NHS Improvement

NHS Improvement advice to the Competition and Markets Authority

Proposed merger of Burton Hospitals NHS Foundation Trust and Derby Teaching Hospitals NHS Foundation Trust: Annex 1

February 2018

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

Contents

1. Workforce

Derby and Burton both face workforce challenges, with vacancy rates of 10.2% and 12.2% respectively. However, Derby is a larger hospital with 1,014.28 medical whole time equivalents (WTEs) compared to Burton's 333.60 medical WTE, and so is better able to cope with vacant posts.

Burton's workforce lacks resilience and the trust has had longstanding problems recruiting and retaining staff. This has resulted in high use of locum and agency staff and some clinical services are at risk due to high consultant vacancies, such as Burton's radiology service (further outlined in Section 6).[1] These workforce challenges are a key contributor to clinical sustainability issues at the trust.[2]

The trusts submitted that by combining their workforces, the merger will provide opportunities to address workforce challenges by increasing the merged trust's ability to recruit and retain high calibre medical staff. The trusts think that larger departments will be more attractive to employees through offering more sub-specialisation and better working conditions. Larger working departmental teams will also be more resilient and reliable as they will be better able to cope with staff absences. The trusts told us this will help to address Burton's clinical sustainability issues and address current and developing staffing challenges at both trusts, but particularly at Burton.

The trusts also submitted that by combining their workforce in all professional disciplines and sharing the best practice of each they will achieve high levels of staff engagement and motivation as well as positive staff morale.

The trusts told us that a better staffed workforce with fewer vacancies, as well as improved staff engagement and morale, will lead to improved care and experience

[1] See https://improvement.nhs.uk/uploads/documents/Q2_Agency_Performance_Tables.pdf

[2] In 2013, when the Care Quality Commission (CQC) put Burton into clinical special measures due to its outlying mortality rate, staffing issues were identified as a clinical risk. The CQC noted that inadequate staffing levels can have a negative impact on the quality and safety of care that patients receive. It recommended that the trust pay attention to areas where staffing levels were not as expected. Of the 20 recommendations made by CQC, at least seven directly related to staffing.

for patients across a large number of services in the merged trust, particularly impacting Burton patients.

For the reasons set out below, our view is that the opportunities created by combining the workforce of the two trusts through merger are likely to result in relevant patient benefits.

1.1 The trusts' proposals

The trusts said combining their workforce will achieve improvements for patients in two main ways:

- improved ability to recruit high quality substantive medical staff
- improved cultural integration and morale of all staff.

Improved ability to recruit high quality substantive medical staff

The trusts identified the following factors as making the merged trust more attractive as an employer and enhancing its ability to recruit high quality substantive medical staff:

- the larger trust will be able to offer more sub-specialisation opportunities for consultants
- larger departmental staffing numbers will lead to less weekend and night work for clinical staff
- increased scope to roster staff across the two sites, improving coverage and resilience in services where staff are currently stretched or where there are few sub-specialists
- the merged trust will benefit from Derby's status as a teaching hospital and membership of the Association of UK University Hospitals
- Derby has also recently received its provisional licence from UK Clinical Research Collaborative and has a strong and active research unit.

The trusts submitted that these are all important factors in making an organisation an attractive place to work for medical staff.

Improved staff engagement and morale of all staff

The trusts submitted that high staff engagement and morale is crucial for successful recruitment and retention and that a motivated, happy workforce delivers high quality care to their patients. The trusts plan to implement the best of a range of programmes from each trust that they have found to be effective in improving or maintaining good morale with the ambition of becoming outstanding.

1.2 Assessment of relevant patient benefits for workforce

Are the proposals for workforce likely to result in improvements in quality, choice or innovation of services for patients or in value for money for commissioners?

In our view, the merger is likely to lead to workforce improvements including better recruitment, staff retention and improved morale, which will lead to better quality of care for patients.

Improved ability to recruit high quality substantive medical staff

Patients at both trusts, and particularly at the Burton sites, are likely to see improvements due to the creation of a larger workforce through merger and the associated opportunities, and are likely to benefit from Derby's greater ability to successfully recruit staff and maintain a resilient workforce.

Derby is more successful in recruiting than Burton, as evidenced by its recent trip to India where Derby recruited three radiologists but Burton failed to recruit any. There are longstanding vacant consultant posts at Burton and, despite numerous recruitment initiatives, Burton has not managed to fill these posts.

Derby performs more favourably than Burton in national workforce measures, such as doctor retention rates, staff survey results and use of temporary staff.[3]

[3] Derby is in the second best quartile for doctor retention rates when compared to its peers, Burton is in the fourth. Derby's staff survey (the staff survey measures the experiences of staff working at a trust) results are in the highest quartile, Burton's are in the third. Derby is in the best quartile for its use of temporary staff (ie uses lower numbers of temporary staff when compared to its peers) and Burton is in the third quartile. These statistics from the Model Hospital data are used by NHS Improvement to indicate the general performance of a trust, although they can vary from month to month.

The merged organisation will be able to recruit on a trust-wide basis, which will help to address the challenges faced by Burton associated with its size and reputation. We accept that the larger combined workforce pool is likely to offer patients opportunities to access sub-specialists, particularly for patients at Burton, which they may not have had previously. We also agree that the ability to sub-specialise and work on a reasonable frequency rota for on-call, as well as teach and participate in research, are important factors for medical staff when considering applying for posts.

In our view, Derby has a strong reputation and is an attractive place to work. However, as is the case for the majority of hospital trusts, it does face challenges in recruitment, and we think the merger will enhance its ability to fill vacant roles and retain staff. This will be through larger departments offering further opportunities for sub-specialisation, and as a result becoming more attractive to employees.

For Burton, with high use of locum and agency staff, the ability to share the much larger pool of staff from Derby will improve resilience and mean that it should be less reliant on locum and agency staff. We agree that temporary medical locums, due to the nature of these roles, are less likely to contribute to the leadership of a service or to the development and innovation of a service to deliver improvements for patients.

Improved cultural integration and morale of all staff

In our view, the merger is likely to improve staff engagement and morale, particularly for Burton staff, mostly due to Derby's experience and demonstrated achievements in this area. The trusts provided evidence of awards and achievements gained by Derby and its staff, and that its organisational development programme and award scheme for staff has been recognised by CQC. Derby is also in the top 20% of acute trusts for staff engagement, whereas Burton is close to the national average.[4]

However, we note the significant work that Burton has undertaken to improve staff engagement and morale during its progression out of the special measures regulatory regime. Some of these initiatives will be implemented across the merged

[4] NHS Improvement, Model Hospital data.

trust with the aim of creating an integrated and highly motivated combined workforce, and so will also benefit Derby's workforce.

We accept the evidence that high levels of engagement and motivation within an organisation's workforce, including the medical workforce, can positively impact patient care and experience, and may lead to enhanced outcomes for patients.[5,6] Strong medical leadership and high levels of medical engagement can also make a crucial contribution to achieving innovation and improvements in services for patients.

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

As the workforce will be shared across the two trusts, the challenges Burton faces in recruiting doctors should be reduced as soon as the merger is completed, and subsequently reduce reliance on locum staff.

However, it will take longer to achieve full clinical integration of departments and clinical teams with agreements about rotas and sub-specialisation across the merged entity. It will also take time to integrate different staff groups and teams, and to create one organisational culture and purpose, leading to high staff morale and motivation.

We accept that the trusts are likely to deliver workforce improvements within a reasonable time because they have relevant plans in place and have already started some work. For example, clinical teams from both trusts have already worked together to identify opportunities for improvement and to develop plans for the merger. The trusts have already conducted an assessment of cultural differences between them which will inform the development of their staff programmes and initiatives going forward. The trusts have also already started recruiting clinical leadership posts for certain services, such as breast cancer. These steps toward integrating staff suggest that the trusts are on track to deliver the improvements for patients that will result from the combined workforce.

[5] www.kingsfund.org.uk/sites/default/files/employee-engagement-nhs-performance-west-dawson-leadership-review2012-paper.pdf
[6] www.nhsemployers.org/-/media/Employers/Publications/Research-report-Staff-experience-and-patient-outcomes.pdf

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

NHS Improvement's view is that the improvements to workforce are unlikely to be achieved without the merger. Burton's recruitment challenges are longstanding and there have been repeated attempts to address them without success. Burton's performance has improved recently, which may affect its ability to recruit. In our view, the momentum created by the proposed merger is already having an impact, as seen in the successful recruitment of two consultant rheumatologists in January to February of this year. However, in our view, without the merger, Burton will continue to face recruitment and retention difficulties due to providing more limited opportunities for staff, such as sub-specialisation and demanding rotas.

We also do not think that, in the absence of the merger, Burton could meaningfully address its workforce issues by recruiting to joint posts with other trusts. Although recruiting to posts linked with other trusts may increase the likelihood of Burton filling vacancies, this is not an approach that can be applied to all posts. It is not likely to be a solution for large numbers of vacancies and can be complex to administer.

2. Cardiology

Cardiology services concern the diagnosis, assessment and treatment of patients with diseases and defects of the cardiovascular system. Cardiovascular disease includes coronary artery disease (the main cause of angina[7] and heart attack[8]), valve disease, disease of the heart muscle and heart failure (accumulation of fluid).

Patients with cardiovascular disease can present as having stable chest pain or as having more severe unstable chest pain or heart attack. Patients presenting with stable chest pain undergo diagnostic testing to determine their appropriate diagnosis and treatment. Patients presenting with unstable angina (unexpected or irregular severe chest pain) or heart attack (NSTEMI), in which the blood supply to the heart suddenly becomes partially blocked, need urgent assessment and treatment.

For both stable and urgent patients, assessment may involve coronary angiography[9] to confirm whether any blockage or narrowing has occurred in the coronary arteries and its location. Treatment may involve percutaneous coronary intervention (PCI),[10] cardiac surgery (such as coronary artery bypass grafts) or medication.[11] To provide PCIs, hospitals must be accredited by the British Cardiovascular Intervention Society (BCIS).[12,13]

Burton provides inpatient and outpatient cardiology services. Within its cardiology service, Burton has a chest pain unit providing diagnostic testing for patients, and it

[7] Angina is chest pain caused by narrowing of the coronary arteries.

[8] There are two forms of heart attack (myocardial infarction): ST elevation myocardial infarction (STEMI) in which the coronary artery is fully blocked, and non-ST elevation myocardial infarction (NSTEMI) in which the coronary artery may only be partially blocked.

[9] Coronary angiography is an invasive procedure. It uses a thin flexible tube called a catheter that is inserted into an artery through an incision in the groin, wrist or arm.

[10] PCI uses a catheter to insert a balloon to stretch open the artery (called an angioplasty) and a wire mesh tube (stent) to hold it open permanently. When undertaken at the same time as coronary angiography it uses the same catheter and means only one incision is required.

[11] STEMI patients, those with a fully blocked artery, are assessed and treated in a similar way, but on an emergency basis as a primary PCI.

[12] BCIS promotes education, training and research in cardiovascular intervention and develops and upholds clinical and professional standards. All hospitals wishing to start a new PCI programme are required to apply for BCIS accreditation.

Hospitals also must have BCIS accreditation to provide primary PCIs (PPCIs), which Derby does. This proposal does not apply to STEMI patients requiring PPCI, who will continue to access this treatment at Derby.

provides coronary angiography at a catheterisation lab. However, Burton is not BCIS accredited to provide PCI, because it does not do sufficient volumes of procedures and has too few interventional cardiologists to maintain a sustainable out-of-hours rota.[14] As such, if invasive coronary angiography at Burton shows that a patient requires PCI, the patient must be transferred to a PCI centre,[15] which delays care (often by 24 to 48 hours) and means the patient must undergo a second invasive procedure.

Derby, which is accredited by BCIS to provide PCIs, carries out the diagnostic angiography and intervention during the same procedure.

Neither trust has achieved full implementation of recent changes to national clinical guidelines for the initial assessment of chest pain. These recommend the use of CT coronary angiography (CTCA) imaging, which is non-invasive.[16] Instead, the trusts rely on exercise tolerance tests for diagnosing whether patients are experiencing stable chest pain as a result of coronary artery disease,[17] and both have used invasive coronary angiography as a subsequent investigation for those suspected of coronary artery disease. Derby has started to use CTCA and has plans to fully replace exercise tolerance testing. This will require recruitment of additional radiologist capacity to report CTCAs, which Derby has plans to do. Burton, however, is unable to use CTCA as it has been unable to recruit the necessary radiologists. (Discussed in more detail in Section 6 on radiology.)

Another aspect of cardiology services involves implantation of complex pacing devices. Both trusts send patients to either University Hospitals of North Midlands NHS Trust (University Hospitals of North Midlands) or University Hospitals of Leicester NHS Trust (University Hospitals of Leicester) for implantation of complex

[14] BCIS accreditation requires a minimum volume of 400 PCIs. The trusts told us Burton consultants currently perform 270 PCIs on Burton patients who are transferred for the procedure to a PCI centre at another trust.
[15] Burton consultants currently undertake sessions at University Hospitals North Midlands NHS Trust (University Hospitals of North Midlands) and University Hospital Leicester NHS Trust (University Hospitals of Leicester), providing PCI for Burton patients.
[16] NICE CG95 (www.nice.org.uk/Guidance/CG95).
[17] Exercise tolerance testing is less accurate than CTCA in excluding coronary artery disease. This means some patients go on to have an invasive angiogram that could have been avoided if CTCA were used as a first-line diagnostic tool.

pacing devices.[18] Derby is about to commence implantation for its patients at Royal Derby Hospital, as a satellite clinic of University Hospitals of Leicester.

The trusts submitted that the merger is an opportunity to improve diagnostics for cardiology patients at Burton in line with national guidance. This means patients will receive more accurate results and will undergo fewer invasive procedures. The trusts also submitted that introducing PCI provision at Burton will reduce the number of invasive procedures, provide faster care closer to home and improve patient experience. Burton patients will also be able to have their complex pacing devices implanted at Derby, reducing travel time.

For the reasons set out below, in our view the merger is likely to result in relevant patient benefits for cardiology patients in the form of improved diagnosis, a reduction in patients receiving invasive procedures, and improved experience and access.

2.1 The trusts' proposals

To achieve better outcomes for patients through the merger, the trusts intend to run a single cardiology service, through which they will standardise guidelines, protocols and pathways to provide a high quality service. Once merged, the trusts have proposed to:

- implement use of CTCA imaging as a first-line diagnostic tool for chest pain patients with low predicted risk of coronary artery disease, to determine whether they need more invasive cardiac diagnostic and treatment procedures
- patients needing PCI will receive this at Burton, rather than being transferred to another provider. The trusts will achieve this through gaining BCIS accreditation
- provide access to complex pacing devices at Derby for Burton patients.

With respect to the first two elements of the proposal, the main improvements are that some patients will avoid invasive coronary angiography, while others will receive their angiography at the same time as their PCI, avoiding the need for two

[18] Complex pacing devices regulate the beating of the heart. They are inserted into the chest using minimally invasive surgery.

separate invasive procedures. How patients experience these improvements depends on their pathway. We set out in Table 1 below how we would expect the pathways to change for different cohorts of patients.

Table 1: Proposed and current cardiology services

Proposed post-merger model	Current services for Burton patients
Patients presenting at the chest pain clinic	
Low risk patients: CTCA for an estimated 549 patients with stable chest pain, consistent with National Institute for Health and Care Excellence (NICE) guidelines. Only those identified from the CTCA as needing invasive coronary angiography will go on to have that procedure (estimated to be about 160 patients).	**Low risk patients:** Exercise tolerance tests for patients with stable chest pain (790 patients in 2016/17). Patients who are identified through exercise tolerance tests as having suspected coronary artery disease go on to have invasive coronary angiography (about 458 of the 790 patients in 2016/17).
High risk patients: Go directly to invasive coronary angiography for diagnosis (estimated to be about 90 patients).	**High risk patients:** Go directly to invasive coronary angiography for diagnosis (about 90 patients in 2016/17).
Inpatients who develop chest pain	
These patients will have access to CTCA for first-line diagnosis (estimated to be about 230 patients). A subset of these patients may still go on to require invasive coronary angiography and following this may also require PCI. For urgent patients, we are unable to quantify this number but for those needing a planned PCI these are included below.	These patients are likely to undergo invasive coronary angiography as a first-line diagnostic test (about 230 in 2016/17). Some of these patients may go on to require PCI. This may be as an urgent procedure while still an inpatient (and we are unable to identify the number of these patients) or as a planned procedure at a later date; these patients are included in the numbers below of planned PCI patients.
Patients attending a consultant-led cardiology outpatient clinic	
These patients will have access to CTCA, invasive coronary angiography and PCI at Burton if deemed appropriate by the consultant cardiologist.	A consultant may determine that these patients need coronary angiography and may need PCI. If an angiography is needed, they receive this at Burton and if it is determined PCI is needed, the patient will attend at University Hospitals of North Midlands or University Hospitals of Leicester.

Proposed post-merger model	Current services for Burton patients
All patients from the above pathways identified as needing planned PCI	
Patients from Burton who are identified as needing a planned PCI receive the intervention during the same procedure as the invasive coronary angiography (estimated to be most of the 270 patients identified in the column to the right; although a small number may still have two procedures for clinical reasons). The trusts intend to achieve BCIS accreditation to provide PCI at Burton; Derby already has this.	Patients presenting at the Burton chest pain clinic who are identified as needing a planned PCI after receiving invasive coronary angiography at Burton, attend University Hospitals of North Midlands or University Hospitals of Leicester to receive their PCI (about 167 patients in 2016/17). Existing inpatients (who develop chest pain and/or are diagnosed with acute coronary syndrome[19] but are stable and not considered high risk), having undergone invasive coronary angiography as a first-line diagnostic and are then determined to need a planned PCI, attend University Hospitals of North Midlands or University Hospitals of Leicester to receive their PCI. Patients attending a cardiology consultant-led outpatient clinic who may then go on to require a planned PCI also attend University Hospitals of North Midlands or University Hospitals of Leicester for their PCI (about 103 patients in 2016/17 – includes inpatients and outpatients).
Patients identified as needing an urgent PCI	
Patients presenting at Burton (usually at A&E) with unstable angina or NSTEMI who are identified as needing an urgent PCI receive the intervention at Burton during the same procedure as invasive coronary angiography (estimated to be about 80 to 90 patients for 2018/19).[20] Less than 1% of these patients require PCI at a tertiary centre with cardiac surgery capability. The trusts intend to achieve BCIS accreditation to provide PCI at Burton; Derby already has this.	Patients presenting at Burton (usually at A&E) with unstable angina or NSTEMI receive coronary angiography at Burton; if determined to need PCI, they are transferred to University Hospitals of North Midlands or University Hospitals of Leicester to receive their PCI (estimated to be about 80 to 90 per year). Less than 1% of these patients require PCI at a tertiary centre with cardiac surgery capability. These patients therefore undergo two invasive procedures. Transfers can delay

[19] Acute coronary syndromes are medical emergencies that include STEMI, NSTEMI and unstable angina (unexpected, severe chest pain).

[20] For clarity, see FN12. None of these cohorts apply to PPCI patients, who will continue to be treated at Derby.

Proposed post-merger model	Current services for Burton patients
	treatment for Burton inpatients by 24 to 48 hours.

Complex pacing devices

Burton patients requiring complex pacing devices will be treated at Derby by Burton consultants.	Burton patients requiring complex pacing devices are treated at University Hospitals of North Midlands or University Hospitals of Leicester by Burton consultants (estimated to be around 30 to 40 patients).

2.2 Assessment of relevant patient benefits for cardiology patients

Are the proposals likely to result in improvements in quality, choice or innovation of services for patients?

In our view, the proposals for cardiology services are likely to result in improvements for patients.

We are satisfied that the plans to use CTCA will result in Burton patients receiving more accurate diagnostics than through exercise tolerance testing, in line with national guidance.[21] Exercise tolerance testing is more likely to produce false positives than CTCA. Where coronary heart disease is not ruled out, a patient proceeds to an invasive coronary angiography. Switching to CTCA, therefore, will result in fewer patients unnecessarily proceeding to invasive coronary angiography. Patients will now only receive invasive coronary angiography if the CTCA indicates that this is necessary. This is better for patients, who will avoid risk and discomfort inherent in an invasive procedure, and will also reduce the number of procedures carried out in catheterisation laboratories. This will create extra capacity for cardiologists and allow other extra activity, such as PCIs, to take place.

We are also satisfied that the proposals will benefit patients who receive invasive coronary angiography at Burton and are identified as needing a PCI. Currently, these patients are required to go to University Hospitals of North Midlands or University Hospitals of Leicester for their PCI, meaning they receive a second

[21] NICE CG95 (www.nice.org.uk/Guidance/CG95)

invasive procedure. In addition, typical delays for transferring from Burton for PCI are 24 to 48 hours, which will be avoided post-merger.[22] This would mean a better experience for those patients who will have the PCI at the same time as angiography, avoiding travel to another hospital and the risk and discomfort of having a second invasive procedure.

For complex pacing devices, Burton patients will travel to Derby instead of University Hospitals of North Midlands or University Hospitals of Leicester. This may be more convenient for some of the 30 to 40 patients currently travelling to University Hospitals of North Midlands or University Hospitals of Leicester to have their devices implanted and for whom Derby is closer.[23]

We expect the proposals to result in improvements for approximately:

- 790 patients who will have access to more accurate CTCA instead of exercise tolerance testing. Of these, approximately 220 to 260 patients will avoid unnecessary invasive coronary angiography.
- 270 patients who will be able to have PCI at the same time as their coronary angiography instead of needing to go to another hospital for a second invasive procedure (note some of these patients will also be among the 790 who have more accurate first-line diagnosis, and for a small subset of the 270, it will be clinically appropriate to still have two procedures).
- A subset of 30 to 40 patients receiving complex devices for whom travel to Derby is quicker than travel to University Hospitals of North Midlands or University Hospitals of Leicester.

Are the improvements likely to be delivered within a reasonable time?

In our view, the improvements for cardiology patients are likely to be delivered within a reasonable timeframe. The trusts have plans to deliver these proposals within one year of the merger.

[22] For those patients who present with NSTEMI/unstable angina and are clinically unstable, NICE guidance recommends having PCI within 24 hours, and within 72 hours if the patient is clinically stable.

[23] Some patients needing complex devices will be inpatients at Burton who are too unstable to discharge, and will transfer to Derby for device implantation. Others will be at home and go to Derby for a planned (though potentially urgent) procedure. Derby may be within a shorter travel time for some of these patients than University Hospitals of North Midlands or University Hospitals of Leicester.

The changes in cardiology diagnostics rely on increasing radiologist reporting capacity. Derby already has plans to recruit 0.6 WTE radiologist to report CTCAs and has determined that, combined with the existing imaging cardiologists, this should be sufficient for the merged trust. Derby has a high-performing radiology service and has recently demonstrated its ability to recruit more radiologists. As such, we have confidence in its ability to recruit to this position.

To provide PCI at Burton, the merged trust must acquire BCIS accreditation. Burton independently does not meet BCIS requirements as it has insufficient volumes and insufficient interventional cardiologists to deliver a sustainable out-of-hours rota. However, accreditation is awarded on a trust-wide basis and the merged trust will be able to meet BCIS requirements. This, combined with Derby's experience of successfully navigating the BCIS accreditation process, means that the merged trust is likely to be able to achieve BCIS accreditation. The trusts have outlined plans for accreditation to be achieved within six months post-merger. While this is a challenging timescale, Derby has experience with BCIS and has already begun work on the application.

To accommodate the changes to diagnostics, PCI provision and complex devices provision, the trusts are undertaking demand and capacity analysis and modelling across both sites, which they expect to complete pre-merger. For PCIs, planning to treat and care for Burton's PCI patients at Burton rather than University Hospitals North Midlands and University Hospitals Leicester will also commence pre-merger. PCIs are undertaken in a catheterisation laboratory and the trusts have provided plans to extend Burton's catheterisation laboratory from 2.5 sessions to 5 sessions a week.[24] This facility is run by InHealth, with a contract until February 2020.

Derby plans to accommodate 30 to 40 Burton patients who need complex pacing devices without the need for capital investment. This is dependent on freeing space in its catheterisation labs, which are close to full capacity. The trusts plan to free up the necessary capacity at the Derby catheterisation labs to support this work by undertaking some PCI work for Derby patients at Burton.

[24] A catheterisation laboratory is an examination room in a hospital or clinic with diagnostic imaging equipment used to visualise the arteries and chambers of the heart and treat any stenosis or abnormality found. This includes invasive angiograms and PCIs. Burton has one catheterisation laboratory. Derby has two catheterisation laboratories. Both of Derby's catheterisation laboratories operate 10 sessions a week on a scheduled basis, with one lab available 24 hours per day, seven days a week, with staff on call to deliver emergency PPCI. Emergency PPCIs will remain at Derby post-merger.

Based on the planning and implementation work we have seen so far, we are satisfied that the improvements are likely to be delivered within a reasonable timescale.

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

Without the merger, we do not think Burton will be able to offer CTCA. The improvements in diagnostics are dependent on recruitment of a reporting radiologist. As outlined in more detail in Section 6 on radiology, Burton has had longstanding problems in recruiting radiologists which are unlikely to change. Without CTCA, patients will continue to receive suboptimal diagnostics and some will undergo avoidable invasive procedures. Derby has made convincing arguments about its ability to recruit radiologists and we are satisfied that merger is needed for Burton patients to access CTCA.

Provision of PCI at Burton is dependent on gaining BCIS accreditation. Burton does not meet BCIS required minimum volumes or number of interventional cardiologists for a sustainable out-of-hours rota, and is unlikely to do so independently in the future. Through merger, the combined volumes and staffing easily meet BCIS standards, providing us with a level of confidence that accreditation will be achieved.

In our view, the merger offers a better opportunity to improve services for patients than ceasing provision of diagnostics at the Burton site. Through the merger, patients will retain local provision of diagnostics, including invasive coronary angiography, and will be able to complete their pathway at Burton when a PCI is required.

Provision of complex devices for Burton patients at Derby, in our view, is unlikely to happen without the merger. The merger will make it easier to change the current pathways so that patients are able to attend the Derby site where it is closer to where they live.

3. Renal

Renal medicine (nephrology) involves the diagnosis and treatment of diseases of the kidney. There are a number of diseases that could affect the kidneys, including autoimmune disorders, diabetes, hypertension (ie high blood pressure) and sepsis.

Nephrologists treat patients with acute illnesses and those with chronic diseases requiring long-term care. For example, a chronically ill patient may progress to renal failure and require dialysis and subsequently a renal transplant over a period of 10 to 20 years.

Nephrologists also treat patients with acute kidney injury (AKI) when only the kidney is affected (eg following certain drug reactions) and also AKI as part of multisystem failure resulting, for example, from septicaemia (blood poisoning).[25]

Derby offers a full renal service through its renal unit – inpatient, outpatient and dialysis. Burton does not currently have a renal medicine unit. Patients at Burton who are identified as having AKI are either transferred to Derby or, if they are too unwell to be transferred, are treated in Burton's intensive care unit. Burton offers limited outpatient services but consultant cover is provided by:

- Derby for twice weekly outpatient clinics at Queen's Hospital Burton, which offer investigations and management of glomerular[26] and tubulo-interstitial disease,[27] Hashimoto thyroiditis vasculitis[28] and chronic kidney disease

[25] www.healthcareers.nhs.uk/explore-roles/doctors/roles-doctors/medicine/renal-medicine

[26] Glomerular diseases injure the glomeruli (the tiny filtering units within the kidney where blood is cleaned), causing swelling or scarring, which reduces kidney function. It may be the direct result of an infection or a drug toxic to the kidneys, or it may result from a disease that affects the entire body, like diabetes.

[27] Tubulo-interstitial disease means clinical disorders that cause tubular and interstitial injury in the kidney causing atrophy, inflammation or fibrosis. Causes can be infections, toxins (such as drugs), ischaemia and metabolic diseases (like diabetes). Acute damage can produce acute renal failure and in severe and prolonged cases, the entire kidney may become involved leading to end-stage renal failure.

[28] Hashimoto's thyroiditis (hypertensive) vasculitis is one of a group of vasculitis disorders that destroy blood vessels by inflammation as the result of an infection, a reaction to a medicine, or another disease or condition. Both arteries and veins are affected and some forms of vasculitis are responsible for causing end-stage renal disease.

- Heart of England NHS Foundation Trust (HEFT) for two sessions a week to support the nurse-led dialysis service at the Samuel Johnson Community Hospital in Lichfield.

The trusts submitted that the merger is an opportunity to address high rates of unrecognised AKI in the Burton inpatient population,[29] and improve clinical outcomes for AKI patients at Burton generally by offering a single renal medicine service across the merged trust. The trusts also submitted that bringing the Lichfield dialysis service back in-house at the merged trust will enable them to increase rates of home haemodialysis for these patients (which are currently low), resulting in improved outcomes and quality of life.

For the reasons set out below, our view is that the merger is likely to result in relevant patient benefits for renal patients in the form of reduced mortality, reduced morbidity (reduced level of disease) and clinical outcomes, shorter lengths of stay and better quality of life.

3.1 The trusts' proposals

To achieve improvements for patients through the merger, the trusts propose to introduce the following changes for patients at Burton:

- on-site renal consultant care for admitted patients
- access to 24/7 on-call service for AKI inpatients
- implement processes currently in place at Derby, including the electronic AKI care bundle (AKI-CB[30]) and alert system
- share patient records and data between sites
- offer a home haemodialysis service and permanent vascular access[31] for dialysis patients at the Lichfield site.

[29] Currently approximately 1,200 patients at Burton are not accurately recorded as having AKI (when Burton's data is run through the AKI algorithm).
[30] The AKI-CB consists of simple standardised investigations and interventions, reminding clinicians to complete 'audits'. Clinicians are required to click through yes or no questions to then receive a recommendation for treatment. See page 75 of the trusts' benefits submission for more detail on the AKI-CB.
[31] Permanent vascular access involves insertion of a dialysis route that can be reused for each dialysis treatment.

Post-merger, patients diagnosed with AKI will continue to be transferred to the Derby hospital site, except when they are too unwell to be transferred.

Table 2 compares the proposed post-merger model with current services for Burton patients needing renal services.

Table 2: Proposed and current renal services

Proposed post-merger model	Current service for Burton patients
Inpatient renal services	
A consultant nephrologist from Derby will attend Queen's Hospital Burton for two four-hour sessions each week to review and assess suspected AKI patients and oversee critically ill AKI patients requiring inpatient care who cannot be transferred to Derby. Those who are well enough will be transferred to Derby.	AKI patients who are too ill to be transferred to Derby are treated in Burton's intensive care unit. There are no renal consultants at Burton (Derby consultants can provide advice informally as described below). Those who are well enough are transferred to Derby.[32]
A formal on-call telephone advice service from Derby will be established and will operate 24/7. Derby consultants will be able to view patient records and test results (see below about the adoption of the inter-link between the two trusts' IT systems).	During the day Burton's consultants can contact the on-call renal registrar at Derby on an ad-hoc informal basis for advice about AKI patients (with test results also relayed over the phone; see below). Out-of-hours advice is typically sought from the on-call medical registrar at Burton.
Derby's AKI-CB, the electronic clinical decision support system used to diagnose and treat AKI patients in accordance with NHS England's AKI algorithm,[33] will replace the current system at Queen's Hospital Burton. Interruptive alerts will warn clinicians about AKI and request they complete the AKI-CB. Derby nephrology consultants will support the adoption and implementation of the AKI-CB at Burton by providing the professional clinical leadership required and championing its use to other non-renal specialist clinical colleagues.	Burton has not been able to successfully implement and follow the AKI algorithm. A paper-based system was only recently introduced at Burton (reporting commenced in September 2017) and it is not routinely followed. Burton currently does not have any consultant nephrologists to champion use and implementation of the AKI algorithm.

[32] In 2016/17, 48 patients were transferred from Burton to Derby.
[33] NHS England's AKI algorithm is best practice for the diagnosis and treatment of AKI. The algorithm identifies whether a patient should be considered to have AKI, and if so what stage of AKI, based on serum creatinine changes. NHS England has published information about the algorithm: www.england.nhs.uk/akiprogramme/aki-algorithm/

Adoption of an 'inter-link' between Derby's Vital Data (part of its Lorenzo system) and Burton's Meditech patient information systems to enable data to be shared electronically.	The trusts do not currently have compatible IT systems capable of relaying results electronically. Where advice is sought from Derby renal consultants, results are typically reported by phone.

Dialysis services at Burton's Lichfield site

The merged trust will run dialysis services at the Lichfield site (the service-level agreement (SLA) with HEFT will be terminated).	The dialysis service at the Lichfield site is staffed by Burton nurses and clinical support staff, but twice-weekly consultant sessions are provided by HEFT under an SLA.
Burton staff will be trained to offer and promote uptake of home haemodialysis.	HEFT does offer home haemodialysis but its rates are lower than Derby's.
The service will offer permanent vascular access for new dialysis patients as recommended in NICE guidelines.[34]	HEFT does offer permanent vascular access for new dialysis patients but its rates are lower than Derby's.

3.2 Assessment of relevant patient benefits for renal patients

Are the proposals likely to result in an improvement in quality, choice or innovation of services for patients?

Derby is recognised as one of the leading providers of renal medicine in England.[35] We think it is likely that patients will experience significant improvements after the merged trust implements Derby's expertise and best practice for patients at the Burton site. Our view is that the trusts' proposals are likely to result in improvements for inpatient AKI patients at Burton and dialysis patients at Burton's Lichfield site. We have set out our views in respect of each below.

Improvements for inpatient renal patients at Burton

The trusts' proposals aim to address high rates of unrecognised AKI in the Burton patient population. Patients with unrecognised AKI have higher mortality rates,

[34] NICE recommends that dialysis patients should commence their treatment with permanent vascular access. See www.nice.org.uk/guidance/qs72/chapter/quality-statement-4-dialysis-access-preparation

[35] The Derby renal unit has been a pathfinder trust which has pioneered the identification and management of AKI as part of a Department of Health and Social Care initiative; five members of Derby's renal unit staff (including three specialist renal consultants) were part of the national AKI programme team and board.

increased morbidity, require longer stays in hospital and are more likely to progress to more advanced stages of AKI and develop chronic kidney disease.

Additionally, the trusts aim to improve outcomes for all patients with AKI at Burton. The trusts have shown that AKI patients at Burton experience worse clinical outcomes than those at Derby, specifically higher mortality rates and longer lengths of stay, which the trusts submitted is due to patients at Burton being more likely to be diagnosed later and therefore progress to more advanced stages of AKI.[36]

The trusts submitted that the main reasons for Burton's poor outcomes for renal patients are the lack of renal consultants at Burton and the failure to consistently use NHS England's AKI algorithm.

NHS Improvement's view is that implementation of the AKI-CB at Burton is likely to result in more timely diagnosis and appropriate treatment for patients with AKI at Burton, the result of which is likely to lessen progression of AKI, improving morbidity and mortality, and shortening lengths of stay.

Clinical evidence submitted by the trusts indicates that following and completing the AKI-CB within 24 hours of electronic recognition of AKI[37] is associated with reduced length of stay, reduced progression to higher AKI stages and reduced mortality.[38] Implementation of the interruptive alerts at Derby has also been shown to increase the use of the AKI-CB by clinicians.[39] Our view is that similar improvements could be observed for AKI patients at Burton as a consequence of replacing the current paper-based system with Derby's AKI-CB and interruptive alert. Specifically:

- **Reduced mortality rates.** We expect mortality rates for AKI patients at Burton to reduce significantly to the levels seen at Derby. Burton's mortality rate is 19.8% for patients with recognised AKI and 26.2% for patients with unrecognised AKI. Derby's mortality rate for patients with AKI is 16.7%

[36] Kolhe NV, et al (2016) A simple care bundle for use in acute kidney injury: a propensity score-matched cohort study. *Nephrol Dial Transplant* 31(11):1846-1854 and Kolhe NV, et al (2015) Impact of compliance with a care bundle on acute kidney injury: A prospective observational study. *PLoS One* 10(7):e0132279.

[37] This is defined as the point at which blood results are available (the interruptive alert is triggered by the first attempt to order blood tests and medications for patients who have been identified as having AKI).

[38] Kolhe NV, et al (2016) A simple care bundle for use in acute kidney injury: a propensity score matched cohort study. *Nephrol Dial Transplant* 31(11): 1846-1854.

[39] Kolhe NV, et al (2015) Impact of compliance with a care bundle on acute kidney injury outcomes: a prospective observational study. *PLoS One* 10;10(7): e0132279.

(almost all AKI at Derby is recognised AKI). This is a significant benefit with the potential to make a difference for as many as 138 patients per year.[40]

- **Improved morbidity and lessened progression of AKI.** Evidence supports the trusts' submission that completing the AKI-CB results in fewer patients deteriorating from stage 1 to 2, or from 2 to 3.[41,42]
- **Shorter lengths of stay**. Length of stay for patients with recognised AKI at Burton could potentially be reduced by up to 3.4 days, from 14.5 days to 11.8 days, if levels are brought down to those seen at Derby. As with mortality the scope for improvement is even higher for patients with unrecognised AKI who experience longer stays (15.1 days at Burton).

Additionally, the presence of a consultant nephrologist on-site at Burton twice weekly, increased availability of the formal on-call service and the ability of Derby's consultant nephrologists to view Burton patient records and test results as a result of having compatible IT systems will all contribute to improvements to the timeliness and accuracy of diagnosis and the quality of care provided to AKI patients at Burton. We also expect that the on-site nephrologist consultant presence at Burton will assist in training and championing use of the AKI-CB.

We expect the proposals to bring improvements for approximately 2,000 AKI patients at Burton,[43] including approximately 1,200 patients who are not currently accurately recorded as having AKI.

Improvements in dialysis services for patient's at Burton's Lichfield site

In our view, the proposal to bring the Lichfield dialysis service back into the merged trust by serving notice on the HEFT SLA is likely to bring about improvements for patients by increasing rates of home haemodialysis and permanent vascular access.

[40] We are able to be more certain about the potential numbers of patients affected (compared to some of the other benefits, eg stroke) because the clinical evidence supports a measurable impact on mortality as a consequence of a specific intervention, in this case the AKI-CB, that is less likely to be impacted by other variables.
[41] There are three stages of AKI, with stage 3 being the most severe. The stage of AKI is diagnosed on the basis of clinical criteria.
[42] Kolhe NV, et al (2016) A simple care bundle for use in acute kidney injury: a propensity score matched cohort study. *Nephrol Dial Transplant* 31(11): 1846-1854.
[43] In 2016/17, 2,011 patients in the Burton patient population were shown by the AKI algorithm to have developed AKI.

HEFT, which provides consultant cover at the Lichfield site, does not currently achieve the rates of home dialysis that the Derby service does.[44] The trusts have submitted evidence showing that patients dialysing at home have a 42% lower mortality risk compared to those dialysing at a hospital dialysis centre[45] and have better control of hypertension (high blood pressure) with less reliance on medication.[46] The trusts have also submitted evidence that home haemodialysis could save each new home dialysis patient over 200 hours each year in travel time,[47] and results in better quality of life[48] and improved opportunities for rehabilitation and employment.[49] Our view is that these improvements can be expected to be achieved for those Lichfield patients who are able to take up home haemodialysis as a result of the merger.

We also accept the trusts' submission that more new patients will commence their dialysis with permanent vascular access[50] under the merged trust, in line with clinical best practice.[51] Although data is available for HEFT as a whole and not the Lichfield site alone, we accept that Derby performs highly in this regard compared

[44] The figure for home dialysis in the PBC includes patients dialysed at home via continuous ambulatory peritoneal dialysis (CAPD) and APD as well as haemodialysis (HD). The UK Renal Registry 2015 states Derby's home haemodialysis (HHD) rates are 10.7% (the best performing centres in England are 15%). HEFT's HHD rate is 1% for over 65s and 7% for under 65s. Derby told us that in October 2017 it was treating 323 patients in total, of whom 200 were in-centre HD patients; 72 on peritoneal dialysis (PD); and 51 on HHD. Therefore it has 15.7% on HHD (which matches the graph in the UK Renal Registry presentation for East Midlands that Derby provided) and 38% including PD and HD, ie nearly 40% (note: we have not counted the 234 renal transplant patients).

[45] Woods JD, et al (1996) Comparison of mortality with home hemodialysis and center hemodialysis: a national study. *Kidney Int* 49(5):1464.

[46] McGregor DO, et al (2001) A comparative study of blood pressure control with short in-center versus long home hemodialysis. *Blood Purif* 19(3):293 as cited in Mowatt G, et al (2003) Systematic review of the effectiveness and cost-effectiveness, and economic evaluation, of home versus hospital or satellite unit haemodialysis for people with end-stage renal failure. *Health Technol Assess* 7(2):1.

[47] The trusts' methodology for calculating travel time savings is described on page 81 (and footnotes 125 and 126) of their patient benefits submission.

[48] www.kidney.org.uk/documentlibrary/Home_Dialysis_Report.pdf, page 6, and Mowatt G, et al (2003) Systematic review of the effectiveness and cost-effectiveness, and economic evaluation, of home versus hospital or satellite unit haemodialysis for people with end-stage renal failure. *Health Technol Assess* 7(2):1.

[49] Kutner N, et al (2008) Dialysis facility characteristics and variation in employment rates: a national study. *CJASN* 3(1):111.

[50] Permanent vascular access involves insertion of a dialysis route that can be reused for each dialysis treatment. By contrast, without permanent access, patients typically have a plastic catheter inserted at each dialysis treatment, which typically occurs three times a week.

[51] NICE recommends that dialysis patients should commence their treatment with permanent vascular access. See www.nice.org.uk/guidance/qs72/chapter/quality-statement-4-dialysis-access-preparation

to its peers in the East Midlands.[52] New patients who dialyse at the Lichfield site and receive permanent vascular access sooner are likely to have reduced risk of infection and will not need an invasive procedure to introduce dialysis line access each time they dialyse.[53]

Patients at Lichfield may also benefit from the introduction of processes and systems used by Derby, in particular implementation of Derby's haemodialysis trigger tool which the trusts submitted has been successful in minimising frequent albeit minor harm events during haemodialysis treatments at Derby. Patients may also benefit from access to PatientView[54] to the extent this means they are more active in monitoring and engaging with their own care.

The trusts expect to be able to increase home haemodialysis use by approximately 10% over the first three years following the merger, enabling approximately five patients at Lichfield to commence home dialysis. Over the longer term we would expect rates to improve even more and up to the levels seen at Derby (up to 20% of patients).[55,56] We think that new patients accessing the Lichfield service are likely to benefit from being offered permanent vascular access sooner. Although we cannot quantify the likely numbers of new patients, we note that the unit is operating under-capacity and has capacity for an additional 12 patients.

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

In our view, the improvements for AKI patients at Burton and dialysis patients at Lichfield are likely to be achieved within a reasonable timeframe. The trusts have already started to implement the plans to provide an on-site consultant presence at

[52] UK Renal Registry 2015: Derby has the highest number of permanent fistulas in its dialysis population at 73.7% compared to peers in East Midlands. The UK Renal Registry shows Derby has higher rates than HEFT, University Hospitals of Leicester and University Hospitals Birmingham, the same as Nottingham University Hospitals but lower rates than University Hospitals of North Midlands. .

[53] See www.nice.org.uk/guidance/qs72/chapter/quality-statement-4-dialysis-access-preparation

[54] PatientView is an electronic system which allows patients to view information about their latest test results, letters received, the medicines they are taking, as well as information about diagnosis and treatment.

[55] Derby told us that as of October 2017 its rate of home haemodialysis was 20.32% (51 of a total of 251 haemodialysis patients dialyse at home).

[56] If rates increased to 20% at the Lichfield site, this would impact approximately 8 patients, although we note that if the Lichfield site was operating at capacity this could potentially impact 11 patients.

Burton. This support will be provided in advance of the merger, from February 2018.[57] Clinicians at Derby have been engaged and are supportive of the plans.

The trusts expect to implement the inter-link between the IT systems to enable clinicians at each of the trusts to view patient records across both systems within six months following the merger. The IT changes have been scoped, costed and planned, and a detailed implementation plan developed. Implementation of the AKI-CB will be undertaken as part of a wider programme of work to link the trusts' IT systems. The trusts plan to implement the AKI-CB in Burton's Meditech system within the first year following merger. The trusts have told us that the AKI-CB was embedded over a period of three to four years at Derby through a programme of education to GPs, junior doctors, consultants and nurses. The trusts expect to replicate this process at Burton and to be able to achieve faster implementation at Queen's Hospital Burton. Derby consultants were part of the NHS England-led national team that developed the AKI algorithm and AKI-CB, and Derby then developed its own interruptive alert to improve the use of the care bundle. We are satisfied that Derby's track record of successfully improving patient outcomes as a result of embedding the AKI-CB within its own trust means it is well placed to replicate the process and achieve similar improvements for patients at Burton within a reasonable time period.

The trusts have told us that they plan to serve notice on the SLA with HEFT in September 2018. On conclusion of the six-month notice period the dialysis service at Lichfield would be run by the merged trust (from April 2019). The trusts have provided us with an implementation plan setting out key steps for the dialysis services changes, including:

- full review of the renal service provided at Lichfield
- review of the contract with HEFT for the dialysis service at Lichfield and serve notice on HEFT
- identification of mechanisms for increasing home therapies, including multidisciplinary clinics and training needs, which will be developed into a business case and options appraisal
- identification of any additional staffing or investment needs (eg if equipment needs replacing)

[57] The current SLA between Derby and Burton will be amended to reflect this.

- ongoing engagement with staff, commissioners and other stakeholders
- offering sessions for patients and families to meet the team and inform them of service changes (the new service will also offer training and support packages for patients)
- training staff to offer and promote home haemodialysis.

The provision of consultant cover at the Lichfield site is dependent on the recruitment of one additional renal consultant. Derby has recently recruited two consultant nephrologists (to fill vacancies in the team) and does not anticipate that the additional post will be difficult to fill given the high reputation of Derby's renal unit. The trusts expect to recruit the additional consultant in the second half of 2018.

We are satisfied that the trusts will be able to complete the steps set out above and recruit an additional consultant within a reasonable timeframe to realise the improvements for renal patients.

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

NHS Improvement's view is that the improvements for AKI and dialysis patients are unlikely to accrue without merger.

In our view, it is unlikely that the electronic AKI-CB, which is critical to delivery of the improvements for AKI patients, would be adopted by Burton without the merger. Instead, the current paper-based system, which is a much less effective tool for properly recognising and treating AKI patients, would remain. Even if Derby agreed to maintain its on-site consultant presence at Burton, we think it would be difficult for these consultants to champion the use of the AKI algorithm through a paper-based system. If Derby withdraws its on-site consultant support and Burton is left without renal consultants on-site to champion the use of the AKI algorithm and train staff, we think it is even less likely that Burton could successfully implement the AKI-CB. Burton has been unable to do this so far and we do not see this changing in the future without specialist renal consultants to champion the change.

Without the wider programme of IT integration planned as part of merger, we do not expect the trusts to be able to pursue a link between their renal IT systems. There is no funding for a link to be put in place for the renal systems alone (ie in the absence of wider integration of the trusts' IT systems), and the trusts have said that

co-ordination between multiple specialties across both trusts to fund such a link is not feasible.

Formal collaboration on dialysis services was attempted by the trusts in the past but was unsuccessful due to an inability to reach agreement on ownership of activity. Derby has also told us that, without the merger, it would have limited incentives to support Burton any further or to recruit the additional consultant that would be required to provide support to the Lichfield dialysis service. Without the merger the trusts have indicated that the current SLA with HEFT would likely be extended. Under that SLA, as is the case now, Burton would have limited ability to influence HEFT's offer of home haemodialysis and permanent vascular access which would likely see lower rates persist. As Burton does not have its own renal service, we think it would be difficult for Burton to take responsibility for the Lichfield service and drive improvements in these aspects of the service on its own.

4. Stroke

A stroke is a serious condition that occurs when the blood supply to part of the brain is suddenly cut off, depriving the brain cells of oxygen. This may be from a blockage in a blood vessel supplying the brain (an ischaemic stroke) or from a bleed from a blood vessel (haemorrhagic stroke). Stroke is the fourth single largest cause of death in the UK.[58] In many people, stroke results in long-term disability that can range from mild to severe.

Stroke services are organised along a three-stage pathway: hyperacute, acute and rehabilitation. All stages of the pathway involve a multidisciplinary team (MDT) trained in stroke management, including stroke consultants, therapists (physiotherapists, occupational therapists, speech and language therapists, dieticians, clinical psychologists) and nurses.

The hyperacute stage focuses on stabilising the patient in the first 72 hours after the onset of stroke symptoms and is a critical period for patients requiring assessment, diagnostic imaging and treatment.[59] After 72 hours, patients are either discharged home (often through early supported discharge[60]) or into acute care for ongoing therapy and medical supervision. Acute care is the start of the rehabilitation process, aimed at restoring as much function and independence as possible. From here, rehabilitation may continue in a variety of settings, such as community hospitals, outpatient departments or people's own homes.

Stroke services also include treatment for transient ischemic attack (TIA), often referred to as a mini-stroke. This is a brief disruption in blood supply to the brain, where symptoms fully resolve within 24 hours. A TIA is often an important warning sign of a full stroke and therefore patients require urgent assessment (within 24 hours[61]), accurate diagnosis and treatment to help prevent another TIA or a full

[58] Stroke Association (January 2016) State of the Nation Stroke Statistics.
[59] Treatment for ischaemic stroke may include thrombolysis in which a patient is given intravenous medication to dissolve clots in the blood vessels. This is only effective if given within 4.5 hours of stroke onset. For haemorrhagic stroke, treatment focuses on urgently controlling the bleeding and reducing the pressure caused by the bleeding. This often uses drugs, but may require surgery.
[60] Early supported discharge teams help patients to leave hospital more quickly for treatment in their own home, so that they can maximise independence as quickly as possible after their stroke.
[61] Royal College of Physicians (2016) National Clinical Guideline for Stroke.

stroke happening in the future. Treatment may include medication to treat the underlying cause of the TIA or, in some cases, surgery to unblock the carotid arteries that supply blood to the brain.

The models used for stroke services in the NHS vary.[62] However, national guidance recommends that all patients with a suspected stroke be admitted directly to a hyperacute stroke unit (HASU).[63]

Both trusts provide services for patients in the hyperacute, acute and rehabilitation stages of stroke, and both provide clinics for TIA patients. However, Burton struggles to achieve good outcomes for patients, including having higher than average mortality rates, and fails to perform well against a number of national standards.[64] Burton is not designated by commissioners as a HASU[65] and fails to meet the minimum recommended volume of patients (600) to be clinically effective, admitting fewer than 400 patients in 2016/17.[66] With a full establishment of two WTE stroke consultants, Burton is unable to provide a seven-day service. For example, Burton's TIA clinics run five days a week, so patients presenting on Friday evenings or at weekends must wait until the Monday clinic. This means about six patients per month breach the 24-hour national standard.[67] Derby provides TIA clinics on seven days a week.

The trusts submitted that the merger is an opportunity to improve clinical outcomes for stroke patients. They anticipate that the merger will benefit Burton patients

[62] The Royal College of Physicians sets out the following models for the first two stages of the pathway: (a) hyperacute stroke unit for 72 hours, followed by transfer to an acute stroke unit; (b) stroke unit providing hyperacute and acute stroke care; and (c) comprehensive unit providing hyperacute, acute and rehabilitation stroke care. Royal College of Physicians (2016) National Clinical Guideline for Stroke.

[63] Royal College of Physicians (2016) National Clinical Guideline for Stroke. The guidance sets out recommendations for HASU provision, including 24/7 immediate access to a stroke consultant, seven-day stroke consultant-led ward rounds and a range of standards for timely diagnostics and clinical interventions, such as thrombolysis.

[64] The Sentinel Stroke National Audit Programme (SSNAP) measures the quality and organisation of stroke care in the NHS. The Acute Organisational Audit assesses each trust annually against 10 key standards. The clinical audit is published quarterly. It enables the processes of stroke services at national level to be compared with the latest national standards from the Royal College of Physicians, NICE and the National Stroke Strategy 2007.

[65] Royal College of Physicians (2016) National Clinical Guideline for Stroke.

[66] SSNAP recommends a volume of 600 to 1,500 to be clinically effective. Sentinel Stroke National Audit Programme, Guidance for STPs on recommended standards for acute stroke services.

[67] The Royal College of Physicians recommends that patients suspected or diagnosed with TIA be seen within 24 hours to assess their risk of stroke. Royal College of Physicians (2016) National Clinical Guideline for Stroke.

because they will have access to a clinically and financially stable stroke service[68] with seven-day services. They told us that some Derby patients will benefit as well through improvements to the Derby HASU.

For the reasons set out below, in our view, the merger is likely to result in relevant patient benefits for stroke patients in the form of reduced mortality, reduced risk of complications, improved outcomes and reduced risk of stroke.

4.1 The trusts' proposals

To achieve better outcomes for patients through the merger, the trusts have proposed:

- centralising hyperacute stroke services at Derby
- providing a single point of access for TIA patients, with clinics offered at both sites during the week and at the Derby site for all patients needing TIA services at the weekend.

Post-merger, services for patients in the hyperacute stage of stroke will be centralised at Derby. Most patients who, without the merger, would have been admitted at Burton will instead be brought by ambulance to the Derby HASU.[69] Inpatients at Burton who suffer stroke will be transferred to the Derby HASU.

After spending the first 72 hours in the Derby HASU, the majority of patients from the Burton catchment area will be transferred to Burton for further care in the acute and rehabilitation stages of stroke.[70] Patients from the Derby catchment area will remain at Derby for acute care and rehabilitation.

For TIA patients, post-merger the trusts will create a single point of referral with access to a weekend TIA clinic for Burton patients. TIA patients typically are

[68] SSNAP recommends a minimum of 900 patients to be financially effective. Sentinel Stroke National Audit Programme, Guidance for STPs on recommended standards for acute stroke services.

[70] The trusts said that about one-third of Burton patients will not go back to Burton because currently about one-third of hyperacute stroke patients at Derby are able to go home after the first 72 hours, usually with assistance from the early supported discharge service supported by a community provider.

referred by their GP or by an A&E. At weekends, Burton patients will be referred to the TIA clinic at the Derby site.

Table 3 compares the proposed post-merger model with current services for patients needing stroke services.

Table 3: Proposed and current stroke services

Proposed post-merger model	Current services for Burton (and where relevant Derby) patients
Centralised hyperacute services	
Access to thrombolysis and other out-of-hours care led by a stroke consultant 24 hours a day, seven days a week.	A thrombolysis service is available Monday through Friday from 9am to 5pm, led by a stroke co-ordinator with consultant support. Burton patients presenting out-of-hours receive thrombolysis, where appropriate, from the emergency department registrar with telephone support from one of Burton's two stroke consultants.
At Derby and at Burton (for the acute and rehabilitation stages) patients will have access to ward rounds led by a stroke consultant seven days a week.	Stroke consultant-led ward rounds at Burton five days a week. At weekends, patients are reviewed by the on-call medical consultant.[71]
Access to a stroke-trained physiotherapy and occupational therapy seven days a week.	Only general physiotherapy and occupational therapists, rather than stroke-trained therapists, are available to Burton patients at weekends.
Stroke-specialist speech and language therapists will be available to assess patients for dysphagia (swallowing difficulties) within 24 hours seven days a week at the HASU at Derby.	Burton currently provides assessment by stroke-specialist speech and language therapists five days a week. Derby patients currently have access to assessment by speech and language therapists five days a week and trained nurses providing this at weekends.
Speech and language therapy will be will be available seven days a week at Derby's HASU.	Burton patients have access to speech and language therapy five days a week. Derby patients also have access to speech and

[71] Because Burton's two WTE stroke consultants participate in the on-call medical rota, stroke patients may sometimes see a stroke consultant at weekends if a stroke consultant is the on-call medical consultant. However, there are 16 consultants in total on the general medical rota. The trusts told us that four to six suspected stroke patients are reviewed by a non-stroke consultant each weekend.

Proposed post-merger model	Current services for Burton (and where relevant Derby) patients
	language therapists five days a week.
Input from a clinical psychologist at a patient's MDT review.	This is currently not available for patients at Burton.

TIA services

Access to a TIA clinic seven days a week. Patients presenting at weekends are likely to be seen within 24 hours. Burton patients who present at weekends will be seen at the Derby TIA clinic.	Burton has a TIA clinic five days a week. Patients presenting at weekends (Friday night to Sunday morning) are treated by the emergency department and reviewed by the medical consultant on call until they can be seen in the TIA clinic on Monday.

4.2 Assessment of relevant patient benefits for stroke patients

Are the proposals likely to result in real improvements in quality, choice or innovation of services for patients?

In our view, the changes to stroke services are likely to result in improvements for patients. NHS Improvement and commissioners have had concerns for several years that Burton does not have the necessary volumes of patients to deliver a clinically and financially sustainable stroke service.[72] The trusts' proposal will mean that Burton patients have access to a designated HASU, in line with national guidance, and to seven-day services, including 24/7 thrombolysis led by stroke consultants, seven-day access to stroke-trained therapists and seven-day TIA clinics. Commissioners told us that they support the proposed changes in stroke services.[73]

[72] See www.eaststaffsbc.gov.uk/sites/default/files/docs/planning/planningpolicy/lpevidence/health/EastStaffsBoroughDeliveryofChangePlan2012-16.pdf and Monitor (February 2015) *Sustainability review. Burton Hospitals NHS Foundation Trust*.

[73] We spoke to East Staffordshire CCG, South East Staffordshire and Seisdon Peninsula CCG and Southern Derbyshire CCG about the stroke proposal.

Improvements for stroke patients

The trusts have shown that Derby provides a designated HASU service that meets Sentinel Stroke National Audit Programme (SSNAP) minimum volume recommendations for clinical effectiveness and financial sustainability.[74] They have also shown that Derby consistently receives higher ratings than Burton in SSNAP audits.

We therefore find it likely that Burton patients will have improved outcomes (as described below) by being treated and cared for at Derby's HASU. We also expect that combining the two stroke services will provide opportunities to improve services across sites for both Derby and Burton patients. For example, the trusts have said that combining their speech and language therapy teams will enable the merged trust to provide dysphagia screening and assessment within 24 hours at the Derby HASU seven days a week, up from five days.

In our view, the proposals for stroke patients are likely to result in reduced mortality rates as well as improved outcomes and reduced risk of complications.

- **Reduced mortality.** The trusts have shown that Burton had a higher than expected mortality rate in 2016 for stroke patients (stroke SHMI[75] 1.2), compared to Derby's mortality rate which is lower than expected (stroke SHMI 0.96). This indicates that the trusts are likely to be able to reduce the mortality rate for Burton patients once those patients are cared for at the Derby HASU, although we are unable to quantify by how much.[76]
- **Improved clinical outcomes and reduced risk of complications.** We believe that the changes are likely to improve clinical outcomes and reduce the risk of complications for stroke patients, as we note the evidence that

[74] Sentinel Stroke National Audit Programme, Guidance for STPs on recommended standards for acute stroke services.

[75] Standardised hospital mortality indicator (SHMI) is an indicator of healthcare quality that measures whether the number of deaths in hospital, or within 30 days of patients leaving hospital, is higher or lower than expected and is adjusted for casemix. Mortality indicators for specific conditions such as stroke are available.

[76] We note the evidence from the reconfiguration of stroke services in Greater London, which moved to a fully centralised model of admitting all hyperacute patients to a HASU and found a significant reduction in mortality (3 day [1.0%], 30 day [1.3%] and 90 day [1.1%]). Morris S (2014) Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis. *BMJ*, 5 August. Greater Manchester's drop in mortality was not significantly different from reductions seen in the rest of the country but their model of centralisation was different from London's and the proposal here, as not all stroke patients were admitted to a HASU.

centralised systems admitting all stroke patients to hyperacute units are significantly more likely to provide evidence-based clinical interventions.[77] Burton patients will be cared for at the HASU at Derby, which will bring their care in the hyperacute stage in line with national guidance. They will have input from a clinical psychologist at hyperacute MDT meetings, which they do not have now.

- Patients who are then transferred to the acute stroke unit at Burton after 72 hours in the HASU will have a more sustainable and accessible out-of-hours stroke consultant-led on-call service, and the trusts told us they will ensure all acute-stage stroke patients on both hospital sites will have seven-day stroke consultant-led ward rounds, rather than the current five days.
- For both Burton and Derby patients, improved access to stroke-trained speech and language therapists is likely to lead to more timely assessments of patients with swallowing issues (dysphagia), which can reduce complications such as stroke-associated pneumonia (SAP).[78]

As complications such as SAP may increase length of stay, we think that reducing complications should contribute to a reduction in length of stay for some patients. However, we note that length of stay for all patients will depend in part on how well the rehabilitation and early supportive discharge services at the Burton site work for patients.

Improvements for TIA patients

Reduced risk of stroke and of decreased quality of life: By providing Burton TIA patients with access to a TIA clinic at weekends, the service will be better able to meet national guidelines recommending that TIA patients are seen and treated within 24 hours to reduce the risk of a subsequent stroke. This means some patients may avoid the often debilitating effects of a stroke which reduce quality of life.

[77] Ramsay AIG. et al (2015) Effects of centralizing acute stroke services on stroke care in two large metropolitans areas in England. *Stroke* 22 May.

[78] Dysphagia (swallowing difficulties) affects many people with acute stroke and means they may take liquids or solids into their lungs. This can result in SAP, a complication of stroke that is associated with increased mortality and poor outcomes. If screening on admission indicates problems with swallowing, NICE recommends the person should have a specialist assessment of swallowing, preferably within 24 hours of admission and not more than 72 hours afterwards. (NICE (updated March 2017) *Stroke and transient ischaemic attack in over 16s: diagnosis and initial management, Clinical guideline 68.*)

Patients who are likely to experience the improvements

We expect the improvements set out above to affect more than 470 patients per year. This includes:

- approximately 400 Burton hyperacute stroke patients, who will now be seen and cared for at the Derby HASU, and a subset of these patients (about two-thirds) who will have greater access to stroke consultant-led care at Burton
- an unspecified number of patients at the Derby HASU at weekends will have greater access to stroke-trained therapists and (for Burton patients) a clinical psychologist
- approximately 70 to 80 TIA patients at Burton who are currently seen by non-stroke consultants at weekends and wait longer than 24 hours for access to TIA clinic services.

Are the improvements likely to be delivered within a reasonable time?

In our view, the trusts have developed sufficient plans and timescales at this stage to demonstrate that the changes are likely to be delivered within a reasonable time. The trusts intend to have centralisation of hyperacute services complete by February 2019. The single on-call rota across both sites and the single point of referral for TIA patients, with access to weekend clinics for Burton patients, is expected to be implemented soon after the merger takes effect. The trusts said the key steps in their plan for delivering the proposed changes are:

- agree with the ambulance service that stroke patients in the Burton catchment area will be brought to the Derby HASU
- add 11 stroke beds at Derby and reconfigure beds at both Derby and Burton
- recruit an additional stroke consultant (in addition to filling current Derby vacancies comprising 0.5 WTE stroke and 0.5 WTE neurorehabilitation consultants)
- agree with commissioners and the community provider to extend current early discharge services at Derby to cover Burton patients who will attend the HASU

- add Burton's two stroke consultants to the out-of-hours hyperacute rota at Derby, removing them from the general rota at Burton[79]
- agree new rotas for stroke therapists and nurses, with some working across both sites
- define and put in place transitional arrangements until the Derby HASU can accommodate Burton patients.

The delivery plans include engaging with ambulance services and commissioners, and a staff and public consultation if required. These have been factored into the planned timescales with consultations to conclude by July 2018 to provide time to factor in results. The trusts have begun work on capacity and demand analysis and modelling. Based on this work, the trusts anticipate that the additional 11 beds may be made available at Derby by shifting some activity from the Derby site to Burton, rather than adding new beds. Their proposal will be considered within a business case that will go through the trust's governance procedure.

The trusts have prepared to ensure that there is a smooth transfer of Burton patients from Derby's HASU after 72 hours, avoiding delays. Burton's stroke beds may currently be used for non-stroke emergency medical admissions. To ensure the availability of beds, the trusts have said they will implement Derby's current process for protecting stroke beds at Burton.

We think the trusts need to achieve further progress with commissioners and local community services providers to agree plans for extending and improving the efficiency of the early supportive discharge programme for Burton patients (both from the Derby HASU and Burton's acute stroke unit). This would give us greater confidence that length of stay could be reduced due to efficient discharge planning as well as reduced complications.

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

Since at least 2014, it has been an intention of commissioners to achieve better outcomes for stroke patients by ensuring that Burton hyperacute patients have access to a clinically and financially stable HASU. The trusts have tried in the past

[79] The trusts have considered how this change will impact the general medical rota at Burton. They believe this change is manageable because the general medical rota will then be an acceptable 1:14 rota.

to arrange for Burton patients to be treated at the Derby HASU; however, no plan has been taken forward to date. This appears to be mainly because Burton says it could not withstand the loss that it would incur if it were to stop treating hyperacute patients as an independent trust. As such, Burton has continued to admit hyperacute stroke patients. East Staffordshire CCG told us that they believed the merger is likely to be the only way to achieve the desired reconfiguration of stroke services.

Given the difficulties that the trusts and commissioners have had in the past in trying to reach agreement for a reconfiguration of stroke services, we think the improvements for stroke patients are unlikely to accrue without the merger. We also think that Burton would not be able to develop a clinically and financially stable HASU on its own because it does not have a patient population that would result in the minimum recommended numbers of patients.

We also note that Burton has tried collaborative arrangements to provide out-of-hours stroke coverage, but has struggled to do so. Burton previously relied on support from University Hospitals of North Midlands, but it pulled out of the arrangement after becoming too stretched. This suggests that any arrangements other than the merger are less robust and sustainable, and in our view are unlikely to work for Burton patients for the long-term.

5. Trauma and orthopaedics

Trauma and orthopaedics services involve diagnosing and treating conditions and injuries related to the musculoskeletal system. Treatment often includes surgery to repair bone fractures, replace joints, or repair damaged muscles or tendons. A trauma service provides emergency surgery and care for patients injured in an accident. Elective orthopaedic surgery is planned surgery for patients with musculoskeletal problems. Common elective procedures include hip and knee replacements.

Both trusts provide non-elective and elective trauma and orthopaedics, but there are differences in the services they provide. Derby is a designated trauma unit[80] and has a larger service with 36 consultants covering sub-specialties in spine, foot and ankle, upper limb, hip and knee, and hand surgery. Derby is part of a three-hospital spinal network which receives patients with spinal injuries from across the East Midlands, including patients in the Burton catchment area. Derby also has a centre dedicated to hand surgery.

Burton is not a trauma unit and, as a designated local emergency hospital, it provides surgery only for routine traumatic injuries such as fractured neck of femur. Burton has a smaller service than Derby with 10 substantive consultants and one locum. Burton's consultants cover sub-specialties in hip and knee, shoulder, foot and ankle, and hand surgery.

Both Derby and Burton told us they struggle to meet demand, with Derby in particular relying on regular waiting list initiatives to meet its elective waiting time targets throughout the year. Additionally, there is significant pressure during winter, felt by both trusts but especially by Derby. For example, Derby told us it has taken

[80] The role of a trauma unit will depend on its agreed function within each trauma network. The role of a trauma unit in each region will be to accept and manage, at any time, arrival of patients from the following two groups: (1) those considered to have injuries not requiring the expertise of a major trauma centre (MTC); and (2) those critically injured for whom direct transfer to a MTC could adversely affect outcome (with subsequent plans to transfer). More information is available: www.england.nhs.uk/wp-content/uploads/2014/04/d15-major-trauma-0414.pdf

56 elective orthopaedic inpatient beds to be used by acute emergency medical patients. Across England, NHS England has recommended that trusts postpone elective surgery through January in order to cope with the demand of emergency patients this winter. These actions mean there will be high numbers of patients waiting for elective orthopaedic surgery, which will require appropriate action by all trusts to address once they are able to fully recommence their elective activity.

The trusts submitted that the merger is an opportunity to create a larger and more efficient trauma and orthopaedics service, which will strengthen their ability to manage demand and improve outcomes for patients.

For the reasons set out below, our view is that the merger is likely to result in relevant patient benefits for trauma and orthopaedic patients in the form of improved outcomes and reduced waiting times and cancellations.

5.1 The trusts' proposals

To achieve better outcomes for patients through the merger, the trusts have proposed consolidating or centralising aspects of the service to separate day-case elective patient flows from inpatient elective and non-elective patient flows.

Table 4 compares the proposed post-merger model with current services for trauma and orthopaedic patients.

Table 4: Proposed and current trauma and orthopaedic services

Proposed post-merger model	Current services
All trauma patients (with the exception of those needing a major trauma centre – MTC) will go to the designated trauma unit at Royal Derby Hospital. This includes routine, non-complex trauma patients, although ambulant patients who present at Queen's Hospital Burton and can be treated with a stay of less than 23 hours will continue to be treated at Burton.	Derby trauma patients are treated in the designated trauma unit at Royal Derby Hospital, which has two dedicated trauma theatres operating seven days a week. Routine, non-complex trauma patients are treated at Burton; moderate to complex trauma patients are taken by ambulance to other hospitals with trauma units.[81]

[81] The trusts told us that ambulances tend to bring patients to the closest trauma unit. Patients in the Burton catchment area often go to Derby or University Hospitals of North Midlands in Stoke-on-Trent.

Proposed post-merger model	Current services
Major trauma patients will continue to be taken to their nearest MTC (likely to be University Hospitals of North Midlands or Nottingham University Hospitals).	
All patients needing elective inpatient surgery (more than a 23-hour stay) will go to Royal Derby Hospital.	Derby patients needing elective inpatient surgery are treated at Royal Derby Hospital. Burton patients needing elective inpatient surgery are treated at Queen's Hospital Burton for surgeries that Burton provides. Some elective patients, such as those requiring spinal surgery and bone tumour surgery, are treated at other hospitals including Derby.
All patients needing elective day-case surgery will go to a dedicated day-case treatment centre at the Burton site (open for surgery 10 hours per day) or (if appropriate for the patient's needs) one of two community hospital sites.	Derby patients have elective day-case surgery at Royal Derby Hospital or at Ilkeston Hospital.[82] Day-case surgery is not provided at a separate dedicated site. Derby has 22 dedicated day-case beds but no dedicated day-case theatres. Burton patients have day-case surgery at a dedicated day-case treatment centre on the Burton site with two laminar flow theatres of a total of eight theatres in the treatment centre (open for surgery 8 to 10 hours per day) or at Sir Robert Peel Community Hospital in Tamworth.

5.2 Assessment of relevant patient benefits for trauma and orthopaedics patients

Are the proposals likely to result in improvements in quality, choice or innovation of services for patients?

In our view, the proposals for trauma and orthopaedics services are likely to result in the following improvements for patients:

[82] Ilkeston Hospital is a community hospital that is part of Derbyshire Community Health Service NHS Foundation Trust.

Improved outcomes for trauma patients

Centralising trauma services at Royal Derby Hospital trauma unit will likely result in improved outcomes for Burton non-elective patients needing routine trauma surgery and requiring stays of over 23 hours (those who will be treated at Derby's trauma unit post-merger), particularly those with fractured neck of femur. Derby's trauma unit performs better than Burton on several quality measures for fractured neck of femur patients.[83] For example, in 2016 Derby met all the criteria for the best practice tariff for 79.10% of patients, compared to 51.20% of Burton patients.[84] Burton fractured neck of femur patients also would have improved access to sub-specialist surgeons and consultant orthogeriatricians, who focus on elderly care for orthopaedic patients alongside surgeons.

Improved outcomes for elective inpatients

Centralising elective inpatient surgery at Royal Derby Hospital will be likely to improve outcomes and waiting times for Burton patients who will have their surgery at Derby post-merger. The combined consultant rota will give surgeons greater opportunity to focus on sub-specialties, and will mean that patients will be more likely to have surgery performed by a sub-specialist surgeon with the skills most relevant to their needs. In turn, surgeons will perform greater numbers of surgeries in their sub-specialties, which has been shown to maintain and improve skills.[85] The trusts have also shown that Derby performs better on some measures related to elective hip replacements and knee replacements and we expect the merged trusts

[83] See patient benefits submission Appendix 3.

[84] The best practice tariff (BPT) is made up of two components: a base price and a BPT price. The base price is payable for all activity irrespective of whether the characteristics of best practice are met. The BPT price is payable only if all these characteristics are achieved:
(a) time to surgery from arrival in an emergency department, or – if an admitted patient – time of diagnosis to the start of anaesthesia, is within 36 hours
(b) assessed by a geriatrician in the perioperative period (within 72 hours of admission)
(c) fracture prevention assessments
(d) an abbreviated mental test performed before surgery and the score recorded in National Hip Fracture Database (NHFD)37
(e) a nutritional assessment during the admission
(f) a delirium assessment using the 4AT screening tool during the admission
(g) assessed by a physiotherapist on the day of or day following surgery.
Reference: *2017/2018 and 2018/2019 National payment system. Annex F: Guidance on best practice tariffs*. NHS England and NHS Improvement, December 2016.

[85] See for example, Briggs T (2015) *A national review of adult orthopaedic services in England*.

to be able to perform better for Burton patients as well.[86] Data also indicates that Derby is efficient in its utilisation of theatres.[87]

Improved outcomes and reduced waiting times/cancellations and risk of infection for day-case patients

Consolidating elective day-case surgery at the Burton day-case treatment centre and community hospitals, thereby offering day-case elective patients some protection from elective inpatient and non-elective patient flows, will mean Derby day-case patients will be likely to have shorter waits for their surgery, fewer cancellations and reduced risk of infection.[88] Patients will avoid the delays and cancellations that can occur when elective theatres and/or beds need to be used for emergency medical patients.[89] There are also likely to be improvements for Burton patients at the day-case treatment centre because the merged trust will adopt Derby's enhanced recovery programme featuring enhanced preoperative assessments by trained nurse practitioners. In our view, enhanced recovery programmes help patients recover and go home sooner in a clinically safe way.

In our view, these improvements will outweigh any increased travel time for those patients who will travel further to either the Royal Derby Hospital or the Burton day-case treatment centre.

We expect the proposals to bring improvements for approximately 4,925 trauma and orthopaedics patients including:

- approximately 1,000 non-elective trauma patients currently treated at Burton, in particular 375 fractured neck of femur patients will be treated at the Derby trauma unit post-merger
- approximately 700 elective orthopaedic inpatients currently treated at Burton who will be treated at Derby post-merger

[86] See patient benefits submission page 120 and Appendix 3. We note that Burton performs better on patient reported outcomes measures and the merged trust could make improvements in that regard for Derby patients. They may also be able to reduce length of stay (as Burton performs better), but the differences may be related to Derby having more complex patients.
[87] NHS Improvement, Model Hospital data.
[88] The trusts said that Derby cancelled 41 elective operations in January and February 2017, although they did not indicate how many of the cancellations were day-case surgery patients.
[89] NHS Improvement Model Hospital data indicates that for trauma and orthopaedics, Derby conducted 7.6% of emergency surgery on elective lists, compared to a national median of 1.7%.

- approximately 3,225 elective day-case orthopaedic patients currently treated at Derby who will be treated at the Burton day-case treatment centre post-merger. There is a likelihood that approximately 1,988 Burton orthopaedic day-case patients may experience better outcomes from adoption of enhanced recovery at the day-case treatment centre (based on 2016/17 numbers of Burton trauma and orthopaedic patients treated at the day-case treatment centre).

Are the improvements likely to be delivered within a reasonable time?

The key challenges in delivering the improvements will be ensuring that Royal Derby Hospital has sufficient bed and theatre capacity for trauma and elective orthopaedic inpatients from Burton, and ensuring the Burton day-case treatment centre has sufficient bed and theatre capacity for the influx of Derby orthopaedic day-case patients. Further, the merged trust will need to continue to successfully maintain separate non-elective and elective patient flows at Royal Derby Hospital. This is to ensure the increased number of trauma patients does not cause delays in procedures for elective orthopaedic patients or increase the risk of infection by mixing trauma patients with elective orthopaedic patients.[90]

In our view, the trusts have developed sufficient plans at this stage to demonstrate how they will address these challenges and deliver the improvements within a reasonable time. The trusts told us that in February 2018 they will begin demand and capacity modelling for Royal Derby Hospital and the Burton day-case treatment centre. They have set out the key steps and timescales for achieving the necessary changes to capacity within three years following the merger, including:

- Extending theatre hours at the day-case treatment centre in a staged manner over the first and second years following merger, in accordance with the extended theatre hours pilot currently being run at Derby, and freeing bed capacity by relocating other specialities such as ophthalmology, urology and gynaecology; identifying further staffing and capacity requirements by autumn 2018 and recruiting where necessary.

[90] Derby currently has separate orthopaedic trauma and elective theatre lists and separate trauma and elective inpatient ward areas.

- Expanding day-case services at Sir Robert Peel Community Hospital for patients with simple fractures; identifying and enacting theatre and staffing requirements for the community hospital by autumn 2018.
- Reallocating capacity at two theatres currently used for day-case surgery at Royal Derby Hospital to trauma and elective inpatients (after Derby day-case patients begin using the day-case treatment centre, beginning in October 2018 with completion due April 2019); identifying any other staffing or capital requirements by June 2018.
- Freeing up bed capacity for elective inpatients at Royal Derby Hospital by transferring day-case patients to the day-case treatment centre and transferring orthogeriatric rehabilitation patients to Derby's London Road Community Hospital using underutilised bed capacity.
- Further increasing bed capacity for orthopaedic inpatients at Derby following the modelling exercise with utilisation of an identified admissions ward.[91] The Derby trauma unit is expected to take trauma patients who currently go to Burton by the end September 2020.
- Staff and public consultation, if required.

The trusts also have planned discussions with ambulance services to arrange for them to bypass Burton A&E to bring trauma patients to the Royal Derby Hospital trauma unit.

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

In our view, the improvements are unlikely to accrue without the merger. Due to the small size of its service, Burton is unlikely to achieve the improved outcomes for its trauma and elective patients on its own because it would be unable to offer the level of sub-specialisation and access to a dedicated trauma unit that will be offered through the merger.

While we think it is possible that Derby could one day reconfigure its services to separate day-case from elective inpatient surgery procedures and patients (for example by relocating day-case procedures to its community hospital where

[91] The list of key steps is drawn from the trusts' patient benefits submission, the trusts' integration and transition plan for orthopaedics dated 1 November 2017, and discussions with the clinical leadership developing the proposed changes.

possible), we think the merger will make this easier because Burton already has a dedicated day-case treatment centre. Use of this facility will free up needed capacity at Royal Derby Hospital, which is currently operating at capacity.

In our view, the multiple service, staff and estate changes required to implement this proposal would likely be too complex to successfully deliver without a merger. We do not think the proposed changes could be achieved with a looser form of collaboration. Such an arrangement would be less likely to achieve the reconfiguration, or the accountability and single leadership necessary to set the strategic direction, and improve efficiencies and patient outcomes in the trauma and orthopaedics service.

The trusts have noted that there were efforts in the past to arrange for Derby surgeons to operate at Burton but concerns over contractual income prevented progress.

6. Radiology

Radiology uses medical imaging techniques to diagnose, treat and manage medical conditions. The radiology department supports many different clinical services in an acute hospital, including providing advice on appropriate treatment to clinicians in other services. Radiology services are therefore a fundamental part of successful service delivery for an acute hospital.

The trusts submit that the radiology service at Burton is unsustainable in its current form due to a significant, longstanding shortage of consultant radiologists caused by an inability to recruit and retain staff.[92,93] Only 20% of consultant posts are substantively filled. A 2013 Royal College of Radiologists' review highlighted the chronic shortage of consultant radiologists in post and other significant issues with the service, including an absence of clinical leadership from radiologists, challenges in governance and managing the radiology team, recruitment challenges and a lack of capability and capacity to deliver strategic service developments.[94] Burton has been unable to address these issues.[95]

Burton is being monitored by CQC as it is one of 16 trusts that made no notifications in 2016 of incidents concerning radiological exposure.[96] CQC thinks having zero incidents in a trust is unlikely and may indicate the need to improve safety culture.

[92] Burton has 10.2 WTE consultant radiology posts, although only 2.2 WTEs are filled with permanent consultants. 3.1 WTEs are provided by locums, 4.9 WTEs are vacant.
[93] Most recently, Derby and Burton held a joint recruitment trip to India to recruit radiologists. Derby successfully recruited three. Burton was unable to recruit any radiologists.
[94] Royal College of Radiologists (2013) *Final report of the review of the radiology service at Burton Hospitals NHS Foundation Trust*, 20 June, pp. 17-22.
[95] Recruitment has proved difficult as the department is small, has limited opportunities to sub-specialise and the on-call shifts need to be covered significantly more frequently. The national shortage of radiologists increases the challenge of recruitment.
[96] Ionising Radiation (Medical Exposure) Regulations, known as IR(ME)R, were established in 2000 to ensure that there was a regulatory framework to support the radiological protection of patients. Medical exposures, such as those used in diagnosis, treatment, research and screening, should be individually justified and optimised. www.cqc.org.uk/sites/default/files/20171023_irmer_annual_report_2016.pdf

Derby, which carries out some MDT reviews of Burton's complex cancer patients with Burton doctors,[97] reports that its surgical and radiological teams have on occasion needed to repeat scans taken at Burton, as the scans did not provide sufficient clinical detail to enable complex cancer surgery to proceed or for adequate MDT discussion of complex cancer cases. This has delayed care for patients. In addition, Burton does not always perform and report on imaging in time for the joint MDT, meaning Derby consultants may not have images available or may need to do first-time reporting on an image at the MDT when there is limited time available. This is against national guidance and presents significant reporting quality issues, as reporting on a previously unseen image leads to increased chance of inaccuracies.[98]

To address its significant lack of radiologist reporting capacity, Burton has trained some of its radiographers to report simpler scans and plain film X-rays.[99] This allows its few radiologists to focus on more complex scans. However, this does not provide a long-term solution for a radiologist shortage: training reporting radiographers takes three years, several have taken up leadership roles and it has proved difficult to meet the workload. Burton has tried unsuccessfully to recruit trained reporting radiographers.[100]

Even with reporting radiographers in place, Burton still needs to outsource a large number of MRI and CT scans, which is costly and has a higher incidence of inaccuracies than in-house reporting.[101]

The result of the severe, chronic staffing shortage is that Burton's service is unsustainable in its current form, and is vulnerable to sickness or further reductions in staff.

[97] Patients may be seen at Burton for diagnosis and for treatment of some non-complex cancers. However, patients with more complex cancers are referred to Derby or other providers.
[98] The Royal College of Radiologists (RCR) sets standards for cancer MDTs. These state that there should be prior review of all images by an individual with appropriate expertise and with sufficient time to provide an unhurried professional opinion for the MDT. RCR (Nov 2014) *Cancer multidisciplinary team meetings - standards for clinical radiologists*.
[99] Burton has 7.5 WTE reporting radiographers to report plain film X-rays and simpler scans, reporting 63,436 plain films in 2016/17. Training radiographers to report on images rather than radiologists is an accepted innovation in the practice and expansion of the radiographer role.
[100] Royal College of Radiologists (2013) *Final report of the review of the radiology service at Burton Hospitals NHS Foundation Trust*, 20 June, p. 10
[101] Burton outsourced 6,706 MRI and 8,076 CT scans in 2016/17. The discrepancy rate for these scans was 0.58%, whereas scans reported in-house had a discrepancy rate of only 0.06%.

The trusts told us that the merger will enable development of a sustainable service for Burton patients, by providing a single pool of consultants across the two sites under Derby's clinical leadership and management. The trusts also told us that the merged organisation will be better able to recruit consultant radiologists. These steps will improve care for patients at Burton by reducing waiting times through quicker imaging, reporting and booking, and through more accurate reporting.

For the reasons set out below, our view is that the merger is likely to bring about relevant patient benefits by bringing Burton's radiology service under Derby's strong clinical leadership and management. This will improve consultant radiologist staffing levels, better utilise the radiographer and radiologist workforce, and enable implementation of Derby's current best practice. In our view, these improvements are likely to result in patients in more than 170,000 attendances or admissions accessing an improved radiology service that provides higher quality, more reliable imaging reports (leading to more accurate and timely diagnosis), shorter waiting times for scans and results, and more convenient appointment times.

6.1 The trusts' proposals

The trusts plan to stabilise the radiology service at Burton as a priority, then implement measures to improve the service. To stabilise the service and achieve better outcomes for patients through the merger, the trusts have proposed running a single radiology team under Derby's clinical leadership, providing a full range of services across both sites. They propose to introduce Derby's robust governance, policies, protocols and procedures across the merged trust within the first two years to ensure consistent service delivery and with a view to gaining accreditation from the Imaging Services Accreditation Scheme (ISAS)[102] for the merged trust. The trusts plan to recruit some additional radiologists and plans are already agreed with the Deanery to expand Derby's number of trainees from 6 to 21 over the next five years. They also intend to further develop Burton's use of reporting radiographers to Derby.

[102] ISAS is jointly owned by the Royal College of Radiologists (RCR) and the Society and College of Radiographers (SCoR), which have developed the standard in consultation with imaging services across the country. Accreditation to professional standards is supported by CQC and NHS England. Domains for accreditation include: leadership and management; clinical; facilities, resources and workforce; patient experience; and safety. www.rcr.ac.uk/clinical-radiology/service-delivery/imaging-services-accreditation-scheme-isas

Once stabilised, the merged organisation intends to implement further improvements, such as coupled diagnostics and zero waits, which are already in place at Derby. Coupled diagnostics allows patients to schedule follow-up diagnostic and clinical appointments at the end of their initial consultation. Zero waits allows images to be taken the same day as the initial clinical appointment, or soon after. The trusts say that these initiatives will increase convenience for patients and reduce waiting times for diagnostics.

6.2 Assessment of relevant patient benefits for radiology patients

Are the changes likely to result in real improvements in quality, choice or innovation of services for patients?

Our view is that the trusts' proposals for radiology services are likely to result in improvements for patients at Burton. As a core part of a hospital's operation, radiology performance impacts many services and their patients, in particular non-elective patients and elective inpatients. A large number of these patients will require some form of radiology testing/imaging as part of their diagnosis and/or treatment. In 2016/17, Burton recorded:[103,104]

- 20,243 type 1 A&E attendances (admitted)
- 104,767 type 1 A&E attendances (non-admitted)
- 7,954 admissions through other routes (eg direct GP referral, inter-hospital transfer)
- 39,013 elective inpatients

We would expect all of the patients whose attendances and admissions are reflected above and who access the radiology service during their stay at Burton to benefit from the improvements described below.

[103] The numbers above are based on recorded activity for Burton. We note some of these patients may not need a radiology test or image, but we are unable to quantify this number and we think this will be only a small subset. To be cautious and ensure we do not over-estimate, we have excluded all outpatients and day surgery patients as we cannot be as certain that a large proportion of these patients would need a radiology test or image.

[104] These figures represent patient spells. Some patients are likely to require multiple spells in a single year.

Implementation of further improvements at Burton

At least 6,000 Burton patients are likely to benefit from the implementation of coupled diagnostics and zero waits initiatives. These services have improved patients' access to radiology services at Derby and if implemented should reduce waiting times and the number of patients who do not attend their appointment (DNAs) at Burton. With successful implementation, we would expect patients to benefit from the services in which coupled diagnostics and zero waits are put in place. As outlined by the trusts, this would include 3,762 MRI trauma and orthopaedic spine patients waiting nine days less, 1397 MRI knee patients waiting 12 days less and 1,362 patients waiting 16 days less for DXA[105] scans.[106] A proportion of these patients would also benefit from fewer appointments, increasing convenience. Since the introduction of coupled diagnostics and zero waits at Derby, DNA rates have been 0.3% for knee and spine trauma and 0.2% for orthopaedics, where the expected rate would be 3.7%. If these initiatives are successfully implemented at Burton, there could be 160 fewer DNAs per year at Burton, with a cost reduction of £160 per session.

Reduction in outsourcing image reporting

With a better managed, better staffed and better performing service at Burton, and the extension of radiographer reporting at Derby, we expect that the merged trust will be able to reduce the number of scans that are outsourced. We accept that the outsourced scans are more expensive for the trusts, and have higher levels of reporting discrepancies, which can delay diagnosis. We therefore expect the reduction in outsourcing to benefit patients.

Are the improvements likely to be delivered within a reasonable time

We have reviewed implementation plans from the trusts, which show how the trusts' management will move to consolidating the two services within two years. These

[105] DXA (also called DEXA) stands for dual energy X-ray absorptiometry. It is a type of X-ray that measures bone mineral density (BMD). It is often used to help diagnose bone-related conditions, such as osteoporosis, or assess the risk of developing them.

[106] These reflect a reduction in the time waiting for scans to be carried out. As the scans are one part of a pathway, for overall pathway times to reduce, medical practitioners at Burton would have to be able to use the information provided by the radiology department at the earlier time. We have not assessed whether this is the case or not, but we do note that this improvement reduces the time for a key part of many patient pathways, so is likely to reduce overall pathway times for patients.

include demand and capacity analysis and modelling (to commence pre-merger) and plans for recruitment and harmonising workforce. The plans also set out implementation of transformation schemes, such as coupled diagnostics and zero waits. Although not fully detailed, the plans show that management has assessed what needs to happen for the two services to be brought together. We also note that there has been a year and a half of planning with very strong clinical engagement. In our view, and given Derby's track record in running a high performing radiology service and introducing initiatives to improve use of capacity,[107] the improvements should be delivered in a reasonable timescale.

In particular, Derby's success at recruiting radiologists at a time of national shortage suggests the improvements are likely to be delivered within a reasonable time.[108] For example, Derby has recently recruited three radiologists from India. Our view is that Derby's ISAS accreditation and the ability for its radiologists to sub-specialise make it an attractive proposition for radiology staff. We think it is likely that the merged trust will be able to successfully recruit to vacant posts.

Derby also has already agreed with the Deanery to increase its numbers of trainee radiologists from 6 to 21 over the next five years (three per year from next year), commencing next year. The additional numbers of trainees will add capacity to the service and mean that Derby is more likely to retain some trainees to fill consultant vacancies in the future.

In our view, the merged trust will be able to reduce its reliance on outsourcing scans through the additional planned recruitment and the extension of radiographer reporting at Derby. Fully training reporting radiographers takes three years; however, the recruitment of additional radiologists will begin pre-merger. As such, we believe the reliance on outsourcing will reduce in a reasonable timescale and progressively over time.

[107] Coupled diagnostics and zero waits.
[108] Royal College of Radiologists (2017) *Clinical radiology: UK workforce census 2016 report*, October, p. 6.

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

In our view, the improvements to radiology services are unlikely to happen without the merger.[109] Firstly, many of Burton's problems arise from its severe shortage of substantive consultant radiologists, which Burton has tried and failed to address for several years, including in earnest since the 2013 review by the Royal College of Radiologists. We do not think that Burton will be able to recruit these staff as a standalone organisation, particularly amid a national shortage of radiologists and given its recent inability to recruit from India. We accept that potential candidates will be more attracted to work in the radiology service at Burton as part of a larger high performing radiology department with the increased opportunities this brings.

We are not aware of an alternative provider for Burton to work closely with to address these issues. Many of the benefits accrue from forming a single service across a merged organisation, with Derby being a high performing radiology department. We do not think there is an alternative which could achieve similar benefits at Burton.

Secondly, given its staffing challenges and the further issues identified in the 2013 review, we do not think Burton has sufficient capacity or strategic clinical leadership to implement the coupled diagnostics and zero waits initiatives on its own. We think that any innovative improvements to the radiology service at Burton are unlikely to be realised without the merger.

Finally, we do not think either trust would, without the merger, be able to reduce its reliance on outsourcing to the extent that the merger would allow. The merger is expected to result in greater capacity through recruitment and greater use of Derby's radiographers. Without the merger, it is unlikely that either trust would have capacity to use its resources to minimise reliance on outsourced reporting. This is particularly true for Burton, given it has insufficient staffing (consultant radiologists and reporting radiographers) and already struggles to backfill reporting radiographer roles when they take up leadership positions.

[109] In the Section 1 of this annex we provide further details of the workforce challenges faced by Burton and the improvements the merger is likely to offer.

7. Cancer

In all types of cancer, some of the body's cells begin to divide without stopping; this can start almost anywhere. These extra cells form solid tumours (apart from cancers of the blood, such as leukaemia) and can be malignant or benign.

Malignant cancerous tumours spread or invade nearby tissues or can break off as they grow to metastasise in another part of the body. They can also return after being removed or treated. Benign cancerous tumours do not spread and when removed or treated, they usually do not grow back.

There are more than 200 different types of cancer. More than one in three people in the UK will get cancer in their lifetime.[110]

Derby provides a range of diagnostics and treatments for cancer patients including those with complex cancers. Treatments provided by Derby include radiotherapy, chemotherapy, surgery and robotic surgery. Burton provides a more limited range of cancer services. Patients may be seen at Burton for diagnosis and for treatment of some non-complex cancers, such as surgical treatment for non-complex urological cancer. Patients with more complex cancers are referred to Derby or other providers. Burton does not offer radiotherapy services, and chemotherapy is provided at the Burton site by Derby staff under an SLA.

The trusts told us that the majority of Burton cancer patients needing complex care (184 out of 1,081 total cancer patients in 2016/17) are referred to Derby. Other patients (80 in 2016/17) are referred to other hospitals that are closer to home or to centres that offer specialist surgery not provided at Derby.[111]

The trusts submitted that the merger is an opportunity to reduce patients' time to treatment and improve their experience in cancer care. They also said that the merger will ensure that specialist cancer services remain at Derby in the future.

[110] www.nhs.uk/conditions/cancer/
[111] Aside from Derby, patients at Burton are mainly referred to University Hospitals Birmingham NHS Foundation Trust and University Hospitals of North Midlands NHS Trust.

For the reasons set out below, our view is that the merger is likely to result in relevant patient benefits for cancer patients by reducing time from referral to treatment for some patients.

7.1 The trusts' proposals

The trusts said the merger will reduce waiting times for cancer treatments by streamlining cancer pathways, including eliminating some steps that are currently necessary for patients who are referred from Burton to Derby. For example, the trusts said that the merger will allow them to reduce the time taken for diagnostic pathology and MRI results, and eliminate the need for two MDT discussions to reach a view on diagnosis and treatment for some patients.

The trusts also said the merger will mean that patients in Burton's southern catchment population who are referred to other hospitals for cancer services would be brought into Derby's catchment for specialised services. They said this will reduce the risk of some specialist cancer services being lost at Derby and patients having to travel further away to access them.

The trusts presented case studies for patients with urology cancer and upper gastrointestinal (upper GI) cancer as examples of the improvements that would result from the merger.

7.2 Assessment of relevant patient benefits for cancer patients

Are the changes likely to represent a real improvement in quality, choice or innovation of services for patients?

In our view, the changes to cancer services are likely to represent improvements for patients by smoothing pathways and reducing the time that some patients wait for treatment.

Reduced waiting times for treatment by smoothing cancer pathways

Getting to the right diagnosis and treatment as quickly as possible is important for cancer patients as the disease can worsen and spread with time. The NHS expects trusts to treat 85% of cancer patients within 62 days of referral. The trusts have shown that patients who are referred from Burton to Derby are more likely to

experience breaches in the 62-day standard than patients who start and complete their pathway at Derby.[112] We accept that the merger is likely to enable the trusts to streamline cancer pathways and reduce waiting times in at least three ways:

1. There are likely to be efficiencies gained by bringing pathology services for some Burton cancer patients in-house at Derby.[113] This is likely to reduce the time patients have to wait for biopsy results, will make it more likely that the pathologist who analysed a patient's biopsy is able to attend the MDT to discuss the patient's results, and will ensure that Derby consultants have confidence in the pathology results.[114]
2. By addressing Burton's current challenges in providing radiology services,[115] the merged organisation will be able to reduce the time for diagnostics. For example, Burton patients will be able to have MRIs and biopsies in parallel, as Derby patients do, rather than waiting for biopsy results to decide whether an MRI is needed.
3. The merged organisation will be likely to reduce the number of MDT meetings for some patients. Two MDTs can be part of a patient's pathway when the patient is first seen at Burton. Their case will be discussed at an MDT at Burton, and the MDT may decide to refer the patient to Derby. The appropriate diagnosis and course of treatment for the patient would then be discussed at another MDT held at Derby.[116] This two-step process, which the trusts said currently happens for bladder and prostate cancer patients, can add time to a patient's pathway. In our view, the merger will allow clinicians across both sites to build relationships and standardise when and how MDT meetings occur for particular pathways. This is likely to eliminate the need for

[112] This may be partly because patients who are referred from Burton to Derby need more complex care compared to all of Derby's cancer patients who will include patients with both complex and less complex needs. However, we accept that referrals from one organisation to another can add time to a patient's pathway to treatment and can therefore lead to breaches in the 62-day standard.
[113] Currently, Burton contracts with Coventry and Warwick Pathology Service, which is managed by University Hospitals Coventry and Warwickshire NHS Trust.
[114] Clinical Pathology Accreditation (CPA) became part of UKAS in 2009; all CPA-accredited laboratories are transitioning to UKAS accreditation. Derby is UKAS accredited. Coventry and Warwick are CPA accredited for histopathology but are UKAS accredited for other medical lab services. www.ukas.com/browse-ukas-accredited-organisations/
[115] See Section 6 on radiology.
[116] For example, the East Midlands Clinical Networks prostate cancer pathway submitted at Appendix 4 indicates that a MDT discussion is held by day 21. Patients who require it are referred to a tertiary centre and are then discussed at a specialist MDT, with a treatment plan discussed and agreed with them before day 48.

patients to be discussed at two separate MDTs, thereby reducing the time to treatment.

Based on the number of patients who were referred from Burton to Derby in 2016/2017, we expect the improved cancer pathways to affect approximately 184 patients (recognising the number of patients could be slightly higher or lower in the future).

Maintaining high quality specialist cancer services at Derby

The trusts said that the merger is likely to increase Derby's catchment size for specialist cancer services by a population of about 225,183 people from the southern part of Burton's catchment area. Patients in this area tend to be referred to other providers (mainly University Hospitals Birmingham) for complex cancer services. For example, for upper GI surgery, the trusts believe adding this population to the Derby catchment will bring Derby closer to meeting the NHS standard contract service specification for oesophageal and gastric cancers, which requires a minimum specialist services catchment of one million people.[117] The current service specification also requires that hospitals do a minimum of 60 procedures per year, with 15 to 20 per year per consultant. The trusts told us Derby currently falls below these minimums, with a core catchment of approximately 600,000 people and a catchment for specialist commissioned services of nearly one million people. In 2016/17, Derby carried out 48 procedures, across four consultants. This also fell short of the service specification.

The trusts said that for upper GI cancer the merger will mean that six to seven patients in the area south of Burton will now be treated at Derby and Derby would come closer to meeting the standards in the specifications. The trusts say this will strengthen Derby's position as a provider of certain specialist cancer services and ensure that commissioners continue to commission those services from the Derby site, giving patients local access.

[117] Evidence suggests that for some more complex or rare cancers and for some surgical procedures, higher volumes are associated with better outcomes for patients. Therefore, for some specialist cancer services, specialist commissioners seek to commission services from hospitals that perform a recommended minimum number of procedures or treatments each year in order to maintain the skills of the clinicians and the quality of services at the hospital. Commissioners look to the size of a provider's catchment population to estimate the likely number of patients that will need cancer services.

We accept that, for some cancer services, treating higher volumes of patients would be likely to lead to better outcomes for some patients. However, with respect to this aspect of the trusts' cancer proposal, we cannot be certain of the likelihood of delivery within a reasonable timeframe (see below).

Are the improvements likely to be delivered within a reasonable time?

Delivery of improvements to the cancer pathways

In our view, the improvements to cancer pathways are likely to be delivered within a reasonable time. The trusts have indicated that they anticipate implementing the necessary changes to deliver these improvements by the end of 2019. We think the trusts have developed sufficient plans at this stage to demonstrate that the improvements are likely to be delivered. The trusts have set out steps for reviewing existing cancer pathways and developing and standardising new pathways. Burton has already successfully moved histopathology testing for symptomatic breast diagnosis from Coventry and Warwickshire Pathology services to Derby after Derby took over management of Burton's breast cancer service.

To ensure their plans are successfully implemented, the Derby hospital site needs to have sufficient capacity to accommodate the reallocated pathology work. The trusts have recognised this as a risk and have set out plans to mitigate it, and have already started the work on demand and capacity analysis and modelling.

We also think the strong level of engagement and work that has been jointly done to date with the clinical leaders and teams from each trust and the ongoing collaboration between the trusts' leadership teams demonstrates that the trusts will be able to continue on this course to improve cancer pathways for patients.

Delivery of securing specialist services at Derby for the future

NHS England has a programme for reviewing its service specifications, including those for specialist cancer services based on emerging evidence of best practice. NHS England intends to issue a revised service specification for kidney, bladder and prostate; and draft for consultation for upper GI cancer and head and neck services by summer 2018. NHS England will then make commissioning decisions against the finalised revised service specifications, and may consider new models of delivering some specialised cancer surgery services. While the merger may

increase Derby's specialist services catchment population, the outcome of NHS England's process for upper GI and head and neck is still some time away and will require a period of consultation. The impact of revised kidney, bladder and prostate cancer service specification has not yet been modelled. We cannot say with certainty that the proposed improvements for upper GI cancer services (ie securing these services at Derby for the future) are likely to be delivered in a reasonable time. This may also be the case for other specialist cancer services provided across England as we understand that NHS England will continue to look at its specialist commissioned cancer national service specifications and evaluate them against emerging best practice and minimum volumes evidence.

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

In our view, the merger will facilitate the proposed improvements in cancer pathways. We think the trusts could potentially achieve some aspects of the cancer proposal as independent organisations. For example, the trusts currently operate some joint MDTs across both hospitals and there is potential that they could do this for additional cancer pathways as independent organisations. It is also possible that, even without a merger, the trusts could seek to direct some pathology work to Derby instead of Coventry and Warwickshire, with the agreement of Coventry and Warwickshire. However, we understand that longstanding pathway arrangements are difficult to change without a common governance structure and the buy-in of clinicians to drive through change. Therefore, in our view, the merger will help the trusts achieve these improvements more easily than they would be able to as separate organisations.

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 02/18