referral (incomplete pathways <18 weeks)
- Target: 92%

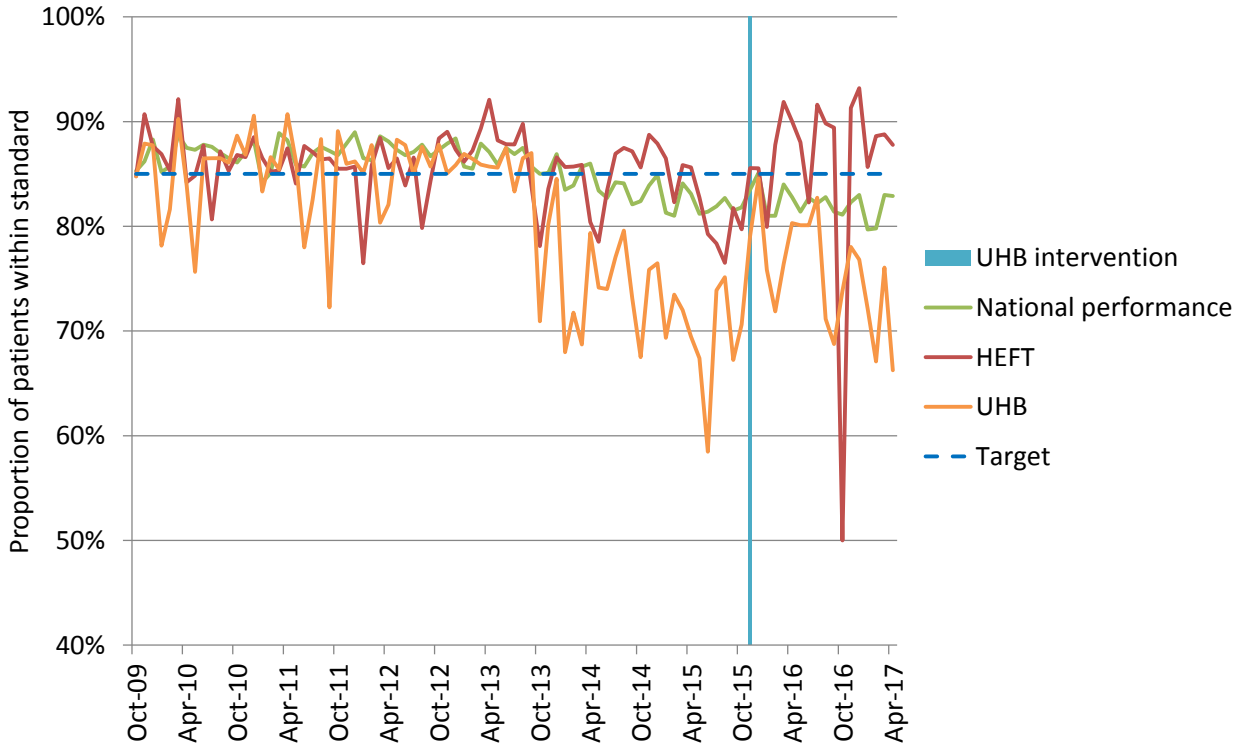


Due to the introduction of a new patient administration system, Heart of England (HEFT) was unable to report its 18-weeks performance between July 2014 and February 2015. (Source: Appendix 3 of the benefits case.)
Source: Monthly RTT data returns from Unify.

Cancer waiting times performance

62-day target (all specialties)

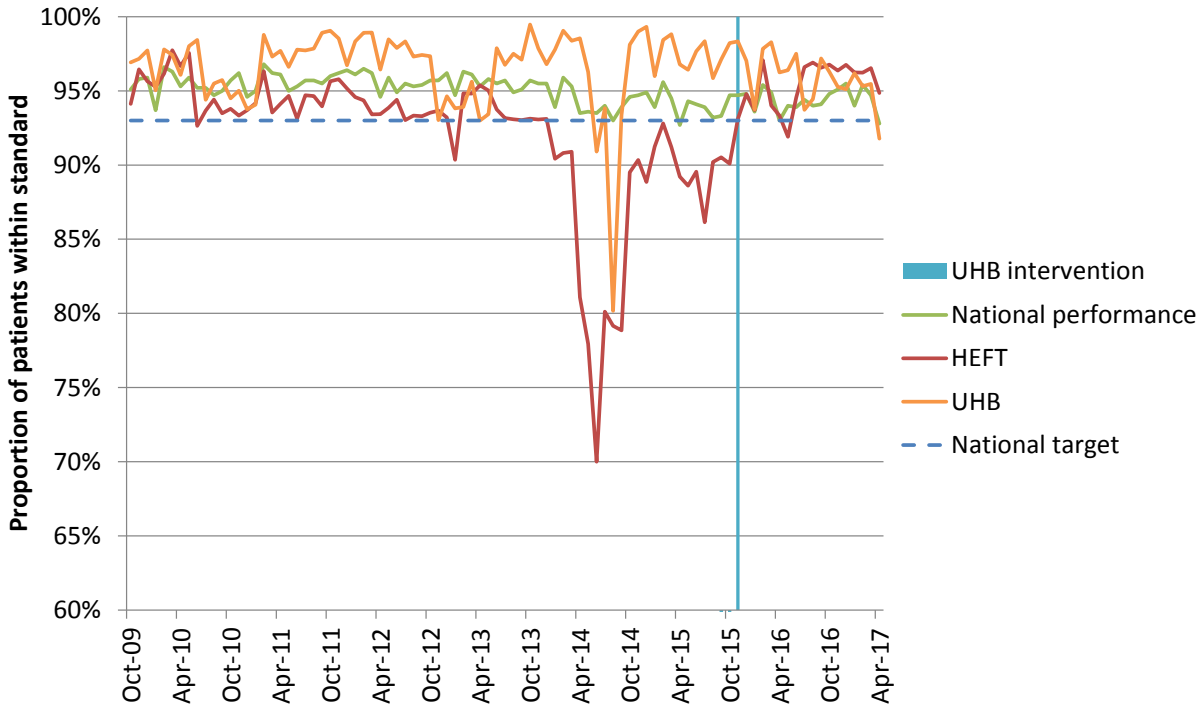
- Measure: 62 days from date of GP fast track referral to date patient starts treatment
- Target: 85%



Note that the data shows a precipitous drop to 50% in October 2016. University Hospitals Birmingham told us this is likely to be a data error.
Source: NHS England from Open Exeter.

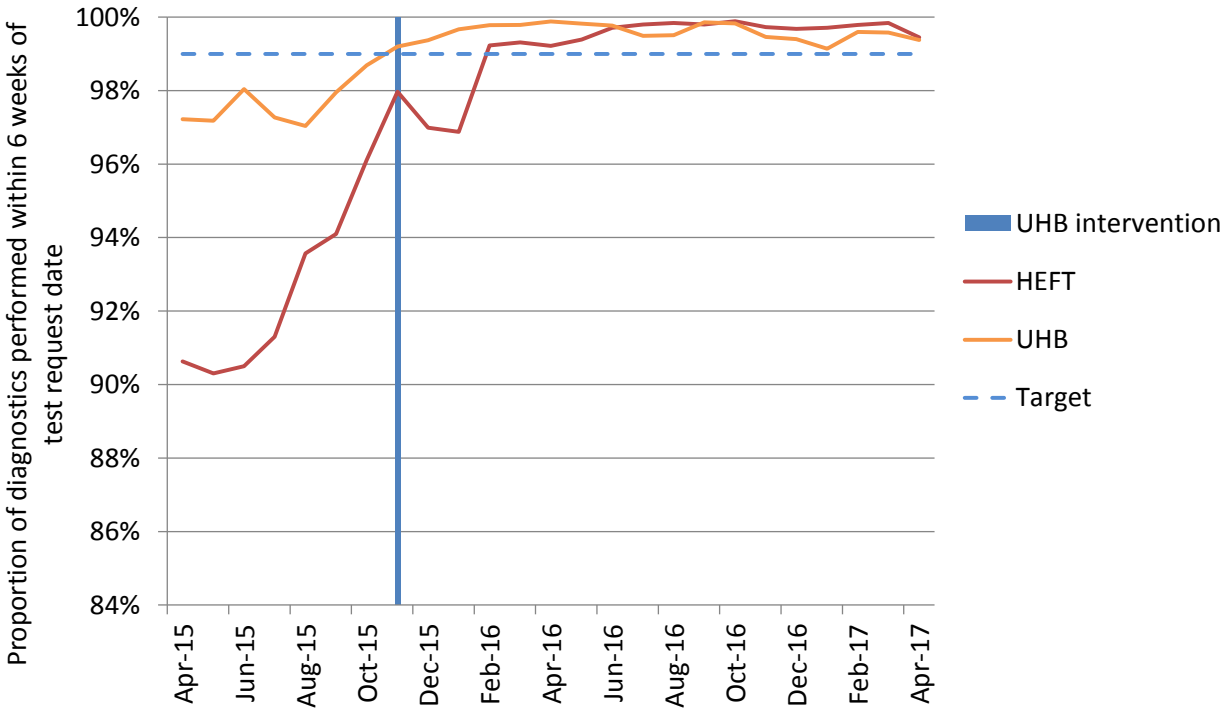
Two-week target (all specialties)

- Measure: Two-week wait from GP urgent referral to first consultant appointment
- Target: 93%



Diagnostics waiting times performance (all specialties)

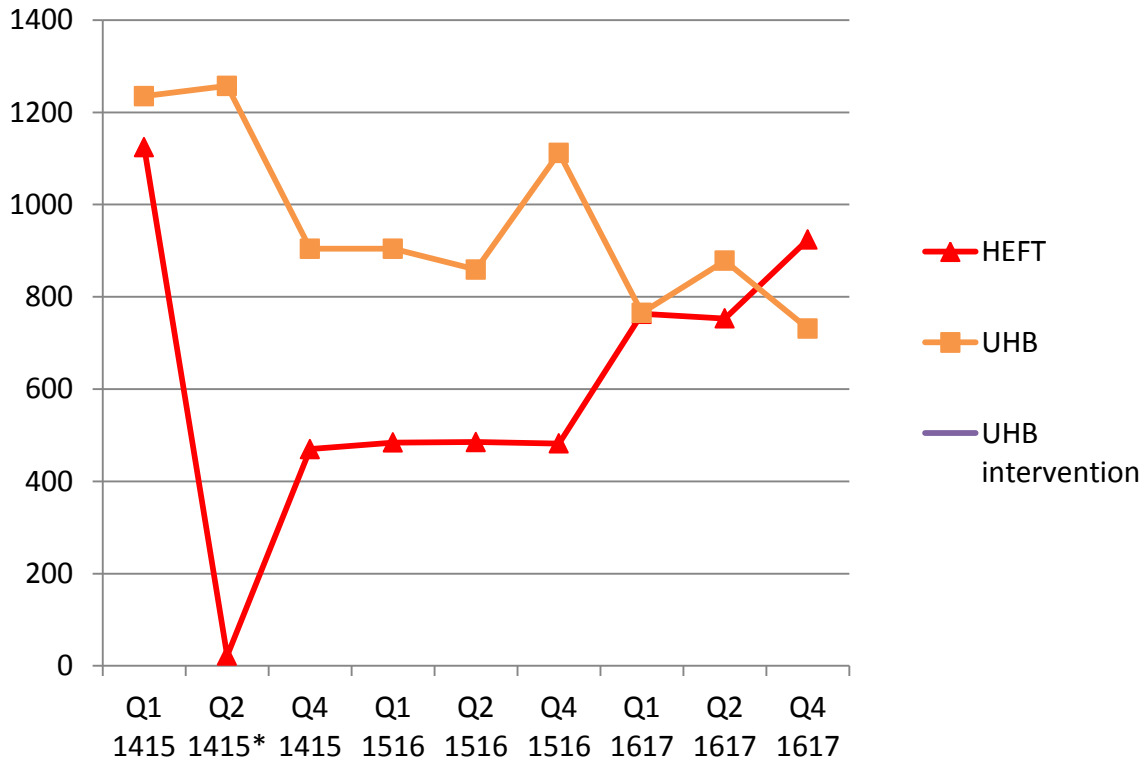
- Measure: Diagnostics performed within six weeks of test request date
- Target: 99%



Source: DM01 (diagnostics waiting times and activity dataset).

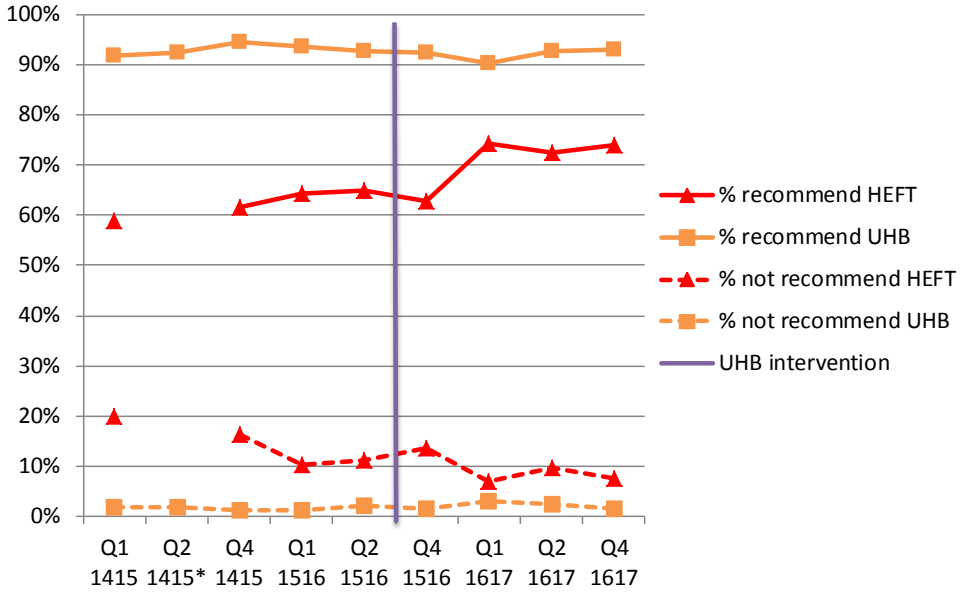
Staff Friends and Family test performance

The number of staff responding to the survey at Heart of England increased following intervention by University Hospitals Birmingham.



Staff Friends and Family test – Care

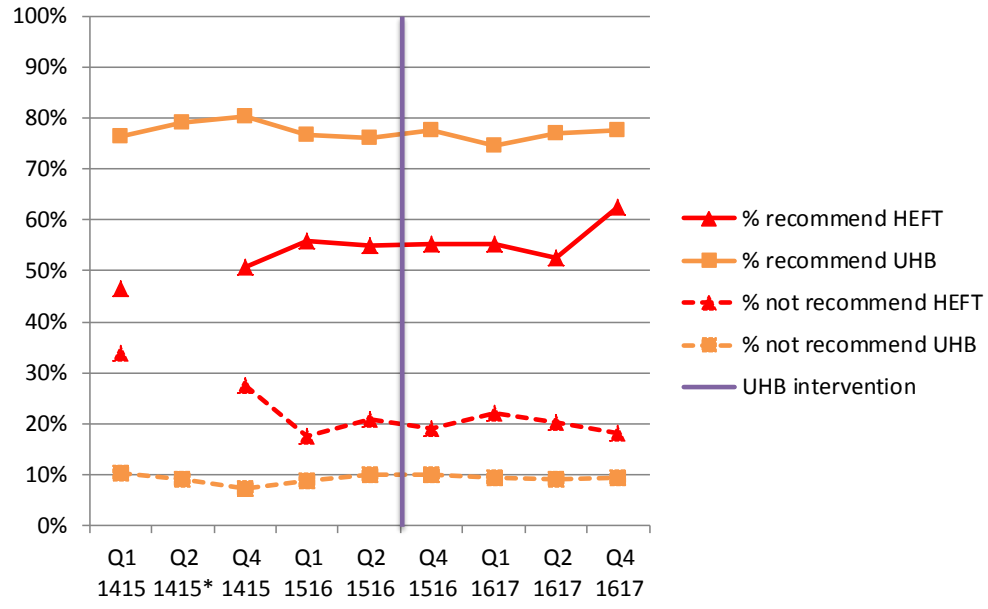
The 'Care' question asks how likely staff would be to recommend the NHS services they work in to friends and family who need similar treatment or care.



*Results omitted due to very small sample
Source: NHS England

Staff Friends and Family test – Work

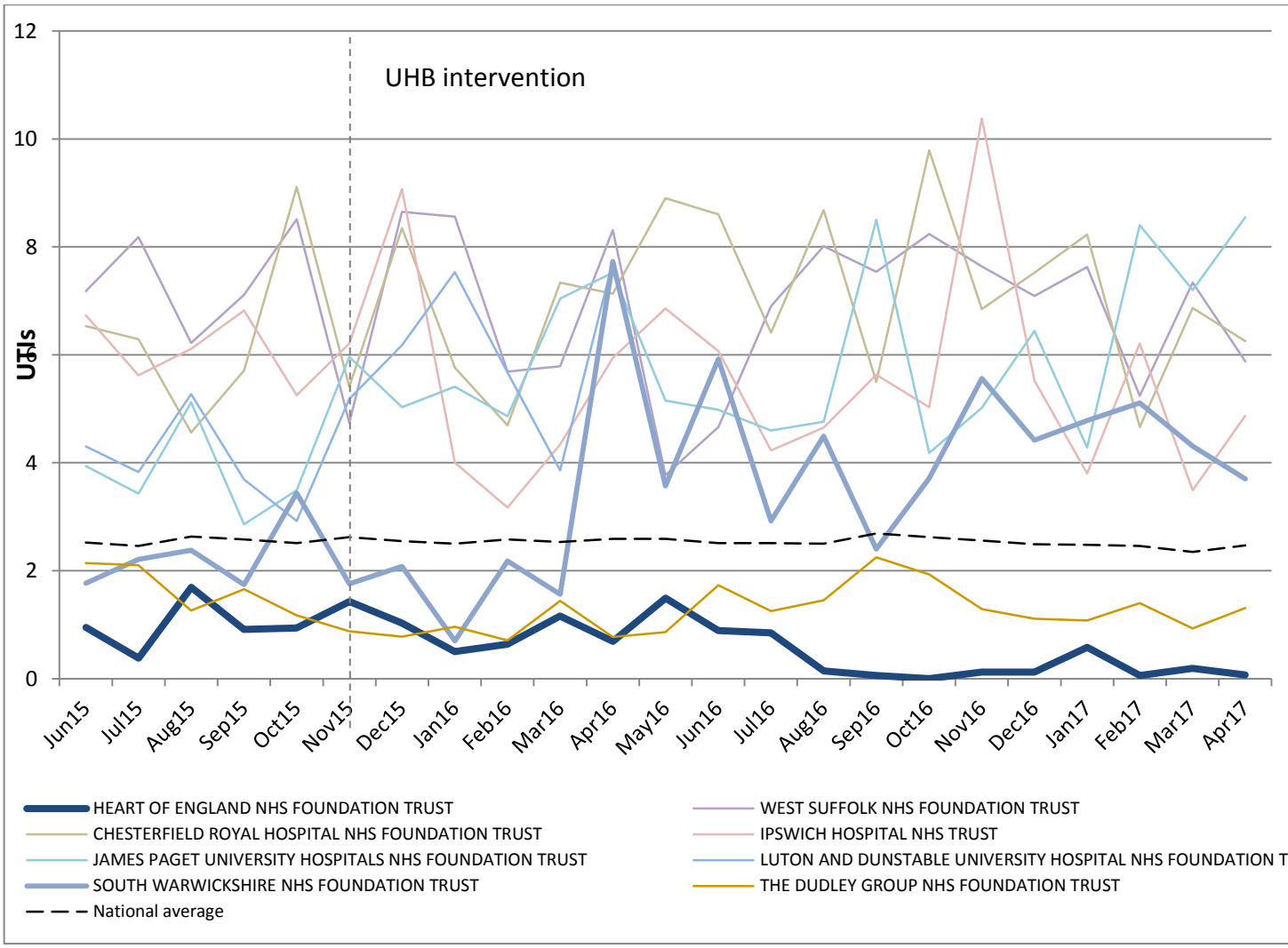
The 'Work' question asks how likely staff would be to recommend the NHS service they work in to friends and family as a place to work.



*Results omitted due to very small sample
Source: NHS England

Urinary tract infections acquired at hospital

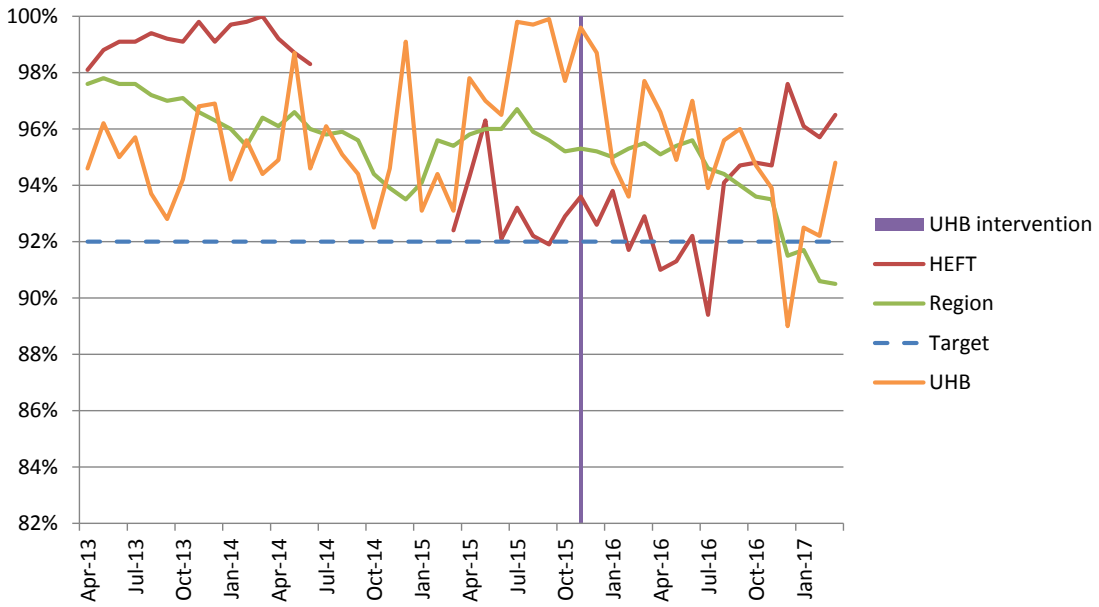
Urinary tract infections reported at Heart of England, versus comparators



Source: NHS Improvement analysis based on NRLS organisation patient safety incident reports and safety thermometer data.

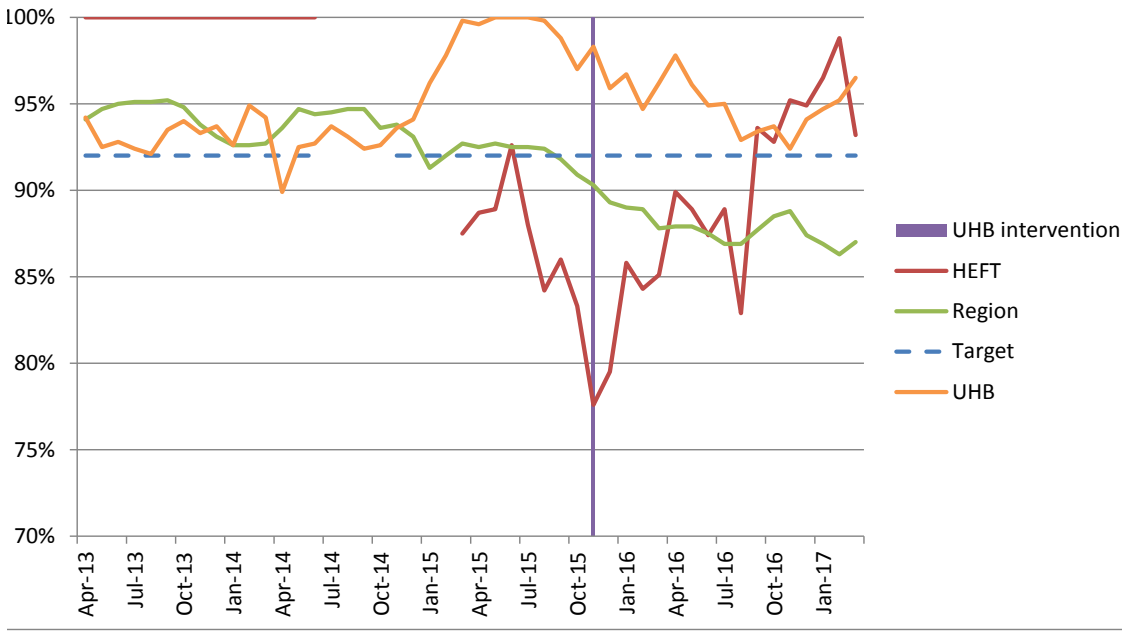
RTT performance in neurology, plastic surgery and dermatology

Neurology (April 2013 to March 2017)



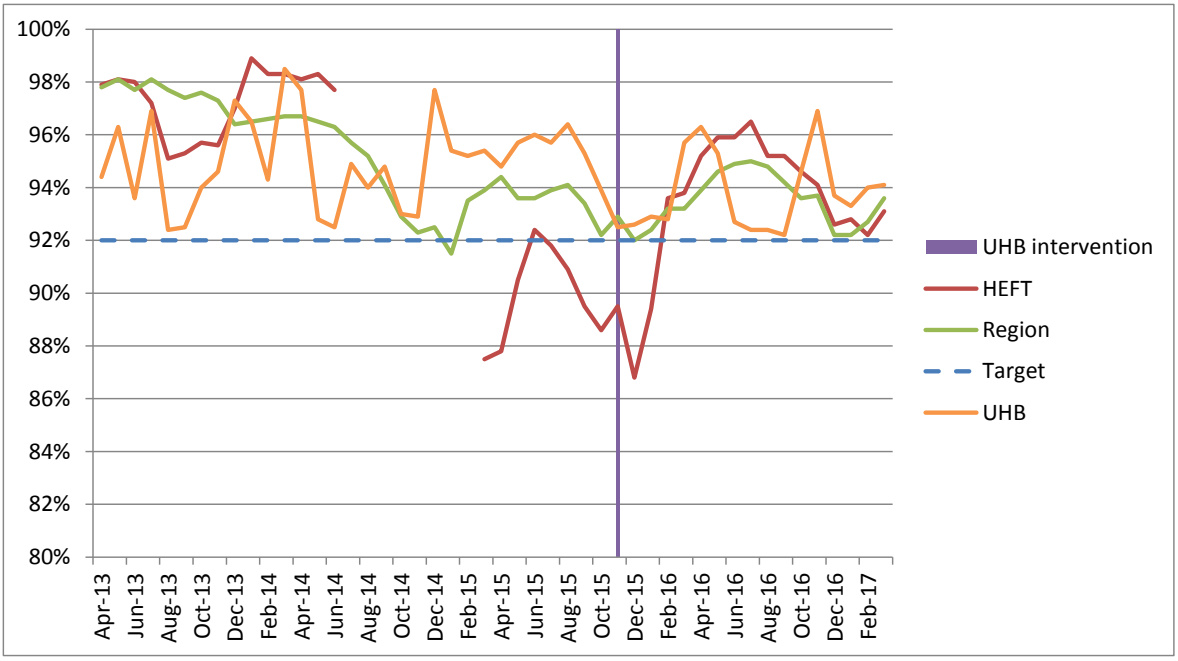
Source: NHS Improvement data.

Plastic surgery (April 2013 to March 2017)



Source: NHS Improvement data.

Dermatology (April 2013 to March 2017)



We report this as plastic surgery numbers at Heart of England are small, and activity may be coded as dermatology.
Source: NHS Improvement data.

Annex 3: Heart of England NHS Foundation Trust – Quality Report ratings

NHSI high level view

The tables below set out the ratings by site from the CQC inspection reports from 2015 and 2017. They clearly demonstrate the extent of the overall improvement since the 2015 inspection report, and that under the leadership team of University Hospitals Birmingham, the trust is now considered to be 'Well-led'. There remains some way to progress along the improvement trajectory to provide high quality, safe services trust-wide, as can be seen from the domains and services that are rated 'Requires Improvement' or 'Inadequate'.

KEY

Rating	Colour
Outstanding	
Good	
Requires Improvement	
Inadequate	
Not rated	

Areas inspected

CQC published inspection reports on the trust in June 2015 and June 2017. The inspections covered slightly different scopes, in that both assessed the CQC domains of Safe, Responsive and Well-led, but 2017 also assessed the domains of Caring and Effective. At service level, the 2015 report inspected Urgent & Emergency Care (UEC), Medical Care, Maternity & Gynaecology and Outpatients & Diagnostic Imaging. The 2017 report also inspected Surgery and Critical Care. However, it did not look at Maternity & Gynaecology, as the trust had already commissioned an independent report. In 2017, the domains were not given an overall trust level rating, given the differences in scope of the inspections. The first inspection was undertaken in December 2014, and the report published in June 2015. UHB's intervention began in November 2015. The second inspection was undertaken in September and October 2016, just under a year after the intervention began. The latest report was provided in July 2017, just prior to publication.

2017 ratings for Birmingham Heartlands Hospital are:

	Safe	Effective	Caring	Responsive	Well-led	Overall
Urgent & emergency services						
Medical care						
Surgery						
Critical care						
Outpatients & Diagnostic Imaging						

2015 ratings for Birmingham Heartlands Hospital are:

	Safe	Effective	Caring	Responsive	Well-led	Overall
Urgent & emergency services		N/A	N/A			
Medical care		N/A	N/A			
Surgery		N/A	N/A			
Maternity & gynaecology		N/A	N/A			
Outpatients & Diagnostic Imaging		N/A	N/A			
Overall		N/A	N/A			

2017 ratings for Good Hope Hospital are:

	Safe	Effective	Caring	Responsi	Well-led	Overall
Urgent & emergency services						
Medical care						
Surgery						
Outpatients & Diagnostic Imaging						

2015 ratings for Good Hope Hospital are:

	Safe	Effective	Caring	Responsi	Well-led	Overall
Urgent & emergency services		N/A	N/A			
Medical care		N/A	N/A			
Surgery		N/A	N/A			
Maternity & gynaecology		N/A	N/A			
Outpatients & diagnostic imaging		N/A	N/A			
Overall		N/A	N/A			

2017 ratings for Solihull Hospital are:

	Safe	Effective	Caring	Responsi	Well-led	Overall
Urgent & emergency services						
Medical care						
Surgery						
Outpatients & Diagnostic Imaging						

2015 ratings for Solihull Hospital are:

	Safe	Effective	Caring	Responsi	Well-led	Overall
Urgent & emergency services		N/A	N/A			
Medical care		N/A	N/A			
Surgery		N/A	N/A			
Maternity & gynaecology		N/A	N/A			
Outpatients & Diagnostic Imaging		N/A	N/A			
Overall		N/A	N/A			

2017 ratings for trust community locations are:

	Safe	Effective	Caring	Responsi	Well-led	Overall
Outpatient & diagnostic imaging services –						
Runcorn Road Dialysis unit						
Castle Vale Dialysis Unit						

2015 ratings for Heart of England NHS Foundation Trust

	Safe	Effective	Caring	Responsi	Well-led	Overall
Overall trust		N/A	N/A			

Annex 4: Gastroenterology/ hepatology

Gastroenterology deals with acute and long-term medical conditions affecting the gastrointestinal tract. Care is delivered in both the inpatient and outpatient setting, as well as through screening programmes.

Hepatology is a branch of medicine concerned with the study, prevention, diagnosis and management of diseases that affect the liver, gallbladder, biliary tree and pancreas and has developed as a sub-specialty of gastroenterology.

Liver disease comprises the majority of inpatient work for gastroenterologists and many patients initially present and are subsequently readmitted through emergency admission pathways. These patients can be complex, high cost and often have long inpatient stays. The parties' submitted that Birmingham, consistent with its levels of socio-economic deprivation, has some of the highest rates of liver disease and liver-related morbidity and mortality in the country.[73]

Current service arrangements

Gastroenterology

Gastroenterology is delivered as a separate specialty at University Hospitals Birmingham. The parties told us that University Hospitals Birmingham provides secondary care to the local population, including screening and surveillance programs for bowel cancer. It also provides a major tertiary upper gastrointestinal unit in Birmingham, covering a population of around 1.7 million with outreach services, including a tertiary specialist service for endoscopy (in support of liver transplantation and upper GI cancer surgery) and gastroenterology-led nutrition services. Other services that University Hospitals Birmingham provides include a supra-regional intestinal failure service and a faecal transplant service.

University Hospitals Birmingham has nine gastroenterologist consultants, five upper gastrointestinal surgeons, five specialist interventional radiology consultants, three dedicated oncologists, three dedicated pathologists and five specialist nurses. The service is also supported by a physiologist and dietician.

[73] Appendix 13: Pan-Birmingham Hepatology Work Plan of the parties' benefits case.

Heart of England provides a secondary care service to the local population as well, including a suite of endoscopy services such as endoscopic retrograde cholangiopancreatography[74] and ultrasound. The trust also provides a gastrointestinal bleeding service, nurse-led chronic bowel disease service and a jaundice assessment team. Hepatology is delivered as part of the gastroenterology service. Heart of England offers elective inpatient, day case and outpatient endoscopy services from its Birmingham Heartlands Hospital, Good Hope Hospital and Solihull sites. The service at Birmingham Heartlands Hospital is provided in two endoscopy rooms and a vanguard mobile endoscopy suite in the main carpark, and there are two rooms available for endoscopy at each of Good Hope Hospital and Solihull.

Although aspects of the wider gastroenterology service at the trusts are working well, such as the endoscopic retrograde cholangiopancreatography work at Heart of England, both trusts are constrained by capacity, particularly for endoscopy. Currently, some endoscopy patients experience long waits and elective patients may have appointments rescheduled to accommodate emergency, acute and cancer patients.[75] The parties told us both trusts have put in place a variety of measures to meet existing demand and national waiting time targets (including waiting list initiatives and extended hours in the evenings and weekends[76]) but the services continue to operate at capacity and there is no space to accommodate the increasing demand.

Heart of England is facing additional challenges, including suboptimal facilities and ageing equipment that the parties said is barely fit for purpose. The service has lost its accreditation from the joint advisory group (JAG) on GI endoscopy[77] because it was consistently breaching its six-week diagnostic wait target,[78,79] although

[74] Endoscopic retrograde cholangiopancreatography is a procedure used to remove gallstones. A modified endoscope is passed through the person's mouth down to where the bile duct opens into the small intestines. The opening of the bile duct is widened with a small incision or an electrically heated wire. The bile duct stones are then removed or left to into the person's intestine and out of their body.
[75] The parties have explained that patients requiring endoscopy will be seen in dedicated endoscopy rooms and therefore elective patients may have their procedures rescheduled to accommodate emergency, acute and cancer patients.
[76] University Hospitals Birmingham runs endoscopy sessions on three evenings per week plus both Saturdays and Sundays. It has put in place consultant job plans which provide for cross-cover from other specialities (such as colorectal, upper gastrointestinal and hepatology) for endoscopy sessions to prevent lists being dropped. The cost of staffing these extra sessions is approximately £12,800 per week. Nursing and administrative staff are also working standard six-day weeks.
[77] The JAG on GI operates within the Care Quality Improvement Department of the Royal College of Physicians. The JAG has a UK wide remit and its objectives are to: agree and set acceptable standards for competence in endoscopic procedures; quality assure endoscopy units; quality assure endoscopy training; and quality assure endoscopy services.
[78] The NHS Constitution pledges that patients should not wait six weeks or longer for a diagnostic test. There are 15 key diagnostic tests, including four endoscopy tests.
[79] CQC (2017) Heart of England NHS Foundation Trust. Quality Report (draft).

clinicians and staff are working closely with JAG to regain the accreditation. The vanguard mobile endoscopy suit at Birmingham Heartlands Hospital is in initiative to provide additional capacity, and the service is also reliant on three locums in addition to its 12 WTE consultants (these consultants and locums provide all gastroenterology and hepatology services at the trust). There is a planned ambulatory care and diagnostics (ACAD) facility at Birmingham Heartlands Hospital that will provide four additional rooms for endoscopy delivery. However, this proposal is dependent on additional funding being sourced and will not be functioning until 2020. A business case for the funding is currently being developed.

Service for secondary care is required at all three acute sites to support the emergency departments and the acute medical service.

Neither trust has the infrastructure to undertake the volume of bowel scope and bowel screening required to meet the growing demand, and this will present a significant challenge to both trusts going forwards. Both trusts also face challenges recruiting and retaining nursing staff due to the acuity and volume at the units.

The parties do not consider the current approach and actions to cope with rising demand to be sustainable in the long term.

Hepatology (liver medicine)

Hepatology is delivered as a separate specialty at University Hospitals Birmingham via its dedicated specialist liver and hepato-pancreato-biliary (HPB) unit. The unit is one of the largest in the UK with a 36-bed ward, ambulatory care facilities and a specialist adult liver transplant centre.[80] The unit treats all types of liver, biliary and pancreatic diseases and is internationally recognised with a strong academic and research centre.

The unit offers 10 specialist liver clinics, such as viral hepatitis B and C, metabolic diseases of the liver and an adolescent transition clinic. Outreach clinics are offered in Derby, Reading, Oxford, Bristol, Liverpool, and Cardiff/Swansea.

The unit comprises 11 consultant hepatologists, eight consultant surgeons performing liver transplantation and HPB surgery, three dedicated radiologists, two dedicated pathologists, one organ transplantation pathologist, four clinical nurse specialists and an oncology team.

The unit performs well against waiting times. The average wait to see a consultant is two weeks and for surgery is less than two weeks. Patients with suspected cancer are usually seen within five and always within 10 days of referral.

[80] University Hospitals Birmingham is one of six NHS hospitals with a specialist adult liver transplant centre. There are three paediatric specialist liver hospitals. For more information see this website.

The parties told us that University Hospitals Birmingham has seen a sustained 7% to 10% year-on-year increase in outpatient referrals from Birmingham Cross City, Birmingham South Central, and Sandwell and West Birmingham CCGs over the past five to 10 years. Referrals for local secondary care work are growing disproportionately when compared to the tertiary work that the unit has traditionally focused on. In addition, the parties told us that liver transplantation rates within the West Midlands are among the highest in the UK and transplant activity and assessments for transplants have increased by 40% and 150%, respectively, since 2008. The parties submit that this rapid increase in the volume of clinical work reflects the shortage of peripheral primary or secondary providers of liver services to manage local patients, and that this threatens to overwhelm the specialist service work undertaken by University Hospitals Birmingham by diverting resources from tertiary to secondary care provision.

Heart of England does not have a fully developed hepatology service; it is delivered as part of the gastroenterology service rather than as a separate specialty. Although a specialist liver clinic is now offered on Friday mornings at the Heartlands site (delivered by two designated hepatologists and a hepatobiliary physician with nurse specialist input), Heart of England has not separated liver patients from the rest of the gastroenterology clinic cohorts. The parties have referred us to data that suggests the Heart of England gastroenterology service has had difficulty identifying liver disease (both viral and non-viral).[81] The parties submit that levels of liver disease are likely higher than currently recognised and this is likely due to the trust lacking a fully developed hepatology service. There currently is insufficient capacity at Heart of England, both within existing job plans and in numbers of personnel, to do this. The trust does not provide hepatology services from either the Solihull or Good Hope hospital sites.

The parties' gastroenterology/hepatology proposals and NHS Improvement's views on whether they represent improvements for patients

From the parties' submission we have identified a number of proposals as likely improvements for patients:

[81] Hepatocellular carcinoma prevalence (a marker of liver disease) is higher than expected for the trust and public health data identifies Heart of England as having high rates of admission with alcohol-related disease and viral hepatitis. The data indicates that liver disease is more common than currently recognised, that a significant portion of liver disease is due to viral hepatitis, and that there is likely to be a significant volume of unrecognised liver disease within the community and the trust.

Higher quality services from the proposed reconfiguration of endoscopy services

Clinical leads at both trusts have worked together to develop a range of plans to reorganise the way endoscopy services are delivered by concentrating different aspects of the service on separate sites, which the parties submit would streamline and improve endoscopy services at the trusts:

- centralise EUS work in gastroenterology at one acute site
- deliver outpatient endoscopy and screening services from a cold site remotely from the trusts (or potentially on the Solihull site)
- deliver elective inpatient and day case endoscopy services from the three Heart of England sites
- streamline and shorten cancer pathways to improve clinical decision-making and earlier diagnosis and treatment
- work with the consultant workforce at both trusts to create more flexible ways of working to maximise coverage across all sites. Options under consideration include, for example, changes to job plans to support more flexible and cross-site working
- adopting annualised contracts for Heart of England consultants similar to those used at University Hospitals Birmingham.

The parties submitted that their best estimate for the number of patients who might benefit from the improvements in endoscopy is approximately 17,000.[82]

NHS Improvement's view is that centralising EUS work on one acute site and offering outpatient and screening endoscopy services from a dedicated site is likely to result in improved patient flow and productivity for these services, reduced waiting times for some patients and improved patient experience.

Streamlined and shorter patient pathways for cancer patients have the potential to enable intervention earlier in the disease process and for patients to see improvements in outcomes as a result of being correctly diagnosed and commencing treatment sooner.

We expect workforce-related proposals to be more attractive to staff when led by University Hospitals Birmingham and the trust to have greater success in recruiting

[82] The parties told us that on further reflection the 12,700 patients referred to in Appendix 12 to the benefits case may be an underestimate across the two trusts as both trusts are currently treating significant numbers of patients over and above the baseline-funded activity.

high calibre staff to the Heart of England sites, particularly where joint appointments are involved, working across both trusts.

These changes are likely to mean improved experience for all patients requiring endoscopy service, and for patients improved access to care (associated with reduced delays) and earlier intervention, which could improve outcomes for some patients.

Community-based and nurse-delivered ambulatory hepatology service

Clinicians at both trusts have worked together to develop proposals[83] for a community-based and nurse-delivered ambulatory model of care. University Hospitals Birmingham currently offers a specialist liver service and ambulatory model of care, and the intention is this would be expanded to serve the Heart of England patient population within a merged liver service. Key features of the proposals include:

- clinic cohort characterisation – utilising data to identify and separate patients with chronic liver disease (viral and non-viral) at Heart of England from the general gastroenterology clinic population
- patients with viral and non-viral chronic disease would be channelled into specific liver clinics at the Heartlands site. Satellite liver clinics would be established at Good Hope and Solihull hospital sites
- cross-site cover would be provided by viral hepatitis nurses from University Hospitals Birmingham and viral hepatitis nursing teams would be developed at Heart of England sites
- an alcohol-related liver disease clinic would be established with specialist nursing, mirroring the service at University Hospitals Birmingham, to enable inpatient and outpatient follow-up of patients admitted with alcohol-related health problems
- rare and complex disease/transplantation clinics would be hosted at University Hospitals Birmingham within the Liver and HPB Unit or Institution of Translational Medicine.[84]

There are currently 2,500 admissions at the trusts for acute hepatology per annum. The parties submit that this number will be reduced, and length of stay reduced, as

[83] The proposals are set out in the Pan-Birmingham Hepatology Work Plan (Appendix 13 to the benefits case).
[84] The Institute of Translational Medicine is a clinical research facility that was established in October 2016 at University Hospitals Birmingham. It helps to use the latest scientific research findings to enhance treatments for patients.

a result of implementing the proposed ambulatory model of care. The parties have submitted evidence of ambulatory delivery of hepatology services at the Glasgow Ambulatory Liver Support Service (GLASS) achieving a reduction in primary[85] and total admission days for liver patients and a reduction in length of stay.[86] Extrapolating the data from GLASS, the parties estimate that implementing an ambulatory care model at Heart of England could deliver a bed day saving of at least 900 days per year.

University Hospitals Birmingham has had success in reducing length of stay after converting most of its provision of ascitic drain services to an ambulatory model predominately run by nurse specialists.[87] The average length of stay for a scheduled elective ascitic drain is now eight hours, down from two and a half days. University Hospitals Birmingham also believes there has been a reduction in emergency admissions with ascites as a result of pre-emptively booking and planning ascitic drains, although data on this is not currently available given it is a recent initiative.

NHS Improvement's view is that the implementation of an ambulatory model of care is likely to deliver improvements for patients associated with reduced admissions and reduced length of stay.

In our view, the parties' proposals are also likely to result in improved identification and management of patients with chronic liver disease through cohort-based characterisation of liver patients. Delivery of care to chronic liver patients from specialist liver clinics utilising all three Heart of England sites (as opposed to the one currently offered) will improve access to care for these patients and enable care to be delivered closer to patients' homes. Patients with chronic liver disease will be better managed and this will contribute to reducing admissions rates, as set out above. We also expect the new service will help to maintain capacity at the tertiary unit at University Hospitals Birmingham, as patients currently putting pressure on this service will be able to be treated locally at Heart of England sites.

[85] We understand 'primary admission' to mean the patient's first admission (as opposed to readmission).
[86] GLASS reduced primary admission days for liver patients from 1,034 to 534. Total admission days were reduced from 1,144 to 587 with a projected saving of £150,000. Length of stay for admitted patients fell from eight days to five on average.
[87] An ascitic drain is used to drain excess fluid (ascites) from the abdomen. The fluid accumulates around the bowels and organs, causing the abdomen to swell. A tube is inserted into the abdomen and fluid is drained into an external bag. University Hospitals Birmingham offers ambulatory delivery of ascetic drains for about two-thirds of patients. Ambulatory delivery of this service is not clinically appropriate for all patients and some will require an inpatient stay.

Annex 5: Vascular surgery

Patients with vascular disease have disorders of the arteries, veins and lymphatic vessels. This may include inflammation or weakness of the blood vessels or build-up of fatty deposits. Vascular disorders can affect the flow of blood to and from major organs and limbs. If not treated, vascular disorders can lead to serious conditions such as stroke, rupture of an artery, or amputation due to blood not circulating adequately through the limbs.

There are a number of options for treating patients with vascular disease. These include lifestyle changes and medication, endovascular[88] procedures and open surgical procedures. The type of treatment will depend on the seriousness of a patient's vascular disease and other conditions that the patient may have. Diagnosis and treatment may involve vascular surgeons, anaesthetists, interventional radiologists, radiographers, nurse specialists, podiatrists, physiotherapists and prosthetic specialists.

In recent years – responding to evidence showing improved outcomes for patients when vascular surgery is provided in hospitals with high caseloads – hospitals in the NHS have moved toward a network model of providing vascular services.[89] Vascular networks typically feature groups of hospitals working together in a hub and spoke model, in which a hub centre at one hospital provides a full range of vascular services and is the singular provider of arterial surgery and complex interventional procedures for all patients who are referred to hospitals within the network. Spoke hospitals that are part of the network provide non-surgical services, such as diagnostics, day case procedures and treatment for less complex vascular conditions such as varicose veins, and outpatient appointments at vascular clinics, but they refer patients to the hub for arterial surgery and complex procedures. Network models aim to create hubs that achieve better outcomes for patients by doing high numbers of surgical procedures.[90]

Four common types of arterial surgery are performed at hub centres:

- carotid endarterectomy, a surgery to remove build-up from the carotid artery, the main blood vessel supplying the head and neck

[88] Endovascular procedures are minimally invasive and performed under imaging guidance. A catheter containing medications or miniature instruments is inserted into a blood vessel through a small incision, then threaded to the required location.
[89] National Vascular Registry, annual report 2016.
[90] Vascular Society of Great Britain and Ireland (2015). *The provision of services for patients with vascular disease 2015.*

- abdominal aortic aneurysm repair, a surgery to treat swelling of the aorta, the largest blood vessel in the body which carries blood away from the heart down through the abdomen and the rest of the body
- lower limb revascularisation (a procedure (such as inserting a stent) or bypass surgery for blockages in the arteries supplying blood to the lower limbs
- major lower limb amputation.

Current service arrangements

Heart of England and University Hospitals Birmingham operate arterial surgical centres (hubs) networked with other hospitals. The trusts have provided us with evidence from the National Vascular Registry Annual Report 2016 to support this. Notwithstanding the challenges at Heart of England and the requirement for University Hospitals Birmingham's support, there are certain specialist services that the trust and its clinicians have worked hard to maintain and continue to deliver to a high standard. Vascular services are one of these.

There are some differences in case mix between the hubs. Heart of England receives tertiary referrals for aortic aneurysms, carotid artery and peripheral vascular disease, from 36 hospitals including University Hospitals Birmingham. It uses custom-made stents to treat the most complex aortic aneurysms (biggest user in Europe 2014 to 2016). The hub is co-located with the stroke and renal units at Birmingham Heartlands Hospital and it provides satellite services at Good Hope Hospital and Solihull Hospital. A peripheral arterial service (open and endovascular) is provided by endovascular surgeons and interventional radiologists. Heart of England has seven consultants, who do endovascular and open arterial procedures, including a 0.5 WTE academic post doing clinical work.

Heart of England has a hybrid theatre that combines an operating room with advanced imaging technology. This is only used properly four days per week, with capacity to expand. The University of Birmingham's Department of Vascular Surgery is based at Heart of England and the centre works closely with University's Institute of Cardiovascular Services and Birmingham Clinical Trials Unit.

University Hospitals Birmingham receives secondary and tertiary referrals for patients across the West Midlands, with over 90% of inpatients located in the Birmingham area. It is a smaller service than Heart of England, but needs onsite cover to support other services such as major trauma, stroke and general surgery. University Hospitals Birmingham has had a joint team with Sandwell and West

Birmingham Hospitals since 2012,[91] with University Hospitals Birmingham as hub and Sandwell and West Birmingham Hospitals as spoke. The team provide 24/7 non-elective care across University Hospitals Birmingham, Sandwell and West Birmingham Hospitals, Birmingham Women's NHS Foundation Trust, Royal Orthopaedic Hospital NHS Foundation Trust and Birmingham Women's and Children's NHS Foundation Trust. The team have seven consultants, who do endovascular and open arterial procedures.

The parties' vascular surgery proposals and NHS Improvement's views on whether they represent improvements for patients

From the parties' submission we identified a number of proposals as likely improvements for patients: Optimising use of the hybrid theatre

The benefit of the hybrid theatre is that it has the staff and equipment to allow specialist consultants to use an interventional radiology technique but then seamlessly switch or progress to performing open surgery, should this be required, without having to transfer to a vascular theatre.

NHS Improvement understands that University Hospitals Birmingham currently refers a small number of complex patients for treatment to the hybrid theatre at Heart of England due to the supra-regional service that Heart of England provides. University Hospitals Birmingham also has some patients who would be suitable for treatment in the hybrid theatre, but who are managed at University Hospitals Birmingham through their interventional radiology facility. While these patients are managed safely, should they require an open procedure they will need to transfer to a vascular theatre as an emergency, which is not ideal.

At present the hybrid theatre is only used properly four days per week, mainly due to staffing problems (nursing, theatres, radiographers). We understand that Heart of England has a lack of interventional radiology consultants although they have the hybrid theatre whereas University Hospitals Birmingham have the interventional radiology consultants in post but do not have a hybrid theatre as yet. There are only three such theatres in place in England and Heart of England has the only theatre in the Midlands.

[91] The Vascular Society of Great Britain and Ireland carried out a national review in 2012 and made a recommendation to reorganise vascular services to improve outcomes following elective and emergency interventions by concentrating inpatient care into arterial centres. As a result, University Hospitals Birmingham, the arterial centre, joined with the medical teams at Sandwell and West Birmingham, non-arterial centres.

Plans are in place to expand the use of the theatre to five days and then eventually to seven days. The parties told us that they expect that utilisation of the theatre will be optimised as working relations improve between the two organisations. If the service is joined up, it would in all likelihood allow better organisation of the services and allow the parties to start to deliver better pathways for a wide range of patients.

For example, the highly skilled staff in the hybrid theatre are currently undertaking procedures that could be done elsewhere, such as lower limb angiography. These types of interventional radiology procedures can be performed in an interventional radiology environment rather than in the scarce resource of a hybrid theatre. Reorganising the vascular services would therefore free up capacity for patients who are best treated in the hybrid theatre, such as those who need complex procedures or those patients who have a high risk of progressing to open surgery.

There is currently a feasibility study to put a hybrid theatre in place at University Hospitals Birmingham. NHS Improvement understands that the plan needs capital funding and is awaiting a board decision. The parties told us that if there were two hybrid theatres in Birmingham both would be used at absolutely full capacity with the theatre at University Hospitals Birmingham predominately utilised for cardiac patients.

In our view, the parties' proposal to improve access for patients to the hybrid theatre would be likely to result in greater productivity and better patient experience due to increased access to the theatre for a wider population. It would mean that patients at University Hospitals Birmingham would not be transferred as an emergency from the interventional radiology environment to a surgical theatre because of the need to progress their interventional radiology treatment to an open surgical procedure. It would also make more effective use of highly skilled clinicians by allowing them to focus on the techniques best suited to the hybrid theatre, rather than undertaking procedures such as lower limb angiography, that can be carried out in another setting.

Optimising the organisation of sub-specialties

There are different strengths of expertise in the sub-specialist work carried out by the parties. For example, the strength at University Hospitals Birmingham lies in open aneurysm surgery and lower limb revascularisation. There is strength at Heart of England in open and endovascular aortic aneurysm surgery which is performed in the state of the art hybrid theatre discussed above.

The plan to consolidate these areas of strength onto single sites will allow a higher volume of patients to be seen by clinicians in these sub-specialties. While the parties already meet the minimum volume requirements set out by the Vascular

Society of Great Britain and Ireland, there is good evidence to support the link between higher volumes and better outcomes.

In our view, this organisation of sub-specialties is likely to allow those highly skilled staff at both trusts to more easily maintain and develop their expertise, by allowing a greater number of cases to be seen by each individual clinician and providing improved training and development opportunities for all staff. We believe this is likely to result in further improvements to the quality of care patients receive.

Contact us:

NHS Improvement
Wellington House
133-155 Waterloo Road
London
SE1 8UG

0300 123 2257
enquiries@improvement.nhs.uk
improvement.nhs.uk

Follow us on Twitter @NHSImprovement

This publication can be made available in a number of other formats on request.

 Publication code: R&A 02/17