Patient Benefits

Submission to the Competition & Markets Authority

Anticipated merger

Central Manchester University Hospitals NHS Foundation Trust, and

University Hospital of South Manchester NHS Foundation Trust

Contents

1. Executive Summary

1. The planned merger between Central Manchester University Hospitals NHS Foundation Trust (CMFT) and University Hospital of South Manchester (UHSM) is the first step in establishing a new NHS Foundation Trust for the City of Manchester. This submission to the Competition & Markets Authority (CMA) sets out the 'relevant customer benefits' (hereafter 'patient benefits') that can be expected as a result of this merger.[1]

2. The decision that CMFT and UHSM should merge follows an independent review of hospital services in the City of Manchester, commissioned by the Manchester Health and Wellbeing Board. The review was commissioned as a result of the Health and Wellbeing Board concluding that:

> "Hospital services in Manchester include some of the best and highly regarded teams in the UK, with real areas of excellence in clinical care. However, there are also significant inconsistencies and variations in the way that acute hospital services are provided at present.
>
> "Standards of care can be variable, best practice is not consistently adopted or adhered to, and there are important gaps in services alongside areas of service duplication. The existing arrangements also fail to provide a clear Manchester focus for acute hospital care, or for the relationship between providers and commissioners."[2]

3. The independent review, led by Sir Jonathan Michael, a former Chief Executive of Oxford University Hospitals NHS Foundation Trust, concluded that a new acute trust for Manchester encompassing CMFT, UHSM and North Manchester General Hospital (NMGH) would be the most effective way of delivering improved services.

4. This new trust is regarded by Manchester City Council's leaders and elected councillors, as well as by Manchester's CCGs, as an essential part of their plans to address unacceptable levels of variation in clinical outcomes, patient experience and access to hospital services in the City.

5. The merged Trust, including CMFT, UHSM and – in due course – North Manchester General Hospital (NMGH) (currently operated by Pennine Acute Hospitals NHS Trust, PAHT), is also part of a broader strategy to address population health outcomes in Manchester that lag significantly behind those elsewhere in England. This broader strategy includes establishing a new Local Care Organisation to deliver improved community-based health services, a pooling of health and social care commissioning budgets across the City, and a merger of the City's three CCGs.

6. The focus of this submission to the CMA is those benefits that can be taken into account in the CMA's decision making process as it reviews the CMFT/UHSM merger. It does not address the wider benefits on which the merger decision has been based. These wider benefits are addressed in the Business Case for the merger that will be considered by the Trusts' Boards and NHS Improvement over the next two to three months. They encompass

[1] A full description of the benefits arising from the merger will be set out in the Business Case for the merger that will be adopted by the CMFT and UHSM Boards and submitted to NHS Improvement as part of the merger approval process. This submission presents the subset of these total benefits that qualify for consideration by the CMA as 'relevant customer benefits' under the Enterprise Act 2002.

[2] Manchester City Council, *Manchester Locality Plan*, November 2015, p.55 at Appendix 1.1.

areas such as research and innovation, and the broader benefits to which the merged Trust will contribute – alongside the planned new Local Care Organisation, and the single commissioning organisation for Manchester.

7. The benefits that are included in this submission to the CMA span a broad range of specialties and conditions, including: Cardiology; Vascular Surgery; Stroke; Gynaecology and Obstetrics; Urology; General Surgery; Orthopaedics; and Head & Neck Cancer and Maxillo-Facial Surgery.

8. The benefits set out in this submission are diverse. They encompass better mortality outcomes, shorter waits for treatment, reduced length of hospital stays, fewer complications after surgery, fewer patients being readmitted following discharge, and more convenient access to services for patients. For commissioners (and taxpayers), more efficient services means better value for money, and the ability to deliver services to more patients, more quickly.

9. No single clinical service model will deliver all of these benefits across all specialties or service areas. CMFT and UHSM, as set out in this submission, plan a variety of approaches and the service delivery model that will be implemented in each specialty is the one that will deliver the largest positive impact for patients.

10. In some specialties, patients will gain the convenience of being able to access services at more sites. In others, patients will gain higher quality services as a result of scarce clinical expertise being concentrated in a way that guarantees patients access to specialist services, seven days a week.

11. Underlying these new models for the delivery of clinical services are a range of drivers, including developments in medical treatment, greater specialisation among clinicians, and a better understanding of the link between the level of clinical activity and patient outcomes.

12. An example is the treatment of patients with heart problems. Ten years ago, the majority of angioplasties for these patients were carried out on a planned basis, with patients admitted and operated on during normal working hours. Now, best medical practice means that two thirds of angioplasties are delivered on an urgent or emergency basis.

13. This means cardiac centres, like CMFT and UHSM, must be geared up to deliver these services 24 hours a day, 7 days a week. But, neither Trust has the scale or resources to do this on its own. The planned merger between CMFT and UHSM, however, will bring together – from across the two Trusts – consultants specialising in the care of heart attack patients, cardiac physiologists, critical care nurses, catheter laboratory staff and other clinicians who, together, will be able to deliver a 24/7 service for these patients.

14. The planned merger between CMFT and UHSM is key to delivering the benefits set out in this submission. Neither Trust can individually deliver the benefits arising from this merger. The concentration of patient flows and/or scarce clinical expertise that is required for the new models of service delivery set out in this submission, which will deliver benefits for patients, can only be achieved through some form of collaboration or service reconfiguration that brings together services at each Trust.

15. Partnership between CMFT and UHSM, that falls short of a merger, will not be sufficient to deliver the benefits set out in this document either. The changes to service delivery that the

Trusts are proposing would have financial impacts and/or give rise to risks to the delivery of clinical services that neither Trust, as separate, independent entities, would be able to bear.

16. This is borne out in the history of attempts to achieve service improvements under the current configuration of providers in Manchester. Attempts to improve services have frequently been delayed, compromised or abandoned as individual providers – consistent with their obligations as independent Foundation Trusts – have been unable to agree to measures that would put their clinical sustainability at risk or adversely impact on their financial performance or reputation. The merger between CMFT and UHSM will remove these organisational barriers to service improvement.

17. The key benefits that can be expected from the CMFT/UHSM merger are summarised below.

18. ***Cardiology – Acute Coronary Syndrome***: around 4,000 lower risk heart attack patients (i.e. those experiencing non-ST elevation myocardial infarction, NSTEMI) are referred to CMFT and UHSM for diagnosis and treatment each year. These patients experience an average of 4.1-7.4 days from admission to angiogram. Delays to referral and treatment can arise from: a lack of an available consultant opinion (particularly out of hours and on weekends); mismatches between demand and capacity at the two Trusts; and delays in multi-disciplinary team decision-making for patients where the optimal treatment is not clear.

19. These delays result in significantly higher patient mortality risks, longer length of stays, and delays to the treatment of other patients who could be admitted more quickly if these patients could be discharged more quickly. The merged Trust, however, will deliver a seven-day rota for cardiology consultants who specialise in treating heart attack patients, and a dedicated unit for these patients to reduce the wait for treatment by concentrating patients and expertise in a single location to deliver faster post-treatment discharge. This can be expected to improve patient mortality outcomes (with possibly 50 to 100 fewer deaths each year) and save around 17,000 bed days each year due to shorter lengths of stay.

20. ***Cardiology – Heart Rhythm Abnormalities***: CMFT and UHSM, as cardiac centres, provide specialist services in the implantation and maintenance of cardiac pacemakers for patients in Greater Manchester with heart arrhythmias. There are insufficient consultants with Cardiac Rhythm Management expertise, however, at either CMFT or UHSM to offer comprehensive out of hours and weekend cover for these services. This can lead to delays in patient treatment, and sub-optimal management of patients, including those that have been admitted to other hospitals in Greater Manchester where local clinicians have been unable to immediately access expert opinion from a relevant specialist at CMFT or UHSM.

21. Following the CMFT/UHSM merger, the merged Trust will deliver a significantly improved service for patients with heart rhythm abnormalities. This improved service will include a robust out of hours, seven day service, and the centralisation of services on a single site. Around 430 patients each year will benefit from reduced time to treatment and reduced length of stay, reduced risks arising from stabilisation measures that may be used in local hospitals prior to treatment, and reduced risk of complications.

22. ***Cardiology – Acute Aortic Surgery***: the merged Trust will centralise services for patients requiring acute aortic surgery, and establish a dedicated rota that will provide 24/7

coverage for patients requiring this treatment. This will bring together surgeons at both Trusts with a specialist interest in aortic surgery so that the Trust can offer a single service for aortic surgery patients for both elective and emergency services.

23. Patients across Greater Manchester, requiring emergency surgery out of hours or on weekends, will benefit from this new service model as a result of there always being an appropriate surgeon available. This will include patients who are currently being transferred to other centres for treatment (e.g. Liverpool, Blackpool and Stoke), and where delays to surgery can have a significant impact on patient mortality outcomes, and a further cohort of patients who may not be receiving any treatment under current service arrangements.

24. The precise number of patients that will benefit from these new arrangements will depend on the extent to which the merged Trust is able to work with other acute trusts in Greater Manchester to improve diagnoses and referral rates for treatment. However, it is likely to be in the range of 50 to 100 patients per year. While this is a small absolute number of patients, the improved mortality impact per patient can be expected to be high.

25. ***Vascular Surgery***: Following the CMFT/UHSM merger, arterial surgical services will be centralised at Manchester Royal Infirmary. Increased patient volumes at the single arterial surgical site can be expected to deliver better outcomes for more than 3,300 patients who are admitted for treatment each year at the merged Trust. These better outcomes can be expected to include improved morbidity rates, reduced length of stay, reduced complication rates, and reduced tissue loss and amputation for patients with diabetic foot complications. Plans to centralise these services by the merged Trust follows several unsuccessful attempts in Greater Manchester in recent years to achieve this outcome under the current configuration of acute trusts.

26. ***Stroke***: guidelines for the treatment of patients suspected of having had a transient ischaemic attack (i.e. a mini-stroke) changed in 2016, such that all patients, not just those assessed as high risk, should be assessed urgently within 24 hours by a specialist physician in a neurovascular clinic or acute stroke unit. These guidelines were changed following research findings that the previously used system of classifying patients as ‘high’ and ‘low’ risk does not accurately predict subsequent stroke risk.

27. Neither CMFT nor UHSM has sufficient consultants to offer a seven-day service consistent with these new guidelines. Following the merger, the merged Trust will – by combining the resources of the two teams as well as recruiting a small number of additional consultants – be able to offer a seven-day service that ensures that all patients that suffer a mini-stroke are rapidly assessed, and any appropriate treatment (ranging from medication to surgery) is commenced. The Trusts estimate that around 900 patients each year, who currently wait longer than 24 hours for an assessment, will be benefit from these new arrangements.

28. ***Women’s Health (Gynaecology and Obstetrics) – Urgent Gynaecology Surgery***: Following the merger, women requiring urgent gynaecology surgery will benefit from being able to access three scheduled lists each week that will enable timely treatment, and reduce the risk of urgent cases escalating into emergencies.

29. Under current arrangements, CMFT operates two lists each week. UHSM does not have any dedicated lists for patients requiring urgent gynaecology surgery, and adds these patients to existing elective and emergency surgery lists. These arrangements result in delays and cancellations for women requiring treatment who may be in significant pain and

emotional distress. It can also result in escalation of a patient's condition such that emergency treatment becomes necessary. Around 400 patients each year are expected to benefit from being able to access urgent gynaecology surgery more quickly.

30. ***Women's Health (Gynaecology and Obstetrics) – Community Midwifery***: Greater Manchester has midwifery zones, associated with hospital catchments, which impose barriers and introduce safety issues to pregnant women who wish to choose a hospital for their delivery that is outside of their community midwife zone. CMFT and UHSM have safe information sharing arrangements to ensure that important patient information is available to follow patients who either choose or, as a result of an emergency situation, require medical care outside of their midwife zone.

31. The merger allows information to be shared between the Trusts without requiring the duplication that occurs at present, which improves the standard of care for women who otherwise need to provide information to both south and central Manchester community midwife teams. Further, maternity governance and training can be standardised so that midwifes can escalate emergencies to common standards across a large part of the Greater Manchester conurbation.

32. ***Urology – Patient Access***: day-case urology services are provided by both CMFT and UHSM. These patients are limited, in general, to having this surgery at one of the hospital sites of the Trust to which they have been referred to for their first outpatient appointment. Pooling of patient lists across the merged Trust will allow the 6,000 patients that have urology day case surgery at the Trust each year to choose the hospital site for surgery that is most convenient for them.

33. ***Urology – Cancer Surgery***: Following the merger, urology cancer services will be consolidated at either Wythenshawe Hospital or Manchester Royal Infirmary. This can be expected to lead to significant improvements in patient outcomes for the 400-500 urology cancer patients that will be treated annually at the consolidated site. This is consistent with the evidence regarding the relationship between patient volumes and outcomes.

34. ***Urology – Kidney Stone removal***: Following the merger, patients that would previously have received lithotripsy treatment for kidney stones at Manchester Royal Infirmary (using a mobile facility that visits once per fortnight) will be directed to Wythenshawe Hospital, where a permanent lithotripsy facility is located. This will significantly reduce waiting times for around 60 patients per year that would otherwise have been treated at Manchester Royal Infirmary.

35. ***Urology – Seven day services***: Neither CMFT nor UHSM are compliant with seven-day service (7DS) standards, although both Trusts are on the NHS Improvement 'Early Deliverers' programme to achieve compliance early this year in four priority standards (out of ten). In anticipation of the merger, and taking account of the urology cancer commissioning process, the Trusts have been able to articulate how these standards can be met with a combined urology consultant rota.

36. ***General Surgery***: the CMFT/UHSM merger, by enabling the planned consolidation of certain General Surgery services at Manchester Royal Infirmary (under the Healthier Together programme), will significantly improve services for nearly 4,700 General Surgery patients each year. These patients will gain from comprehensive sub-specialty consultant cover seven days per week.

37. It is difficult to estimate the size of the positive impact of this service change on patient outcomes. The reforms brought about by Healthier Together have been estimated as being capable of saving 151-289 lives per year across Greater Manchester, and CMFT and UHSM account for nearly one quarter of all General Surgery admissions in Greater Manchester. However, CMFT and UHSM already have among the lowest mortality rates in Greater Manchester so a pro-rata allocation to the merged Trust of the anticipated mortality benefits for the region as a whole may not be accurate. Nevertheless, the Trusts believe that improvements in patient outcomes can be anticipated, particularly as a result of the speciality specific on-call arrangements that will be implemented.

38. Further, the merger will avoid the need for around £10 million of capital investment in new theatres and wards at Manchester Royal Infirmary to accommodate additional General Surgery activity. This is because the merged Trust will be able to transfer other activity to Wythenshawe Hospital, an outcome that would not be achieved in the absence of the merger.

39. ***Orthopaedics – Elective Surgery***: following the transaction, the merged Trust will transfer elective orthopaedic activity from Wythenshawe Hospital to Trafford General Hospital, where CMFT currently carries out its own elective orthopaedic work. This will ring-fence the elective orthopaedic activity currently carried out at UHSM from the pressures created by co-location with emergency surgery, and which has contributed to UHSM underperformance against the Referral to Treatment (RTT) 18-week target.

40. Approximately 2,500 patient admissions are expected to transfer from Wythenshawe Hospital to Trafford General. These patients will benefit from reduced elective cancellations, reduced length of stay, and reduced time to treatment, including improved referral to treatment performance for those patients that would have otherwise been treated at Wythenshawe Hospital. Patients will no longer be outliers in non-orthopaedic wards, need to stay in theatre recovery beds overnight, or be repeatedly shifted between wards.

41. In addition, the entire cohort of around 5,000 orthopaedic patients that will be treated at Trafford General following the merger will benefit from the greater workforce resilience that will be brought about from having a larger number of consultants in each sub-specialty treatment area.

42. ***Orthopaedics – Fractured Neck of Femur***: the merged Trust will establish a dedicated hip fracture unit at either Manchester Royal Infirmary or Wythenshawe Hospital offering 7-day services to patients suffering from fractured neck of femur. Around 550 fractured neck of femur patients each year can be expected to reduce time to treatment and length of stay for patients as well as complication rates and mortality outcomes.

43. ***Head and Neck Cancer and Maxillo-Facial Surgery***: significant improvements for Head and Neck Cancer and Maxillo-Facial Surgery patients will be made at the merged Trust through the planned centralisation of these services at a single site, and the implementation of a 7 day rota using the combined clinical workforce. Around 400 patients per year will benefit from better coordinated patient management leading to an improved patient experience, shorter lengths of stay and improved health outcomes.

44. Studies show that larger patient volumes in head and neck cancer surgery lead to cancer survival rates improving by up to 12%. As a result, the consolidation of these services could be expected to save the lives of 30-50 patients each year.

45. In conclusion, given the significance of the patient benefits set out in this submission, CMFT and UHSM believe that it would be disproportionate, in the event that the CMA were to decide that the merger will lead to a substantial lessening of competition, for it to impose a remedy that would result in these benefits being lost.

2. Introduction

46. Following the devolution of health and social care services to Greater Manchester in February 2015, an independent review of hospital services in the City of Manchester was commissioned.[3] In June 2016, the Manchester Health and Wellbeing Board, which includes elected representatives from the Manchester City Council, commissioners and Health Watch, accepted the review's recommendation that the best way to improve hospital services for the City of Manchester's residents would be to establish a single NHS acute trust for the City.

47. A merger between Central Manchester University Hospitals NHS Foundation Trust (CMFT) and University Hospital of South Manchester (UHSM) is the first step in establishing this new acute trust for Manchester. It is anticipated that the new, merged Trust will acquire North Manchester General Hospital (NMGH), currently part of Pennine Acute Hospitals NHS Trust, around 12-18 months following its own merger, and thus complete the establishment of a single NHS acute trust for Manchester.

48. This new trust is regarded by Manchester City Council's leaders and elected councillors, as well as by Manchester's CCGs, as an essential part of their plans to address unacceptable levels of variation in clinical outcomes, patient experience and access to hospital services in the City.

49. It is also part of a broader strategy to address population health outcomes in Manchester that lag significantly behind those elsewhere in England. This broader strategy includes establishing a new Local Care Organisation to deliver improved community-based health services that prevent illness and care for people closer to their homes, a pooling of health and social care commissioning budgets across the City, and a merger of the City's three CCGs to establish a single commissioning function.

50. The decision to establish a single acute trust for Manchester follows longstanding efforts to improve acute services, under the current configuration of providers, which have delivered disappointing results in terms of agreeing new working arrangements for different services.

51. This submission to the Competition & Markets Authority (CMA) sets out the relevant customer benefits ('patient benefits')[4] that Central Manchester University Hospitals NHS Foundation Trust (CMFT) and University Hospitals of South Manchester NHS Foundation Trust (UHSM) believe will arise from their planned merger.

52. The Trusts believe that, given the significance of the patient benefits set out in this submission, it would be disproportionate, in the event that the CMA were to decide that the

[3] In this submission, references to Manchester refer to the City of Manchester. Any references to Greater Manchester use this term.

[4] A 'relevant customer benefit' is defined in Section 30 of the Enterprise Act 2002 as one which: is a benefit to relevant customers in the form of: lower prices, higher quality or greater choice of goods or services in any market in the United Kingdom, or greater innovation in relation to such goods or services, and the CMA believes may be expected to accrue within a reasonable period of the merger, and the CMA believe is unlikely to accrue without the merger. In this submission, 'relevant customer benefits' are referred to as 'patient benefits'.

merger will lead to a substantial lessening of competition, for it to impose a remedy that would result in these benefits being lost.

53. This submission on patient benefits is set out as follows:
    - Section 3 provides an overview of the transaction process, including the events leading up to the merger decision, merger implementation, and post-merger integration; and
    - Section 4 discusses the rationale for the merger, the benefits that are expected from the merger, and the process for identifying the patient benefits that are set out in this submission.

54. Clinical services where patient benefits are expected to be realised as a result of the merger are discussed as follows:
    - Cardiology, vascular and stroke services (Section 5);
    - Women's health (Section 6);
    - Urology (Section 7);
    - General surgery (Section 8);
    - Orthopaedics (Section 9); and
    - Head and neck cancer and maxillo-facial surgery (Section 10).

3. Merger rationale and transaction process

55. Before discussing individual patient benefits arising from the merger, this section sets out the wider context for the transaction. It summarises, and builds on, the discussion of the rationale for the merger in the Trusts' submission to the CMA's Phase 1 review of the merger, and covers:
    - the events leading to the decision to establish a single acute trust for Manchester (Section 3.1);
    - the rationale for the merger (Section 3.2);
    - the wider benefits expected from the merger, not just those that qualify as relevant customer benefits (Section 3.3); and
    - the transaction process (Section 3.4).

3.1 Events leading to the decision to create a single acute trust for Manchester

56. The first steps towards the decision to establish a single acute trust for Manchester can be traced back to the establishment of the Greater Manchester devolution programme in November 2014. Health and social care became part of the programme in February 2015 when the UK Government transferred responsibility for health and social care expenditure in Greater Manchester to a partnership between NHS England, the twelve NHS CCGs in Greater Manchester and the ten Greater Manchester local authorities.

57. As part of the health and social care devolution agreement, 5-year strategies for health and care were developed for each local authority in Greater Manchester (known as Locality Plans), and for Greater Manchester as a whole. The City of Manchester's Locality Plan (adopted by Manchester City Council's Health and Wellbeing Board in December 2015) identified a concern with variable standards of hospital care across the City. The Plan stated that:

> "Hospital services in Manchester include some of the best and highly regarded teams in the UK, with real areas of excellence in clinical care. However, there are also significant inconsistencies and variations in the way that acute hospital services are provided at present.
>
> "Standards of care can be variable, best practice is not consistently adopted or adhered to, and there are important gaps in services alongside areas of service duplication. The existing arrangements also fail to provide a clear Manchester focus for acute hospital care, or for the relationship between providers and commissioners."

58. As a result, the Manchester Locality Plan included a decision to commission an independent review of hospital services. At the same time, the Manchester CCGs informed CMFT, UHSM and PAHT that they had decided to commission acute services for the City by way of a single acute services contract, encompassing services at CMFT, UHSM and NMGH.

59. The Trusts understand that the CCGs' decision stemmed from the difficulties experienced by commissioners in pursuing service improvement initiatives with CMFT and UHSM as separate entities. This had caused increasing levels of frustration and a loss of patience on the part of commissioners with the existing configuration of providers in Manchester.

60. In January 2015, Sir Jonathan Michael, former Chief Executive of Oxford University Hospitals NHS Foundation Trust, was appointed to lead the independent review of Manchester's hospital services (known as the Single Hospital Service review). The review concluded that there were significant benefits from developing and applying single service models to hospital services in Manchester, and that these benefits would be best realised through establishing a single NHS acute trust for Manchester.

61. The Manchester Health and Wellbeing Board accepted the Single Hospital Service review report, including its recommendation of establishing a single NHS acute trust for Manchester. This recommendation was also endorsed by the Boards of CMFT, UHSM and PAHT. In June 2016, the Health and Wellbeing Board requested that CMFT, UHSM and PAHT provide an initial assessment implementation requirements and associated timescales. This assessment concluded that a merger of CMFT and UHSM should take place as a first step, with the newly merged Trust subsequently acquiring NMGH 12-18 months following its establishment.

3.2 Merger rationale

62. As can be seen from the discussion of the events leading up to the decision to establish a single hospital for Manchester, the rationale for the merger has two parts.

    - First, to improve services for patients by adopting new service delivery models encompassing services at CMFT, UHSM and NMGH that address the variable standards in care, inconsistent adoption and adherence to best practice, and gaps and duplications in hospital services identified in the Manchester Locality Plan. The Single Hospital Service review sets out how this can be achieved, and an overview of its approach and findings are provided in Section 3.2.1.

- Second, to address the organisational barriers that have impeded previous service improvement efforts. The experience of service improvement efforts in Manchester in recent years is discussed in Section 3.2.2.

3.2.1 Improving services: the Single Hospital Service review

63. The SHS review considered how single service models for the delivery of hospital services could address variable standards in care, inconsistent adoption and adherence to best practice, and gaps and duplications in Manchester's hospital services.

64. Four single service models were considered in the SHS review:
    - first, shared pathways (or standards) in the same specialty at different hospitals;
    - second, sharing of specialty-level staff and assets between hospitals;
    - third, hub and spoke service models (where one hospital delivers more complex services in a specialty and other hospitals treat less complex cases); and
    - finally, single site service delivery, where all services in a specialty are delivered at a single hospital.

Table 3.1: Single Service Models considered in the Single Hospital Service review

Shared pathways / standards across a specialty	Shared staff and assets across a specialty	Differentiated sites / hub and spoke for a specialty	Single site for a specialty
• Standardised care pathways and protocols across all teams who provide the service • Each team must adhere to minimum staffing requirements • Shared clinical data • Shared audit processes	• One clinical team shared between sites (joint rota) • Shared assets (e.g. theatres, cath labs, outpatient suites)	• Coordinated services across multiple sites with some sites providing care for high complexity/risk cases and other sites providing care for lower risk patients, with common protocols and rapid transfer arrangements between sites	• All resources for a single specialty pooled on a single site

Source: Manchester Single Hospital Service Review, Stage One Report, April 2016

65. A clinician-led assessment of the benefits from applying these service models to eight 'exemplar services' was carried out.[5] This assessment concluded that adopting one or more of the four single service models (set out above) would deliver benefits in each of the eight exemplar services. These benefits encompassed quality of care, patient experience,

[5] The eight exemplar services considered in the review were: Cardiac services (including Cardiac Surgery and Cardiology); Respiratory services; Maternity services (excluding Gynaecology); Secondary care paediatrics; Radiology, including interventional radiology; Infectious Diseases; Rheumatology; and Critical Care. More than one single service model was recommended for many of these services, with different models preferred for different aspects of a service. *Shared clinical protocols*: Respiratory Services (acute and chronic services), Rheumatology, Maternity Services, Critical Care, Secondary Paediatrics, Cardiac Services. *Shared staff and assets*: Radiology (for on call rotas and routine scanning), Rheumatology (shared staff, assets and patients. single virtual coordination centre), Maternity Services (shared staff and patients), Critical Care (shared staff), Secondary Paediatrics (shared staff and patients), Cardiac Services (shared clinical staff and shared patients). *Differentiated sites / Hub and spoke model*: Infectious Diseases, Radiology (Vascular Interventional Radiology, Complex Reporting) Respiratory Services (complex services), Maternity Services (transfer of patients across sites according to complexity and capacity), Critical Care (differentiation of case mix across sites, development of sub-specialisation), Secondary Paediatrics (potential to differentiate with fewer low complexity patients at CMFT), Cardiac Services (or single site model). *Single site*: Cardiac Services (or differentiated site model).

workforce, finance and operational efficiency, research and innovation, and education and training.[6]

66. The SHS review considered the organisational model that would be best suited to delivering the benefits from adopting single service models in the eight exemplar specialties as well as more generally. The models considered by the review included: establishing a single acute trust, a clinical network (or partnership) between acute trusts; a prime contractor model with one trust acting as the lead provider; a franchise; a joint venture; and a hospital chain.

67. The review concluded that a merger of CMFT, UHSM and NMGH to establish a single acute trust for Manchester would be the best way of delivering the benefits from adopting single service models. This conclusion was based on a finding that only a merged organisation could:

- deliver the supporting systems and structures (e.g. accountability for care, clarity of leadership, joint IT systems and common HR processes) necessary to deliver the single service models across multiple service areas;
- manage the complex interdependencies between clinical and non-clinical services that would be affected by the pursuit of large scale change across multiple service areas;
- deliver the planned service changes, to the benefit of patients, in the timeframes required and at a reasonable cost.[7]

68. The report states that:

> "Many of the organisational forms reviewed might be suitable for managing a small and limited number of single service models within the City. However, the Single Hospital Service model applies to all clinical service areas, back office functions, estates, education, research and innovation.
>
> "The interdependency between clinical and non-clinical services has to be managed as part of a whole system approach. It is therefore important that the organisational form is able to manage both the interdependency issues and also the scale of change required.
>
> "In addition, there is also a degree of urgency with which change is required. Any organisational form must support the benefits of a Single Hospital Service to be

[6] *Quality of Care*: reduce variations in the effectiveness of care; reduce variation in the safety of care; develop appropriately specialised clinicians and reduce variation in access to specialist care, equipment and technologies; *Patient experience*: patients have equal access to the same high quality care and their journey through the system will be coordinated rather than fragmented; *Workforce*: improved recruitment and retention of a high quality and appropriately skilled workforce; reduced reliance on bank and locum/agency staff; improved education, training and research opportunities which attract the best individuals to work in the City; *Finance and operational efficiency*: total gross savings in the region of 8-10% of costs in the eight specialties, and potential back office savings; *Research and innovation*: creation of a single research hub would allow a single point of entry to all clinical trials, combine research governance, strategy, finance and communications to enable common pathways, protocols and sponsorship, ensure research is linked across specialties, ensure new research and best practice guidelines are implemented consistently across the city; *Education and training*: optimised curriculum delivery, clinical exposure and reduced variability in student experience; widen student exposure to different clinical environments.

[7] The review states that "a range of enablers would be required in order to successfully implement a Single Hospital Service. These include clarity of leadership, accountability for care, joint IT systems and common HR processes … the organisational form most likely to support the enablers and to deliver the benefits of a Single Hospital Service would be the creation of a new NHS organisation that would take responsibility for the full range of services currently provided by CMFT, UHSM and by PAHT on the NMGH site" (Sir Jonathan Michael, *Manchester Single Hospital Service Review, Stage Two Report*, May 2016, p.30).

delivered at pace and should not add unnecessary layers of complexity, bureaucracy or cost into the system."[8]

69. In summary, the SHS review concluded that significant benefits could be achieved through better coordination of hospital services across Manchester, and that a merger between CMFT, UHSM (and NMGH) was the best way of achieving these benefits.

3.2.2 Organisational barriers to service improvement efforts

70. The second part of the rationale for a single acute trust in Manchester is to address organisational barriers to improving services. This section sets out the experience of how organisational interests have caused previous service improvement efforts to be delayed, compromised or abandoned. Before doing so, however, the reasons why the current configuration of acute trusts in Manchester has frustrated service improvement efforts are discussed.

71. The disappointing experience of past service improvement efforts in Manchester can be attributed to at least three reasons set out below. Not all are specific to Manchester, but – in combination – an environment has been created where Manchester's acute trusts, including CMFT and UHSM, have found it very difficult to agree to service improvement efforts that have involved significant service redesign or reconfiguration.

72. First, the financial impact of losing a service has meant that CMFT and UHSM have been reluctant to agree to service changes that adversely impact on their finances. Tighter NHS finances have increased the pressure to retain existing services and their revenue, rather than agree to services being centralised elsewhere. This has particularly been the case at UHSM, where financial pressures have been greater than at CMFT in recent years. (This is discussed further in Trusts' Phase 1 competition submission to the CMA.)

73. Second, the distribution of specialised services between acute trusts in Greater Manchester is much more diffuse than elsewhere. This can be seen in revenue terms, where CMFT, UHSM (and Salford Royal) each earn around 40% of their total patient related revenue from specialised services commissioned by NHS England.[9] The importance of specialised services to each of these three Trusts, in terms of both revenue and prestige, has made it much harder to gain their agreement to service changes that would diminish their importance as a provider of specialised services.

74. Finally, CMFT and UHSM have been reluctant to concede the loss of services as part of service improvement initiatives because of the longer-term impact this has on the Trust in at least two areas: (a) the Trust's ability to recruit high quality clinical staff interested and capable of continuing Trust's medical research and teaching efforts; and (b) the implications for the Trust's ability to provide other related specialised services once some services are lost.

75. In terms of the service improvement experience in Manchester, there have been at least 13 initiatives to improve services in Greater Manchester over the past 10 years that have

[8] ibid.
[9] In comparison, in Birmingham, University Hospitals Birmingham NHS Foundation Trust earns around 60% of its patient activity related revenue from specialised services, while the next two largest providers of NHS England specialised services Trusts in the region (Heart of England NHS Foundation Trust and The Royal Wolverhampton NHS Trust) earn around 20% of their patient activity related revenue from NHS England.

ended in delay, compromise or abandonment. Of these 13 initiatives, nine came to an end without achieving any significant change in service provision[10], two delivered service improvements but with significant delays in implementation[11], and two delivered new models of service provision but with significant compromises that resulted in lost opportunities to improve patient outcomes.[12] Details of these 13 initiatives are set out in Table 3.2 and Appendix 3.1.

76. Patients have received poorer health services in Manchester as a result of these failed service improvement initiatives. Cancer services in Greater Manchester continue to be non-compliant with NICE's Improving Outcomes Guidance. Similarly, vascular services are also not compliant with national service specifications.[13] This, along with delays in improvements in other services, means that patients in Manchester have received poorer health services than would have been the case if providers had been configured in a way that more readily allowed the implementation of necessary service improvements.

77. In summary, the experience of service improvement initiatives under the current configuration of providers in Manchester has been disappointing for some years. There are, however, underlying structural reasons for the organisational behaviours that have led to past efforts to improve acute services being delayed, compromised or abandoned. The CMFT/UHSM merger will remove these organisational barriers to service improvement.

Table 3.2: Service improvement and collaborative initiatives involving CMFT and UHSM

Service (commissioner)	Initiative timeframe	Existing service model	Planned service model	Outcome
1. Thoracic Surgery (Greater Manchester PCTs)	2006-09	Thoracic Surgery services at CMFT and UHSM.	Single Thoracic Surgery centre.	Neither CMFT nor UHSM was willing to lose this service. Compromise outcome where a subset of services (lung cancer surgery only) was transferred to UHSM.
2. Upper GI cancer surgery (Greater Manchester PCTs)	2009-12	Three providers across Greater Manchester (CMFT, UHSM, Salford Royal). Not compliant with NICE guidelines.	Services concentrated on one or two sites to deliver compliance with NICE guidelines.	CMFT initiated legal proceedings, and reconfiguration process was abandoned following external arbitration. No change to service model.
3. Trafford A&E services (Trafford CCG)	2011-12	Trafford had a full A&E service.	Downgrade of Trafford A&E service to an Urgent Care Centre.	UHSM raised objections with the local authority Overview & Scrutiny Committee, and sought to make it dependent on expanded A&E service at UHSM. New service model implemented following delay.

[10] These initiatives concerned Upper GI cancer surgery; Cardiac services; Trafford community services; Upper GI, urology and gynaecology cancer surgery; Gynaecology cancer; Urology cancer surgery; Vascular services; and General Surgery & Vascular Services (see Table 3.2).
[11] These initiatives concerned Trafford A&E services and Major Trauma (see Table 3.2).
[12] These initiatives concerned Lung cancer and Major Trauma (see Table 3.2).
[13] See Specialised Commissioning North West Hub Work Plan, Appendix 3 to letter to UHSM from NHS England North Regional Specialised Commissioning Team, 30 September 2016 at Appendix 3.x.

4. Pathology (Greater Manchester CCGs)	2011	All Trusts in Greater Manchester have full range of pathology services.	Rationalisation into a hub and spoke model to drive efficiencies in service provision.	Trusts rejected rationalisation plan. No change to service model.
5. Major Trauma (NHS England)	2011-15	No major trauma centre with CMFT, UHSM and Salford Royal all providing elements of major trauma care.	Single major trauma centre supported by major trauma units.	Commissioners decided to move to single centre based at Salford Royal. UHSM commissioned independent review recommending that UHSM be the centre. New service model implemented following delay.
6. Trafford Community services (Trafford PCT)	2012	Trafford community services contract put out to tender	CMFT and UHSM formed a consortium to bid for the contract	Bid rejected by commissioners due to concerns about lack of clarity over how joint contract management would work
7. Cardiac services (CCGs and NHS England)	2012 and 2013	Two cardiac centres in the Manchester city local authority area.	Joint venture between CMFT and UHSM that would deliver a single service spanning both sites	UHSM withdrew from planned JV just prior to public announcement in 2012. UHSM withdrew from agreed MoU in 2013. In both cases motivated by concerns about financial impact on Trust. No change to service model.
8. Upper GI, urology, gynaecology cancer surgery (NHS England)	2012-13	Upper GI at three providers (as above), urology at five providers (as below), and gynaecological cancer surgery at four providers (CMFT, UHSM, Salford Royal, The Christie). Not compliant with NICE guidelines.	Services concentrated on three sites to deliver compliance with NICE guidelines	Process was subject of a complaint to Monitor and stopped as a result. No change to service model.
9. Gynaecological cancer (NHS England)	2012-15	Gynaecological cancer surgery at four providers (CMFT, UHSM, Salford Royal, The Christie). Not compliant with NICE guidelines.	Services concentrated on one or two sites to deliver compliance with NICE guidelines.	One Trust (UHSM) continued to refer patients to The Christie instead of CMFT in line with the agreed service model.
10. General surgery (Greater Manchester CCGs)	2011-15	Full 24/7 A&E with surgical back up and high risk general surgery at multiple sites across Greater Manchester.	Consolidation of these services on to four sites across Greater Manchester, with less comprehensive services at other sites.	CMFT, Salford Royal, Pennine Acute and Stockport selected as four sites. UHSM clinicians unsuccessfully challenged decision by way of judicial review. Implementation now under way.
11. Urology cancer surgery (NHS England)	2014-15	Five providers across Greater Manchester (Salford, Stockport,	Services concentrated on one or two sites to	CMFT initiated legal proceedings, and process

		UHSM, CMFT, The Christie). Not compliant with NICE guidelines.	deliver compliance with NICE guidelines.	was abandoned. No change to service model.
12. Vascular services (NHS England)	2010-14	Three providers across Greater Manchester (CMFT, UHSM, Pennine Acute). Not compliant with national service specifications.	No model could be agreed between the three Trusts.	No change to service model
13. High risk general surgery and vascular services (Manchester CCGs)	2015	Services currently provided at both CMFT and UHSM.	Single shared service vascular arterial surgery centralised at CMFT, and non-arterial vascular surgery and interventional radiology centralised at UHSM.	Agreement reached on new model following external facilitation. UHSM withdrew shortly afterwards. No change to service model.

Source: CMFT and UHSM

3.3 Wider benefits expected from the merger

78. CMFT and UHSM expect that the merged Trust will lead to substantial benefits for patients, commissioners, staff and other stakeholders.

79. The Single Hospital Service review in setting out the strategic case for the merger identified these broader benefits. These include benefits in: quality of care; patient experience; workforce; finance and operational efficiency; research and innovation; and education and training. These broader benefits are reflected in the Business Case for the merger that is currently being drafted.[14]

80. The patient benefits in this submission are a subset of the broader benefits expected from this merger. Not all of these broader benefits, however, qualify as patient benefits that can be taken into account by the CMA in its assessment of the merger. This is for at least two reasons: (a) the evidential requirements for CMA regulatory processes are different to those required for business-oriented decision making by Trust Boards (and, more generally, by other enterprises considering a merger); and (b) the business case for a merger will rightly take into account those benefits arising from a merger that could also be achieved without a merger, but such benefits are not allowable for the purposes of a CMA merger review.

81. One example of these broader benefits is in the area of research and innovation. Both CMFT and UHSM are major teaching hospitals, but other cities with single Trusts (e.g. Leeds, Newcastle, Nottingham) are able to appear as more substantial research institutions. This has impacted on both Trusts ability to attract research funding, which has consequences for the Trusts' ability to recruit and national profile. A further example relates to the Trusts' ability to grow innovation campuses. Healthcare research and technology are critical components of Manchester's economic growth, but as individual

[14] The Business Case for the merger is due for submission to NHS Improvement at end-March and will be shared with the CMA at that time.

institutions it is more difficult to enter into commercial arrangements and attract commercial investment.

82. Wider benefits that are expected from the merger also arise from the merged Trust's role in the broader healthcare landscape for Manchester. The Locality Plan for Manchester, adopted by commissioners and the Manchester City Council describes its strategy as having three 'pillars':
    - first, a single commissioning system that combines the health and care commissioning responsibilities held by the three Manchester CCGs and Manchester City Council;[15]
    - second, establishing a Local Care Organisation to deliver community-based health and care services; and
    - finally, a 'Single Manchester Hospital Service' that delivers acute services to consistent standards and quality across the City.[16]

83. Together, these new arrangements are aimed at upgrading prevention, improving community-based care, standardising acute care pathways, and pooling commissioning budgets across health and social care in Manchester. Moreover, these arrangements are part of a broader strategy for Greater Manchester that is aimed at achieving improved health outcomes for the region.

84. The full benefits expected from the implementation of the strategy set out in the Locality Plan will also only be realised when the merged CMFT/UHSM acquires NMGH, as planned, in 12-18 months following this merger, and the merged Trust has the opportunity to integrate NMGH into its operations.

3.4 Transaction governance and process

85. Mergers between NHS acute trusts are subject to a rigorous oversight process to ensure that only those transactions that make sense from a clinical and financial perspective are allowed to proceed. The Boards of NHS trusts that are considering a merger have primary responsibility for assuring themselves as to the robustness of their processes, the quality of their reviews, and the case for the merger. In addition, NHS Improvement in its role as the regulator of NHS providers must be assured of this process and provide final approvals for any transaction.

86. The governance process for the CMFT/UHSM merger is being conducted in line with NHS Improvement's new transaction guidance. It has been agreed that the strategic case for the merger was made in the Single Hospital Service review, and the Trusts are proceeding to the development of a Business Case for the merger. This Business Case is due for submission to NHS Improvement by end March, and will be underpinned by appropriate Due Diligence reviews (covering finance, legal, workforce, estates, IM&T and clinical issues) and a well-developed plan for the integration of CMFT and UHSM. An overarching clinical framework for the merged Trust is also in development.

[15] A merger of the three Manchester CCGs is scheduled for 1 April 2017.
[16] The Locality Plan also sets out nine transformation programmes that cover: public health; cancer care; primary care; integrated community-based care; mental health services; learning disability services; the organisation and delivery of acute hospital services in Manchester; children and young people's services; and housing and assistive living technology.

87. The intention is for NHS Improvement's transaction approval process to be complete prior to the CMA's own review of the transaction. This will allow the transaction to move to completion once CMA clearance is secured.

88. Internally, at CMFT and UHSM, governance arrangements were put in place to manage the planned merger between CMFT, UHSM and North Manchester General Hospital in August and September 2016. A Single Hospital Service (SHS) Programme Management Office (PMO) was established. The SHS PMO has day to day responsibility for managing the planned transaction, including liaising with regulatory authorities and managing the inputs of external advisers.

89. The SHS PMO reports through a Programme Board to a Joint Sub-Committee of the three Boards (i.e. CMFT, UHSM and PAHT), and on to the Boards of the three Trusts. Membership of the Programme Board includes representatives of commissioners (i.e. North, Central and South Manchester CCGs, Trafford CCG and NHS England) along with the Greater Manchester Health and Social Care Partnership and NHS Improvement.

90. CMFT and UHSM have put in place a Memorandum of Understanding (MoU) to govern their behaviours during the process of preparing for the merger.[17] As the development of the business case for the merger proceeds, Heads of Terms for a transaction agreement will be agreed, which will replace the MoU in governing the relationship between CMFT and UHSM. Close to the completion of the transaction, a Transaction Agreement will be signed.

91. In addition to the involvement of the key partner organisations in the governance arrangements (as set out above), other key stakeholders that have been engaged regarding the transaction include Health Watch, Manchester's local voluntary and community support organisation (MACC), the Health and Wellbeing Boards in Manchester and Trafford, and the Health Scrutiny Committees at Manchester and Trafford local authorities. The Trusts have also briefed local councillors and MPs.

4. Patient benefits overview

92. The Trusts' confidence in their ability to deliver the benefits set out in this submission is underpinned by the robust process of clinical engagement that has led to their development. This section describes this clinical engagement process (Section 4.1), discusses the underlying drivers for the patient benefit cases (Section 4.2), and provides an overview of the benefits that the Trusts expect to be realised (Section 4.3).

4.1 Clinical engagement and the development of patient benefits

93. A strong process of clinical engagement has been the underlying theme of the work carried out by CMFT and UHSM in the lead up to the merger decision, and subsequently in the Trusts' merger planning process.

94. In the lead up to the merger decision, a Clinical Advisory Group was established and Clinical Working Groups were established to review service delivery models and advise on potential benefits as part of the Single Hospital Service review. In addition, clinicians from

[17] A copy of this MoU is at Appendix 3.x.

the full range of hospital services, outside of those selected for in-depth review, were encouraged to start discussions with colleagues from across Manchester to determine how patient outcomes could be improved through working collaboratively.

95. Following the decision to merge, groups of clinicians in each specialty were charged with further identifying and developing the service delivery models that the new Trust will adopt so as to improve services for patients. This process has led to the patient benefits cases that are set out in this submission.

96. It has also led to the development of various other proposals, which the merged Trust will (or may) adopt, but which are outside the scope of this patient benefits submission. (As set out above, the business case for the merger will be based on a wider variety of considerations and plans than those included in this patient benefits case.)

97. The Boards and executives of the two Trusts have retained oversight of the clinical engagement and benefits development process through the joint Clinical Advisory Group. The Clinical Advisory Group includes senior clinicians from both Trusts, including the Trusts' Medical Directors and Chief Nurses. The Clinical Advisory Group has reviewed the development of the patient benefits cases and, as needed, has provided leadership and direction to clinician working groups. The Clinical Advisory Group has reported to the Programme Board that is overseeing the transaction.

98. The process of clinical engagement has been critical to providing the executive teams and Boards of the two Trusts with the assurance that the benefits that have been identified will have the necessary degree of clinical support post-merger to ensure their delivery. (A lack of clinical support has been one of the factors in driving opposition to previous service improvement efforts at the two Trusts.)

99. Following the development of these clinician-led proposals for service improvements that will benefit patients, the Trusts have overlaid a process of operational, financial and workforce review to ensure that each proposal is deliverable. This process has also made sure that any interdependencies with other services have been identified and addressed so that the package of improvements is deliverable as a whole.

100. The service transformation teams at CMFT and UHSM, reporting to the Chief Operating Officer at each Trust, were tasked with the development of implementation plans, the finance teams have considered the cost and revenue implications of the proposals, and workforce teams have reviewed the rotas that will be necessary to underpin these plans. Divisional management at each Trust has also been closely involved, attending the clinician-led meetings and assisting with the development of implementation plans.

4.2 Common drivers for the patient benefits cases

101. Underlying the patient benefit cases in these nine areas are several common themes. In particular, developments in medical practice and the clinical workforce mean that the current configuration of providers for these specialties, which may have been appropriate in the past, is no longer suited to delivering the highest possible quality of services. Several of these underlying drivers for service consolidation to deliver improved services for patients are discussed further below.

102. *Sub-specialisation by consultants*: many consultants now specialise in a more limited range of procedures within a specialty, while other consultants in that same specialty no longer perform these procedures. (Previously, most or all consultants would have carried out all procedures.) The advantage of sub-specialisation is that individual consultants have greater expertise in those procedures in which they have specialised. However, the corollary of sub-specialisation is that individual hospitals may have fewer consultants available to carry out each procedure. This impacts on patients' ability to access services in a timely fashion. Aggregating consultants that sub-specialise in a particular area in a single centre concentrates their expertise in a way that allows patients to have ongoing, timely access to their services. Consultant sub-specialisation is an underlying driver of several patient benefits cases in this submission, including in *Cardiology* (for Heart Rhythm Abnormalities and Acute Aortic Surgery) and *General Surgery*.

103. *Workforce shortages*: national and/or local shortages in certain groups of clinicians can also act as a driver for service consolidation, in a similar way to sub-specialisation, to ensure that patients are able to access particular services in a timely fashion. Examples of workforce shortages in clinical support services include cardiac physiology and ITU staff, which mean that individual hospitals find it hard to maintain existing services, let alone deliver the increased service levels that are needed to offer comprehensive services on a 24/7 basis.

104. *Developments in medical treatment*: evidence-driven changes in medical treatment can change the pattern of demand for clinical services. For example, in *Cardiology*, percutaneous coronary intervention (PCI), also known as angioplasty, for example, was mainly given on a planned basis ten years ago, but now two-thirds of PCIs are delivered on an urgent or emergency basis. This shift, however, places a greater requirement on hospitals to provide this service on a 24/7 basis, and as a result, hospitals require sufficient staff (including consultants, nurses and technicians) to support out of hours rotas. A similar issue arises in *Stroke*, where new clinical guidelines state that all patients suspected of having suffered a mini-stroke should be reviewed and assessed within 24 hours (not just who were previously identified as high risk). Delivering services over extended hours, however, can require the aggregation of clinical inputs in larger centres to ensure that robust out of hours and weekend rotas can be established.

105. *Patient volumes and outcomes*: in several specialties there is an increasing clinical consensus, based on peer reviewed clinical studies, that patient outcomes are improved where clinical activity is concentrated in higher volume centres. This relationship between volumes and patient outcomes is an underlying driver of several patient benefits cases in this submission, including in *Vascular Surgery*, *Urology (cancer surgery)*, *Head and Neck Cancer Surgery* and *Orthopaedics*.

106. Other relevant drivers for service consolidation that are identified in the individual patient benefits cases in this submission include:
    - requirements to deliver seven day services to patients;
    - more efficient use of the capital equipment used to deliver clinical services; and
    - better access to services, and improved continuity of care, for patients.

107. Table 4.3 summarises the driver for change in each of the patient benefit cases in this submission, and the effect that this is having on the delivery of services under the current configuration of service providers.

Table 4.3: Drivers for improving services through consolidation

Service	Driver for change	Effect on services under current arrangements
Acute coronary syndrome	Changes in clinical practice (i.e. more rapid invasive management when patients present at hospital) to better treat patients with Acute Coronary Syndrome.	Greater requirement to treat Acute Coronary Syndrome patients out of hours and on weekends, but consultant availability insufficient to meet this demand.
Heart rhythm abnormalities	Greater specialisation of cardiology consultant workforce, including development of a sub-specialisation in cardiac rhythm management.	Better outcomes for patients treated by Cardiac Rhythm Management specialists, but fewer CRM specialist consultants available leading to gaps in service availability for patients.
Acute aortic surgery	Greater specialisation of cardiology consultant workforce, including development of a sub-specialisation in acute aortic surgery.	Acute aortic surgery now only carried out by consultants with the relevant sub-specialisation leading to gaps in service availability for patients.
Vascular surgery	Clinical evidence of positive relationship between surgical centre treatment volumes and patient outcomes. Commissioner service specifications that reflect this evidence.	Poorer patient outcomes than could be expected if services were consolidated.
Stroke	New guidance requires that all mini-stroke patients to be reviewed within 24 hours (compared with previous 7 day requirement for patients assessed as low risk). New guidance reflects clinical evidence that risk stratification of stroke patients under previous guidance was ineffective.	CMFT and UHSM unable to meet requirement for 24 hour reviews under existing resourcing of stroke services.
Urgent gynaecology surgery	Small patient volumes at each of CMFT and UHSM mean that theatre capacity cannot be dedicated to sufficient regular sessions for patients requiring urgent gynaecology surgery that ensure these patients are treated in a timely fashion.	Patients requiring urgent gynaecology surgery suffer treatment delays due to infrequent theatre sessions and/or crowding out of theatre time with patients requiring emergency treatment.
Community midwifery	Patients shift between different providers of antenatal, birthing and postnatal services.	Administrative and logistical complexity for patients and providers, resulting in continuity of care risks, poorer patient experience and increased costs for providers.
Urology inpatient services	Separate service provision by CMFT and UHSM result in patients accessing urology inpatient services at less convenient locations.	Patients and families required to travel further than necessary to access inpatient services.
Urology cancer	National service specifications require urology cancer services to each minimum population catchment area sizes to ensure sufficient patient volumes. Clinical assessment that these patient volumes are necessary to ensure high quality care and outcomes.	Non-compliance by CMFT and UHSM with national service specifications in relation to population catchment areas, and poorer patient outcomes than could be expected if minimum catchment area requirement was met.
Kidney stone removal	Insufficient patient volumes at each of CMFT and UHSM results in under-utilisation of capital equipment for treatment of kidney stones at UHSM, while CMFT purchases mobile on-site treatment services from third party with infrequent (fortnightly) visits.	Inefficient capital equipment utilisation at UHSM, and longer waits for treatment at CMFT.
Urology seven day services	Insufficient number of consultants at each of CMFT and UHSM to meet seven day service standards (without significant adverse effects on elective services).	Non-compliance with seven day service standards results in patients receiving a poorer quality service, including poorer

		health outcomes and longer lengths of stay.
General surgery	Consultant sub-specialisation has meant fewer doctors remain general surgeons and contribute to the on-call general surgical rotas.	Healthier Together review of general surgery found that services across Greater Manchester do not always have consultant staff present (as well as other challenges) leading to inconsistent quality of care and poorer patient outcomes.
Elective orthopaedics	Clinical evidence of positive relationship between surgical centre treatment volumes and patient outcomes. Emergency cases crowding out elective orthopaedics activity at UHSM.	Poorer outcomes than would be achieved by concentrating volumes. Longer waiting times for patients at UHSM.
Fractured neck of femur	Clinical evidence of positive relationship between surgical centre treatment volumes and patient outcomes.	Poorer outcomes than would be achieved by concentrating volumes.
Head and neck cancer surgery	Clinical evidence of positive relationship between surgical centre treatment volumes and patient outcomes.	Poorer patient outcomes than would be achieved if services were consolidated in a single centre.

4.3 Overview of patient benefits

108. For each patient benefit case, CMFT and UHSM have identified the different types of benefits that will accrue to patients and, where relevant, commissioners. These are summarised in Table 4.4. The Trusts have, to the greatest degree possible, sought to quantify these benefits. In particular, the number of patients that will benefit in each area has been identified.

109. It is not, however, straightforward to measure, on a comparable basis, the size of the benefit to patients that arises in each case. For example, in several benefit cases, patients will – on average – be able to access treatment sooner. This may reduce patient mortality, which – in principle – it may be possible to measure. The financial impact of shorter lengths of stay can also be measured (given the revenue that can be earned by hospitals through treating additional patients). But, there are other benefits arising from being able to access treatment more quickly that are much less easily measured, such as the reduction in the anxiety that patients, their family and friends, experience during the wait for treatment. The difficulty of measuring these benefits, however, does not mean that they should not be taken into account in the CMA's assessment.

110. CMFT and UHSM are keen to engage with the CMA case team during the review to assist further in discussing how these benefits should be identified and taken into account.

Table 4.4: Summary of patient benefits

Patient benefit case	Summary of changes to service delivery	No. of patients to benefit	Benefits to patients
Cardiology, Vascular and Stroke			
Acute Coronary Syndrome	7-day rota for ACS sub-specialism Centralisation of clinicians and patient flows in a dedicated ACS unit	c.4,000 per year	Shorter time to treatment Shorter length of stay Improved mortality outcomes

			Reduced waiting times for other patients
Heart Rhythm Abnormalities	7-day rota for Cardiac Rhythm Management sub-specialism Centralisation of clinicians and patient flows	c.430 per year	Reduced time to treatment Reduced length of stay Reduced risks from interim stabilisation measures or other complications
Acute Aortic Surgery	7-day rota for Acute Aortic Surgeons Centralisation of clinicians and patient flows	c.50-100 per year	Improved patient mortality
Vascular Surgery	Centralisation of clinicians and patient flows at Manchester Royal Infirmary	c.3,300 per year	Improved morbidity rates Reduced length of stay Reduced complication rates Reduced tissue loss and amputation for diabetic foot patients
Stroke	Introduction of weekend services for patients that suffer suspected mini-strokes so that all patients are assessed within 24 hours	c.900 per year	Reduced risk of subsequent larger stroke, and associated mortality and morbidity outcomes
Women's Health			
Urgent Gynaecology Surgery	More regular urgent gynaecology surgery lists that women across the merged Trust can access	c.400 per year	Reduced waits for urgent gynaecology surgery Reduced length of stay Reduced risk of escalation to emergency status
Community Midwifery	Improved information sharing, standardised governance arrangements	c.1,500 per year	Reduced risk of adverse outcomes
Urology			
Patient Access	Pooled patient lists that allows patients to access outpatient, diagnostic and surgery services at the site most convenient to them	c.6,000 per year	Choice of site for day case urology surgery
Urology Cancer Surgery	Centralisation of Urology Cancer Surgery services on to a single site	c.400-500 per year	Improved health outcomes
Kidney Stone Removal	Redirection of patients requiring lithotripsy services from Manchester Royal Infirmary to Wythenshawe Hospital	c.60 per year	Shorter time to treatment Lower costs
Seven Day Services	Combined urology consultant rota to deliver a seven day service	c.3,900 per year	Shorter time to treatment Shorter length of stay
General Surgery	Centralisation of emergency general surgery at Manchester Royal Infirmary	c.4,700 per year	Improved patient health outcomes, including mortality, length of stay, readmissions. £10 million of avoided capital investment.
Orthopaedics			
Elective Orthopaedics	Redirection of UHSM elective orthopaedic activity to dedicated unit at Trafford General Hospital	c.2,500 per year	Reduced cancellations Shorter length of stay Improved referral to treatment performance / reduced waiting times

Fractured Neck of Femur	Dedicated hip fracture unit offering seven day services	c.550 per year	Improved mortality outcomes Reduced time to treatment and length of stay Reduced complication rates
Head & Neck Cancer Surgery	Centralisation of Head & Neck Cancer and Maxillo-Facial Surgery activity, and adoption of a 7 day rota.	c.400 per year	Improved mortality outcomes Improved patient experience due to better coordinated care Shorter length of stay

5. Cardiology, vascular and stroke services

111. CMFT and UHSM offer cardiology, vascular and stroke services to patients locally, regionally across Greater Manchester and the North West, and nationally. Specialised services at the two Trusts include cardiac surgery and arterial surgery services. In addition, UHSM offers heart and lung transplant services (one of only five providers in the UK), left ventricular assist device services (i.e. artificial hearts), and extra-corporeal membrane oxygenation (ECMO) services.

112. In 2015-16, there was approximately 53,000 referrals for first outpatient appointments at the two Trusts for cardiology, vascular and stroke services (see Table 5.1). The Trusts carried out more than 5,000 day case procedures, and admitted more than 11,000 patients (comprising approximately 6,800 emergency (i.e. non-elective) admissions and 4,400 elective admissions).

113. The five patient benefit initiatives set out in this section involve:

- centralisation on to a single site of Acute Coronary Syndrome, Cardiac Rhythm Management and Acute Aortic Surgery services so as to concentrate scarce resources and ensure 7 day access to care by an appropriate consultant;
- establishment of a single arterial surgical centre for vascular surgery services at Manchester Royal Infirmary (part of CMFT's main site on Oxford Road) that brings together skills and resources currently spread across both Trusts; and
- the establishment of a 7 day rota for stroke services, ensuring that all patients suspected of having suffered a mini-stroke are seen by a consultant within 24 hours.

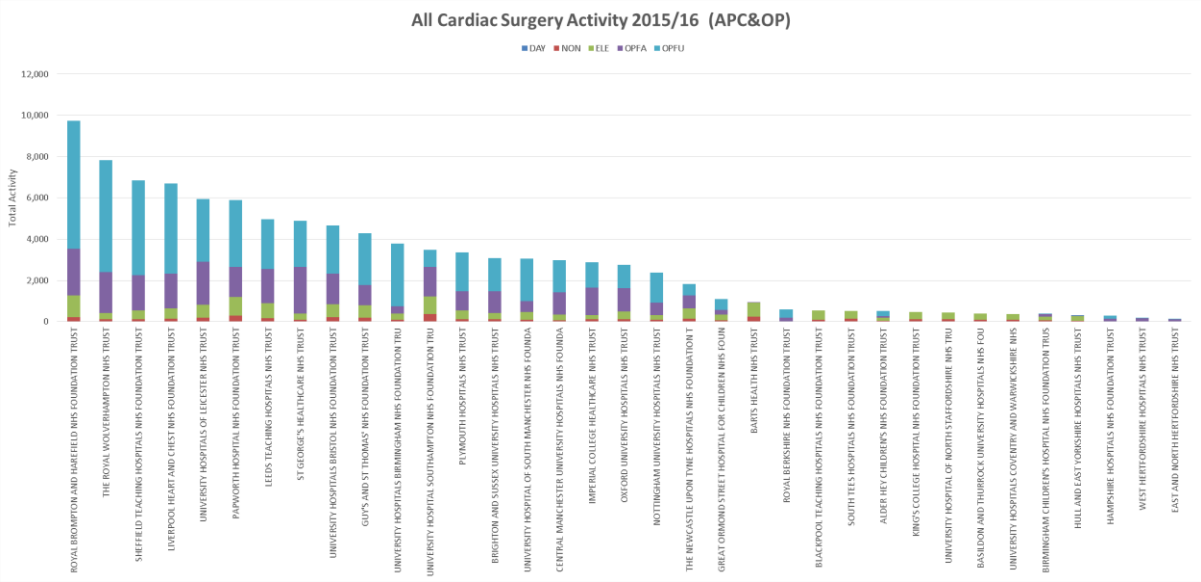
114. As set out above, three of the five patient benefit initiatives described in this section concern centralisation of cardiac surgery services. The cardiac surgery units at CMFT and UHSM are each of insufficient scale to deliver the best possible care to patients given the developments in clinical practice and consultant sub-specialisation that are set out in this section.

115. The lack of scale at the two units is illustrated in Figure 5.1, which shows that the cardiac surgery units at CMFT and UHSM are both mid-sized in comparison to other cardiac surgery units in England. Cardiac surgery units in Liverpool (Liverpool Heart and Chest NHS Foundation Trust), Leeds (Leeds Teaching Hospitals NHS Trust), Leicester (University Hospitals of Leicester NHS Trust) and Bristol (University Hospitals Bristol NHS Foundation Trust), for example, all see significantly more cardiac surgery patients each year than either CMFT or UHSM.

116. The cardiac surgery units at CMFT and UHSM are also unusual in being so closely located to each other (i.e. 6 miles apart). Other than London, the only other urban conurbation in England to also have two cardiac surgery units is Greater Birmingham / West Midlands, where University Hospitals of Birmingham NHS Foundation Trust and The Royal Wolverhampton NHS Trust, which are approximately 17 miles apart, both have cardiac surgery units.

117. Vascular surgery and stroke services have similar drivers for service consolidation as those in cardiac surgery. In both cases, consultant sub-specialisation and/or changes in clinical practice mean that neither CMFT nor UHSM has the scale necessary to deliver the best possible service for patients.

Figure 5.1: Cardiac surgery activity, NHS acute trusts in England, 2015-16



Source: HES data for 2015-16

Table 5.1: Cardiology, vascular and stroke services, CMFT and UHSM, 2015-16

	First outpatient appointments		Day case admissions		Elective admissions		Non-elective admissions	
	CMFT	**UHSM**	**CMFT**	**UHSM**	**CMFT**	**UHSM**	**CMFT**	**UHSM**
Cardiac services	22,761	19,710	1,514	2,396	1,483	1,892	2,595	3,163
Vascular surgery	6,058	3,089	821	461	429	576	349	652
Stroke services	711	455	1	0	2	0	275	869
Total	29,530	23,254	2,335	2,857	1,912	2,468	2,989	3,815

Source: HES data for 2015-16
Note:
Cardiac services includes the following TFCs: Cardiology, Cardiac Surgery, Cardiothoracic Surgery, and Cardiothoracic Transplantation;
Stroke services includes the following TFCs: Transient Ischaemic Attack and Stroke Medicine, and also procedure codes within General Medicine that indicate treatment of a Stroke or Transient Ischaemic Attack.

118. There is an important wider public health context for the patient benefit initiatives set out in this section. Cardiovascular disease is one of the largest causes of early death and disability in the UK, while Manchester has the highest rate of early deaths from heart

disease and stroke in England.[18] The Trusts believe that the service improvements set out in this section will make a significant contribution to improving these outcomes although they cannot, by themselves, address all of the issues underlying Manchester's poor health outcomes in this area. Nevertheless, in addition to the specific benefits detailed in this section, CMFT and UHSM believe that the merged Trust will provide a platform for the clinical training, research and leadership that will improve broader health outcomes in the city.

119. The remainder of this section discusses the five individual patient benefit initiatives planned by CMFT and UHSM in cardiology, vascular and stroke services. This includes the number of patients that can be expected to benefit, how the new arrangements are enabled by the merger, and the plans for transitioning from current to future clinical service models. It covers:
    - acute coronary syndrome (Section 5.1);
    - cardiac rhythm management (Section 5.2);
    - acute aortic surgery (Section 5.3);
    - vascular surgery (Section 5.4); and
    - stroke (Section 5.5).

5.1 Acute coronary syndrome

120. Following the merger, services for patients suffering acute coronary syndrome (ACS), that is, a heart attack, will be improved through centralising services at a single site. This will allow the merged Trust to combine the resources currently utilised separately at CMFT and UHSM to deliver a robust 7 day service. Initially, centralisation of these services will be managed through directing patients to a single site on alternate nights and weekends, with consolidation at a single site within one to two years of the merger's completion.

121. Around 4,000 patients each year will benefit from this centralisation of services, including through shorter waits for treatment, a shorter length of stay in hospital, and improved mortality outcomes. Further, by significantly reducing average length of stay for heart attack patients, extra capacity will be available to treat other patients more quickly.

5.1.1 Background

122. Acute Coronary Syndrome has two main forms. First, ST elevation myocardial infarction (STEMI), which is the most acute form of heart attack, where the artery is blocked and emergency treatment is required. Second, non ST elevation myocardial infarction (NSTEMI), where the artery may be narrowed but is not blocked, and more time is available for clinicians to treat the patient safely. In both cases, there is a sudden reduction of blood flow to the heart, usually caused by the rupture of an atherosclerotic plaque within the wall of a coronary artery, that may cause the formation of a blood clot.

[18] In Manchester, the rate of early deaths from heart disease and stroke is the highest in England, and nearly twice the England average (Public Health England, *Manchester Unitary Authority: Health Profile 2015*, June 2015, p.4 at Appendix 5.0a). More generally, Cardiovascular disease is one of the largest causes of early death and disability in the UK. The National Cardiovascular Disease Outcomes Strategy shows that while improvements in prevention and treatment over the last decade have led to a reduction in cardiovascular disease mortality, more needs to be done to bring the UK into line with outcomes achieved internationally, and to speed up the adoption of new technologies for the benefit of patients. (Department of Health, *Cardiovascular Disease Outcomes Strategy: Improving outcomes for people with or at risk of cardiovascular disease*, March 2013 at Appendix 5.0b).

123. The treatment of ACS patients (i.e. both STEMI and NSTEMI patients) has changed significantly over the past 10 years. The emphasis is now on promptly treating all patients that present with cardiac chest pain with invasive management techniques, such as percutaneous coronary intervention (PCI), also known as coronary angioplasty. This means that only around a third of coronary angioplasties are now performed electively on stable patients in normal working hours, with the greater proportion performed outside normal working hours.

124. This change in the way patients are treated has had significant consequences for the way in which cardiac units provide services. Service and provider configurations that were appropriate when most activity was in normal working hours need to adjust so that robust out of hours and weekend services can be provided.

125. Consultant sub-specialisation in cardiac surgery has also developed significantly over the past 15 to 20 years. Previously, consultants would have trained to carry out both ACS and other cardiac surgery procedures, such as those related to cardiac rhythm management and acute aortic surgery. Now, however, consultants only train in one of these sub-disciplines, which affects the number of consultants able to carry out particular procedures compared with previously, when more consultants would carry out a wider range of procedures.

126. The combination of changed clinical practice, which necessitates greater out of hours service provision, and consultant sub-specialisation, which has reduced the number of consultants that a Trust might have available to carry out a particular procedure has important consequences for the most efficient way in which these services should be organised.

5.1.2 Current service arrangements

127. Patients in Greater Manchester that have a suspected heart attack are collected by ambulance or present at A&E at one of the twelve hospitals in the region. These patients will first be tested, by way of an ECG, to distinguish between STEMI and NSTEMI heart attack patients.

128. In normal working hours, STEMI patients will immediately receive a coronary angioplasty at either CMFT, UHSM, Bolton NHS Foundation Trust (Bolton) and Wrightington, Wigan & Leigh NHS Foundation Trust (WWL). The hospital to which patients are transferred will depend on the patient's location, the availability of consultants at these hospitals to treat the patient, and the degree of complexity associated with the patient. In general, more complex patients will be directed to CMFT or UHSM. The cardiac surgery units at these two Trusts mean that there is a greater ability to treat more complex patients.

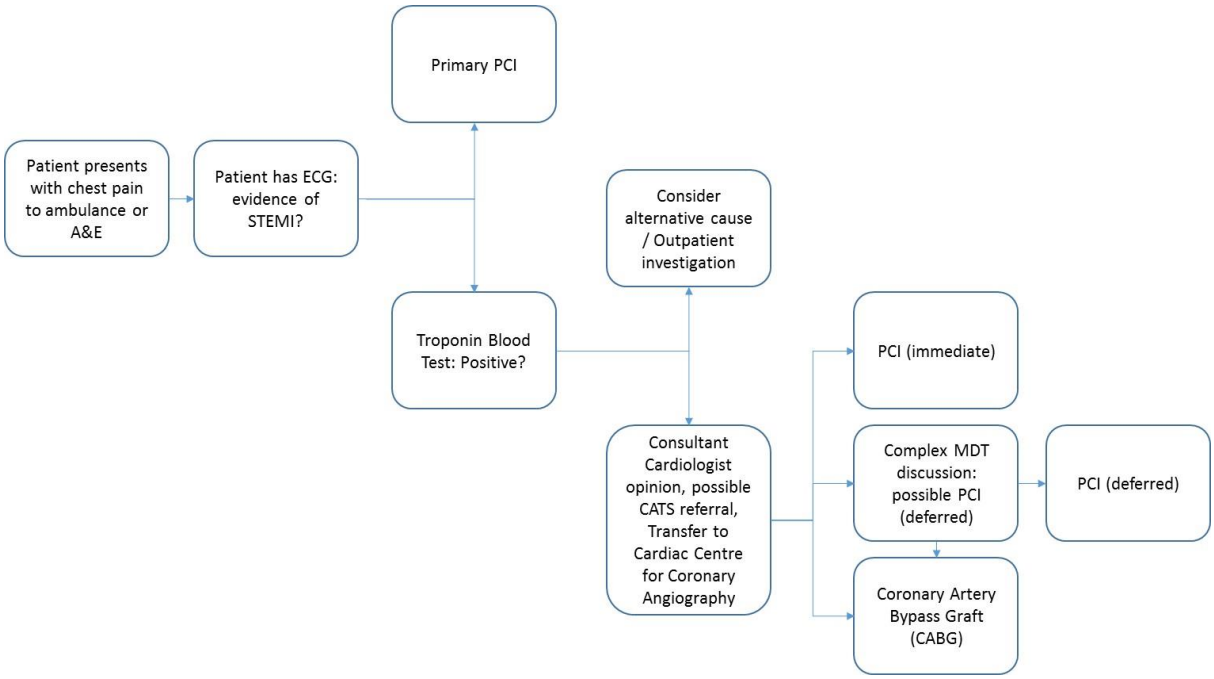
129. Outside normal working hours, STEMI patients will be transferred to either CMFT or UHSM. These two Trusts provide the out of hours service for STEMI patients in Greater Manchester on alternate nights and weekends. This collaborate, Greater Manchester-wide arrangement for the direction of STEMI patients to CMFT or UHSM on alternate nights and weekends was put in place in 2010, and followed a major national push to improve services for heart attack patients.

130. The pathway for NSTEMI patients is different to that for STEMI patients. NSTEMI patients are identified through a positive Troponin blood test and will initially be admitted to their

local hospital. Following a cardiologist opinion at their local hospital, these patients may be transferred to CMFT, UHSM, Bolton or WWL for coronary angiography. This may involve a coronary angioplasty, either immediately or after further assessment, or cardiac surgery, such as coronary artery bypass grafting (CABG). Where cardiac surgery is required, this can only take place at CMFT or UHSM.

131. In 2015, there were 4,039 NSTEMI referrals to CMFT and UHSM from across Greater Manchester, including 703 patients whose initial admission was to CMFT or UHSM.

Figure 5.2: Clinical pathway for patients with chest pain and acute coronary syndrome



132. Under the current arrangements, as described above, NSTEMI patients go through three separate stages in the lead up to diagnosis and treatment:
    - first, admission and assessment at their local hospital by a cardiologist followed by referral to CMFT or UHSM (or Bolton or WWL) for an angiogram;
    - second, a transfer to CMFT, UHSM, Bolton or WWL; and
    - finally, waiting for diagnosis and treatment once at CMFT, UHSM, Bolton or WWL.

133. NSTEMI patients that were referred to CMFT or UHSM waited an average of 2.2 days to 3.4 days in 2016 at their local hospital before being referred (see Table 5.2). Once admitted to CMFT or UHSM, these patients waited a further 2.7 to 4.0 days (depending on the day of admission) before diagnosis and treatment (see Figure 5.3).

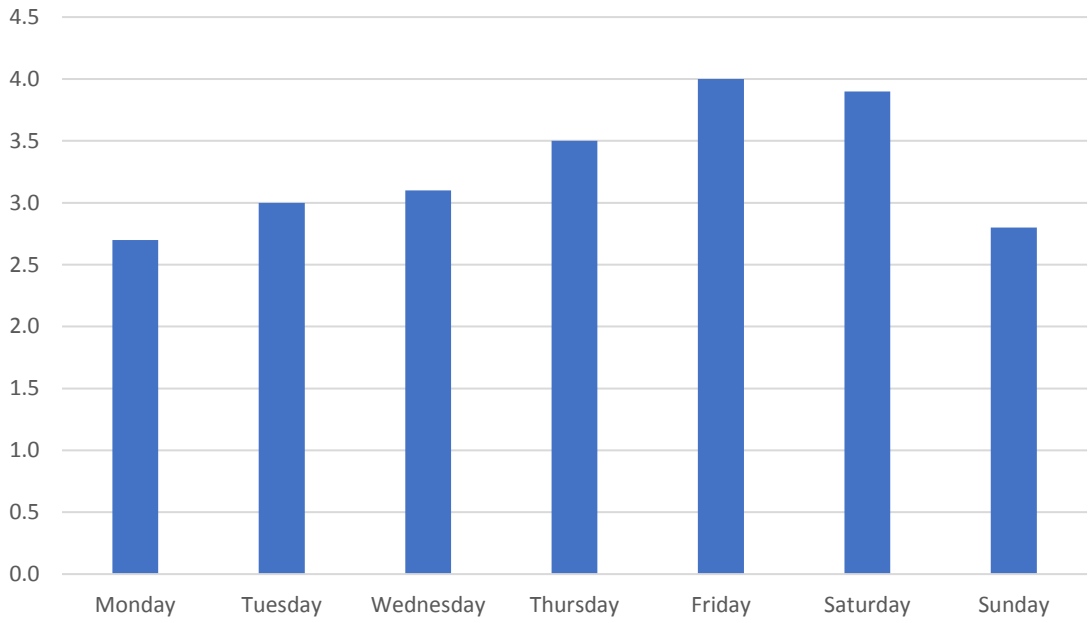
134. In total, depending on the hospital to which the patient was initially admitted and the day of admission, NSTEMI patients waited an average of 4.9 days to 7.4 days from admission to angiography (putting to one side the time taken for transfers between hospitals). Even those patients that initially present at CMFT or UHSM wait an average of 4.1 to 5.8 days from admission to angiogram.

Table 5.2: Admission to referral, average days, 2016

	Admission to referral (days)
Stockport	3.1
Salford	2.4
Bolton	2.2
Fairfield	2.7
East Cheshire	2.3
Mid Cheshire	n.a.
NMGH	3.4
Oldham	2.8
Tameside	3.1
WWL	2.2
Total	2.5

Source: CATS data

Figure 5.3: Average wait from referral to angiography, CMFT and UHSM (days)



Source: CATS data

135. Current waiting times for NSTEMI patients are a considerable improvement compared with 10-15 years ago. Clinicians at the two Trusts believe that it was common for NSTEMI patients at that time to wait up to three weeks between admission and angiogram. Significant improvements were made with: (i) the introduction of the Cardiac Acute Transfer System (CATS), through which patients are referred between hospitals in Greater Manchester;[19] and (ii) the 'treat and return' system, whereby NSTEMI patients are treated

[19] An electronic referral system for cardiac patients was developed around 10 years ago under the guidance of the Greater Manchester and Cheshire Cardiac Network. This system called CATS (Cardiac Acute Transfer System) is now the sole mode of referral for patients with acute coronary syndromes in all of the Greater Manchester hospitals, and provides valuable data.

at CMFT or UHSM and then returned to their local hospital, thus freeing up capacity at CMFT and UHSM.

136. Notwithstanding these improvements, there are still several factors present in the current arrangements that adversely impact on the length of time that NSTEMI patients wait before treatment and their overall length of stay in hospital. These include:

- *Availability of consultant opinion:* the availability of consultants at their local hospital, and at CMFT and UHSM, will influence the speed with which patients who have been admitted to their local hospital are referred to CMFT or UHSM. For patients admitted to CMFT and UHSM, including those transferred from other hospitals, the speed of their diagnosis and treatment decisions will be affected by consultant availability. This is most constrained out of hours and on weekends.

- *Lack of weekend lists for the treatment of NSTEMI patients*: the lack of weekend lists for urgent, but not emergency, NSTEMI patients at CMFT and UHSM means that there is an impact on the amount of time these patients wait for treatment depending on the day of presentation.

- *Demand exceeding capacity*: CMFT and UHSM work independently when arranging transfers of NSTEMI patients, without coordinating the balance of elective, urgent and emergency cases. As a result, demand for angiography or surgical beds can periodically exceed capacity at either Trust (even when the other Trust has spare capacity) resulting in patients waiting longer between referral and procedure that would otherwise be the case.

- *Delays in MDT decision-making*: cardiothoracic MDT meetings for patients where the optimal treatment is unclear occur once per week on each site. Patients can wait several days for an appropriately convened MDT to make the decision about whether bypass surgery, stents or tablets would be best.

137. There are currently six consultants at CMFT who perform coronary angiography and stent procedures for ACS patients, and a further five consultants at UHSM. These consultants are part of the general cardiology rota at CMFT and UHSM, meaning that consultants with an ACS specialism are not consistently available outside of normal working hours at either Trust. Hence, the issue with the availability of consultant opinion and the lack of weekend lists highlighted above.

5.1.3 Planned service arrangements and patient benefits

138. CMFT and UHSM consider that significantly improved outcomes for NSTEMI patients could be achieved through reducing the length of time these patients wait for treatment, and believe that their merger will allow new arrangements that reduce this waiting period to be implemented.

139. These new arrangements will encompass the following elements:

- *Seven day rota for ACS consultants*: the merged Trust will establish an ACS subspecialty rota that will allow consultants at the merged Trust to provide comprehensive out of hours cover 7 days per week.

- *Seven day diagnostic services*: by combining consultant and cath lab teams, including cardiac physiologists, the merged Trust will be able to carry out angiograms seven days per week. (Diagnostic services are currently provided on 9am-5pm on weekdays at each Trust.) Further, the merged Trust would also be able to provide Cardiac CT services on a 7 day basis, by pooling the limited number of suitably trained cardiologists and radiographers with expertise in Cardiac CT at CMFT and UHSM.

- *Improved patient pathways*: with a greater focus on ACS, and an improved service offering, the merged Trust would be able to work with other local hospitals to establish standardised pathways across Greater Manchester and reduce variation in referral rates and timeliness of referrals.

- *Daily MDT meetings*: the larger consultant team at the merged Trust would hold daily cardiothoracic MDT meetings.

- *Dedicated ACS unit*: the combination of ACS clinicians and patients at the merged Trust will allow it to establish a dedicated ACS unit for the care of patients.

140. As a transitional measure prior to centralising ACS services on a single site in a dedicated ACS unit, the Trusts envisage an arrangement whereby NSTEMI patients would be directed to each site (i.e. Manchester Royal Infirmary and Wythenshawe Hospital) on alternate days and weekends (as currently happens with STEMI services). This would allow seven day services to be delivered across the two sites in line with the planned care model. Implementation plans are discussed further in Section 5.1.5.

141. The new arrangements set out above will address many of those factors set out in Section 5.1.2 that adversely impact on the length of time that NSTEMI patients wait before treatment and their overall length of stay in hospital. In particular:

- A 7 day rota for ACS consultants will allow NSTEMI patients to be admitted more quickly to the merged Trust from local hospitals as there will be a consultant available on weekends to carry out an initial assessment of these patients.

- Seven day diagnostic services will ensure that patients can be assessed, and thus treated, more promptly.

- Weekend lists for NSTEMI patients will reduce waiting times for patients, particularly those that are referred to the merged Trust on, or just before, the weekend.

- Daily MDT meetings will reduce waiting times for patients with complex requirements, such as those that may need complex stent or bypass procedures.

- Improved patient pathways and an improved ACS service offering will encourage local hospitals to refer NSTEMI patients more quickly to the merged Trust.

- The concentration of ACS patients and specialist ACS staff will reduce delays to discharge following treatment and also allow direct discharges to home rather than the current practice of the patient returning to their base hospital prior to discharge.

- A single ACS service at the merged Trust will remove the coordination issues that currently result in demand periodically exceeding capacity at each Trust (even when

the other Trust has spare capacity), and thus remove this cause of delay from referral to procedure.

142. The combination of these measures will reduce the length of time that NSTEMI patients wait for treatment, and their overall length of stay in hospital, in two ways. First, the additional waiting period experienced by those patients that are admitted on, or just before, the weekend will be eliminated. As can be seen from Figure 5.3, patients admitted to CMFT and UHSM on Thursdays generally wait half a day longer for treatment, while those patients admitted on Fridays and Saturdays generally wait one day longer, than those patients admitted on Sunday to Wednesday. This means that three sevenths of NSTEMI patients (given that the incidence of heart attacks can be expected to be distributed evenly across the week), that is around 1,700 patients per year (out of a total of around 4,000 patients per year), will benefit from the elimination of this weekend effect.

143. Second, average waiting times for treatment and overall length of stay should be reduced for all patients, not just those admitted on, or just before, the weekend. Initiatives such as daily MDT meetings, improved patient pathways, elimination of coordination issues and the concentration of ACS expertise will positively impact on all patients regardless of the day of the week on which they are admitted.

144. CMFT and UHSM believe that the new model for NSTEMI patients will reduce the wait from referral to procedure from an average of 3.3 days to one day, and the wait from post-procedure to discharge from an average of 1.6 days to one day.[20] This would reduce the total average length of stay for NSTEMI patients from the current 7.4 days to 4.5 days. Further, CMFT and UHSM believe that the merged Trust will be able to reduce the average time from admission to referral from the current 2.5 days, including through greater availability of consultants at the merged Trust to liaise with local hospitals, increased outreach and standardised referral pathways. Clinicians at CMFT and UHSM also believe that when colleagues in other local hospitals in Greater Manchester find out that a rapid 24-hour service is being provided, they will make arrangements for more rapid review and referral.

Table 5.3: Length of stay for patients in Greater Manchester referred through CATS to CMFT and UHSM (average days)

	Current
Admission to referral	2.5
Referral to procedure	3.3
Post procedure	1.6
Total	7.4

Source: CATS data

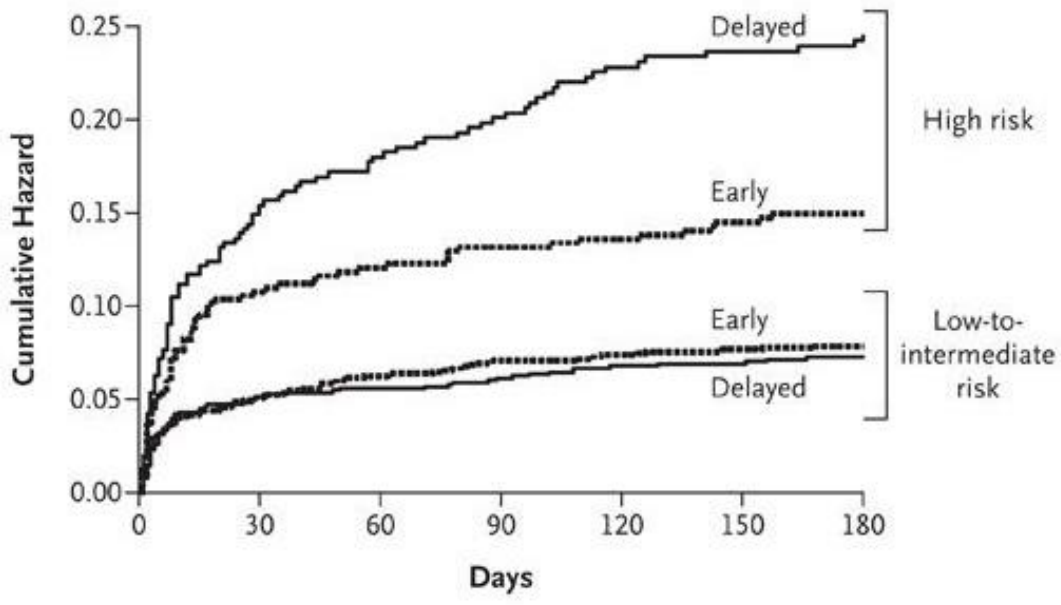
145. Outcomes for NSTEMI patients deteriorate with the length of time that these patients wait for treatment. As a result, reducing the time to treatment for NSTEMI patients, and their overall length of stay, will significantly improve outcomes for these patients.

[20] The Trusts do not believe that a requirement for out of hospital support is a factor in discharge waits for ACS patients. This is because a minority of ACS patients require social services input. Patients who are deemed suitable for coronary angiography are younger and have fewer comorbidities that the average patient admitted to an acute medical unit. So for the majority of patients the delays in the pathway are in the acute sector.

146. The NICE quality standard for ACS services states that NSTEMI patients with an intermediate or high risk of future adverse cardiovascular events should receive coronary angiography (with follow-on coronary angioplasty, where needed) within 72 hours of admission to hospital. Those patients that are clinically unstable should have coronary angiography (with follow-on coronary angioplasty, where needed) within 24 hours of becoming clinically unstable.[21] At present, clinicians at UHSM and CMFT are not meeting the NICE standard. A recent audit (conducted over the period October 2015 to September 2016) indicates the median patient wait between admission and referral was four days or greater across every month of the audit.

147. Notwithstanding the NICE quality standard, delays in treating NSTEMI patients – even within the 72 hour period identified by NICE – increase the risk of poor outcomes. For example, a study has shown that for high risk patients (i.e. those patients with a risk score of more than 140 on the Global Registry of Acute Coronary Events (GRACE) scale) enjoyed significantly improved outcomes (in terms of death, subsequent heart attack or stroke) when early intervention (at an average of 14 hours) took place compared with those patients where delayed intervention (at an average of 50 hours) took place – see Figure 5.4. For low to intermediate risk patients, early intervention was also shown to improve outcomes, albeit to a lesser extent, and on a slightly different patient outcome measure (not shown in Figure 5.4), which was a composite of death, subsequent heart attack and refractory ischaemia.[22] It is notable that this study defined 'early' and 'delayed' intervention as average time periods that are both less than the 72 hour period identified in the NICE quality standard.

Figure 5.4: Patient outcomes from early versus delayed intervention in NSTEMI patients



Source: Mehta SR et al (2009) at Appendix 5.1b.

[21] NICE, *Acute coronary syndrome in adults, Quality Standard*, 2014 at Appendix 5.1a.
[22] Mehta SR et al (2009) 'Early versus Delayed Intervention in Acute Coronary Syndromes', *N Engl J Med*, 360:2165-2175 at Appendix 5.1b.

148. In summary, patient health outcomes – including patient mortality, subsequent heart attack, stroke and refractory ischaemia – can be expected to improve as a result of these new arrangements, which will reduce the time to treatment for patients from an average of 5.8 days to 3.5 days. However, the literature does not allow the size of this effect to be estimated.[23]

149. Another aspect of the link between reduced waiting times and improved outcomes is the impact that extended waiting times for treatment has on patient anxiety. The anxiety experienced by patients, and their relatives, in waiting for diagnosis and treatment is clearly considered unpleasant in itself by patients as attested by the numerous articles and patient discussion groups on this issue. The longer the wait, the greater the level of anxiety, the more unpleasant the experience.[24] Further, increased anxiety is linked with poorer outcomes from cardiac surgery, including increased lengths of stay in hospital for patients.[25]

150. By reducing the wait before treatment, patients will benefit from reduced levels of anxiety (an intrinsic benefit in itself) as well as from the positive effect this has on health outcomes. A reduction in waiting time from 5.8 days to 3.5 days represents a 40% reduction in waiting time, which, in the opinion of clinicians at CMFT and UHSM, is likely to have significant benefits to patients.

151. A shortening of the length of stay for ACS patients under new arrangements can also be expected to have other positive effects, such as reducing the probability of acquiring a health care associated infection (although this is already a low probability outcome at CMFT and UHSM)[26] or suffering an accidental fall in hospital (also a low probability outcome at the Trusts).[27] Although the probability of an infection or fall are low for patients, the impact on an individual are serious and will result in an extended recovery period in hospital.[28]

152. There are two further positive effects arising from the reduced length of stay for NSTEMI patients. First, there is a direct financial effect for the merged Trust as a reduced length of stay means lower treatment costs per patient. There is also an indirect financial benefit as a shorter length of stay potentially allows the Trust to earn additional revenue from admitting other patients more quickly (see Section 5.1.5 for a further discussion of financial impacts). These financial savings will allow higher quality care to be delivered to patients

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[23] In clinical studies the only comparisons were no treatment versus tablet treatment and no angiogram, so it is difficult to say what the delays mean in terms of heart attacks and deaths that could be avoided.

[24] Much of the readily available discussion about the unpleasantness for patients having to wait for diagnosis and treatment is in the context of cancer. However, there is no reason to believe that the experience of waiting for diagnosis and treatment in relation to heart problems is any less unpleasant. See, for example, https://well.blogs.nytimes.com/2012/07/23/the-anxiety-of-waiting-for-test-results/?_r=0, http://www.nomorepanic.co.uk/showthread.php?t=113528, http://www.healingwell.com/community/default.aspx?f=9&m=3705139, and https://www.cancerforums.net/threads/12937-waiting-for-hysteroscopy-amp-anxious. Also, see Larson PD (2015), *Lubkin's Chronic Illness: Impact and Intervention*, Jones and Bartlett p.135 at Appendix 5.1b(i).

[25] See, for example, McCormick KM, McClement S, and Naimark BJ, 'A qualitative analysis of the experience of uncertainty while awaiting coronary artery bypass surgery' *Can J Cardiovasc Nurs*, 2005;15(1):10-22 at Appendix 5.1b(ii); Gabossa A et al, 'Effects of physiotherapeutic instructions on anxiety of CABG patients' *Brazilian Journal of Cardiovascular Surgery*, 2009;24(3) at Appendix 5.1b(iii); and Kidd T et al 'Attachment anxiety predicts IL-6 and length of hospital stay in coronary artery bypass graft surgery (CABG) patients' *J Psychosom Res*, 2014 Aug;77(2):155-157 at Appendix 5.1b(iv).

[26] See, for example, Atkinson JG, *The relationship between length of stay and the probability of incurring a hospital complication: a two-way interaction*, Foundation for Health and Policy, December 2014 at Appendix 5.1b(vii).

[27] Cardiac disease has been identified as a risk factor associated with patient falls. See National Patient Safety Agency (2007), *Slips, trips and falls in hospital*, London, p.22 at Appendix 5.1b(v).

[28] Length of stay for a patient is increased and consequential burden on patients and families is increased, see Journal of Evaluation in Clinical Practice, *Falls in hospital increase length of stay regardless of degree of harm*, Dunne et all, p396 at Appendix 5.b(vi).

through allowing the merged Trust to invest this money in improved service delivery. The shorter length of stay for NSTEMI patients would result in an annual saving of 17,600 bed days.[29] The financial benefit arising from this reduced length of stay would be approximately £3.5 million per annum.[30]

153. Second, reduced lengths of stay will mean quicker admission and treatment for other patients given the capacity freed up by a reduced length of stay for NSTEMI patients. This is a significant benefit as it creates a 'ripple' effect not only for those patients that are immediately admitted following a quicker discharge of an NSTEMI patient, but also for admissions of subsequent patients that follow as well. Additional capacity of 17,600 bed days would allow an additional 5,900 patient admissions each year, assuming an average length of stay of 3 days for each of these patients.

154. NSTEMI patients are typically admitted to beds in the acute medical units, which are the general point of admission for patients from A&E, thus reducing length of stay has the potential to reduce pressure in A&E through increasing bed availability.

5.1.4 Merger dependence

155. Achieving a 7 day service for NSTEMI patients, that concentrates the treatment of these patients in a single location, could not be achieved by the two Trusts without a merger of this service.

156. There are currently six consultants at CMFT and five consultants at UHSM who perform coronary angiography and stent procedures for ACS patients. In theory, it might be possible CMFT or UHSM to develop separately a 7 day ACS service through recruiting additional consultants, cardiac physiologists and specialist care nurses. However, this would be both expensive, and further, neither Trust would have the additional patient volumes that would justify such an initiative. Moreover, the national shortage of cardiac physiologists means that it is unlikely that additional cardio physiologists would be able to be recruited.

157. The two Trusts might, in principle, be able to enter into a partnership in relation to their NSTEMI services without merging their entire organisations. However, the experience of recent years, indicates that such an outcome is unlikely. The establishment of cooperative arrangements for the treatment of STEMI patients in 2006, made under the auspices of the former Greater Manchester Cardiac Network (which had commissioning responsibilities in relation to cardiac services), involved protracted negotiations between CMFT and UHSM before it could be brought to a successful conclusion.

158. Since then, CMFT and UHSM have twice sought, unsuccessfully, to put in place cardiology joint ventures in 2012 and 2013. This indicates that a cooperative agreement, such as that underpinning the treatment of STEMI patients, is an unlikely outcome. This experience is further discussed in Section 3 and Appendix 3.1.

[29] The estimated saving of 11,600 bed days is based on ,000 patients saving an average of 2.9 days on their length of stay.
[30] This is calculated as 11,600 bed days at £306 per day. Excess bed days have an NHS reference cost in 2015-16 of £306 per day beyond an HRG's upper trim point. Although excess bed days are available at a more granular level we have used this average costing as bed days released may be used for any other range of services within the hospital.

5.1.5 Implementation constraints and plans

159. The Trusts in assessing the deliverability of this benefit have considered a number of potential constraints to implementation and how these might be addressed. These potential constraints are as follows:

- *Financial impact*: The reduction in length of stay offers the potential to reduce bed capacity across the new Trust's sites. The effect for ACS patients would be equivalent to about 23 beds. In combination with the length of stay effects seen for patients with Heart Rhythm abnormalities (see section 5.2), this would give the potential to take a ward out of use. Taking account of the effects of fixed and semi-fixed costs, this might achieve a net saving of around £1m. Alternatively, the capacity could be reutilised to provide care for another group of patients (either within Cardiac services, or in another specialty). Depending on tariff and costs, a greater or lesser financial benefit could be realised.

- *Theatre and bed capacity*: the new service model, initially, will involve the redirection of out of hours and weekend NSTEMI patients to either Manchester Royal Infirmary or Wythenshawe Hospital (on alternating nights and weekends) as well as the operation of weekend lists for urgent surgery. The cardiac team are currently reviewing the proposed new model and are calculating the impact on theatre scheduling and bed capacity. It is envisaged that the reduction in length of stay on both sites (created by both the benefits identified in the Benefits Case and the wider merger benefits) will create the bed capacity required to deliver the new model, though the ability to flex in times of higher demand is crucial to the maintenance of an effective emergency service.

- *Requirements for commissioner approval and public consultation*: the planned centralisation of these services in one to two years' time may require a process of public consultation. However, the immediate step of redirecting the flow of NSTEMI patients out of hours and on weekends at the two Trusts is unlikely to do so. In any event, it is consistent with previous efforts to improve these services in Manchester (as set out in Section 5.1.4).

- *Workforce and rota impacts*: the three cardiac patient benefits cases involve bringing together the cardiac departments at the two Trusts and establishing rotas for ACS, cardiac rhythm management and acute aortic surgery in place of the existing general cardiology rota. Work has commenced on the detail of these arrangements.

- *Clinician support*: this patient benefits case has been developed by cardiology consultants from both CMFT and UHSM. It reflects their own aspirations and plans for the development of cardiac services following the merger. As such, there is a high degree of clinician support for the changes that will deliver these patient benefits.

160. Further details of the implementation planning for this patient benefit are at Appendix 5.1c.

5.2 Cardiac rhythm management

161. CMFT and UHSM, as cardiac centres, provide specialist services in the implantation and maintenance of cardiac pacemakers for patients in Greater Manchester with heart arrhythmias. There are insufficient consultants with Cardiac Rhythm Management (CRM)

expertise, however, at either CMFT or UHSM to offer comprehensive out of hours and weekend cover for these services. This can lead to delays in patient treatment, and sub-optimal management of patients, including those that have been admitted to other hospitals in Greater Manchester where local clinicians have been unable to immediately access expert opinion from a relevant specialist at CMFT or UHSM.

162. Following the CMFT/UHSM merger, the merged Trust will deliver a significantly improved service for patients. This will include a robust out of hours, seven day service, and the centralisation of services on a single site. Around 430 patients each year will benefit from reduced time to treatment and reduced length of stay, reduced risks arising from stabilisation measures that may be used in local hospitals prior to treatment, and reduced risk of complications.

5.2.1 Background

163. Arrhythmias or cardiac (heart) rhythm problems are experienced by more than two million people a year in the UK according to NHS Choices.[31] The main types of arrhythmia are:
    - atrial fibrillation – where the heart beats irregularly and faster than normal (the most common arrhythmia);
    - supraventricular tachycardia – episodes of abnormally fast heart rate at rest;
    - bradycardia – where the heart beats more slowly than normal;
    - heart block – where the heart beats more slowly than normal and can cause people to collapse; and
    - ventricular fibrillation – a rare, rapid and disorganised rhythm of heartbeats that rapidly leads to loss of consciousness and sudden death if not treated immediately.

164. Most people with an abnormal heart rhythm can lead a normal life if it is properly diagnosed. However, when the heart's ability to work is greatly reduced for a prolonged time, a life-threatening situation can arise. For example, with ventricular tachycardia and ventricular fibrillation, the lower chambers of the heart quiver and the heart cannot pump blood, causing cardiac arrest. Tachycardias also can cause serious injury to other organs. For example, the brain, kidneys, lungs or liver may be damaged during prolonged cardiac arrest.

165. With atrial filibration, blood clots can form in the heart's upper chambers because of the heart is not beating effectively. Blood that is not pumped completely out of the atria when the heart beats may pool and clot. If a piece of a blood clot in the atria breaks free, it can enter into the circulation, and flow within the bloodstream until it lodges in a narrowed artery leading to or within the brain, causing a stroke. Such clots can also damage other organs.[32]

166. Arrhythmias can affect all age groups, but atrial fibrillation is more common in older people. Atrial fibrillation is a common cause of stroke. Having atrial fibrillation means the risk of stroke is five times higher than for someone whose heart rhythm is normal.

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[31] See http://www.nhs.uk/conditions/arrhythmia/Pages/arrhythmia.aspx

[32] Further information on heart arrhythmia is available at, for example, http://www.heart.org/HEARTORG/Conditions/Arrhythmia/WhyArrhythmiaMatters/Why-Arrhythmia-Matters_UCM_002023_Article.jsp#.WKsihRuLRhE.

167. Patients with heart rhythm problems may require the implantation of a pacemaker (also known as Cardiac Implantable Electronic Device, CIED) to improve both morbidity and mortality.[33] Patients may have devices implanted on a planned or emergency basis. Some patients will have an implantable cardiac defibrillator (ICD), a type of CIED, to protect against life-threatening heart rhythm disturbances.[34] When an ICD detects an abnormal fast heart rhythm it will deliver an electrical shock to restore normal rhythm.

168. Patients that experience a shock from their ICD typically experience significant discomfort and anxiety, and will usually present to their local emergency department and be admitted for specialist assessment and treatment. This assessment will identify whether the patient's ICD has delivered a shock inappropriately due to misinterpretation of the heart rhythm or other technical malfunction.

169. Consultant sub-specialisation, as set out in Section 5.1.1 in relation to acute coronary syndrome, also affects cardiac rhythm management. Consultants now train specifically to work in this area, which affects the number of consultants available to carry procedures in this sub-specialty compared with a situation in which all cardiac consultants work across all sub-specialties. This specialisation in cardiac rhythm management is also the case for other clinicians working in this field, including cardiac physiologists and nurses.[35]

5.2.2 Current service arrangements

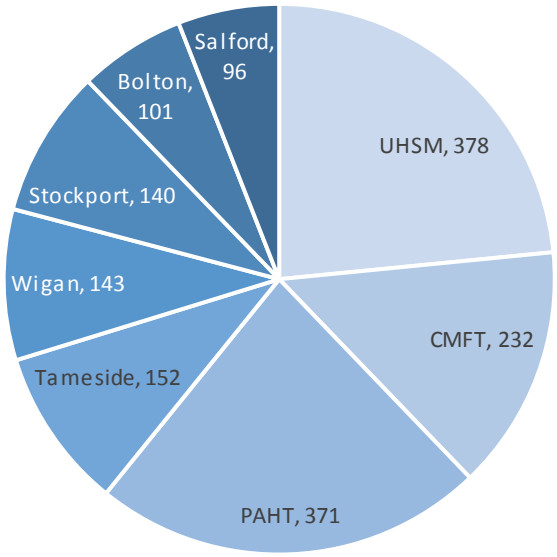
170. CMFT and UHSM, as well as other acute trusts in Greater Manchester, treat patients suffering from heart rhythm abnormalities. Around 1,600 CIEDs are implanted each year across Greater Manchester, with CMFT and UHSM accounting for around 40% of the total (i.e. around 600 implants per year across both Trusts) – see Figure 5.4.

171. CMFT and UHSM, as cardiac centres, both offer services for patients with heart rhythm abnormalities that are not available at other acute trusts in Greater Manchester. This includes:
    - *Catheter ablation* – a procedure used to destroy the affected area inside the heart that is causing an abnormal heart rhythm. The majority of catheter ablations are performed as scheduled elective work, but some heart rhythm abnormalities (e.g. ventricular tachycardia) require treatment on a non-elective basis.
    - *Device extraction* – most device extraction work is performed non-electively. This is a high risk group of patients with significant morbidity and mortality who require treatment in a specialised environment.
    - *Emergency and out of hours device implantation* – cover for out of hours services, however, is highly variable.
    - *Expertise at troubleshooting complex devices* – patients who require complex device troubleshooting in an emergency are usually transferred to CMFT or UHSM due to out of hours access to expertise.
    - *Leadless pacing* – this is provided by CMFT, and will be available at UHSM later this year.

[33] Brignole M, Auricchio A, Baron-Esquivias G, Bordachar P, Boriani G, Breithardt O-A, et al, 'European Society of Cardiology Guidelines on cardiac pacing and cardiac resynchronization therapy: the Task Force on cardiac pacing and resynchronization therapy of the European Society of Cardiology (ESC) developed in collaboration with the European Heart Rhythm Association (EHRA)' *European Heart Journal*, Aug 2013, 34(29):2281–329 at Appendix 5.2a.
[34] These consist of a metallic implant which usually is sited on the upper left chest and this is connected to the heart via electrodes travelling through the major veins.
[35] British Heart Rhythm Society, *Standards for Implantation and Follow-Up of Cardiac Rhythm Management Devices in Adults*, 2015 at Appendix 5.2b.

- *Subcutaneous ICD implantation* – this is a novel technology for implanting a defibrillator.

Figure 5.4: New device implants, NHS acute trusts in Greater Manchester, 2014-15



Source: NICOR

172. There are currently five consultant cardiologists with a CRM specialism at CMFT and eight at UHSM. These consultants participate in the general cardiology rota at each Trust, which means that there is no guarantee of a CRM specialist being available out of hours or on weekends. For example, in 2015, there was a CRM specialist consistently available at UHSM throughout the week (i.e. including out of hours and on the weekend) for only slightly more than one third of all weeks.[36] The level of coverage would be even less at CMFT given that it has fewer CRM specialists.

173. In addition, there are 50 whole time equivalent cardiac physiologists at CMFT, and a further 58 at UHSM. Cardiac physiologists carry out cardiac tests, such as echocardiograms, Holter monitors (24-hour ECG), blood pressure measurement, and tilt-table tests. They may also work in the catheter lab assisting with angiogram and angioplasty procedures and pacemaker/ICD implantation.

174. Of the 600 implants each year at CMFT and UHSM, around one third (i.e. 200 per year) are on an non-elective basis.[37] In addition, there are around 450 instances each year of a patient's ICD device being analysed in A&E or on a ward on an urgent or emergency basis.[38] This implies a significant demand for out of hours and weekend services. Approximately two thirds of the hours during a week are outside normal working hours, and assuming an even distribution of patients requiring urgent or emergency attention, then two thirds of this demand will occur out of hours or on weekends.

[36] Figures are drawn from the most recent internal clinician audit of this activity at UHSM.
[37] At UHSM, 34.2% of pacemaker implants in 2014-15 were non elective.
[38] These figures are based on a cohort of 1,126 patients at UHSM who between November 2015 and November 2016 were under long-term follow-up with a defibrillator device in situ. On 230 occasions an ICD device was analysed in A&E or on the ward as an inpatient on an urgent/emergency basis. CMFT has a similar number of patients to UHSM.

175. The lack of 24/7 access to CRM specialists and electrophysiologists results in delays for patients that present to CMFT or UHSM or other hospitals in Greater Manchester who require access to a CRM specialist from CMFT or UHSM for either an initial insertion of a pacemaker or to address issues with an existing device.

176. Patients requiring pacemaker implants who are admitted on weekends wait 1.3 days longer than those admitted during the week (i.e. an average of 4.5 days compared with 3.2 days). This additional time prior to treatment can cause considerable discomfort for patients, and anxiety for both patients and their families. A longer wait prior to treatment can also result in longer recovery times. It is also inconsistent with clinical service standards issued by the British Heart Rhythm Society. These state that:

> "Patients presenting to the ambulance service with arrhythmia emergencies, specifically complete heart block, should be directed to a hospital where such patients can be safely and appropriately managed … Such hospitals must have the facilities and staff to insert temporary pacing wires on a 24/7 basis and to offer permanent pacemaker implantation within 24 hours, if indicated."[39]

> "There must be a 24 hour service available to deal with patients admitted with multiple shock delivery, non-delivery of appropriate therapy or other device related issues. This should consist of an appropriately trained cardiac physiologist … and an appropriately trained cardiologist, either on site or with clearly defined, documented and agreed protocols with other implanting centres to provide emergency on-site treatment."[40]

177. In addition to the longer waiting times that patients experience as a result of being unable to gain ready access to the services of a consultant with CRM expertise, these patients may end up having (or not having) temporary pacing wires inserted as a means of stabilising the patient prior to receiving a pacemaker on an urgent inpatient basis at CMFT or UHSM.

178. Temporary pacing wires are, however, associated with significant risk of morbidity and mortality including cardiac tamponade, vascular damage and most importantly, infection which can seed from the temporary pacing wire to the permanent CIED.[41] In some studies, complication rates are as high as one in four, and these increase when the procedure is performed by an inexperienced operator.[42] Temporary pacing wire insertion triples the likelihood of a subsequent device infection following implantation of the permanent CIED.[43]

179. The risks of temporary pacing wires mean that in some cases these will be inserted when ideally the patient would be managed without the pacing wire, and in other cases, decisions are taken not to insert a pacing wire when this would have ideally occurred. The

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[39] Position Statement, British Heart Rhythm Society, *Out of Hours Management of Bradyarrhythmia Emergencies*, January 2016 at Appendix 5.2c.
[40] Clinical Service Standard, British Heart Rhythm Society, *Clinical Guidance for the Follow Up of CIED for CRM*, January 2015 at Appendix 5.2d.
[41] Mahapatra S, Bybee KA, Bunch TJ, Espinosa RE, Sinak LJ, McGoon MD, et al. Incidence and predictors of cardiac perforation after permanent pacemaker placement. *Heart Rhythm*. 2005 Sep;2(9):907–11 at Appendix 5.2e and McCann P. A review of temporary cardiac pacing wires. *Indian Pacing and Electrophysiology Journal*. Elsevier; 2007;7(1):40–9 at Appendix 5.2e.
[42] McCann P. 'A review of temporary cardiac pacing wires' *Indian Pacing and Electrophysiology Journal*, Elsevier; 2007; 7(1):40–9 at Appendix 5.2f.
[43] Klug D, Balde M, Pavin D, Hidden-Lucet F, Clementy J, Sadoul N, et al. Risk Factors Related to Infections of Implanted Pacemakers and Cardioverter-Defibrillators. Circulation. American Heart Association Journals; 2007 Sep 18;116(12):1349–55 at Appendix 5.2g.

lack of 24/7 availability of CRM specialists at CMFT and UHSM means that these consultants are not on hand to discuss the best way of managing patients with clinicians at local hospitals.

Typical patient journey

180. Mrs JA is 80 years old and normally fit and well. She is self-caring and independent. She takes treatment for high blood pressure and high cholesterol levels. For one day she has been feeling very dizzy and her family called an ambulance after she blacked out whilst going shopping. The paramedics found that she had complete heart block with a slow heart rate. They took her to the local District Hospital on a Friday afternoon.[44]

181. There, the team in Accident and Emergency saw her and the decision was made to admit her to a medical ward. The general medical team of junior doctors monitored her heart rate. Although it was recognized she was unwell, she was deemed to be stable. Consultant input was not obtained. The following day, she was seen by the Consultant on call for General Medicine. He asked for the Consultant Cardiologist to review the patient during their next ward round. The patient was reviewed by the Consultant Cardiologist (who is not a CRM specialist) on the Sunday who noted that Mrs JA had deteriorated and they made the decision to implant a temporary pacing wire until she could receive a permanent pacemaker. This procedure was uncomplicated.

182. On the Monday afternoon, the ward team contacted the local tertiary centre and made plans to bring Mrs JA there on the Wednesday. There was no earlier provision in the local hospital for a pacemaker to implanted there.

183. On the Wednesday, she was transferred to the tertiary centre and received the pacemaker under the supervision of a CRM specialist. This was uncomplicated. She was then transferred back to the local hospital to recover. Three days later, she was judged fit enough to be discharged home.

184. From this it can be seen that:
    - in her local hospital, there was a delay to see a Consultant Cardiologist of 2 days from her admission. Cardiologists are the gatekeepers to specialist cardiology treatment;
    - the first Consultant Cardiologist was not a CRM specialist;
    - a temporary pacing wire was inserted in her district hospital and was *in situ* for 4 days – fortunately there was no complication from this;
    - from her meeting the first Consultant Cardiologist, it took a further 4 days for her to meet a CRM specialist in the tertiary centre;
    - after her pacemaker implant, she needed 3 days to recover; and
    - if she had received a pacemaker within 24 hours of admission, it is likely that her recovery time would have been reduced, with a significantly lower risk of complications (without a temporary wire).

5.2.3 Planned service arrangements and patient benefits

185. The merged CMFT and UHSM plan to establish a single centre for the treatment of patients with heart rhythm abnormalities. By combining resources, it will be possible to

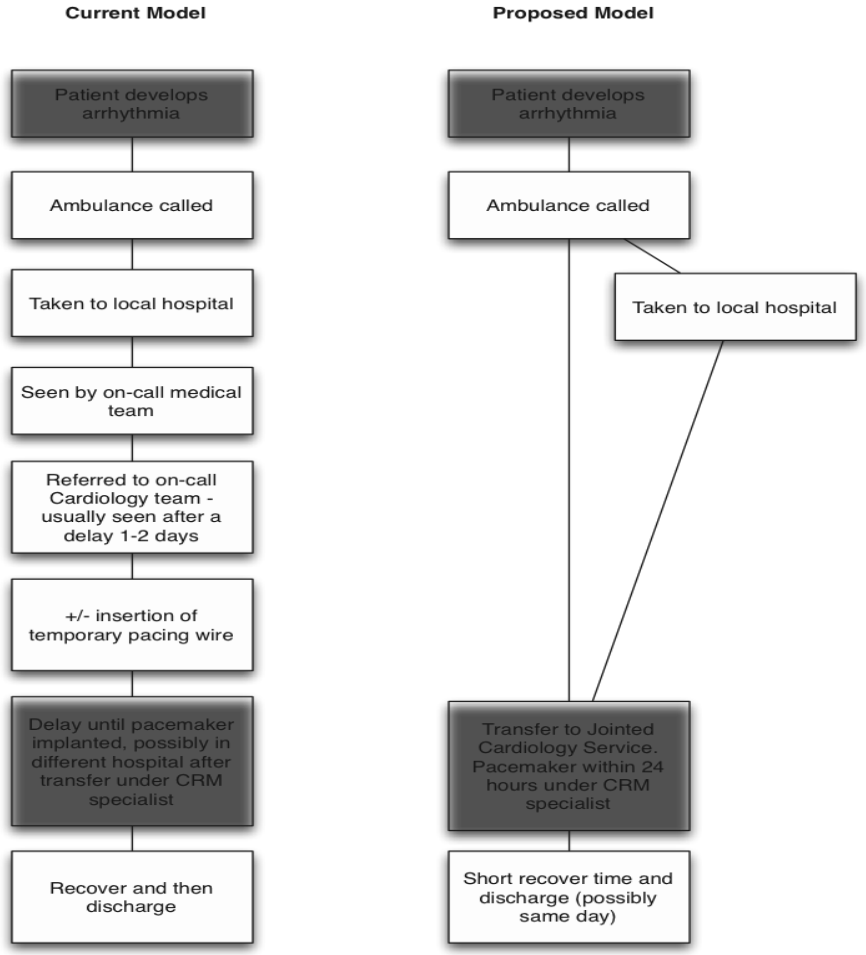
[44] This is an actual patient journey with personal details anonymised. CMFT and UHSM consider this to be a typical patient experience.

establish a 24/7 service. A CRM specialist consultant on-call rota (1 in 13) would be created, with a similar rota for specialist cardiac physiologists who can interrogate and programme CIEDs. This centre would not only benefit the patients who currently present to CMFT or UHSM with heart rhythm problems, but patients within the entire Greater Manchester area and its environs who require urgent heart rhythm management services.

186. Waiting times for pacemaker implantation and to address problems with existing devices would be reduced. All patients would be able to receive a definitive treatment within 24 hours, in line with British Heart Rhythm Society standards, and the need for temporary pacing wire with its associated risks would be obviated through direct ambulance transfer to the pacing centre, without need for admission to local hospitals.

187. Under the proposed system the patient journey described earlier would be compressed from six days to one day with no insert of a temporary pacing wire. Under the new arrangements:
    - patient attends A&E with blackout and slow pulse on Friday afternoon;
    - A&E doctor calls on-call CRM consultant who arranges an immediate transfer to cardiac centre (without temporary pacing wire as patient is stable);
    - patient is assessed as requiring a pacemaker and undergoes the implant procedure at 6pm; and
    - patient recovers well and is discharged home on Saturday morning.

Figure 5.5: Current and Proposed Model



188. The patients that would benefit from these new arrangements would include:

- Patients that have implants on a non-elective basis, who can only be treated at the merged Trust, and who present out of hours or on the weekend. These patients will now have immediate access to a CRM specialist given the 24/7 rota. Assuming an even distribution of patients in normal hours and out of hours, this would benefit around 135 patients per year (i.e. two thirds of the 200 patients per year).

- Patients that require their ICD device analysed on an urgent or emergency basis, and who present out of hours or on the weekend. These patients will also have immediate access to a CRM specialist given the 24/7 rota. Assuming an even distribution of patients in normal hours and out of hours, this would benefit around 300 patients per year (i.e. two thirds of 400 patients per year).

189. For these patients, the benefits of the new arrangements will include reduced time to treatment and reduced length of stay, reduced risks arising from stabilisation measures that may be used in local hospitals prior to treatment, and reduced risk of complications.

5.2.4 Merger dependence

190. Achieving a 7 day service for CRM patients, that concentrates the treatment of these patients in a single location, could not be achieved by the two Trusts without a merger of this service.

191. There are currently five consultants at CMFT and eight consultants at UHSM who are CRM specialists. In theory, it might be possible CMFT or UHSM to develop separately a 7 day CRM service through recruiting additional consultants, cardiac physiologists and specialist care nurses. However, this would be both expensive, and further, neither Trust would have the additional patient volumes that would justify such an initiative.

192. The two Trusts might, in principle, be able to enter into a partnership in relation to their CRM services without merging their entire organisations. However, the experience of recent years, indicates that such an outcome is unlikely. CMFT and UHSM have twice sought, unsuccessfully, to put in place cardiology joint ventures indicates that such an outcome is unlikely. This experience is further discussed in Section 3 and Appendix 3.1.

5.2.5 Implementation constraints and plans

193. The Trusts in assessing the deliverability of this benefit have considered a number of potential constraints to implementation and how these might be addressed. These potential constraints are as follows:

- *Financial impact*: The benefits associated with the planned changes to management of heart rhythm abnormalities include a reduction in length of stay, but the number of patients is not great enough for this benefit alone to facilitate a material reduction in bed capacity. The reduction in length of stay for heart rhythm patients would, however, contribute to the potential closure of a ward of Cardiology inpatients beds indicated in respect of the ACS benefit (see section 5.1).

- *Site selection*: the cardiac team are currently reviewing the proposed new model and are calculating the impact on theatre scheduling and bed capacity. This will feed into

a decision by the merged Trust in relation to the site on which these services will be provided.

- *Requirements for commissioner approval and public consultation*: the planned centralisation of these services may require a process of commissioner approval and public consultation. However, it is consistent with previous efforts to improve these services in Manchester (as set out in Section 5.1.4).

- *Workforce and rota impacts*: the three cardiac patient benefits cases involve bringing together the cardiac departments at the two Trusts and establishing rotas for ACS, cardiac rhythm management and acute aortic surgery in place of the existing general cardiology rota. Work has commenced on the detail of these arrangements.

- *Clinician support*: this patient benefits case has been developed by cardiology consultants from both CMFT and UHSM. It reflects their own aspirations and plans for the development of cardiac services following the merger. As such, there is a high degree of clinician support for the changes that will deliver these patient benefits.

194. Further details of the implementation planning for this patient benefit are at Appendix 5.2h.

5.3 Acute aortic surgery

195. The merged Trust will centralise services for patients requiring acute aortic surgery, and establish a dedicated rota that will provide 24/7 coverage for patients requiring this treatment. This will bring together surgeons at both Trusts with a specialist interest in aortic surgery so that the Trust can offer a single service for aortic surgery patients for both elective and emergency services.

196. Patients across Greater Manchester, requiring emergency surgery out of hours or on weekends, will benefit from this new service model as a result of there always being an appropriate surgeon available. This will include patients who are currently being transferred to other centres for treatment (e.g. Liverpool, Blackpool and Stoke), and where delays to surgery can have a significant impact on patient mortality outcomes, and a further cohort of patients who may not be receiving any treatment under current service arrangements.

197. The precise number of patients that will benefit from these new arrangements will depend on the extent to which the merged Trust is able to work with other acute trusts in Greater Manchester to improve diagnoses and referral rates for treatment. However, it is likely to be in the range of 50 to 100 patients per year. While this is a small absolute number of patients, the mortality impact per patient can be expected to be high.

5.3.1 Background

198. Aortic surgery is required for a range of aortic diseases, including connective tissue disease, hypertensive vascular disease and infective aortopathies. These acquired conditions relate to problems with the aorta as it leaves the heart and traverses the chest. These problems generally relate to enlargement of this vessel with the potential for rupture (or dissection) as the vessel enlarges.[45] Cardiac surgery teams provide inpatient and

[45] See NHS England, Service Specification – Adult Cardiac Surgery at Appendix 5.3a.

outpatient services for aortic disease using a range of diagnostic tools including computed tomography (CT), magnetic resonance imaging (MRI), echocardiography and diagnostic angiography.

199. Elective patients with aortic diseases will often undergo a long period of pre-operative assessment and monitoring before any decision to carry out surgery. The criteria for operating on the aorta, in an elective setting, depends on size and symptoms.

200. In a non-elective, or emergency, setting, surgery is carried out at high risk. Further, any delays to treatment can be significant and life threatening. One of the most critical forms of non-elective aortic surgery is dissection of the aorta, an acute event where a tear in the lining of the aorta occurs. Type A aortic dissection[46] is the most serious cardiac emergency with a particularly high case fatality[47] despite well-established treatment guidelines.[48] Other non-elective surgical procedures that are undertaken by consultants specialising in this area includes: Intramural Haematoma; Complicated Type B Dissection; and Thoracoabdominal Emergencies.

201. Mortality and morbidity from Type A aortic dissection is in the range of 10-30% despite improvements in its treatment. The International Registry of Acute Dissection (IRAD) has published outcomes from multiple centres worldwide, with an average mortality of 25.1%.[49] Registries in the UK and Germany have published operative mortalities of 23.1% and 17% respectively.[50] A recent publication from the Mount Sinai Medical Centre, using the Nationwide Inpatient Sample database of 24,777 patients in the United States between 1998 and 2008, showed an average operative mortality of 21.6%.[51]

5.3.2 Current service arrangements

202. Currently, there are no guidelines or set clinical pathways across Greater Manchester for the management of aortic dissection or related treatments. The centre of choice for the emergency calls (CMFT or UHSM) will vary according to the preference of the referring clinician. Whether the patient can subsequently be transferred to CMFT or UHSM will depend on the availability of a suitable surgeon and an intensive care unit bed. There are currently two aortic surgeons at CMFT and two further cardiac surgeons with an interest in acute aortic surgery, and a further two aortic surgeons at UHSM.

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[46] Type A aortic dissection starts in the proximal ascending aorta, while Type B aortic dissection starts in the descending aorta. By contrast, Type B dissection can usually be managed safely with medication, and in most cases does not require surgery.
[47] See Clouse WD, Hallett JW Jr., Schaff HV, Spittell PC, Rowland CM, Ilstrup DM, Melton L. Acute aortic dissection: population-based incidence compared with degenerative aortic aneurysm rupture. Mayo Clin Proc. 2004;79:176–180 at Appendix 5.3b and Mészáros I, Mórocz J, Szlávi J, Schmidt J, Tornóci L, Nagy L, Szép L. Epidemiology and clinicopathology of aortic dissection. Chest. 2000;117:1271–1278 at Appendix 5.3c.
[48] Feldman M, Shah M, Elefteriades JA. Medical management of acute type A aortic dissection. Ann Thorac Cardiovasc Surg.2009;15:286–293 at Appendix 5.3x and Ramanath VS, Oh JK, Sundt TM, Eagle KA. Acute aortic syndromes and thoracic aortic aneurysm. Mayo Clin Proc.2009;84:465–481 at Appendix 5.3d.
[49] See previous two footnotes, and S, Nienaber CA, Rampoldi V, et al. Contemporary results of surgery in acute type A aortic dissection: The International Registry of Acute Aortic Dissection experience. J Thorac Cardiovasc Surg 2005;129:112-22 at Appendix 5.3e and Easo J, Weigang E, Hölzl PP, et al. Influence of operative strategy for the aortic arch in DeBakey type I aortic dissection: analysis of the German Registry for Acute Aortic Dissection Type A. J Thorac Cardiovasc Surg 2012;144:617-23 at Appendix 5.3f.
[50] Conzelmann LO, Krüger T, Hoffmann I, et al. German Registry for Acute Aortic Dissection Type A (GERAADA): initial results. Herz 2011;36:513-24 at Appendix 5.3g and Bridgewater B, Keogh B. Society for Cardiothoracic Surgery in Great Britain and Ireland, sixth adult cardiac surgical database report 2008, Demonstrating quality. Oxfordshire: Dendrite clinical systems Ltd. 2009 http://www.scts.org/_userfiles/resources.SixthNACSDreport2008withcovers.pdf at Appendix 5.3h.
[51] Chikwe J, Cavallaro P, Itagaki S, et al. National outcomes in acute aortic dissection: influence of surgeon and institutional volume on operative mortality. Ann Thorac Surg 2013;95:1563-9 at Appendix 5.3i.

203. For example, a patient experiencing a Type A aortic dissection in Greater Manchester will present to an A&E department. Symptoms can be highly variable but may include sudden onset of severe chest and back pain. Diagnosis ideally involves a CT scan (ideally with ECG gating), but trans-oesophageal echocardiography (TOE) can be used as an alternative.

204. Specialised CT scanning or TOE is not available at all times in all A&E departments in Greater Manchester. This can result in a failure or delay in the diagnosis. However, once a diagnosis is confirmed the A&E team at the hospital will contact the tertiary cardiac surgical centres at CMFT or UHSM, which can both provide aortic surgical services.

205. Patients that cannot be admitted to CMFT or UHSM may be transferred to Liverpool, Blackpool or Stoke for emergency surgery. The process of identifying a cardiac surgery centre that is able to accept the patient, and then transferring the patient to that centre can cause dangerous delays as the mortality rate for these patients worsens with every hour of delay before definitive treatment.[52]

206. In 2015-16, CMFT and UHSM carried out Type A aortic dissection on around 30 patients (including both elective and non-elective cases), while a further 15 patients from Greater Manchester had this procedure carried out elsewhere (primarily at Liverpool Heart and Chest Hospital NHS Foundation Trust).

207. More generally, there were around five emergency procedures carried out by cardiac surgeons with a specialisation in acute aortic surgery at CMFT and a further five to ten procedures at UHSM. Around 10 to 15 emergency procedures were carried out at Liverpool Heart & Chest Hospital on patients who reside in Greater Manchester.[53]

208. In addition to the current level of activity, epidemiological evidence indicates that around 170 patients each year in Greater Manchester are likely to require a Type A aortic dissection.[54] However, based on HES data, in 2015-16 only 27 patients with a Type A aortic dissection were operated on at CMFT and UHSM. A further 14 patients from Greater Manchester were operated on at Liverpool Heart and Chest Hospital NHS Foundation Trust, and another patient from Greater Manchester received treatment elsewhere.)

209. This means that there are likely to be as many as 125 patients each year in Greater Manchester whose condition is undiagnosed or who have been unable to access treatment sufficiently quickly. Failure to treat this condition is fatal, and delays in treatment considerably reduce the chances of survival.

5.3.3 Planned service arrangements and patient benefits

210. The merged Trust will provide a single service for aortic surgery patients for both elective and emergency services. A new rota will ensure that an appropriate surgeon is always available at the merged Trust to treat patients that present at any A&E department in Greater Manchester who require acute aortic surgery.

[52] See S, Nienaber CA, Rampoldi V, et al. Contemporary results of surgery in acute type A aortic dissection: The International Registry of Acute Aortic Dissection experience. J Thorac Cardiovasc Surg 2005;129:112-22 at Appendix 5.3j.
[53] These figures are estimates based on HES data.
[54] Prospective incidence and outcomes of all acute aortic dissections in a population of 92,728 in Oxfordshire, from 2002 to 2012 showed an incident event of 6 per 100,000. With a similar predominantly Caucasian population, Greater Manchester (Population 2.8 million) should be treating 168 aortic dissection events per year.

211. This would bring together the two aortic surgeons at CMFT and another two aortic surgeons at UHSM together with a further two cardiac surgeons with an interest in aortic surgery. Together, these surgeons will be able to offer a single service for aortic surgery patients for both elective and emergency services. This would include comprehensive on-call out of hours and weekend cover for emergency services.

212. This new rota will ensure that an appropriate surgeon is always available in Greater Manchester, at the merged Trust, to treat patients that present at any A&E department in the region who requires treatment of a Type A aortic dissection or any other emergency procedure that requires aortic surgery. The surgeons would operate from a single site (either CMFT or UHSM). This would maximise the effective use of imaging resources, unify waiting lists and clinical pathways.

213. Patients would benefit from the new integrated rota in several ways. First, it would ensure that those patients that are referred to the merged Trusts are operated on by specialist aortic surgeons performing Type A dissection repairs. There is a clear correlation between specialist aortic surgeons performing Type A dissection repairs and significant reduction in morbidity and mortality for these patients compared with general adult cardiac surgeons who do not perform elective complex aortic surgical procedures and with a typical on-call rota, and will generally perform fewer than five Type A dissection repairs per year.[55] A recent UK study demonstrated a reduction in mortality after acute Type A aortic dissection, falling from 30% to 11.7% after implementation of a specialist Type A aortic dissection rota.[56] This would positively impact on around 30 patients per year.

214. Second, it would allow those patients that are currently being transferred to other centres, such as Liverpool, to be treated in Manchester, and thus significantly improve clinical outcomes as a result of a reduced time to treatment. This would positively impact on around 10 to 15 patients per year.

215. Finally, it will allow a much greater focus to be placed on identifying those patients that are currently not being correctly diagnosed with Type A aortic dissection, and developing a clear clinical pathway that enables them to be promptly treated at the merged Trust. The increased focus on aortic surgery will allow the merged Trust to develop a clear clinical pathway for these patients, including diagnostics and guidance to A&E teams and cardiologists across Greater Manchester for referring these patients to the merged Trust at the earliest opportunity.

216. As set out above, there are likely to be as many as 125 patients each year in Greater Manchester whose condition is undiagnosed or who have been unable to access treatment sufficiently quickly. Failure to treat this condition is fatal. Increasing the number of patients that are diagnosed and treated from around 45 per year to around 100 per year, and based on an average mortality rate of around 25%, would save as many as 50 lives per year.[57]

[55] Bashir M, Shaw M, Field M, Kuduvalli M, Harrington D, Fok M, Oo AY, 'Repair of type A dissection benefits of dissection rota', *Ann Cardiothorac Surg*. 2016, 5(3):209-215. doi: 10.21037/acs.2016.05.09 at Appendix 5.3k and Chikwe J, Cavallaro P, Itagaki S, et al. 'National outcomes in acute aortic dissection: influence of surgeon and institutional volume on operative mortality', *Ann Thorac Surg* 2013, 95:1563-9 at Appendix 5.3l.
[56] Ibid.
[57] This calculation is based on 65 additional patients being diagnosed and treated with a mortality rate of 25%.

5.3.4 Merger dependence

217. Achieving a single acute aortic surgery rota with 24/7 coverage could not be achieved by the two Trusts without a merger. In theory, it might be possible CMFT or UHSM to develop separately their own rota through recruiting sufficient additional consultants, but this would be both expensive, and further, neither Trust would have the additional patient volumes that would justify such an initiative.

218. The two Trusts might, in principle, be able to enter into a partnership for this service without a merger. However, the experience of recent years, indicates that such an outcome is unlikely. As discussed in Section 4, CMFT and UHSM have twice sought, unsuccessfully, to put in place cardiology joint ventures indicates that such an outcome is unlikely.[58]

5.3.5 Implementation constraints and plans

219. The Trusts in assessing the deliverability of this benefit have considered a number of potential constraints to implementation and how these might be addressed. These potential constraints are as follows:

- *Financial impact*: The most significant financial characteristic of this proposal is the potential for the merged Trusts to treat additional patients that currently do not get referred to either CMFT or UHSM. There will be additional costs associated with the treatment of these patients. These costs are likely to be more than covered by the additional tariff income that would be received, but net effect is unlikely to have a material impact on the overall financial position of the merged Trust. Rather, this income may off-set additional costs which may emerge in other elements of the Cardiology, Vascular and Stroke service area.

- *Site selection*: the cardiac team are currently reviewing the proposed new model and are calculating the impact on theatre scheduling and bed capacity. This will feed into a decision by the merged Trust in relation to the site on which these services will be provided.

- *Requirements for commissioner approval and public consultation*: Commissioners are aware, and supportive, of the Trusts' plans to establish a single site for the acute aortic surgery.

- *Workforce and rota impacts*: the three cardiac patient benefits cases involve bringing together the cardiac departments at the two Trusts and establishing rotas for ACS, cardiac rhythm management and acute aortic surgery in place of the existing general cardiology rota. Work has commenced on the detail of these arrangements.

- *Clinician support*: this patient benefits case has been developed by cardiology consultants from both CMFT and UHSM. It reflects their own aspirations and plans for the development of cardiac services following the merger. As such, there is a high degree of clinician support for the changes that will deliver these patient benefits.

220. Further details of the implementation planning for this patient benefit are at Appendix 5.3m.

[58] This experience is further discussed in Section 3 and Appendix 3.1.

5.4 Vascular surgery

221. Following the CMFT/UHSM merger, arterial surgical services at the two Trusts will be centralised at Manchester Royal Infirmary. Increased patient volumes at the single arterial surgical site can be expected to deliver better outcomes for more than 3,300 patients who are admitted for treatment each year at the merged Trust. These better outcomes can be expected to include improved morbidity rates, reduced length of stay, reduced complication rates, and reduced tissue loss and amputation for diabetic foot patients.

5.4.1 Background

222. Vascular disease relates to disorders of the arteries, veins and lymphatics. Conditions requiring specialised vascular care include lower limb ischaemia, abdominal aortic aneurysm, stroke prevention (carotid artery intervention) and vascular trauma. Treatment may involve medication, minimally-invasive catheter procedures, and surgical reconstruction as well as minimally invasive techniques that use interventional radiology. (Vascular surgery is distinguished from cardiology, which treats diseases of the heart.)

223. The prevalence of vascular disease increases with age, and increased in average life expectancy suggests that demand for vascular services is likely to increase over time. Vascular disease is the major cause of morbidity in diabetes and the increasing prevalence of diabetes is expected to result in a significant increase in diabetic foot disease in the next decade.[59]

224. The National Vascular Registry Annual Report for 2016[60] provides a description of the care provided by NHS vascular units, and looks at care processes and outcomes in three main areas:
    - care for patients undergoing carotid endarterectomy, a surgical procedure in which build-up is removed from the carotid artery;
    - care for patients undergoing abdominal aortic aneurysm repair, a procedure that treats abnormal expansion of the aorta, which if left untreated may enlarge and rupture causing fatal bleeding; and
    - care for patients undergoing a revascularisation procedure (angioplasty/stent or bypass) or major amputation for lower limb peripheral arterial disease.

5.4.2 Current service arrangements

225. CMFT, UHSM and PAHT each currently operate arterial surgical centres in Greater Manchester, with the hub site at each Trust networked with several other hospitals. In particular:
    - Manchester Royal Infirmary at CMFT covers Trafford General Hospital, Salford Royal and Bolton;
    - Wythenshawe Hospital at UHSM covers Tameside, Stockport, Macclesfield and The Christie;

[59] For further background on vascular disease see NHS England, *2013/14 NHS Standard Contract for Specialised Vascular Services (Adults), Service Specifications* at Appendix 5.4a.
[60] Royal College of Surgeons, Vascular Society of Great Britain and Ireland, *National Vascular Registry Annual Report*, 2016 at Appendix 5.4b.

- Royal Oldham Hospital at PAHT covers North Manchester General, Bury and Rochdale.[61]

226. In 2015-16, there was a total of 3,288 patients admitted for treatment at CMFT and UHSM for vascular services, including both day case, elective and non-elective patients. There was also a total of 9,147 first outpatient appointments in this specialty in 2015-16 at the two Trusts.

227. The most recent National Vascular Registry Annual Report (see Appendix 5.4b) provides details of CMFT, UHSM and other providers performance against a variety of indicators for a range of vascular procedures. Table 5.4 provides examples of the procedures and outcomes monitored through the National Vascular Registry and data for CMFT and UHSM.

Table 5.4: Selected vascular services indicators, 2016

Carotid Endarterectomy	**Estimated cases**	**Patients receiving surgery within 7 days of referral**	**Median length of stay**	**Adjusted stroke and/or death rate**
CMFT	64	58.3%	2 days	1.6%
UHSM	95	57.1%	3 days	1.0%
Elective infra renal AAA repairs	**Estimated cases**	**Patients discussed at MDT**	**Median length of stay for open repairs**	**Adjusted in-hospital mortality**
CMFT	45	97%	8 days	1.7%
UHSM	78	55%	8 days	0.0%
Lower limb revascularisation (endovascular)	**NVR cases**	**Median length of stay**	**Adjusted in-hospital mortality**	
CMFT	187	1 day	0.6%	
UHSM	346	1 day	1.5%	

Source: National Vascular Registry, Annual Report, 2016

228. CMFT has six vascular surgeons and five interventional radiologists, while UHSM also has six vascular surgeons (with one currently completing a fellowship elsewhere), an academic professor of vascular surgery and four vascular interventional radiologists. The national service specification states that a vascular surgery team requires a provider to have six of each to ensure comprehensive out of hours emergency cover. That said, both Trusts have 24/7 cover for both vascular surgery and vascular interventional radiology. For vascular interventional radiology, this level of cover is delivered through a 1 in 9 shared out of hours rota between CMFT and UHSM.

229. The Greater Manchester Vascular Surgical Services review in 2013 proposed consolidation of arterial surgical centres in Greater Manchester from the then four hospitals to either two sites or a single site.[62] The basis for the review was an assessment of vascular service providers against NHS England's service specification. At that point, none

[61] These network arrangements are established in accordance with the governance arrangements set out in Vascular Society of Great Britain and Ireland, *The Provision of Services for Patients with Vascular Disease*, 2015 at Appendix 5.4c. These may be supplemented with individual Service Level Agreements between Trusts.
[62] Following the retirement of members of the surgical team at Royal Bolton Hospital, this Trust no longer carries out vascular surgery services.

of the providers met the requirements of this specification, and issues with workforce sustainability had been identified.

5.4.3 Planned service arrangements and patient benefits

230. Following the merger, arterial surgical services at the two Trusts will be consolidated at Manchester Royal Infirmary, while Wythenshawe Hospital will continue to provide non-arterial day case surgery and day case vascular interventional radiology. Manchester Royal Infirmary would provide elective services as well as out of hours cover for the rest of Greater Manchester.[63]

231. The ongoing presence of non-arterial day case surgery and day case vascular interventional radiology at Wythenshawe Hospital will allow emergency vascular services to be maintained for co-dependent services, such as renal transplant surgery, cardiac services, plastic surgery and so on.

232. Patients will benefit from a single site for arterial surgical services through improved health outcomes as a result of improved diagnosis and treatment and enhanced sub-specialisation in vascular surgery and vascular interventional radiology.

233. There is a significant evidence base that links patient volumes and outcomes in vascular surgery. This evidence, which is summarised below, is set out in further detail in the national service specification for vascular services. Key elements of this evidence base are as follows:

- Mortality from elective aneurysm surgery is significantly less in centres with a high caseload than in units that perform a lower number of procedures. This is reflected in both a meta-analysis of the existing literature and a review of HES data for elective aneurysm repair in the UK, which showed that the mortality rate in the units with lowest caseload was 8.5% as compared to the 5.9% reported by units with a higher workload.[64]

- With regard to ruptured abdominal aortic aneurysm, a study found that the absolute mortality differences between hospitals in England in the lowest and highest volume quintiles was as high as 24%.[65]

- Hospital volume is significantly related to elective aneurysm mortality for both open repair and endovascular repair as well as the combined (open and endovascular) patient group. A study found that there was a significant difference between endovascular mortality between the lowest and highest quintile providers (6.88% vs.

[63] During out of hours, ambulance services take patients to the hub site and patients already in hospital will be transferred to the hub site. In a small number of cases where patients cannot be transferred (e.g. major trauma), the clinicians will travel to the patient.
[64] Holt PJ, JD Poloniecki et al. (2007) 'Epidemiological study of the relationship between volume and outcome after abdominal aortic aneurysm surgery in the UK from 2000 to 2005' *Br J Surg* 94(4): 441-448 referenced in NHS England, *2013/14 NHS Standard Contract for Specialised Vascular Services (Adults), Service Specifications* at Appendix 5.4a.
[65] Holt PJ, A Karthikesalingam et al. (2010) 'Propensity scored analysis of outcomes after ruptured abdominal aortic aneurysm' *Br J Surg* 97(4): 496-503 referenced in NHS England, *2013/14 NHS Standard Contract for Specialised Vascular Services (Adults), Service Specifications* at Appendix 5.4a.

2.88%), and a 77% reduction in mortality was observed for every 100 endovascular repairs performed.[66]

- Other studies show a similar relationship between patient volumes and outcomes for other vascular procedures including lower limb arterial reconstruction and carotid endarterectomy.[67]

234. CMFT and UHSM believe that most of the benefits to patients, as a result of their own centralisation of arterial surgical services, will be related to morbidity. This is because mortality outcomes at CMFT and UHSM are already quite low. For example, in relation to abdominal aortic aneurysm, mortality rates are already low on a national scale (i.e. under 3%). To show an improvement would require a large number of additional cases. This is also the case in relation to carotid stroke/death and peripheral vascular disease mortality.

235. However, the Trusts believe that the improved mortality outcomes in this literature are indicative of a broader range of improved health outcomes that can be expected for the approximately 3,300 vascular patients that will be admitted at the single site operated by the merged Trust. These can be expected to include reduced length of stay, reduced complication rates following a vascular admission, and reduced tissue loss and limb amputation for diabetic foot patients. The Trusts note that data in relation to these metrics is relatively undeveloped.

236. The Trusts also believe that the establishment of a single arterial surgical centre at the merged Trust will make it easier for clinicians to access colleagues with a special interest, and as a result, make it easier for patients to get the right operation where the issues are not straightforward.

5.4.4 Merger dependence

237. CMFT and UHSM believe that the delivery of a single arterial surgical site for vascular services at Manchester Royal Infirmary, and the benefits that this will bring for patients, is dependent on their planned merger.

238. As set out above, there is currently a planned reconfiguration of vascular surgery services across CMFT, UHSM and PAHT. However, the dependence of this reconfiguration on the CMFT/UHSM merger is recognised in the Project Initiation Document for the reconfiguration, which states that "the proposed development of a Single Hospital for Manchester should permit the unification of the vascular surgical workforce of CMFT and UHSM", and "this work needs to be considered in light of the potential development of a Single Hospital Service for the city of Manchester, which would bring together the hospital services currently provided by CMFT and UHSM and the services provided at North Manchester General Hospital (PAHT)".[68]

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[66] Holt PJ, JD Poloniecki et al. (2009) 'Effect of endovascular aneurysm repair on the volume-outcome relationship in aneurysm repair' *Circ Cardiovasc Qual Outcomes* 2(6): 624-632 referenced in NHS England, *2013/14 NHS Standard Contract for Specialised Vascular Services (Adults), Service Specifications* at Appendix 5.4a.

[67] Karthikesalingam A, Hinchliffe RJ, Loftus IM, et al. (2010) 'Volume-outcome relationships in vascular surgery: the current status', *J Endovasc Ther*, 2010, 17:356-65 and Moxey PW, Hofman D, Hinchliffe RJ, Poloniecki J, Loftus IM, Thompson MM, Holt PJ. (2012) Volume-outcome relationships in lower extremity arterial bypass surgery. Ann Surg. 2012 Dec;256(6):1102-7 referenced in NHS England, *2013/14 NHS Standard Contract for Specialised Vascular Services (Adults), Service Specifications* at Appendix 5.4a.

[68] Greater Manchester Combined Authority and NHS in Greater Manchester, *Theme 3: Vascular Project Initiation Document*, 24 October 2016 at Appendix 5.4d.

239. The dependence of this service reconfiguration on the planned merger is demonstrated by the previous failure to consolidate vascular services across CMFT and UHSM (and PAHT), while CMFT and UHSM were independent of each other. Further details of previous efforts to reconfigure vascular services at CMFT and UHSM are set out in Table 3.1 and discussed in Appendix 3.1.

5.4.5 Implementation constraints and plans

240. The Trusts believe that the transition to a single arterial surgery site at Manchester Royal Infirmary is likely to involve at least two steps. In the short term, Manchester Royal Infirmary would take all non-elective work with elective work remaining at Wythenshawe Hospital. Then, when sufficient angiography suite, theatre and bed capacity is available, elective arterial surgery would also be carried out at Manchester Royal Infirmary.

241. Manchester Royal Infirmary will require the necessary infrastructure, such as beds, theatres and IR suites, which in turn may require shifts in other services to ensure that all vascular surgery can be accommodated. The Trusts believe that the merged Trust will have sufficient flexibility to allocate services to sites in a way that will allow Vascular Surgery to be accommodated at Manchester Royal Infirmary.

242. Other potential constraints taken into account by the Trusts in assessing the deliverability of this benefit include the following:

- *Financial impact*: the patients treated in this service in the merged Trust will be the same as the patients treated by the two existing Trusts, so there will be no material change in net income. A reduction in length of stay for a cohort of 3,200 patients is anticipated. It has not been possible to quantify the extent of this reduction as yet, but given the size of the group of patients affected, this presents a future opportunity to reduce bed numbers or to undertake additional activity that would attract tariff-based income.

  Any restructuring of services within the organisation will create additional costs in some areas/sites, and reduced costs in others, but these effects are likely to be broadly neutral. To the extent that net additional costs are identified (e.g. increased out-of-hours working), these can be offset by the potential to gain benefits from the reduction in length of stay referenced above, or by the potential for income benefits in other elements of the Cardiology, Vascular and Stroke service area.

- *Requirements for commissioner approval and public consultation*: the planned establishment of a single arterial surgical site for vascular services at Manchester Royal Infirmary is consistent with commissioning plans for Greater Manchester.[69]

- *Clinician support*: this patient benefits case has been endorsed by the vascular surgeons at both CMFT and UHSM. As such, there is a high degree of clinician support for the changes that will deliver these patient benefits.

243. Further details of the implementation plan for this work is provided in Appendix 5.4e.

[69] Greater Manchester Combined Authority and NHS in Greater Manchester, *Theme 3: Vascular Project Initiation Document*, 24 October 2016 at Appendix 5.4d.

5.5 Stroke

244. The planned CMFT/UHSM merger will benefit approximately 600 mini-stroke patients at the merged Trust each year by ensuring that these patients are reviewed within 24 hours compared with the current arrangements where these patients are waiting between one to seven days for an assessment. This enhanced service will be delivered by adopting a 7 day service using the combined clinical resources of the two Trusts. Patients will benefit from faster reviews, consistent with new clinical guidelines, and as a result, have a lower risk of subsequent larger stroke, and the mortality risk and debilitating effects that this entails.

5.5.1 Background

245. Transient Ischaemic Attack (TIA), also known as a 'mini stroke', requires urgent medical assessment and treatment both to secure an accurate diagnosis and to reduce the risk of a larger stroke. Until this year, NICE guidance has stated that patients presenting with a suspected stroke should be risk stratified according to their ABCD2 score (a score which is based on the clinical characteristics of the patient and their symptoms), with high risk patients to be seen within 24 hours and low risk patients to be seen within 7 days.[70]

246. For high risk patients, Stroke Integrated Performance Measure Return (IPMR) guidance[71] states that certain investigations should be completed within 24 hours, namely: blood tests (all patients); electrocardiogram (all patients); brain scan (if vascular territory or pathology uncertain diffusion-weighted MRI is preferred, except where contraindicated, when CT should be used); completion of carotid imaging (where indicated); and referral for carotid surgical intervention (where indicated). In addition, the following treatments should commence within 24 hours, namely: aspirin (where needed or alternative if contraindicated); statin (where needed or alternative if contraindicated); and control of blood pressure (where needed unless contraindicated).

247. CCGs monitor the number of high risk TIA patients reviewed within the 24 hour target period, and the performance measure is that 60% of these patients should be reviewed within 24 hours. (CMFT's and UHSM's performance against this target is discussed further below.)

248. Guidelines for the treatment of patients suspected of having had a mini-stroke changed in 2016. This followed a National Institute of Health Research technology review in 2014, which found that the ABCD2 score does not accurately predict subsequent stroke risk if used as a triage for TIA clinic review.[72] As a result, the Royal College of Physicians' National Clinical Guideline for Stroke, issued in 2016, recommends that all patients with suspected TIA should be assessed urgently within 24 hours by a specialist physician in a

[70] National Institute of Health and Care Excellence (NICE), *Stroke and transient ischaemic attack in over 16s: diagnosis and initial management*, Clinical Guideline 68, July 2008 at Appendix 5.5a.
[71] NHS North West, Lancashire & Cumbria Cardiac & Stroke Network, Cheshire and Merseyside Clinical Networks and Greater Manchester & Cheshire Cardiac and Stroke Network, *Stroke Integrated Performance Measure Return, Frequently Asked Questions*, June 2012 at Appendix 5.5b.
[72] Wardlaw, J,. Brazzelli, M,. Miranda, H,. Chappell, F,. McNamee, P,. Scotland, G,. Dennis, Z. (2014) Chapter 4: ABCD2 Score and Risk of Stroke after Transient Ischaemic Attack and Minor Stroke. In *An assessment of the cost-effectiveness of magnetic resonance, including diffusion-weighted imaging, in patients with transient ischaemic attack and minor stroke: a systematic review, meta-analysis and economic evaluation.* (pp. 33-54) National Institute of Health Research at Appendix 5.5c.

neurovascular clinic (commonly termed TIA clinics)[73] or an acute stroke unit, regardless of ABCD2 score.[74]

249. Further, the RCP guideline states that those TIA patients who are considered candidates for carotid intervention should have carotid imaging performed urgently within 24 hours. (Carotid artery disease (i.e. the main arteries of the neck that supply blood to the brain) are commonly implicated as the cause of TIA or stroke. Surgery on the diseased carotid artery (Carotid Endarterectomy) has been proved to reduce the risk of stroke and death following a TIA.)

5.5.2 Current service arrangements

250. CMFT provides TIA services at Royal Manchester Infirmary (MRI) and Trafford Hospital. Referrals to this service can be made from A&E and by GPs. There is a TIA clinic in the outpatient department at MRI once per week (on Tuesdays), and on other days, new patients are seen on an *ad hoc* basis on the Stroke ward, and are reviewed in addition to the timetabled duties of the clinician. The Tuesday clinic has slots for 10 new patients each week, while two new patients can be seen each day on the Stroke ward.

251. CMFT has four stroke consultants at MRI (one full-time consultant stroke physician, one locum consultant stroke physician, one consultant geriatrician, and one associate specialist stroke physician). There is also an Advanced Nurse Practitioner that sees stroke patients. These five clinicians cover the TIA clinic on a rota basis. At Trafford, there is an Associate Specialist who sees new TIA patients on four days per week.

252. At UHSM, a TIA clinic is held daily from Monday to Friday. At each clinic, there are slots for four new patients and five to six patients with follow up appointments. As at CMFT, referrals to these clinics can be made from A&E as well as by GPs. Two consultant physicians cover these clinics, with one consultant attending each daily clinic. In addition, a stroke nurse practitioner attends the clinic and *ad hoc* cover is provided by a junior grade doctor.

253. There are no TIA clinics on the weekends at either CMFT or UHSM. If a patient suffers a possible TIA on late Friday or over the weekend, they will not be assessed in a TIA clinic until Monday (at the earliest).

254. A review of patients in August and September 2016 at CMFT and UHSM has been carried out to assess the number of patients that would need to be seen within 24 hours in line with the new RCP guideline for stroke services.

255. At CMFT, 66 new TIA patients were seen in August and September 2016. Of these, 21 patients were initially referred as high risk based on their ABCD2 score, but two patients were given a lower risk by the clinic based on the referral, and two patients did not attend their appointment. Of the 17 remaining high risk patients, 14 (82%) were seen within 24

[73] TIA clinics and are led by either a consultant neurologist or a consultant physician with an interest in stroke medicine, with support from a radiographer who is able to perform an ultrasound scan of the carotid arteries of the neck (Carotid Doppler), a healthcare assistant who is able to perform basic observations such as measuring patients' blood pressure, a nurse who is able to take blood tests (phlebotomy) and perform a heart rhythm tracing (ECG), and a receptionist to help with the administrative work. Often the consultant will be joined by a junior grade doctor and/or a specialist nurse practitioner who will also assess patients and will ask advice from the senior doctor present.

[74] Royal College of Physicians, *National clinical guideline for stroke: prepared by the Intercollegiate Stroke Working Party*, Fifth edition, 2016 at Appendix 5.5d.

hours. Two of the three patients not seen within 24 hours were referred on a Friday and were seen the following week. For the 45 low risk patients, the median wait between referral and review was five days.[75]

256. Annualising these figures, there are around 270 patients each year at CMFT that are currently assessed as low risk, and are reviewed within 7 days, but would now need to be seen within 24 hours. There are also 12 patients per year that are assessed as high risk, but are not seen within 24 hours due to the lack of a weekend stroke clinic.

257. At UHSM, 120 new patients were seen at UHSM's TIA clinics between August and September 2016. Of these, 29 patients were identified as high risk and 21 of these high-risk patients (72%) were seen within 24 hours. For seven of the eight patients not seen within the 24-hour target, there was at least one weekend between the referral and appointment dates. For the 91 low risk patients, the median time between referral and appointment was five days.

258. Annualising these figures, there are around 546 patients each year at UHSM that are currently assessed as low risk, and are reviewed within 7 days, but would now need to be seen within 24 hours. There are also 42 patients per year that are assessed as high risk, but are not seen within 24 hours due to the lack of a weekend stroke clinic.

259. The data above indicates that CMFT and UHSM have, in recent months, met the CCGs' requirement that 60% of high risk patients be seen within 24 hours. CCG performance reports indicate that both Trusts' performance has improved. Central Manchester CCG reported that, in 2014/15, 50% of high risk TIA patients were seen within 24 hours, increasing to 56% in 2015/16 (and compared to 82% at CMFT in June-July 2016).[76] South Manchester CCG performance data shows that, in 2014/15, 71% of high risk patients were seen within 24 hours, and in 2015/16 this figure was 67% (compared to 72% at UHSM in August-September 2016).[77]

5.5.3 Planned service arrangements and patient benefits

260. As set out above, new RCP stroke guidelines states that all patients with suspected TIA should be evaluated within 24 hours. These new guidelines have been developed following the findings that the existing risk stratification system is not accurately diagnosing TIA patients. However, this new requirement will place considerable extra pressure on TIA services at CMFT and UHSM. As set out above, patients that are classified as low risk under the current arrangements wait an average of five days at each Trust before their first appointment.

261. Weekend clinics and some additional in-week capacity will be needed to meet the requirement to evaluate all patients within 24 hours. Neither CMFT nor UHSM has sufficient staff to operate a weekend rota. CMFT currently has four consultants, and as a result, would need to recruit at least two additional consultants for a sustainable weekend rota. UHSM, which has two consultants, would need to recruit even more.

[75] At Trafford Hospital, 212 new patients were referred to the TIA service between 1 January and 20 July 2016 (an average of 30 patients per month). There is no breakdown for high and low risk patients for this period.
[76] Central Manchester CCG, Performance and Quality Report, Board Meeting, 4 May 2016 at Appendix 5.5e.
[77] South Manchester CCG, Performance and Quality Paper, Board Meeting, November 2015, pp.43 at Appendix 5.5f and South Manchester CCG, Performance and Quality Paper, Board Meeting, September 2016, pp.32 at Appendix 5.5g.

262. The CMFT/UHSM merger, however, would bring together six stroke physicians, and with the recruitment of one to two additional physicians[78], the merged Trust will be able to offer a weekend clinic on a sustainable basis to meet these guidelines as well as increasing the number of patients that can seen during normal hours.

263. A merged Trust would also enable better coverage for existing clinics during the week. The consultant physicians would be able to organise cover for when colleagues are not available during the week due to annual leave and so on. The flexibility given by being part of a single organisation means gaps in the rotas will be easier to cover, and thus less additional consultants will need to be recruited to cover the expanding service.

264. Patients would benefit from a merged TIA service through being able to access appointments within 24 hours of a suspected TIA, in line with revised clinical guidelines. In addition, patients would be able to access clinics either at Manchester Royal Infirmary or Wythenshawe Hospital depending on where slots are available.

265. Access to early carotid Doppler imaging for patients would allow an early accurate diagnosis, and thus allow an early start to appropriate therapy. This could be expected to reduce the number of strokes following on from a TIA and thus reduce the morbidity and mortality associated with this. Further, it would allow patients to be referred early for surgery on the carotid arteries that has been shown to reduce morbidity and mortality.

266. In total, around 600 mini stroke patients would benefit from being seen within 24 hours, consistent with new stroke guidelines, and as a result, have their risk of a larger stroke reduced.

5.5.4 Merger dependence

267. As set out above, neither CMFT nor UHSM has sufficient staff to operate a weekend rota. CMFT currently has four consultants, and as a result, would need to recruit at least two additional consultants for a sustainable weekend rota. UHSM, which has two consultants, would need to recruit even more. Each Trust, acting independently would find it difficult to recruit a sufficient number of additional stroke physicians, and the cost of doing so would likely be prohibitive.[79]

268. In principle, it may be possible to establish a weekend clinic by way of a shared rota, rather than through a Trust merger. However, this model is limited in that the consultants cannot easily access information once off-site (e.g. if they have to complete paperwork in the event of a patient death). A shared rota for weekend clinics, absent a merger, would require shared IT so consultants could review patient notes the following day (e.g. when diagnostic results such as blood tests are received).

269. Patients would also have their follow-up fixed to one site, and given the potential travelling distances would be a significant impediment to attending follow-up whereas a merged Trust would be able to offer follow-up appointments at any of its sites where clinics were

[78] Stroke Physicians are defined as including Consultant Stroke Physicians, Consultant Geriatricians with an Interest in Stroke Medicine, and Associate Specialist Grade Doctors in Stroke Medicine.
[79] Recent attempts at both Trusts to recruit additional stroke physicians have not been successful. At CMFT, a new stroke consultant post has been advertised since Summer 2014, and no applications have been received. At UHSM, a post for a new stroke consultant has been advertised since Summer 2016, and there have been no applications to date.

being held. Given these constraints, any shared rota – if it could be put in place – would be likely to offer a lesser quality service for patients.

5.5.5 Implementation constraints and plans

270. The Trusts in assessing the deliverability of this benefit have considered a number of potential constraints to implementation and how these might be addressed. These are as follows:

- *Financial impact*: In general, the patients treated in this service in the merged Trust will be the same as the patients treated by the two existing Trusts, so there will be no material change in net income. The transfer of services within the organisation will create additional costs in some areas/sites, and reduced costs in others, but these effects are likely to be neutral overall. To the extent that net additional costs are identified (e.g. increased out-of-hours working) , these can be offset by the potential for income benefits in other elements of the Cardiology, Vascular and Stroke service area.

- *Requirements for commissioner approval and public consultation*: this patient benefit would involve the provision of additional services to patients. CMFT and UHSM do not believe that this will require commissioner approval.

- *Workforce and rota impacts*: the merged Trust anticipates having to recruit at least one to two additional physicians to ensure a sustainable rota for weekend clinics. While both CMFT and UHSM have encountered challenges recently in recruiting these clinicians, the two Trusts believe that the merged Trust will be a significantly more attractive employer, and consistent with the experience of other merged Trusts in recent years, consider that working for the new Trust will be an attractive opportunity. As a transitional measure, the Trusts are likely to start by offering Saturday clinics, using additional clinician staff that are being developed to take on this role, and then proceeding to Saturday and Sunday clinics.

- *Clinician support*: this patient benefits case has been endorsed by the stroke physicians at both CMFT and UHSM. As such, there is a high degree of clinician support for the changes that will deliver these patient benefits.

271. Further details of the implementation plan for this work is provided in Appendix 5.5h.

6. Women's Health

272. CMFT and UHSM both provide obstetrics and gynaecology services. There were 9,267 births at CMFT, and approximately 4,200 births at UHSM, in 2015-16 (see Table 6.1).

273. Maternity services are provided by both CMFT and UHSM in Obstetrics units and co-located Midwifery-led units. CMFT's maternity services are located at Saint Mary's Hospital on its main Oxford Road site, while UHSM's maternity services are provided at Wythenshawe Hospital. CMFT also operates a standalone Midwifery-led unit at Salford Royal NHS Foundation Trust (where there are approximately 200 births each year).

Table 6.1: Gynaecology and obstetrics services, CMFT and UHSM, 2015-16

	First OP appointments		Followup OP appointments		Day case admissions		Elective admissions		Non-elective admissions		Number of OPFA Patients	
	CMFT	UHSM	CMFT	UHSM	CMFT	UHSM	CMFT	UHSM	CMFT	UHSM	CMFT	UHSM
Gynaecology	22,316	5,869	30,725	6,623	5,357	2,743	1,310	695	1,644	1,268	16,367	4,553
Obstetrics and Midwife Episodes*	14,794	11,977	126,243	39,063					20,294	5,623	12,593	6,516
Total	37,110	17,846	156,968	45,686	5,357	2,747	1,360	604	21,888	6,865	28,960	11,069

Source: HES data for 2015-16

*On some occasions Obstetric and Midwife episodes can be coded to Day Case and Elective admissions, although clinicians do not generally consider the birth of a baby to be an elective process and so this small amount of activity (less than 0.5% for both providers is shown here within the Non-Elective admissions category).

274. The greater volume of activity at CMFT compared with UHSM, in large part, reflects CMFT's status as a provider of specialised services in women's health for Greater Manchester and the North-West region. This includes cancer services, Uro-gynaecology, paediatric gynaecology Maternal Medicine, Reproductive Medicine, and Fetal Medicine. It also operates a Level 3 Neonatal Intensive Care Unit for babies for the North-West region. CMFT also operates an emergency gynaecological and early pregnancy unit to which women can self-refer.[80]

Table 6.2: Women's Health, CQC inspection outcomes, CMFT and UHSM

Domain	Maternity & Gynaecology Services	
	CMFT	UHSM
Safe	Good	Requires Improvement
Effective	Good	Good
Caring	Good	Good
Responsive	Requires Improvement	Good
Well-led	Good	Requires Improvement
Overall	Good	Requires Improvement

Source: CQC Reports, CMFT dated, 13 June 2016 and UHSM dated 30 June 2016.

275. Both Trusts were inspected by the CQC in 2015/16. CMFT was rated 'good' for maternity and gynaecology services and UHSM was rated 'requires improvement'. Table 6.2 shows a breakdown of the findings. The CQC identified issues at CMFT related to high demand and the consequential impact on required staffing levels, while CQC concerns about services at UHSM related to mandatory training, review of clinical polices, and investigation and learning from incidents.[81]

276. CMFT has identified obstetric capacity as one of the major risks facing the Trust (see p.133 of CMFT's Annual Report at Appendix 3.5a to the Phase 1 submission). The

[80] Further details on CMFT's services in this area can be found in CMFT, *Saint Mary's Hospital Annual Report 2014/15* at Appendix 6.0a.

[81] Further details of the CQC's findings in relation to maternity and gynaecology services at CMFT and UHSM are available at http://www.cqc.org.uk/location/RW3MR/inspection-summary#maternity for CMFT and http://www.cqc.org.uk/location/RM202/inspection-summary#maternity for UHSM.

Annual Report states that “Saint Mary’s maternity unit has seen an increase in the numbers of women booking to give birth within the new Saint Mary’s Hospital (including the Salford Midwifery let Unit), which has risen from over 5,000 to 9,000 in the last six years. … there has been a further increase in the number of births, to 9,267 in 2015/16. This, combined with a delay in the ability to recruit midwives, has caused an increased risk at times of peak activity.”

277. The CQC’s 2016 inspection of CMFT noted concerns about staffing in the midwifery service (which CMFT was seeking to address through recruiting additional midwives).[82] It also noted that “bed occupancy rates in maternity services were 25% higher than the England average throughout April, May and June 2015. This meant there was insufficient capacity for the numbers of patients attending the maternity unit. A policy to divert patients to other units in the area was in place … the lack of capacity and staffing challenges led to patients waiting to be seen in unsuitable areas, waiting for available beds and having treatment delayed”.[83]

6.1 Urgent gynaecology surgery

278. Following the merger, women requiring urgent gynaecology surgery will benefit from being able to access three scheduled lists each week that will enable timely treatment, and reduce the risk of urgent cases escalating into emergencies.

279. Under current arrangements, CMFT operates two lists each week. UHSM does not have any dedicated lists for patients requiring urgent gynaecology surgery, and adds these patients to existing elective and non-elective surgery lists. These arrangements result in delays and cancellations for women requiring treatment who may be in significant pain and emotional distress. It can also result in escalation of a patient’s condition such that emergency treatment becomes necessary.

280. Around 400 patients each year are expected to benefit from being able to access urgent gynaecology surgery more quickly.

6.1.1 Current service arrangements

281. Currently, patients requiring urgent gynaecology surgery are managed separately at CMFT and UHSM with no routine movement of patients between Trusts. These procedures are ‘urgent’, that is, from a medical point of view the aim is to carry out surgery as soon as possible, but are distinct from ‘emergency’ life threatening cases where there is an immediate medical need for the procedure to be performed. There are three main Urgent gynaecology surgical procedures:

- *Surgical management of miscarriage*: two options are usually offered to patients whose condition is stable but have had a miscarriage with the pregnancy retained in the uterus. The first option is conservative management where the patient awaits the natural course of events, and the pregnancy ends naturally with spontaneous termination of the pregnancy. The second option is medical management of the miscarriage using oral medication, which reduces the length of time taken for the

[82] CQC, *Central Manchester University Hospitals NHS Foundation Trust Quality Report*, 13 June 2016, p.16 at Appendix 3.1 of the submission to the Phase 1 review.
[83] Ibid at p31.

pregnancy to end. However, for some patients, neither option is suitable either due to on-going bleeding (or other associated medical diagnosis) or an emotional/psychological need to conclude the miscarriage in a timely and predictable manner. In these cases, there is an urgent need to undertake surgical management of the miscarriage. The procedure employs a suction catheter, is performed under general anaesthetic in an operating theatre, and usually takes approximately 30 minutes.

- *Laparoscopic salpingectomy*: patients diagnosed with an ectopic pregnancy (a pregnancy growing in an area other than the cavity of the womb, most frequently in the Fallopian tubes) may require urgent laparoscopic (keyhole) surgery. Patients requiring urgent treatment will have no associated bleeding (which may necessitate emergency treatment), but there is a need to provide urgent care as the clinical picture may change and escalate.[84] Ectopic pregnancy is a leading cause of maternal mortality (it has an incidence rate of 11.1 per 1,000 pregnancies).

- *Marsupialisation of Bartholin's abscess*: the Bartholin's gland is situated on the lower part of the opening of the vagina. A Bartholin's abscess develops when the gland is infected and is extremely painful. Treatment is marsupialisation - an operation to drain the gland to relieve symptoms. Whilst the procedure is not an emergency, it is required urgently to resolve symptoms of pain and discomfort and minimise the risk of recurrence.

282. While all three procedures may require urgent treatment, patients at both CMFT and UHSM may wait several days before surgery can be carried out. This is a function of both the number of urgent gynaecology patients at each Trust combined with competing requirements for managing limited theatre sessions efficiently.[85]

- At CMFT, patients requiring any of these procedures are managed in one of the two non-urgent theatre sessions on Monday and Friday afternoons. Up to six cases can be performed in each session. Patients who are identified as requiring surgery on a Monday evening or Tuesday can wait more than three days before their procedure can be undertaken on the Friday list. The more urgent cases are sometimes added to emergency theatre lists, but these cases are often delayed so that life threatening emergencies can be prioritised. The nature of triaging and prioritising emergency patients means that theatre slots cannot be 'ring-fenced' for urgent (but non-emergency) patients.

- At UHSM, there is no planned theatre time for patients requiring these surgical procedures. Patients may be added to the Trust-wide emergency theatre list or added onto elective gynaecology surgical theatre sessions as 'an extra'. Patients added to emergency theatre lists are also often delayed in the same way as at CMFT, due to the need to prioritise patients with life threatening emergencies. Urgent patients are often added to elective gynaecology surgical theatre sessions. However,

[84] When diagnosing patients, NICE requires providers to adhere to a quality standard for Ectopic Pregnancy and Miscarriage (QS69). This standard requires that women with a suspected ectopic pregnancy or miscarriage should be referred to an early pregnancy assessment service for diagnosis within 24 hours of referral. NICE does not provide a quality standard or guidance for how quickly an urgent patient should receive surgery following diagnosis.

[85] Theatre sessions are streamed to accommodate similar levels of priority for a service within pre-allocated lists. Emergency lists are constantly revised against a patient triage of urgency. The allocation of Theatre time is a complex operational decision that balances requirements both between different services and within services (in respect of urgency) to optimise use. Where a service requires additional Theatre time a business case is developed for consideration by senior division and operations managers.

the shorter lead-time for an urgent patient means that elective patient's operations can be cancelled or the theatre session overruns its allocated time, which has a knock-on effect for the next list that is due to take place. A dedicated urgent surgery list is not possible at UHSM as a single list per week would introduce an unacceptable delay to surgery for those urgent patients, and there are insufficient patients classified as urgent to support the creation of more than one urgent surgery list.

283. In 2015-16, 539 patients at CMFT and 189 patients at UHSM had one of the three conditions discussed above that may lead to gynaecology surgery. At CMFT, 292 patients received surgery on an urgent basis, and at UHSM, 127 patients received surgery on an urgent basis. Of the remaining, 247 patients at CMFT and 62 patients at UHSM, some were received emergency surgery, while others did not require surgical intervention. (CMFT and UHSM are currently unable to break these numbers down further.)[86]

Table 6.3: Urgent gynaecology surgery, CMFT and UHSM, 2015-16

Type of Case	CMFT			UHSM			Total
	Urgent	Non-urgent	Urgent %	Urgent	Non-urgent	Urgent %	
Surgical management of miscarriage	247	108	70%	104	43	71%	502
Laparoscopic salpingectomy (ectopic)	14	128	10%	16	10	62%	168
Marsupialisation of Bartholin's	18	24	43%	7	9	44%	58
Other	13	0					
Total	292	247	54%	127	62	67%	728

Source: CMFT and UHSM analysis of SUS data for the year 15/16

6.1.2 Planned service arrangements and patient benefits

284. CMFT calculated an average waiting time for those 292 patients requiring urgent gynaecology surgery and which were added to one of the two CMFT urgent surgical lists by comparing the day that surgery was decided to be necessary against the date of the patient's surgery. The average wait for these patients before being operated on is three days. UHSM has undertaken a similar exercise by comparing the date that the 127 patients were added to its surgery list against the patient's TCI date (To-Come-In date). The average wait for these patients before their scheduled operation date is 3.3 days. There is an opportunity to reduce average waiting times for these 419 patients from three and 3.3 days to two days (and also avoid an unmeasured number of patients, out of the remaining 309 patients being escalated to emergency surgery as a result of delay).

285. For most patients, a delay for urgent gynaecological surgery will mean a poor patient experience including, for some conditions, an extended period of physical pain for the

[86] Whereas CMFT can identify the majority of its urgent patient cohort by reviewing the patients that were treated as part of its dedicated urgent patient surgery lists, UHSM does not have a dedicated urgent list. At UHSM approximately half of the gynaecology patients in one of the three service specialisations (Surgical miscarriage, Ectopic Pregnancy, or Marsupialisation of Bartholin's) have complete details recorded within SUS data (detailing priority of surgery), which has meant that UHSM clinicians have relied upon their judgment to a greater extent when estimating the "urgent" cohort of patients. See Appendix 6.1a – Data Counts of Urgent Gynae Patients.

patient. Further, the emotional impact of these delays cannot be underestimated, particularly for women who have suffered the loss of a pregnancy. Delays also increase the risk of a clinical deterioration due to, for example, increased risk of infection. Although clinical incidents are, on the whole, not common because a patient needing emergency care will almost always receive it in time,[87] the reduction in risk resulting from faster time to urgent surgery is an important patient safety issue.[88] The reduction in risk and improved patient experience will be experienced by the entire cohort of approximately 400 urgent gynaecology patients.

286. For the approximately 30 patients waiting for urgent Laparoscopic salpingectomy annually (based on 15/16 data, see Table 6.3), a reduced time to surgery will result in a shorter length of stay, as they are inpatients whilst waiting for their procedure. Because of the risk of life threatening intra-abdominal haemorrhage that is present for these patients, both Trusts aim for surgery within 24hrs, but are subject to the challenges described above when being entered on non-dedicated lists.[89] The number of patients with reliable data is too small to obtain a reliable wait-time average, although clinicians at CMFT and UHSM estimate that at present approximately half of the patients (15) wait longer than 24 hours. It is expected that almost all patients, following the merger and the introduction of an additional urgent list on Wednesday, will be operated on within 24 hours because of the additional regular urgent capacity that is being introduced.[90] As well as reducing the pain and distress suffered, the reduction of the LOS for these patients can be estimated to be equivalent to 15 excess bed days annually (£4,590).

[87] For example, eight clinical incidents relating to delays for urgent surgery are reported at CMFT for January to October 2016, see Appendix 6.1b – CMFT Clinical Incidents.
[88] No relevant guidance or standards for maximum delay to surgery have been produced in England to support a quantitative measure of this point. Further, CQC have not referred to this point in any of its inspections of CMRT and UHSM.
[89] There is no known published guidance available for time to urgent surgery for these urgent ectopic procedures, although at all times clinicians will seek to minimise their patient's distress by undertaking surgery as soon as possible within the constraints described above.
[90] That is, a patient would need to be admitted to the merged Trust on a Saturday to miss-out on the opportunity of a scheduled urgent theatre session being available the same or next day.

Urgent Gynaecology - Patient Case from 2014

Patient A attended St Mary's hospital at CMFT with severe abdominal pain. An ovarian torsion (twisting of the ovary) was suspected and the patient was scheduled for urgent surgery. Best practice indicates that where a diagnosis suspects an ovarian torsion, surgery should be performed within 48 hours of the onset of pain (see for example Appendix 6.1c – Damigos et all 2012, p235).

An Ovarian torsion is an infrequent but significant cause of acute lower abdominal pain in women. This condition is usually associated with reduced venous return from the ovary as a result of stromal oedema, internal haemorrhage, hyperstimulation, or a mass. The ovary and fallopian tube are typically involved. The pain usually is localised over the involved side, often radiating to the back, pelvis, or thigh, and often described as excruciating (9 or 10 level out of a scale of 1-10). Approximately 25% of patients experience bilateral lower quadrant pain. It may be described as sharp and stabbing or, less frequently, crampy. Nausea and vomiting occur in approximately 70% of patients.

Several attempts were made to expedite this patient's urgent surgery because of the complications associated with an ovarian torsion. Complications that can arise include: Infection; Peritonitis; Sepsis; Adhesions; Chronic pain, and Necrosis (death of the ovary).

Surgery was performed five days after her initial presentation, by which time she had developed necrosis of her ovary requiring removal of her left fallopian tube and ovary. Research states that the likelihood of conserving the ovary is increased if, amongst other factors, the time is short between presenting with pain and the operation, and within 48 hours (see Appendix 6.1d – *An update on the diagnosis and management of ovarian torsion*). The patient made a full recovery, although the delay in urgent surgery led to additional days in hospital under a pain management regime whilst awaiting surgery. Emergency procedures took priority over this urgent case during this period.

The pressure of other cases over the five-day period were deemed to be more urgent and were considered to have led to the delay in urgent surgery.

Outcome

Following this clinical incident, the clinical staff decided to implement a number of actions to mitigate the risk of re-occurrence of this Patient A's experience. Specifically, a triage and booking process was introduced to assist with ascertaining the level of urgency, the possibility of accessing spare anaesthetist capacity to progress cases was investigated (see Appendix 6.1e – CMFT Business Case), and clinical staff underwent reviews on the importance of timely observations and documentation updates. The clinicians at CMFT consider that these actions represent everything possible that can be improved within the resources available to the clinical team (the report on this incident is available at Appendix 6.1f – Urgent Incident Report).

Even though all possible internal actions were untaken, the underlying issue is that urgent patients need to get sicker before they can be escalated to an emergency list, or there needs to be more regular urgent lists. The merger is anticipated to provide a critical mass of patients on Gynaecology pathways that will be sufficient to support increased urgent list availability. As CMFT and UHSM both have large specialist gynaecology and obstetric teams, a merger with a smaller, non-specialist, partner would not achieve the same number of patients needing access to these pathways.

287. In order to provide more timely access to theatre for urgent gynaecology surgery cases, with the benefits for patients described above, one additional dedicated surgery list is intended to be scheduled per week. This will provide gynaecology surgeons with exclusive theatre access for treating these cases on Monday, Wednesday, and Friday, which has the effect of improving the choice that patients, together with their surgeon, can make about both timing and location of their urgent surgery. It is intended that two lists will be retained at CMFT and a new dedicated list will be introduced at UHSM by either (i) converting an existing elective surgical list time, which is justified by the greater urgent patient numbers of the merged Trust, or (ii) recommissioning a vacant theatre

session.[91] This will reduce the average time to urgent surgery for CMFT patients and UHSM patients will, for the first time, have access to dedicated gynaecology surgery lists. A shared booking system will be used to allocate patients to the sessions available (the process for delivering this administrative process is discussed further in Section 12 as part of the IM&T implementation)**.**

288. By providing three planned urgent gynaecology surgical lists per week the average delay for urgent gynaecology surgery, for the expected 400 patients attending the merged organisation, will reduce from an average of three days to a maximum of two days. Further, it is estimated that half of urgent Laparoscopic salpingectomy cases (20 patients) will have an associated reduced length of stay saving (to under 24-hours).

6.1.3 Merger dependence

289. Several attempts have been made at CMFT to justify the case for creating exclusive theatre time each day to treat urgent gynaecology cases, but such attempts have failed on the basis that there is insufficient demand within the CMFT patient population to justify the expense. Similarly, UHSM, which has fewer patients requiring urgent gynaecology surgery, has an insufficient number of patients from its own catchment from which to create regular (i.e. more than one per week) urgent gynaecology surgical lists. With the combined maternity population of the two Trusts the case for creating the additional list per week is much stronger.

290. The negative patient experience of holding only two urgent gynaecology lists for urgent cases has been discussed at CMFT since early 2012. At that time the lists were performed on Monday afternoons and Friday mornings and three-day waits were noted to be common for patients, and a sub-optimal outcome. A system was introduced during 2012 where urgent gynaecology cases were scheduled alongside the IVF theatre list (theatre lists for egg collection) and when the IVF Anaesthetist had capacity within their six-case list then urgent gynaecology cases were attended to. During late 2013, it was identified that IVF would have less capacity available (as IVF procedures were intended to be increased) and emergency demand for gynaecology was expected to increase because of changes to patients presenting at Trafford Hospital (where they would be seen at St Mary's Hospital). To anticipate these pressures CMFT developed a business case to support the introduction of an additional Gynaecology urgent surgery list which was presented to the divisional Director during the summer of 2014.[92] Three options were considered to address the recognised pressure for additional urgent theatre lists:

- Option one was to see one additional patient (surgical miscarriage) on the gynae-oncology list per week by making use of otherwise unused 'down-time' in the theatre. However, there were changes in how the Gynaecological Oncology list was undertaken which make this option no longer viable (i.e. the likelihood of 'down-time' was reduced by ensuring that associated resources, access to HDU beds, were

[91] The final decision on how the additional theatre session will be delivered will be from the development and decision upon a business case by the Scheduled Care Divisional Board. The business case process would first review any opportunity to absorb the additional theatre session within the existing programme of sessions through improving utilisation and productivity of the theatre sessions and staff. In the event that an additional rather than substitute theatre list is required, the workforce establishment for theatre staff would be expanded and the new posts recruited to. Team job plans for Consultants would be reviewed in order to allocate regular cover for the new list. The approximate annual cost of the session would be £25,000 per annum and the likely lead-in time from confirmation by the Scheduled Care Divisional Board to implementation would be three months

[92] See Appendix 6.1e – CMFT Business Case for Urgent Gynae Lists 2014.

better coordinated). This option was also considered sub-optimal because the Gynaecological Oncology list was less frequent than every day.

- Option two was to swap the theatres used between IVF and another speciality so that the IVF Anaesthetist was potentially available to support urgent gynaecology cases. However, the increase in IVF activity meant that there was no additional capacity available.

- Option three was to run a third urgent gynaecology surgical list (6 cases). However, the cost of introducing the additional list was not expected to be supported at that time because there were insufficient patients to fill an entire additional theatre list every week (which would be considered an inefficient use of theatre time).

291. A single surgical service could not be delivered through partnership due to governance and indemnity arrangements – to transfer patients between the Trusts for surgery would require clinicians at one organisation to perform surgery on the basis of clinical decisions made by clinicians in another organisation with different policies and protocols.

292. In the absence of merger the history of attempted collaboration between the two Trusts, described in Section 4, indicates that a future attempt to collaborate for pooled urgent gynaecology surgery lists would be very unlikely to succeed as significant effort would need to applied to develop a robust governance system for patient notes transfer, within a broader context of how financial considerations for each of the two Trusts would be addressed through a partnership arrangement.

6.1.4 Implementation constraints and plans

293. The Trusts in assessing the deliverability of this benefit have considered a number of potential constraints to implementation and how these might be addressed. These potential constraints are as follows:

- *Financial impact*: The benefits associated with the planned changes to Urgent Gynaecology include a reduction in length of stay, but the number of patients is not great enough for this benefit alone to facilitate a material reduction in bed capacity. In general, the patients treated in this service in the merged Trust will be the same as the patients treated by the two existing Trusts, so there will be no material change in net income. The restructuring of services within the merged organisation will create additional costs in some areas/sites, and reduced costs in others, but these effects are likely to be neutral overall.

- *Requirements for commissioner approval and public consultation*: This new theatre list will not require commissioner approval.

- *Workforce and rota impacts*: No significant workforce impact is expected on the consultant staff who are already treating these patients, and the impact of creating the additional urgent theatre session, on staff, is dependent upon whether there is an opportunity to create the session out of existing workforce establishment or whether additional theatre staff posts will need to be created and recruited to (this is part of the business case assessment for the introduction of this additional theatre session that is discussed further above).

- *Clinician support*: This patient benefits case has been developed by Women's Health consultants from both CMFT and UHSM. It reflects their own aspirations and plans for the development of services following the merger. As such, there is a high degree of clinician support for the changes that will deliver these patient benefits.

294. Further details of the implementation plan for this work is provided in Appendix 6.1g.

6.2 Community midwifery

295. Greater Manchester has midwifery zones, associated with hospital catchments, which impose barriers and introduce safety issues to pregnant women who wish to choose a hospital for their delivery that is outside of their community midwife zone. CMFT and UHSM have safe information sharing arrangements to ensure that important patient information is available to follow patients who either choose or, as a result of an emergency situation, require medical care outside of their midwife zone.

296. The merger allows information to be shared between the Trusts without requiring the duplication that occurs at present, which improves the standard of care for women who otherwise need to provide information to both south and central Manchester community midwife teams. Further, maternity governance and training can be standardised so that midwifes can escalate emergencies to common standards across a large part of the Greater Manchester conurbation.

6.2.1 Current service arrangements

297. In Manchester (and also nationally), arrangements for the provision of care to pregnant women are logistically complex due to the way in which women are assigned to community midwifery teams before and after birth combined with the ability to give birth at a hospital of their choice. This can cause disruption to a women's continuity of care, duplication of diagnostic tests causing frustration for the pregnant woman, and increased costs for providers.

298. There has been a long history of debate and controversy with regard to the configuration of children's services in Greater Manchester. An evaluation of the programme to reconfigure maternity, neonatal and children's services in Greater Manchester refers to formal consultations on children's services having started in 1994.[93] In 2002, as part of the pre-consultation of the "Making it Better" reconfiguration programme, it was decided that a working group be formed comprising of lead consultants and midwifes from all 12 maternity units existing at the time, who reached a view that the number of units should reduce to between 6-8 units. In 2012 the programme was officially completed with an establishment across the greater Manchester conurbation of eight delivery units.

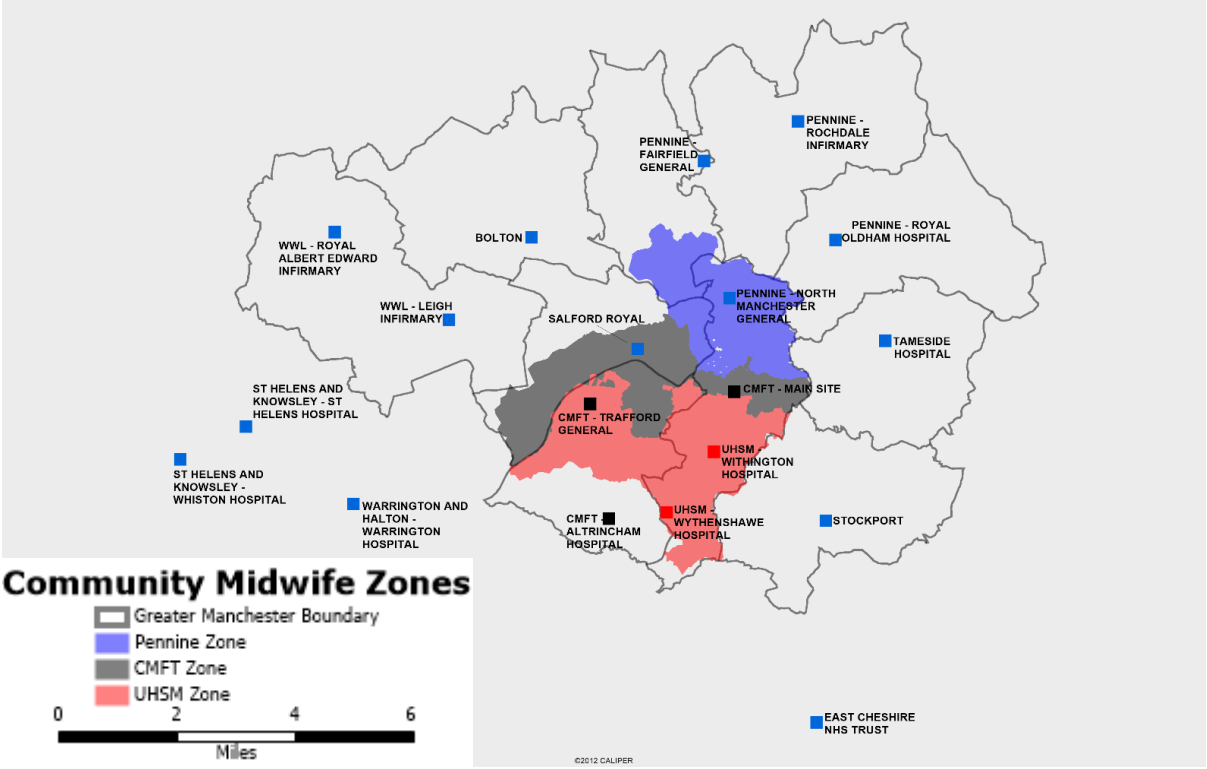
299. In CMFT there are 55 consultants working across obstetrics and gynaecology and 346 midwives working in the hospital and the community. CMFT offers a 24 hour / 7 day a week consultant-led and delivered obstetric service and is one of only two hospitals in the UK to have achieved this. UHSM has 15 consultants working across obstetrics and gynaecology and 167 midwives working in the hospital and the community. UHSM offers a 24 hour / 5 day a week consultant-led and delivered obstetric service and 12 hours

[93] Evaluation of Making it Better: *Evaluating the programme to reconfigure maternity, neonatal and children's services in Greater Manchester*, August 2014, see Appendix 6.2a page 11.

(between 8 pm and 8 am) for weekend nights. Weekend days are covered by an on-call rota with a minimum of three hours of Consultant ward rounds and presence per day. There are difficulties in staffing and particularly a shortage of sonographers at both Trusts.

300. Antenatal care is provided to pregnant women by different community midwifery services in Manchester according to the geographic zone in which their GP surgery, or the clinic they first attended in relation to their pregnancy, is located. This is called the first point of contact meeting. The community midwifery service will provide the majority of antenatal care, with women accessing hospital services for specific parts of the maternity pathway or if they have complex needs and require care by an obstetrician. Figure 6.1 shows the community midwifery zones for CMFT and UHSM.

Figure 6.1: Service areas for community midwifery services in Manchester



Source: Aldwych Partners

301. At the first point of contact meeting the pregnant woman will generally choose the delivery unit in which she wants to give birth, which may or may not be operated by the Trust that is providing the community midwifery service for her antenatal or postnatal care. It is common for women around Trafford Hospital, which is in the UHSM Midwife Zone, and requiring intrapartum or consultant care to choose CMFT to provide the specialist care, and UHSM midwives for their community-based services. Further, the postnatal midwifery team, which is allocated according to residential location, may be different to the antenatal midwifery team if, for example, the woman's GP surgery and her residence are over the border of different zones. The location of Trafford General hospital within the UHSM midwifery zone means that there is a high proportion of women crossing between the CMFT and UHSM midwife teams (see Figure 6.1).

302. There is no electronic sharing of patient records across Greater Manchester, and because of this there is potential for significant continuity of care issues for those women who are receiving services from different providers. Although almost all pregnant women carry their hand-held notes into antenatal appointments (considered by the parties to be almost 100%), some of the information essential to providing antenatal care is only recorded electronically (for example, blood screening results) or for safety reasons is not included in the hand-held notes (for example, vulnerable patients who have specific safe-guarding action plans in relation to HIV and alcohol issues or letters and reports from referring and treating specialists). This important information will be entered and held electronically by each team that provides care to the pregnant woman. Should the pregnant woman require or request care from a hospital out of the initial booking zone, then this important information needs to be duplicated, and is at risk of being 'lost' or 'missed' when moving between care providers.[94] This lack of continuity of care can lead to:

- poor patient experience as patients will need to provide the same information to staff from different organisations. Where an out of zone delivery unit has been chosen then the community midwife, at the first point of contact meeting, will take sufficient notes to refer the pregnant woman to an antenatal booking appointment with a midwife attached to the delivery unit. During that second appointment, called the booking appointment, a full obstetric, medical and social history will be taken, a discussion of pathway options completed, and a scan and blood tests will be performed. This full booking appointment will take around 1.5 hours and will need to comply with a suite of guidance, for example see the guidance for booking an antenatal appointment at St Mary's provided at Appendices 6.2a, 6.2b, 6.2c and 6.2d. By contrast, if a pregnant woman has chosen to have her birth at the delivery unit within zone then all details will usually be taken at the point of first contact meeting.

- Inefficiencies are created when, for example, gynaecological imaging is repeated. That is, a woman may have attended the delivery unit for a scan to confirm the pregnancy and expected date of delivery, when this has already been undertaken by the community midwife.

- It is possible for emergency situations to be unknown to a woman's community or postnatal midwife because the information will be recorded at the hospital on its IT system which is inaccessible to a midwife from a different community zone.

- If during pregnancy a woman attends a delivery unit in a different zone to their antenatal care, potential patient safety issues can arise where, for example, safeguarding information is lost between the organisations.[95] This is an important concern not only for the potential impact on the individual woman and her baby, but also because safeguarding referrals are, unfortunately, a common occurrence. In the year ended 31 March 2016, Safeguarding Maternity for Manchester received 3,647 referrals, of which there were around 490 related to maternity cases in south Manchester. This is more than 10% of all deliveries at UHSM over the same period.

[94] In theory it could be possible for a community midwife from out of the hospital's own midwife zone to attend a delivery and thus provide continuity of care, however, no medical support could be provided by the community midwife in the absence of a special honorary contract and so the midwife would only be an observer (a duplication of scare midwife resource).
[95] See for example, Appendix 6.2e – UHSM Child Protection Safeguarding Children Policy, and the forms requiring notification to Manchester Common Assessment Framework.

- The process of being handed-off between midwife teams leads to regular complaints concerning frustration of the process and delays in care, most of which are raised and addressed as part of a midwife's usual day-to-day interactions when working with pregnant women and new mothers.

- The "Making it Better" programme evaluation noted that the programme spanned many different Trust using different service models and patient pathways. It was found that where delivery units served mothers from the catchment areas of multiple Trusts, inconsistent pathways sometimes meant that important health checks or procedures were missed. For example, where Trust policy is to conduct baby hearing tests in hospital, but the mother attends hospital in a Trust which conducts them in the community, the baby may slip through the net and not receive a hearing test.[96]

Kathy Murphy – Head of Nursing and Midwifery, CMFT

"As a highly-experienced midwife, I cannot emphasise enough how important it is to remove barriers that compromise accessibility to hospital services, and to ensure that patient safety and choice of maternity care is focused in a personalised and individual manner. Women have expressed the importance of good quality and consistent communication and emphasised how vital this is to their pregnancy journey. A shared IT system reduces the need for women to have to explain their situation to every one they meet and this subsequently reduces women's anxiety and fear during childbirth".

303. There is some administration involved when an antenatal booking moves between midwifery zones. A maternity pathway tariff is allocated to the delivery unit where a woman is booked to give birth to her baby. If another midwife team delivers the community element of the antenatal care they then undertake an administrative process to recover part of the tariff, set at £402 per case (there is no recharge process available for postnatal care). The total amount of money transferred in 2015-16 for antenatal bookings moving between their midwifery zones was £568,000, from CMFT to UHSM and £105,000 from UHSM to CMFT.

6.2.2 Planned service arrangements and patient benefits

304. The Better Births Maternity Review recommended continuity of carer to ensure safe care based on a relationship of mutual trust and respect in line with the woman's decisions.[97] The review recommended that obstetric hospital care should be joined up with the care a woman receives in the community. As set out above, this is currently not the case for the patients of CMFT and UHSM who need to repeat booking information when receiving care from a delivery unit or hospital different to their community midwifery zone. In Greater Manchester, CMFT and UHSM account for 37% of births and so the merger would provide improved communication, safety and reduced duplication for many of the women in the conurbation.[98]

305. Under a single service the community midwives will work across current zone boundaries between UHSM and CMFT to provide continuity of care to women. This means that there will be reduced hand-offs from one team to another, and consistent with the Better Births

[96] See Appendix 6.2f – Evaluation of Making it Better, p27.
[97] See recommendation 2.1 of Appendix 6.2g – National Maternity Review or https://www.england.nhs.uk/wp-content/uploads/2016/02/national-maternity-review-report.pdf.
[98] In 2015-16 UHSM and CMFT undertook around 13,400 births between them. In 2015 ONS reports that there were 36,644 births in the greater Manchester area, see https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/datasets/birthsbyareaofusualresidenceofmotheruk.

Maternity Review - one test, one result and one clinical management plan. More specifically, that:

- Only one booking appointment will be needed which will save time for both the hospital clinic (as the full booking could be made by a community midwife) and for the pregnant woman who will not need to repeat herself at a second booking, or provide additional blood. All of this information can be undertaken by the community midwife.

- Maternity safety will be improved because all medical information will be available on the same maternity record. In particular, community midwives will be able to share home circumstances, risks and vulnerabilities with staff based in the delivery unit including, for example, scan information, safeguarding information, and information including emergency history will be available to community midwives to improve post-natal care at home. Improved safety from sharing medical information is an expected outcome from coordinating information, as explained in the Better Births Maternity Review.[99] Being able to share information means that there will be fewer hand-offs and therefore important information, for example the safeguarding referrals relevant to 10% of south Manchester deliveries noted above, cannot be missed (as the same record is being used by all persons responsible for the care of a woman during and after pregnancy).

- Some patients, particularly those from south Manchester who have elected for their delivery to be at St Mary's, could reduce their travel to antenatal appointments by attending these assessments at either of the UHSM sites instead. By way of example, if a pregnant woman from south Manchester experienced reduced foetal movement, and had booked her delivery at St Mary's, then the situation could be assessed by the team based at UHSM, instead of current practice which would require a trip to St Mary's. This is expected to be a faster resolution in a highly concerning situation for the pregnant woman because the UHSM site is closer.

306. By having maternity information centrally located the merged organisation has an additional opportunity, as yet unquantified, to streamline activity planning by site around case-mix and also to provide services closer to home by matching appointments to facilities located closer to the patient. For example, at present the Trafford site is used separately by both UHSM community midwifes and the St Mary's antenatal clinic. As a merged organisation these separate resources can be coordinated to provide both services as a single appointment (with the consequence of there being more appointment choice available for antenatal care) or specialist outreach services could be coordinated for a wider outreach across the midwife zone.

307. Each community midwifery team works to the guidelines and protocols for their employing organisation. There are differences between these guidelines and so each community midwife will manage each woman's clinical pathway differently. Each time a guideline which impacts on the community midwives is amended (across either organisation) the process of assessing compliance is challenging because there is no means by which it can be confirmed that the guideline has been communicated and is being adhered to.

[99] See Chapter 3 of Appendix 6.2g – National Maternity Review.

6.2.3 Merger dependence

308. A great deal of work has already been undertaken across Greater Manchester, as a result of the "Making it Better" programme over the 12 years from 2000 to 2012, to make as far as possible, the standards of maternity care provided from the eight delivery units in Greater Manchester comparable between providers.

309. Resulting from this earlier work undertaken more broadly across Greater Manchester, clinicians at the Trust's consider that the booking process cannot be improved further without a merger. Guidelines for the booking process are in place (for example see Appendices 6.2a, 6.2b, 6.2c and 6.2d) and a number of proforma papers need to be completed and re-entered by administrative staff and midwifes to ensure the right information is in the right place to provide comprehensive antenatal care. CMFT has also established a "radio room" to ensure that all discharges from other delivery units, where care is to be provided by the CMFT community midwife team are notified, and in reverse for discharges from St Mary's.

310. To achieve further improved care, as required by the Better Births Maternity Review, the Trust's now need to integrate its maternity records across CMFT and UHSM community midwife zones and standardise training, governance, financial flows, laboratory services and access to specialist medical records. The merger is expected to remove those organisational barriers (that exist for good reasons of provider accountability and responsibility) that are preventing these areas from transforming. As a single provider, better standards of maternity care can be achieved for women and their babies. Examples of the organisation barriers that will be addressed by the proposed merger are:

- In respect of training, each Trust has its own programme of mandatory training specific to the organisation and to the clinical pathways available at that Trust. Whilst some of the training will be common topics to have training for (for example, management of an obstetric emergency) there are a number of variations which present a barrier to providing a service that would look and feel the same experience to a woman receiving antenatal care, regardless of which maternity zone she is resident in.

  From the perspective of a pregnant woman having an emergency, for example, there may be different telephone numbers for a midwife to call as well as staff to contact with different titles and with different protocols to follow. And therefore, although the emergency is the same the management of the emergency is different.

  In a merged Trust with a single governance framework and guidelines training can be standardised to provide a single (optimal) response process. This then enables staff to work across additional hospital sites and a wider geographical area. This is important and affects many women receiving antenatal care where the different maternity zones change in the midst of the dense population area of south Manchester.

- Further, each Trust has its own governance arrangements and levels of accountability. Without a merger it is not possible to unify the governance across these different levels. Shared guidelines can be developed but previous experience proves that this is an onerous process that takes many iterations to obtain a consensus between multiple providers. Regional guidelines have been developed for two guidelines, where the critical importance of the guideline outweighs the

significant difficulty of not only agreeing a way to change governance arrangements to achieve compliance with the guideline but also justify the time and expense to review and update governance when required (an example of where this has been done is where an update to the regional guideline on the management of hypertension in pregnancy took 12 months to reach city-wide agreement and compliance, the other example concerns pre-term labour).

Given the difficulties of agreeing compliance with a single guideline, it is obvious to clinicians and midwifes from CMFT and UHSM that any attempt to reconcile the significant number of obstetric related guidelines across the two Trusts in the absence of a merger could not be achieved within any reasonable timescale (CMFT has around 120 guidelines and UHSM has around 60). With the merger a single governance strategy/process is already being developed for maternity services as part of the implementation plan.

6.2.4 Implementation constraints and plans

311. The implementation plan provided in Appendix 6.2h provides further detail about the implementation planning for the maternity aspects of the merger.

312. Planning in respect of standardising maternity pathways, governance, and ensuring that all staff follow the same emergency procedures is expected to be completed within 12 months of the merger.

7. Urology

313. Urology services at CMFT and UHSM include both CCG commissioned services for their local populations and specialised services commissioned by NHS England. Urology services at CMFT and UHSM are of a similar scale (see Table 7.1).

Table 7.1: Urology services, CMFT and UHSM, 2015-16

	First OP appointments		Follow-up OP appointments		Day case admissions		Elective admissions		Non-elective admissions		Number of OPFA Patients	
	CMFT	**UHSM**	**CMFT**	**UHSM**	**CMFT**	**UHSM**	**CMFT**	**UHSM**	**CMFT**	**UHSM**	**CMFT**	**UHSM**
Urology	5,479	6,803	11,090	17,028	3,222	3,124	1,083	1,249	1,295	1,278	4,902	5,206

Source: Aldwych Partners analysis of HES data for 2015-16

314. CMFT provides outpatient services at all its hospital sites Manchester Royal Infirmary, Trafford Hospital and Altrincham Hospital, day-case surgery at Trafford and inpatient emergency, cancer, and specialist services at Manchester Royal Infirmary (from its dedicated 26 bed ward). Occasionally, day case surgery is provided at Manchester Royal Infirmary for high-risk patients.

315. UHSM provides outpatient and day-case services at Wythenshawe Hospital and Withington Hospital, and inpatient services at Wythenshawe Hospital (from its dedicated 32 bed ward). Both Trusts are tertiary referral centres for specialist services in cancer (bladder, kidney and prostrate), and provide a wide-range of other specialist urology services.

7.1 Patient access to core urology services

316. Standard day-case urology services are provided by both CMFT and UHSM. These patients are limited, in general, to having this surgery at one of the hospital sites of the Trust to which they have been referred to for their first outpatient appointment. Pooling of patient lists across the merged Trust will allow the 6,000 patients that have urology day case surgery at the Trust each year to choose the hospital site for surgery that is most convenient for them.

7.1.1 Current service arrangements

317. Patients that are referred to either CMFT or UHSM for a first outpatient appointment in urology will continue with any subsequent treatment at that Trust, including travelling to a different site for treatment if the Trust provides first outpatient appointments and treatment at different locations.[100]

318. This can, however, result in patients having to travel to a less convenient location for treatment. For example, the Trusts are aware of patients from the south of the Trafford CCG area that choose to have their first outpatient appointment at Altrincham Hospital, which is often the most convenient local hospital for patients in that area. However, if treatment is subsequently required, then this will take place at Trafford Hospital (seven miles from Altrincham Hospital) or Manchester Royal Infirmary (ten miles from Altrincham Hospital), even though Wythenshawe Hospital may be closer to the patient (three miles from Altrincham Hospital).

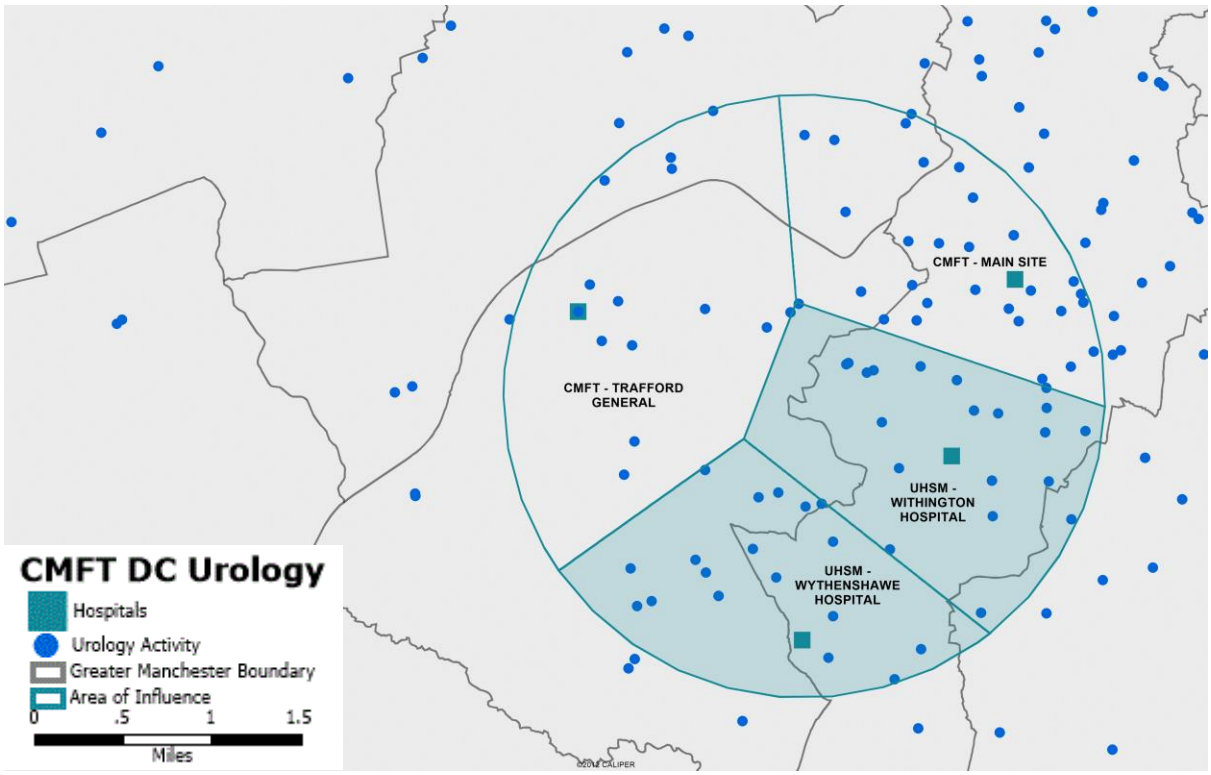
319. This example is further illustrated in Figure 7.1. The 393 GP practices that referred one or more patients to CMFT for a urology first outpatient appointment in 2015-16, where the patient was subsequently admitted for a day-case procedure, are shown as blue dots.

320. Of these 393 GP practices, 91 GP practices (19% of referring GP practices) were more closely located to Wythenshawe Hospital or Withington Hospital than to Trafford Hospital or Manchester Royal Infirmary. This implies that patients referred from these practices may have found it more convenient to have their day-case treatment carried out at Wythenshawe Hospital or Withington Hospital than Trafford Hospital or Manchester Royal Infirmary.

321. Similarly, patients having a first outpatient appointment at Wythenshawe Hospital or Withington Hospital may find it more convenient to have any subsequent treatment at Trafford Hospital or Manchester Royal Infirmary.

[100] If the patient requires a specialist treatment not provided by that Trust the patient will be referred to the specialist provider for the specialist treatment.

Figure 7.1: CMFT Urology Day-case Activity 2015-16



Source: Aldwych Partners analysis of HES data for 2015-16

Table 7.2: CMFT Urology Day-case Activity 2015-16

Hospital closest to referring GP practice	No. day cases	% of Total	Referring GP practices	% of Total
Wythenshawe Hospital	254	8%	43	13%
Withington Hospital	342	11%	48	13%
Trafford Hospital	957	30%	61	16%
The MRI	1,541	48%	164	42%
Unknown*	128	4%	77	16%
Total CMFT Activity	3,222		393	

Source: Aldwych Partners analysis of HES data for 2015-16
* A GPs location may be unknown because the activity is not coded to a GP or because the GP is outside of a 20-mile catchment limitation the analysis applied around each hospital.

7.1.2 Planned service arrangements and patient benefits

322. Both CMFT and UHSM use 'pooled' patient lists for 'core' urology day-case services, which means that patients will usually be seen for their outpatient appointment by rostered consultants and then allocated for a surgical slot in the operating theatre with whatever consultant is allocated to that theatre.[101]

323. As a merged Trust running a single pooled list, all 'core' service urology patients will benefit from having a greater choice of sites to attend. For example, following initial

[101] In contrast, for specialist services a patient is generally directed to a particular consultant with specialist skills.

consultation at any of the merged Trust's sites, patients requiring a day-case procedure will be offered a choice of Trafford, Withington, or Wythenshawe Hospitals.[102] Without a merger that patient would have been offered either: Trafford (if referred to CMFT); or Wythenshawe or Withington (if referred to UHSM).

324. Currently, a patient wanting to receive surgery from a location other than the Trust with which his or her first outpatient appointment was held, needs to transfer between the Trusts. This is unlikely to occur because the patient pathway and timeline for surgical treatment would be extended (and made more expensive). This is for two reasons:

- first, a delay is introduced because a patient is either required to return to their GP for a new referral for surgery at their preferred hospital site or, obtain a consultant to consultant referral;[103] and
- second, the patient will be required to repeat their first outpatient appointment and, in some instances, may need to undertake duplicate diagnostic tests and assessments where the examination results from the first appointment are unavailable at the Trust to which the patient is transferring.

325. In particular, a patient that decided to transfer from CMFT to UHSM in order to access treatment in a more convenient location would need a consultant-to-consultant referral. The patient would then need to wait until a first outpatient appointment slot was available at UHSM, which is currently a five week wait. Going in the other direction, a patient would currently need to wait 12 weeks for a first outpatient appointment at CMFT. (Alternatively, a patient may have to return to their GP for a new referral.) Given these additional waits, there is little evidence of patients choosing to delay their treatment.

7.1.3 Merger dependence

326. To offer shared access to sites, as proposed under the new arrangements, the Trusts would need to pool patient lists. This would, in itself, be likely to constitute a merger of the service. In any event, the difficulties of securing successful collaborative agreements between the two Trusts, as discussed in Section 3, indicate that such an agreement is unlikely.

7.1.4 Implementation constraints and plans

327. The Trusts in assessing the deliverability of this benefit have considered a number of potential constraints to implementation and how these might be addressed. These potential constraints are as follows:

- *Financial impact*: No material financial impacts specific to this initiative have been identified.
- *IM&T*: integration of patient administration systems across the merged Trust will be required to ensure the pooled list can operate effectively.

[102] Patients needing associated critical care services for their day-case treatment, for example because of a comorbidity, will generally be limited to either of the Manchester Royal Infirmary or Wythenshawe Hospital.
[103] UHSM's patient pathway usually sends a patient back to their GP for a new referral to the patient's preferred hospital and CMFT's patient pathway usually initiates a consultant-to-consultant referral to the patient's preferred hospital. In both instances the patient will be delayed.

- *Requirements for commissioner approval and public consultation*: This measure would not require commissioner approval.
- *Workforce and rota impacts*: No significant workforce impact is expected.
- *Clinician support*: This patient benefits case has been endorsed by Urology consultants from both CMFT and UHSM. As such, there is a high degree of clinician support for the changes that will deliver these patient benefits.

328. Further details of the implementation plan for this work is provided in Appendix 7.1a.

7.2 Urology cancer services

329. Following the merger, urology cancer services will be consolidated at either Wythenshawe Hospital or Manchester Royal Infirmary. This can be expected to lead to significant improvements in patient outcomes for the 400-500 urology cancer patients that will be treated annually at the consolidated site. This is consistent with the evidence regarding the relationship between patient volumes and outcomes.

7.2.1 Current service arrangements

330. CMFT and UHSM are tertiary referral centres for specialised cancer surgery of the bladder, kidney, and prostate. However, there are differences in patient pathways. For example, UHSM has a direct pathway to refer patients requiring a prostate surgical procedure to The Christie for robotic prostatectomy and CMFT offers open prostatectomies and provides patients with an opinion from the Christie for a referral to a robotic procedure.

331. CMFT and UHSM are two of five providers across the Greater Manchester Conurbation performing high level urological cancer surgery.[104] As a network, the Greater Manchester Conurbation has been non-compliant with NICE Improved Outcomes Guidance (IOG) for more than ten years. Although CMFT is compliant with NICE Improving Outcomes Guidance (IOG) and provides cancer care to the Pennine region (population of 1.3 million), UHSM is non-compliant due to servicing too small a population base and carrying out too few pelvic resection operations.[105]

7.2.2 Planned service arrangements and patient benefits

332. Emerging evidence over the last few years points to better outcomes from high-volume centres. Local clinicians have accepted that to deliver better outcomes the number of operating sites in Greater Manchester should be reduced.[106]

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[104] The other providers in the Greater Manchester conurbation are The Christie NHS Foundation Trust, Salford Royal NHS Foundation Trust and Stockport NHS Foundation Trust.

[105] For urological cancers, IOG recommends that radical surgery for prostate and bladder cancer should be provided by teams serving a population of at least 1 million and carrying out a cumulative total of at least 70 pelvic resection operations per year. UHSM has a serves a catchment of approximately 400,000 and carries out approximately 20 pelvic resection operations each year and therefore does not meet the requirements for IOG compliance.

[106] See the following: *A Systematic Review of the Volume–Outcome Relationship for Radical Prostatectomy: European Urology*, Volume 64 Issue 5, November 2013, Pages 786-798 (Appendix 7.2a); *A Systematic Review and Meta-analysis of the Relationship Between Hospital/Surgeon Volume and Outcome for Radical Cystectomy: An Update for the Ongoing Debate*: Catharina A. Goossens-Laan, Gea A. Gooiker, Willem van Gijn, Piet N. Post, J.L.H. Ruud Bosch, Paul J.M. Kil, and Michel W.J.M. Wouters: European Urology, Volume 59 Issue 5, May 2011, Pages 775-783 (Appendix 7.2b); and *Impact of Case*

333. Commissioners in Greater Manchester commenced a process in January 2016 to identify two surgical centres for Greater Manchester and to award a contract for specialised urology cancer surgical services to a lead provider in early 2017.

334. A detailed specification has been set, by commissioners, which requires kidney and bladder resection surgery to be delivered at one site in Greater Manchester and prostate robotic surgery at a separate site. The Trusts have been told by commissioners that the specification is intended to create two high volume inpatient urology surgical centres which will better meet the needs of Greater Manchester's population base, and comply with resection surgery requirements and IOG.

335. The Trusts have also been told by commissioners that the process of selecting the two surgical centres for Greater Manchester is proceeding, and a decision is being made by the commissioner in early 2017.[107] Further, it is known that either CMFT or UHSM will be the site that delivers kidney and bladder resection surgery. This will involve the treatment of 400-500 patients annually.[108]

336. Urology cancer patients can expect better health outcomes as a result of being treated at a single site compared with current arrangements.

7.2.3 Merger dependence

337. There have previously been several attempts to reconfigure urology cancer services in Greater Manchester.

- In 2012, a process to reduce the number of centres based on collaborative bids was intended to reduce the five providers (UHSM, CMFT, Stockport, The Christie and Salford) to two. This process resulted in a referral to Monitor (now part of NHS Improvement) by two of the providers (UHSM and Stockport) to seek resolution of concerns of collusion and eligibility criteria. These concerns were upheld by Monitor and the procurement process was abandoned.

- In 2014, commissioners launched an external tender process involving external reference groups and provider engagement events. Once agreement had been reached on specifications an Invitation To Tender was offered and a tendering process was undertaken. In January 2015, this resulted in commissioners selecting a two-site model and identifying Salford Royal and UHSM as preferred providers for urology cancer services. It was intended that the new contract would begin from April 2016. However, this process was subsequently abandoned by the specialist commissioners (see Appendix 3.1).

338. Absent a merger, the sequence of challenges described above indicates that neither Trust can be expected to readily concede their urology cancer service. The cancer services themselves are believed by the Trusts to lose money (i.e. the cost to deliver the services is greater than the NHS tariff payment), but a loss of these services is considered by the Trusts as being likely to result in questions being raised about that Trust's ability to

Volumes on the Outcomes of Percutaneous Nephrolithotomy: Dedan Opondo, Ahmet Tefekli, Tarik Esen, Gaston Labate, Kandasami Sangam, Antonello De Lisa, Hemendra Shah, and Jean de la Rosette, on behalf of the CROES PCNL study group: *European Urology*, Volume 62 Issue 6, December 2012, Pages 1181-1187 (Appendix 7.2c).

[107] Further details of the commissioner process of transforming urology cancer services is available at Appendix 7.2d – Report on OG and Urology Cancer July 2016.

[108] See Appendix 7.2e – Case for change OG and Urology Feb 2016 and Appendix 7.2f– Report on OG and Urology Cancer July 2016.

continue providing other urology services. However, with the merger, the planned reconfiguration of urology cancer services can now be expected to proceed successfully.

7.2.4 Implementation constraints and plans

339. Consolidation of these services is being pursued by commissioners. The merged Trust will be required to deliver the new arrangements in line with commissioner's requirements, including overcoming any workforce, financial or other issues that may arise.

340. Further details of the implementation plan for this work is provided in Appendix 7.2g.

7.3 Kidney stone removal

341. Following the merger, patients that would previously have received lithotripsy treatment for kidney stones at Manchester Royal Infirmary (using a mobile facility that visits once per fortnight) will be directed to Wythenshawe Hospital, where a permanent lithotripsy facility is located. This will significantly reduce waiting times for around 60 patients per year that would otherwise have been treated at Manchester Royal Infirmary.

342. Kidney stones form when salt or minerals normally found in urine become solid crystals (crystallise) inside the kidney. In most cases, the crystals are too tiny to be noticed, and pass harmlessly out of the body. However, they can build up inside the kidney and form much larger stones.

343. Depending on their size and location, kidney stones can be treated in several ways. The most common hospital-based treatment is ESWL - extracorporeal shock wave lithotripsy (lithotripsy). With lithotripsy, the kidney stone is located using x-ray imaging or ultrasound scanning and the lithotripter sends targeted shock waves to break up the kidney stones into pieces small enough to be passed naturally. It is usually performed as a day case without the need for general anaesthetic. CMFT and UHSM both provide this service which is commissioned by CCGs.

344. Other methods of treatment all require general anaesthetic which necessitates admission to the hospital and longer recovery times.[109]

7.3.1 Current service arrangements

345. UHSM has a dedicated lithotripsy unit at Wythenshawe Hospital managed by a specialist nurse with a dedicated radiographer.[110] It receives referrals from across Greater Manchester, and currently operates 3.5 days per week, offering approximately five slots per day (approximately 800 slots per year).

346. The lithotripsy service at UHSM is one of the 20 busiest services in England (out of 105 Trusts that provide this service). The unit is closed when staff take annual leave as there is no cover. The average patient wait time is 3-4 weeks (urgent slots are prioritised and provided within two weeks).

[109] Details on other forms of treatment and when they might be appropriate is described further on NHS Choices http://www.nhs.uk/Conditions/Kidney-stones/Pages/Treatment.aspx.
[110] The unit is in close proximity to the urology wards and has immediate access to medical staff if required.

347. CMFT provides lithotripsy services by way of a contract with a private provider of these services, Focus Medical. Focus Medical supplies a mobile unit that is staffed by CMFT for a list once per fortnight with slots for seven patients. (Services are currently under the supervision of a consultant urologist, but following recent recruitment, this supervisory role will soon be undertaken by a specialist nurse).

348. If a significant waiting list develops at CMFT then a further five cases can be accommodated by adding an afternoon session to the fortnightly visit. The average wait time at CMFT is approximately 4-6 weeks for elective patients. Additional information on the scale of the lithotripsy service at CMFT and UHSM is provided in Table 7.3.

Table 7.3: Lithotripsy services, CMFT and UHSM, 2015-16

	Episodes		Number of Patients		Revenue from Service	
	CMFT	**UHSM**	**CMFT**	**UHSM**	**CMFT**	**UHSM**
Lithotripsy	96	329	61	145	£46,867	£164,176

Source: HES data for 2015-16

349. CMFT does not have capacity to receive tertiary referrals from other providers for lithotripsy (unless it obtained additional staff to supervise and rented the machine it uses more often) but UHSM receives referrals from across Greater Manchester and the Isle of Man. Given the mobile unit is only at CMFT once a fortnight urgent CMFT patients generally receive an alternative form of treatment for their stone.

7.3.2 Planned service arrangements and patient benefits

350. Following the merger, all lithotripsy services will be delivered at Wythenshawe Hospital, better utilising UHSM's existing capital equipment. The merged Trust will have sufficient staff (two specialist nurses once the CMFT specialist is relocated to the Wythenshawe site as intended) to enable the lithotripsy unit at Wythenshawe to increase its operating hours and deliver services to patients currently treated at the mobile unit at CMFT.

351. A number of benefits are expected to result from this merger enabled change:

- The cost of the CMFT mobile unit will be avoided and thus an annual saving of £36,000 will be achieved.
- 60 patients that would have annually been treated at the CMFT MRI hospital site are expected to have waiting times reduced from 4-6 weeks to at least the present 3-4 weeks experienced by UHSM patients. This will be possible given the existing low utilisation of the Wythenshawe Hospital lithotripsy unit and the additional capacity enabled from increasing the specialist nursing staff from one to two (and the unit thus being open on more days).
- Urgent patients from CMFT will have the opportunity to receive lithotripsy services instead of alternative treatments requiring general anaesthetic and an admission to hospital.
- Patients from both UHSM and CMFT will be able to enjoy a greater choice of day of treatment rather than being limited to 3.5 days (UHSM patients) and alternate Friday mornings (CMFT patients). An indicative rota utilising the two specialist nurses (who

between them provide 1.8 WTE resource) shows that the lithotripsy machine at Wythenshawe could be operational 45 hours per week.

7.3.3 Merger dependence

352. In the absence of the merger, there is no reason to expect that CMFT and UHSM would be able to reach an agreement to refer CMFT patients to UHSM for the use of its lithotripsy machine. As set out in Section 4, there have been extensive challenges in successfully negotiating cooperative agreements between the two Trusts.

7.3.4 Implementation constraints and plans

353. To consolidate the kidney stone service at Wythenshawe will require the UHSM and CMFT specialist kidney stone nurses to be coordinated, through an expanded rota, to manage the lithotripsy machine at Wythenshawe.

354. At present CMFT and UHSM between them have 1.8 WTE specialist nurses qualified to run the lithotripsy machine. An 8am to 5pm rota over five days (45 hours) is a total of 1.53 WTE. As part of the implementation and rota planning, an assessment of patient requirements will be made to help inform whether evening slots and or weekend slots might better accommodate patient demand for non-working hours availability (i.e. whether the intended availability of Monday to Friday 9am to 5pm should be varied). In addition, as the implementation work proceeds demand for the service will be reviewed and the need for additional 7-day working considered (which would require 2.15 WTE specialist nurses).[111]

355. Further details of the implementation plan for this work is provided in Appendix 7.3a.

7.4 Seven day services

356. Neither Trust is compliant with seven-day service (7DS) standards. 7DS requirements are for every acutely admitted patients to be seen, by a senior decision making doctor of consultant level skill and experience, within 14 hours of admission and until they are no longer acutely unwell.

357. As part of its 'Five Year Forward View' NHS England has the ambition that by 2020 all patients in England should receive the same high quality urgent or emergency hospital care any day of the week. To support its ambition a set of ten clinical standards have been identified which must be met to 'qualify' as a seven-day service.[112] Four of these standards (intended to address variations in mortality) are considered to be a priority: i)Time to Consultant review; ii) Diagnostics; iii) Consultant directed interventions; and iv) On-going review in high dependency areas.[113] Both CMFT and UHSM are identified as 'Early Deliverers' and are part of a programme to achieve 7DS in the four priority standards by March 2017.[114] Both CMFT and UHSM believe that the only way to achieve all of the 7DS standards in urology for the new organisation is through the merger.

[111] As the implementation work proceeds the associated work planning for radiographers and administrative staff will also be considered and will factor into the working capacity of the lithotripter machine.
[112] All ten standards are detailed in Appendix 7.4a – Terms of Reference for UHSM 7DS Board.
[113] See Appendix 7.4b – 7DS Clarification of Priority Standards.
[114] See Appendix 7.4c – 7DS CCG Event 13 Oct 2016.

358. In anticipation of the merger, and taking account of the urology cancer commissioning process, the Trusts have been able to articulate how these standards can be met with a combined urology consultant rota.

7.4.1 Current service arrangements

359. In terms of consultant staff, CMFT has eight full-time consultants on a 1 in 8, non-resident, category A, medium frequency on-call rota.[115] UHSM has seven full-time consultants and runs a 1 in 5, non-resident, category A medium frequency on-call rota (two of the UHSM consultants participate instead in an on-call rota at The Christie).[116]

360. Both CMFT and UHSM have Consultant ward rounds twice each weekday and both have Consultant ward rounds once each day at the weekend. Further, the urology service provided by the Consultants is within the limits of the existing resources of each trust. Specifically, some Consultants have to simultaneously balance their commitments to their elective workload at the same time as their on-call duties.[117]

7.4.2 Planned service arrangements and patient benefits

361. As both trusts provide only one consultant ward round each day of the weekend, and because both elective and on-call duties are provided simultaneously, neither Trust meets 7DS criteria. However, the new NHS Improvement standards for a 7DS requires dedicated consultant care, which means there are insufficient urology consultant staff at either Trust to provide 7-day cover to the new standard without major implications on the delivery of elective activity. That is, the standard requires that consultants are dedicated to delivering their full-job plan while on-call and means that consultants cannot be rostered to provide on-call cover simultaneously with elective surgery rotas, as is presently the situation.

362. The merger between UHSM and CMFT will enable two tertiary teaching hospitals to combine their respective complements of consultants and doctors in training to provide more sustainable specialist rotas which is expected to improve both patient outcomes as a result of 7DS working. Once the service is merged and predominantly delivered from one site, it will be significantly easier to introduce a 'hot' Consultant rota across the City, building on the existing experience of developing this approach. This means that Standard 2 of the 7DS requirements, as defined by NHS Improvement, would be satisfied for the whole of the new organisation.

363. Over the period 2015-16 around 3,900 patients were admitted for elective and non-elective inpatient care.[118] Based on the evidence supporting the necessity of 7DS consultant care, it is expected that these patients will benefit from the anticipated rota changes that are enabled through the proposed merger.

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[115] For doctors in training category "1" indicates the numbers of hours worked is greater than 40 and less than 48 per week. The categorisation of "A" for these doctors in training indicates the frequency of out-of-hours / on-call work. A band "1A" supplement is a 50% salary supplement on top of basic salary. Speciality consultants receive on-call availability supplements to basic salary depending on their on-call rota being more frequent than or equal to 1 in 4 (high frequency), between 1 in 4 and 1 in 8 (medium frequency), and less frequent than 1 in 8 (low frequency). The classification of "A" means they are required to return to work straight away and "B" means can provide advice and attend hospital at a later time.

[116] Two of UHSM's consultants work half their job plans at The Christie and participate in The Christie's on-call rota.

[117] A 2011 Royal College of Surgeons census indicated that over 90% of Urology consultants are undertaking elective surgical duties while simultaneously being rostered on-call, see Appendix 7.4d p50.

[118] Aldwych Partners analysis of HES data 2015-16.

7.4.3 Merger dependence

364. Delivery of this benefit is dependent on bringing the consultant teams together from across to the two Trusts to have sufficient clinicians to deliver a seven day service.

7.4.4 Implementation constraints and plans

365. Work is presently ongoing to develop rotas and to take into account the impending outcome of the urology cancer procurement exercise which is being led by local commissioners on behalf of NHS England. Consideration is also being given to the impact of rotas beyond urology, for example the middle grade and junior doctor rotas that cover multiple specialties.

366. Further details about the implementation are provided in Appendix 7.4e.

8. General Surgery

367. The CMFT/UHSM merger, by enabling the planned consolidation of certain General Surgery services at Manchester Royal Infirmary (under the Healthier Together programme), will significantly improve services for nearly 4,700 General Surgery patients each year. These patients will gain from comprehensive sub-specialty consultant cover seven days per week.

368. It is difficult to estimate the size of the positive impact of this service change on patient outcomes. The reforms brought about by Healthier Together have been estimated as being capable of saving 151-289 lives per year across Greater Manchester[119], and CMFT and UHSM account for nearly one quarter of all General Surgery admissions in Greater Manchester.[120] However, CMFT and UHSM already have among the lowest mortality rates in Greater Manchester so a pro-rata allocation to the merged Trust of the anticipated mortality benefits for the region as a whole may not be accurate. Nevertheless, the Trusts believe that improvements in patient outcomes can be anticipated, particularly as a result of the speciality specific on-call arrangements that will be implemented.

369. Further, the merger will avoid the need for around £10 million of capital investment in new theatres and wards at Manchester Royal Infirmary to accommodate additional General Surgery activity. This is because the merged Trust will be able to transfer other activity to Wythenshawe Hospital, an outcome that would not be achieved in the absence of the merger.

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[119] The Healthier Together Impact Assessment states that "The Pre-Consultation Business Case (PCBC) presents analysis in which Healthier Together report that 'if all trusts in Greater Manchester achieved the lowest relative risk of mortality observed in Greater Manchester, the number of deaths could reduce by 151 per year. If all trusts in Greater Manchester achieved the lowest relative risk nationally, the number of deaths could reduce by 289 per year. This equates to 775 – 1445 deaths over 5 years'. However, as has been stated nationally, given the differences in context and recording practices can mean that extrapolating statistical measures to quantify actual numbers of avoidable deaths should be considered cautiously. Nonetheless, analysis of mortality data for emergency general surgery across hospitals in Greater Manchester has identified that there is currently significant variation in the mortality rate, ranging from 2.4% to 1.0%; confirming the statement made by Healthier Together about the variation in clinical outcomes." Mott MacDonald, *Integrated Impact Assessment Final Report*, July 2015, p.62 at Appendix 8.1.

[120] In 2015-16, according to HES data, there were 42,558 General Surgery inpatient admissions across Greater Manchester (at CMFT, UHSM, Bolton, PAHT, Salford Royal, Stockport, Tameside, Warrington & Halton and Wrightington, Wigan & Leigh). CMFT and UHSM accounted for 9,594 (23%) of these admissions.

8.1 Background

370. General Surgery is a wide-ranging area of surgery with several sub-specialties. It covers many kinds of surgical emergencies, with an emphasis on acute abdominal problems, as well as carrying out elective operations. Sub-specialties within General Surgery include Colorectal Surgery (for diseases of the colon, rectum and anal canal, particularly cancer of the rectum), and Upper Gastrointestinal (GI) Surgery (for diseases affecting the liver, oesophagus and stomach).[121]

371. The Healthier Together programme identified that care for patients in Greater Manchester with 'once in a lifetime' life threatening illnesses and injuries should be provided by a smaller number of hospitals in line with best practice standards.[122] As part of this programme, Manchester Royal Infirmary at CMFT was designated as one of four 'hub' hospitals in Greater Manchester to deliver high risk General Surgery services.[123] Wythenshawe Hospital at UHSM did not received this designation. Instead, UHSM has been grouped with CMFT as part of the Manchester and Trafford Sector of Greater Manchester.

372. Services that were initially planned for centralisation through the Healthier Together initiative were:
    - *acute medicine*: high risk patients (defined as those requiring access to Level 3 critical care);
    - *emergency general surgery*: patients requiring an emergency procedure; and
    - *planned care general surgery*: patients requiring complex or high risk general surgical procedures (defined as those procedures where at least 20% of cases require critical care).

373. As implementation planning has progressed at CMFT and UHSM, some changes have been made to the detail of which services will be centralised. For example, all colorectal cancer patients will now have their surgery at Manchester Royal Infirmary. In addition, all emergency general surgery patients requiring an admission will now be admitted to Manchester Royal Infirmary (not just those defined as high risk). However, Level 3 critical care services will now be maintained at both Manchester Royal Infirmary and Wythenshawe Hospital, and the model for Acute Medicine is unchanged from the historical service.

8.2 Current service arrangements

374. Both CMFT and UHSM provide General Surgery services. In 2015-16, at CMFT, there were 9,219 first outpatient appointments and 5,058 inpatient admissions (including day case, elective inpatient and non-elective inpatient admissions). At UHSM, over the same period, there were 6,546 first outpatient appointments and 4,536 inpatient admissions.

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[121] Further information on the role of General Surgery is provided by the Royal College of Surgeons at https://www.rcseng.ac.uk/news-and-events/media-centre/media-background-briefings-and-statistics/general-surgery/.
[122] See, for example, Association of Greater Manchester Authorities *Healthier Together Pre-consultation business case for Greater Manchester Health and Social Care Reform Part 1 of 2 Final*, April 2014, p.62 at Appendix 8.2.
[123] The other three hospitals in Greater Manchester where high risk General Surgery services will be centralised are Royal Oldham Hospital, Salford Royal Hospital and Stepping Hill Hospital.

375. A review of General Surgery for the Healthier Together programme found that these services in Greater Manchester do not always have consultant staff present, and admission to a critical care bed after surgery is not routinely available. This leads to inconsistent quality of care and poorer patient outcomes.[124]

376. A lack of General Surgery cover has been less of an issue at CMFT and UHSM. Currently, at CMFT, there are twelve General Surgeons, including six that specialise in Colorectal Surgery, three that specialise in Upper GI Surgery and two that specialise in General Surgery. At UHSM, there are ten General Surgeons, including seven that specialise in Colorectal Surgery, two that specialise in Upper GI Surgery, and one that specialises in emergency surgery. In common with other acute trusts, however, both CMFT and UHSM are experiencing pressure on bed availability.[125]

377. The Healthier Together review of Standardised Mortality Rates found that when Greater Manchester trusts are compared nationally, three Greater Manchester trusts (including CMFT and UHSM) fell within the 30 trusts nationally with the lowest relative risk of mortality observed in General Surgery and three fall within the 30 with the highest risk.[126] Analysis for Healthier Together also showed that for patients admitted for non-elective general surgery, where an operation is undertaken, mortality (measured as crude death rate per 1,000 spells) varied across Greater Manchester hospitals from 23.1 per 1,000 spells to 51.7 per 1,000 spells.[127]

378. Barriers to improving emergency General Surgery outcomes were identified as including access to required levels of diagnostics, theatre and critical care support, and workforce constraints. In relation to the General Surgery workforce, the Healthier Together review noted that the positive advancement of doctors providing greater sub-specialisation means that fewer doctors remain general surgeons and contribute to the on-call general surgical rotas.

8.3 Planned service arrangements and patient benefits

379. As set out above, under the planned arrangements, emergency General Surgery patients requiring an admission in the Manchester and Trafford Sector of Greater Manchester will be admitted to Manchester Royal Infirmary, as will colorectal cancer patients that require surgery. These patients will no longer be admitted to Wythenshawe Hospital.

380. The consolidation of services at Manchester Royal Infirmary will allow the merged Trust to provide separate colorectal, hepatobiliary and upper GI rotas, including sub-specialty

[124] Association of Greater Manchester Authorities, *Healthier Together: The Greater Manchester Case for Change*, September 2012, p.33 (forming Appendix 1 of the Healthier Together Pre Consultation Business Case) at Appendix 8.3.
[125] For example, the most recent CQC inspection report for CMFT states that "there was continual pressure on the availability of beds" (CQC, *CMFT Quality Report*, June 2016, p.5 at Appendix 8.4). The most recent CQC inspection report for UHSM states that "there have been 59 occurrences of patients being nursed overnight in theatre recovery from April 2015 to October 2015 when critical care beds were unavailable" (CQC, *UHSM Quality Report*, June 2016, p.18 at Appendix 8.5).
[126] Association of Greater Manchester Clinical Commissioning Groups, *Healthier Together Pre-consultation business case for Greater Manchester Health and Social Care Reform, Part 1 of 2, Final*, April 2014 at Appendix 8.2.
[127] According to national audit figures (National Emergency Laparotomy Audit, *The Second Patient Report of the National Emergency Laparotomy Audit (NELA), December 2014 to November 2015*, July 2016 at Appendix 8.6) the 30 day risk adjusted mortality for CMFT is 8.4% and UHSM is 6.8% against a national average of 11.4%. UHSM has the lowest and CMFT the third lowest mortality in Greater Manchester. Outcomes for other trusts in Greater Manchester are Stockport is 6.9%, NMGH 9.3%, Bolton 10.3%, Oldham 10.4%, Salford 11.0%, Wigan 13.3%, and Tameside 13.7%.

specific on-call arrangements. This means that patients presenting with emergency general surgery conditions will receive immediate sub-specialty care.

381. The planned changes will affect around 4,700 patients each year. Modelling of General Surgery activity at UHSM, as part of the implementation planning process, has found that (based on 2015-16 data) around 1,900 patients who previously would have been treated at Wythenshawe Hospital will now be treated at Manchester Royal Infirmary.[128] In addition, there were around 2,800 patients at Manchester Royal Infirmary in those service areas affected by the consolidation of General Surgery.[129] That is, in total, around 4,700 patients will be benefit from improved General Surgery services.

382. The benefits from consolidating General Surgery services were assessed by Greater Manchester's CCGs in deciding on the reconfiguration of these services (see Appendix 8.1). These benefits were found to include the following.

- The proposed changes would support the delivery of the national vision for urgent and emergency care; that those people with more serious or life threatening emergency care needs receive treatment in centres with the right facilities and expertise in order to maximise chances of survival and a good recovery.
- The implementation of the Quality and Safety Standards will enable all hospitals to achieve recommended consultant cover standards, with consistent cover available 7 days a week.
- Hospitals and surgeons who undertake a critical mass of specialist emergency surgery cases are able to demonstrate better clinical outcomes.
- Consolidating specialist resources will enable the delivery of a safe, high quality and consistent service on a 7 day week, 24 hour basis.
- Consolidating emergency general surgery services will better support the priority and timeliness of surgery for patients.
- Hospitals and surgeons who undertake a critical mass of specialist high risk surgery cases are able to demonstrate better clinical outcomes.
- Providing teams in which surgeons can develop a specialist interest which can improve patient outcomes.
- Consolidating high risk planned surgery services will better support patients whose condition escalates or who require critical care support.

383. These benefits can be expected to apply to the consolidation of General Surgery services at the merged Trust as well as at other acute trusts in Greater Manchester.

384. Analysis for the Healthier Together programme found that if all trusts in Greater Manchester achieved the lowest relative risk of mortality observed in Greater Manchester, the number of deaths could reduce by 151 per year. If all trusts in Greater Manchester

[128] A copy of the General Surgery activity modelling in support of the Trusts' implementation of Healthier Together is at Appendix 8.7.
[129] This includes a small number of patients that will transfer from Trafford Hospital to Manchester Royal Infirmary. Supporting figures are provided at Appendix 8.8.

achieved the lowest relative risk nationally, the number of deaths could reduce by 289 per year.[130] As set out above, CMFT and UHSM account for nearly one quarter of all General Surgery admissions in Greater Manchester, and if there was an even distribution of this benefit across all Trusts in Greater Manchester, the merged Trust would account for one quarter of all additional lives saved (i.e. around 38-72 lives per annum).

385. That said, the starting point for CMFT and UHSM in terms of patient mortality in General Surgery is already good (see Section 8.2). This may indicate that more of the patient mortality benefits might be expected at other acute trusts in Greater Manchester.

386. Nevertheless, the Trusts believe that improvements in patient outcomes can be anticipated, particularly as a result of the speciality specific on-call arrangements that will be implemented at the merged Trust (and which will not be achieved at other acute trusts in Greater Manchester). Moreover, the concentration of general surgery expertise at the merged Trust will allow for further sub-specialisation among General Surgeons in areas like early rectal cancer, anal cancer, and inflammatory bowel disease. Consultant teams that treat a larger volume of cases will be able to develop greater expertise and specialisation, and provide greater consistency of care.

387. A particular benefit that the Trusts expect relates to the colorectal sub-specialty on-call rota. This rota means that colorectal emergency patients (cancer and non-cancer) will be seen by the right person quickly and have the right operation first time (e.g. bowel resection and bowel joined back together rather than a colostomy). Currently, around 20% of the patient cohort undergoing colorectal surgery for a bowel cancer are readmitted in 90 days (not just those presenting as an emergency) and 22% of patients are dead at two years. Under the new arrangements, where a specialist surgeon will always be available reduced morbidity and mortality can be expected (e.g. arising from a leak following surgery when a general surgeon who is not a colorectal surgeon operates).

388. Further, obstructed cancer patients will have access to stenting at all times. The Single Service is therefore likely to also attract referrals from across the region from hospitals where these services are not available out of hours, and ensure better outcomes for these patients as well.

389. More generally, improved outcomes can be expected to be reflected in a variety of quality indicators, including patient mortality, readmission rates and length of stay. Further, all general surgical patients who are admitted as an emergency and those who develop a complication (elective and emergency) will have access to a general surgeon with sub specialty expertise 24/7.[131]

390. A financial analysis carried out by the Trusts regarding the implementation of Healthier Together has found that CMFT, in the absence of the merger, would need to carry out capital investment of at least £10 million to accommodate the additional activity transferring to Manchester Royal Infirmary. This would include investment in a new theatre and two wards as well as additional staffing. At the same time, UHSM would need to maintain its emergency theatre, and although it may be able to reduce staffing by closing some bays

[130] Association of Greater Manchester Clinical Commissioning Groups, *Healthier Together Pre-consultation business case for Greater Manchester Health and Social Care Reform, Part 1 of 2, Final*, April 2014 at Appendix 8.2.
[131] See Association of Coloproctology of Greater Britain and Ireland, *Resources for Coloproctology*, 2015, p.12 at Appendix 8.9 for a discussion of the evidence regarding the link between patient volumes and outcomes as well as the links between sub-specialty rotas and patient outcomes.

(to reflect the transfer of activity to Manchester Royal Infirmary), it would not be in a position to close wards. As a result, there would be a negative financial impact on both Trusts.[132] The merger will, therefore, bring a financial benefit by avoiding these costs.

8.4 Merger dependence

391. While Healthier Together is a programme that exists independently of the planned merger between CMFT and UHSM, the two Trusts believe that the delivery of the General Surgery reconfiguration, and the benefits this will bring to patients, has been dependent on the decision by CMFT and UHSM to merge. This is for two reasons.

392. First, prior to the merger decision, the Healthier Together decision was subject to a judicial review by clinicians at UHSM. These clinicians were concerned about the impact of Healthier Together on those services at UHSM that had a significant degree of dependence on the Trust also providing high risk and complex planned and emergency general surgery services (e.g. Burns, Cardiology). The judicial review, which was not supported by the executive and Board of UHSM, was not successful.

393. However, UHSM's willingness to actively cooperate with the implementation of Healthier Together underwent a step change with the merger decision. The merger means that there is much greater confidence that the impact of this reconfiguration on other services at UHSM as well as its financial impact can be managed positively.

394. This step change towards positive collaboration on the implementation of Healthier Together can be seen in the progress that CMFT and UHSM have made towards implementation. It is now anticipated that the Manchester and Trafford Sector (served by CMFT and UHSM) will be the first to fully implement this reconfiguration.[133]

395. Without the merger, it is likely that UHSM would have found reasons to delay implementation and water down the model given concerns about its financial and clinical impact. There is ample evidence of such behaviours from acute trusts in relation to other reconfigurations in Greater Manchester (not only by UHSM), which have had the effect of delaying, compromising or stopping other service reconfigurations. These are discussed in Section 3 and Appendix 3.1.

396. While Healthier Together may have been implemented at some point in the future, without the merger, it is reasonable to conclude – based on extensive past experience – that the benefits from this initiative are likely to have been delayed and have a smaller quantum than those that will be achieved with the implementation of this merger.

397. Second, the consolidation of emergency and high risk General Surgery at CMFT requires increased capacity at the Trust in relation to surgical ward capacity, theatres and critical

[132] See Appendix 8.10.

[133] See, for example, the Greater Manchester Transformation Unit report dated 7 October 2016 at Appendix 8.11, which states: "The panel acknowledged the huge amount of work that the [Manchester and Trafford] sector had undertaken so far. There was a real sense that the two sites [CMFT and UHSM] were working together to develop the models with great levels of engagement and communication with all colleagues. Significant progress has been made on the workforce, activity and estates modelling which is highly commendable … The plan is now in place to deliver the commissioning intentions for April 1st which is welcomed … It seems highly possible MATS [Manchester and Trafford Sector] could be the first sector to fully implement Healthier Together" (p.2).

care beds. At UHSM in 2015/16, there were 1,888 admissions and 508 theatre sessions related to activity covered by Healthier Together that will now be transferred to CMFT.[134]

398. The Trusts believe that some of this extra capacity may come about in the future through initiatives to reduce length of stay and improve theatre productivity as well as through the planned Local Care Organisation initiative in Manchester that is intended to transfer work out of acute hospitals and into care settings closer to home. However, in the absence of the merger, CMFT would have had to carry out additional capital investment (at an estimated cost of at least £10 million) to provide the extra theatre and ward capacity to absorb the new activity that would be transferred to it.[135]

399. By merging, it would be possible for elective surgical activity (or other activity), for example, to be transferred from Manchester Royal Infirmary to Wythenshawe Hospital. This would create the additional spare capacity needed at Manchester Royal Infirmary to absorb the emergency and high risk general surgery activity transferring from Wythenshawe Hospital, and for the resulting spare capacity at Wythenshawe Hospital to be utilised.

8.5 Implementation constraints and plans

400. As with other patient benefit cases, CMFT and UHSM have considered potential implementation constraints in terms of workforce (rota) impacts, financial impacts and requirements for commissioner approval.

401. Implementation of the Healthier Together reconfiguration of General Surgery is currently taking place and is scheduled for completion by July 2017. A Healthier Together Operational Board has been set up between CMFT and UHSM to provide leadership, and to date, clinical models have been agreed by the two Trusts, and activity, theatre and bed capacity have been modelled along with consultant workforce requirements. As a result, there are no constraints on the realisation of this patient benefit in terms of workforce, financial or commissioner-related issues.

402. The implementation plan for this reconfiguration is provided at Appendix 8.12.[136]

9. Orthopaedics

403. Orthopaedics is an area of surgery concerned with injuries and conditions that affect the musculoskeletal system (the bones, joints, ligaments, tendons, muscles and nerves). Conditions that are treated within this specialty include injuries, such as bone fractures, deformities of the spine or limbs, and the effects of long-term conditions such as

[134] This resulted in a total of around 12,700 bed days and equates to 38.35 beds based on an 85% occupancy rate. The activity modelling on which these figures are based is provided at Appendix 8.7.
[135] See Appendix 8.10.
[136] The Trusts note that implementation will be finalised prior to the completion of the CMA's review of this merger. The CMA could choose to conclude that any decision to prohibit the CMFT/UHSM merger would not result in the loss of the patient benefits arising from this reconfiguration because the two Trusts may be unlikely to reverse its implementation. However, the Trusts believe that such a conclusion would miss the fundamental point that it was the decision to merge, in the first place, that allowed the swift implementation of this reconfiguration. Further, any decision to disallow this patient benefit on the grounds set out above would send an unfortunate signal about the types of behaviour that would potentially be rewarded by CMA decision-making in relation to patient benefits.

osteoarthritis. Treatment may include medication, surgery and recommendations for physiotherapy.

404. CMFT and UHSM each offer orthopaedics services to patients in their locality. CMFT provides elective orthopaedics services primarily at Trafford General Hospital, with elective patients with more complex requirements, and non-elective patients, treated at Manchester Royal Infirmary. UHSM provides elective orthopaedics services primarily at Wythenshawe Hospital.

405. In 2015-16, around 27,000 patients were referred to CMFT and UHSM for first outpatient appointments, while a further 3,800 were treated on a non-elective basis. Total elective admissions, including day cases, across the two Trusts were around 7,150 patients.

Table 9.1: Orthopaedics services, CMFT and UHSM, 2015-16

	First outpatient appointments		Follow-up outpatient appointments		Day case admissions		Elective admissions		Non-elective admissions		Number of OPFA Patients	
	CMFT	**UHSM**	**CMFT**	**UHSM**	**CMFT**	**UHSM**	**CMFT**	**UHSM**	**CMFT**	**UHSM**	**CMFT**	**UHSM**
Trauma & Orthopaedics	23,325	11,082	52,472	24,174	2,540	2,058	1,242	1,317	2,107	1,663	18,216	9,027

Source: HES data for 2015-16

9.1 Elective orthopaedics

406. Following the merger, the merged Trust will transfer elective orthopaedic activity from Wythenshawe Hospital to Trafford General Hospital, where CMFT currently carries out its own elective orthopaedic work. This will ring-fence the elective orthopaedic activity currently carried out at UHSM from the pressures created by co-location with emergency surgery, and which has contributed to UHSM underperformance against the Referral to Treatment (RTT) 18-week target.

407. Approximately 2,500 patient admissions are expected to transfer from Wythenshawe Hospital to Trafford General. These patients will benefit from reduced elective cancellations, reduced length of stay, and reduced time to treatment, including improved referral to treatment performance for those patients that would have otherwise been treated at Wythenshawe Hospital. Patients will no longer be outliers in non-orthopaedic wards, need to stay in theatre recovery beds overnight, or be shifted between wards on multiple occasions.

408. In addition, the entire cohort of around 5,000 orthopaedic patients that will be treated at Trafford General following the merger will benefit from the greater workforce resilience that will be brought about from having a larger number of consultants in each sub-specialty treatment area.

9.1.1 Current service arrangements

409. CMFT and UHSM currently undertake elective orthopaedic procedures at Manchester Royal Infirmary and Trafford Hospital (CMFT) and Wythenshawe Hospital (UHSM). Orthopaedics is one of the largest specialties, by patient numbers and revenue, at both

CMFT and UHSM.[137] In 2015-16, CMFT had 23,325 first outpatient appointments, while UHSM had 11,082 first outpatient appointments in this specialty. Both Trusts carried out over 2,000 day-case procedures, and had around 1,000 elective admissions.

410. At CMFT, there are 16.6 whole time equivalent (WTE) orthopaedic consultants. Of these, seven specialise in lower limb surgery, four specialise in upper limb surgery, three specialise in foot and ankle surgery, 1.6 specialise in sarcoma, and one specialises in soft tissue knee surgery. At UHSM, there are 12 WTE orthopaedic consultants. Of these, four specialise in lower limb surgery (hip and knee), three specialise in lower limb (foot and ankle) surgery, two specialise in upper limb (hand and wrist) surgery, and three specialise in upper limb (shoulder) procedures.

411. This degree of specialisation means that expertise in a specialist area may focus around a limited number of individual consultants. Unexpected leave and/or retention problems can expose the resilience of the service, which has the effect of extending the time a patient waits for surgery.

412. A significant part of the orthopaedic elective workload at both Trusts is hip and knee replacements. Primary total hip and knee replacement is a procedure commonly carried out for osteoarthritis, and is a relatively common and straightforward operation, with a post-operative length of stay of 3-5 days for hip replacements and 2-4 days for knee replacements. Revision surgery involves the removal of a previous replacement (due to wear, infection or loosening) and replacement with a new implant (generally with a more complicated and costly implant) over one or two operations. Complication rates and post-operative length of stay is generally higher for revision surgery.

413. At CMFT, the total number of hip and knee replacements (including both primary and revision surgery) was around 745 in 2014-15, while at UHSM it was 422 (representing around 60% of elective admissions in this specialty at both Trusts).[138] At CMFT, hip and knee replacements are carried out at both Trafford General Hospital (around 87% of all CMFT activity) and Manchester Royal Infirmary (around 13% of all CMFT activity). Patients undergoing treatment at Manchester Royal Infirmary will generally be those that may need access to other services that are only available at this site (e.g. critical care services).

414. A particular challenge for UHSM is being able to carry out a high volume of elective work, given the pressure that arises from emergency cases filling elective theatre slots or reducing bed availability. At Wythenshawe Hospital, elective and non-elective orthopaedic patients are cared for in separate wards, but bed and theatre capacity is subject to the competing pressures of: (a) needing to see elective patients within the 18-week referral to treatment target; and (b) the requirement to admit non-elective patients from A&E and perform their surgery as soon as possible.

415. The need to manage these competing priorities has resulted in UHSM having to adopt several sub-optimal strategies to ensure that both emergency and routine patients are seen in a timely fashion. These include:

[137] At CMFT, only Cardiology and Gynaecology are of a similar size, while at UHSM, only Cardiology, ENT and Physiotherapy had more first outpatient appointments in 2015-16.
[138] Figures are from the National Joint Registry. The National Joint Registry (NJR) was set up by the Department of Health and Welsh Government in 2002 to collect information on all hip, knee, ankle, elbow and shoulder replacement operations, to monitor the performance of joint replacement implants and the effectiveness of different types of surgery.

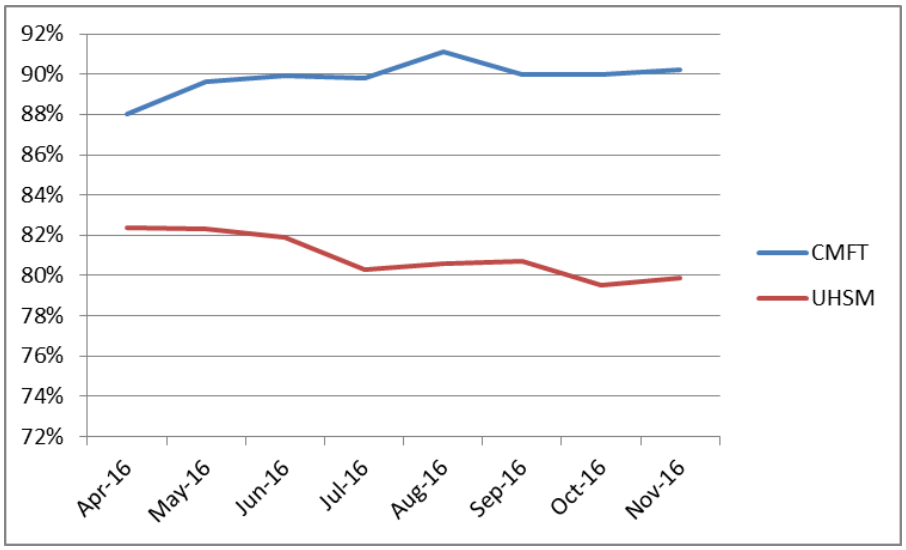
- *Admitting elective patients to a day-case bed in the hope that an inpatient bed can be secured later in the day.* When an inpatient bed cannot be found the day case bed has to remain open overnight meaning that the patient does not then have access to the specialist orthopaedic care available on the orthopaedic ward. This sub-optimal outcome also incurs additional cost for the Trust.

- *Cancelling elective patients when no bed/theatre capacity is available for them.* This results in a poor patient experience, makes poor use of available resource (because the theatre slot, and associated staff, is unused), and prolongs patient waiting times.

- *Admitting a non-elective orthopaedic patient to a non-orthopaedic surgical bed until an orthopaedic bed becomes available (i.e. patient outliers).* This transfer of care from one ward area to another gives rise to a poor patient experience, and caring for orthopaedic patients on a non-orthopaedic ward often results in a prolonged length of stay.[139]

416. Issues in managing the flow of orthopaedic work at UHSM are illustrated in the Trust's performance against the 18-week Referral to Treatment target. Since April 2016, UHSM has consistently failed to meet the target of ensuring that 92% of patients waiting for orthopaedic treatment have been waiting less than 18 weeks (see Figure 9.1).

Figure 9.1 Incomplete RTT performance (Trauma and Orthopaedics)



Source: NHS England

417. Issues relating to surgical bed capacity were identified in the CQC's 2016 inspection report for UHSM. The report states that "The lack of surgical bed capacity resulted in higher than average cancelled operations, failure to rearrange cancelled operations in a timely manner

[139] Multiple patient moves within the hospital, particularly if it is an older patient, can increase length of stay and stall patient flow. Research has found that patients can be moved four or five times during a hospital stay, often with incomplete notes and no formal handover (Cornwell and others, 2012; Royal College of Physicians, unpublished). Each patient move can add one or two nights to length of stay, and patients that are outliers (i.e. not on the most appropriate speciality ward for their condition) can lead to length of stay increasing by an average of 2.6 days (Emergency Care Intensive Support Team, 2010; Royal College of Physicians, 2012a; Alameda and Suárez, 2009). Intra- and inter-hospital transfers of older people at night can also increase the risk of delirium and, as a result, increase length of stay (Royal College of Physicians, 2012b). See Appendix 9.1 – Nuffield Trust Improving LOS, p6.

and an overall failure to meet referral to treatment times for planned surgical procedures".[140] While this point was made by the CQC in the context of Wythenshawe Hospital more generally, it also reflects the specific circumstances of orthopaedic care at UHSM.

9.1.2 Proposed service arrangements and patient benefits

418. CMFT and UHSM plan to centralise elective orthopaedic admissions at Trafford General Hospital following their merger. In particular, most patients that would now be admitted to Wythenshawe Hospital for an orthopaedic procedure will, in the future, be admitted at Trafford General Hospital. Outpatient and diagnostic services, however, will continue to be delivered at Wythenshawe Hospital. CMFT has already transferred the majority of its elective orthopaedic work to Trafford Hospital, and as a result, post-merger the pattern of elective orthopaedic activity at Manchester Royal Infirmary will remain unchanged.

419. Trafford Hospital has the ability to safely support the surgery of patients who are classified as being ASA grade 3 or under.[141] Orthopaedic patients who are classified as ASA Level 4 will continue to have their surgery at Wythenshawe Hospital or Manchester Royal Infirmary as these hospitals have full support services for patients needing critical care. Around 90% of the elective orthopaedic work that is currently undertaken at Wythenshawe Hospital is ASA level 3 or below and so this orthopaedic work will transfer to Trafford.

420. Outpatient, diagnostic and follow up services, will continue to be delivered locally and arrangements will be made so that the flow of clinical information follows the patient throughout their journey. Patient pathways and protocols will be standardised as part of the post-merger integration, but priority attention will be given to the process of standardising pre-operative arrangements to ensure that all patients follow the same pathways and protocols immediately prior to their surgery.

421. The Trusts expect benefits from this centralisation of elective orthopaedic work because this activity will be 'ring-fenced' away from emergency surgery. This will result in reduced elective cancellations, reduced length of stay, and reduced time to treatment, including improved referral to treatment performance for those patients that would have otherwise been treated at Wythenshawe Hospital. Since CMFT's acquisition of Trafford, and the introduction of ring-fenced elective orthopaedic beds at that site, CMFT's cancellation rate for orthopaedic procedures has reduced from 9.7% in 2015-16 to 5.7% in 2016-17. Patients will no longer be outliers in non-orthopaedic wards, need to stay in theatre recovery beds overnight, or be shifted between wards on multiple occasions.

422. Elsewhere, the experience of establishing elective orthopaedic units, and ring fencing of elective orthopaedic beds, has been shown to reduce length of stay in arthroplasty by up to two days, compared to elective patients admitted to general orthopaedic wards.[142] Ring-fenced elective orthopaedic beds have been identified as a key component in the national

[140] UHSM CQC Quality Report 2016, p18 at Appendix 8.5.
[141] Patients who are ASA Level 4 are defined as having a severe systemic disease that is a constant threat to life (e.g. symptomatic chronic heart failure or unstable angina).
[142] The mean length of stay after arthroplasty was found to have been reduced from seven to five days when ring fencing was introduced. See Barlow D, Masud S, Rhee SJ, Ganapathi M, Andrews G (2013). "The effect of the creation of a ring-fenced orthopaedic ward on length of stay for elective arthroplasty patients." *Surgeon*. 11(2):82-6 at Appendix 9.2.

strategy to improve the quality of orthopaedic care published in 2012 ('Getting It Right First Time', or GIRFT).[143]

423. Around 2,500 patient admissions are expected to transfer from Wythenshawe Hospital to Trafford General (i.e. 90% of all activity, based on 2015-16 data), and benefit from these new arrangements. In addition to improved patient care, it can be estimated that if 2,500 patient admissions save, on average, two bed days then this creates a financial saving of £1.5 million (unless these bed days are utilised by another service at Wythenshawe hospital).[144]

424. A further benefit from centralising elective orthopaedic activity at Trafford Hospital is that it will create larger sub-specialty teams. Specialist teams were highlighted as an important aspect of a high quality orthopaedic service in GIRFT which stated that "more complex operations, such as revision surgery, should be undertaken at suitably accredited specialised units with the appropriate critical mass, by surgeons with a special interest in this field".145 Similarly, the Musculoskeletal Services Framework, published by the Department of Health in 2006, concluded that conditions of low volume (fewer than 10,000 cases per year) should be concentrated in centres to gain critical mass.146 Increased specialisation will reduce lengths of stay, infection rates, readmission rates and revision rates.

425. As set out above, orthopaedic consultants at CMFT and UHSM have specialised such that expertise in different areas focuses around a limited number of individuals. Unexpected leave and/or retention problems expose the resilience of the service which may extend the time a patient waits for surgery. By creating larger sub-specialty teams, operating at Trafford Hospital, these risks are significantly reduced. Larger sub-specialty teams will also increase the opportunities for peer support and sharing lessons learned. For example, there are currently three foot and ankle surgeons at each Trust. Post-merger, the foot and ankle team will be twice as large and the team will be able to discuss and identify learnings from twice as many cases. Increased sub-specialism will also allow the merged Trust to perform highly complex operations that it does not currently perform due to low patient numbers, for example, ankle replacements. Patients currently have to travel to Wrightington if they require this surgery.

426. In addition to the increased specialisation of surgeons, the merger will also allow the development of supporting specialist physiotherapy, nursing and occupational therapist teams. Embedding effective team working will contribute to increased theatre utilisation, reduced lengths of stay and improved outcomes for patients. Following the acquisition of Trafford, CMFT increased its theatre utilisation from 70% in 2015-16 to 87% in 2016-17.

427. In some sub-specialties, the merger will also create sufficient critical mass to allow investment in surgical kit that is currently loaned. Orthopaedic surgery can require specialised and expensive equipment that is specific to the type of surgery being performed. Both Trusts use loan equipment from orthopaedic joint suppliers where the low volume of patients does not justify outright purchase of the equipment needed to carry out

[143] https://www.hfma.org.uk/docs/default-source/our-networks/healthcare-costing-for-value-institute/external-resources/getting-it-right-first-time---improving-the-quality-of-orthopaedic-care-within-the-nhs-in-england-(professor-timothy-briggs)
[144] NHS England reference costs 2016/17 state an excess bed day has a value of £306.
[145] https://www.hfma.org.uk/docs/default-source/our-networks/healthcare-costing-for-value-institute/external-resources/getting-it-right-first-time---improving-the-quality-of-orthopaedic-care-within-the-nhs-in-england-(professor-timothy-briggs)
[146] See page 40 at http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4138412.pdf

certain operations. The cost of this loan equipment can be in the order of £200,000, while loan fees are in the region of £1,500 per day. Loaning equipment limits flexibility as it must be booked in advance and, on receipt by the Trust, it must be checked and decontaminated prior to use. As a result, a kit used for a single operation will often need to be loaned for a period of six to seven days. In the event that an operation is cancelled the Trust will nevertheless incur the loan fee.

428. Financial savings are also expected to be achieved as a result of the increased buying power of the merged Trust. GIRFT identified that negotiating for a larger volume would reduce prices.

429. The merged Trust will have a significant focus on education and research. Due to the disparate nature of orthopaedic services, there has not been an academic orthopaedic department in Manchester in recent years (the last orthopaedic professor retired in 1999). Recently, steps have been taken at CMFT to create an academic orthopaedics department with the University. The merger would allow the development and expansion of this department. An academic department will improve the standard of training, ensuring training covers national developments, and will allow attract staff.

430. In addition, both Trusts are limited in the extent of their research activities due to their low patient volumes when compared to the other large cities in England which have a single specialist orthopaedic centre. For example, a study has recently been undertaken at CMFT in relation to physiotherapy pathways for knee replacements. The study reviewed two different interventions across a sample of 76 patients over a period of 10 months. The study found that one of the interventions reduced recovery time. However, the sample is not statistically significant and the findings have therefore not been applied to the broader patient population.

431. The increased volume of patients will significantly enhance opportunities for research and innovation by providing access to populations of sufficient size to be statistically significant. This will allow quicker adoption of improvements in patient care and access to new techniques on a more timely basis. The merged Trust, with its larger patient volumes, will also be much better placed to invest in or otherwise access new technology, such as robots.

9.1.3 Merger dependence

432. The realisation of this benefit is dependent on the merger because it enables the CMFT facilities at Trafford Hospital to be applied to the elective orthopaedic activity at UHSM. Without the merger, it could not be expected that UHSM would transfer its elective orthopaedic activity to CMFT given the associated loss of income. For the reasons set out elsewhere in this submission, a successful collaborative arrangement between the two Trusts that delivered these benefits could not be expected.

433. The possibility of a Manchester Elective Orthopaedic Centre was explored in 2010, prior to CMFT's acquisition of Trafford Healthcare NHS Trust when commissioners decided not to renew their contract with an Independent Sector Treatment Centre at Trafford Hospital. Trafford, UHSM and CMFT reached agreement on the clinical model but could not agree financial and governance arrangements, in particular which organisation would bear the risk for delivery of the 18 weeks target and which organisation would bear the financial risk. Discussions continued for a year but no progress was made and UHSM withdrew from the

process. At that point ,the Trafford acquisition process commenced and specific discussions in relation to orthopaedics were no longer needed.

434. GIRFT proposed using a hub and spoke model to create larger sub-specialty teams. However, in practice, organisations have found this model difficult to achieve as surgeons would need to reduce patient-facing time in order to attend cross-organisational team meetings. The parties are aware of only one region (East Midlands) where this approach has been adopted. In the event of a merger these team meetings will be part of the merged Trust's clinical governance structures and the surgeons' job plans.

435. In terms of research and innovation, although multi-centre trials are possible, they are complex to set up and manage.

9.1.4 Implementation constraints and plans

436. The Trusts in assessing the deliverability of this benefit have considered a number of potential constraints to implementation and how these might be addressed. These potential constraints are as follows:

- *Financial impact*: Additional revenue is likely to be gained as a result of improved productivity and shorter lengths of stay. There may be some additional costs arising from extended theatre sessions and 6-day working.

- *Capacity at Trafford Hospital*: the hospital currently has vacant ward accommodation that will be recommissioned to accommodate the elective work currently undertaken at Wythenshawe Hospital. Nursing and clinical support resource, required to support this work, will be delivered by utilising the existing orthopaedic workforce that exists across the two organisations. It is expected that theatre capacity on the Trafford site will be secured by introducing extended theatre sessions and 6-day working, and possibly transferring some of the day-case work in other specialties away from Trafford.

- *Requirements for commissioner approval and public consultation*: Commissioners are aware, and supportive, of the Trusts' plans to consolidate Elective Orthopaedic activity at Trafford Hospital.

- *Workforce and rota impacts*: It is not anticipated that any additional workforce will be required to deliver this benefit area but existing staff from across CMFT and UHSM may be required to work in different ways to support the delivery of elective services from the Trafford General Hospital site. A process of staff engagement and a degree of formal HR processes will be required to manage this appropriately. Existing arrangements for orthopaedic on-call rotas will be maintained for the elective pathway changes. Medical and anaesthetic out-of-hours provision on the Trafford General Hospital site are already in place to support the delivery of elective orthopaedic services, and these rotas will be maintained.

- *Clinician support*: This patient benefits case has been endorsed by orthopaedic consultants at both CMFT and UHSM. As such, there is a high degree of clinician support for the changes that will deliver these patient benefits.

437. Further details of the implementation plan for this work is provided in Appendix 9.3.

9.2 Fractured neck of femur

438. Following the merger, the merged Trust will establish a dedicated hip fracture unit at either Manchester Royal Infirmary or Wythenshawe Hospital offering 7-day services to patients suffering from fractured neck of femur. Around 550 fractured neck of femur patients each year can be expected to reduce time to treatment and length of stay for patients as well as complication rates and mortality outcomes.

9.2.1 Background

439. Fractured neck of femur, or hip fractures, are cracks or breaks in the top of the thigh bone (femur) close to the hip joint. They are usually caused by a fall or an injury to the side of the hip, but may occasionally be caused by a condition, such as cancer, weakening the hip bone. Surgery is usually the only treatment option for hip fractures.

440. NICE guidance for best practice treatment of hip fractures includes:
    - surgery within 36 hours of admission;
    - early post-operative mobilisation; and
    - orthogeriatric input from admission, including pre-operative assessment, falls prevention, bone health assessment and multi-disciplinary team involvement.[147]

441. A best practice tariff is payable by commissioners for hip fracture treatment under national tariff rules. The aim of the best practice tariff is to spread best practice by rewarding activities that correspond to the delivery of high quality outcomes for patients.[148] "For patients with a hip fracture, care should ideally be quickly and carefully organised. By quickly stabilising patients and ensuring that expert clinical teams respond to their complex frail conditions, the most positive outcomes can be achieved. Equally, the care that these patients receive following surgery is just as important, as it is in the initial days following surgery that the greatest gains can be made in patient outcomes."[149]

9.2.2 Current service arrangements

442. Patients suffering from fractured neck of femur generally present at A&E at CMFT or UHSM, where they are initially assessed. This includes taking a detailed history, examination of the affected limb, radiographic imaging and referral to the orthopaedic SHO grade or equivalent. Prior to leaving the department, routine blood tests, including valid group and save sample, ECG and chest x-ray are all performed. Analgesia is prescribed and pain level assessed and acted upon. Often, a fascia-iliaca block is administered for pain relief, avoiding excessive and potentially harmful opiate doses. This is in-line with the NICE guidelines on managing acute neck of femur fracture.

443. At both Trusts, the patient is admitted to the orthopaedic ward under the orthopaedic consultant. The SHO grade orthopaedic doctor performs a detailed history, examination and assessment, including mini-mental state examination. A plan is initiated for operative treatment, consenting, fasting and IV fluids, and urgent medical input if required. All patients at CMFT and UHSM have a preoperative assessment from an anaesthetist and

[147] See Appendix 9.4 - NICE 2011 updated 2014 CG124 – Hip fracture: the management of hip fractures in adults.
[148] See Monitor and NHS England, *2016/17 National Tariff Payment System*, March 2016 at Appendix 9.5.
[149] NHS England, *Additional Information: Best Practice Tariff proposals*, July 2016 at Appendix 9.6.

orthopaedic consultant, with orthogeriatric peri-operative assessment depending on the day of the week.

444. At UHSM, orthogeriatric services are present five days a week for neck of femur fracture patients aged 65 years or older. The orthogeriatric team review all neck of femur fracture patients generally the day after admission, preoperatively and post-operatively, except over the weekends. Issues of pain, delirium/cognition, and medical comorbidities / deterioration are addressed by the orthogeriatric team, along with pressure sore prevention, polypharmacy, nutrition, thromboprophylaxis and bone protection advice, with outpatient follow-up arrangements in dedicated clinics. There is consultant orthogeriatric presence on the orthopaedic wards Monday and Thursday with part-time hospital associate specialists four days a week. Rehabilitation facilities are currently available through Ascot House, Buccleugh Lodge and the Peele intermediate care units.

445. In addition to offering medical/geriatric care until discharge, the consultant orthogeriatricians at UHSM also liaise and lead a multidisciplinary team of professionals to enhance patients' recovery and rehabilitation, and aid early discharge to patients' homes, rehabilitation, intermediate care or 24-hour care facilities.

446. CMFT runs an orthogeriatric service similar to UHSM, with a receiving unit for new admitted neck of femur fracture patients from A&E, within an orthopaedic ward (although patients are sometimes admitted to outlying wards when no beds are available). There is orthogeriatric consultant presence on the wards for twice weekly ward rounds, and registrar input Monday to Friday, 0900-1700 hrs. A daily trauma meeting allows presentation of the acute admissions and is attended by the night team, admitted consultant and anaesthetist. Intermediate care is available through Gorton Parks and inpatient rehabilitation at Trafford General Hospital (although only for patients who reside within the Trafford CCG area).

447. CMFT has a total of 16.6 orthopaedic consultants and a limited amount of orthogeriatric input (less than one WTE), while at UHSM there are 12 WTE orthopaedic consultants and 1.7 WTE orthogeriatricians.

448. Outcome data from CMFT and UHSM (see Table 9.2) indicates that UHSM is more successful than CMFT in terms of meeting best practice tariff criteria for fractured neck of femur patients, ensuring that surgery takes place within 36-hours, and has a shorter average length of stay for these patients. CMFT, however, has a lower adjusted 30 day mortality outcome. Both Trusts lack a seven day orthogeriatric service, and the level of pre-operative input from orthogeriatricians is variable depending on the time and day of week. At CMFT, there is a significant reliance on locum cover for orthogeriatric staff.

Table 9.2: Fractured neck of femur patients, CMFT and UHSM, 2015-16

	Admissions	Proportion of admissions meeting BPT criteria	Surgery <36 hours	Total length of stay	Adjusted 30-day mortality
CMFT	208	52.0%	53.4%	36.2 days	4.7%
UHSM	343	73.5%	76.1%	24.3 days	6.0%
Regional average		60.3%	71.9%	24.5 days	6.7%
National average		65.6%	71.5%	21.1 days	7.3%

Source: National Hip Fracture Database

9.2.3 Proposed service arrangements and patient benefits

449. Following the merger, CMFT/UHSM will centralise the hip fracture service at a single hospital. The result will be combined admissions of more than 500 patients per annum. Further, orthogeriatrician services will have sufficient staff as a result of the merger to create a 7-day service for these patients.

450. Patients with hip fractures will be admitted to an acute hip fracture unit / orthogeratric unit under the shared care of an orthopaedic and orthogeriatric consultant. The new unit will have dedicated male and female bays and will accommodate pre- and post-operative hip fracture patients until they are deemed surgically and haemodynamically stable.

451. Concentration of these patients at a single site will allow dedicated neck of femur fracture operating lists to be established, to supplement regular trauma lists, with consultant surgeon and anaesthetist teams who are sympathetic to the problems associated with medically unstable neck of femur fracture patients.

452. Daily orthogeriatric and MDT assessment will help minimise complications, length of stay and mortality and achieve stability to achieve an early discharge. These patients will be followed up in dedicated clinics for fall assessment/prevention and bone health investigations and treatment options. These clinics will be cross-covered by specialists from the merged Trust.

453. Pooling resources and focusing on best practice care, including daily orthogeriatric input, has been shown to reduce 30-day mortality.[150] International evidence also shows that dedicated neck of femur fracture units reduce length of stay, time to surgery and complications compared to mixed units.[151]

454. In the UK, a review of the introduction of a hip fracture unit also showed a significant reduction in length of stay and time to theatre, and increased consultant supervised day time operations when compared to patients admitted to a mixed trauma unit. It also found that more patients were discharged to their own homes and a reduction in the 30-day mortality rate (although these reductions were not statistically significant).[152]

455. Using dedicated fractured-neck-of-femur theatre lists has the advantage of guaranteeing consultant supervision of surgery, consistent with NICE guidelines, and securing input from anaesthetists who are experienced in managing the frailty and comorbidities commonly associated with neck of femur fracture patients. At Northern General Hospital in Sheffield, the adoption of these dedicated lists: reduced cancellations; and increased the proportion of patients undergoing same-day surgery.[153]

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[150] See Henderson C et al, 'Dedicated orthogeriatric service reduces hip fracture mortality' Ir *J Med Sci*. 2016 [Epub ahead of print], DOI:10.1007/s11845-016-1453-3 at Appendix 9.7.
[151] See Friedman DA. et al, 'Impact of a comanaged Geriatric Fracture Centre on short-term hip fracture outcomes' *Arch Intern Med*., 2009, 168(18:1712-7) at Appendix 9.8; and Gonzalez-Montalvo J. et al, 'The orthogeriatric unit for acute patients: a new model of care that improves efficiency in the management of patients with hip fracture' *Hip Int* 2010; 20(2):229-35 at Appendix 9.9.
[152] Khorati et al, 'Does a Dedicated Unit for the Treatment of Hip Fractures Improve Acute Outcomes?' *International Scholarly Research Notices*, Vol2014, ID385701 at Appendix 9.10.
[153] Basheer SZ. et al, 'Dedicated hip fracture lists: Improving the service received by orthopaedic trauma patients', *Ann R Coll Surg Suppl* 2013:9 at Appendix 9.11.

456. Increasing the number of patients whose care is consistent with the best practice tariff has also been shown to improve mortality outcomes.[154]

457. In terms of quantifying the benefits of this initiative, CMFT and UHSM consider that at a minimum patient outcomes at CMFT would be brought into line with those achieved at UHSM. As set out in Table 9.2, in 2015-16 there were 208 fractured neck of femur patients at CMFT. In 52% of cases, CMFT met the best practice tariff (compared with 74% at UHSM), and average total length of stay was 36.2 days (compared with 24.3 days at UHSM). Aligning these outcomes would result in 45 additional patients meeting the best practice tariff criteria, and a shorter length of stay for 208 patients with a total saving of 2,475 bed days. This additional capacity would result in approximately £750,000 in financial benefits to the merged Trust, and allow other patients to be admitted more quickly.[155]

458. CMFT and UHSM, however, expect that all fractured neck of femur patients will receive improved outcomes at the merged Trust. For example, the merged Trust will be able to offer a 7-day orthogeriatrician service, which is currently achieved by neither CMFT nor UHSM. Consistent with this, the Trusts consider that the proposed arrangements set out in this section are likely to result in the merged Trust achieving outcomes in the top quartile of NHS acute trusts in England.

9.2.4 Merger dependence

459. The dedicated hip fracture unit is dependent upon the proposed merger to enable sufficient patient volume onto a single site and to combine the medical staff of both CMFT and UHSM. Staff from both sites are required to support the deliverability of the 7-day service.

460. To attempt to co-ordinate a single fractured-neck-of-femur service without a merger would require an agreement on staff working across sites. It is not considered a realistic possibility to attempt to develop this service on the basis that clinical staff will managed under different terms and conditions and separate governance structures.

461. The most likely mechanism to deliver a fractured-neck-of-femur service without the merger is some form of joint-venture. This would create a means by which to transfer staff into an arrangement with standard terms and conditions and a single governance process. However, as discussed elsewhere in this submission, the history of failure when attempting to deliver joint-ventures between the Trusts indicates that this is also not a realistic possibility.

9.2.5 Implementation constraints and plans

462. The Trusts in assessing the deliverability of this benefit have considered a number of potential constraints to implementation and how these might be addressed. These potential constraints are as follows:

- *Financial impact*: The benefits associated with the planned changes to Orthopaedic Services include a reduction of 2,475 bed days in respect of optimising length of stay for patients with a fractured neck of femur, and this equates to approximately seven

[154] Khan SK., et al 'The Best Practice Tariff helps improve management of neck of femur fractures: a completed audit loop', *Br J Hosp Med* (Lond), 2013, 74(11) pp644-7 at Appendix 9.12.
[155] Calculation of 2,475 bed days * £306 per bed day.

ward beds. Demand for elective Orthopaedic services continually outstrips capacity. Working across the enlarged organisation, it is expected that it would be possible to restructure this capacity to undertake additional elective work. Additional costs would be incurred in respect of theatre and outpatient capacity, but the inpatient ward space could be repurposed to undertake additional elective cases. The associated income could be expected to cover the additional costs, and provide a contribution to overheads. Similarly, optimising pathways for fractured neck of femur patients is expected to ensure that an additional 45 patients attract the Best Practice Tariff, and this would create a financial benefit.

- *Choice of site*: The decision regarding the location of the single site will be subject to an options appraisal that will be undertaken in the context of relevant clinical and operational factors. In making this assessment due attention will be paid to the views of staff, patients and commissioners, including any requirement to undertake a formal consultation process. The decision for the single site is intended to be between either the MRI or Wythenshawe hospital sites because the fractured-neck-of-femur service requires an A&E and full critical care services on-site.

- *Requirements for commissioner approval and public consultation*: Commissioners are aware, and supportive, of the Trusts' plans to establish a fractured neck of femur unit.

- *Workforce and rota impacts*: It is not anticipated that any additional orthopaedic workforce will be required to deliver this benefit but existing staff from across CMFT and UHSM are likely to be required to work in different ways to support the delivery of a hip fracture service. A process of staff engagement and formal HR processes are being planned so that this constraint is managed appropriately. As the implementation plans are finalised, it may be necessary for an existing orthogeriatric vacancy at CMFT to be filled in-order to maintain the standard of service described above for the longer term (the existing resource is expected to be sufficient to deliver the enhanced service in the shorter-term). It is also expected that the enlarged orthogeriatric team will enhance the prospect of successfully recruiting to this role.

- *Clinician support*: This patient benefits case has been endorsed by orthopaedic consultants at both CMFT and UHSM. As such, there is a high degree of clinician support for the changes that will deliver these patient benefits.

463. Further details of the implementation plan for this work is provided in Appendix 9.13.

10. Head and Neck Cancer and Maxillo-Facial Surgery

464. Following the merger, significant improvements for head and neck cancer and maxillo-facial surgery patients will be made at the merged Trust through the planned centralisation of these services at a single site, and the implementation of a 7-day rota using the combined clinical workforce. Around 400 patients per year will benefit from better coordinated patient management leading to an improved patient experience, shorter lengths of stay and improved health outcomes.

465. Studies show that larger patient volumes in head and neck cancer surgery lead to cancer survival rates improving by up to 12%. As a result, the consolidation of these services could be expected to save the lives of 30-50 patients each year.

10.1 Background

466. Head and Neck Cancer includes cancers of the mouth, throat, voice box, nose/sinuses, neck and thyroid gland. Treatment can involve complex surgery, which is provided by Ear, Nose and Throat (ENT) surgeons and Oral Maxillofacial (OMF) surgeons. In the main, ENT surgeons concentrate on the throat and voice box, nose, sinuses and thyroid, while OMF surgeons concentrate on the oral cavity, upper and lower jaws and perform microvascular (small vessels) reconstruction.

467. Head and Neck Cancer surgery forms approximately 50% of all Maxillo-Facial Surgery, with the remaining 50% largely being made up of procedures related to facial trauma as well as similarly complex surgery for benign tumours in the head and neck area. Head and Neck Cancer Surgery, however, forms around 20% of ENT surgery.

10.2 Current service arrangements

468. In Greater Manchester, Head and Neck Cancer Surgery services are currently provided by CMFT, UHSM and PAHT. Patients that are treated at CMFT and UHSM (and PAHT) may have been referred directly to these Trusts by their GPs or may have been referred from a diagnostic centre at another acute trust. Patients may be referred as a result of, for example, a neck lump and may be on the two week wait pathway (for suspected cancer) or may be referred from A&E.

469. CMFT has seven Head and Neck Cancer surgeons (four ENT and three OMF) and UHSM has five Head and Neck Cancer surgeons (three ENT and two OMF). The two Trusts see about 400 cases of Head and Neck Cancer per year (approximately 250 at CMFT and 150 at UHSM).[156] In 2014-15, head and neck cancer surgery patients had an average length of stay of 8.4 days at CMFT and 11.7 days at UHSM.

470. Both Trusts face challenges in the provision of Head and Neck Cancer surgery services. These include the following:

- *Communications and coordination between CMFT and UHSM and referring hospitals*: some local hospitals split their referrals between CMFT and UHSM depending on whether the initial diagnosis is made by an ENT or OMF consultant. CMFT and UHSM have different protocols and processes and this can be confusing for the diagnostic centre making the referral and causes delays. Further, if a patient who has been referred to ENT is deemed to require OMF a second referral is required, to the other Trust, which can also cause delays.

  Communication between the diagnostic centres and their relevant surgical centre(s), as well as communication between the surgical centres is an issue. Patients often complain about being 'lost in the system' and feel like no one is co-ordinating their

[156] Where patients require chemotherapy or radiotherapy for these cancers, this is provided at The Christie NHS Foundation Trust.

care.[157] While a Clinical Nurse Specialist (CNS) is allocated to each patient originating from a diagnostic centre,[158] a diagnostic centre that refers to both CMFT and UHSM will have the case-load of the CNS split over both Trusts, which makes it difficult for the CNS to attend MDT meetings for all of their patients (because the CNS will be required at both Trusts). This has a material impact on patient care, as having a constant advocate (in the form of a CNS) is recognised as having a demonstrable contribution to effectiveness, patient experience and safety.[159] Patients regularly report issues with contacting their CNS due to the paucity of cover.[160]

- *Specialist ward nursing staff*: it is hard to recruit specialist ward nursing staff with skills in advanced airway management, communication difficulties, body image issues and swallowing issues. Both CMFT and UHSM provide training for their nurses in the speciality competencies necessary for head and neck cancer. Ward staff are also difficult to retain as wards are either mixed with another speciality or housing outliers from another speciality. In the Trusts' experience, staff prefer to work on single specialty wards as providing care for patients with different specialty conditions is challenging.

  CMFT has a system for recording incidents that occur due to a lack of available expertise in nursing staff. In the six months to September 2016 there were 11 nurse staffing incidents reported at CMFT that identified lack of suitably trained staff to care for head and neck patients, specifically relating to complex airway management (tracheostomy/ laryngectomy patients).[161] Although none of the incidents resulted in recorded harm to patients, the incidents indicate that there is an issue arising from the lack of suitably trained staff. The lack of suitably trained staff may result in delays in transferring patients from HDU following surgery, as patients need to remain with staff that are trained for the patient's condition.

  A principle of care is that bedside staff who care for tracheostomy patients must be competent in recognising and managing common airway complications including tube obstruction or displacements and as described by the National Tracheostomy Safety Project algorithms.[162] At CMFT, a Tracheostomy Review Group (TRG) was convened in 2011 at the request of the Medical Director to review the processes of care for patients with a tracheostomy within CMFT.[163] This followed a recommendation made by an investigation into a serious patient safety incident where an acute deterioration had not been responded to in a patient with a tracheostomy. A key recommendation in the report was the need for mandated tracheostomy training for staff caring for this patient group. Currently, all registered nurses at CMFT on the Head and Neck Cancer ward (20 beds) are competency assessed to this standard. UHSM has a dedicated ward for Head and Neck Cancer, Maxillo-Facial, and ENT surgery

[157] As reported by members of the MacMillan Patient User Group, see Appendix 10.1.
[158] Clinical Nurse Specialists have four main functions, which are central to achieving the Improving Outcomes Guidance (IOG, 2004). These consist of: 1) Using and applying technical knowledge of cancer and treatment to oversee and coordinate services, personalise 'the cancer pathway' for individual patients and to meet the complex information and support needs of patients and their families; 2) Acting as the key accessible professional (Key Worker) for the multidisciplinary team, undertaking proactive case management and using clinical acumen to reduce the risk to patients from disease or treatments; 3) Using empathy, knowledge and experience to assess and alleviate the psychosocial suffering of cancer including referring to other agencies or disciplines as appropriate; and 4) Using technical knowledge and insight from patient experience to lead service redesign in order to implement improvements and make services responsive to patient needs.
[159] National Cancer Action Team (2010) Quality in Nursing Excellence in Cancer Care: The Contribution of the Clinical Nurse Specialist at Appendix 10.2.
[160] As reported by members of the MacMillan Patient User Group, see Appendix 10.1.
[161] See Appendix 10.3 – CMFT Summary of Staffing Incidents.
[162] See Appendix 10.4 – On the Right Trach, p9.
[163] See Appendix 10.5 - Tracheostomy Review Group, 2011.

(19 beds) and whilst the nurses on the ward are experienced in caring for patients with tracheostomies they are planning to undertake a formal competency based assessment. The training plan is still being developed for UHSM to assess and test against this specialist competency and at present expects for all specialist nurses caring for patients with head and neck cancer to have had their competency assessed within approximately 12 months.

- *Out of hours cover*: The present on-call arrangements at CMFT and UHSM require that non-cancer ENT and OMF surgeons are on-call caring for Head and Neck Cancer patients. This means that some consultants are outside their specialist area of expertise when dealing with out-of-hours complications that arise in post-operative patients. This means that neither Trust complies with NICE Guidance which states that surgery should normally be carried out by surgeons who are members of the MDT.[164] It also means (especially at weekends) that no material decisions are made to enable post-operative progress towards discharge (e.g. deciding to remove a tracheostomy tube). Delays to post-operative progress prolongs length of stay. In addition, UHSM also currently breaches the Head and Neck Cancer standard for enhanced out of hours cover for the surgical rescue of flap failure as it only has two on site surgeons who can undertake this surgery (when three surgeons are required for a compliant rota).[165] CMFT has three surgeons who can undertake this surgery which means the merged organisation could provide a five-person rota for this service.

- *Compliance with national guidelines*: Despite there being national guidelines for the treatment of Head and Neck Cancer, some treatments that should be provided, to be compliant, are not provided by CMFT and UHSM. For example, CMFT provides an outreach neck/thyroid lump diagnosis service to referring spoke sites and has the only dedicated head and neck cytopathology service in Manchester, while UHSM has a trans-oral laser service. Neither Trust currently provides an osseo-integration (prosthetic) service, without which neither Trust complies with the national Head and Neck Cancer guidelines.[166]

10.3 Planned service arrangements and patient benefits

471. Following the merger, Head and Neck Cancer Surgery will be centralised at a single site, with the other site continuing to provide diagnostic and survivorship services (e.g. assistance to patients to manage the impact on their life of cancer). Surgery for elective day-case, short-stay cases and non-cancer orientated ENT and Maxillo-Facial patients will continue at both sites (except for Maxillo-Facial surgery relating to Dentoalveolar surgery which will be centralised with the head and neck cancer surgery).

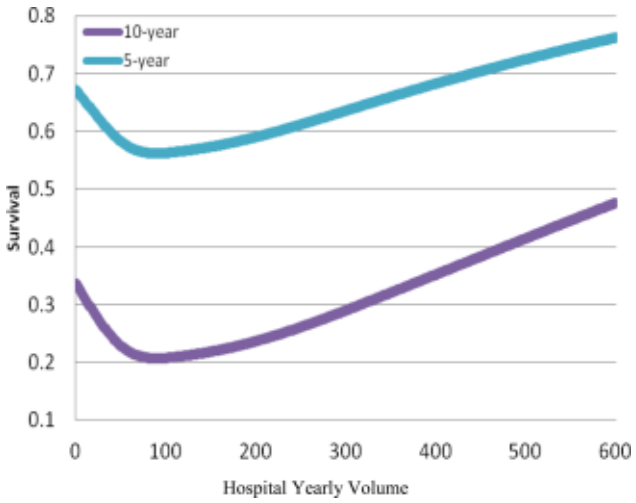
472. Following this consolidation (in respect of head and neck cancer services), curative cancer surgery, MDT meetings, and outpatient clinic services will be delivered at the surgical hub, and uniform diagnostic services and follow-up survivorship services will be delivered at each diagnostic spoke site.

[164] See Appendix 10.6 - Improving Outcomes in Head and Neck Cancer, p43.
[165] See Appendix 10.6 – Improving Outcomes in Head and Neck Cancer, p39.
[166] See Appendix 10.7 - HNC UK Head and Cancer Guidelines 2016.

473. Centralisation of surgical services for head and neck cancer will allow increased patient volumes to be treated at a single centre, thus improving the quality of care for patients. There is significant evidence that head and neck cancer surgery patient outcomes are volume dependent.[167] These studies demonstrate that increased institutional volumes improve the survival chances of patients through more specialised head and neck staff in theatre and on-ward, greater adherence to standard protocols and improved out-of-hours cover.

474. In particular, survival from head and neck cancer surgery has been found to increase by 2.4% for every 25 extra cases treated at an institution.[168] In laryngeal cancer, higher volume hospitals are also associated with lower length of stay and cost.[169] The consolidation of services is therefore expected to increase overall survival by 7% to 12% (depending on whether services are consolidated at Wythenshawe Hospital or Manchester Royal Infirmary). This equates to 30-50 more patients each year being alive at five years following their surgery, than is currently the case.

Figure 10.1: Adjusted hospital volume and long-term survival, head and neck cancer



Source: Ozdemir et al. (2015) at Appendix 10.12.

475. Consolidation of head and neck surgery onto a single site at a single Trust means that local hospitals in Greater Manchester that currently refer to both CMFT and UHSM will refer into a single centre which will resolve the communication and coordination difficulties, particularly for Clinical Nurse Specialists, set out above.

476. CMFT has 20 specialist head and neck cancer beds and UHSM has a 19-bed ward to accommodate its head and neck cancer as well as general Maxillo-Facial and ENT surgery patients. Inpatient facilities will be consolidated at the chosen surgical site and this is expected to reduce outliers (i.e. patients having received head and neck cancer surgery

[167] Nouraei SA, Middleton SE, Hudovsky A, Darzi A, Stewart S, Kaddour H, et al. A national analysis of the outcome of major head and neck cancer surgery: implications for surgeon-level data publication. *Clin Otolaryngol*. 2013; 38(6):502-11 at Appendix 10.8; Nouraei SA, Middleton SE, Hudovsky A, Branford OA, Lau C, Clarke PM, et al. Role of reconstructive surgery in the management of head and neck cancer: a national outcomes analysis of 11,841 reconstructions. *J Plast Reconstr Aesthet Surg*. 2015;68(4):469-78 at Appendix 10.9; and Eskander A, Merdad M, Irish JC, Hall SF, Groome PA, Freeman JL, et al. Volume-outcome associations in head and neck cancer treatment: A systematic review and meta-analysis. *Head Neck*. 2013 at Appendix 10.10.

[168] Eskander A, Irish J, Groome PA, Freeman J, Gullane P, Gilbert R, et al. Volume-outcome relationships for head and neck cancer surgery in a universal health care system. *Laryngoscope*. 2014;124(9):2081-8 at Appendix 10.11.

[169] Eskander A, Merdad M, Irish JC, Hall SF, Groome PA, Freeman JL, et al. Volume-outcome associations in head and neck cancer treatment: A systematic review and meta-analysis. *Head Neck*. 2013 at Appendix 10.10.

being accommodated on wards with patients being treated for other conditions) and therefore allow focused nursing expertise to always be available for head and neck cancer patients (as nurses are not trying to care for patients with entirely different needs). More specifically, given that CMFT has two WTE existing specialist nursing staff who can assess competency for the mandated tracheostomy training discussed above, it is expected that the intended consolidated unit will have care of patients by competency assessed staff on each shift from day one, and all specialist nursing staff assessed and provided with the competency training by day-100 following merger. This will be possible because CMFT has 16.74 WTE head and neck nurses with specialist competency training and a further seven nurses based in the vascular ward who also have the speciality training and can be rostered in the event of staff absence. UHSM has eight nurses, of its contingent of 13 head and neck specialists, with specialist competency assessed to an older standard of airway management. This consolidated specialist nursing cohort will increase patient safety and reduce the incidents identified above.

477. Twelve surgeons will be based on the surgical site. The job-planning process will determine precisely how the surgeons will spend their time (as this will be split between surgery, inpatient wards, outpatient clinics and diagnostics at spoke sites) but more surgeons in one place will allow for improved mentorship and cross cover for emergencies. This critical mass of surgeons will also enable the merged Trust to pursue developments such as surgeons' "hot week" where consultants are ward-based for an entire week, ensuring twice daily consultant ward rounds. A single surgical site will allow the development of a head and neck surgeon specific out-of-hours rota comprising the seven ENT and five OMFS surgeons.

478. Standard pathways and protocols across the surgery site and the diagnostic spokes will be developed, reducing existing variation between UHSM and CMFT, as evidenced in National Cancer Inpatient Experience Survey.[170] The Trusts will take the best from existing practice at each Trust when developing standard pathways to improve each area to the level of the best.

479. Although Head and Neck Cancer survey results have been suppressed between 2014 and 2016, results from 2013 indicate that in approximately half of the 22 comparable areas surveyed CMFT had better responses and in the other half UHSM had better responses.[171] By way of example: CMFT performed well in the survey on questions asking if the patient was informed that they could bring a friend the consultation and were told sensitively that they had cancer: UHSM performed well on ensure that the patient was given written information about the type of cancer they had and possible side effects. By selecting the best of both for pathway improvements, patients of the merged Trust in future can be expected to rate the Trust highly for both sensitive explanations and supply of written material.

[170] The National Inpatient Cancer Patient Experience Survey is "designed to monitor national progress on cancer care; to provide information to drive local quality improvements; to assist commissioners and providers of cancer care; and to inform the work of the various charities and stakeholder groups supporting cancer patients." The survey is congruent with the National Operating Framework (NOF) for the NHS, which defines quality as those indicators of safety, effectiveness and patient experience that indicate that standards are being maintained or improved. Tumour specific group responses are available where the number of respondents is 20 patients or more. Where the number of respondents in a particular tumour group is less than 20 then tumour specific information is suppressed. This is to protect patient confidentiality and because the result is uncertain. The results of the surveys are available from https://www.quality-health.co.uk/resources/surveys/national-cancer-experience-survey.

[171] See Appendix 10.13 – HNC Patient Experience Survey Results 2013.

480. All patients referred to the surgical centre will have access to the same procedures and treatments. For example, the outreach neck/thyroid lump diagnosis service which is currently only available to patients referred to CMFT, will become available to all patients referred to the merged organisation. Since CMFT introduced this service in 2013 the adequacy rate for neck lump cytopathology (needle biopsy) diagnosis has increased from 50% to 94% in 2016.[172] This improvement has meant that there is faster diagnosis for those patients with a serious condition and less need for a potentially unnecessary biopsy for those patients with less serious conditions. It is expected that at least the 55 patients per year investigated and treated at UHSM for neck/thyroid lumps would benefit from the faster and less intrusive CMFT cytopathology process.

481. In summary, around 400 patients per year will benefit from the consolidation of head and neck cancer surgery at the merged Trust. Patients will benefit from better coordinated patient management leading to an improved patient experience, shorter lengths of stay, and improved health outcomes. Improved health outcomes will be reflected in an increase in the expected five-year cancer survival rate of 7-12%, which would positively affect 30-50 patients each year.

10.4 Merger dependence

482. Consolidation of Head and Neck Cancer Surgery and Maxillo-Facial Surgery services could not be expected to happen in the absence of the merger. As set out in Section 3, there is a long history in Greater Manchester of delayed, compromised or abandoned efforts to reconfigure services. Both Trusts have obligations to protect the income that is associated with these services, and as a result, would be reluctant to engage in a process that involved the loss of this income as a result of consolidation on to a single site. Moreover, unlike in other service areas, there is currently no process in Greater Manchester to push for the consolidation of these services so as to secure better patient outcomes. As discussed further at Section 11.1, the merger will deliver a single governance structure which will support the consolidation of Head and Neck Cancer Surgery.

483. More specifically, it would not be possible for either Trust to develop a prosthetics service absent a merger as a bigger population base is required in order for the service to be financially viable. The Trusts, through informal discussions, understand that neither of their individual patient flows are sufficient to support an on-site prosthetics service and at present this means that the ten patients annually attending either of the sites need to repeatedly travel to Liverpool for the nearest prosthetics service. Clinicians at both CMFT and UHSM expect a significant improvement in the patient experience where prosthetics are coordinated within the patient's MDT clinic and available at the same place they receive their surgery. This is because a patient needing a prosthetic will need to visit the service multiple times to inform the development and fitting. The intended service is predicated on a patient volume in a single location, which as explained above is not obtainable in the absence of merger.

484. Clinical space for the prosthetics laboratory has been identified at CMFT and a charity (Oasis Cancer Trust) has agreed to fund the associated capital costs of the capital

[172] See Appendix 10.14 – CMFT FNA Audit Report 2016.

equipment, if it is assured of the ongoing viability of the service.[173] Under the current service configuration CMFT is unable to provide assurance of the viability of the service, which requires the larger population catchment of the proposed merged organisation.

10.5 Implementation constraints and plans

485. The Trusts in assessing the deliverability of this benefit have considered a number of potential constraints to implementation and how these might be addressed. These potential constraints are as follows:

- *Financial impact*: In general, the patients treated in this service in the merged Trust will be the same as the patients treated by the two existing Trusts, so there will be no material change in net income. The restructuring of services within the merged organisation will create additional costs in some areas/sites, and reduced costs in others, but the current assessment is that these effects are likely to be broadly neutral because no additional capital expenditure will be required to create additional capacity.

- *Site selection*: The selection of the location of the single site will be decided on by the merged Trust as part of the wider implementation work of the proposed merger.

- *Requirements for commissioner approval and public consultation*: Commissioners are aware, and supportive, of the Trusts' plans to consolidate Head and Neck Cancer Surgery and Maxillo-Facial Surgery onto a single site so as to deliver improved services to patients. Commissioners have, to date, indicated that given the relatively small population of head and neck cancer patients they do not believe public consultation will be required for the consolidation of head and neck cancer surgery.

- *Workforce and rota impacts*: A significant body of work is underway to compare existing clinical rotas and coordinate staff to support the merged Head and Neck Cancer service because although there already exists a joint Oral / Maxillo-Facial rota,[174] which will remain unchanged, following the merger a new ENT rota to cover Tameside, CMFT, Trafford, UHSM, and Stockport hospital sites needs to be developed. This will also be coordinated with the wider clinical teams (including Salford consultants who are on the current CMFT rota) which will be required to operationalise and implement the new integrated model for Head and Neck Cancer services.

- *Clinician support*: This patient benefits case has been developed by Head & Neck consultants from both CMFT and UHSM. It reflects their own aspirations and plans for the development of services following the merger. As such, there is a high degree of clinician support for the changes that will deliver these patient benefits.

486. Further details of the implementation plan for this work is provided in Appendix 10.16.

[173] See Appendix 10.15 – Letter from Oasis Cancer Trust, reflecting Oasis' commitment to fund a 3D printer which can be used to fabricate extra-oral prostheses.
[174] The parties note that although this joint rota has been in place since the 1990's, it has not been possible to reach an agreement on a joint head and neck cancer rota.

11. Cross-cutting issues

487. This section discusses several issues that concern the merger dependence of patient benefits and post-merger benefits realisation. These issues are not specific to any individual patient benefits case, but rather are relevant to all of these cases. The matters discussed in this section include:
    - mergers versus partnership as a way of realising patient benefits (Section 11.1);
    - workforce issues (Section 11.2);
    - finances (Section 11.3)
    - estates (Section 11.4); and
    - information management and technology (Section 11.5).

11.1 Mergers versus partnership

488. Each of the patient benefits cases discusses why that benefit is dependent on the merger. In addition to this case-specific evidence, there is an important point about the benefits package and transaction as a whole. That is, the totality of the patient benefits that are identified in this submission are more likely to be realised through having a single organisation that is responsible for their delivery than seeking to do so through a collaborative arrangement between the two Trusts. This section sets out in further detail why this is the case.

489. ***Capacity to make changes across multiple areas simultaneously***: The patent benefits cases set out in this submission, and the broader changes that will be pursued by the merged Trust, represent a significant number of separate initiatives. While separate Trusts might be able to pursue one or two significant initiatives through collaborative arrangements, their ability to pursue multiple initiatives simultaneously is limited. This is because each initiative that was being pursued, by way of a collaborative agreement, would need to be separately negotiated and agreed between the independent Trusts. This process would impose an additional layer of complexity on pursuing service change that the two Trusts would not be able to manage separately.[175]

490. ***Unified leadership versus distributed leadership***: A single set of leaders within a unified organisation has a much greater ability to bring about the changes set out in this submission than leadership that is distributed across two collaborating trusts. Under a single set of leaders, with a single vision, necessary decisions can be made and, where necessary, directions given to make the required changes. Under a distributed leadership, there is much greater capacity for those individuals or service areas that may consider themselves to be adversely affected by these changes to escalate their concerns such that they become a point of difference between the leadership groups, which takes a much greater time and level of effort to resolve. In certain circumstances, change may be unachievable as a result.[176]

491. ***Sustainability of patient benefits***: once patient benefits have been achieved under a merger, these are far more likely to be sustained over a longer period than under a collaborative arrangement. This is because factors, such as changing priorities, leadership

[175] This point was a key driver for the recommendation of a merger by Sir Jonathan Michael as set out in Section 3.2.1 of this submission.
[176] The disappointing experience of collaborative efforts in Greater Manchester to achieve service changes that would improve services for patients, as set out in Section 3.2.2 of this submission underlines this point.

changes and financial pressures, can arise that disrupt the collaboration between two separate organisations. Separate organisations have the option of withdrawing from a collaborative arrangement that no longer suits the purposes of one of these organisations.

11.2 Workforce

492. An important element of many of the individual benefits cases is the centralisation of services and the development of more robust weekend and out of hours rotas using the combined resources of the two Trusts. The implementation plans for each benefit provide details of existing and indicative rotas for these services.

493. CMFT and UHSM have both been involved in a number of significant service changes in recent years that have had significant workforce impacts. This includes:
    - bringing together children's hospital services from Pendlebury and Booth Hall with existing children's services at CMFT's main site in 2009;
    - the acquisition of community services providers by both CMFT and UHSM in 2011; and
    - CMFT's acquisition of Trafford Healthcare NHS Trust in 2012.

494. These service changes have provided the management of both Trusts with the experience of how best to bring staff together from separate organisations in a way that creates a shared culture. The experience of the children's hospital consolidation and the acquisition of Trafford Healthcare have both shown the importance of putting significant effort up-front into understanding what the clinical model will be for different services; having clarity over leadership arrangements; and engaging with both consultants, other clinical staff and support staff.

495. For example, following the Trafford acquisition, oversight of the Trauma and Orthopaedics specialty was split by site. Trauma and Orthopaedics services at MRI were managed by Surgery, while elective orthopaedics at Trafford, and the orthopaedics consultants were managed by the Trafford division. This led to a lack of overview, delays in the development and adoption of a new Trauma rota, and no ownership of the Trauma service. Consultants were unhappy with these arrangements, which impact on both trauma and elective services. This was then addressed by bringing the entire service under the management of the Trafford division.

496. The Trusts' experience is that a failure to get these issues right can result in disengagement by consultants, increased rates of sickness absence and long lasting cultural differences in the workforce that can make management of a service a difficult task. As a result, the merged Trust plans to make a significant effort into organisational development and workforce management to ensure that the new Trust succeeds as an integrated organisation.

497. The merger, by creating larger teams in many areas, can be expected to bring significant benefits in both recruitment and retention. Larger teams provide significantly greater scope for sub-specialisation by consultants and other clinicians. This opportunity for sub-specialisation, greater ability to work with peers within the same specialty and improved out of hours coverage are all significant factors for consultants in choosing where to work. The clinical community within each specialty in the NHS in England is small. Clinicians will not shift from a Trust that has a large well-established team that provides these benefits to

join another Trust that is unable to offer the same opportunities. The merged Trust, by providing these opportunities, will be in a much better position to recruit and retain staff.[177]

11.3 Finances

498. CMFT and UHSM have reviewed the financial impact of the patient benefits cases set out in Sections 5 to 10. The Trusts' assessment – as set out in these sections – is that their impact on revenues and costs will, in most cases, be limited. None of the patient benefit initiatives set out in this submission have any significant capital expenditure requirements. Consistent with this, the Trusts believe that the total financial impact on the merged Trust of these patient benefit initiatives will also be limited.

499. The overall financial impact of these patient benefit initiatives is reflected in the Long Term Financial Model (LTFM) that is being developed for the merged Trust. The LTFM sets out the projected financial performance for the first two to three years of the merged Trust. At this time, CMFT and UHSM anticipate that the merged Trust will record a net deficit of £6.7 million in 2017/18 followed by a return to surplus from 2018/19. A draft version of the LTFM will shortly be shared with the CMA.

500. However, by way of a preview, material savings are expected in the costs of organisational leadership. This will also be the case for non-clinical support services, where the new organisation will aim to perform in the upper quartile for productivity across all NHS acute trusts. In addition, the process for agreeing and implementing standardised clinical pathways at the merged Trust will significantly reduce variation, including variations in resource use (e.g. in lengths of inpatient stays). This will allow the new organisation to 'level up' to the productivity of the best performing constituent part of the Trust.

501. The scale and structure of the new organisation will further facilitate the effective realisation of savings. For example, reducing length of stay across a small bed base does not always provide the ability to reduce costs commensurately due to step costs. Working across the larger bed base in the merged organisation will provide more potential to take out a whole unit of cost (e.g. a whole ward).

502. The new Trust will continue to experience cost pressures like other NHS providers, but will be in a better position to manage these pressures. For example, current modelling indicates that the forecast cost of implementing seven day services could be abated by about 50% for the new organisation. This effect will vary from service to service, with some functions requiring significant investment, and others being able to make good progress towards seven day services through restructuring across a larger team.

503. To the extent that there are post-merger restructuring costs, the new Trust will be supported by funding from the Greater Manchester Transformation Fund (part of the Greater Manchester devolved responsibilities for health and social care). Funding from this source will support, for example, transitional workforce costs and costs of terminating contracts with third party providers.

[177] This is consistent with the findings of a review of previous mergers for NHS Improvement, which found that merged organisations experienced significant recruitment benefits. See https://improvement.nhs.uk/uploads/documents/Mergers_Aldwych_Partners_Overarching_report.pdf.

12.2 Estates

504. Across the NHS, Estates and Facilities departments are undergoing significant change to support their organisations in delivering the current and future quality and financial challenges, as well as meeting the needs of the national estates and facilities strategy including delivery of Carter metrics; release surplus land for residential targets and restrictions in capital funding. This is true of both CMFT and UHSM.

505. Both Trusts have a mix of PFI and retained estate (both directly owned and leased) within their portfolios. The PFI schemes provide modern, maintained accommodation and facilities, but at the same time they result in long-term financial commitments that the Trusts need to service.

506. The Trusts are responsible for the maintenance and lifecycle risk/cost associated with the retained estate. The age, suitability and condition of this estate is variable with some areas not meeting all of the standards expected of a modern care environment.

507. The CMFT estate incorporates a number of primary sites including the main Oxford Road site, Trafford Hospitals and The University Dental Hospital as well as several other owned or leased properties in the City of Manchester. The Oxford Road site is predominately a large PFI development with a mix of PFI new and identified buildings. There is a smaller volume of retained estate, mainly supporting administrative facilities. The Dental Hospital is a long-leased property and the Trafford Hospitals estate is fully retained.

508. The UHSM estate incorporates Wythenshawe Hospital, Withington Community Hospital and several other owned or leased properties in the City of Manchester. Wythenshawe Hospital is a mix of retained estate and PFI, whereas the Withington Community Hospital estate is fully retained.

509. Both CMFT and UHSM have reviewed their estate capital programmes and agreed these will continue ‘as is’ up to the merger and throughout the remainder of Year 1, with the focus on backlog maintenance and compliance spend.

510. Both Trusts have existing estates strategies and are undertaking technical due diligence exercises that provide a detailed picture of asset condition and compliance on a room by room basis for the retained estate. The existing estate strategies and due diligence information provides the required detail for the Directors of Estates to support the proposed changes to clinical pathways.

511. Initial strategic planning has started to identify different roles for the main hospital sites that the merged organisation will operate, and these can be described in outline as follows:

    - Acute hospitals: Manchester Royal Infirmary, Wythenshawe Hospital (and subsequently North Manchester General Hospital);
    - Community/rehab hospitals: Trafford General, Altrincham Hospital, Withington Community Hospital; and
    - Specialist Hospitals: Royal Manchester Children’s Hospital, St Mary’s Hospitals (Women’s and Children’s), University Dental Hospital, Manchester Royal Eye Hospital.

512. To date the Trusts have had to develop their estates and clinical strategies in isolation and therefore have had to maintain all facilities (e.g. wards; theatres; support functions) within their portfolios regardless of the level of utilisation. This is not ideal as it leads to sub-optimal planning of the capital resource. It also means that the number of facilities being maintained on a day to day basis is larger than would be required if utilisation were increased. Although much of the estate is heavily utilised, there are also under-utilised facilities which offer some flexibility to support the restructuring of services.

513. Given the above points, across the range of services that the merged organisation will provide there is at present no reason to believe that there will be a need to build any major additional clinical facilities. The estates strategy therefore focuses on ensuring maximum utilisation of the PFI facilities, and then of high quality retained estate and latterly the use of older retained estate at a site and building level.

514. There is considerable potential to repurpose existing facilities to support the development of clinical services, including where a hub and spoke or single centre model is being contemplated. It is anticipated that this will support the lifecycle and replacement of retained estate to ensure it continues to meet the standards expected of a modern care environment and remains compliant with current NHS good practice.

515. If following this there are surplus facilities they will then be utilised to either further support “lifecycling”; facilitate the transfer of services across the site or be mothballed thereby reducing the estates and facilities costs. Surplus facilities also provides a level of redundancy should an asset no longer become usable (e.g. due to fire or flood), reducing estates risks across the organisation.

516. Rationalisation of non-clinical services offers the potential to reduce the Estate footprint in some areas, and this could result in the possibility of benefitting from land-sale receipts although in some cases the ability to dispose of the land and buildings outside of the PFI are subject to the termination of leases and restrictions within the Title.

517. In summary, the Trusts believe that management of their combined estate will enable them to deliver the changes in clinical services set out in this patient benefits submission, and more generally, the development of the merged Trust’s clinical services.

11.3 Information management and technology

518. There are many significant and complex issues that delay the delivery of long-term and robust IM&T systems across independent NHS organisations. The most significant of these are the information governance principles that require individual organisation accountability for patient information. The requirements of the Data Protection Act 1998 and how the obligations upon organisations working with sensitive patient information prevent what might otherwise be useful IM&T integration is discussed in detail in Appendix 11.1. Notwithstanding the challenges of health IT system integration, the Trusts are developing IM&T plans to ensure that business processes are enabled from Day One of the merger.

519. Temporary arrangements will be required to enable staff to access clinical and management systems and information from different sites and enable patients to flow to clinics and theatres being managed by integrated clinical teams. This will be possible following merger given the issues on information governance will be superseded by the

single organisational structure. These interim solutions to managing patient flows will provide space for the merged organisation to decide complex issues around which software systems to keep and which will be replaced within the context of developing systems that deliver a comprehensive Electronic Patient Record (EPR).

520. CMFT has experience in managing patients across sites, under temporary arrangements, following its acquisition of Trafford hospital. For the first two years following acquisition it was not planned for many services to be delivered at both Trafford and CMFT sites (in contrast to the plans under the proposed merger between CMFT and UHSM). During 2015-16 the Trafford site has been utilised differently, for example elderly care and elective orthopaedics are managed at Trafford and relevant staff were trained to understand the administrative flow between sites and were provided with access to those systems that were necessary to enable the patient flow. In this example, if an elderly patient attended the MRI emergency department and required admission the emergency department staff were provided with the training and systems support to follow the protocol to transfer the patient to a bed in the elderly care unit in Trafford. Alongside the temporary arrangements, over the past year a shared Master Patient Index (MPI) was created and Trafford systems are at present being consolidated with CMFT systems.[178]

521. A number of useful lessons have been learned from this experience in both managing separate PAS systems for a period of time and the more recent MPI consolidation exercise. A significant technical knowledge base has been built around the migration, integration and development of technical systems.

522. With reference to the delivery of the IT integration already undertaken at Trafford, UHSM and CMFT have already held discussions to prepare the enabling work necessary to configure IT infrastructure across UHSM and CMFT to ensure that appropriate staff can access relevant information from any site from go-live of the merged organisation. Specifically, prior to go-live training will be given to key administrative staff, in each service, in the relevant software held in both CMFT and UHSM. Staff files will be created for these staff to access systems at both sites, which will then go-live and provide access on the first day of the merger (in effect these staff will be provided access in the same way that a new starter would be provided access). This approach will enable patients to be booked across the sites of the merged organisation, although this solution will not be the preferred optimal and long-term process for managing patient flow because there will be some risk around the potential duplication of patient records and the flow of patient records that will need to be managed, in the same way as it was when Trafford and CMFT maintained separate systems. For example, both the MRI and Trafford hospital sites have an order communication system, which is used to order patient tests. The result of a test is returned to the original ordering system, so if an elderly patient had a test ordered by the MRI emergency department (continuing the example from above) the result will be returned to the MRI system. If, in the meantime, the patient has been transferred to the elderly care unit in Trafford then the clinicians providing care will need to check the systems at both the MRI and Trafford to ensure they have seen all test results. To date this risk has been

[178] An MPI allows a provider to uniquely identify a patient and avoid creating duplicate patient records which would be a significant clinical safety risk. While patient identification is made simpler by the allocation of NHS numbers there are, in practice, process failures and other circumstances in which a patient is not identified by their NHS number or does not have an NHS number and these exceptions need to have a comprehensive identification process available. As would be expected of independent organisations, UHSM and CMFT have separate MPIs, system masterfiles and data tables which are used by their patient administration systems, theatre management systems, and speciality-specific systems to uniquely identify patients. In the absence of a common MPI and masterfile, there is a risk that a shared booking system could allocate the wrong patient to a booking.

managed through staff training and there is an integration plan underway to make this double check easier in the near future.

523. As part of the go-live feasibility, Microsoft has confirmed that technically the following outputs will be possible for day one as a merged organisation:

- A new email name will be implemented across the entire organisation from day one (at this point the email service would still run on separate servers but viewing and booking of calendars will be implemented)
- Staff will be able to login to any computer at any site through secured access facilitated by the Microsoft Federated Gateway.

524. The next, intermediate, step will be to reduce the duplicative checks introduced for the go-live temporary solution by replicating a number of the steps that have been undertaken over the past year to integrate Trafford systems with CMFT. This process is expected to take approximately 12 to 18 months to complete, based on the experience that CMFT has from implementing similar changes with Trafford hospital. These steps will involve:

- A shared MPI will be created to automate patient identification and enhance patient safety.
- All PAS Masterfiles will be consolidated between the two organisations.
- An overarching software will be introduced to link the Patient Administration Systems (PAS) at each organisation and present a single booking system for administrators responsible for booking patients.[179]

525. Consistent with wider NHS policy, both Trusts have a strategy to move from a basic PAS, a large variety of speciality specific health IT systems, and patient paper notes, to an Electronic Patient Record (EPR). There are many elements to achieving the delivery of an EPR system, but in summary an EPR is intended to advance away from the use of paper versions of patient notes and become both the central repository of all of a patient's medical information as well as enable clinical actions such as ordering tests, and prescribing medication to be undertaken. A common objective of an EPR is also that patients can be provided with electronic access to their complete medical record. Once merged the new Trust will need to decide how it will achieve an EPR and this is process is expected to take between six months to two years before that approach can be implemented.

526. Across UHSM and CMFT there are over 700 clinical and corporate software applications, many of which are used by small specialist clinical teams. As part of the long-term IM&T solution and EPR programme for the merged organisation, a number of significant programmes of work will need to be delivered before the preferred EPR system can be deployed:

- Business processes will need to be evaluated and revised to ensure that the new technical solution will support processes and provide opportunities to introduce improved working processes.

[179] The primary MPI, demographic and booking system used in any hospital is the PAS. CMFT and UHSM have different systems. UHSM use a product called iPM and CMFT use the Clinicom product, both systems are provided by a company called CSC.

- Software solutions that are used at a clinical speciality level will be reviewed to identify if the new EPR system can enhance and support or instead replace those existing systems with the EPR.

527. The Trusts are confident that, as described above, phased deployment of progressively more automated systems is the best approach to delivering timely integration of business and clinical processes across the merged organisation. In this way, systems will support patients being provided with the option to elect to receive their treatment across all of the sites of the merged organisation, as described in Sections 5 to 10 above. The Trusts are also aware of the scale of the challenge to deliver the significant benefits that are on offer from the introduction of an EPR and intends to deliver this change across the catchment of the merged organisation only after careful planning of the optimal solution (which will be occurring in parallel with the intermediate steps described above).

12. Major project delivery experience

528. CMFT and UHSM have extensive experience in the delivery of major projects. This experience provides the Boards and management teams at both Trusts with the confidence that the benefits from their planned merger will be realised.

529. This section provides an overview of this experience in three areas, namely CMFT's acquisition of Trafford Healthcare NHS Trust in 2012 (Section 12.1), the establishment by CMFT of its Hepato-Pancreato Biliary service in 2014 (Section 12.2), and CMFT's acquisition of community services through the Transforming Community Services programme in 2011 (Section 12.3).

12.1 CMFT's establishment of its Hepato-Pancreato Biliary services

530. Following a decision by Greater Manchester commissioners, Hepato-Pancreato Biliary (HPB) services at Pennine Acute Hospitals were transferred to Manchester Royal Infirmary (MRI), part of CMFT, in 2014. The implementation team identified lessons learnt and the experience gained, following the go-live in October 2014, and this is summarised in this section.

531. The Specialist Cancer Strategy convention held in January 2013 concluded with a Greater Manchester agreement to create an IOG compliant, single Greater Manchester and Cheshire specialist HPB service. It was agreed that this would operate from a single site at the MRI. A joint CMFT and Pennine Acute Hospitals project board was established in February 2013 to implement the agreement. The aim of the project board was to address the logistics of the workload transfer from Pennine Acute Hospitals to the MRI and agree appropriate timeframes for implementing the changes.

532. The scale of the activity transferred to the MRI hospital site was:
    - 606 inpatient spells per annum, the majority of which (>550 spells) was elective activity;
    - 400 new outpatient episodes;
    - 1,400 follow-up outpatient episodes;
    - 15 ward beds and 6-8 Endoscopy beds;
    - three critical care beds;

- ten theatre sessions per week;
- four outpatient sessions per week;
- a range of associated diagnostic tests and procedures across: Endoscopy; Radiology such as x-ray, MR and CT scans and PET-CT; and Interventional Radiology such as drainage procedures and ultrasound guided liver biopsies;
- income of approximately £3.2m and a capital cost of £0.9m; and
- a range of clinical posts and/or post holders including approximately 12.6 WTE Nurses, Consultants, Histopathologists, and administrative staff.

533. The project board met fortnightly to develop implementation plans and review progress.[180] These meetings were the medium through which activity, capacity and resource plans were developed, progress was driven, and actions tracked against the implementation timeframes. Four key work streams were initiated, which informed and identified all requirements:

    - *Model of Care*: An initial model of care document was developed, which described the principles underpinning how the consolidation of activity was intended to benefit and optimise care for patients.[181] This document included a specification for: Clinical and academic Leadership; Six high level core patient pathways; Information and patient records management; Referral to the Specialist MDT & SMDT proposals; Patient support, patient transport and patient experience; Surgical management of patients; Emergency management of patients; Critical care and oncology support; Joint working and co-dependent services; and Audit of clinical outcomes.

    - *Pathway Development*: New patient pathways were developed for the main conditions/procedures that were to transfer from Pennine Acute to the specialist centre at the MRI. Four key pathways were developed for liver cancer, pancreas cancer, HPB complex benign and HPB non-elective patients. The pathways clarified not only how patients would be managed along the way, and where each stage would take place, but also facilitated understanding the scale of activity within each specialism (and so how many patients needed to be accommodated within the new pathway).[182]

    - *Impact Assessments:* Activity, capacity and resource analysis were undertaken for all the main services affected by the merger namely, general surgery, radiology, pathology, gastroenterology, anaesthetics and critical care.[183]

    - *Project Implementation Plan*: This plan is the working document from which progress is measured and actions are created and reported to.[184]

534. Through the project board both Trusts worked together to create comparable activity data so the workload for the specialties and support services could be accurately planned. The departmental impact assessment reviews, based on this data, then facilitated clinical and operational teams from both Trusts working together as “task and finish groups” to determine the appropriate clinical guidelines, resource and capacity implications, on-call rota changes, and to develop and execute complex plans for the service transfer and

[180] See an example of an agenda from the project board at Appendix 12.1.
[181] This document is provided at Appendix 12.2.
[182] The pathways that were developed are presented in Appendix 12.3.
[183] These assessments are available in Appendix 12.4.
[184] The Project Implementation Plan (PID) is available at Appendix 12.5.

timeline. Further, wider CMFT stakeholders were briefed on the likely bed demand from the transferring service, and planned how to accommodate this within the existing infrastructure.[185] By pro-actively planning for the service transfer it meant that infrastructure (theatre time and beds) was prepared and ready to accommodate the HPB activity.

535. Theatre and critical care bed capacity were created in a number of ways. Theatre capacity was created by establishing more evening operating sessions and by transferring low risk general surgery and other day case surgery to Trafford Hospital. Critical Care bed capacity was created from "shelled" bed spaces on the newly built Intensive Care Unit, which had anticipated this use in its building plans.

536. An important aspect of the successful transfer was the careful management and involvement of staff from both organisations. In the lead-up to the transfer, clinical leadership arrangements remained unchanged, in effect, with both clinical managers in General Surgery for each Trust leading the implementation together. Following the transfer, the MRI General Surgery Clinical Lead was formally appointed as the new overall HPB Clinical Lead for the specialist service and responsibilities for some aspects of the service were assigned to the consultant who had been the HPB Clinical Lead at Pennine Acute.

537. In review, it was recognised that an important part of the successful implementation was ensuring there was a joint group of clinical and managerial teams from the two Trusts. This group consisted of staff groups from not only the Division of Surgery but also from all other affected divisions and departments at both Trusts (including Radiology, Pathology, Critical Care, Anaesthetics, Medical Records, Non-clinical Support Services, IT, Estates, Human Resources and Finance).

538. Further, it was thought helpful to the successful delivery that in addition to staff communication through the structure of each surgical division's staff meetings, wider staff groups that were affected by the transfer were briefed on the proposed model of care, agreed activity measurement, capacity analysis and progress against the timeline.[186] Important stakeholders and patients were also updated during the programme of change through established forums, formal meeting structures and via communications bulletins.[187]

539. Additionally, affected staff groups including consultant medical staff, were provided with one-on-one interviews to establish early preferences for transfer to the specialist service, or transfer to other services within their existing Trust. This also informed the staffing capacity plans and potential recruitment requirement to ensure adequate staffing levels at the specialist centre.[188] Staff preferences were finalised in writing within the three-month period allocated for this process.

540. Once the staff who were to transfer were confirmed, a programme of support and induction was produced. Trust and department visits were arranged at the specialist centre for the staff who were transferring, which included an opportunity to meet with the staff teams they would be joining in their relevant areas, to hear from them directly 'what it's like to work here'. In addition, individual staff group events were held, such as a communal 'dinner out' for all the HPB surgeons, to develop team work and a single service concept.

[185] See Appendix 12.6.
[186] An example of the wider staff communication is available at Appendix 12.7.
[187] Examples of these stakeholder briefings are provided in Appendix 12.8.
[188] The briefing notes explaining the areas of discussion for these interviews is provided at Appendix 12.9.

Housekeeping was also undertaken in relation to providing joint honorary contracts, car parking and identity passes, office accommodation and specific operational resource requirements for the transferring staff.

541. In respect of financial management, an ongoing income and cost analysis was undertaken throughout the transfer programme to ensure the income and budget position was informed by the analysis of the activity intended to transfer.[189] This included both revenue and capital assessments of the service requirements, Where possible, equipment was transferred from Pennine Acute to be utilised at the MRI specialist centre.

542. Risk was managed under the headings of strategic, clinical, operational and financial. These areas were reviewed and updated for risk factors throughout the transfer programme. Mitigating actions were agreed and progress monitored through a risk register which was discussed at each of the fortnightly project board meetings.[190]

543. It is now two and half years since the service transfer was finalised and the single service is considered established. All key objectives of the service transfer have been delivered, no material problems, and no resulting major incidents or issues have been identified. CMFT as the receiving Trust has not incurred any costs additional to those that were anticipated. Overall, the planning and execution of the merger and transfer of the HPB service from NMGH has ensured no financial problems. CMFT is successfully providing specialist 24 hour care and treatment to all HPB patients across Greater Manchester.

544. Following implementation, a 'Lessons Learnt' event was held in the form of an afternoon work shop attended by a range of representatives from the key staff groups from the two Trusts. The detail of the outcome from the session 'What went well' and 'What can be done better next time' is attached at Appendix 12.12.

545. The key lessons were explored and categorised as: HR/Staffing Issues; Project Management set-up; IT; Capacity, Capital and Facilities; MDT/Clinical; Communications. These lessons have since been used to inform and improve other similar service changes and transfers including the Trafford Hospital Acquisition, the Transfer of Vascular high risk surgery from Bolton Hospital to CMFT and the transfer of high risk general surgery from UHSM to CMFT.

12.2 CMFT's acquisition of Trafford Healthcare NHS Trust

546. Prior to their acquisition by CMFT in 2012, Trafford General Hospital, Altrincham Hospital and Stretford Memorial Hospital were operated by Trafford Healthcare NHS Trust (Trafford Healthcare). The Board of Trafford Healthcare had concluded that it was no longer clinically or financially viable as a separate NHS Trust, and commenced a process to be acquired.[191]

547. CMFT decided to bid for Trafford Healthcare for several reasons. In particular, it considered that Trafford General would provide it with greater capacity and flexibility to accommodate services in the future. Of particular interest was elective orthopaedic

[189] See Appendix 12.10 for the final position of the financial and capital requirements analysis.
[190] See Appendix 12.11 for an example of the risk register.
[191] Further detail on CMFT's acquisition of Trafford Healthcare is provided in Appendix 12.13. This appendix is a case study of the acquisition that was prepared as part of a broader project for NHS Improvement, which reviewed the outcomes from several past NHS transactions, available from https://improvement.nhs.uk/resources/how-make-nhs-mergers-work-better-patients/.

services, which CMFT was finding an increasing challenge to accommodate at its main site. Prior to the acquisition, CMFT had been supporting A&E services at Trafford General through the provision of clinical staff under a service level agreement, and felt that this experience gave it useful background clinical knowledge of the Trust.

548. CMFT's plan for Trafford General had three main elements: (i) reshape activity at Trafford General such that the annual cost of providing services on the site was reduced from around £90 million per annum to £40 million per annum; (ii) reorganise specialist and low complexity services between the Trafford and CMFT sites; and (iii) improve patient pathways and safety for patients treated at Trafford General to match the standards achieved by CMFT.

549. Following the acquisition, Trafford General was established as a division of CMFT, and CMFT engaged in a major programme of service change.

- The A&E Department at Trafford General was transformed into an Urgent Care Centre. This change reflected the limited demand for these services at Trafford General (seven patients per hour at peak times and two patients per hour at night).[192]
- Inpatient surgical bed capacity was reduced with most patients requiring an overnight stay being operated on at Manchester Royal Infirmary rather than Trafford General. The Intensive Care Unit was transformed into a High Dependency Unit.
- Elective orthopaedic activity transferred from Manchester Royal Infirmary to Trafford General, with these services integrated within the Trafford General division. CMFT also established a number of new services at the Trafford General site, including ophthalmology outpatient clinics, rehabilitation services for complex frail patients, and neurological rehabilitation services.
- Altrincham Hospital was redeveloped with a new building opened in 2015. However, Stretford Memorial Hospital was closed following the conclusion by CMFT that the site's infrastructure meant that it was no longer a safe or appropriate location from which to deliver healthcare services.
- Clinical and non-clinical support services, such as pathology, radiology, tissue viability, infection control, translation services, portering, catering and cleaning, were integrated and rationalised, as were back office functions.

550. Implementation of the most significant service changes at Trafford General required a commissioner-led public consultation process, which was carried out in Summer 2012, shortly following the acquisition. Implementation of these changes took place in late 2013, which was around 18 months following the merger, and included a six-month period during which an appeal against the planned reconfiguration was considered by the Secretary of State for Health.

551. CMFT's acquisition of Trafford Healthcare does not provide an exact model for the planned merger with UHSM. This is because the CMFT/UHSM transaction is a merger of equals. In contrast, Trafford Healthcare was a much smaller organisation compared to CMFT, and was encountering significant financial and clinical challenges.

[192] This, in part, was due to the absence of supporting clinical services at Trafford General which meant that heart attack, trauma and stroke patients were already directed by the ambulance service to other sites.

552. Nevertheless, the experience of acquiring Trafford Healthcare has provided CMFT with valuable experience in post-merger integration, and an understanding of the particular challenges that can arise with integrating clinical teams. This is discussed in Section 11, which considers workforce-related issues.

12.3 CMFT's acquisition of community health services

553. As part of the Transforming Community Services (TCS) programme led by the Department of Health between 2008 and 2012, from 1 April 2011 CMFT became responsible for providing the largest conurbation of community services transferred by Manchester Community Health.[193] The total services transferred by Manchester Community Health produced income, at that time, of around £110 million, of which approximately £43 million transferred to CMFT.

554. In common with other community service teams joining with larger acute trusts, opportunities were identified to merge community and hospital-based services to better support the patient pathways of care. However, the process of the TCS merger provided the basis for important areas of learning for the senior team at CMFT and a service specific example is set out below that explains this further.

555. At the time of the TCS transfer the Infection Control and Tissue Viability teams, transferred as part of the community services transaction, had a number of challenges. These included:

- small teams, where in some cases only a single person was responsible for a clinical area which meant no continuity of care provision when leave/absence occurred.
- staff within specialisms were suffering from being "siloed" and where a patient required treatment from related specialities there was fragmentation of care.
- tissue viability was limited to treatment of patients and had no capacity to provide education and prevention services.[194]
- data was unavailable to improve the service or proactively manage care for patients.

556. Following an assessment of challenges facing the Infection Control and Tissue Viability teams by CMFT, it was identified that by completely integrating the teams across both hospital and community-based services sufficient service resilience could be introduced. This meant that community patients could access these services and be unaffected by staff absence. However, the integration emphasised a number of areas of different practice and specific actions that needed to be undertaken for the now integrated service to be managed. For example:

- Hospital-based processes for the reporting and management of pressure ulcers were implemented across the community service. This led to improved identification and an ability to implement actions that resulted in a reduction in pressure ulcers. This is

[193] This transaction was reviewed by the Cooperation and Competition Panel which published a report on the transfer dated 8 December 2010. Other recipients of the community services previously managed by Manchester Community Health were Pennine Acute Hospitals NHS Trust, University Hospital South Manchester NHS Foundation Trust, and Manchester Mental Health and Social Care Trust.
[194] Tissue viability teams manage and treat people's wounds, and provide advice and support for patients, their families and carers.

an ongoing area of improvement which is delivered through education and support, as further described in the case study below.

- Infection control alerts, a common reporting process in hospital-based services, were implemented across community services to enable safe and effective management of infection risk for all patients.

557. Even within this single community service area (of around 40 different community service areas that transferred at the time of the TCS transaction), wider lessons were available to the senior CMFT staff about how to optimise the delivery of significant service change. It was only evident following the merger that community staff and hospital-based staff reported and measured the severity of pressure ulcers and infection differently. Whilst there is a European standard for grading and identification of skin damage due to pressure, the interpretation and implementation of these definitions is subject to variability.[195] Introducing the standard reporting process required: (i) staff training of the visual indicator standard that was being used; (ii) integration of the reporting system so the information was being managed in the same way; (iii) a standard timeframe for reporting to be introduced; and (iv) comprehensive education on prevention and treatment. This change took approximately 12 months to introduce and embed with staff (i.e. validating and retraining where necessary). It was apparent following this part of the integration that senior staff cannot assume that reporting metrics are comparable as the will need scrutiny and probably significant effort to standardise before clinical issues needing attention can be identified.

558. A key reason for integrating the community and hospital Infection Control and Tissue Viability teams was to build service resilience in the event of staff absence. However, this also provided capacity for structural changes to staffing to be trialled with a view to testing whether the changes would lead to improved care for patients. Specifically, a pilot was established to merge the specialist nurse role to cover both Tissue Viability and Infection Control at Nursing Bands 6 and 7 (and further reduce the potential for fragmentation in the patient pathway). After six months, it was determined that although benefits were gained from offering dual nurse roles at Band-6, there were important advantages to maintaining an expert specialist nurse role at Band-7 level (maintaining the specialist nurses proved important to informing evidence based practice, service development, and providing attractive positions for recruitment purposes). The CMFT team believes that they were the first in the UK to pilot a dual-nurse role in this way and will be able to offer important learning of the advantages and disadvantages of this type of change in the context of the proposed merger with UHSM.

559. More generally across the community services division, the merger with CMFT offered team resilience and scale that enabled professional development opportunities for staff and opportunities for nursing assistants that were unavailable in the context of community teams with very small numbers. The scale that CMFT bought to the community service enabled staff cross-cover and the development of tailored training programmes that were previously unavailable. The improved resilience led to specific improvements in a number of community service areas including:

[195] Prevention and Treatment of Pressure Ulcers: Quick Reference Guide. National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance 2014.

- The Patient Advice and Liaison Service (PALS) and patient experience team, as a larger team, were able to introduce improved patient feedback mechanisms.
- Within the Chaplaincy team, on-call cover has become less onerous, and so access has been improved for patients and their families.
- Bereavement Services and Family Support Teams are able to cross=cover during periods of staff absence, and so access has been improved for patients and their families.
- Identification and training for pre-registration student mentors was improved which in turn meant that staff training objectives could be achieved.
- Back-office support was considered an important enabler to deliver the 2011 change in national policy requirements for a new Health Visitor care model. The new model required staff numbers to increase from 98.2 WTE to 173.2 WTE in the period between 2011 and 2015. As part of the larger team dedicated leadership for the change programme could be supported and access to workforce resources meant large scale recruitment work could be undertaken and established links into the University and media resources could be utilised.

560. In the context of the TCS merger, the senior team also took learning points that will assist in the proposed merger with UHSM. Specifically, in the context of building and supported newly integrated teams, open and early dialogue with the merger partner was considered a missed opportunity when planning the TCS merger. Senior staff are very motivated to ensure that the opportunity to ask specific service questions is prioritised for the upcoming merger to better inform planning and coordination for the future integrated services.

Case Study – Pressure Ulcers

The Trust reported in its Annual Report 2015-16 (see pages 211-212) that it had continued to reduce the incidents of pressure ulceration across both community and acute services. The main focus had been to reduce the number of avoidable pressure ulcers.

	Grade 1	Grade 2	Grade 3	Grade 4
2014-15	243	440	29	9
2015-16	148	426	8	4
% reduction of pressure ulcers on previous year	39%	3%	72%	50%

The Infection Prevention and Control /Tissue Viability (IPC/TV) Team supported staff in clinical areas with identification and reporting of tissue damage. By being highly visible in the clinical area, the team were able to undertake one to one training sessions on pressure ulcer prevention and management. It has also given the opportunity for clinical staff to ask the specialist team about patient management.

Bespoke training was undertaken with the hospital divisions regarding issues raised following investigation of avoidable pressure ulceration for example, prevention of pressure ulcers caused by the use of medical device (probes, nasogastric tubes, and oxygen masks). Training for new starters on trust induction and international nurses was also delivered to help ensure new staff are aware of how to reduce the risk of harm to patients from pressure ulcers.

Within the critical care areas, weekly ward rounds are undertaken with the aim of preventing tissue damage in patients at very high risk of pressure damage. This is to ensure that all appropriate care and prevention plans are in place.

The IPC/TV Team also took part in an International event “Stop the Pressure” day in November 2015, where it visited patient and visitor areas to increase public awareness on how to reduce the risk of pressure ulceration and give skin care advice.

Patient information leaflets were developed for all adult acute and community areas. The leaflet gives patients and carers advice on how they can help reduce their risk of tissue damage. It also gives them information on how to contact the IPC/TV team if they have a problem with their skin.

Following investigation into each pressure ulcer incident, it was identified that there was a need to improve the documentation specifically in the community setting to improve communication between carers and district nurses. The community integrated care pathway was developed which has had the effect of improving communication and ensuring the same standard of care is provided for all patients.

A new wound assessment chart has been developed within the Acute hospitals which will improve the monitoring of healing wounds.

Further improvements were identified from the ongoing evaluation of a portable camera to improve monitoring of patient wounds within the community. The device will improve liaison between district nurses and the IPC/TV team because it enables district nurses to consult with the team whilst with the patient and receive immediate advice on management of the pressure ulcer/ wound. Additional new technology that has the potential to detect damage before it is visible on the skin is also being trialled. It is intended that this new technology can assist to instigate earlier prevention strategies and therefore prevent deeper tissue damage.