NHS Mansfield and Ashfield Clinical Commissioning Group

NHS Newark and Sherwood Clinical Commissioning Group

NHS Nottingham City Clinical Commissioning Group

NHS Nottingham North and East Clinical Commissioning Group

NHS Nottingham West Clinical Commissioning Group

NHS Rushcliffe Clinical Commissioning Group

Pre-Consultation Business Case

NHS Rehabilitation Centre Stanford Hall

Part of the Vision for a National Rehabilitation Centre

July 2020

Version 19.8

Document control

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Formal approvals

Version	Date	Submitted to	Outcome
v14	5 September 2019	Nottingham and Nottinghamshire CCGs' Governing Body	Further detail to be included
v19.3	5 February 2020	Nottingham and Nottinghamshire CCGs' Governing Body	Approved on the basis of identified issues addressed through DMBC and with the understanding the some minor changes will be made to the PCBC
V19.8	21 July	Nottingham and Nottinghamshire CCGs' Governing Body	Approved

Document Status

This is a confidential document for discussion purposes and any application for disclosure under the Freedom of Information Act 2000 should be considered against the potential exemptions contained in s.22 (Information intended for future publication), s.36 (Prejudice to effective conduct of public affairs) and s.43 (Commercial interests). Prior to any disclosure under this Act the parties should discuss the potential impact of releasing such information as is requested.

The options set out in this document are for discussion purposes. The involved NHS bodies understand and will comply with their statutory obligations when seeking to make decisions that will have an impact on the provision of care services. The options set out do not represent a commitment to any particular course of action on the part of the organisations involved but instead act as a catalyst for continuing discussion.

Disclaimer

Commissioning statements made herein, should not be construed to be final or to represent approved policy. Policy in this regard will be subject to NHS England and CCG Governing Body scrutiny and full consultation with health professionals, providers and other stakeholders within the local health system. Solutions proposed within this document are therefore preliminary only and will evolve in harmony with the evolving commissioning policies, developing Integrated Care System plans and the outcome of the consultation process.

Assumptions made within the document will be subject to full financial due diligence to ensure initiatives are affordable within the overall resources available to the local health and social care system.

Glossary

Please note a glossary of key terms/abbreviations in this document is provided at the end of this document.

Contents

Appendices as attachments

Section	No	Appendix
3.5	1 (i & ii)	Equality Impact Analysis
3.6	2	Travel Impact Assessment
3.7	3	Clinical Senate Report
5.3	4	Overview of NHS facilities for the rehabilitation centre
6.4	5	OBC space and capital cost estimate letter from PAU
7.3	6	Terms of reference and membership of the Clinical Reference Group
8.5/8.6	7 (i & ii)	Patient Engagement Report x 2

Foreword

In 2012 there was a breakthrough in the ability to treat serious injury in England with the establishment of 22 major trauma centres across the country. These centres have ensured that those who suffer serious injury receive the full range of acute treatment and care within the shortest possible time. The trauma centres have been an undoubted success with 19% more people now surviving despite having sustained a serious injury.

The development of a new state of the art rehabilitation centre provides an opportunity to extend this success further by providing an increased chance for people to return to their former lives after a serious injury or illness. For the NHS in the East Midlands the opportunity is a unique one, nationally and internationally, as it is proposed that a new NHS Rehabilitation Centre will be created on the Stanford Hall Rehabilitation Estate which hosts the Defence Medical Rehabilitation Centre (DMRC), a 360-acre rehabilitation estate providing high quality clinical rehabilitation services to defence personnel. The vision for the Estate includes a National Rehabilitation Centre (NRC) that combines an NHS Rehabilitation Centre, a research and innovation hub and an education and training centre.

The freehold owner of Stanford Hall Rehabilitation Estate is the Black Stork Charity. The charity has developed the estate as a rehabilitation facility for use by defence medical and NHS patients. It has created the new DMRC on the estate which has been treating members of the armed forces since October 2018. From the creation of the Defence and National Rehabilitation Centre programme in 2010 the charity with Government, has always intended to make the estate available for NHS use which is why it bought a large estate and developed planning permission for both defence and NHS use. In order to fully exploit the unique opportunities offered by full development of this estate the charity is now generously prepared to grant to the NHS the following:

- The lease of 7.2 acres of land at a peppercorn rent located 400 metres from the DMRC, and the assignment of the full planning permission for a new centre including a clinical facility. This is a very generous gift and, setting aside the value of the land, has amounted to £7m worth of enabling activity by the charity which continues to this day

- The opportunity to share expertise and facilities with Defence Rehabilitation to mutual advantage and make full use of the 360-acre Stanford Hall Rehabilitation Estate as an aid to healing in a tranquil environment.

Alongside providing specialist rehabilitation with access to state-of-the-art facilities, we recognise the need to have increased rehabilitation capacity and reduced waiting times to support flow through acute hospital beds to allow more people to receive the right care at the right time and in the right place. However, this has to be done in the context of providing efficiencies and be achievable within existing budgets. Therefore, as part of the proposal we outline the benefits of relocating one existing service to the improved facilities at the NHS Rehabilitation Centre Stanford Hall.

We believe that the changes proposed in this document provide an exciting opportunity for patients, our local communities, clinicians and the wider NHS.

Benefits provided to patients will be focused on improved outcomes and returning to their normal lives as quickly as possible; positively impacting on friends, families and carers. It is expected that patients may also experience shorter wait times for specialist rehabilitation and a shorter overall length of stay as an inpatient.

Our clinicians across the East Midlands Trauma Network will benefit from increased access to expert skills and knowledge. The ambition is that we have a more highly skilled cohort of regional rehabilitation specialists across community and hospital providers in the East Midlands and in turn, enhanced patient care. It is expected that this will also help to attract more recruits to the Nottinghamshire area.

The ambition is that individuals and local communities will benefit with more people being able to return to work and other activities of living. As a result, there would be less reliance on state welfare benefits and optimal use of community health and social care. The requirement for family members being main carers may also be reduced, thus enabling them to return to living their full lives.

The rehabilitation centre will provide high quality care, underpinned by leading expertise and best practice, in one of the best facilities in the NHS. There is a significant opportunity to improve lives, develop leading expertise in rehabilitation and, at the same time, use NHS resources more efficiently.

1. Executive Summary

The clinical commissioning groups (CCGs) in Nottingham and Nottinghamshire, along with Nottingham University Hospitals NHS Trust (NUH) have prepared the Pre-Consultation Business Case (PCBC) on the proposed development for the NHS Rehabilitation Centre Stanford Hall. This is part of a wider vision for the defence and NHS to be on the same site and to have a National Rehabilitation Centre (NRC) that will include an NHS clinical service, an education centre and research and innovation hub on the Stanford Hall Rehabilitation Estate, near Loughborough.

The Defence Medical Rehabilitation Centre (DMRC) at Stanford Hall opened in 2018. The Stanford Hall Rehabilitation Estate (SHRE), as the estate is now known, was conceived from the outset as an opportunity where serving defence personnel and NHS patients could all benefit from a bespoke state-of-the-art environment for rehabilitation where facilities and expertise could be shared.

The PCBC therefore presents the case for a new 64-bed clinical facility which will support NUH as a Major Trauma Centre and as such, provide services to the East Midlands Trauma Network including the NHS in Derbyshire, Lincolnshire, Leicestershire and Nottinghamshire. Detailed planning consent has been received for the proposed NRC and the Government has provided an allocation of £70m capital funding specifically for an NHS Rehabilitation Centre on the Stanford Hall Estate.

It is proposed that the NHS Rehabilitation Centre would provide the opportunity for an increased number and a wider cohort of patients to access rehabilitation. The proposal for the NHS Rehabilitation Centre will result in a net increase of 40 rehabilitation beds across the East Midlands Trauma Network and the facilities will allow for a clinical model providing services to patients with fractures following trauma and other conditions, where currently rehabilitation is provided predominantly for neurological patients.

Provision is to be managed within existing budgets and it is expected that this can be achieved by transferring services and beds from NUH and through the cashable benefits of rehabilitation.

Following an options appraisal, the shortlisted options considered include the following:

- Do nothing and maintain business as usual
- Implementation of a new centre with a clinical facility only and the introduction of a new clinical model serving a wider cohort of patients. This option includes transferring existing services from NUH
- Do maximum option of the implementation of a NRC with a clinical facility, education and training centre and research and innovation hub. Due to the allocation of capital funding and the identification of a NHS Rehabilitation Centre as the preferred way forward, the PCBC considers this option along with the transfer of relevant services from NUH. The value for money economic assessment of this as a shortlisted option offers positive benefit to cost ratios compared to business as usual.

Context and case for change

There is a substantial body of trial-based evidence and other research to support both the effectiveness and cost effectiveness of specialist rehabilitation for neurological conditions and injuries.[1] Despite their longer length of stay, the cost of providing early specialist rehabilitation for patients with complex needs is rapidly offset by longer term savings in the cost of community care, making this a highly cost-efficient intervention[2]. Applying a recent study to the opportunity for additional neurological capacity, cost efficiency is demonstrated through net lifetime savings for informal and formal care costs of the unmet need for neuro patients equating to £39,269,237. The evidence is not as available for the cost-efficiency for patients receiving specialist in-patient rehabilitation for a fracture however it is recognised that a multi-disciplinary approach to rehabilitation after major trauma can optimise care, minimise mortality and provide a framework for an accelerated post-injury programme.

There is currently no national strategy for rehabilitation and this has resulted in disjointed services across each region which creates delays in the pathway rather than a smooth transition in a timely manner between acute care and rehabilitation. This is particularly relevant where there is a Major Trauma Centre as with NUH, impacting on accessibility in the East Midlands. A series of reports have identified that the UK and in particular the East Midlands are underprovided for in rehabilitation. In the East Midlands rehabilitation bed provision is at 31% of the level recommended by the British Society of Rehabilitation Medicine (BSRM) indicating a shortfall of 174 beds across the region. Owing to the under provision, patients endure long waits for access to rehabilitation and often need to be repatriated to their local district hospitals or trauma units from a Major Trauma Centre, to wait for a specialist rehabilitation bed to become available.

Specialist rehabilitation services are commissioned and provided across two different levels based on complexity of need. Level 1 and 2a services are the most complex and are provided across a wider area than level 2b services. Within current services across the East Midlands Trauma Network, specialist rehabilitation is only accessible to neurological patients with a level 1 unit in Leicestershire, level 2a units in Leicestershire and Lincolnshire and level 2b units in Nottinghamshire and Derbyshire. Patients are referred to services based on complexity of need however, access may be impacted by location and waiting times.

It is expected that the proposal will deliver a step change in the provision of rehabilitation services for the East Midlands Trauma Network by addressing the following:

- Creating a high-quality centre of rehabilitation excellence
- Contributing to a deficit in rehabilitation capacity
- Improving access to services
- Improving outcomes and the patient experience through a new clinical model
- Ability to respond to changes in future service needs and models
- Reducing pressures on the acute bed base
- Reducing system financial pressures and providing a saving to the health and social care system and wider economy by:

[1] Turner-Stokes L, Disler PB, Nair A, Wade DT. Multi-disciplinary rehabilitation for acquired brain injury in adults of working age. Cochrane Database of Systematic Reviews July 2005, 20(3): Cd004170. Updated 2015.
[2] Turner-Stokes L, Williams H, Bill A, Bassett P, Sephton K: Cost-efficiency of specialist inpatient rehabilitation for working-aged adults with complex neurological disabilities: a multicentre cohort analysis of a national clinical data set. BMJ Open 2016, 6 :e010238

    - Reducing waits in acute beds
    - Reducing the overall length of inpatient stay
    - Delivering better outcomes, reducing the need for ongoing health and social care costs
    - Returning more people back to work, contributing significantly to the economy through taxes and increased spend of individuals
    - Reducing the burden on family members to be main carers.

- Returning people to work and active lives
- Improving recruitment, retention, education, training and skills for clinical staff with a specialty in rehabilitation.

Clinical and staffing model

The central aim of the NHS Rehabilitation Centre will be to return patients to life and work thereby reducing the long-term dependency on health care, financial and other support. Nationally, there is the opportunity for the NHS Rehabilitation Centre to provide the clinical model to be used across other major trauma networks.

The enhanced offer delivered through the clinical and staffing model can be summarised as follows:

- Timely access managed by a responsive referral system
- Active management of the patient journey through the whole pathway with the introduction of clinical case managers
- Three weekly assessments of mental health status for all patients
- Input from a wider range of professionals with a focus on vocation where appropriate
- Access to the wider facilities and an environment fully conducive to rehabilitation created by the estate
- New building designed to facilitate independence and therefore encouraging patients to do as much as they can for themselves.

Locally and regionally the rehabilitation centre will be the hub of a hub and spoke rehabilitation network, where services work together to provide a seamless transition for the patient. The NHS Rehabilitation Centre's programme will enable patients to benefit from a more intensive treatment regime delivered six days per week by a multi-disciplinary team of specialists. During the times that they are not involved in their programme, the facilities and grounds within the Estate will also contribute to patients' efforts to rehabilitate.

Clinicians in the NHS Rehabilitation Centre will be fully focused on rehabilitation and they will benefit from the knowledge sharing with other, equally focused, clinicians from both the NHS Rehabilitation Centre and the DMRC. The staff skill mix will provide a greater focus on rehabilitation assistants and exercise instructors, or similar roles to support patients with fitness sessions based on their own motivation and capabilities. This will also enable the approach to rehabilitation to be reinforced throughout the day and accelerate recovery. Also, new roles will be introduced as well as new ways of working, including the opportunity for staff to have rotations that include community services, acute trusts and the rehabilitation centre.

Early planning for discharge and return to life and work will be offered through the support of clinical case managers, enabling the transition from inpatient rehabilitation to home and community-based services, if required, to be timely and smooth.

Finance case

The finance case describes the impact of the option for a 64-bed NHS Rehabilitation Centre at a cost of approximately £13m per annum. It has been prepared on the basis of the proposed activity model and a cost neutral position. The finance case has been developed to understand the likely impact from the provision of a net increase of 40 specialist rehabilitation beds across the East Midlands and associated transfers of agreed activity and beds from the system.

The finance case takes into account the currently known capital and revenue consequences from the increase in specialist rehabilitation provision and accompanying decrease in acute beds. Specifically the finance case proposes the transfer of 21 beds from the current 2b rehabilitation facility at NUH, Linden Lodge, the release of the equivalent of 33 beds at NUH and meeting the current demand for NHS funded specialist neuro rehab currently provided outside of NHS facilities.

The capital case provides for an NHS Rehabilitation Centre within a £70m capital budget. The design of the new building allows for extensive rehabilitation facilities providing a combination of single and multi-bed rooms, a rehabilitation flat, rooms for families to stay, two gyms plus therapy rooms.

Pre-Consultation Business Case objectives and next steps

This PCBC has been prepared to make a compelling case for an NHS centre which will transform rehabilitation provision across the East Midlands Trauma Network, acting as an example of national best practice for the whole country.

The new centre involves transferring services and providing rehabilitation in a new way for patients in the region of the East Midlands Trauma Network, making the most of the unique opportunity presented to the region by the development of the DMRC site at Stanford Hall. This is part of a wider vision for an NRC that includes a research and innovation hub and education and training centre.

NUH runs the programme team that will take the proposal through to full implementation. The PCBC is based on planning undertaken by the CCGs, in conjunction with the programme team established by NUH, and has used the relevant national guidance for rehabilitation services and outcomes from across Europe as its benchmark. In drafting the PCBC, provider and commissioner system partners in the East Midlands, along with clinicians and patients, have had the opportunity to input to development of the options. The programme governance arrangements include a monthly programme board which key commissioning, Department of Health and Social Care and clinical stakeholders attend.

The PCBC seeks to demonstrate that we have embarked on developing a transparent planning process with NHS England (NHSE), other CCGs, providers, patients and carers,

the public, staff and stakeholders. It demonstrates, as a minimum, compliance against the four key tests set by the Secretary of State for Health and Social Care:

- Strong public and patient engagement
- Consistency with current and prospective need for patient choice
- A clear clinical evidence base
- Clinical commissioner support.

2. Introduction

This PCBC has been developed to inform the decision as to whether and how to undertake a public consultation on the proposal to invest in a new NHS Rehabilitation Centre at the Stanford Hall Rehabilitation Estate, sitting alongside a state of the art military building. The proposal for the NHS facility is part of a wider vision for a National Rehabilitation Centre incorporating NHS clinical services, a research and innovation hub and training and education centre.

The PCBC is a strategic planning document that forms part of an ongoing process of engagement with key stakeholders. It outlines the case for a newly built facility that includes the transfer of existing services as well as providing increased access to a new cohort of patients who do not currently receive rehabilitation. It forms the foundation for development of an ambitious national rehabilitation facility, including teaching and training and research and innovation; albeit that this is not considered in this case. The case for a new facility includes the opportunity to transform the way that rehabilitation services are being delivered including sharing expertise and some facilities with the military.

The PCBC has been prepared with the NUH programme team and with the Nottingham and Nottinghamshire CCGs as main commissioners impacted by the proposal. Other areas include Derbyshire, Lincolnshire, Leicestershire and Rutland and along with Nottinghamshire, commission services on behalf of 4.6 million people. NUH has been appointed as the lead organisation to bring forward the subsequent capital business case proposals, with the support of commissioners (subject to PCBC and Decision Making Business Case approval) and the local rehabilitation service providers in the East Midlands Major Trauma Network (EMMTN).

2.1 Background

The DMRC at Stanford Hall, near Loughborough, opened in 2018. The Stanford Hall Rehabilitation Estate (SHRE), as the estate is now known, was conceived from the outset as a facility where serving defence personnel and NHS patients could all benefit from a bespoke state-of-the-art environment for rehabilitation where facilities and expertise could be shared. The Duke of Westminster purchased the Stanford Hall estate solely for this intention and has passed the site into the ownership of a charitable trust, Black Stork Charity. The vision for the NRC is in three parts:

- A regional clinical unit
- A national training and education centre
- A national research and innovation hub.

The concept for SHRE envisaged a rehabilitation complex – a Defence and National Rehabilitation Centre (DNRC) - which would support defence and NHS rehabilitative work and have the flexibility to encompass vocational rehabilitation, rehabilitation research and education. Co-location with the defence centre would mean that NHS patients would benefit from access to facilities and equipment at the DMRC which are not available anywhere else in the UK.

In October 2018, the Government announced an allocation of up to £70 million for the capital towards the NHS Rehabilitation Centre in the NRC.

A hybrid planning application for the DNRC to support this vision and enable the development of the DMRC was submitted on 11 October 2013, as part of a hybrid planning permission for the DNRC (12/02070/HYBRID). Outline planning permission was granted by Rushcliffe Borough Council and set out a range of parameters as well as design and landscaping principles for the development of the NRC. Reserved matters outstanding were: appearance, landscaping, layout and scale and these were submitted to, and validated by Rushcliffe Borough Council, on or before 11 October 2018. On 23 November 2018, detailed planning consent for the NRC (18/02250/REM), subject to compliance with a number of planning conditions, was granted. The detailed planning consent is valid until November 2025, seven years from the date of approval.

This PCBC therefore follows:

- The opening of the DMRC in autumn 2018
- The announcement in the October 2018 budget by the Government of an allocation of £70m capital funding on the basis it is spent to create an NHS Rehabilitation Centre at Stanford Hall, subject to the outcomes of public engagement and standard business case development processes
- The receipt of detailed planning consent for the NRC at the SHRE in November 2018.

2.2 Current provision of specialist rehabilitation services

Specialist rehabilitation services are commissioned and provided across England at three different levels dependent on complexity of need. The most complex is level 1, complex specialised rehabilitation services, the next level down is level 2 specialist rehabilitation services and then level 3, non-specialist rehabilitation services. The levels are further defined into categories a, b, c and d based on rehabilitation needs of patients. Further information is provided in the Context section. For the purposes of this Introduction, this PCBC considers changes to Level 2b rehabilitation services only.

Specialist rehabilitation in England is currently predominantly focused on those patients with neurological needs or injuries, unlike European countries whose in-patient rehabilitation focuses on a wide range of patients requiring rehabilitation. Also, the rehabilitation units in England have not been co-ordinated to follow a regional pathway; unlike many of the acute regional services they serve, for example, major trauma and neurosciences.

It is important to note that the PCBC is considering rehabilitation services within the East Midlands Trauma Network which includes Derbyshire, Leicestershire, Lincolnshire and Nottinghamshire. As NUH is a Major Trauma Centre, it is important that any consideration of rehabilitation needs adequately provides for this cohort of patients. Also, within the context of the wider services across the different levels, it is expected that with increased beds and access, all rehabilitation services will be positively impacted by the provision of a more effective clinical pathway.

Rehabilitation services are commissioned by either NHSE or CCGs. NHSE commission specialised services on a regional basis and CCGs commission local services. NHSE also commission major trauma services. Table 2.1 provides an overview of the rehabilitation services capacity currently provided within the East Midlands Trauma Network.

Table 2.1: Current East Midlands rehabilitation services

Provision	Nottinghamshire	Leicestershire and Rutland	Derbyshire	Lincolnshire
Level 1 Brain Injury Unit (regional service commissioned by NHS England)				
Location	Provided in Leicester	Leicester General Hospital	Provided in Leicester	Provided in Leicester
Bed provision		9 beds		
Level 2a Neuro Rehabilitation (regional service commissioned by NHS England)				
Location	Provided in Leicester or Lincoln	Specialised Rehabilitation Unit, Leicester General Hospital	Provided in Leicester or Lincoln	Ashby Ward, Lincoln County Hospital
Bed provision		16 beds		12 beds
Level 2b Neuro Rehabilitation (local services commissioned by CCGs)				
Location	Linden Lodge, City Hospital Nottingham	No commissioned service	Kings Lodge, London Road Community Hospital	No commissioned service
Bed provision	24 beds		18 beds	

The overall provision of rehabilitation beds is currently 79 for the East Midlands Trauma Network including levels 1, 2a and 2b. The British Society of Rehabilitation Medicine (BSRM) recommends rehabilitation provision of between 45 and 65 beds per million people, or 60 per million excluding stroke services. With a population of 4.6 million people and taking a mid-point of 55 beds per million, this would indicate an overall requirement for 253 beds, indicating a shortfall of 174 rehabilitation beds across the region. Put another way, only 31% of the recommended level of provision is currently being provided in the region with the busiest Major Trauma Network in England.

2.3 NHS Rehabilitation Centre proposal

The proposal set out in this document is intended to transform regional rehabilitation services for people with rehabilitation needs by providing increased access and then the right care, at the right time, in the right place.

This will be achieved by:

- Creating a regional centre of excellence, providing best practice care and expertise and access to rehabilitation for a wider cohort of patients
- Providing an nhs rehabilitation centre as the newest element of a rehabilitation campus at stanford hall rehabilitation estate that will benefit from synergies with the

recently opened dmrc. The co-location with the defence centre will mean that patients at the nhs centre will benefit from two key factors - clinicians sharing knowledge and expertise for mutual benefit across the nhs and defence medical services, and access to facilities and equipment at the dmrc which are not available anywhere else in the uk

- Expanding regional specialist rehabilitation capacity by 40 beds (reducing the burden on the regional acute bed base), and replacing the 21 beds at linden lodge on the nottingham city hospital site with a 64-bed unit at stanford hall rehabilitation estate
- Providing a value for money case within the existing cost envelope across the systems.

Patient cohorts

Referral to the NHS Rehabilitation Centre will be relevant to rehabilitation potential and for neurological patients, patients will be those that fall into the category of 2b (as defined by British Society of Rehabilitation Medicine specialised neuro rehabilitation service standards.[3] The patient cohorts include the following:

- Neurological patients with complex rehab needs
- Fractures post-surgery with an injury severity score >= 9 and rehab potential
- Severely deconditioned post-surgical patients with rehab potential
- Traumatic amputees.

The model excludes outpatient services including pulmonary and cardiac rehabilitation, paediatric patients, patients with a fractured neck of femur, stroke patients and patients for whom safe care through rapid access to acute hospital services would be necessary.

Clinical and staffing model

The central aim of the rehabilitation centre will be to return patients to life and work thereby reducing the long-term dependency on health care, financial and other support. Nationally, there is the opportunity for the NHS Rehabilitation Centre to provide the clinical model to be used across other major trauma networks.

The enhanced offer delivered through the clinical and staffing model can be summarised as follows:

- Timely access managed by a responsive referral system
- Active management of the patient journey through the whole pathway with the introduction of clinical case managers
- Three weekly assessments of mental health status for all patients
- Input from a wider range of professionals with a focus on vocation where appropriate
- Access to the wider facilities and an environment fully conducive to rehabilitation created by the estate

[3] British Society of Rehabilitation Medicine, Specialised Neurorehabilitation Service Standards 7 30 4 2015-PCATV2-forweb-11-5-16- Annexe2_Updated_May2019.doc

- New building designed to facilitate independence and therefore encouraging patients to do as much as they can for themselves.

Locally and regionally the NHS Rehabilitation Centre will be the hub to a hub and spoke rehabilitation network, where services work together to provide a seamless transition for the patient. The hub and spoke arrangements will provide for the opportunity to upskill staff as they rotate through the NHS Rehabilitation Centre and move to a new model of rehabilitation which supports a wider cohort of patients.

It is proposed that there will be one single point of referral to the NHS Rehabilitation Centre, to ensure that all patients who could benefit from rehabilitation are referred to the service and are treated in the most appropriate unit relative to their needs. This will help to manage activity efficiently and help free up acute beds across the system.

The NHS Rehabilitation Centre's programme will enable patients to benefit from a more intensive treatment regime delivered six days per week, including a mixture of group and one-to-one sessions and a wide range of activities to develop a bespoke full day programme. Patients will benefit from a comprehensive range of rehabilitation services provided by a multi-disciplinary team of specialists. During the times that they are not involved in their programme, patients will have out-of-hours access to two gyms, activity centres and the grounds that will allow patients to continue their own rehabilitation outside formal sessions, supported by a non-clinical member of staff.

Patients will benefit from an increase in speciality care, including physical, mental and social care. Clinicians in the NHS Rehabilitation Centre will be fully focused on rehabilitation and they will benefit from knowledge sharing with other, equally focused, clinicians from both the NHS Rehabilitation Centre and the DMRC. The staff skill mix will be tailored, similar to that of the DMRC, to deliver the best possible rehabilitation service within economic constraints. This means that there will be a greater focus on rehabilitation assistants and exercise instructors, or similar roles to support patients with fitness sessions based on their own motivation and capabilities. This will also enable the approach to rehabilitation to be reinforced throughout the day and accelerate recovery.

While it is intended to provide NHS patients with access to state-of-the-art facilities in the DMRC not available within NHS services, it is not envisaged that patients in the defence and NHS facilities would ever receive treatment in the same place at the same time.

Early planning for discharge and return to life and work will be offered at the NHS Rehabilitation Centre through the support of clinical case managers, enabling the transition from inpatient rehabilitation to home and community-based services, if required, to be timely and smooth. A further significant best practice improvement is the introduction of the trusted assessor across the region. This principle is part of the proposal to support discharge planning and ensure that an assessment made in one unit is accepted by the next. This will avoid duplication currently in the system.

The staffing model takes into consideration mental, physical and social care needs. The model is a combination of existing roles, an increased emphasis on certain skills including rehabilitation assistants and exercise therapists. New roles will be introduced as well as new ways of working, including the opportunity for staff to have rotations that include community services, acute trusts and the rehabilitation centre. This rotation of staff will ensure patients

experience a smooth transition into the community and their home environment as staff will be competent and familiar with the level of function gained at the NHS Rehabilitation Centre .

Staff will work as part of a fully integrated, specialist multi-disciplinary team where they will have the opportunity to learn and develop their understanding and practice from other team members. Engineers, scientists and clinicians will work together in the same space to develop clinical expertise, new technology and products to enable independence for this group of patients.

2.4 PCBC objectives

This PCBC has been prepared to make a compelling case to transform rehabilitation provision across the East Midlands Trauma Network, provide a cost-effective solution and act as an example of national best practice. The proposals in the PCBC will be presented to the relevant local authority health overview and scrutiny committees to agree the required level of public consultation on potential options.

This service change involves transferring services and providing rehabilitation in a new way for patients in the East Midlands, making the most of the unique opportunity presented to the region by the development of the DMRC site at Stanford Hall.

It is based on planning undertaken by the programme's Clinical Reference Group on behalf of the local CCGs and has used the relevant national guidance for rehabilitation services and outcomes from across Europe as its benchmark. It has included system partners, clinicians and patients at every stage. This PCBC compares rehabilitation outcomes in the UK to other countries and proposes options to address the deficit. The programme governance arrangements include a monthly programme board which key commissioning, Department of Health and Social Care and clinical stakeholders attend.

The PCBC seeks to demonstrate that we have embarked on developing a transparent planning process with NHSE, other CCGs, providers, patients, carers, the public, staff and stakeholders. It demonstrates, as a minimum, compliance against the four key tests set by the Secretary of State for Health and Social Care:

- Strong public and patient engagement
- Consistency with current and prospective need for patient choice
- A clear clinical evidence base
- Clinical commissioner support.

In complying with these four tests, this PCBC is intended to reassure our clinical community, patients, carers, local politicians and interested parties that a robust process has been carried out in order to inform the decision on public consultation. It also covers the agreed levels of assurance and decision making required for significant service change and we show how the four tests have been met and that the plans maintain overall hospital bed numbers as per the NHSE specific requirement in this regard.

The proposals contained in this PCBC aim to address some of the current service shortcomings. The case study in Figure 2.1 provided by a patient currently using the

rehabilitation service, sets out how the local, regional, and potentially national population can benefit from the NHS Rehabilitation Centre and services proposed.

Figure 2.1: Case study

Patient case study

"Whilst in hospital, it was clear I had limited movement on my right side, had difficulty understanding, following instructions, communicating verbally and recognising visitors. I have no clear memories of that time at all. I am told that rehabilitation on the ward was very limited, mainly to move my position or to assess the possibility of my transferral to the rehabilitation unit. Once the decision was made I was suitable for the rehabilitation unit, I had to wait for a bed to become available, due to limited availability. I needed to be in the unit as soon as possible so that the intensive therapy that I subsequently received, could be focused to my specific needs in order for me to begin to make progress.

"Once in the unit the hard work began, not only with the therapists but my wife made it clear it was my job to work hard at whatever was asked of me, in order to be the best I could possibly be. In fact she told me I was going to "join the gym I'd not joined" and at times it has felt like this but I know it's what I needed and still need to do! It has been exhausting both mentally and physically and I need a lot of rest too. At my most recent team meeting my therapists commented positively on my effort levels and have been pleased with my progress over time.

"Whilst I believe I am in the best place and with an incredibly supportive, professional team of staff who aid my recovery and help me to learn to adapt to the difficulties I am facing, there could of course be improvements. There is a noticeable gap in provision during weekends though my wife makes sure I go in the gym and do speech and language exercises. I have also felt at times weekday provision to be sporadic, with a full programme of therapies some weeks, yet limited on others due to staffing levels and holiday periods. Outpatient clinics also affect opportunities to go into the gym, as this is where clinics are currently held.

"Facilities and equipment need to be of the highest standards and in good repair. I am beginning to walk with the physiotherapists and wonder if a sadly lacking hydrotherapy pool would be of benefit. I note the treadmill support hoist remains unrepaired. My speech is improving too, though I struggle to find the right words and my attention is limited. I need to interact with trained staff and other patients in areas to facilitate this, such as patient home kitchen areas and vocational facilities to give hope of a life beyond the unit.

"Currently I am waiting to have a titanium cranioplasty. I have sunken flap syndrome which is having a regressive effect on my speech, fatigue and concentration. If all goes well I will be in hospital for only a short period of time, possibly two days before I return to the rehabilitation unit to continue to recover and improve on the progress I have already made. However, I was extremely concerned to learn that I will need to vacate my room and will have to wait again for a bed to become available at the rehabilitation unit. Clearly more beds and facilities are required. I can only hope I don't need to wait too long before I

start on my journey to be the best possible me again and begin to transition back home and adapt to my new way of life."

Fundamentally, the aims of this PCBC are to:

- Make the case for transforming rehabilitation services to address patient needs and improve outcomes across the East Midlands
- Make the case for a NHS Rehabilitation Centre on the Stanford Hall Estate
- Describe the current and proposed future models of care
- Demonstrate compliance against the Secretary of State for Health and Social Care's four key tests and NHSE's requirement for assurance about bed numbers
- Provide details of the pre-consultation engagement that has been undertaken with the public, clinicians, staff and stakeholders in:

    - Developing the proposed future models of care and demonstrate how their feedback has shaped and will continue to shape the development of the future model of care
    - Informing, developing and evaluating viable options for the service and location changes needed, driven by the current service constraints and considering the benefits and impact of these options on patients, leading to the selection of the preferred option
    - Outlining the impact on those people who will be affected by the change.

2.5 Partner collaboration in developing the PCBC

The PCBC has been developed from engagement with the following parties:

The organisations involved in the joint project:

- Greater Nottingham CCGs including Nottingham City, Nottingham North and East, Nottingham West, Rushcliffe
- Mid Nottinghamshire CCGs including Mansfield and Ashfield, Newark and Sherwood
- Nottingham University Hospitals NHS Trust
- University Hospitals of Leicester NHS Trust
- University Hospitals of Derby and Burton NHS Foundation Trust
- United Lincolnshire Hospitals NHS Trust
- Defence Medical Services
- NHS England

The other local CCGs:

- East Leicestershire and Rutland
- West Leicestershire
- Leicester City
- Derby and Derbyshire
- Lincolnshire East
- Lincolnshire West

- South West Lincolnshire
- South Lincolnshire

Local authorities

- Nottingham City Council
- Nottinghamshire County Council

2.6 PCBC scope

With the NUH programme team taking the lead, the Nottingham and Nottinghamshire CCGs have carefully considered the proposal; and with public and stakeholder engagement, an options appraisal was conducted with stakeholders. The options appraisal process and outcome was undertaken and approved by the programme's NRC Board in April 2019. The options appraisal was carried out in relation to the three elements including research, education and clinical facilities and this included an option for an NHS Rehabilitation Centre only. In this options section we have therefore retained original references to the NRC.

The PCBC compares the benefits of maintaining services as they are with utilising the capital investment allocated for an NHS Rehabilitation Centre which involves:

- The creation of a new centre at Stanford Hall, Nottinghamshire, alongside and benefitting from operational synergies with the newly opened DRC for the provision of an NHS clinical facility.
- The transfer of 21 Level 2b rehabilitation beds and associated rehabilitation services for 24 beds from Linden Lodge, City Hospital Nottingham, into the new NHS Rehabilitation Centre.
- The release of costs for 33 acute beds in NUH currently being used to hold MSK and neuro patients from across the East Midlands Trauma Network..
- The expansion of the rehabilitation service offer to include a wider range of patients such as musculoskeletal patients mirroring the European model, and releasing capacity in acute beds in the region.
- The creation of a new East Midlands Rehabilitation Pathway that operates as an integrated network for this expanded cohort of patients across Nottinghamshire, Leicestershire and Rutland, Derbyshire and Lincolnshire, ensuring more patients benefit from getting access to the most appropriate rehabilitation treatment at the earliest opportunity.
- Transforming rehabilitation services to ensure patients maximise their recovery opportunity through a shorter but more intensive rehabilitation regime delivered by a new workforce model, informed by best practice in the DMRC and elsewhere.

2.7 PCBC structure

This PCBC has been developed in line with the NHSE guidance document '*Planning, assuring and delivering service change for patients'* (version 3, March 2018), and HM Treasury's *Green Book* guidance relating to the capital investment decisions involved in supporting the proposed changes.

The PCBC contains the sections:

1. Executive summary: summarises the key findings in the PCBC
2. Introduction (this section): provides an overview of the project objectives, background, scope, parties involved, and the proposal itself
3. Context: sets the background of the parties involved, the current healthcare challenges faced by the commissioners and provider, the equality impact analysis, travel impact analysis and Clinical Senate recommendations
4. Case for change: outlines the cost effectiveness for rehabilitation based on the patient cohorts identified for the service and the demand and capacity modelling
5. Clinical model: describes the potential new model of care; details how the new location would enable the model of care to change; the workforce plan and staffing model and the design of the facilities
6. Finance case: describes the revenue case for option two and the capital case
7. Options development and appraisal: outlines the process followed for generating and evaluating the options for consideration
8. Patient, public and staff engagement: details the engagement undertaken to date, how this has informed the next steps proposed herein
9. Governance: documents the governance structure that has been put in place to ensure the decision-making process is robust, accommodates relevant stakeholder views and there is clarity on responsibilities for decision making and responsibilities for approval of key documents and milestones
10. The Secretary of State's four tests: provides assurance on how the PCBC has met the Secretary of State's four tests for service change
11. Decision-making process and next steps: identifies the next steps needed for the consultation to progress and the broader development programme.

3. Context

3.1 What are specialist and specialised rehabilitation services?

Rehabilitation is a process of assessment, treatment and management by which the individual (and their family/carers) are supported to achieve their maximum potential for physical, cognitive, social and psychological function, participation in society and quality of living. Patient goals for rehabilitation vary according to the trajectory and stage of their condition.

Specialist rehabilitation is the total active care of patients with complex disabilities by a multi-professional team who have undergone recognised specialist training in rehabilitation, led by a consultant trained and accredited in rehabilitation medicine.[4]

Generally, patients requiring specialist rehabilitation are those with complex disabilities. Such patients typically present with a diverse mixture of medical, physical, sensory, cognitive, communicative, behavioural and social problems, which require specialist input from a wide range of rehabilitation disciplines (for example, rehabilitation-trained nurses, physiotherapy, occupational therapy, speech and language therapy, psychology, dietetics, orthotics, and social work) as well as specialist medical input from consultants trained in rehabilitation medicine, and other relevant specialties, for example, neuropsychiatry.

A subgroup of patients will have ‘profound disability’; these are more severely affected patients who require help for all aspects of their basic care, as well specialist interventions, for example, spasticity management, postural support programmes and highly specialist equipment.

Specialist rehabilitation services form a critical component of the recovery pathway following major injury and relieve pressure on beds in acute services. The majority of patients will make a good recovery following major trauma and return home with the support of their local services. However, a small number will have complex rehabilitation needs requiring the skills and facilities of a specialist in-patient rehabilitation unit before they are ready to leave hospital. By relieving pressure on beds in acute services, these specialist rehabilitation services form a critical component of the trauma pathway, without which the Major Trauma Networks cannot ensure adequate recovery for patients.

Therapy disciplines involved in providing rehabilitation may include: physiotherapy, occupational therapy, speech and language therapy, psychology, dietetics, social work, orthotics, rehabilitation engineering, vocational / educational support and rehabilitation therapy instructors.

Specialist rehabilitation services are currently provided along three main (frequently overlapping) pathways:

[4] British Society of Rehabilitation Medicine, Specialised Neurorehabilitation Service Standards 7 30 4 2015-PCATV2-forweb-11-5-16- Annexe2_Updated_May2019

1. Restoration of function – for example, for those recovering from a 'sudden onset' or 'intermittent' condition, where patient goals are focused not only on improving independence in daily living activities, but also on participatory roles such as work, parenting and other activities
2. Disability management – for example, for those with stable or progressive conditions, where patient/family goals are focused on maintaining existing levels of function and participation; compensating for lost function (for example, through provision of equipment/adaptations); or supporting adjustment to change in the context of deteriorating physical, cognitive, and psychosocial function
3. Neuro-palliative rehabilitation - focuses on symptom management and interventions to improve quality of life during the later stages of a progressive condition or profound disability, at the interface between rehabilitation and palliative care.

To provide context to the level of rehabilitation being considered, the technical definitions for the respective categories of patient care provided and the different levels of service are set out below:

Categories for rehabilitation needs

The table below explains the four types of rehabilitation needs for patients as categorised by the British Society of Rehabilitative Medicine.

Table 3.1: Definitions of patient rehabilitation needs

Rehabilitation needs
Category A

• Patient goals for rehabilitation may include:
  ○ Improved physical, cognitive, social and psychological function/independence in activities in and around the home
  ○ Participation in societal roles (such as work, parenting and relationships)
  ○ Disability management, for example, to maintain existing function, manage unwanted behaviours, facilitate adjustment to change
  ○ Improved quality of life and living including symptom management, complex care planning, support for family and carers, including neuropalliative rehabilitation
• Patients have complex or profound disabilities, for example, severe physical, cognitive communicative disabilities or challenging behaviours
• Patients have highly complex rehabilitation needs and require specialised facilities and a higher level of input from more skilled staff than provided in the local specialist rehabilitation unit. In particular rehabilitation will usually include one or more of the following:
  ○ Intensive, co-ordinated interdisciplinary intervention from four or more therapy* disciplines, in addition to specialist rehabilitation medicine/nursing care in a rehabilitative environment
  ○ Medium to long term rehabilitation programme required to achieve rehabilitation goals – typically two to four months, but up to six months or more, providing this can be justified by measurable outcomes
  ○ Very high intensity staffing ratios, for example, 24-hour one-to-one nurse "specialling", or individual patient therapy sessions involving two to three trained therapists at any one time
  ○ Highest level facilities/equipment, for example, bespoke assistive technology/seating systems, orthotics, environmental control systems/computers or communication aids, ventilators

Rehabilitation needs
○ Complex vocational rehabilitation including inter-disciplinary assessment/multi-agency intervention to support return to work, vocational retraining, or withdrawal from work/financial planning as appropriate • Patients may also require: ○ Highly specialist clinical input, for example, for tracheostomy weaning, cognitive and/or behavioural management, low awareness states, or dealing with families in extreme distress ○ Ongoing investigation/treatment of complex/unstable medical problems in the context of an acute hospital setting ○ Neuro-psychiatric care including risk management, treatment under sections of the Mental Health Act ○ Support for medico-legal matters including mental capacity and consent issues ○ Patients are treated in a specialised rehabilitation unit such as a level 1 unit ○ Patients may on occasion be treated in a level 2 unit depending on the availability of expert staff and specialist facilities as well as appropriate staffing ratios.
Category B
• Patient goals for rehabilitation may be as for category A patients • Patients have moderate to severe physical, cognitive and/or communicative disabilities which may include mild to moderate behavioural problems • Patients require rehabilitation from expert staff in a dedicated rehabilitation unit with appropriate specialist facilities • In particular, rehabilitation will usually include one or more of the following: ○ Intensive co-ordinated interdisciplinary intervention from two to four therapy disciplines in addition to specialist rehabilitation medicine/nursing care in a rehabilitative environment ○ Medium length rehabilitation programme required to achieve rehabilitation goals – typically one to three months, but up to a maximum of six months, providing this can be justified by measurable outcomes ○ Special facilities/equipment, for example, specialist mobility/training aids, orthotics, assistive technology or interventions such as spasticity management with botulinum toxin or intrathecal baclofen ○ Interventions to support goals such as return to work, or resumption of other extended activities of daily living, for example, home-making and managing personal finance • Patients may also have medical problems requiring ongoing investigation/treatment • Patients are treated in a local specialist rehabilitation unit - a level 2 unit.
Category C
• Patient goals are typically focused in restoration of function/independence and co-ordinated discharge planning with a view to continuing rehabilitation in the community • Patients require rehabilitation in the context of their specialist treatment as part of a specific diagnostic group • Patients may be medically unstable or require specialist medical investigation/procedures for the specific condition • Patients usually require less intensive rehabilitation intervention from one to three therapy disciplines in relatively short rehabilitation programmes (up to six weeks) • Patients are treated by a local specialist team (a level 3a service) which may be led by consultants in specialties other than rehabilitative medicine (for example, neurology) and staffed by therapy and nursing teams with specialist expertise in the target condition.

Rehabilitation needs
Category D
• Patient goals are typically focused in restoration of function/independence and co-ordinated discharge planning with a view to continuing rehabilitation in the community if necessary • Patients have a wide range of conditions but are usually medically stable • Patients require less intensive rehabilitation intervention from one to three therapy disciplines in relatively short rehabilitation programmes (typically six to 12 weeks) • Patients receive an inpatient, local non-specialist rehabilitation service (level 3b) which is led by non-medical staff.

Service levels

Figure 3.1 shows the tiers of service provision for patients with different rehabilitation needs. This approach to defining services is taken from the Specialised Neurorehabilitation Service Standards.[5]

Figure 3.1: Different levels of complexity in rehabilitation service provision

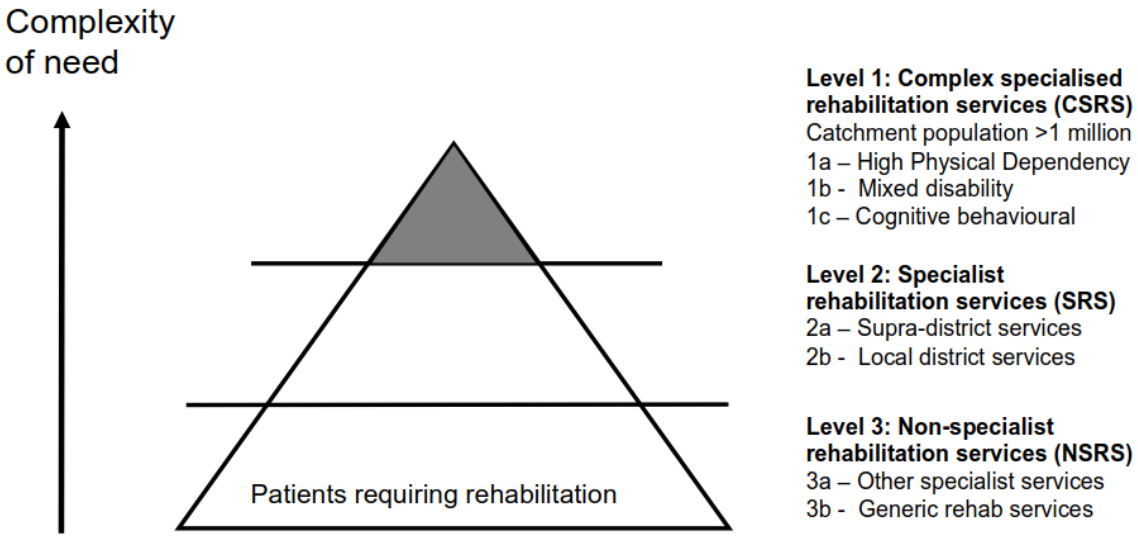


Table 3.2 shows how these services differ.

Table 3.2: Different levels of complexity in rehabilitation service provision

Rehabilitation service levels
Level 1: Specialised rehabilitation services
• Tertiary specialised rehabilitation services - provided at regional/national level • Provided by specialised rehab teams led by consultants trained and accredited in the specialty of

[5] British Society of Rehab Medicine, Specialised Neurorehabilitation Service Standards 7 30 4 2015-PCATV2-forweb-11-5-16-Annexe2_Updated_May2019

Rehabilitation service levels

rehabilitation medicine and/or neuropsychiatry
• Serve a regional or supra-regional population (catchment of 1-3 million) and taking patients with category A needs – for example, severe physical, cognitive communicative disabilities or challenging behaviours, with highly complex rehabilitation needs* that are beyond the scope of their local specialist rehabilitation services, and have higher level facilities and skilled staff to support these
• Predominantly highly complex caseload:
  ○ At least 85% patients have category A needs on admission
  ○ At least 70% patients with Rehabilitation Complexity Scale – Trauma (RCS-E) score ≥11 cross-sectionally
• Collect and report full National Specialist Rehabilitation Dataset.

Level 2: Local specialist rehabilitation services - provided at district level
• Local (district) specialist rehabilitation services. • Provided by inter-disciplinary teams led/supported by a consultant in rehabilitation medicine, and meeting the BSRM standards for specialist rehabilitation services.
Level 2a: Supra district services

• Led by consultant in rehabilitation medicine. Serving an extended local population (catchment 600,000-1 million) in areas which have poor access to level 1 services
• Take patients with a range of complexity, including category B and some category A with highly complex rehabilitation needs*
• Mixed caseload
  ○ 50-80% category A needs on admission
  ○ 50-70% Rehabilitation Complexity Scale – Trauma (RCS-E) score ≥11 cross-sectionally
• Collect and report full National Specialist Rehabilitation Dataset.

Level 2b: Local district services

• Led/supported by a consultant in rehabilitation medicine. Serving a local population (catchment: 250,000-500,000), predominantly patients with category B needs
• Less complex caseload:
  ○ For example, 30-50% category A needs on admission
  ○ 30-50% RCS-E Rehabilitation Complexity Scale – Trauma (RCS-E) score ≥11 cross-sectionally
• Collect and report at least the minimum national dataset.

Level 3: Local non-specialist services - includes generic rehabilitation for a wide range of conditions, provided in the context acute, intermediate care and community facilities, or other specialist services
Level 3a
• Other specialist services led or supported by consultants in specialties other than rehabilitation medicine, such as services catering for patients in specific diagnostic groups (for example, stroke) with category C needs • Therapy/nursing teams have specialist expertise in the target condition.
Level 3b
• Generic rehabilitation for a wide range of conditions, often led by non-medical staff, provided in the context acute, intermediate care and community facilities, for patients with category D needs.

Level 1 and 2a services should be located within an acute hospital due to the ongoing medical requirements of the rehabilitation patients. This PCBC refers to services for category B (and occasionally category A) patients in level 2b services.

3.2 National context

Figure 3.2: Excerpts from Commissioning guidance for rehabilitation, NHS England, March 2016

"A modern healthcare system must do more than just stop people dying. It needs to equip them to live their lives, fulfil their maximum potential and optimise their contribution to family life, their community and society as a whole.

"It is increasingly acknowledged that effective rehabilitation delivers better outcomes and improved quality of life and has the potential to reduce health inequalities and make significant cost savings across the health and care system."

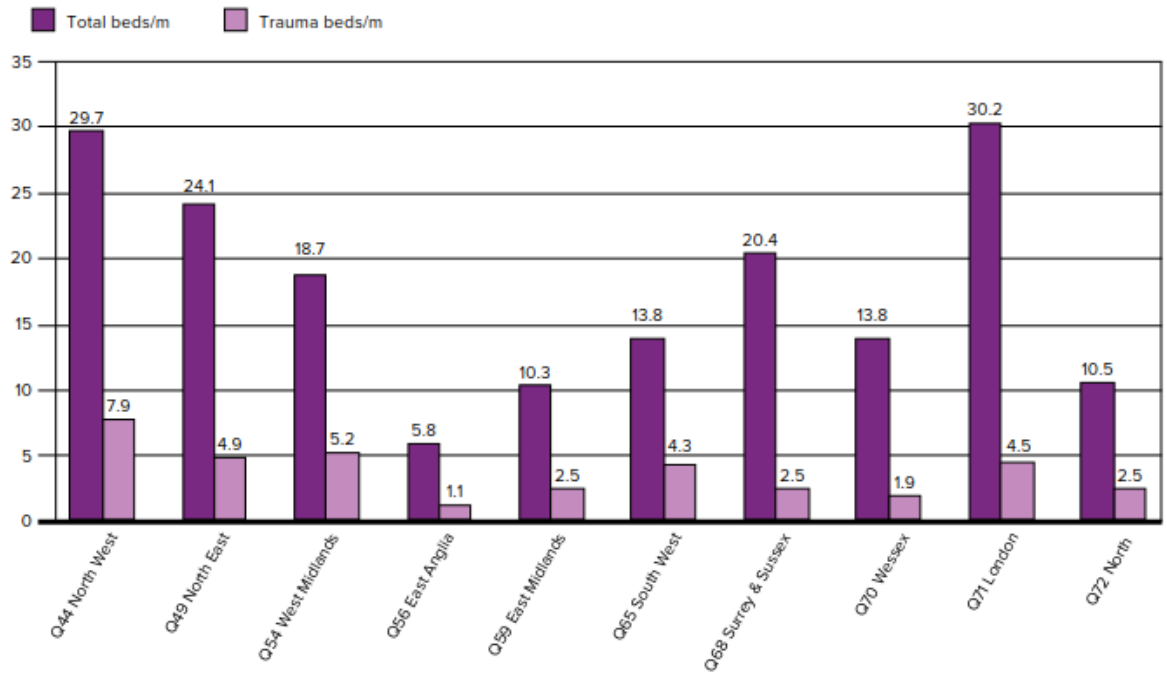
There is currently no national strategy for rehabilitation services and, in particular, nothing that relates to the specific needs of patients other than those with a neurological injury or condition. The recent NCASRI National Audit report regarding major trauma rehabilitation recognised this gap in the service provision when the major trauma networks were established. The absence of a rehabilitation strategy across England means that there are disjointed services across each region which at present create delays in the pathway rather than provide a smooth transition in a timely manner between acute care and rehabilitation. To address this deficiency, the programme team has agreed to work with the Getting It Right First Time (GIRFT) programme team who are reviewing rehabilitation services across England to produce a new rehabilitation strategy for England. The GIRFT programme is delivered in partnership with the Royal National Orthopaedic Hospital NHS Trust and NHS Improvement (NHSI).

In 2014–-15, a total of 65 adult services in England were designated as level 1 or 2 inpatient specialist rehabilitation units. Together, these provided approximately 994 occupied beds for specialist rehabilitation, with 195 (19%) of those being used for major trauma patients. Provision continues to vary considerably across the country.

The British Society of Rehabilitation Medicine (BSRM) recommends rehabilitation provision of between 45 and 65 beds per million people, or 60 per million excluding stroke services.

The figure below shows the geographic variation in bed provision per million population across the different NHSE commissioning areas. Provision for specialist inpatient rehabilitation ranged from under six to more than 30 beds per million population, and provision for trauma patients ranged from one to eight beds per million.

Figure 3.3: Total level 1 and 2 beds for specialist trauma rehabilitation per million population



The capacity within inpatient specialised rehabilitation services catered for about 950 patients per year. This represents approximately 5% of the total number of adults admitted to MTCs following major trauma and registered on the TARN database. In comparison with national standards, between half and two-thirds of the specialist rehabilitation units had insufficient staffing to manage a complex caseload and so diluted the case mix with less complex patients in order to meet their activity targets. Although uncommon, these long waits could potentially have a serious negative impact on long-term outcomes for those patients. It is known from some of NCASRI's other analyses that those who wait longest tended to be the most highly dependent patients (especially those with tracheostomy or highly challenging behaviours) for whom there is a particular shortage of specialist rehabilitation beds.

NHS Long Term Plan (January 2019)

"As medicine advances, health needs change and society develops, so the NHS needs to continually move forward so that in 10 years' time we have a service fit for the future."

Published by NHSE, the Long Term Plan (LTP) for the NHS aims to:

- Deliver world class care for major health problems
- Support people to age well
- Integrate digital technology with healthcare to deliver the most effective outcomes
- Shorten the length of stay in acute care by accessing the appropriate ongoing care and rehabilitation.

The most relevant intentions of the plan to this PCBC are:

- Shorten the length of stay in acute care by accessing the appropriate ongoing care and rehabilitation – achieved here through provision of specialist rehabilitation facilities and services

- Integration of technology with healthcare – achieved here through using diagnostic reports to inform rehabilitation plans
- Recognition of the need for additional recovery, reablement and rehabilitation support around core services nationwide
- Reduction of the 30 million working days lost per year due to MSK conditions, which account for 30% of GP consultations
- Support for the recent white paper to improve working lives by returning more than one million people to work by 2025 – the regional rehabilitation efforts in helping patients recover enough to return to work will be an important component.

The Integrated Care Systems (ICSs) and Sustainability and Transformation Partnerships (STPs) for Nottinghamshire, Lincolnshire, Leicestershire and Derbyshire have included the NHS Rehabilitation Centre in their Five Year Plans.

Five Year Forward View, NHS England (October 2014) and Next Steps (March 2017)

The proposal also fits with the *Five Year Forward View* which outlines new models of care with the aim of reducing cost, increasing productivity and improved outcomes. The *Five Year Forward View* highlighted several themes reflected in this PCBC including:

- Patient needs are changing, and new treatment options are emerging
- New partnerships are envisaged with local communities, local authorities and employers
- More services to be delivered locally but others in specialist centres
- More support for patients with multiple health conditions
- Radically different care delivery options including integrated hospital and primary care providers.

With respect to the *Five Year Forward View Next Steps*, this reference to freeing up acute beds by reducing delayed transfers of care fits with the aim to shorten the length of stay in acute care by accessing rehabilitation. Also, the programme contributes to the financial sustainability of NUH by releasing acute beds being used by patients without an acute care need. The proposal supports the ambition to develop efficient estates, infrastructure, capital and clinical support services.

3.3 Current rehabilitation services in the East Midlands Trauma Network

The local rehabilitation providers with inpatient services across levels 1 and 2 are as follows:

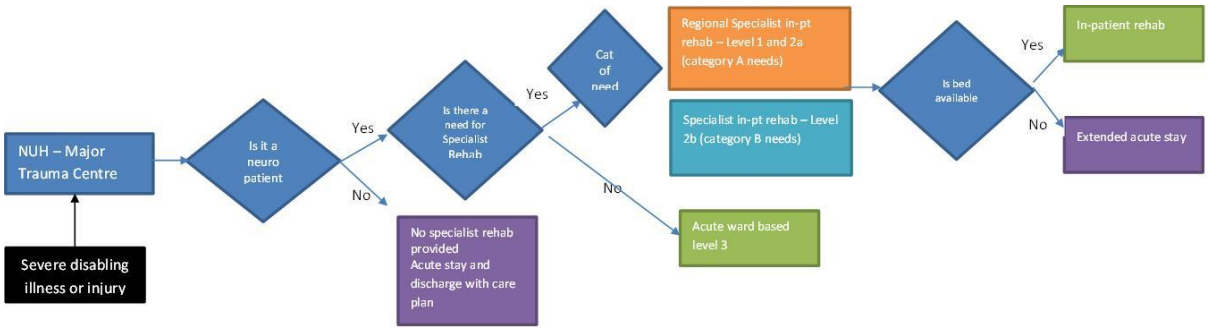
- Nottingham University Hospitals NHS Trust (NUH)
- University Hospitals of Leicester NHS Trust (UHL)
- University Hospitals of Derby and Burton NHS Foundation Trust (UHDB)
- United Lincolnshire Hospitals NHS Trust (ULH).

Table 3.3 outlines current service provision by provider, demonstrating some gaps and delays in accessing the current provision.

Table 3.3: Current service provision

Provision	Nottinghamshire	Leicestershire and Rutland	Derbyshire	Lincolnshire
Level 1 Brain Injury Unit				
Location	Provided in Leicester	Leicester General Hospital	Provided in Leicester	Provided in Leicester
Bed provision		9 beds		
Admissions (18/19)		72		
Mean delay – referral to admission		1 day		
Level 2a Rehabilitation				
Location	Provided in Leicester and Lincoln	Specialist Rehabilitation Unit, Leicester General Hospital	Provided in Leicester and Lincoln	Ashby Ward, Lincoln County Hospital
Bed provision		16		12
Admissions (18/19)		84		77
Mean delay – referral to admission (18/19)		3 days		45 days
Level 2b Rehabilitation				
Location	Linden Lodge, City Hospital Nottingham	No commissioned service	Kings Lodge, London Road Community Hospital	No commissioned service
Bed provision	24		18	
Admissions (18/19)	117		99	
Mean delay – referral to admission (18/19)	11 days		29 days	

Diagram 3.1 provides a high level illustration of the current patient flow.



The overall provision of rehabilitation beds is currently 79 for the East Midlands across levels 1, 2a and 2b. The British Society of Rehabilitation Medicine (BSRM) recommends rehabilitation provision of between 45 and 65 beds per million people, or 60 per million excluding stroke services. With a population of 4.6 million people and taking a mid-point of 55 beds per million, this would indicate an overall requirement for 253 beds, indicating a shortfall of 174 rehabilitation beds across the region or, put another way, only 31% of the recommended level of provision is currently being provided in the region with the busiest Major Trauma Network in England. As stated this is covering all levels of specialist provision. There are also absolute gaps which were also identified in the recent national NCASRI audit

on major trauma patients and rehabilitation for those patients who have major injury without any neurological impairment.

Across the rehabilitation pathway the East Midlands is recognised as being particularly under-resourced compared to other regions, albeit nationally the evidence is that the BSRM standards are not met either. Whilst the BSRM standard does not categorise the number of each level of bed per million populations, currently in the East Midlands there is no MSK rehabilitation provision.

The East Midlands Major Trauma Network recognises the gaps in provision and the opportunity for the NHS Rehabilitation Centre to address some of the inpatient bed deficits which will be further supported by a single point of referral. The NHS Rehabilitation Centre proposed in this PCBC is a critical component of this pathway. The net increase of 40 rehabilitation beds (transfer of activity from acute beds) at this level will enable an increased number of neuro patients to access 2b services in the most relevant service and patients with a fracture to access inpatient rehabilitation.

At the time of writing this PCBC there are a number of reviews either being carried out or planned to take place in relation to regional commissioning of rehabilitation services (NHSE) which may provide further insight to the proposal. These include an East and West Midlands review of tiers 1 and 2a and a national review of rehabilitation for spinal patients. Specialised commissioning investment into front end stroke services, with respect to thrombectomy, may have an impact on the need for rehabilitation, if less people are physically affected by the stroke. This is yet to be quantified but is a development which will be followed closely in the further development of this case. As the demand for rehabilitation is so great it is not thought to impact on the beds required.

In looking for best practice to develop the clinical model, the Clinical Reference Group looked at rehabilitation models across Europe and involved leaders in UK rehabilitation. This included Orthopaedic consultants as well as Rehabilitation consultants.

3.4 Geography, population and healthcare challenges

Geography

The region covered by this PCBC is that defined by the East Midlands Major Trauma Network which includes the counties of Derbyshire, Nottinghamshire, Lincolnshire, and Leicestershire and Rutland.

The population covered by the East Midlands Major Trauma Network is approximately 4.6 million. There are four cities in the East Midlands Network - Derby, Leicester, Lincoln and Nottingham. Other major boroughs and towns include Boston, Chesterfield, Grantham, Hinckley, Loughborough and Mansfield. Transport links include hosting the M1 and A1 as well as East Midlands Airport towards the centre of the region. As well as the urban hubs, the area includes farming communities, equine communities, and the climbing community of the Derbyshire peak district.

Population demographics and healthcare challenges relevant to the proposal

Based on the current cohort of patients accessing 2b rehabilitation or who are admitted to a Major Trauma Centre the mean age of the representative cohort is 50 with a ratio of 68% males to 32% females. The average age indicates that the population and society in general, have many years over which to benefit from a reduced level of disability within this cohort.[6] Further evidence indicates that since Major Trauma Centres have been implemented, there has been a change in recorded demographics for trauma with a significant increase in the age of patients and more patients injured in falls from less than two metres. This change is likely due to the increasing age of the population in England, together with consistent under-reporting of trauma in older patients until the new networks commenced." [7] Trauma remains a leading cause of morbidity and mortality in the UK and throughout the world. Socioeconomic deprivation has been linked to many types of ill-health and there is an association with injury.[8]

The Joint Strategic Needs Assessments (JSNAs) for Nottinghamshire, Lincolnshire, Leicestershire and Derbyshire provide the context to inform the PCBC relevant to the information known in relation to injury and the Major Trauma Centre.

Growing populations

Over the period 2016 to 2041 the local populations are forecast to grow as follows:

- Nottingham city - the population is projected to rise to 342,000 in 2026 and to 363,700 in 2041
- Nottinghamshire – 11.9% growth from 811,500 to 908,500
- Lincolnshire – 10.7% growth from 744,800 to 824,300
- Derby – growth from 259,000 to 281,800
- Derbyshire – 8% growth from 786,700 to 846,200
- Leicester – 7.4% growth to 404,500 in 2041
- Leicestershire – 15.7% growth from 680,500 to 787,500.

This will place additional demand on healthcare systems generally and the consequent need for rehabilitation services.

Deprivation

Deprivation levels in Nottinghamshire are comparable with England, with pockets that are in the 10% most deprived while Nottingham ranks fourth highest nationally out of the core cities. Lincolnshire ranks 91st out of 152 upper tier local authorities in England (where one is the most deprived) and as with other counties, there are variations across the different districts. 29 areas in Lincolnshire (50,000 people) are ranked in the most deprived in England. In Derbyshire there are 22 out of 491 small areas that fall within the most 10% deprived areas across England. Most of these areas are located in the north east of the

[6] Turner- Stokes, L., Specialist Rehabilitation Following Major Injury (NCASRI), National Clinical Audit 2019, NHS London North West University Healthcare NHS Trust, Feb 2019, p. 11.

[7] Moran, Christopher G., Fiona Lecky, Omar Bouamra, Tom Lawrence, Antoinette Edwards, Maralyn Woodford, Keith Willett, and Timothy J. Coats E Changing the system-major trauma patients and their outcomes in the NHS (England) 2008–17. Clinical Medicine 2 (2018): 13-21

[8] Association between trauma and socioeconomic deprivation; a registry-based, Scotland-wide retrospective cohort study of 9,238 patients: Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine, 2016, 24:90.

county in the former coalfields areas. Leicestershire is ranked 136th out of 152 upper tier local authorities. All seven of Leicestershire districts fall within the least deprived districts in the country.

3.5 Equality Impact Analysis (EIA)

The EIA report provides further context to the population who will be accessing the NHS Rehabilitation Centre. The report considered the potential positive and negative impacts upon the groups of people with protected characteristics and health inclusion groups and concluded that the NHS Rehabilitation Centre has significant potential to improve clinical outcomes, reduce disability and address geographical inequalities in outcome for patients in the East Midlands.

Themes highlighted in the EIA are:

<u>Narrowing inequalities through reducing disability and improving clinical outcomes</u>

- The NHS Rehabilitation Centre will improve outcomes for patients, which should benefit all groups who access it. The NCASRI final report on the provision of specialist rehabilitation following major trauma found that only 40% of patients in major trauma centres identified as needing specialist rehabilitation received it, but of those who did receive it, 94% showed signs of functional improvement. This indicates that there is a need for the rehabilitation centre and that it will reduce impairments

- The NHS Rehabilitation Centre will aim to return people to their usual activities (such as work or caring), rather than facilitate a safe discharge as soon as it is medically possible. This will draw from the defence model of intensive rehabilitation to facilitate a return to duties. This will reduce long-term disability and dependence, and in turn reduce the risk of family members becoming carers

- Public involvement in developing these proposals should include people from a range of backgrounds, and proactively reach out to people who are within the EDS2 Inclusion Groups or who have a protected characteristic, to ensure that their perspectives are included in the development of the services.

<u>Reducing geographical inequalities in care and outcomes</u>

- The PCBC indicates that there are currently wide variations in waiting time and service based on the area of the East Midlands that a patient is treated in. These are not clinically justified. The rehabilitation centre will reduce this unfair variation, and therefore reduce inequality based on location.

<u>Opportunity to design a new-build, purpose-built facility</u>

- The fact that the NHS Rehabilitation Centre will occupy a purpose-built facility creates a number of opportunities to promote equality of access and experience for different protected characteristic groups, assuming these are fully considered at the design stage. The NHS Rehabilitation Centre should be designed to the highest access standards (including staff and research spaces as well as public-facing

spaces), and should also consider acoustics, dementia-friendliness, lighting and psychologically informed approaches in layout, signage and interior design. Making sure that free and/or disabled parking, multi-faith prayer spaces, single and multi-bed rooms, visiting family and breast-feeding spaces are designed in from the outset should promote equality for a range of protected characteristics among the patients, visitors and workforce

- Access to the parkland and other facilities on the site will allow patients from across the East Midlands to experience the benefits of green space, which has been shown to improve recovery outcomes (Houses of Parliament, 2016). This will particularly benefit patients from urban areas, and those who do not have access to transport to the countryside

- The importance of designing the building in such a way that it maximises patients' ability to be independent is integral to the proposed care model; however, it is important that accessibility in relation to other protected characteristics, such as religion and language/learning ability is also built in from the outset.

The EIA identified two specific risks associated with the development that need to be managed to ensure the outcome is equitable.

Admission and assessment

The NHS Rehabilitation Centre admission criteria have been revised and refined to reduce the risk of groups of patients being excluded from the opportunity to rehabilitate on account of: their location within the East Midlands; the presence or absence of specific clinical conditions; and vocational and occupational benefit. This positive step is in direct response to the previous version of this EIA, which highlighted the risk that assumptions might be made about the value of or potential for 'vocational or occupational benefit' of different protected characteristic and Inclusion Health groups, for example, older people, unpaid carers, people with pre-existing disabilities, people experiencing homelessness or long-term unemployment, those who misuse drugs or work in stigmatised professions.

The revised criteria are clear about:

- How the 'potential to benefit' will be measured objectively (such as using the rehab complexity score)
- Justification for exclusions which might otherwise incur indirect discrimination (for example, a dementia diagnosis on the basis that a person's other needs cannot be met at the NHS Rehabilitation Centre
- How patient choice and shared decision-making will inform the assessment about whether the patient is willing and able to commit to intensive rehabilitation, and whether this is compatible with their personal functional goals.

It will, nevertheless, be important to support and monitor the implementation of this referral system to ensure that people from different protected characteristic and Inclusion Health groups receive sufficient information and opportunity to make and express their choices and participate in shared decision-making. The engagement event facilitated by NEC at Linden

Lodge suggests that, at present, some rehabilitation patients do not even receive proper explanation of where they are being taken, let alone genuine opportunities for shared decision-making.

This will, therefore, require cultural, workforce and procedural change if staff assumptions (which will be subject to unconscious bias) are not to become a short-cut in practice to effective shared decision-making. Within such a scenario, patients who are older, poorer, do not speak English as a first language, or have alternative lifestyles risk being automatically excluded from the opportunity to consider whether they are willing and able to commit to the programme at the NHS Rehabilitation Centre .

Referring hospitals should be offered advice in how to avoid making broad assumptions about who will benefit, all staff should be trained in equalities and unconscious bias, and supervision and mentorship should include reflection about how referral decisions are made and what unconscious biases could be affecting decisions. Shared decision-making should be recorded in writing in the notes, and support tools used where available.

Accessibility consequences of increased travel times

Although patients will not be making repeated journeys to the new centre, because they will be inpatients, their families may be affected by changes to travel. In some cases they will benefit from the NHS Rehabilitation Centre being closer. However, the TIA shows that the average distance between patients' homes and the NHS Rehabilitation Centre is more than double the average distance between their homes and their nearest facility. Since the nearest facilities (with the exception of Linden Lodge in Nottingham) are not being affected by the proposal, patients will only be affected if they choose to attend the NHS Rehabilitation Centre. However, the impact on visitors' travel may well influence patients' decision-making regarding whether or not to commit to a stay at the NHS Rehabilitation Centre. Feedback from the engagement events corroborates how crucial it is to many rehabilitation patients' mental and emotional wellbeing to have their family around them at such a traumatic time.

Patients and their families who live close to the existing Linden Lodge at Nottingham City Hospital (since the majority of beds from there will transfer to the new facilities), those living on the Lincolnshire coast (given geography) and those who are reliant on public transport will be impacted the most in terms of travel time to the NHS Rehabilitation Centre's location. People living in poverty are over-represented in each of these three groups, so mitigation will be important in this area. Linden Lodge cannot be refurbished to provide the clinical benefits of the NHS Rehabilitation Centre and so staying in the current location without substantial capital investment is not an option moving forwards. The current proposals include a plan to retain three rehabilitation beds within the NUH campus. Although the assessment for these will be based on clinical need, this provides an alternative option for those who would prefer to stay closer to family and could therefore act as a mitigation.

The proposed site is served by a bus route which runs between Nottingham and Loughborough every 20 minutes. It is understood there are plans to explore an additional bus route with the Highways Authority. Concerns were raised by some at the engagement events about safety while walking to or waiting for buses at the proposed site, given its isolated position. The NHS Rehabilitation Centre will have ample free car parking and those

family members who drive to visit patients at Linden Lodge contrasted this favourably with the current challenges to park at Nottingham City Hospital.

The NHS Rehabilitation Centre will provide facilities for families to stay on site and super-fast broadband so that people can stay in touch with families online. This will benefit families who are able to take up these offers, in relation to their personal circumstances and digital inclusion. Feedback at the engagement events highlighted the importance of the consistent provision of accurate information to families about available facilities.

The NHS will continue to negotiate with public transport providers and the Highways Authority to improve bus services to the NHS Rehabilitation Centre. The bus route will need to be adjusted so that buses stop on the site at a sheltered, well-lit stop with seating. The proposed facilities for families at the NHS Rehabilitation Centre are positive, but it will be important to ensure that information about them is provided consistently both at the point where patients are deciding whether or not to pursue a referral and at the point of admission to the rehabilitation centre. This information needs to be accessible and to address potential concerns of different protected characteristic groups (for example, cost, accessibility, privacy and safety, access to food storage/preparation facilities).

EIA recommendations

The NHS Rehabilitation Centre has significant potential to improve clinical outcomes, reduce disability and address geographical inequalities in outcome for patients in the East Midlands. There is no evidence that the risks to equality cannot be successfully mitigated.

1) Support referring hospitals with detailed guidance on the referral criteria and training to address unconscious bias so that, on a case-by-case basis, older adults, people with existing disabilities (physical, sensory and learning) but a high level of motivation and ability to benefit, and others who may be vulnerable to being discriminated against (such as people addicted to drugs) are considered for rehabilitation in a fair and consistent manner. Record and monitor shared decision-making practice and outcomes
2) Ensure that universal accessibility principles, including consideration of the needs of different protected characteristics groups are built into the design of the building, workforce training, and processes at the NHS Rehabilitation Centre from the outset
3) Proactively reach out to people with protected characteristics and people in inclusion groups (those who experience difficulties in accessing and benefitting from the NHS) during the public consultation for the new facilities and take action on their concerns
4) Negotiate improved public transport access to the site with local public transport providers
5) Provide clear and accessible information for patients' families regarding how to get to the NHS Rehabilitation Centre and other facilities, such as the family rooms and broadband, both at referral stages and on admission
6) Use the patient cohort at the NHS Rehabilitation Centre to identify and address equality issues, such as concerns raised that women are under-treated due to unconscious biases around their pain response or need for rehabilitation, and other equality issues raised in the literature or during consultation
7) Ensure that the NHS Rehabilitation Centre and referring hospitals seek appropriate translation services when necessary

8) Take steps to address the spiritual and religious needs of patients both in the design of the facility and its services and by forming links with local faith communities.

3.6 Travel Impact Analysis and patient transport for the service

A travel impact assessment (TIA) has been carried out to assess and evaluate the travel times to the proposed centre in relation to Nottinghamshire services being transferred to Stanford Hall and the travel time for friends and family that are out of area. The full report is attached as an appendix.

The impact on travel times has to be taken into consideration in relation to the transfer of services in Nottinghamshire and the rehabilitation centre as an additional service and/or increased capacity in relation to Lincolnshire, Leicestershire and Derbyshire.

Findings

The findings confirm that the average distance between patients' homes and their nearest rehabilitation hospital more than doubles from 10.7 to 24.6 miles.

This is to be taken in the context that it is proposed that the service in Nottinghamshire is transferred to the SHRE. For Lincolnshire and Leicestershire, 2b rehabilitation is not currently commissioned as a service and therefore, this is a new option alongside existing 1 and/or 2a services in those areas. Derbyshire patients will continue to have the option of accessing King's Lodge as well as the choice to be referred to the rehabilitation centre.

The impact assessment shows that on average, journey times would increase from 20 to 39 minutes.

Based on three return visits per week and the lengths of stay, it is estimated that people currently spend over 5,000 hours per year on travel to visit patients receiving inpatient rehabilitation services. This would double to 10,267 hours if all rehabilitation services were located at the Stanford Hall Estate. As would be expected from the travel distances shown in the tables above, people who would currently visit patients from the Lincolnshire CCGs would face the greatest increase in travel times for a single journey.

The average journey times on public transport for a single journey would increase from 60 to 126 minutes.

Recognising that not all visitors would have access to a private car, an analysis was also undertaken to model the same journeys using public transport. Estimated travel time by public transport includes estimated time walking to and from bus / train points. Because the proportion of visitors who would travel by public transport is not known, single journey times only are modelled to provide an indication on the travel impact for those using public transport.

Mitigating actions

Despite the difficulties in modelling for the precise cohort, the report concluded that travel distances and therefore travel times to the Stanford Hall Rehabilitation Estate on the

Nottinghamshire/Leicestershire border will increase for most patients and will particularly impact those living in Lincolnshire who use the NHS Rehabilitation Centre.

In order to mitigate longer travel times the proposal includes three family rooms, free parking and fast speed broadband. Options are being explored further in relation to enhancing public transport, supporting visitors with paying for transport through charitable funds and voluntary transport schemes. Nottinghamshire County Council have also committed to the use of social services vehicles to support visits.

Specific actions also include moving a current bus stop to what will be the entrance of the NHS Rehabilitation Centre. Lighting will also be considered as part of this.

It is expected that the consultation will provide a greater understanding of the impact of travel on the public and additional mitigating actions that can be implemented. These will be incorporated into the Decision Making Business Case.

Patient transport services

A high-level assessment has been made of the impact of the change of location upon ambulance services. It is planned that about 600 patients per year will access the service at the NHS Rehabilitation Centre . Patients will typically be transferred to the rehabilitation centre from NUH using non-emergency patient transport, reflecting the fact that they are not acutely ill but may have mobility difficulties. The NHS Rehabilitation Centre benefits from all the therapeutic and diagnostic facilities it needs to enable it to operate on a freestanding basis from acute hospitals. Once admitted, patients would ordinarily not leave until they are discharged at which point they would return home by non-emergency patient transport or transport provided by their families, depending on individual circumstances.

Any additional costs for patient transport have not been factored into the business case and will be considered at decision-making business case stage.

3.7 Clinical Senate recommendations

Within the NHS, clinical senates have been established as a source of independent and objective clinical advice and guidance to local health and care systems, to assist them to make the best decisions about healthcare for the populations they represent.

On 29 July a Clinical Senate Panel was held to review the proposal and in particular, the clinical model for the NHS Rehabilitation Centre. Rehabilitation was recognised as an area of medicine which could benefit from transformation and improved access to services, with the drivers for this programme being well understood and supported. The clinical model was supported in principle and the Clinical Senate review has provided four recommendations which have been used to develop the PCBC further. The full report is available as an appendix.

Recommendation 1 - It was recommended that an objective tool for assessment of patients (referral criteria) should be developed and underpinned by clinical policies to ensure there is equity both across clinical conditions and different patient groups.

To meet this recommendation, the referral criteria have been refined further to provide equity across clinical conditions and patient groups. The specialist referral prescription will be used

to support an objective tool for assessment. Clinical policies will be developed as part of the next phase of the programme. The referral criteria can be found in section 5.

Recommendation 2 - It was recommended that a clear workforce plan should be developed detailing the staffing required and subsequent training, which should focus on a greater need for a rehabilitation workforce and alternative roles. This should include scientific staff and how specialties such as neuropsychiatry would be accessed.

A clear workforce plan has been included in the PCBC and the following criteria have been taken into account as part of this. In order to develop the plan, a skills review has been carried out to identify where there may be new roles or the need to extend roles. Additional detail has been included for staff training which includes a skills escalator, staff rotations through community, mental health and acute services and working with an academic health education partner consortium prior to opening. Further detail is provided in section 5.

Recommendation 3 - It was recommended that a detailed discharge planning process is developed with a secure and clear exit pathway, which ensures there is a smooth interface with community provision and ongoing rehabilitation.

In considering this recommendation, the staffing model now includes a case management team with responsibility to manage the pathway through rehabilitation for the patient in a timely way – from referral to discharge. The other two main differences the NHS Rehabilitation Centre will offer in terms of discharge process are the trusted assessment model, thereby reducing duplication of assessments, and the case management team. Ongoing actions include joint working with community services on the discharge process. Further detail is included in section 5.

Recommendation 4 - It was recommended that further detailed cost benefit analysis needed to be undertaken, which should include metrics such as Disability Adjusted Life Years (DALY) - a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability. It was recommended that work is undertaken to audit currently occupied rehabilitation beds against those admission criteria.

Since the Clinical Senate review, there have been two further versions of the admission criteria and ongoing audits have been carried out. The demand and capacity modelling continues to be developed and as part of this, we are enhancing the cost/benefit analysis. DALYs are not very sensitive to changes in functional capacity or quality of life due to partial recovery and therefore, we will be using estimated life-time savings in costs of care and as part of this, the UK Functional Independence Measure, Functional Assessment Measure and Northwick Park Dependency Score and Care Needs Assessment. Further detail can be found in section 4.

4. Case for Change

4.1 Cost-effectiveness for rehabilitation based on patient cohorts identified

Taking into consideration the different cohorts, the current provision of specialist rehabilitation services and the evidence base, the rehabilitation centre will be cost-efficient and impact considerably on patient outcomes. Providing the services within current budgets so that they are affordable will require a reduction in inefficiencies that currently exist within the acute pathways alongside improved patient outcomes.

For specialist neuro rehabilitation, there is a strong body of trial-based evidence and other research to support both the clinical and cost-effectiveness of multi-disciplinary services in a specialist setting. This will be enhanced by the early transfer to the rehabilitation centre from NUH. Early transfer to specialist centres and more intense inpatient rehabilitation programmes are shown to be cost-effective particularly in the small group of people who have high care costs due to very severe brain injury. The cost of rehabilitation is offset by the cost of community care.

Estimated Lifetime Savings in the Cost of Ongoing Care Following Specialist Rehabilitation for Severe Traumatic Brain Injury in the United Kingdom[9] evaluates the cost-efficiency of rehabilitation following severe traumatic brain injury (TBI) and estimates the lifetime savings in costs of care. This concluded that specialist rehabilitation proved highly cost-efficient for severely disabled patients with TBI, despite their reduced lifespan. The estimated mean episode cost of rehabilitation, excluding prolonged disorder of consciousness, is £40,612 which can be offset within 15.9 months and the mean period life expectancy adjusted for TBI severity is 22.7 years, giving mean net lifetime savings in care cost of £740,929 per patient. Applying this to the number of patients through the NHS Rehabilitation Centre provides the following:

Table 4.1: Reduction in ongoing costs and lifetime savings based on life expectancy groups following specialist neuro rehab

Cost of rehabilitation	£40,612
Annual savings in care costs	£30,603
Time to offset the cost of rehabilitation	15.9 months
Mean period life expectancy	22.7
Net lifetime savings for an individual (after the deduction of rehab costs)	£740,929
Total number neuro patients regional rehab centre	211
Net total lifetime savings – 2b neuro rehab centre	£156,336,019
Net total lifetime savings – unmet demand 53 patients	£39,269,237

For major trauma including patients with fractures, all age groups could be affected and patients over 65 are an increasingly affected group. Over the last 20 years there has been a

[9] Estimated Life-Time Savings in the Cost of Ongoing Care Following Specialist Rehabilitation for Severe Traumatic Brain Injury in the United Kingdom, L Turner-Stokes, M Dzingina, R Shavelle et al, Journal of Head Trauma Rehabilitation, 2019.

gradual increase in this age group and older with falls being responsible for 75% of cases with 25% being related to traffic accidents. For similar levels of injury, these patients have twice the mortality rate of younger individuals, due to the existence of co--morbidities and associated treatments.[10]

Early multi-disciplinary rehabilitation can lead to reduced stay in hospital, earlier functional gains and potential to return to pre-existing levels of functioning, however there are limited studies on which post-operative rehabilitation pathways are the most effective to optimise patient outcomes. There is limited evidence on the cost evaluation of rehabilitation for fractures following a major trauma, however, a recent study was published on the cost-effectiveness of an integrated rehabilitation service for multi-trauma patients which is comparable to the proposal for the NHS Rehabilitation Centre.[11]

The primary outcome measure for the cost-effectiveness analysis was the Functional Independence Measure (FIM). Quality adjusted life years (QALY) were calculated by using utility values derived from health status questionnaires and were measured three, six, nine and 12 months post-trauma. The results demonstrated that both groups improved their functional health status and quality of life and there were no differences in effectiveness between the groups at the 12-month follow-up. However, a faster maximum recovery was observed in the rehabilitation group compared to the care-as-usual group at six months compared to nine months.[12]

The total mean cost per person was higher with the fast-track group than the care-as-usual group. The difference was mainly caused by the higher cost for rehabilitation in the multi-disciplinary fast-track group. Although higher costs in the care-as-usual group were incurred by length of stay in hospital, community physio and informal care, these costs did not outweigh the higher costs for rehabilitation in the fast-track group. Also, both groups were absent from work for broadly the same length of time of 23 weeks and calculated costs for production losses were on average comparable for both.[13]

The study demonstrated that the inpatient programme of rehabilitation is promising but cost-effectiveness evidence remains inconclusive. Although there were minor improvements in functional outcome in the group who had the multi-disciplinary inpatient rehab programme, no significant differences were found.[14]

This does not discount the fact that a multi-disciplinary approach to rehabilitation for fracture patients post-major trauma can optimise care, minimise mortality and provide a framework for an accelerated post-injury programme. The NHS Rehabilitation Centre will be an opportunity to drive out the evidence within this cohort and demonstrate the impact on length of stay which will lower costs.

[10]Epidemiology of severe trauma, F. Alberdi, I. Garcia, M. Zabarte, Medicina Intensiva, Department of Intensive Care Medicine, Donostia University Hospital, pp 58-588, December 2014.
[11] Cost-effectiveness of an integrated 'fast track'' rehabilitation service for multi-trauma patients: A non-randomized clinical trial in the Netherlands, B Wijnen, B Hemmen, A Bouman et al, PLOS One, March 22 2019.
[12] Cost-effectiveness of an integrated 'fast track'' rehabilitation service for multi-trauma patients: A non-randomized clinical trial in the Netherlands, B Wijnen, B Hemmen, A Bouman et al, PLOS One, March 22 2019.
[13] Cost-effectiveness of an integrated 'fast track'' rehabilitation service for multi-trauma patients: A non-randomized clinical trial in the Netherlands, B Wijnen, B Hemmen, A Bouman et al, PLOS One, March 22 2019.
[14] Cost-effectiveness of an integrated 'fast track'' rehabilitation service for multi-trauma patients: A non-randomized clinical trial in the Netherlands, B Wijnen, B Hemmen, A Bouman et al, PLOS One, March 22 2019.

4.2 Demand and capacity modelling

Patient cohorts

To understand the patients and subsequent capacity required for who will be treated at the NHS Rehabilitation Centre, a review of the demand had been undertaken across the following areas:

- Current met demand for specialist neuro rehab from Linden Lodge
- Unmet demand for specialist neuro rehab from the NUH Major Trauma Centre
- Unmet demand for specialist MSK rehabilitation for patients with fractures
- Unmet demand for other specialist rehab conditions including surgically deconditioned patients and traumatic amputees
- The current demand for NHS funded rehabilitation provided in non NHS commissioned services
- Future demand

A. Current met demand for specialist neuro rehabilitation at Linden Lodge

Linden Lodge currently provides a service for about 117 patients each year. The majority of patients currently receiving specialist rehab at Linden Lodge will transfer to the NHS Rehabilitation Centre.

There is a small cohort of patients who currently meet the criteria for a 2b facility but will not be able to access the NHS Rehabilitation Centre as they require ongoing services at an acute trust. The number of patients has been modelled at about 15 patients per year. These are all neurological patients who NUH would provide rehabilitation for at the City Hospital site on the stroke ward.

The therapy staff who work in the stroke service predominantly rotate through different neurological services at NUH such as neurosciences, neuro outpatients, stroke hyper acute and rehabilitation and Linden Lodge and therefore maintain their skills in all these areas. The skill set used by neurological therapists is the same as that required for the patients at Linden Lodge. The cohort of patients who will access 2b rehabilitation at NUH, City campus, will continue to have access to dieticians and psychologists at the acute trust. The environment in which these patients will be treated is slightly separate from the acute wards and is therefore quieter than being on a busy acute ward. The patients will receive a similar amount of input to that currently received at Linden Lodge in terms of time with therapists. Access to therapy and therefore rehabilitation will not be lost for those patients by not transferring to the NHS Rehabilitation Centre, and will meet their needs for a safe discharge. The transfer of activity to the NHS Rehabilitation Centre will therefore not negatively impact on patient choice.

It is assumed from the 2019-20 activity numbers at Linden Lodge that about 102 patients per year will now receive specialist rehab at the new rehabilitation centre. As the service is a like-for-like transfer, the current length of stay of 71.1 days at Linden Lodge will be the average length of stay for this cohort of patients at the NHS Rehabilitation Centre.

	No of patients transfer	Assumed length of stay at rehab centre	Assumed bed days required at rehab centre	Beds required at rehab centre (95% occupancy)
1. Met demand for specialist neuro rehabilitation at Linden Lodge	102	71.1	7255	20.9

B. Unmet demand for specialist neuro rehabilitation from the NUH Major Trauma Centre

It is recognised nationally that there is a current un-met need for specialist neuro rehab as demonstrated in the NCASRI audit report. The audit report demonstrated the following:

- 20% of major trauma centre patients meet the criteria for specialist rehabilitation needs
- 56% of patients meeting the criteria were identified as requiring level 1 or 2 specialist rehab
- 29% of patients meeting the criteria actually went on to receive specialist rehabilitation
- Therefore 27% of patients who require specialist rehabilitation did not receive it.

The NUH Major Trauma Centre currently treats about 1,478 patients per year from the East Midlands. Applying the findings from the NCASRI audit would suggest there is an unmet demand of about 80 neuro patients, as per the table below.

NCASRI finding	NUH patients
NUH Major Trauma Centre activity (East Midlands)	1478
20% meet the criteria of specialist rehab needs	295.6
56% require level 1 or 2 specialist rehab	165.5
29% who would have received it	85.7
27% of patients who did not receive specialist rehab	79.8

The approximate 80 patients who did not receive specialist rehabilitation includes 1 and 2a patients and therefore, it is assumed two-thirds of patients would be suitable for the NHS Rehabilitation Centre which equates to about 53 patients. As this cohort of patients is the unmet demand for specialist 2b neuro rehab, the NUH Linden Lodge average length of stay has been assumed as being the length of stay at the rehabilitation centre.

	No of patients transfer	Assumed length of stay at rehab centre	Assumed bed days required at rehab centre	Beds required at rehab centre (95% occupancy)

2. Unmet demand for specialist neuro rehabilitation from the NUH Major Trauma Centre	53	71.1	3747	10.8

C. Unmet demand for specialist MSK rehabilitation

Clinical teams at NUH reviewed the complex trauma orthopaedic caseload over the past year to identify the number of patients who would most benefit from the NHS Rehabilitation Centre if it was available. The analysis showed that there were 443 patients with complex orthopaedic needs who would benefit from intensive rehabilitation at the NHS Rehabilitation Centre. The group identified are those patients with complex fractures which mean that they are not fit to be discharged home for at least five days, indicating that there is further reason for an inpatient stay other than the immediate post-operative period. This group of patients would be suitable for intensive and specialist rehabilitation. When the analysis was done by the clinical team the team used the following exclusion criteria: hands patients – rehabilitation potential is not conducive to an inpatient intensive programme; paediatrics – the service is for adults and the NHS Rehabilitation Centre would not be appropriate for children; admitted for infection or pathological fracture – rehabilitation potential is not conducive to an inpatient intensive programme; isolated neck of femur – existing pathway in place. Inpatient rehabilitation is not relevant for this type of fracture; MSK conditions other than fractures post-trauma.

Based on the clinical review it is therefore assumed that 443 patients per year would receive specialist MSK rehab at the NHS Rehabilitation Centre. The assumed average length of stay for this cohort of patients is proposed to be 14 days. This assumption is based upon the acute length of stay that these complex MSK patients currently have at NUH which is on average 19 days. The clinical view from the NUH orthopaedic team is that the majority of patients will be able to transfer three days post operatively, and that with rehabilitation the assumption is that they will return home slightly sooner than at present.

	No of patients transfer	Assumed length of stay at rehab centre	Assumed bed days required at rehab centre	Beds required at rehab centre (95% occupancy)
3. Unmet demand for specialist MSK rehabilitation	443	14.0	6202	17.9

D. Unmet demand for other specialist rehab conditions

As the clinical model was being developed by the Clinical Reference Group, indications for other patients who could benefit from a period of rehabilitation became evident. It was agreed that the modelling for the NHS Rehabilitation Centre should include a wider cohort of patients from a number of different origins/specialties who could also benefit from rehabilitation. These could include vascular patients with an amputation and surgically deconditioned patients. Based on clinical judgement it is assumed that about one to two

patients every month would be referred from these areas resulting in 18 patients annually. The specialist rehabilitation needs of this cohort will be similar to that of the current Linden Lodge cohort of patients and therefore a length of stay of 71.1 days is assumed.

	No of patients transfer	Assumed length of stay at rehab centre	Assumed bed days required at rehab centre	Beds required at rehab centre (95% occupancy)
4. Unmet demand for other specialist rehab conditions	18	71.1	1280	3.7

E. The current demand for NHS funded specialist neuro rehab provided outside of NHS facilities

Based on market research there are about 897 NHS funded patients who are admitted to level 2b specialist rehabilitation private beds nationally. Patients are either referred to these units due to lack of capacity in local NHS services or via patient choice. It is reasonable to assume that as a centre of excellence, 33% of this activity will attend the NHS Rehabilitation Centre. These will be neurological patients who may well have either started their journey in a higher level of rehabilitation unit and have nowhere to continue their rehabilitation journey or where there may not currently be NHS services.

Taking into consideration the numbers across the East Midlands, this would result in 56 patients being treated at the NHS Rehabilitation Centre and the research for this cohort of patients states their current average length of stay is 62 days.

	No of patients transfer	Assumed length of stay at rehab centre	Assumed bed days required at rehab centre	Beds required at rehab centre (95% occupancy)
5. The current demand for NHS funded rehab provided outside of NHS facilities	56	62.0	3472	10.0

F. Future demand

In considering future demand, growth of the population has been taken into consideration alongside the fact that the age range of those admitted for trauma and major trauma injuries is increasing. Population growth is on average approximately 11% between 2016 and 2041 and the level of injury does not increase in incidence. Therefore, taking into consideration that the increased capacity is expected to meet unmet demand the increase in population growth is minimal year on year and this will be absorbed through the improvements made to recovery during this time and an overall shortening of length of stay, the blended cohort and

the opportunities this provides in improving the level of recovery, service changes and the active management of pathways.

Capacity and demand summary

The table below summarises the patient numbers and capacity and demand overall for the NHS Rehabilitation Centre based on current activity. Population growth and therefore the potential for increasing demand will be accounted for in efficiencies in service provision resulting in shorter length of stays in the rehabilitation centre.

	No of patients	Assumed length of stay at rehab centre	Assumed bed days required at rehab centre	Beds required at rehab centre (95% occupancy)
1. Met demand for specialist neuro rehabilitation at Linden Lodge	102	71.1	7255	20.9
2. Unmet demand for specialist neuro rehabilitation from the NUH Major Trauma Centre	53	71.1	3747	10.8
3. Unmet demand for specialist MSK rehabilitation	443	14.0	6202	17.9
4. Unmet demand for other specialist rehab conditions	18	71.1	1280	3.7
5. The current demand for NHS funded rehab provided outside of NHS facilities	56	62.0	3472	10.0
Total	672		21956	63.3

It is accepted that as part of the Decision Making Business Case, further analysis needs to be carried out on demand and capacity. This will be supported by a greater understanding of patient flow across all levels of rehabilitation through reviews being carried out by NHS England and CCGs. Also, further audits will be carried out, taking into consideration existing wait times and the widening patient cohorts.

5. Clinical Model

The central aim of the clinical model is to provide increased access to specialist rehabilitation, providing high quality care that is associated with better outcomes and a higher likelihood of returning to pre-existing levels of functioning. The NHS Rehabilitation Centre would act as the hub of a hub and spoke rehabilitation network, where services work together to provide a seamless transition for the patient. Along with the enhanced clinical model is a new staffing structure and comprehensive training programme across the full breadth of skills, all of which is expected to increase the standing of rehabilitation as a career option. It is proposed that patients at the NHS Rehabilitation Centre would be offered a model of care closer to that currently available for defence personnel, particularly for patients with musculoskeletal injuries. For 2b neuro patients, patient outcomes may be impacted by improved facilities with the intensity of the programmes being dependent on an individual's capability. The Clinical Reference Group has developed the following:

- Admission criteria
- Referral protocols
- Rehabilitation regime
- A day in the life of a patient
- Education and training
- Research and innovation
- Staffing model.

The PCBC provides a high level understanding of the clinical model and in order to fully inform the Decision Making Business Case, pathway reviews will be carried out with the relevant involvement of stakeholders.

5.1 Care model

Referral protocols

There will be one single point of referral for rehabilitation to the NHS Rehabilitation Centre. This will ensure that all patients who could benefit from rehabilitation are referred to the NHS Rehabilitation Centre and are treated in the most appropriate unit relative to their needs. This will help manage activity efficiently and free up acute beds across the system.

The single point of referral will be managed by resource at the NHS Rehabilitation Centre and assessments will be made against the rehabilitation prescription. The rehabilitation prescriptions will be reviewed by consultants from across the acute provider system. This will ensure that patients who are not eligible for the NHS Rehabilitation Centre or who have made a choice not to attend the new facility, are able to be referred to local services.

As the implementation plan takes effect, there will be a wide ranging set of educational and engagement events and communications on how to refer via the single point of referral to the NHS Rehabilitation Centre . This will be disseminated via the senior clinicians in the acute trusts and their equivalents in community providers across the region for information. The system of referral will be electronic, with a system which is accessible to all who could refer patients.

Admission and assessment criteria

The NHS Rehabilitation Centre will be able to provide rehabilitation for a wider group of predominantly regional patients than is currently provided, in particular for patients with a fracture. The cohorts include neuro patients, complex fracture patients post-surgery, surgically deconditioned and traumatic amputees.

The assessment for admission to the NHS Rehabilitation Centre will be made against the following criteria which will be supported by the rehabilitation prescription and the Rehabilitation Complexity Scale – Extended:

Referral/Assessment Criteria

1. The patient has significant functional deficits and demonstrates a need for rehabilitation with a positive rehabilitation prescription. The patient also demonstrates potential to benefit from a specialist rehabilitation programme as measured by the rehab complexity score.

2. The patient is medically appropriate for specialist rehabilitation service (as part of overall assessment against the three levels of rehabilitation need). The patient will be "transfer ready" and therefore, the following circumstances cannot be supported at the NHS Rehabilitation Centre:

   a. Ongoing delirium or dementia diagnosis
   b. Level of fluctuating consciousness
   c. Patients on a ventilator
   d. Other clinical complications impacting on capability to undertake rehabilitation.

3. Through consultation with the patient and family/carers (or with the rehabilitation team acting in the best interests of the patient), including shared decision-making and support planning as relevant, the patient has the capacity of working towards personal functional goals (including vocational where relevant). Assessment will include:

   a. Patient choice (where able) and commitment to rehabilitation
   b. Through shared decision-making, the identification of personal goals (relevant to specialist rehabilitation and post-discharge)
   c. Capability in relation to current and expected level of therapy intensity is conducive to rehabilitation.

The starting point for assessment for admission will be the rehabilitation prescription, a nationally recognised tool, already implemented in the Major Trauma Centre. This tool assesses a person's rehabilitation need and prescribes the level of rehabilitation service they should access. The rehabilitation prescription is completed electronically by a rehabilitation consultant or band seven therapist. The rehabilitation prescription is completed within 48 hours of the patient being admitted to an acute bed. If the patient is assessed as needing specialist rehabilitation, the medical team managing the patient's pathway will assess if the

patient is suitable to be transferred to a bed at the NHS Rehabilitation Centre . This dialogue with the patient should begin early so that the referring team is sure the patient agrees to high level realistic physical and vocational rehabilitation goals.

With a positive assessment, the electronic rehabilitation prescription and referral will be made to the central rehabilitation centre referral system where it will be reviewed twice daily by the admitting consultant of the day. The standards for review of rehabilitation referrals in NHSE commissioning guidance 2016 is that a referral is responded to within four hours. Trusted assessment will be implemented in all stages of the rehabilitation pathway including referral. Clinical judgement will be based on the information provided in the referral. To this end the NRC Clinical Reference Group will further develop the rehabilitation prescription to provide a comprehensive assessment tool. It is planned that a scoring methodology alongside the rehabilitation prescription, will be adapted from existing systems to ensure equity of access as well as giving assurance that patients are selected from those who are most likely to benefit in a realistic timescale. The scoring methodology will be developed by the Clinical Reference Group but it is expected that it will be refined and developed over time by experience and with the guidance of research. The aim would be to create a score of benefit potential rather like the injury severity score of injury.

Rehabilitation regime

Patients will be expected to participate in an intensive rehabilitation programme to the extent that they are able to. This could range from a neurological patient participating in therapeutic activities of daily living, one-to-one treatment sessions, positioning and transferring correctly, hydrotherapy to an orthopaedic patient who may be able to cope with two to three gym sessions, outside activity and participation sport. The range will be wide and bespoke to the patient's need. The aim is to provide an enabling day to improve functional ability and expedite progress and discharge.

Once accepted by the admitting consultant, the patient will be assigned a rehabilitation clinical case manager who will actively manage the patient's continuing pathway until transition into the community. The clinical case manager will arrange admission, and set up the initial multi-disciplinary meeting to set rehabilitation goals, actively involving the relevant professionals during the patient's stay at the rehabilitation centre and discharge to community services.

Goals will be reviewed three times a week as a minimum and will be actively managed by the patient and clinical case manager. At least one goal at any one time will be focused on discharge from the NHS Rehabilitation Centre. Expectations about length of stay at the NHS Rehabilitation Centre and what the patient will achieve will be outlined throughout the stay and re-capped at each goal review meeting.

The detail of the patient goals and requirements for discharge will be presented by the case manager at the second goal review meeting with the patient and recorded in their notes. It will be the responsibility of the clinical case manager to involve the relevant professionals to achieve discharge goals and functional goals.

The regional rehabilitation programme will include the following features:

- An increase in the number of hours of therapy per patient per week. In the current model, on average complex trauma patients receive three hour-long sessions per week and neuro patients receive five sessions per week. This is a mix of physiotherapy, speech therapy and occupational therapy
- Additional one-to-one sessions for neurological patients by employing exercise therapists to run groups and continue treatment programmes with MSK patients. In the new model, this will be up to 20 hours of therapy treatment per week for neuro patients – this will be a mix of one-to-one therapy sessions with therapists and rehabilitation assistants. There will also be an additional five hours of physiotherapy for complex MSK and other patients
- There will be time spent outside in the rehabilitation estate, and with occupation and vocational therapists. Psychological input will be provided as necessary, with input from a mental health nurse available
- Social workers will be part of the team based at the NHS Rehabilitation Centre and early assessment of home needs in-line with any vocational needs to facilitate the discharge process. A model of trusted assessment will be built into the NHS Rehabilitation Centre and region, negating the need for repeated assessments as happens at present
- Replicating part of the DMS model of running group sessions, instead of only one-to-one sessions. This will be particularly appropriate for MSK and amputee patients, allowing qualified therapists more time for one-to-one sessions with neurological patients. This also provides individuals with a network of individuals sharing their own experiences and increases the contact time with patients by better leveraging the time of clinical staff. Many of the group sessions will be led by exercise leaders or rehabilitation assistants, so qualified therapists' time can be spent where it adds the most value. These staff are also lower cost meaning that more rehabilitation contact hours can be delivered in a cost-effective way. This helps to create a network of people for patients that MOD clinicians have indicated will continue after their programme of treatment is complete
- The NHS Rehabilitation Centre will have two gyms that will allow patients to continue their own rehabilitation outside formal sessions, supported by a non-clinical member of staff. This highlights the importance of goal setting, which will be a key part of the NHS Rehabilitation Centre and supports patients to progress their own rehabilitation
- An environment conducive to psychological wellbeing, including the grounds themselves. Green spaces have been linked to improvements in patient wellbeing, mental health, levels of stress and behaviours that are conductive to a healthy lifestyle. It has been linked to better wellbeing and retention of staff, which is particularly important here given the workforce challenge in the rehabilitation sector[15] [16]
- A community for patients who will live communally on a single site sharing their experiences
- Access to charitable projects similar to those currently run at Stanford Hall defence centre that would be difficult to replicate on an acute hospital site. This includes greenhouses to give patients the opportunity to participate in therapeutic activities

[15] Greenspace design for health and well-being, Forestry Commission, 2011;
[16] Does Participating in Physical Activity in Outdoor Natural Environments Have a Greater Effect on Physical and Mental Wellbeing than Physical Activity Indoors? A Systematic Review, J. Thompson Coon, 2011

such as gardening and growing vegetables. These projects are run by charities such as High Ground and the NHS Rehabilitation Centre would provide the additional space to develop these projects and test their impact. These features of the MOD model have anecdotally been linked to the development of physical strength and cognitive skills by patients. The MOD places emphasis on the importance of skills training - it is something that patients can build into their daily routines even when they do not see themselves as performing rehabilitation

- Within the estate, the use of gait re-education facilities in the courtyards for patients to practise their mobility and balance. This includes a range of different surfaces (for example, loose rocks and timber walkways). This was identified by therapists as an important tool and is part of the sharing arrangement
- Shared use of facilities at the DMRC will be available including:

    - Hydrotherapy pools - these will be available to the rehabilitation centre when they are not being used by the DMRC. It is expected that 10 sessions a week will be available, during lunch breaks and evenings
    - Complex prosthetics - this is expected to be provided by a third party in both the NHS rehabilitation centre and the DMRC. There are potential benefits from using the same provider and allowing that provider to use the specialist workshop in the DMRC
    - Medi-cinema - this is a charity that funds cinemas in hospitals. Patients in the NHS Rehabilitation Centre will be able to attend screenings twice a week
    - Radiology - the DMRC houses x-ray, dexa scanners and MRI which will be available to share. These additional facilities will be available for use by the NHS Rehabilitation Centre when not required by the DMRC
    - CAREN (Computer Assisted Rehabilitation Environment) - this is equipment that analyses movement in real time and is able to expose patients to a range of environments without putting them in danger. It is mainly a research tool but can be used for treatment. It will be available for use by the NHS Rehabilitation Centre when not required by the DMRC. Shared use will be available between 7am and 9pm with 92 sessions available per week for the hydrotherapy pool and 35 sessions for CAREN.

A detailed understanding of how the facilities will enhance recovery and be embedded as part of individual programmes will be included in the Decision Making Business Case.

Patients will benefit from an increase in speciality care. Clinicians in the NHS Rehabilitation Centre will be fully focused on rehabilitation and will benefit from knowledge sharing with other clinicians from the DMRC. The staff skill mix will be tailored, similar to that of the DMRC, to deliver the best possible rehabilitation service within economic constraints. This means that there will be a greater focus on rehabilitation assistants and exercise instructors, or similar roles to support patients with fitness sessions based on their own motivation and capabilities.

Patients' mental wellbeing

Patients' mental wellbeing will be equally considered alongside their physical programme. This is particularly relevant for this cohort of patients not only in relation to cognitive impairment but also to support recovery from a traumatic event. This could include

managing symptoms of post-traumatic stress disorder, coming to terms with potentially life changing injuries or support with pre-existing mental conditions leading up to the event.

As such, different levels of support will be provided through the programme ranging from psychological therapies to trauma intervention. A Triangle of Care approach will be instrumental as a tool which provides a therapeutic alliance between the service user, staff member and carer promoting safety, supports recovery and sustains wellbeing. The six key strands are central to the recovery for this cohort of patients and include: 1) carers and the essential role they play are identified at first contact or as soon as possible thereafter 2) staff are 'carer aware' and trained in carer engagement strategies 3) policy and practice protocols re: confidentiality and sharing information are in place 4) defined posts responsible for carers are in place 5) a carer introduction to service and staff is available, with a relevant range of information across the care pathway 6) a range of carer support services are available.

Mental wellbeing will be as important while a patient is actively and not actively involved in their daily programme. Plans for the rehabilitation centre will take isolation into consideration in relation to the design of social facilities and use of the grounds as well as the staffing model. It will ensure that staffing responsibilities includes socialisation. The NHS Rehabilitation Centre experience will focus on rehabilitation programmes and down time so that feelings of isolation and potentially boredom do not impact on the ability to recover. The clinical case manager will ensure that the full patient experience considers patients' mental wellbeing.

Mental health assessment of need will be part of the ongoing assessment made at least three times a week by the multi-disciplinary team, with the aim to support people with their recovery by managing any risks to mental health. It is envisaged that this will be done by many rehabilitation centre team members but particularly the clinical case manager, occupational therapist, clinical psychologist, social worker and mental health nurse.

Part of the model that is being explored is for the NHS Rehabilitation Centre is to employ dual adult and mental health trained nurses where possible, and where not, employ adult nursing staff and support them through their mental health training. Through the implementation of the training programmes for the rehabilitation centre, close working will take place with local mental health trusts to ensure the right level of supervision and to provide the opportunity to enhance on the skill sets of clinicians including dual trained nursing staff and mental health clinicians' upskilling in chronic illness and disability management. The programme will also consider the opportunity for apprenticeships.

Transition and discharge from the NHS Rehabilitation Centre

The workforce has been developed in-line with the Clinical Senate recommendations to include a case management team with responsibility to manage the pathway through rehabilitation for the patient in a timely way, including discharge. The two main differences the NHS Rehabilitation Centre will offer in terms of discharge process are the trusted assessment model, thereby reducing duplication of assessments, and the case management team.

The scoring system for admission or a variant of it will also be used to measure progress and will help to guide discharge and actively manage the inpatient spell. With needs being identified early and access for the clinical case manager to professionals required to

facilitate discharge this should be well planned. Other professionals specifically focused on transition from the NHS Rehabilitation Centre will include social workers, an occupational assessment and vocational rehabilitation team who will support the clinical case manager with early assessment and planning for discharge.

Trusted assessment for those patients transitioning to different counties is vital. Patients will access the appropriate existing community or out-patients service depending on their level of need. It is anticipated that there may be less demand for these services as patients should achieve improved outcomes from the NHS Rehabilitation Centre with access to rehabilitation earlier and actively managed processes.

In order to provide an increased level of assurance, the discharge process will be detailed more clearly as part of the Decision Making Business Case.

Community services

It will be important for seamless care to be provided from the NHS Rehabilitation Centre to community services, relative to need. This will be supported by the trusted assessor model alongside the clinical case managers.

The role of the clinical case managers is to proactively manage the patient pathway to ensure an effective transition in, through and out of the NHS Rehabilitation Centre and back to activities of daily living and their home environment. They will provide the key point of contact for patients, families and carers as well as with services in the community.

The alignment with community services will be more relevant to meeting individual patient needs as opposed to the commissioning of a new service, particularly as services differ across the East Midlands Trauma Network. There is an opportunity to develop community services in response to better outcomes from patients leaving the NHS Rehabilitation Centre. This will be further developed in collaboration with community providers. There is a large amount of variation across the region for community services and an opportunity to reduce any unwarranted variation within this provision. We will work with the GIRFT programme on this going forward. Initial views from the clinical community, and based on existing evidence on the effectiveness of rehabilitation, are that there could be positive impacts for community services due to patients receiving rehabilitation in instances where they do not currently and more intensive rehab resulting in a shorter period with community services. Further modelling and pathway development will be carried out as part of the decision-making business case. Criteria and action to be taken as part of this are:

- Predictive modelling of discharges to community services in order to understand potential impact across the different patient cohorts and geographical areas
- Joint working with community service providers on the role and opportunities in relation to the clinical case managers (recognising that this role will be critical to the transition)
- Working through case studies and scenarios collectively as a system to understand pathways and the likely impact (including in relation to the different cohorts of patients)
- Joint working on barriers and opportunities in relation to the Trusted Assessor Model – expanding on what has worked well

- Exploring opportunities to align training in the run-up to the opening of the NHS Rehabilitation Centre
- Rotation of staff through community services as well as specialist rehabilitation.

Clinical governance

The clinical governance responsibility for the NHS Rehabilitation Centre will ultimately be held by the lead clinical consultant. All policies relating to patient safety, quality of care and patient experience will be developed in conjunction with providers and the Clinical Reference Group. There will be a process in place to ensure ongoing monitoring of clinical effectiveness, risk management and effectiveness of the new model of rehabilitation and how this is measured. Where there are trust systems, for example to manage risk, already in place then the NHS Rehabilitation Centre will adopt these. Reporting systems for incidents will be implemented and mechanisms for learning from incidents put in place across the NHS Rehabilitation Centre and, where relevant, across the region through the already established regional rehabilitation and major trauma networks. Performance measures will be incorporated into monthly performance and reports which will be presented through the relevant governance arrangements.

Clinical supervision of staff groups will be provided from within the main provider trust where relevant or from other provider trusts.

Learning opportunities across staff groups will be numerous to ensure that the NHS Rehabilitation Centre supports continuous professional development for staff in this area.

5.2 Staffing model and workforce plan

The NHS Rehabilitation Centre represents a unique opportunity to train the workforce in rehabilitation services for the future. We know that the NHS currently has 9.4% of nursing and allied health professional (AHP) posts vacant. 43% of new consultant physician posts last year were left unfilled and 10,000 junior doctor positions unfilled. There will need to be an additional 190,000 clinical posts by 2027 if the NHS keeps up with demand for its services (Health Education England (HEE) *Long Term Workforce Strategy).* A multi-disciplinary approach to rehabilitation treatment needs to be supported by the appropriate education and training framework.

The latest HEE recommendations on the growth of NHS workforce are:

- Deliver more clinical and AHP training and education spaces
- Promote and develop models to support global learning for NHS staff, with the aim of improving job satisfaction, retention, capabilities and productivity
- Develop a modern flexible education, training and development system which will contribute to securing supply and supporting lifelong learning of staff
- Output from education and training
- Retain current workforce
- Recruitment of trained workforce from elsewhere.

Further validation of the staffing model will be provided as part of the Decision Making Business Case.

In developing this workforce plan for the NHS Rehabilitation Centre the following will be taken into account and enhanced on as part of the Decision Making Business Case:

People

- The hub and spoke model in the East Midlands whereby staff can rotate through rehabilitation units including the NHS Rehabilitation Centre to spread knowledge and expertise
- Co-location with defence medical services and opportunities to collaborate on training and education and rotational staff
- Workforce transformation with flexibility for staff
- NHS apprenticeships
- Development of new roles for rehabilitation services which will reflect the needs of the patient population
- Use of existing staff across the region and the UK in rehabilitation
- The NHS Rehabilitation Centre will support system-wide recruitment of the workforce. The development of a rehabilitation workforce which is part of the training and education and involved in embedding research and innovations.

Technology

- Use of technology to enhance training
- Postgraduate medical education
- Commissioning of clinical education and training through HEE.

People Plan and the NHS Rehabilitation Centre

The proposal is to deliver a transformed rehabilitation service to a wide range of patients. The skills to deliver the rehabilitation programmes will be varied, and roles at the NHS Rehabilitation Centre should be attractive. The following methodology was used to develop the workforce plan, which is in line with the workforce strategy for England. The workforce plan will be part of and contribute to the People Plan to support the Long Term Plan. The NHS Rehabilitation Centre will need to regularly review its workforce and workforce planning so that the needs of patients are consistently met.

- Regional rehabilitation workforce will be consistent with the People Plan which is in support of the Long Term Plan
- Ongoing review of skills are required to deliver the activity, including inter-professional skills and there will be a set of rehabilitation competencies and skills which all professions will all adhere to
- Use of the skills escalator principle
- The whole 24-hour period will be enabling so that patients are able to be as independent as possible. The design of the building reflects this as well. Trained therapists will set programmes of rehab to be delivered by others where able, who can progress goals and discharge patients. The day will be flexible to accommodate available sharing sessions with the defence centre. Shift patterns will reflect these.
- Identify which professional groups and how many whole time equivalents and at which grade.

The whole environment will be set up so that the patient can be as independent as possible throughout rehabilitation, and patients will be expected to respond positively to this. All staff will have a period of time on joining the NHS Rehabilitation Centre to gain core skills with respect to moving and handling, rehabilitation treatments and use of the facilities. The workforce will be flexible and varied, compared to the traditional roles currently seen in the acute sector. It is envisaged that nurses, therapists and support workers will gain skills to support patients with all rehabilitation interactions, rather than this being limited to treatment sessions in a gym.

This can be an intensive day at the rehabilitation centre which will be tailored to the capabilities of the individual. It will vary depending on the tolerance of the patient at the time. The active management of the patients' progress by the team of clinical case managers will ensure that the rehab team are responding to the needs of each patient.

It is envisaged that all staff will work a shift pattern so patients who require assistance with activities of daily living may receive this from a physio, OT or dietician as well as nursing staff. This generic rehabilitation skillset will be vital to recruitment and the flexibility of the workforce. Training programmes may be built up with accreditation which can then be transferred to spoke units in the hub and spoke model.

Different therapies at the NHS Rehabilitation Centre will therefore not be entirely reliant on one profession. There will be unique skills associated with some professional groups and it is envisaged that there will be generic skills which all rehabilitation instructors will have which will enable them to deliver most rehabilitation programmes prescribed.

Hub and spoke for clinical model and workforce will enable staff to rotate through the NHS Rehabilitation Centre ideally from all four acute trusts in the East Midlands. This will enable the skills developed through working at the NHS Rehabilitation Centre to be disseminated out quickly.

The NHS Rehabilitation Centre will offer:

- Majority of posts will be rotations with trusts across the region
- Common protocols for rehabilitation
- Common audits of outcomes and process with other units in the region
- Involvement across the region in research trials.

This model has been developed with the NRC Clinical Reference Group and staff at Linden Lodge. The costing has been taken as a fixed cost for the purposes of the finance revenue case and affordability. It should be noted that as one of the intentions of the DMRC and the NHS is to continuously improve rehabilitation delivery, it would be expected to evolve over time. The cost of staffing the NHS Rehabilitation Centre will remain the same. The key staffing proposed for the 64-bed centre is currently anticipated to be approximately 150 (in whole time equivalents) and further description on specific roles and new roles is shown below.

Whole time equivalents

Medical

- 3.4 medical consultants
- 0.3 occupational health physician
- 7-10 junior doctors (x4 SpR)
- 3 band 8a prescribing pharmacists
- 1 clinical scientist
- 2 clinical psychologists

Allied health professions

- 3 8c AHP consultants
- 10 band 7 and 9 band 6 AHPs including physiotherapist, occupational therapists, speech and language therapist and dieticians
- 2 band 6 vocational therapists
- 32 band 4 rehab instructors including psychology assistants

Nursing (includes 10 dual adult and mental health trained nurses)

- 3 band 7 ward managers (either nurse or AHP)
- 6 band 6 nurses
- 3 band 7 clinical case managers
- 36 band 5 nurses/AHPs
- 2 social workers

Other

- 6 receptionists/admin band 2
- 11 catering/ portering/security/housekeeping
- 4 secretaries
- 1 executive director

Teams

Management team

It is expected that there will be single executive and clinical director roles, with supporting teams, covering the clinical, research and education facilities overall.

Medical cover

The NHS Rehabilitation Centre will take patients as soon as they are ready to transfer, described as the 'transfer ready' point in rehabilitation guidelines. For some patients this will be as early as three to four days post-op. There will be 24/7 junior medical cover with the appropriate cover at the NHS Rehabilitation Centre with input from a number of consultant specialties. This will reflect the diverse nature of the patients.

Consultant cover

There are 30 PAs allocated for consultant cover at the NHS Rehabilitation Centre. 27 of these will be delivering clinical sessions from the rehabilitation specialties of

rehabilitation, sports and exercise medicine (dual accredited with rehabilitation) and general practice (with a sports medicine qualification).

There could be one lead consultant who takes clinical governance responsibility, with other consultant sessions provided from consultants from across the region, for example each providing three to four sessions as part of their job plan.

There will be 5 PAs allocated for flexible consultations, for example from orthopaedics, oncology or other specialties.

Registrar trainee cover and medical junior posts

There will be four trainee posts which will be open to rehabilitation, sports and exercise medicine, and general practice. To support the functioning day-to-day of the NHS Rehabilitation Centre, there will be seven to 10 junior posts. There will also be a number of 8a roles such as physicians' assistants (PA) and advanced clinical practitioners (ACP) to support the medical team. In order to ensure the NHS Rehabilitation Centre is safe during any emergency when a medic may need to transfer a patient from the NHS Rehabilitation Centre to an acute trust, there will always be a medic and an ACP or PA on duty to provide cross cover.

Therapy team

The NHS Rehabilitation Centre will be led by the medical and therapy team who will work closely together. There will be three consultant AHP posts. These posts will be included in the same level of responsibility for the patients as the medical consultants for the relevant patients and provide the top cover to the rest of the team. These appointments would also be expected to deliver some of the research agenda. The therapy team will be constructed to reflect the following requirements, working shift patterns, providing therapy input six days per week, band six and seven therapists prescribing rehabilitation programmes which in varying degrees will be carried out by rehabilitation instructors, lead role in screening referrals and leading multi-disciplinary review meetings.

Case management team

The model for case management will be based on the successful model introduced in the East Midlands Major Trauma Centre (EMMTC). This team will be distinct but interdependent with the clinical team and provide input six days per week, 9am-5pm. This reflects the distinct role that this team will be delivering, to provide a single point of contact for the patient, family and carers, to co-ordinate all aspects of the patients' journey and actively manage the rehabilitation process, facilitating the work of the clinical team. This role will be at band seven and work closely with all referring trusts in the region.

Nursing team

The nursing team will provide 24/7 cover and focus on the priorities of drug administration, wound care, infection control, risk assessments and monitoring of early warning scores. The nursing team will provide a key role in the NHS Rehabilitation Centre's clinical governance.

Rehabilitation instructors

The key team to deliver the rehabilitation programmes, and enable access to the defence shared facilities is the large team of rehabilitation instructors (RIs). RIs will work through rehabilitation-based competencies and their banding will reflect this. There will be an opportunity for all the RIs to access the skills escalator although it is recognised this may not suit everyone. The RIs are a key part of the rehabilitation team and will deliver the rehabilitation programmes. In some instances, they will be able to progress exercise programme depending on their level of training.

Healthcare scientist

There will need to be input from healthcare scientists in relation to diagnostic imaging, the gait laboratory and the CAREN. This will be provided in two different ways; Firstly healthcare scientists may be involved directly in the acquisition of diagnostic images and reporting (typically HCS from medical physics at band five or six). Secondly, for the Gait Lab and CAREN, the NHS Rehabilitation Centre will contract in expertise from local Trusts, in particular healthcare scientists with rehabilitation engineering and neurosensory science expertise, particularly relating to vestibular conditions. Medical physics and clinical engineering expertise will be contracted in to support regulatory compliance and R&I. The model will be worked up during the OBC stage of the business case when arrangements with the DMRC are more established.

Mental health professionals

The model that is being explored for the NHS Rehabilitation Centre is to employ dual adult and mental health trained nurses where possible, and where not, employ adult nursing staff and support them through their mental health training. Dual trained staff could be contracted through a mental health trust in order to provide the relevant supervision and training, with opportunities to rotate through their other services in the community. The opportunity for apprenticeships with the mental health trust would also be available.

New skills and roles

Table 5.2 identifies the skills required, which profession and whether they are currently in the NHS:

Table 5.2 New skill set, role or extended role

Skill	In current skillset Y/N?	Plan – new role or extended role
Professional skills	Y	N
Generic skills	N	Y
Cognitive assistant	N	Y
Assessment of mental health	Y	N
Work assessment	N	Y
Assessment for adaptions and care packages	Y	N but to employ SW as part of team

Outside rehab	N	Y
Hydrotherapy	N	Y
Use of Gait and CAREN	N	Y
Data collection/analysis	Y	Y

New roles to be created include:

1. Occupational assessment and vocational rehabilitation team - a consultant occupational physician (accredited specialist in occupational medicine) and OH nurse would join the multi-disciplinary team, on a limited, part-time basis. As part of an integrated care pathway for all patients admitted to the NHS Rehabilitation Centre they would provide:

    - Initial assessment by a consultant in occupational medicine including a full work history, assessment of statutory or other requirements of a patient's most recent employment/work; liaison and assessment with the multi-disciplinary team of a patient's likely eventual functional limitations compared with workplace requirements; assessment of any work-related component to current injury/disability; consideration of liaison with a patient's workplace (with appropriate consent)
    - Contribution to regular multi-disciplinary team progress meetings (consultant OH physician and/or OH nurse)
    - Maintenance of contact with patient on at least a monthly basis (OH nurse)
    - Review by consultant in occupational medicine before discharge. To include consideration of liaison with employer/workplace, GP and community based employment services (with appropriate consent) and provision of OH report for the patient to present to employers or others following discharge from the NHS Rehabilitation Centre.

2. Rehabilitation instructor - the rehabilitation instructors will develop a core set of skills to enable them to deliver the majority of physical and in some cases psychology programmes. The RIs will be core to ensuring that the 24/7 approach to rehabilitation is maintained
3. Scientific technician - these roles will provide the technical expertise to operate and interpret data from the MRI, gait laboratory and CAREN. They will work closely with the clinical teams
4. Psychology assistant - part of the RI team, some staff will be trained in delivering cognitive and psychology interventions as well as physical rehabilitation programmes.
5. Clinical case manager - the case manager will provide a pivotal role in the active management of a patient's journey to, through and from the NHS Rehabilitation Centre . The case manager will ensure that the appropriate clinical team is involved with the patient at all times that decisions are timely and delays are not caused unnecessarily.

Skills escalator

Opportunities exist to create a skills escalator that will start with support workers, moving onto assistant practitioners or associate nurses, before moving onto training within one of the healthcare professions. It could incorporate:

- Apprenticeships at all levels
- Undergraduates – clinical placements for medical and other healthcare professional students
- Medicine – training placements within rehabilitation medicine, sports and exercise medicine, rheumatology, trauma and orthopaedics, neurology and general practice
- Mental health practitioners
- Occupational therapists, physiotherapists, occupational health practitioners, prosthetists, orthotists, dieticians and clinical psychologists
- Advanced care practitioners, physicians associates and other rehabilitation specialist roles
- Roles such as remedial instructors that currently only exist within the MoD
- Potentially related training opportunities for carers or patients (for example, pain management)
- International students for all categories.

Training the workforce

The NHS Rehabilitation Centre will need to be ready to provide clinical care and excellence in education, training and research as soon as it opens in 2023. In an environment where the NHS in general, and rehabilitation medicine struggle to find suitably qualified staff, this will need focus. Working with an academic health education partner consortium prior to the opening of the site will allow us to pool staff and resource to train and accredit practitioners in the new ways of working required by the NHS Rehabilitation Centre . We will make use of current education and training programmes from consortium members, together with specific courses developed for the needs of the NHS Rehabilitation Centre . Clinical rotations will continue as before, co-ordinated by HEE. We anticipate working with HEE and applying for an increased number of clinical training places in sports and exercise, rehabilitation and occupational health to meet the clinical needs of future staff.

5.3 Design of rehabilitation facilities

The design of the facilities support the delivery of the clinical model, providing an environment wholly planned for rehabilitation. More detail is provided in the appendices.

The clinical space comprises wide areas of circulation space, large and small gyms and individual treatment/clinic rooms. The wide circulation space is to ensure that patients and visitors have enough room to manoeuvre easily if they are in a wheelchair and have the opportunity to socialise when moving around the NHS Rehabilitation Centre. This is designed to decrease the feeling of isolation that patients may feel.

The NHS Rehabilitation Centre will be arranged across three wards with two being neuro wards of 40 beds and one ward of 24 beds for fracture patients and others including surgically deconditioned and traumatic amputees. The neuro wards each include 12 single rooms and two rooms with four beds. The trauma ward includes 12 single rooms and three rooms with four beds. For each ward there will be a family room with en-suite. The plans

include a rehab flat and activities of daily living suite and trolley assisted wet rooms. Other facilities include a pharmacy dispensary, consulting rooms and activity areas and seminar facilities.

The plans include two gymnasiums each providing different functions. The larger gym will be set up as a multi-purpose space and can be used for individual treatments, group sessions and games. The equipment will be stored overhead and the function of the space can be changed easily. It is important to build with this flexibility to accommodate the mix of patients and the rehab needs. The smaller gym is planned for those patients who require a quieter space to be treated in. It is envisaged that neuro patients will benefit from the quieter gym space.

6. Finance Case

6.1 Introduction

The finance case describes 'option two' and the impact of a 64-bed NHS Rehabilitation Centre. It has been prepared on the basis of the proposed demand model and a cost-neutral position including taking costs out of acute and transferring to the NHS Rehabilitation Centre. As such, the finance case is based on the likely impact from the provision of a net increase of 40 specialist rehab beds across the East Midlands and associated transfers of agreed activity and beds from the system.

It has taken into account the known capital and revenue consequences at this stage from the increase in specialist rehab provision and decrease in acute beds. The basis of this has been developed on the back of the work undertaken by NUH as the lead organisation and the proposals from the National Rehabilitation Centre Clinical Reference Group. At this stage of the process there is further work to do as NUH complete the Strategic Outline Case as the lead organisation.

The case presented here is based on the data that is currently available and the planning assumptions in line with the current guidance. It is recognised that further in depth work is required to support the Decision Making Business Case. This is also dependent on contractual agreements based on the assumptions made to support the business case.

6.2 Basis of preparation

The basis of the financial case has been made on the following assumptions and agreements:

- The current service provided at Linden Lodge (City Campus, NUH) is to cease and service provision for 21 of the 24 beds is to transfer to the NHS Rehabilitation Centre . The financial case includes the cost of re-providing care for three out of the 24 beds for patients who would currently access Linden Lodge but may not be suitable for transfer and will therefore receive treatment at NUH
- The cost of 33 beds at NUH will be released to support the NHS Rehabilitation Centre case, there is unlikely to be any income reduction over and above the excess bed day savings outlined in the case
- The cost of 10 beds will be covered by current demand for NHS funded specialist neuro rehab provided outside of NHS facilities. These patients will not be in receipt of continuing healthcare and could be funded by any CCG nationally.

The finance case has been compiled based on the current understanding of the revenue flows associated with the above.

6.3 Revenue cost of 'option two'

The revenue case has been developed based on the cost impact of providing a 64-bed NHS Rehabilitation Centre. The starting point for this is understanding the cost of provision of a standalone clinical rehabilitation facility and to what extent this can be funded from existing contracted activity.

Table 6.1 shows the current cost model for the operating of the NHS Rehabilitation Centre option two. The costs have been determined based on the agreed operating model which has been developed through the clinical reference group.

Table 6.1 analysis of revenue cost of option two at 2018-19 price base

64 beds	Year 1	Year 2	Year 3	Year 4	Year 5
Expenditure					
Direct pay	£6,044,604	£6,044,604	£6,044,604	£6,044,604	£6,044,604
Direct non-pay	£596,720	£596,720	£596,720	£596,720	£596,720
Support services and overheads	£2,112,346	£2,112,346	£2,112,346	£2,112,346	£2,112,346
Charges from the DNRC	£20,000	£20,000	£20,000	£20,000	£20,000
Depreciation – based on build Cost of £70m	£1,654,267	£1,654,267	£1,654,267	£1,654,267	£1,654,267
RoR at 3.5%	£1,196,050	£2,363,151	£2,305,252	£2,247,352	£2,189,453
Total expenditure	**£11,623,987**	**£12,791,088**	**£12,733,189**	**£12,675,289**	**£12,617,390**

Direct pay – the workforce model for the NHS Rehabilitation Centre has been developed to support the clinical model. In total there will be about 150 whole time equivalent staff directly providing the services at the NHS Rehabilitation Centre in the preferred option.

Direct non-pay – has been estimated based on the current non-pay average cost per patient and the volume of patients who will be using the NHS Rehabilitation Centre annually (about 672).

Support services and overheads – the support and overhead charges are those incurred by the NHS Rehabilitation Centre through corporate overheads (such as HR and finance) through the provider of clinical services, and the estate overheads of hard and soft facilities management.

Charges from the DNRC – the NHS Rehabilitation Centre will have access to a hydrotherapy pool, gait laboratory, CAREN, diagnostics and the prosthetics workshop at the DMRC. The charge has been calculated/assumed as £20,000 per year which will be agreed through a Service Level Agreement.

Depreciation – has been calculated on a total cost of £70m with the building useful economic life set at 60 years and equipment useful economic life at seven years.

Rate of return – has been set at 3.5%.

6.4 Capital cost of option two

In order to determine the capital cost of the preferred option, activity projections were used to confirm the size of the building required.

The Clinical Reference Group, supported by NUH finance and speciality teams, developed and validated an activity model that interpreted recent clinical activity data, adjusted for the new clinical service model to inform the clinical capacity requirements for the new Centre. The data used was from 2018-19.

Cost advisors Osbornes have produced a capital cost estimate for option two based on this work, as set out in the table below, with costs inclusive of inflation estimated at PUBSEC 306. More detail on the capital case is provided in the OBC space and capital cost estimate letter from NHS England and NHS Improvement in the appendices. The assumptions supporting each line are also described.

Table 6.2: Analysis of capital cost of option two

Capital cost breakdown Option two	Clinical £'000
Land purchase	0
Construction	42,635
Fees	5,726
Non-works	0
Equipment	2,586
Planning contingency	3,144
Optimism bias	2,868
Total excluding inflation	56,960
Inflation (3q 2021 estimated at PUBSEC 306)	13,015
Current Overall Cost	69,975

Land purchase – it has been agreed that the NHS will lease the land from the landowner, the Black Stork Charity, so a purchase is not required. The operating company BS Stanford will lease the land to the NHS for a peppercorn rent for a lease term to be agreed.

Construction – construction cost estimates have been produced based on industry standards, including the Department of Health's Hospital Premises Cost Guidance by Osbornes. The individual circumstances of this building and the site have been reflected in the construction cost where appropriate, including access roads, new infrastructure, demolition, decontamination, basement construction, construction, and sustainability and environmental measures. These costs include the PAU recommendations.

Professional fees – an overall allowance of 12.4% of the construction costs is included as a reasonable estimate based on the size and complexity of the building and multi-stakeholder nature of the project.

Equipment – the cost of equipping the new building has been estimated at 8% of departmental costs.

Planning contingency – at this early stage of capital cost development it is normal to include a level of contingency to reflect risk. Osbornes have advised that, for this option, and at this stage of the project a figure of 6% is reasonable.

Optimism bias – HM Treasury advises that public sector capital projects should include a level of optimism bias in the early stages. Based on the understanding of the site, stakeholder engagement so far and the fact that planning permission has been secured, this has been assessed at 5.2%. This figure will decrease over the course of the project as cost certainty increases, in line with HM Treasury guidance.

6.5 Sources of funding

The capital costs of the project will be funded as follows:

Table 6.3: Capital funding source

Element	Capital cost	Funding source
Clinical facility	£70m	Department of Health and Social Care

6.6 Revenue funding

Discussions have been on-going to understand and agree the funding for option two. An understanding of the current revenue flows from a provider and commissioner perspective have been developed to identify to what extent can the preferred option be funded by the existing revenue costs (provider and commissioner) and the direct benefits from option two.

Table 6.4 analysis of the net revenue of the model option two at 2018-19 price base:

Rehabilitation Centre 64 beds	Year 1	Year 2	Year 3	Year 4	Year 5
Expenditure					
Direct pay	£6,044,604	£6,044,604	£6,044,604	£6,044,604	£6,044,604
Direct non-pay	£596,720	£596,720	£596,720	£596,720	£596,720
Support services and overheads	£2,112,346	£2,112,346	£2,112,346	£2,112,346	£2,112,346
Charges from the DNRC	£20,000	£20,000	£20,000	£20,000	£20,000
Depreciation – based on build cost of £70m	£1,654,267	£1,654,267	£1,654,267	£1,654,267	£1,654,267
RoR at 3.5%	£1,196,050	£2,363,151	£2,305,252	£2,247,352	£2,189,453
Total expenditure	**£11,623,987**	**£12,791,088**	**£12,733,189**	**£12,675,289**	**£12,617,390**
Cost releasing savings					
Linden lodge (excluding Linden Lodge stranded costs and reprovision element) 21 beds	-£4,485,904	-£4,485,904	-£4,485,904	-£4,485,904	-£4,485,904
Released acute capacity 33 beds	-£3,613,500	-£3,613,500	-£3,613,500	-£3,613,500	-£3,613,500
Residual bed income 10 beds	-£1,993,813	-£1,993,813	-£1,993,813	-£1,993,813	-£1,993,813
Linden Lodge stranded cost		-£418,245	-£418,245	-£418,245	-£418,245
Excess bed day savings	-£357,000	-£357,000	-£357,000	-£357,000	-£357,000
Acute transfer savings	-£260,000	-£520,000	-£520,000	-£520,000	-£520,000
Continuing healthcare savings	-£500,000	-£500,000	-£500,000	-£500,000	-£500,000
Community services Growth avoidance	-£465,000	-£465,000	-£465,000	-£465,000	-£465,000

Standard NHS efficiency factor	-£96,000	-£96,000	-£96,000	-£96,000	-£96,000
Net expenditure increase/net additional income required	**-£147,230**	**£341,627**	**£283,728**	**£225,828**	**£167,929**

Linden Lodge – the current resources from the 24 beds at Linden Lodge, City Hospital, will transfer to the NHS Rehabilitation Centre. Activity from 21 out of the 24 beds will transfer to the NHS Rehabilitation Centre . Recent patient audits demonstrate that on average fifteen patients per annum who would currently access Linden Lodge may not meet criteria for the NHS Rehabilitation Centre. Provision for these patients will be made within existing stroke rehabilitation services at NUH.

Linden Lodge stranded cost – it is not possible to re-purpose the Linden Lodge estate as soon as it is vacated due to the current condition of the building. It has been assumed that the site can be re-purposed within the year removing the stranded cost requirement after year one.

Inpatient acute beds – there is currently a shortage of rehabilitation capacity across the region that is resulting in patients waiting in acute beds. Much of this activity starts in the acute regional services provided at NUH. By creating additional rehabilitation capacity it will allow the transfer of 33 beds of patients from acute care into the NHS Rehabilitation Centre. The cost of these beds can be released to support the finance case.

Table 6.5 IP acute bed transfer by activity for each region

Breakdown by county	%
Nottingham and Nottinghamshire	65%
Derby and Derbyshire	16%
Lincolnshire	8%
Leicestershire	11%

Excess bed day – linked to the inpatient acute bed reduction, there is an associated excess bed day saving for commissioners by transferring these patients. This saving is low due to the trim points for the HRGs and totals £357,000 across all commissioners with the split to be in the same proportion as above.

Inpatient acute repatriation – the current pathway for major trauma and other acute regional patients at NUH results in patients requiring a transfer from the MTC site (NUH) to their local hospital to wait for available rehabilitation capacity. As this is a provider-to-provider transfer, this results in an additional acute spell being registered. This is a cost to both the commissioner (charged an additional acute spell) and to the provider for the acute bed requirement while patients wait.

Due to information governance rules NUH has not been able to share patient level data with other providers to work through how much this is costing the provider. CCGs have not been able to match at patient level to calculate the current costs of these patients.

To estimate this cost it has been assumed that 1,734 patient acute bed days could be saved in other providers (based on 425 patients and an average length of stay of 69.4 days), based on a cost of £300 per bed day this totals £520,000.

Efficiency requirement – a savings target has been identified for the NHS Rehabilitation Centre based on the direct costs and the standard NHS efficiency requirement (1.1%). No schemes have been identified but will be required to contribute to the unit.

Residual available beds – the current capacity has 10 available beds. Assuming an occupancy rate of 95% and a £575 bed day rate charge this equates to £2 million.

£575 has been used as this is the cost of a bed day in the new facility based on 95% occupancy. This is a lower price than the current average private sector bed day charge which is £700 per bed day. Currently across the country £28.7 million is spent by the NHS with private providers.

This valuation methodology only includes the cost of the bed (£575) and does not include the saving the commissioner will make (difference between current payment £700 less NHS Rehabilitation Centre charge £575 = £125), which totals £433,000 per annum.

Continuing healthcare spend (rehab only) – a review of Nottinghamshire high cost continuing healthcare patients (those over £2,000 per week) identified estimated costs of £3.3 million for patients placed in 2019-20. After a high level review to remove patient placement types that are unlikely to be impacted by the NHS Rehabilitation Centre , for example, end of life, children, elderly, learning disabilities, and mental illness, these left patients that were in CHC due to physical disabilities. Some of those patients were already in neuro-disability placements, and are assumed will already be receiving appropriate care. The remaining six patients have a total annual placement cost of £0.95 million. A 10% reduction in care needs across the full cohort was made amounting to £0.095 million due to the support of services at the rehabilitation centre prior to placement. The 10% requires further validation. It was assumed that an equivalent savings value would be able to be made across neighbouring counties of Lincolnshire, Derbyshire and Leicestershire, with an additional saving of £0.12 million being generated from Leicestershire to reflect the benefits of a review of 2b commissioning which goes through the existing CHC budget.

Community services growth avoidance – the NCASRI audit of the impact of specialist neuro rehab patients nationally identified savings up to £500 per patient per week in community care. This audit covered a significantly wider range of areas than health community services, including GPs, social care and police. A pathway design meeting was held in December to support identifying the opportunities that may arise. This did not provide any specific outputs that a value could be place upon for the PCBC at this time.

As a consequence a review of spends across Nottinghamshire on short-term rehab teams was done, removing the ICS planned level growth of 4.03% and applying this to the

Nottinghamshire CCGs. The basis was that it would be difficult to agree with community providers from the existing evidence base a reduction to areas such as district nursing; however there should be a direct impact on the waiting list requirements of the rehab team. This is seen as a step change, and therefore applied to one year only to remove the impact of growth in year one.

The value is 4.03% of the service if applied Nottinghamshire-wide giving a value of £465,000.

6.7 Limitations

The finance case has been developed based on the agreed model of care and known assumptions at this stage. There are a number of limitations to this case, described below. Moving forward we will be working with NUH to reduce these.

Regional data – there is limited regional data available at present to identify the demand and current patient pathways in other acute providers across the system. The data used in this case has primarily been based on the NUH data for its regional services which will provide most of the demand for the preferred option.

High level assumptions - NUH have not yet completed the SOC for the proposed service and therefore some of the analysis on revenue implications have been based on high level assumptions and not a detailed model and understanding of the cost impacts. Also, at the OBC stage further detailed cost analysis will be undertaken, including Quality Adjusted Life Years.

Estates/capital – the initial outline capital proposals were developed over a year ago to support the national discussions with regards to capital. Some of the assumptions made then have not been fully tested now to ensure they are still applicable.

Payment arrangements – this modelling has been completed on current payments arrangements which will change over the coming three to four years as the ICSs across the region mature. The case for the NHS Rehabilitation Centre supports the aims of the ICS and Long Term Plan.

6.8 Sensitivity analysis

A sensitivity analysis on the impact to the position has been provided based upon variations of cost increase of 5%, 10%, and a reduction of 5%. Most areas have been assumed on a straight percentage change, with the key elements below.

PDC / depreciation – which is fixed based on the allocated capital expenditure of £70 million so will not vary. This makes up a third of the annual cost £4.1 million (32%).

Staffing – the staffing model has been agreed by the Clinical Reference Group as the appropriate staffing levels for the cohort of patients, as such this is unlikely to vary. This makes up just under a half of the annual costs £6.0 million (47%).

Residual expenditure – the residual expenditure which consists of non-pay costs, support costs and overhead and charges from the defence service total £2.7 million (21%). This is the key area of spend that could be subject to change. If costs were to increase or decrease

by 10% this would increase or decrease the expenditure by £271,000 per annum, equivalent to 2% of total costs which has low materiality for the unit.

The summary of the impact is:

Scenario Gap Summary					
	Y1	Y2	Y3	Y4	Y5
	£m	£m	£m	£m	£m
5% Improvement	-£0.484	-£0.029	-£0.087	-£0.145	-£0.203
Base Case	**-£0.147**	**£0.342**	**£0.284**	**£0.226**	**£0.168**
5% Worse	£0.189	£0.712	£0.654	£0.596	£0.538
10% worse	£0.526	£1.083	£1.025	£0.967	£0.909

On the worst case scenario this would require additional support of about £1 million per year, where a reduction of 5% enables the project to be self-financing.

6.9 Conclusions

Revenues included are currently only from activity at NUH and there will be scope going forward to capture the other revenues as they become clearer in the Outline Business Case stage.

Taking into consideration efficiencies in the new clinical model, from a reduction in the length of hospital and rehabilitation stay and an improvement in functional outcomes, the operating costs are expected in the longer term to be less than the £18-20m total costs currently borne across all the regional commissioners and providers. This will be sufficient to provide a sustainable, transformed new clinical model for rehabilitation at the NHS Rehabilitation Centre without destabilising other existing rehabilitation units in the region.

In summary the finance case demonstrates a number of benefits to transforming the rehabilitation pathway, with early intensive intervention at the NHS Rehabilitation Centre . Not all of these benefits are cash releasing within our current payment mechanisms, but with the transformation of the rehabilitation service and the transformation of commissioning arrangements to support the integrated care systems, there will be an overall net saving to the healthcare system in time. The key benefits to realise in the future are:

- An overall reduction in length of stay
- A reduction in the number of non-elective – elective spells as a result of the new pathway
- Further release of acute beds across trusts in the East Midlands Major Trauma Network
- Ability to reduce costs through a reduction in commissioner spend on private provision with patients going to the rehabilitation centre.

Testing the proposals and the assumptions within the PCBC will be carried out as part of the decision making business case in order that the right level of assurance is provided to relevant commissioners.

7. Options Development and Appraisal

A thorough options development and appraisal process has been undertaken before arriving at the preferred option of transforming rehabilitation services and creating a new NHS rehabilitation centre at Stanford Hall, Nottinghamshire. Throughout this process the Secretary of State's four tests were closely considered.

7.1 Context

The Options Framework, set out in public sector investment appraisal guidance published by HM Treasury in its Green Book (2018), provides a structured approach to identifying and filtering a broad range of options for delivering policies, strategies, programmes and projects. The options appraisal was carried out in relation to the three elements including research, education and clinical hubs and this included an option for a NHS Rehabilitation Centre only. In this options section we have therefore retained original references to the NRC.
The aim is to identify a preferred way forward from the list of options, using the following as reference points:

- Potential business scope and key service requirements
- Spending objectives – set out below
- Critical success factors – set out below
- Long list of options – set out below.

7.2 Spending objectives and critical success factors

The overall spending objective is to deliver the first NRC for England, incorporating the NHS NHS Rehabilitation Centre in order to improve patient outcomes, address the current fragmented clinical provision, provide a new clinical model to incorporate international best practice, attract experts in the field including training and research and raise the profile of rehabilitation.

This will be achieved by:

- Delivering a national centre of excellence for rehabilitation with clinical, research and innovation and training activity in one hub to drive forwards improvements in the rehabilitation field
- Starting to address the gap in rehabilitation services identified by NHSE by creating additional capacity and transforming the rehabilitation pathway and clinical model in a new rehabilitation centre
- Improving outcomes for patients with rehabilitation needs following illness or injury from one of the poorest in Europe to one of the best, thereby improving physical capability and the chances of returning to life and work.

This will be achieved in the first four years after the NRC has opened.

Clinical spending objectives

The clinical spending objective is:

To transform the pathway and clinical model of clinical rehabilitation for major trauma, neurological, complex musculoskeletal, traumatic amputees, incomplete spinal cord injury and severely deconditioned patients from a service which:

- Is an undervalued area of clinical practice
- Delivers poorer patient outcomes when benchmarked against other European countries particularly for return to work rates
- Has a significant deficit of rehabilitation beds and rehabilitation specialists, when measured against the British Society of Rehabilitation Medicine standards
- Has long delays and huge variation in accessing rehabilitation beds resulting in patients not receiving the right rehabilitation at the right time
- Supports extended acute length of stays due to rehabilitation patients waiting in acute medical beds.

To create a national centre which:

- Combines clinical, research and training activity alongside the defence service to develop a service which achieves some of the best patient outcomes in Europe
- Provides additional capacity for rehabilitation inpatient provision
- Frees up acute beds for alternative use
- Speeds up recovery
- Reduces variation in service provision by setting standards
- Eliminates waits for patients with rehabilitation needs
- Provides a strong focus on the return to both work and life
- Reduces the ongoing costs of health and social care for this cohort of patients
- Shares knowledge, expertise and facilities with the MOD.

This will be achieved in the first four years after the NRC has opened.

Education and training spending objectives

The education and training spending objectives are:

To transform rehabilitation education and training from:

- An undervalued area of clinical practice with recruitment and retention issues
- Separate delivery in professional silos
- No co-ordination between education and training courses
- Incomplete educational coverage of professions and roles within rehabilitation
- Lack of clear career pathways for most professions and roles within rehabilitation.

To:

- An attractive and competitive clinical speciality attracting a greater number of students thus improving recruitment and retention
- Delivered on a multi-professional basis

- Co-ordinated courses that have common building blocks supporting inter-professional working
- Provision of a full range of education and training for all professions and roles within rehabilitation through one centre of excellence
- Education and training mapped to career pathways for all professions and roles within rehabilitation.

This will be achieved in the first four years after the NRC has opened.

Research and innovation spending objectives

The research and innovation spending objectives are:

To create the UK's leading cluster of excellence for rehabilitation research and innovation, moving from a position where there is:

- Unco-ordinated non-aligned research projects both between rehabilitation centres and between different industry partners
- No overarching national strategy for rehabilitation research which seeks to address gaps in the field, push innovation, and align collaboration with engineering, clinicians and medical technology developments
- Difficulty in funding research projects

To:

- Create a strategic vision and strategy for research priorities in rehabilitation
- Create opportunities for funding with research bodies
- Fill the gaps in data of today's research landscape
- Develop a nationally scoped, integrated service with improved access to data
- Create a space where clinicians, engineers and biomedical scientists can work collaboratively together to develop new expertise, products and technology to support the rehabilitation process
- Be co-located with the military and on the SHRE.

This will be achieved in the first four years after the National Rehabilitation Centre has opened.

Critical success factors

The critical success factors (CSF) identified were developed in consultation with the Clinical Reference Group (CRG) of acute providers in the East Midlands and the DNRC Programme Team. They are:

1. Improve the experience for patients, their relatives and staff
2. Provide a rehabilitation pathway for the East Midlands that delivers better patient outcomes
3. Make use of the facilities that may be available in the defence facility
4. Services delivered within it must be safe to deliver in standalone facility away from an acute hospital
5. Complement the current or new patient pathway

6. Enable the development of a training and education facility
7. Enable the development of a research and development facility
8. Support patients to return to active employment
9. Not make existing level 1 and level 2a facilities unviable for other providers
10. Provide commissioners with an improved service at the same or reduced cost.

7.3 Longlist of options

Longlist development

The Clinical Reference Group was convened early in the NRC programme to define the spending objective, to outline issues with the current clinical pathway and model and define the new clinical model going forwards. The terms of reference and membership of the Clinical Reference Group is set out in the appendices.

The first stage was to set up the group to be representative and take advice on how to engage patients and public as widely as possible. The Consultation Institute was engaged at the beginning of the project. A patient engagement approach was agreed at programme board and a patient representative invited to sit on the Clinical Reference Group.

A series of face-to-face meetings were held with group members to identify key issues to address, define the patient cohort and the proposed patient pathway.

The key issues to address were:

- Key gaps in provision of rehabilitation for surgical and orthopaedic patients
- Capacity gap in the East Midlands with a bed deficit of 166 rehabilitation beds against BSRM standards
- Geographically based access criteria to rehabilitation beds rather than based on clinical need
- Long delays and waits in acute beds for rehabilitation beds
- Poor outcomes when benchmarked against Europe, USA and defence medicine regarding return to work following rehabilitation.

Patient engagement in the longlisting and clinical model

Feedback from the patient focus groups and the discussion document was taken into account when the long list and the clinical model were being developed. Considerable thought was given to including and excluding patients with specific conditions from the criteria for the NHS Rehabilitation Centre . Eventually it was agreed that provided patients' rehabilitation needs met the criteria, patients would not be automatically excluded on the basis of their underlying condition.

The long list of options

A number of options were identified to meet the spending objectives. These are presented below.

Table 7.1 Longlist of options

Option name and description
Business as usual – this option maintains the status quo. The existing rehabilitation units would stay as they are currently operating. The services would not be regionally focused but serve their local population only.
Do minimum option – this option maintains the service provision as it is in the existing estate at each acute trust but with pathway changes to enable access to the right level of rehabilitation for regional patients.
Intermediate option a – expand capacity for level 2b patients by expanding facilities at Linden Lodge, Nottingham and King's Lodge, London Road Community Hospital, Derby and creating new units in Leicester and Lincolnshire to provide a regional clinical network of facilities.
Intermediate option b – implementation of a Clinical Rehabilitation Centre at the Stanford Hall Rehabilitation Estate with a new clinical model for the existing cohort of patients at the rehabilitation units and/or wards to provide a clinical facility only.
Intermediate option c – implementation of a centre consisting of a clinical facility only, at the Stanford Hall Rehabilitation Estate. Introduction of a new clinical model, with a newly defined cohort of patients with the opportunity for any patient to be referred if there is a rehabilitation need with patient groups likely to include: • Major trauma • Neurosciences • Neurological • Complex MSK • Traumatic amputees • Deconditioned patients with vocational rehabilitation.
Do maximum option – implementation of a NRC consisting of a clinical facility, education and training and research and development facility, at the Stanford Hall Rehabilitation Estate. Introduction of a new clinical model, with a newly defined cohort of patients with the opportunity for any patient to be referred if there is a rehabilitation need with patient groups likely to include: • Major trauma • Neurosciences • Neurological • Complex MSK • Traumatic amputees • Deconditioned patients with vocational rehabilitation.

7.4 The Options Framework

The options framework provides a structured approach to identifying and filtering a broad range of options for delivering policies, strategies, programmes and projects.

The framework considers a series of choices to be made in sequence. 'Why' provides the rationale for the intervention and the potential scope for change. Once the potential scope for the scheme has been agreed, the next stage is to identify and appraise the choices to be made in relation to 'what', 'how', 'who', 'implementation' and 'funding'.

The options framework identifies and filters these choices for the operational scope, service solutions, service delivery vehicles, implementation timelines and funding mechanism for the project. The key in the figure below was used when appraising these choices against the spending objectives and critical success factors listed in 8.2 and 8.3. It should be noted that the options appraisal workshop was conducted with a wider range of stakeholders, including NHSI, NUH, clinicians and commissioners in April 2019 and that it was agreed through programme board there should be one options appraisal workshop which would inform PCBC and SOC. Recent methodology from SOC guidance was used in accordance with the requirements for the workshop by NHSI.

Methodology

The options to consider were developed by the Clinical Reference Group with patient input from within that group. The options appraisal workshop followed a period of working up the options, spending objectives and the critical success factors by the Group, all of which were approved by NRC programme board. The spending objectives are set to measure the options against for value for money and the critical success factors are those factors without which the scheme would not deliver the spending objectives.

Under the new guidance for business case options, each of the following are assessed against the critical success factors.

- Service scope
- Service solution
- Service delivery
- Implementation
- Funding option

Figure 8-1: Criteria used for assessing options

Does not meet	Meets some	Strongly meets

The longlist of options was considered in a multi-stakeholder workshop on 5 April 2019 and attended by:

Table 7.1: Workshop attendees

Organisation	Role	Name
NRC programme	Chair of workshop and programme director	Miriam Duffy
NUH	SRO clinical	Rupert Egginton; Alison

		Wynne
Special advisor and patient representative	Patient representative clinical reference group	Allan Cole
CCG commissioning	CCG commissioning representative on Clinical Reference Group	Lucy Dadge
CCG clinical lead	CCG clinical representative on Clinical Reference Group	Dr James Hopkinson
NHSE Specialised commissioning	NHSE representative on Clinical Reference Group	Carolyn Young
NRC programme	Chair Clinical Reference Group	David Levy
NUH and major trauma	Clinical lead	Mr Adam Brooks
NUH	Rehabilitation medicine consultant	Dr Piera Santullo
GIRFT representative	representing GIRFT lead in Clinical Reference Group	Rapinder Sandhu
Black Stork Charity	DNRC programme representative	Katie Wood
NRC programme	SRO training and education	Professor Dame Jane Dacre
NRC programme	SRO research and Innovation	Professor Mark Lewis
NRC programme	Project manager	James Wright
NHSI	Strategic estate and planning team	Mike Simpson

The sections that follow shows how each of the options was appraised against the choices set out above as part of the options framework. The critical success factors are listed below as a reminder and details as to whether the workshop assessed the option to meet the CSF or not are given in the table designated with either a tick (√) or a cross (X). Under each table is a brief narrative of how the decision was made.

1. Improve the experience for patients, their relatives and staff
2. Provide a rehabilitation pathway for the East Midlands that delivers better patient outcomes
3. Make use of the facilities that may be available in the department of defence centre
4. Services delivered within it must be safe to deliver in standalone facility away from an acute hospital
5. Complement the current or new patient pathway

6. Enable the development of a training and education facility
7. Enable the development of a research and development facility
8. Support patients to return to active employment
9. Not make existing level 1 and level 2a facilities unviable for other providers
10. Provide commissioners with an improved service at the same or reduced cost.

Service scope

The first element considers the scope of service offered by each option:

Table 7.2: Service scope option appraisal

	Business as usual	Do minimum	Intermediate option a	Intermediate option b	Intermediate option c	Do maximum
Service scope	Do nothing	Pathway changes only	Expands capacity in each county	Only for current patient cohorts	Expands patient cohorts	Full NRC service scope
Critical success factors appraisal	1. X 2. X 3. X 4. X 5. X 6. X 7. X 8. X 9. X 10. X	1. √ 2. √ 3. X 4. X 5. X 6. X 7. X 8. X 9. √ 10. √	1. X 2. √ 3. X 4. X 5. X 6. X 7. X 8. X 9. √ 10. √	1. √ 2. X 3. X 4. X 5. X 6. X 7. X 8. X 9. √ 10. √	1. √ 2. X 3. X 4. X 5. X 6. X 7. X 8. X 9. √ 10. √	1. √ 2. √ 3. √ 4. √ 5. √ 6. √ 7. √ 8. √ 9. √ 10. √
Score						

The do maximum options scored highest because it provides additional service capacity to an expanded patient cohort and benefits from the synergies from education and training and research and innovation facilities. Intermediate option ‘c’ provides the same amount of additional service capacity to an expanded patient cohort but does not offer education and training and research and innovation facilities, thereby not meeting spending objectives or delivering best value for money against the allocated capital.

The do minimum option makes improvements through the delivery of a new pathway and intermediate options ‘a’ and ‘b’ expand capacity but only address the current patient cohorts. The business as usual option makes no improvement to the current position.

Service solution

The figure below provides the results of the appraisal of how the options delivered the required service solution.

Table 7.3: Service solution appraisal

	Business as usual	Do minimum	Intermediate option a	Intermediate option b	Intermediate option c	Do maximum
Service solution	No new facility No change to how services delivered	No new facility Pathway changes only	Local service expansions Pathway changes	New facility – regional services only New clinical model existing cohort	New facility – national services only New clinical model	New facility – national including education and training and research and innovation. New clinical model
Critical success factors appraisal	1. X 2. X 3. X 4. X 5. X 6. X 7. X 8. X 9. X 10. X	1. X 2. X 3. X 4. X 5. X 6. X 7. X 8. X 9. √ 10. X	1. X 2. X 3. X 4. X 5. X 6. X 7. X 8. X 9. √ 10. X	1. √ 2. X 3. √ 4. √ 5. √ 6. X 7. X 8. √ 9. √ 10. √	1. √ 2. √ 3. √ 4. √ 5. √ 6. X 7. X 8. √ 9. √ 10. √	1. √ 2. √ 3. √ 4. √ 5. √ 6. √ 7. √ 8. √ 9. √ 10. √
Score						

The do maximum option scored highest because it provides new clinical, education and training and research and innovation facilities. Intermediate option ‘c’ provides a new clinical facility at SHRE but does not offer education and training and research and innovation facilities.

The do minimum option makes improvements through the delivery of a new pathway but offers no improvements to the facilities. Intermediate options ‘a’ and ‘b’ expand capacity but only address the current patient cohorts. The expansion in option one leaves the level 2b beds fragmented and without access to other facilities at the SHRE. The business as usual option makes no improvement to the current position.

Taking the service scope and solution together, the preferred way forward is the do maximum option. The remainder of the options framework considers the best way of delivering this preferred way forward and the other two options being carried forward – business as usual (for comparative purposes) and the intermediate option ‘c’.

Service delivery

The figure below provides the results of the appraisal of how the preferred and other carried forward options could be delivered.

Table 7.4: Service delivery options appraisal

	Preferred and carried forward options		
Service delivery	Multiple service providers	Single provider	Mixed economy of NHS, private and commercial provision through new Centre
Critical success factors appraisal	1. X 2. X 3. √ 4. √ 5. X 6. X 7. X 8. √ 9. √ 10. √	1. √ 2. X 3. √ 4. √ 5. √ 6. X 7. X 8. √ 9. √ 10. √	1. √ 2. √ 3. √ 4. √ 5. √ 6. √ 7. √ 8. √ 9. √ 10. √
Score			

The current level 2b rehabilitation service is provided by two NHS trusts. It was considered that a single provider would potentially be more efficient than two in the provision of clinical services, benefitting from economies of scale in some functions in the new NRC. However, the preference was for a mixed economy of NHS, private and commercial provision through the new Centre. Each private/commercial/educational operator would provide specialist expertise in its field for the research and innovation and education and training elements and leave NHS funding and management focus to be directed solely towards the development of the NHS clinical facility and service.

Implementation

The figure below provides the results of the appraisal of how the preferred and other carried forward options could be implemented.

Table 7.5: Implementation options appraisal

	Preferred and carried forward options			
Implement ation	Do nothing	Refurbish /extend existing facilities	Create clinical facility at SHRE initially then add education and training and research and innovation subsequent phase	Build entire new NRC (including education and training and research and innovation) at SHRE in one phase
Critical success factors appraisal	1. X 2. X 3. X 4. X 5. X 6. X 7. X 8. X 9. X 10. X	1. X 2. X 3. X 4. X 5. X 6. X 7. X 8. X 9. X 10. X	1. √ 2. √ 3. √ 4. √ 5. √ 6. X 7. X 8. X 9. √ 10. √	1. √ 2. √ 3. √ 4. √ 5. √ 6. √ 7. √ 8. √ 9. √ 10. √
Score				

Owing to the nature of the site and planning approval it was considered that the only way of delivering the preferred way forward is to construct and commission the entire scope in a single phase. This would deliver the entire facility at the earliest opportunity and enable all anticipated benefits to be realised. It would also avoid disruptive works once the facility is operational.

Funding appraisal

The figure below provides the results of the initial appraisal of how the preferred and other carried forward options may be funded.

Table 7.6: Funding options appraisal

	Preferred way forward – do maximum					
Funding	DHSC money for clinical, education and training and research and innovation	Revenue-based funding through Private Finance Initiative	STP or provider-generated capital funding	Revenue-based funding through private developer	Philanthropic contributions	DHSC money for clinical build, private investment for remainder
Critical success factors appraisal	1. X 2. X 3. X 4. X 5. X 6. X 7. X 8. X 9. X 10. X	1. X 2. X 3. X 4. X 5. X 6. X 7. X 8. X 9. X 10. X	1. X 2. X 3. X 4. X 5. X 6. X 7. X 8. X 9. X 10. X	1. √ 2. √ 3. √ 4. √ 5. √ 6. X 7. X 8. X 9. √ 10. X	1. √ 2. √ 3. √ 4. √ 5. √ 6. X 7. X 8. X 9. √ 10. X	1. √ 2. √ 3. √ 4. √ 5. √ 6. √ 7. √ 8. √ 9. √ 10. √
Score						

This is an unusual project because it arose directly as a result of a ‘once in a generation’ offer of land on a peppercorn basis at the SHRE and the linked allocation of £70 million from the Government to develop a NRC on that specific site. The £70 million will not be sufficient to construct the combined clinical, education and training and research and innovation facilities so additional funding will be needed. The provider trusts and their host STPs have higher priorities for their capital programme so alternative sources of public capital are unlikely to be forthcoming in the near future.

Private financed sources have also been considered. New Private Finance Initiative (PFI) projects were recently put on hold by the Government pending the outcome of a national infrastructure review. This national infrastructure review also makes an entirely revenue based approach risky at this stage although there is interest in having potential education and training and research and innovation partners finance their elements of the build.

This leaves the best option as a combination of the DHSC capital for the NHS clinical facility and private investment from development partners to develop the education and training and research and innovation facilities.

Opportunities for philanthropic contributions will be explored as the project progresses.

7.5 Options framework summary

The table below summarises the outcome of the options framework.

Table 7.7 options framework summary

	Business as usual	**Do minimum**	**Intermediate option a**	**Intermediate option b**	**Intermediate option c**	**Do maximum**
Service scope	Do nothing	Pathway changes only	Expands capacity in each county	Only for current patient cohorts	Expands patient cohorts	Expands patient cohorts
	Carried forward for comparison	Discounted	Discounted	Discounted	Carried forward	Preferred
Service solution	No new facility No change to how services delivered	No new facility Pathway changes only	Local service expansions Pathway changes	New facility – regional services only New clinical model	New facility – national services only New clinical model	New facility – national including education and training and research and innovation. New clinical model
	Carried forward for comparison	Discounted	Discounted	Discounted	Carried forward	Preferred
Service delivery	Multiple service providers		Single provider		Mixed economy of NHS, private & commercial provision through new centre	

	Carried forward		Carried forward		Preferred	
Implementation	Do nothing	Refurbish /extend existing facilities	Create clinical facility at SHRE initially then add education and training and research and innovation subsequent phase		Build entire new NRC (including education and training and research and innovation) at SHRE in one phase	
	Discounted	Discounted	Carried Forward		Preferred	
Funding (if option requires funding)	DHSC money for entire clinical, education and training and research and innovation	Revenue-based funding through Private Finance Initiative	STP or provider-generated capital funding	Revenue-based funding through private developer	Philanthropic contributions	DHSC money for clinical build and private investment for remaining building
	Discounted	Discounted	Discounted	Carried forward	Carried forward	Preferred

7.6 Longlist to shortlist summary and confirmation of preferred way forward

The table below confirms the shortlisted options (in terms of scope and solution) and summarises why each longlisted option was carried forward onto the shortlist or discounted. In a Public Consultation Business Case shortlisted options must be affordable, clinically viable and deliverable and the shortlisted options meet these criteria. The preferred way forward following this analysis was confirmed as the do maximum option.

Table 7.8 Longlist to shortlist summary

Option name and description	Shortlisted or discounted and rationale
Business as usual – this option maintains the status quo. The existing rehabilitation units would stay as they are currently operating. The services would not be regionally focused but serve their local population only. There would be continued long delays to access rehabilitation.	**Shortlisted** – this option, representing the current position, was shortlisted to provide a comparison between maintaining the current position and the other longlisted options which provide transformative solutions.
Do minimum option – this option maintains the service provision as it is in the existing estate but with pathway changes to enable access to the right level of rehabilitation for regional patients.	**Discounted** – this option was rejected because it does not meet the spending objectives to provide a NRC in one facility, expand capacity, fill the provision in services for certain patient groups or transform outcomes for patients through vocational rehabilitation.
Intermediate option a – expand capacity for level 2b patients by expanding facilities at Linden Lodge, Nottingham and Kings Lodge, London Road Community Hospital, Derby and creating new units in Leicester and Lincolnshire to provide a regional clinical network of facilities.	**Discounted** – this option was rejected because it does not meet the spending objective to provide a NRC in one facility, it is not affordable as no capital funding is available for options on existing sites and the existing sites do not all have capacity to accept the additional infrastructure without incurring large re-provision costs for other

	facilities.
Intermediate option b – implementation of a Clinical Rehabilitation Centre at the Stanford Hall Rehabilitation Estate with a new clinical model for the existing cohort of patients at the rehabilitation units to provide a regional clinical facility only.	**Discounted** – this creates a central hub and supports a new, vocational approach to rehabilitation, benefiting from synergies with the DMRC. However, it does not provide a national centre and only addresses the current cohort of patients so has been discounted.
Intermediate option c – implementation of a rehabilitation estate consisting of an NHS clinical facility only, at the Stanford Hall Rehabilitation Estate. Introduction of a new clinical model, with a newly defined cohort of patients with the opportunity for any patient to be referred if there is a rehabilitation need with patient groups likely to include: • Major trauma • Neurosciences • Neurological • Complex MSK • Traumatic amputees • Deconditioned patients with vocational rehabilitation.	**Shortlisted** – this meets the core objectives of creating a national centre, is affordable in capital terms, provides additional capacity for a wider cohort of patients addressing a gap in provision and is clinically viable, supporting a new, vocational approach to rehabilitation, benefiting from synergies with the DMRC.
Do maximum option – implementation of a NRC with estate consisting of a clinical facility, education and training and research and development facility, at the Stanford Hall Rehabilitation Estate. Introduction of a new clinical model, with a newly defined cohort of patients with the opportunity for any patient to be referred if there is a rehabilitation need with patient groups likely to include: • Major trauma • Neurosciences • Neurological • Complex MSK • Traumatic amputees • Deconditioned patients with vocational rehabilitation.	**Preferred way forward** – this meets the core objectives of creating a national centre, is affordable in capital terms, provides additional capacity for a wider cohort of patients addressing a gap in provision and is clinically viable, supporting a new, vocational approach to rehabilitation, benefiting from synergies with the DMRC. It also benefits from the introduction of new education and training and research and development facilities on the same site. Other opportunities to generate income from complementary services will also be explored.

Although the do maximum option is the preferred way forward, due to capital funding constraints, the following, shortlisted options were taken forward into the economic appraisal in section 7.8 and have been numbered:

- Business as usual – numbered as option 0
- Intermediate option c – numbered as option two

7.7 Economic appraisal

An economic appraisal of the two short-listed options has been undertaken to provide an assessment of the potential costs and benefits of meeting the spending objectives. The appraisal follows HM Treasury Green Book guidance and is underpinned by the DH Comprehensive Investment Appraisal (CIA) model.

Key technical assumptions are:

- Year 0 is 2019-20
- The first year of service delivery from the new facilities is 2023-24
- For option 0 Business as Usual (BAU) a 30-year appraisal has been used
- For options two and three a period of 64 years is applied, ensuring that a full 60-year operational use of new facilities is reflected
- A discount rate of 3.5% for the first 30 years and 3% thereafter has been used as per guidance
- An assessment of the potential Quality Adjusted Life Years (QALYs) will be made at the OBC stage of the project and discount rates of 1.5% and 1.3% applied accordingly to years 0 to 30 and 31 to 64
- Zero residual values
- VAT is excluded from all cash flows
- Costs and benefits are assumed at a 2019-20 price base.

Key model inputs are:

- Capital cash flows at a current price base (Q4 2020 PUBSEC 266), including contingencies and optimism bias
- Lifecycle costs for building and engineering elements based on standard NHS asset lives and replacement cycles, and lifecycle of equipment, with replacement occurring every 10 years
- The revenue costs of providing the existing rehabilitation service
- The forecast costs of delivering the proposed service model
- The space costs associated with the new facilities under options two and three
- The potential ward cost savings deliverable under options two and three
- An assessment of the potential social care savings and fiscal/tax benefits achievable under options two and three.

Economic appraisal summary outputs

The table below presents the results of the economic appraisal based on the assumptions and cost inputs above.

Table 8.9: Economic Appraisal of Short-Listed Options

Economic measure Net present value (NPV)	**Option 0 £000**	**Option 2 £000**
NPV of costs NPV of (benefits)	100,603 0	287,047 (796,075)
NPV overall cost / (benefit)	100,603	(509,029)
NPV of incremental costs NPV of incremental benefits	0 0	186,444 (796,075)
NPV of net incremental change	0	(609,631)
Benefit/cost ratio		4.27

The economic analysis thus indicates that:

- Option two offers significant potential benefits over business as usual
- While the analysis suggests that there are potential additional economic benefits in developing the do maximum option, the majority of the economic advantage would be achieved from the new clinical model under the intermediate option two.

This appraisal will be reviewed at SOC and OBC stages where the analysis will review any new developments that could alter the outcome of the options appraisal and incorporate a do minimum option in order to comply with HM Treasury guidance to include this option in SOCs and OBCs.

8. Strong Public, Patient and Staff Involvement

This section describes how public, patients and staff have been involved in influencing the proposals in this PCBC. The reports from phase one and two as summarised below, can be found in the appendices.

8.1 Legal context

The National Health Service Act 2006 sets out the legislative framework for public involvement (Sections 13Q (NHSE), 14Z2 (CCGs) and 242 (NHS trusts and FTs)). Consultation with local authorities is provided for in the Local Authority (Public Health, Health and Wellbeing Boards and Health Scrutiny) Regulations 2013 ("the s.244 Regulations") made under section 244 (2)I of the NHS Act 2006.

In summary, these regulations require the NHS to involve potentially affected patients in the development of proposals for changes to health services or the development of new services. They also require that Local Authorities are formally consulted on any proposed significant service changes.

Broadly speaking, service change is any change to the provision of NHS services which involves a shift in the way front line health services are delivered, usually involving a change to the range of services available and/or the geographical location from which services are delivered. There is no legal definition of 'substantial development or variation' and for any particular proposed service change, commissioners and providers are required to work with the local authority or local authorities' Overview and Scrutiny Committee (OSC) to determine whether the change proposed is substantial. If the change is substantial it will trigger the duty to consult with the local authority under the s.244 Regulations.

Update May 2020

In light of the restrictions currently in place as a result of the Covid-19 pandemic, we have sought professional and legal advice on whether we can realistically undertake this consultation at this time. The consensus of this advice, from the Consultation Institute and Browne Jacobson Solicitors respectively, is that removing face-to-face engagement from the consultation does not weaken the exercise and would mean that the consultation would still be valid for use in the decision-making process. This advice is based on the consultation finding suitable alternative methods to face-to-face engagement.

8.2 Governance, assurance and guiding principles

We are undertaking engagement and consultation in line with the legal duty on NHS organisations to involve patients and the public in the planning of service provision, the development of proposals for change and decisions about how services operate and in line with The Gunning Principles.

Our approach to engagement and consultation is in line with NHSE/I guidance on planning and delivering service change. We have:

- Involved Healthwatch, our Lay Members for Patient and Public Involvement and our voluntary and community sector from an early stage and have included Healthwatch as a member of the project's Engagement Group
- Used our early engagement to identify issues or barriers within the patient population that need to be addressed in our plans before going to consultation
- Approached our engagement and consultation process as a single, on-going dialogue with patients and the public, with phases of engagement linked and informing plans as they develop.

We have engaged with Nottingham City and Nottinghamshire County Councils throughout the development of our proposals, through regular conversations with both Health Scrutiny Committees.

To provide oversight of our engagement and consultation approach we have set up an Engagement Group, which includes our Lay Members for Patient and Public Involvement and our local Healthwatch. The membership provides a link to our Governing Bodies (through our Lay Members) and our local communities (through Healthwatch).

Update May 2020

It is worth noting that although we have updated our consultation plan to reflect the approach we will take for a consultation without face-to-face activity, the guiding principles remain the same and we are confident we can adhere to them by providing alternative methods of engagement.

8.3 Overview of approach

We have drawn on three core areas of support to ensure our engagement and consultation meets its objectives. These areas of support are summarised below.

The Consultation Institute have worked with us in an advisory capacity, providing expertise on best practice consultations and reviewing and informing our plans as they have developed.

Healthwatch Nottingham and Nottinghamshire form part of the project's Engagement Group. They are also being commissioned to undertake targeted engagement with vulnerable communities and those with characteristics that may mean they face barriers to accessing local services.

We have also commissioned an *agency with expertise in delivering public consultations*. This is providing the support needed to develop our Consultation Document and other materials and to deliver a range of engagement activities to generate feedback on our proposals throughout the 6 week consultation period.

Our engagement and consultation approach is being undertaken in three phases – *early patient engagement; pre-consultation engagement and public consultation*. While the phases should be seen as an on-going dialogue with patients and the public, the phasing of engagement has allowed us to pause, consider findings and reflect feedback in our

proposals. It has also provided an early indication of issues likely to occur in a public consultation, thus enabling us to build mitigations for specific issues into our proposals.

Our engagement and consultation is being carried out in the following phases:

- Phase 1 – Early patient engagement (April to July 2019)
- Phase 2 – Pre-consultation engagement (October 2019)
- Phase 3 – Public consultation (March – May 2020).

8.4 Staff engagement

Engagement with the four Medical Directors of the acute provider trusts has been undertaken by the Chair of the clinical reference group, Dr David Levy.

Engagement with key consultant colleagues in the region including regional orthopaedic network and orthopaedic consultants in Leicester has been undertaken by the Programme Director and the specialist advisor and the programme's patient representative.

Engagement with Allied Health Professionals in the region has been undertaken by the Programme Director

Engagement with Nottinghamshire Healthcare NHS Foundation Trust has been through membership of the Clinical Reference Group and through the Chair of the Trust. On-going engagement will include a wide range of staff in order to ensure that appropriate feedback is received for the design of the services including the discharge process.

8.5 Phase 1 engagement

Approach

An initial programme of engagement was carried out in July 2019. The aim of this work was to generate some early insights from patients on proposals. Focus groups were held at Linden Lodge, the Major Trauma Centre and Headway Derby.

The approach allowed for open discussion to generate insights and sought to understand experiences of current rehabilitation services and views on proposals.

Findings

Most people were supportive of the idea of a NHS Rehabilitation Centre, particularly the availability of state-of-the-art treatment, facilities and equipment all in one place. Some people were concerned about existing services and felt that these should be invested in instead.

8.6 Phase 2 engagement

Approach

During October 2019 we undertook a programme of engagement that included five focus groups and a survey. The engagement aimed to explore the issues raised through previous patient, clinical and stakeholder engagement in more depth. Inputs to the focus of the engagement included feedback from the Governing Body and Clinical Senate. The areas we aimed to explore were:

- The potential benefits for and impact on patients of the proposal
- Views on specific relocation of service proposals
- Levels of support for the proposal
- General views on the rehabilitation centre, its location and its co-location with a military site
- Feedback on the referral criteria
- Impact on accessibility including travel and visitation
- Impact on and mitigations for potential isolation
- Continuity of care including interdependency with other services
- Discharge planning
- Mental health support.

Face-to-face engagement was held with the following groups:

- Linden Lodge staff and patients
- Headway patient group
- Brainwaves – Brain tumour support group
- Trauma Clinic
- Nottingham Mobility Centre.

A discussion guide was developed for the focus groups that enabled some open discussion of the proposal to develop the NHS Rehabilitation Centre and asked participants to prioritise specific benefits and issues in line with the themes described above.

The survey developed for this period of engagement generated 150 responses.

Findings

The following themes emerged from the engagement:

- Participants were positive about bringing specialist rehabilitation services together, with specially trained staff
- There was a consensus on and understanding of the benefits including improved outcomes, access to high-quality, specialised rehabilitation care and state-of-the-art facilities
- Many people were concerned about the difficulties that people will have in travelling to and accessing the NHS Rehabilitation Centre
- Questions were asked about the rehabilitation services that would be available for those that do not meet the referral criteria
- Some raised concern about the funding and sustainability of the NHS Rehabilitation Centre
- People were concerned about the impact the proposal may have on local services

8.7 Next steps

We are planning to launch a 6 week public consultation and are working with Healthwatch and North of England Commissioning Support Unit (NECSU) to support this. NECSU are supporting us to:

- Develop the Consultation Document and other materials
- Deliver a range of public events and focus groups
- Develop a questionnaire and other feedback channels
- Develop a media handling strategy
- Deliver all required design and printing of materials
- Provide analysis and reporting of consultation findings.

Healthwatch are undertaking targeted engagement with groups that are seldom heard, vulnerable and face barriers to accessing services. Healthwatch will produce a report independently that will be considered as part of the consultation findings.

Charities, interest groups and relevant Local Authorities will be invited to respond to the consultation formally in writing.

We have notified both relevant Health Scrutiny Committees of our intention to consult the public.*

Update May 2020

As we are unable to undertake face-to-face engagement, our approach will instead focus on hard copy and online survey responses; telephone interviews and events and focus groups run virtually through video conferencing software. In light of this, we will provide the following to maximise participation:

- *Video and other visual resources to support the Consultation Document*
- *Paid-for Facebook advertising to boost completion of the survey*
- *Press advertising to boost completion of the survey*
- *Freepost address for return of hard copy surveys*
- *A phone line for people to request a call-back for telephone completion of the survey.*

**We have begun consultation with Nottingham City Council and Nottinghamshire County Council Health Scrutiny Committees on our intention to undertake a public consultation through virtual methods, although neither Committee has formally approved this approach or been notified of an intention to consult from a specific date*

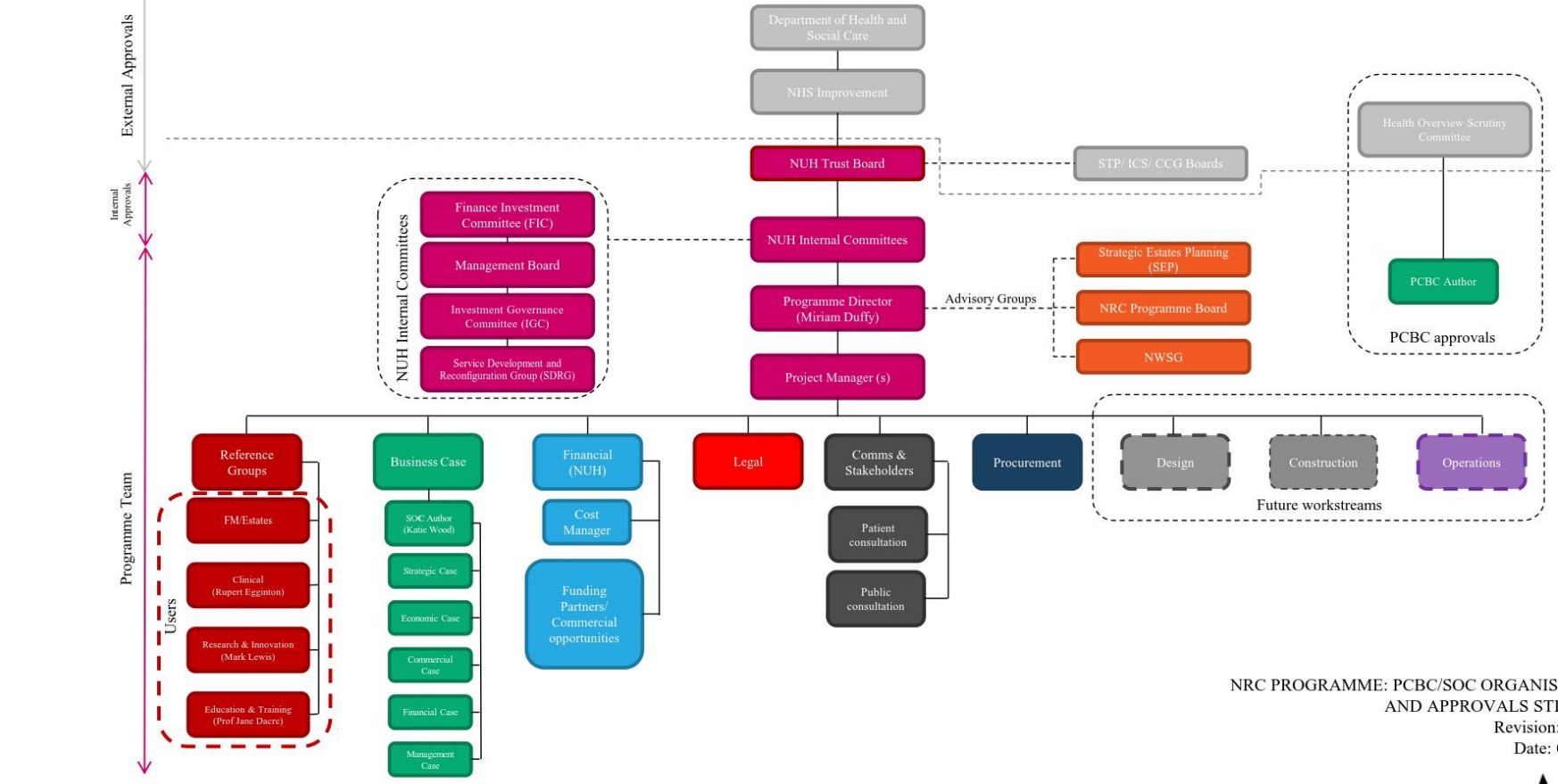
9. Governance

The formal governance structure for the NRC of which the NHS Rehabilitation Centre is part of was established in January 2019 as part of an overall Programme Board. This sits alongside the governance arrangements in the CCGs through which there will be organisational approval and to support assurance for the PCBC. These robust arrangements will ensure a strong foundation for sign-off of the Strategic Outline Case.

Supporting and reporting into the Programme Board are a Programme Team and reference groups including clinical, facilities and estates, research and innovation and education and training.

The Clinical Reference Group is chaired by Dr David Levy, the previous Midlands and East medical director and the current North West medical director. The Clinical Reference Group membership includes a wide range of clinicians from secondary and primary care and patient input. It also includes commissioners from the local CCGs and from NHSE, and clinical leads of those bodies. External members include Defence Medical Services and The British Society of Rehabilitation Medicine and Royal College of Physicians.

There is patient representation on the Clinical Reference Group and the Programme Board. The Nottingham and Nottinghamshire CCGs have established a Patient and Public Engagement Sub-Group that will inform engagement plans relevant to discussions in the Clinical Reference Group and to a lesser degree, the Estates Group. The diagram below provides an overview of the approvals structure around which the governance has been established.



NRC PROGRAMME: PCBC/SOC ORGANISATIONAL AND APPROVALS STRUCTURE
Revision: DRAFT 5
Date: 05.03.2019

ARUP

10. The Four Tests

The NHSE “Planning and delivering service changes for service users” guidance, (December 2013), outlined good practice for commissioners on the development of proposals for major service changes and reconfigurations.

Building on this, the 2014-15 mandate from the Secretary of State to NHSE, outlines that proposed service changes should be able to demonstrate evidence to meet four tests:

1. Strong public and patient engagement
2. Consistency with current and prospective need for patient choice
3. A clear clinical evidence base
4. Support for proposals from clinical commissioners.

Reconfiguration proposals must meet the four tests before they can proceed. These tests are designed to demonstrate that there has been a consistent approach to managing change, and therefore build confidence within the service, and with service users and the public.

From 1 April 2017, NHSE introduced a new (fifth) test to evaluate the impact of proposals that include a significant number of bed closures. The plans in this PCBC do not reduce the overall number of beds, therefore this test does not apply.

10.1 Test 1: Strong public and patient engagement

This test evaluates how service users and the public are involved in the development of the proposals to transform the way rehabilitation services will be delivered in the East Midlands and to support and develop a new NHS Rehabilitation Centre.

The commissioners have engaged with the public and patients to receive feedback on the proposed way forward and used this information to help inform the development of the proposal. Further detail is provided in section eight which outlines robust engagement to inform the PCBC, along with robust plans for consultation. Our engagement and consultation approach has been undertaken in three phases – *early patient engagement; pre-consultation engagement and public consultation*. While the phases should be seen as an on-going dialogue with patients and the public, the phasing of engagement has allowed us to pause, consider findings and reflect feedback in our proposals. It has also provided an early indication of issues likely to occur in a public consultation, thus enabling us to build mitigations for specific issues into our proposals.

10.2 Test 2: Consistency with current and prospective need for patient choice

This test illustrates whether any proposed redevelopment would maintain the availability of service user choice.

In relation to this PCBC, patient choice can be described in relation to four elements which includes: a) existing access to 2b neuro rehabilitation b) increasing capacity for neuro

rehabilitation c) access to rehabilitation for patients who have had a complex fracture and other injuries d) access to in-patient care and choice not to undertake rehabilitation. As described in the PCBC, the proposal increases capacity as well as access to a wider cohort of patients. Patient flow is also through NUH as a major trauma centre and for this cohort, choice is either maintained or increased as outlined below.

a) Existing access to 2b neuro rehabilitation – For Nottinghamshire the proposal includes transferring 21 of the 24 beds from Linden Lodge which is currently at Nottingham City Hospital. 3 of the 24 beds will remain at Nottingham University Hospitals.

   For the patients who are currently at Linden Lodge but do not meet the criteria for the NHS Rehabilitation Centre, there will be access available to neuro rehabilitation as part of a service currently provided at NUH, City campus for stroke patients, therefore maintaining the same level of choice.

   For Derbyshire, patients will maintain the choice to access Kings Lodge. Lincolnshire and Leicestershire do not currently have a 2b unit and therefore, with this proposal patients will have the choice to access care as they currently do or to transfer to the NHS Rehabilitation Centre.

b) Increasing capacity for 2b neuro rehabilitation – along with maintaining existing services and means of access to rehabilitation, there will be an increase in capacity providing more patients with the choice to attend an NHS 2b neuro facility for patients across all areas.

c) Access to rehabilitation for patients who have had a complex fracture and other injuries – Intensive in-patient rehabilitation is not currently provided for patients with a complex fracture. Through the current pathway, patients receive care and are discharged home or to a respite or reablement unit. The NHS Rehabilitation Centre will provide patients with an additional choice to attend in-patient rehabilitation.

d) Access to in-patient care and choice not to undertake rehabilitation – Patients will have the choice not to undertake rehabilitation and will therefore maintain access to their local acute trusts and other services as relevant to their care needs. However, it should be noted that through the role of the Clinical Case Managers and the recognition of the benefits of undertaking rehabilitation along with the enhanced offer, it is expected that very few, if any, patients will make this choice. The enhanced offer will be described in relation to timely access and therefore demonstrating a move to recovery at an early stage, consideration of physical and mental health needs through three weekly assessments of mental health status for all patients, increasing the opportunity to return to life and work at as early a stage as possible through the input from a wider range of professionals with a focus on vocation where appropriate, access to the wider facilities and an environment fully conducive to rehabilitation created by the estate and the opportunity to receive treatment in a new building designed to facilitate independence and therefore encouraging patients to do as much as they can for themselves

Commissioners and providers will continue to work together at a system-level to ensure that the network and pathways are developed to improve how patients would access rehabilitation services; how clinicians and staff would deliver rehabilitation services; and how, by integrating education, training, research and innovation with service delivery, this would hugely benefit clinical outcomes. Any changes to the way services are commissioned would be undertaken with due regard to the DHSC's Principles and Rules of Co-operation and Competition.

Additionally, access to the wider current care pathways would remain the same, with the existing range of services level 1 and level 2a continuing to be delivered from the existing acute sites and with no change to the provision of community rehabilitation services.

Patient choice would be improved from a quality perspective as the transformed, intensive, multi-disciplinary approach to rehabilitation would allow a more efficient patient journey time through the NHS Rehabilitation Centre and provide an improved outcome for patients.

10.3 Test 3: A clear clinical evidence base

This test is to demonstrate sufficient clinical evidence and clarity on the case for change. The proposals in this PCBC are evidence-based and have been generated with significant clinical input.

The creation of a regional, integrated, rehabilitation service can be expected to provide improved clinical outcomes, allocative efficiencies and economies of scale in service provision. This was the case following the creation of major trauma networks which have increased traumatic injury survival rates by 19% since 2012. Investment in an improved and expanded regional, integrated rehabilitation service would also serve to complete the pathway to recovery for major trauma patients.

Overall, there is a substantial body of evidence that the NHS Rehabilitation Centre and services planned by the Clinical Reference Group and described in this PCBC will substantially improve outcomes for users of rehabilitation services in the East Midlands.

In addition to the detail outlined above, the Clinical Senate has reviewed the clinical model and evidence base. The conclusions outlined that it was clear to the panel that the NHS Rehabilitation Centre represents a tremendous opportunity and asset for the region which has the potential to address a significant rehabilitation gap.

10.4 Test 4: Support for proposals from clinical commissioners

This test is to provide assurance that the proposals have the approval of local commissioners.

East Midlands rehabilitation services are commissioned by CCGs across the East Midlands and also by NHSE specialised commissioning. Based upon the model, 33 beds will be filled by patients who start their journey at NUH through the acute regional service. The demand and capacity modelling shows the forecast breakdown of activity to be commissioned when the wider access to rehabilitation services is made available through the NHS Rehabilitation Centre . .

The PCBC has been prepared for Nottingham and Nottinghamshire CCGs in their role as main commissioners on behalf of the other regional CCGs who commission services on behalf of 4.6 million people in Nottinghamshire, Derbyshire, Lincolnshire, Leicestershire and Rutland.

The commissioners have been involved in the process to inform the impact of the proposal, in particular in relation to assessing demand, capacity and local need alongside the opportunities to transform rehabilitation services and create a new NHS Rehabilitation Centre . Representatives from the Nottinghamshire CCGs and NHSE Specialised Commissioning sit on the Clinical Reference Group and Programme Board so have had the opportunity to help shape the new service proposed in this PCBC. As the programme develops through the next phases, more detailed consultation will take place.

11. Decision-Making and Next Steps

The CCGs and the Programme Team will proceed in accordance with the decision to consult. After the consultation closes, the responses received from members of the public, patients, staff and organisations will be analysed and this process will be supported by a formal Findings Consideration Panel composed of Governing Body members. The purpose of the Findings Consideration Panel is to ensure that feedback is effectively analysed and outputs are used to inform the Decision Making Business Case.

The outcomes of the consultation will also be presented to the Local Authority Health Scrutiny Committees to confirm that the outcomes of the consultation have been considered as part of the decision making process. As such, the proposal as outlined in the Decision Making Business Case will also be presented to the Local Authority Health Scrutiny Committees.

It will be essential that the Decision Making Business Case takes into consideration the increased level of detail and elements for clarification from the Nottingham and Nottinghamshire CCGs' Governing Body that are outstanding. As such, a Governing Body working group is being established and this will align with the Findings Consideration Panel. It is recognised that the case is not 'significant' for Lincolnshire, Leicestershire and Derbyshire as per the PCBC however, it will be necessary to consider whether this remains the case with the development of the Decision Making Business Case and for due process to be followed accordingly. The aim will be to manage any requirements within the same timescales as outlined below.

On approval of the Decision Making Business Case, NUH will proceed in developing its Strategic Outline Case and subsequently Outline Business Case and Full Business Case. These will be approved by the NUH Board and timescales are outlined below.

The high level implementation plan is as follows:

Table 11.1: Implementation Plan

Programme Activity	Dates	Comments
PCBC	Development: June to Nov 2019 NHSE Assurance: Nov 2019 to March 2020 CCG Governing Body Approval: Feb 2020	CCG Governing Body Approval received to the extent that relates to the opportunity to go out to consultation and gain relevant feedback on the proposal. The PCBC does not constitute formal approval of the business case for the proposal itself which will take place through the Decision Making Business Case.
Consultation	Engagement: April to Oct 2019	Will include consultation with staff as well as patients and

	Health Scrutiny Committees: Sept 2019 to Feb 2020 NHSE Assurance: Nov 2019 to March 2020 CCG Governing Body Approval: Feb 2020 Formal Consultation: April to May 2020 Analysis and Reporting: May Consideration: May and June with Findings Consideration Panels x 2 in June.	the public. Consideration includes formal "Findings Consideration Panels". The panel will first consider the feedback and how it impacts on the case with a second panel reviewing how these have been considered as part of the Decision Making Business Case.
Decision Making Business Case (DMBC)	Development: March to June 2020 Health Scrutiny Committees: June 2020 CCG Governing Body Approval: July 2020 NHSE Assurance: To be confirmed	The timescales for completion of the DMBC may have to be extended depending on the level and type of feedback that is received through the consultation. The PCBC has provided a framework for which additional information is required to support the DMBC.
NRC Partnership	Academic Selection Panel: Feb 2020 Academic Partners Announced: March 2020 Capital Strategy Approved: May 2020 Partnership work to OBC Submission: Oct 2020	Capital Strategy to develop the Education & Research elements of the build.
Strategic Outline Case (SOC)	Development: Sept 2019 to July 2020 NUH Board Approval: July 2020	Scoping the scheme The SOC will be reviewed and commented on through the Clinical Reference Group.
Outline Business Case (OBC)	Development: April 2020 to Jan 2021 NUH Board Approval: Jan 2021	Planning the scheme Development will include engaging with stakeholders
Full Business Case (FBC)	Development: Oct to Nov 2021 NUH Board Approval: Nov 2021	Procuring the solution
Building and Site Design	August 2020 to August 2022	RIBA stage 1 to 4 with stage 4 being technical design
Procurement	Sept 2019 to Oct 2023	Includes capital works delivery strategy, appointing professional services team and principle supply chain partner and procurement of equipment and FF&E

		Procurement will be run in line with the agreed commercial strategy, using frameworks where possible including P22 for the constructors.
Construction	Sept 2020 to Oct 2023	RIBA stage 5. Includes creating site access, contracts and contractor mobilisation and construction. Construction may include small enabling works completed ahead of the main build.
Building Operation and Facilities Management	Jan 2020 to Feb 2024	Includes development and implementation of the operational delivery strategy and preparations
Opening of National Rehabilitation Centre	Feb 2024	

Glossary

Term	Description/Definition
AHPs	Allied health professionals
Backlog maintenance	Essential maintenance work that has not been carried out and is deemed necessary to bring the condition of a maintainable asset up to a standard or acceptable level of risk that will enable the required service delivery functions of the asset
BAU	Business as usual
BCT	Better Care Together
BSRM	British Society of Rehabilitation Medicine
CAREN	Computer Aided Rehabilitation Environment
CCG	Clinical Commissioning Group
CIA	Comprehensive Investment Appraisal
CQC	Care Quality Commissi–n – the independent regulator of health and social care in England
CSF	Critical Success Factor
CSS	Commissioning Support Service
CVD	Cardiovascular Disease
DHSC	Department of Health and Social Care
DMBC	Decision Making Business Case
DMRC	Defence Medical Rehabilitation Centre
DNRC	Defence National Rehabilitation Centre
DTOC	Delayed transfers of care
DWP	Department for Work and Pensions
EBITDA	Earnings before interest, tax, depreciation and amortization
EIA	Equality Impact Assessment
EMAS	East Midlands Ambulance Service
EMMTN	East Midlands Major Trauma Network
FBC	Full Business Case as defined by NHS Improvement Capital Regime Guidance
FEP	Financial Efficiency Programme
FM	Facilities Management
GFA	Gross Floor Area
GIRFT	Getting it Right First Time
GP	General Practice doctor
HDU	High Dependency Unit
I&E	Income and expenditure
ICS	Integrated Commissioning System
ICU	Intensive Care Unit
IM&T	Information management and technology
IMD	Index of Multiple Deprivation
JSNA	Joint Strategic Needs Assessment
JUCD	Joined Up Care Derbyshire
JWHU	Joint Work and Health Unit
LLR	Leicester, Leicestershire and Rutland

LOS	Length of Stay
LSOA	Lower Super Output Area
LTP	Long Term Plan
MGE	Midlands Growth Engine
MRI	Magnetic Resonance Imaging
MSK	Musculoskeletal
MTC	Major Trauma Centre
MTN	Major Trauma Network
NCASRI	National Clinical Audit of Specialised Rehabilitation following Major Injury
NHS	National Health Service
NHSE	NHS England
NHFT	Nottinghamshire Healthcare NHS Foundation Trust
NHSI	NHS Improvement
NICE	National Institute for Health and Care Excellence
NIHR	National Institute for Health Research
NPV	Net Present Value
NRC	National Rehabilitation Centre
NSCEM	National Centre for Sport and Exercise Medicine
NUH	Nottingham University Hospitals NHS Trust
OBC	Outline Business Case, as defined by NHS Improvement Capital Regime Guidance
OSC	Overview and Scrutiny Committee
PALS	Patient Advice and Liaison Service
PANSI	Projecting Adult Needs and Service Information system
Payback period	The length of time required for an investment to recover its initial outlay and begin to generate a financial benefit
PCBC	Pre-Consultation Business Case
PDC	Public dividend capital
PFI	Private Finance Initiative, which is a way of creati“g "public–private partnersh”ps" (PPPs) where private firms are contracted to complete and manage public projects.
POPPI	Projecting Older People Population Information System
PPI	Patient and public involvement
PSED	Public Sector Equality Duty
PUBSEC	The Tender Price Index of Public Sector Building Non Housing (PUBSEC) measures the movement of prices in tenders for building contracts in the public sector in Great Britain
QALY	Quality Adjusted Life Year
QMC	Queen’s Medical Centre
RM	Rehabilitation Medicine
SFHT	Sherwood Forest Hospitals NHS Foundation Trust
SHRE	Stanford Hall Rehabilitation Estates
SOC	Strategic Outline Business Case, as defined by NHS Improvement Capital Regime Guidance
SRO	Senior Responsible Officer

STP	Sustainability and Transformation Partnership
SWOT	Strengths, Weaknesses, Opportunities and Threats
TARN	Trauma Audit and Research network
T&O	Trauma and Orthopaedic
TBI	Traumatic brain injury
TIA	Travel Impact Assessment
Trust	Means Nottinghamshire University Hospitals NHS Trust
UHDB	University Hospitals of Derby and Burton NHS Foundation Trust
UHL	University Hospitals of Leicester NHS Trust
UKROC	United Kingdom Rehabilitation Outcomes Collaborative
ULH	United Lincolnshire Hospitals NHS Trust
VAT	Value added tax
VFM	Value for money