

Risk Register - South Wales Thoracic Surgery Services Centre at Morriston Hospital

Date of Update - March 2021

Project Element	Ref	Risk	Impact	Initial Risk Score			Action Plan	Action Lead	Date added	Current Risk Score			Current Position	Target Date to be achieved	Change in Rating from previous month	Status
				Consequence	Likelihood	Rating				Consequence	Likelihood	Rating				
Implementation Board	IB1	securing patient representative for Board	to ensure patient views are included within discussions for the programme and development of service model	4	4	16	Contact Hywel Dda and Aneurin Bevan Engagement Leads to identify a patient representative.	Asst. Director of Strategy & Partnerships SBUHB	15.02.19	2	2	4	Due to the large geographical areas securing a patient representative would not be feasible. As part of the programme alternative patient engagement has been carried out to ensure patient / family feedback is taken on board in the new service model.			closed
Implementation Board	IB2	No Clinical Lead(s) with agreed role(s)	To ensure clinical leadership across the programme	5	3	15	Medical Director of SBUHB working with Medical Director of C&VUHB to agree role / funding	Medical Director, SBUHB	15.02.19	2	2	4	Malgorzata Kornaszewska has been appointed as clinical lead			closed
Implementation Board	IB3	Development and agreement of the consultant thoracic workforce proposal to support MTC agreed by all health boards.	Additional thoracic surgeons are required to meet the requirements for involvement in MTC cases	5	4	20	Discussions undertaken with WHSSC and external Expert Review scrutiny completed. Revised proposal submitted as part of MTC Programme Business Case and interim arrangement agreed.	Asst. Director of Strategy & Partnerships SBUHB & Director of Planning, WHSSC	15.02.19	4	2	8	Considered at WHSSC Joint committee and included in MTN programme business case for consideration by Health Boards in November 2019. WHSSC funding confirmed. Residual risk relates to likelihood of appointing to agreed additional post.			closed
Implementation Board	IB4	Thoracic Surgery is not part of the All Wales Capital Programme	Potential delay in development of new unit - refurbishment or new build	5	4	20	WHSSC Director of Planning to attend SBUHB Capital Investment meeting with Welsh Government to discuss requirements	SRO	15.02.19	5	4	20	28.02.20 key members attended WG scoping meeting and preparation of SOC submission	Feb-20		closed
Implementation Board	IB5	Go live date for thoracic centre not set	Lose momentum, hearts and minds of all involved if go live date not agreed	5	4	20	PID and Implementation Plan being finalised which should give an indication of go live date. Caveated that if a new build is required this is likely to be the longest time component .	SRO	16.08.19	4	3	12	Documentation has been agreed by IB members and maintained through the course of the programme. Indicative "go live" date of 2024 based on new build / refurbishment timeline.	Jul-24		open
Implementation Board	IB6	Failure to appoint to the additional thoracic consultant posts	Inability to deliver additional service requirements of MTC	5	3	15	C&V currently recruiting to 3rd thoracic surgeon post, if there is more than one suitable candidates , clarity sought if they could appoint to the locum post. KP advised funding has been requested via Management Board for critical time appointments. Agreed.	Director of Planning, WHSSC	16.08.19	4	3	12	Fourth thoracic surgeon had a start date 01.09.20 based in Cardiff to support the MTC going forward.	Aug-20		closed
Implementation Board	IB7	Failure to secure funding for Project Manager to support implementation of Thoracic service model	Inability to deliver required planning for implementation of new service model	5	4	20	Inclusion of requirement into WHSSC plans for 2019 onwards	SRO / Director of Planning WHSSC	16.8.19	4	3	12	Funding secured from WHSSC for one year from July 21	Mar-21		closed
Implementation Board	IB8	Failure to appoint Project Manager	Failure to appoint Project Manager to support implementation of Thoracic service model leads to delays in programme	5	4	20	Appointment to be progressed urgently once funding secured	Asst. Director of Strategy & Partnerships SBUHB	16.8.19	4	3	12	Appointment made to role.	Mar-21		Closed
Implementation Board	IB9	Lack of Patient engagement	Lack of engagement from patients across Health Boards to influence service model	4	4	16	Information packs distributed to clinical nurse specialists across all HBs for distribution to patients	Asst. Director of Strategy & Partnerships SBUHB	16.08.19	3	2	6	Engagement session complete, findings presented to the 3rd Clinical Summit on 15.11.19, report issued to all stakeholders. Patient feedback has been incorporated within the service model.	13.12.19		closed
Implementation Board	IB10	Access to support services	Capacity to deliver requirements in the service model	4	3	12	HBs to map out their ability to deliver service model and identify any gaps	HBs	27.09.19	4	3	12	Following initial meetings with all HBs/WAST. This was stood down due to responding to Covid-19. We are due to commence these meetings and have already met with HDUHB.	Oct-21		open

Implementation Board	IB11	Screening Services	Impact of additional clinical workload identified when screening service is introduced which will not be incorporated into scoping of new service.	4	4	16	The NHS Wales Health Collaborative are leading on lung cancer screening and a steering group is being established led by Simon Eccles to take forward the LHCs (lung health checks) delivery model for targetting screening of lung cancer. It is envisaged that the development of an operational pilot. Reps from SBU planning team to be involved and clinical lead in steering group. JAD requested that luke, WHSSC is involved.	Improvement Lead, NHS Wales Health Collaborative	27.09.19	3	3	9	Once implementation timeframe is known, service implications arising from screening will need to be scoped and costed as part of implementation of this service. Business Case will be developed to reflect possible additional resultant activity which will need to be funded separately.	Sep-21		open
Implementation Board	IB12	Cost of Services	Potential for service not to meet cost neutrality intentions due to changing requirements and revised expectations in the service specification	4	5	20	Meeting in December to review Service Specification in line with new requirements which will clarify resources	Director of Planning, WHSSC	03.10.19	3	3	9	Agreement that activity for benign conditions will be added to the baseline activity / cost of the service. Business Case will fully reflect cost of services.	Mar-20		closed
Implementation Board	IB13	Planning restrictions on Morriston site	Planning risk - Local Development Plan (LDP) states that future developments on the Morriston Hospital site need to demonstrate the new access road is in place/in train; Also, Section 278 road works are required at the rear entrance to the site.	5	4	20	Health Board is maintaining regular liaison with Local Planners; Engage Planning Advisor.	SRO	14.09.20	5	4	20		Sep-20		open
Implementation Board	IB14		Single thoracic centre for south wales will not be able to afford a complete shut down of thoracic services due to covid at present 2 centres can provide													
Benign Conditions T&F Group	BC1	Data accuracy	Accuracy of data of numbers as data not being retrieved from same data source at individual health board levels leading to no activity assumptions being included for benign conditions.	4	4	16	Current benchmarking of English providers with similar demographics to benchmark against	Chair, T&F Benign Conditions	28.06.19	4	3	12	A piece of work has been undertaken by the benign conditions group and included within the assumptions.	Mar-20		closed
Benign Conditions T&F Group	BC2	Variation of practice for interventional work across SB & C&V	variation in interventional procedures undertaken by thoracic surgeons in C&V and respiratory physicians in SB requiring change in practice in order	5	4	20	WTS lead requested data to be collated by all HBs, this was pushed back by all physicians did not feel this was a feasible way of evidencing unmet need.	Clinical Lead	16.08.19	4	4	16	VV will lead & seek information across HBs to understand the demands on unmet need to enable assumptions to be made for the unmet need activity to be discussed with T&F/Implementation Board and WHSSC.	Mar-20		open
Service Model T&F Group	SM1	Prehabilitation Framework being developed	Concerns that individual health boards will not be able to deliver the framework in their areas within current resource envelope	5	4	20	Incorporate requirements into service model so that HBs can plan for requirements and understand resource implications over coming 4+ years.	Asst. Director of Strategy & Partnerships & HBs	26.07.19	4	3	12	Jan 20 agreed in principle and subject to sign off at September's Implementation Board.	Jan-20		closed
Service Model T&F Group	SM2	Radiology PAC systems require health board wide system changes	images will not be available to be reviewed across all health boards. Project currently in place to amalgamate PAC, programme led by Dr Ballan Palaniappan. This will not only impact the thoracic service but also Trauma Network information systems	5	4	20	Clinical lead to discuss with PACS programme lead to understand implications. Clinical lead will feedback to the Implementation Board.	Clinical Lead	26.07.19	5	4	20	MK/IG felt this should be taken forward at service level and will make contact with respective Radiology leads and for feedback to this group be provided.	13.12.19		open
Service Model T&F Group	SM3	Information systems do not align such as WCP, pathology, LIMS	Lack of integration of systems means that information on patients may not be accessible for the new service across HBs	5	4	20	Issues need to be identified to clinical lead who will report to the Implementation Board	Clinical Lead	26.07.19	4	4	16	Informatics lead to be recruited to sit on T&F/Implementation Board as key link between service model/IT system requirements. Contacted Matt John for rep.	Mar-20		open

Service Model T&F Group	SM4	WCN set target of 25% by 2025 for 5 year survival rates	to be able to achieve this our resection rates will need to increase by 30% (600 cases)	5	4	20	Meeting in December to review Service Specification in line with new requirements which will clarify resources	Director of Planning, WHSSC	16.08.19	3	2	6	Service Model puts in place all required components to enable resection rates to increase, learning from best in class across UK and beyond.			closed
Service Model T&F Group	SM5	Lack of transportation arrangements	Lackc of confirmed arrangements for transport (including funding arrangements for any reliance on NEPTS transportation)	5	4	20	ongonig dialogue and , when appropriate , discussions through NEPTS DAG and EASC.									
Workforce Planning	RS1	No HR representative from SB & C&V	Representation required to ensure that HR implications of new service model can be achieved and that workforce issues can be addressed in the run up to the new service	5	4	20	Representation escalated	SRO	16.08.19	3	2	6	Representation from both HBs confirmed.			closed
Workforce Planning	RS2	staff will/may not have the right level of competency/skills training for go live date.	staff will be exposed to new procedures or patients repatriated back to local hospital who they would not have previously cared for	5	4	20	Recruitment and skills framework will need to identify how these requirements can be achieved	Jo Wood & J Pritchard HR Leads SBU/C&V	16.08.19	5	4	16		28.02.20		open
Workforce Planning	RS3	Current staff not transferring to new service	The new combined service will be unable to fully operate because the small number of suitable qualified clinicians have been depleted.	5	4	20	Recruitment &Skills T&F group will need to scope the workforce requirements and transfers	Jo Wood & J Pritchard HR Leads SBU/C&V	13.09.19	4	3	12	Commitment made by C&V and SB UHBs to work together over implementation period to become more closely aligned. Plan for transfers and continued involvement of C&V staff in planning the new service / centre will be critical.	2024		open
Workforce Planning	RS4	unable to recruit new staff	already a shortfall in staffing levels which will need to be addressed alongside any requirements for additional / different staff	4	3	12	currently mapping out staffing requirements against the proposed service detailed in the service specification.	Jo Wood & J Pritchard HR Leads SBU/C&V	13.09.19	4	3	12	Dicusion held at T&F group agreed not to ake submission for 2020/21	28.2.20		closed

Rag Status

Risk Matrix	LIKELIHOOD				
CONSEQUENCES	1 Rare	2 Unlikely	3 Possible	4 Probable	5 Expected
1 Negligible	1	2	3	4	5
2 Minor	2	4	6	8	10
3 Moderate	3	6	9	12	15
4 Major	4	8	12	16	20
5 Critical	5	10	15	20	25

KEY - Reference:	
IB - Implementation Board	
SM - Service Modelling T&F Group	
BC - Benign Conditions T&F Group	
RS - Recruitment & Skills T&F Group	

Key - Leads	
SRO - Senior Responsible Officer - Siân Harrop-Griffiths	
Asst. Director of Planning & Partnerships - Joanne Abbott-Davies,	
Director of Planning, WHSSC - Karen Preece	
Clinical Lead - Malgorzata Kornaszewska	
Medical Director - Richard Evans , SBUHB	
Chair T&F Recruitment &Skills - Tracy Walmsley, Senior Workforce Development Manager, HDUHB	
improvement Lead, NHS Collaborative Wales - Dana Knoyle	
Chair T&F Benign Conditions - Vasileios Valtzoglou, Consultant Thoracic Surgeon, CVUHB	
HBs	SBUHB
	CVUHB
	CTMUHB
	ABUHB
	PTHB
HDUHB	

1 - 4 LOW	This level of risk is considered acceptable and no additional action is required over and above existing management measures.
5 - 8 ACCEPTABLE	This level of risk is marginally acceptable and efforts should be made to reduce the risk although the costs of reduction must be carefully considered. Risk reduction actions should be completed within 12 months. Managed by the Project Lead and escalated, as appropriate, to the Programme Manager.
9 - 15 Amber Significant	This level of risk should be completed within 6 months and will be managed by the Programme Manager and escalated, as appropriate, to the Strategic Change Board.
16 - 25 High	This level of risk should be completed within 1 month and must be routinely reported by the Programme Manager to the Strategic Change Board and reported to the Health Boards' Board within the Corporate Risk Register and within reports from the Strategic Change Board to the Board.



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Pwyllgor Gwasanaethau Iechyd
Arbenigol Cymru (PGIAC)
Welsh Health Specialised
Services Committee (WHSSC)

Specialised Services Service Specification: CP144

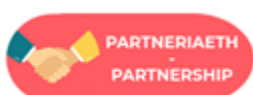
Adult Thoracic Surgery

September 2020

Version 2.0



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RESPECT



PARTNERIAETH
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PARTNERSHIP



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IMPROVEMENT
& INNOVATION

Document information	
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Statement

Welsh Health Specialised Services Committee (WHSSC) will commission the service of thoracic surgery in accordance with the criteria outlined in this specification.

In creating this document WHSSC has reviewed the requirements and standards of care that are expected to deliver this service.

Disclaimer

WHSSC assumes that healthcare professionals will use their clinical judgment, knowledge and expertise when deciding whether it is appropriate to apply this document.

This document may not be clinically appropriate for use in all situations and does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

WHSSC disclaims any responsibility for damages arising out of the use or non-use of this document.

1. Introduction

This document has been developed as the Service Specification for the planning and delivery of thoracic surgery for people resident in Wales. This service will only be commissioned by the Welsh Specialised Services Committee (WHSSC) and applies to residents of all seven Health Boards in Wales.

1.1 Background

Thoracic surgery involves operations for conditions affecting the chest, including the lungs, mediastinum, pleura, diaphragm, the sympathetic nervous system, in some cases the pericardium and chest wall. It excludes conditions affecting the heart and great blood vessels (which are the remit of cardiac surgery) and the oesophagus (which are the remit of the upper GI surgeons).

The largest single disease requiring management by thoracic surgery is primary lung cancer. The remaining conditions include other types of thoracic malignancies, pneumothorax (collapsed lung), various forms of thoracic sepsis and a variety of other conditions which fall outside the remit of other surgical specialties.

The following procedures should be part of the clinical and surgical provision from a thoracic surgical team:

- Resection, repair, reconstruction and diagnosis of the lung for benign or malignant disease or injury (includes primary and metastatic lung cancer).
- Procedures to manage diseases of the pleura and pleural space problems, including management of primary (mesothelioma) or secondary pleural neoplasms, pleural effusion, pneumothorax and thoracic empyema.
- Operations for chest wall and pleural space pathologies, including diagnosis, resection and reconstruction for neoplasms, infections or necrosis, repair of chest wall deformities (pectus deformities), as well as the management of traumatic chest wall disorders with or without instability.
- Surgical procedures of the mediastinum, including biopsy of mediastinal lymph nodes and resection of neoplasms and cysts, drainage of infections, mediastinal lymphadenectomy, mediastinotomy, mediastinoscopy and other video-assisted or open mediastinal approaches.
- Resection, reconstruction and drainage of the pericardium.
- Diagnostic and therapeutic endoscopic procedures using both the flexible and rigid scopes and instrumentation of the tracheobronchial tree and assisted by image guided means.

- Surgery of the thoracic sympathetic nerves.
- Surgical procedures of the diaphragm.
- Operations to provide thoracic exposure for interventions to be performed by allied specialists (i.e. cardiovascular, neurosurgeons, orthopaedics, invasive radiologists, general surgery.).
- Functional interventional procedures to manage emphysema.
- Surgery for traumatic injuries of the chest or organs within the chest.
- Operations to the thyroid gland in case of intrathoracic lesion (retrosternal goitre or cancer) as joint cases with ENT.
- Providing thoracic tissue samples for diagnosis by surgical means within the frame of inter-specialty commitments whenever less aggressive methods failed.
- Management of the surgical and non-surgical complications of the procedures listed above.
- Minimally invasive approaches (Video Assisted Thoracoscopic Surgery [VATS]/Robotic Surgery¹) to the mediastinum, lung and chest wall.
- Ability for postoperative care and management of complications consequent to the above-mentioned surgical procedures.

The thoracic surgical team should have the ability to discuss indications, contraindications operability/resectability and prognosis of the above-mentioned surgical procedures within multidisciplinary teams. These MDT teams include:

- Lung cancer MDT
- Mesothelioma MDT
- Interstitial Lung Disease MDT
- Emphysema/COPD MDT
- Colorectal MDT
- Sarcoma MDT
- Complex cases MDT

1.2 Epidemiology

The largest single disease requiring management by thoracic surgery is primary lung cancer. There are two types of lung cancer: Non-Small Cell Lung Cancer (NSCLC), which accounts for approximately 85% of lung cancers, and Small Cell Lung Cancer (SCLC) which accounts for approximately 15%².

¹ At the present time, Health Technology Wales' guidance with regard to robot assisted thoracic surgery is that there is currently insufficient evidence to support routine adoption. It is therefore not currently commissioned by WHSSC. This position will be reviewed as the evidence base develops and further guidance is published.

² Macmillan Cancer UK

There are three common sub-types of NSCLC:

- squamous cell carcinoma
- large cell carcinoma
- adenocarcinoma.

Lung cancer is the third most common cancer in Wales by number of newly diagnosed cases per annum. While incidence in men is decreasing, it is increasing in women. Overall incidence of lung cancer is decreasing.²

Lung cancer has the widest absolute inequalities in incidence of any cancer in Wales. The most deprived fifth of the population has more than two and a half times the incidence in the least deprived. The highest overall incidence rate has been in Cwm Taf Morgannwg UHB which is two-thirds higher than the lowest in Powys. Geographical differences in lung cancer across Wales are primarily due to historic trends in smoking and exposure to tobacco smoke, especially in areas of deprivation.³

Outcomes

Primary lung cancer related to tobacco is the commonest cause of cancer death in Wales. Lung cancer has the highest absolute number of deaths and highest mortality rate of any cancer in Wales. Lung cancer mortality rates are also highly unequal across socio-economic groups: mortality rates in the most deprived fifth are nearly 3 times greater than in the least deprived. Surgery is known to provide the best chance of survival.

However, patients often present with advanced disease making surgery less likely to be suitable or successful. During 2012-2016 in Wales, nearly half of the diagnosed lung cancers were diagnosed at stage 4. It is therefore essential that cases are detected early in order to provide the best prognosis².

Although survival has been improving, Wales has poor survival rates for lung cancer when compared with other parts of the UK and many European countries.

Treatment Rates

While the lung cancer resection rate in Wales is equivalent to average UK rates, the annual National Lung Cancer Audit has shown that there is wide variation in surgical resection rates across the UK. Rates in Wales are lower than in the best performing areas of the UK and in comparison with the best performing European countries. The resection rate in Wales will need to increase further in order to improve lung cancer survival in Wales.

³ <http://www.wcisuwales.nhs.uk/cancer-incidence-in-wales>

Non-malignant disease

South Wales has a legacy of heavy industry and coal mining both of which contribute significantly to lung disease. In addition to the treatment of lung cancer, there are many other conditions which require thoracic surgery. These include other types of thoracic malignancies, pneumothorax, various forms of thoracic sepsis and a large group of other conditions of the chest.

It is recognised that there is unmet need in Wales for thoracic surgery to treat non-malignant conditions. The need to prioritise capacity for lung cancer has meant that patients with other conditions are often managed medically when they might benefit from a surgical procedure to treat their condition.

1.3 Aims and Objectives

The aim of this service specification is to define the requirements and standard of care essential for delivering thoracic surgery for people with diseases of the chest.

The objectives of this service specification are to:

- details the specifications required to deliver thoracic surgery services for people who are residents in Wales
- ensure minimum standards of care are met for the use of thoracic surgery
- ensure equitable access to thoracic surgery
- identify centres that are able to provide thoracic surgery for Welsh patients
- improve outcomes for people accessing thoracic surgery services.

1.4 Relationship with other documents

This document should be read in conjunction with the following documents:

- **NHS Wales**
 - All Wales Policy: [Making Decisions in Individual Patient Funding requests](#) (IPFR).
- **WHSSC policies and service specifications**
 - WHSSC Commissioning policy: [Positron Emission Tomography \(PET\)](#), CP50a (2019).
 - WHSSC Commissioning policy: [Stereotactic Ablative Body Radiotherapy \(SABR\) for the Management of Surgically Inoperable Non-Small Cell Lung Cancer in Adults](#), CP76, (2014).

- **National Institute of Health and Care Excellence (NICE) guidance**
 - [Improving Supportive and Palliative Care for adults with cancer](#), NICE Cancer Service Guidance (CGG4) March 2004
 - [Lung Cancer: Diagnosis and management](#), NICE Guideline (NG122), March 2019
 - [Suspected Cancer: Recognition and referral](#), NICE Guideline (NG12) July 2017
 - [End of Life Care for Adults: service delivery](#), NICE Guideline (NG142), October 2019
 - [Lung Cancer in Adults](#), NICE Quality Standard (QS17), December 2019
 - [End of life care for adults](#), NICE Quality Standard (QS13) March 2017
- **Relevant NHS England policies**
 - [Thoracic Surgery – Adults](#), NHS England Service Specification (170016/S), July 2017

2. Service Delivery

The Welsh Health Specialised Services Committee will commission the service of thoracic surgery for adults in Wales with conditions affecting the chest in-line with the quality standards identified in this specification.

2.1 Service description

In addition to the standards required within the Contract, specific quality standards and measures will be expected. The provider must also meet the standards as set out below.

Facilities and equipment

- The thoracic surgery service will have the following designated resources:
 - Dedicated thoracic surgery ward beds
 - Dedicated thoracic surgery theatre/s
 - Dedicated thoracic surgery recovery beds, HDU (level 2) and access to ITU (level 3).
- Patients will be assessed for their suitability for thoracic surgery, and will receive pre-operative/pre-admission assessment and post-operative follow up, in dedicated thoracic surgery clinics.
- Where possible this should be arranged in outreach clinics in the hospitals served by the regional thoracic unit for the convenience of patients and to ensure full access to the thoracic surgical service.
- Dedicated thoracic theatre sessions with at least one whole-day list per week per surgeon. Anything less than this would mean that it would be impossible for surgeons to provide sufficient level of activity for their employing Health Board/Trust to be assured of their competencies.

Specialist Team

The thoracic surgery service will consist of the following specialist team:

- Consultant-led care by general thoracic surgeons.
- Cardiothoracic Surgical trainees (ST1-3); thoracic sub-specialised surgical trainees (ST4-8) with on on-call cover from cardiac sub-specialised trainees (ST4-8).⁴
- Non training middle grade doctors and advanced care practitioners (surgical assistants).
- Consultant anaesthetists with specialist thoracic expertise.

⁴ Cardiothoracic Surgery Workforce Report 2019, Society for Cardiothoracic Surgery in Great Britain and Ireland.

- Theatre staff with thoracic expertise.
- Specialist ward and HDU nurses with thoracic expertise.
- Thoracic nurse specialist support in all areas.
- Lung cancer nurse specialist support in thoracic surgical clinics and wards.
- Specialised thoracic physiotherapy, occupational therapy, dietetics, speech and language therapy and psychology (including out of hours and at weekends as necessary).
- Specialist support in post-operative pain control.
- Access to specialist palliative care.
- A designated team of pathologists with specialist thoracic expertise including the ability to interpret molecular markers for precision medicine.
- Designated administrative staff to ensure all clinical staff are supported in the timely delivery and monitoring of the service.
- Case managers.
- Respiratory care team with specialist interventionalist expertise.
- A designated team of radiologists with specialist thoracic expertise.
- Pharmacy support.

Organisation

- Thoracic Surgery should be identified as a separate service line within the hospital's directorate management structure.

Lung Cancer Multi-Disciplinary Team Meetings

- Thoracic surgeons are core members of the Lung Cancer MDT. All patients referred to thoracic surgery for further assessment of suitability for surgical resection of lung cancer must be referred through the Lung Cancer MDT.
- The thoracic surgery service will ensure that thoracic surgeons' job plans include sufficient allocation for Lung Cancer MDT meetings, including cross cover for annual leave, study leave or sickness. While surgeon attendance at the MDT in person is desirable, video conference linkage from the surgeon's base hospital is an acceptable alternative. The job plan of the surgeons include sufficient time for travel to and attendance at the lung cancer MDTs in their region.
- For those hospitals without on-site thoracic surgery it is essential that the populations they serve are not disadvantaged in any way. Those hospitals should have nominated surgeons working in the regional centres, such that thoracic surgical expertise can be accessed throughout the working week.

- MDTs should have in place access to the full range of radiology facilities and the technology to facilitate the electronic transfer of images between the referring hospital and the thoracic surgery centre.
- MDTs should have a clinical grade microscope with video camera for projecting histopathology images for discussion.

Other MDTs

Thoracic surgeons may also participate in a number of other MDTs, including:

- Mesothelioma MDT
- Interstitial Lung Disease MDT
- Emphysema/COPD MDT
- Colorectal MDT
- Sarcoma MDT⁵
- Complex cases MDT

Complex Cases MDT

- Complex patients should be discussed in a weekly complex cases MDT including as a minimum representation from thoracic surgery and anaesthetics. Wider membership may also include radiology, pathology and pre/rehabilitation.
- The complex cases MDT will provide multidisciplinary team opinion on surgical treatment.
- The complex cases MDT will provide a second opinion for patients with:
 - borderline resectability and acceptable fitness for surgery, and not initially accepted for surgery
 - a resectable lung cancer who are of borderline fitness and not initially accepted for surgery.

Prehabilitation and Enhanced Recovery

- Prehabilitation is a service which aims to ensure patients are fit for radical treatment. Patients with lung cancer should have the opportunity for referral to a prehabilitation programme within their local health board in line with the National Optimal Pathway for lung cancer in Wales.

⁵ See WHSSC service specification CP149 Soft Tissue Sarcoma.

- Patients with a resectable lung cancer who are not fit for surgery should be offered a prehabilitation programme prior to referral to thoracic surgery.⁶
- The principle of co-production is important to the successful delivery of prehabilitation. Patients should be supported to understand their responsibilities for self-care and how prehabilitation, and other services, will support them.
- There should be clear pathways established in the thoracic surgery units to provide an enhanced recovery programme. Enhanced recovery programmes are supported by a multi-disciplinary team including physiotherapy, occupational therapy, dietetics and nursing staff.
- Enhanced recovery pathways enable patients to recover at a faster pace from major surgery and should be adopted by the thoracic surgery centre.
- Each patient should have their multi-professional rehabilitation needs considered before, during and after treatment. These include nutrition, physical and emotional needs. Referral to local Allied Health Professionals (AHP) services should be made in a timely manner in order to meet these needs. This complies with the National Rehabilitation Standards for Wales.

Emergency provision

- The surgeons on the rota should be able to deal with the full range of thoracic emergencies.
- A dedicated, properly equipped and suitably staffed emergency theatre. The theatre staff, including anaesthetist and their OPDs, should have the necessary training and experience in thoracic surgery as a mandatory requirement.
- Non trauma thoracic emergencies and out of hours service
 - The service will provide 24/7 emergency cover by general thoracic surgical consultants (with or without mixed-practice cardiothoracic surgical colleagues). This may be delivered with support from surgical trainees, non-training middle grade doctors and appropriately trained advanced care practitioners.
 - Cross cover of rotas from consultants with a purely cardiac practice or from consultants from other specialities is unacceptable.

⁶ While this is particularly for patients who are of borderline fitness for surgery, there is also evidence that some patients who are not of borderline fitness may become eligible for surgery following a prehabilitation programme (citation required). Criteria for access to prehabilitation programmes are the remit of health boards as the responsible commissioners and providers of this service.

- The service will ensure that there is 24/7 cover of thoracic surgical inpatients.
- A sustainable on call rota should not be more frequent than 1 in 4.
- The service will ensure there is 24/7 physiotherapy cover to support any inpatient respiratory emergencies.
- Trauma (inc. major trauma) thoracic emergencies:
 - The thoracic surgery service will provide advice and support to trauma and major trauma services in accordance with locally agreed protocols.
 - This support will be in alignment with the expectations and guidance set out in the Society for Cardiothoracic Surgery position statement on trauma⁷.

Education, training and research

- Providers of thoracic surgery should be linked to a University.
- Providers are expected to offer programmes for ongoing education and development for all professionals involved in the service.
- Patients should be given the opportunity to enter approved clinical trials for which they fulfil the entry criteria.
- There should be an ongoing programme for research activity in line with European Guidelines⁸ for a clinical research programme within a general thoracic surgery unit.

Referral Links for patient support

- There should be close links with support services such as social workers, psychiatrists, chaplain, bereavement support and the primary health care team.

Patient Information

- Patients should be provided with information about their condition, about thoracic surgery and treatment process, so they are informed on what to expect from the service.
- Patients should be provided with contact details (including named person/s to contact) should they need to communicate with the service.

⁷ Provision of Cardiothoracic Surgery Cover for Trauma in United Kingdom and Ireland. Society for Cardiothoracic Surgery in Great Britain and Ireland (2020).

⁸ Alessandro Brunelli, Pierre Emmanuel Falcoz et al. European guidelines on structure and qualification of general thoracic surgery. European Journal of Cardio-Thoracic Surgery. 2014; 45(2014);779–786.

2.2 Interdependencies with other services or providers

The thoracic surgery service must have access to the following services. It is anticipated these services will be co-located with the thoracic surgery service:

- Respiratory medicine
- Haematological biochemical and microbiological laboratories
- Respiratory pathology laboratory
- Endoscopic examinations by bronchoscopy and oesophagoscopy (including endobronchial ultrasound and endoscopic ultrasound)
- Radiological investigation by plain X-ray, contrast studies, ultrasound needle biopsy, vascular imaging, computed tomography (including PET CT) and other specialist diagnostics.
- Support from the full range of specialist thoracic pathology services
- Support from all other hospital services especially interventional radiology and pulmonary rehabilitation.
- Dedicated dietetics, physiotherapy, occupational therapy, speech and language therapy, and pain management to deliver multimodal pre/rehabilitation.
- Pharmacy
- Cardiac surgery:
 - Cardiothoracic trainees: Trainees are shared with cardiac surgery up to ST3. From ST4 to ST8, trainees specialise in either thoracic or cardiac surgery (but are still required to cover emergencies in both disciplines). The thoracic surgery service will therefore require a close working relationship with cardiac surgery with regard to training. It is recognised that in the long run, training requirements and the relationship between the two specialties may change.
 - Anaesthetics and theatre nursing: it may be appropriate to share anaesthetics and nursing skills and expertise across thoracic and cardiac surgery to provide operational efficiencies and service resilience. It is recognised the extent to which thoracic and cardiac surgery services benefit from sharing staff with these skills will vary across providers.
- Intensive care: Occasionally thoracic surgery patients may require ITU while still under the care of the thoracic surgery service. This may be provided via cardiac or general ITU.
- In addition to these colocated services, a proportion of patients will require access to the Non Emergency Patient Transport service provided by Wales Ambulance Service Trust.

2.3 Acceptance Criteria

The proposed service outlined in this specification is for patients ordinarily resident in Wales, or otherwise the commissioning responsibility of the NHS in Wales. This excludes patients who whilst resident in Wales, are registered with a GP practice in England, but includes patients resident in England who are registered with a GP Practice in Wales.

2.4 Patient Pathway (Annex i)

Referral

- Patients usually access thoracic surgery as a tertiary service via referrals from respiratory physicians and other hospital consultants. A small proportion are referred to the service directly from primary care, or as emergencies via A & E departments especially following trauma.
- Referrals to thoracic surgery for patients with primary lung cancer are agreed by the lung cancer MDT. Referrals for other conditions may also be via the relevant MDT. Patients admitted under respiratory medicine with acute conditions requiring urgent treatment are referred urgently as inter-hospital transfers.

Out-patients and pre-admission assessment

- Out-patient appointments should be provided as locally as possible to the patient. Pre-admission assessment may take place at the thoracic surgery centre or locally if suitable arrangements can be put in place, and should include an anaesthetic review.

Discharge

- If, once any thoracic surgery related complications have been addressed, patients require on going hospital care, they should be repatriated to a local DGH hospital for further management.

Follow up

- Patients should be offered a specialist follow up appointment within 6 weeks of surgery (oncological patients should be re-discussed at MDT within 4 weeks post surgery) and regular specialist follow up thereafter, which may be delivered within a local setting and include a protocol led clinical nurse specialist follow up.
- A system of follow up appointments at outpatient and peripheral clinics should be in place.
- There should be rapid and comprehensive feedback to referral teams including the patients GP to ensure that as much follow up care as possible can be provided locally.

- Where a patient has ongoing rehabilitation needs, these should be met locally.
- There should be an agreed referral process back to the centre for patients requiring specialist advice or support. Urgent cases should be on an immediate basis. Failure to attend an appointment without explanation should be followed up.

Holistic Needs Assessment

- As recommended by NICE guidelines, patients with lung cancer should be offered a holistic needs assessment at each key stage of care that informs their care plan and the need for referral to specialist services. The holistic needs assessment is usually carried out by the clinical nurse specialist.

Palliative Care

- All services caring for patients with progressive life threatening disease have a responsibility to provide care with a palliative approach.
- All patients should have access to specialist palliative care services as described in the CSCG Minimum Standards for Specialist Palliative Care (NHS Wales 2005)⁹.

2.5 Service provider/Designated Centre

- University Hospital of Wales
Cardiff & Vale University Health Board
Heath Park
Cardiff
CF14 4XW
- Morriston Hospital
Swansea Bay University Health Board
Heol Maes Eglwys
Morriston
SA6 6NL
- Liverpool Heart and Chest Hospital NHS Foundation Trust
Thomas Drive
Liverpool
L14 3PE
- Royal Stoke University Hospital
University Hospitals of North Midlands NHS Trust
Newcastle Road

⁹http://www.wales.nhs.uk/sites3/Documents/322/National_Standards_for_Specialist_Palliative_Care_for_Cancer_2005_English.pdf

Stoke-on-Trent
Staffordshire
ST4 6QG

- Heart of England NHS Foundation Trust
Bordesley Green East
Birmingham
B9 5SS

2.6 Exceptions

If the patient does not meet the criteria for treatment as outlined in this policy, an Individual Patient Funding Request (IPFR) can be submitted for consideration in line with the All Wales Policy: Making Decisions on Individual Patient Funding Requests. The request will then be considered by the All Wales IPFR Panel.

If the patient wishes to be referred to a provider outside of the agreed pathway, and IPFR should be submitted.

Further information on making IPFR requests can be found at: [Welsh Health Specialised Services Committee \(WHSSC\) | Individual Patient Funding Requests](#)

3. Quality and Patient Safety

The provider must work to written quality standard and provide monitoring information to the lead commissioner. The quality management systems must be externally audited and accredited.

The centre must enable the patients, carers and advocates informed participation and to be able to demonstrate this. Provision should be made for patients with communication difficulties.

3.1 Quality Indicators (Standards)

- Thoracic surgery must be performed by qualified surgeons who have full GMC Registration with a licence to practice, and specialised in general thoracic surgery in accordance with National and European regulations.
- A surgeon practising in thoracic surgery must have extensive and updated knowledge of all aspects of pathophysiology, epidemiology, diagnosis, perioperative, intraoperative and postoperative care of patients with surgical disease of the chest.

Minimum volumes

- The thoracic surgery unit should undertake a minimum of 150 primary lung resections per year.
- The thoracic surgery unit should have a minimum of 3 full time general thoracic surgeons.

The following targets should be achieved:

- Cancer waiting time targets¹⁰
 - Urgent Suspected Cancer: treatment within 62 days of referral from Primary Care.
 - Non Urgent Suspected Cancer: treatment within 31 days of the decision to treat.
- The results of frozen section analysis of intra-operative specimens should be communicated to the operating surgeon within 1 hour of the sample being taken.
- Urgent (non cancer) in-patient treatment:
 - Indications for urgent treatment (such as empyema or pneumothorax) often requiring in-patient transfer from General Hospitals to the thoracic surgery unit:
 - Transfer to the thoracic surgery unit and treatment within 48 hours of referral.

¹⁰ NHS Wales is replacing these targets with the Single Cancer Pathway (a target of 62 days from the point of suspicion). Also see 4.2 Key Performance Indicators.

- Patients with non malignant conditions on elective referral pathways should be treated within the referral to treatment targets for Wales:
 - 95% within 26 weeks from GP referral to treatment
 - No patient should wait in excess of 36 weeks from referral to treatment.
- Where there is a clinical suspicion of malignancy, patients referred for a diagnostic biopsy of lung or mediastinal lymph node should have this performed within a clinically appropriate timeframe. The time from referral for diagnostic biopsy to performing the biopsy for these patients will form part of the performance monitoring of the service.

3.2 National Standards

The service must measure and report outcomes specified by the Society for Cardiothoracic Surgeons for submission to the SCTS Thoracic Surgical Database:

- Post operative mortality
- Post operative complications
- Air leak after lung resection for primary cancer
- Return to theatre
- ITU readmission
- Need for ventilation

Surgeons' appraisals should include specific reference to thoracic outcomes and activities.

3.3 Other quality requirements

- the provider will have a recognised system to demonstrate service quality and standards
- the service will have detailed clinical protocols setting out nationally (and local where appropriate) recognised good practice for each treatment site
- the quality system and its treatment protocols will be subject to regular clinical and management audit
- the provider is required to undertake regular patient surveys and develop and implement an action plan based on findings

4. Performance monitoring and Information Requirement

4.1 Performance Monitoring

WHSSC will be responsible for commissioning services in line with this policy. This will include agreeing appropriate information and procedures to monitor the performance of organisations.

For the services defined in this policy the following approach will be adopted:

- Service providers to evidence quality and performance controls
- Service providers to evidence compliance with standards of care

WHSSC will conduct performance and quality reviews on an annual basis

4.2 Key Performance Indicators

The providers will be expected to monitor against the full list of Quality Indicators derived from the service description components described in Section 2.1.

The provider should also monitor the appropriateness of referrals into the service and provide regular feedback to referrers on inappropriate referrals, identifying any trends or potential educational needs.

In particular, the provider will be expected to monitor against the following target outcomes:

- Cancer Waiting Times - National Optimum Pathway and the Single Cancer Pathway
- Referral to Treatment waiting times
- Thoracic surgery component waiting times for patients on cancer and elective pathways.
- Urgent treatment/transfer times (non cancer indications)
- Resection rates by MDT
- Thoracic surgeon attendance at Lung Cancer MDT
- Intra-operative pathology findings and advice
- Length of stay for patients having lung surgery – cancer and non-cancer
- Prehabilitation and rehabilitation key performance indicators and outcomes

In addition, thoracic surgery services should have systems in place to routinely collect patient reported experience and outcome measures for all patients.

These KPIs are in addition to performance and quality reporting requirements specified in WHSSC contracts with providers of thoracic surgery

4.3 Date of Review

This document is scheduled for review by September 2022, where we will check if any new evidence is available.

If an update is carried out the policy will remain extant until the revised policy is published.

5. Equality Impact and Assessment

The Equality Impact Assessment (EQIA) process has been developed to help promote fair and equal treatment in the delivery of health services. It aims to enable Welsh Health Specialised Services Committee to identify and eliminate detrimental treatment caused by the adverse impact of health service policies upon groups and individuals for reasons of race, gender re-assignment, disability, sex, sexual orientation, age, religion and belief, marriage and civil partnership, pregnancy and maternity and language (Welsh).

This policy has been subjected to an Equality Impact Assessment.

The Assessment demonstrates the policy is robust and there is no potential for discrimination or adverse impact. All opportunities to promote equality have been taken.

6. Putting Things Right

6.1 Raising a Concern

Whilst every effort has been made to ensure that decisions made under this policy are robust and appropriate for the patient group, it is acknowledged that there may be occasions when the patient or their representative are not happy with decisions made or the treatment provided.

The patient or their representative should be guided by the clinician, or the member of NHS staff with whom the concern is raised, to the appropriate arrangements for management of their concern.

If a patient or their representative is unhappy with the care provided during the treatment or the clinical decision to withdraw treatment provided under this policy, the patient and/or their representative should be guided to the LHB for [NHS Putting Things Right](#). For services provided outside NHS Wales the patient or their representative should be guided to the [NHS Trust Concerns Procedure](#), with a copy of the concern being sent to WHSSC.

6.2 Individual Patient Funding Request (IPFR)

If the patient does not meet the criteria for treatment as outlined in this policy, an Individual Patient Funding Request (IPFR) can be submitted for consideration in line with the All Wales Policy: Making Decisions on Individual Patient Funding Requests. The request will then be considered by the All Wales IPFR Panel.

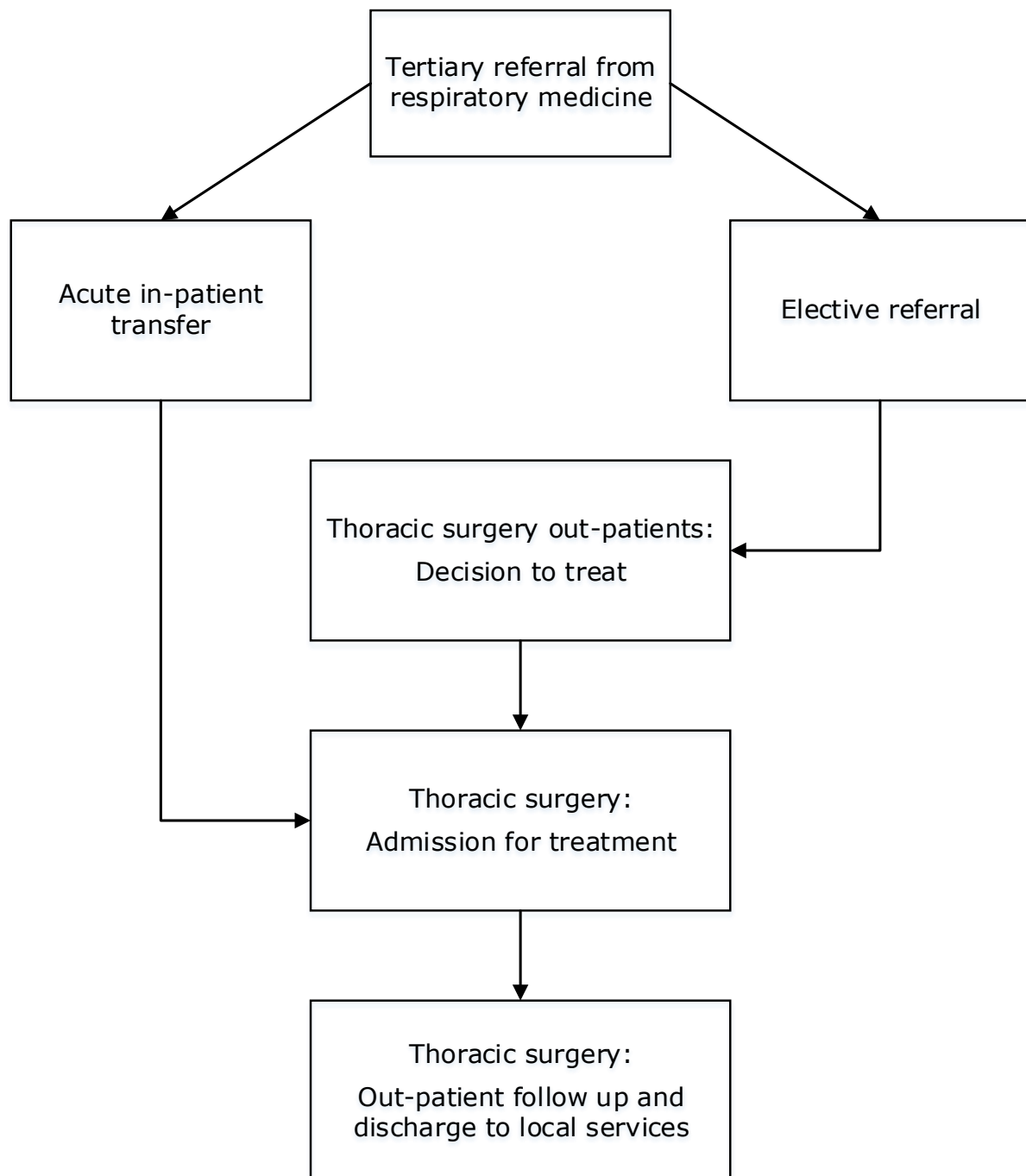
If an IPFR is declined by the Panel, a patient and/or their NHS clinician has the right to request information about how the decision was reached. If the patient and their NHS clinician feel the process has not been followed in accordance with this policy, arrangements can be made for an independent review of the process to be undertaken by the patient's Local Health Board. The ground for the review, which are detailed in the All Wales Policy: Making Decisions on Individual Patient Funding Requests (IPFR), must be clearly stated

If the patient wishes to be referred to a provider outside of the agreed pathway, and IPFR should be submitted.

Further information on making IPFR requests can be found at: [Welsh Health Specialised Services Committee \(WHSSC\) | Individual Patient Funding Requests](#)

Annex i Patient Pathway

For suspected lung cancer, see the [national optimal pathway for lung cancer](#).



Annex ii Codes

Code Category	Code	Description
OPCS	173	Thoracic surgery specialty code

Adult Thoracic Surgery Service For South & West Wales and Powys

Service Model

Version 14 – 06.01.2021

Version Control

Version	Date	Author	Outline of Changes
Version 1	23.9.19	Joanne Abbott-Davies	First Draft
Version 2	26.9.19	Joanne Abbott-Davies	Revised to take into account more detail from service specification
Version 3	08.10.19	Patricia Jones/Joanne Abbott-Davies	Revised to take into account T&F group discussions.
Version 4	09.10.19	Patricia Jones/Joanne Abbott-Davies	Revised version shared with members
Version 5	25.10.19	Patricia Jones	Revised with comments marked from members
Version 5a	10.11.19	Patricia Jones	Additional comments received prior to working through V5
Version 6	13.11.19	Patricia Jones/Joanne Abbott-Davies	Revised comments actioned with changes accepted and queries still marked plus additional comments for review
Version 7	26.11.19	Patricia Jones/Joanne Abbott-Davies	Agreed changes made from IB/T&F meeting 15.11.19
Version 8	24.12.19	Patricia Jones/Joanne Abbott-Davies	Tracked changes to align with draft revised service specification prior to consultation period (v1.2 Dec 2019)

			and agreement with JAD on Tracked changes
Version 9	02.01.2020	Patricia Jones/Joanne Abbott-Davies	Review and agreement on proposed changes with the revised service specification.
Version 10	03.02.2020	Patricia Jones/Joanne Abbott-Davies	Updates to HDU provision
Version 11	04.09.20	Patricia Jones/Joanne Abbott-Davies	Alignment during the consultation period of revised service specification V1.3 & 1.4
Version 12	10.10.20	Patricia Jones/Joanne Abbott-Davies	Final comments from members and alignment to signed off service specification in preparation for sign off at Implementation Board Oct 2020.
Version 13	23.10.20	Patricia Jones/ Joanne Abbott-Davies	Final draft for sign off
Version 14	06.11.20	Ira Goldsmith/M. Kornaszewska/	Updates to P21 & P23

Introduction

This document has been prepared by Swansea Bay University Health Board as lead organisation for the single adult Thoracic Surgery service for South & West Wales & South Powys (referred to as South Wales). The Service Model has been developed from discussions held between clinicians and managers from all Health Boards across South Wales as well as Welsh Ambulance Service NHS Trust (WAST) and Welsh Health Specialised Services Committee (WHSSC). Outlined in this paper is the background to the development of the single adult Thoracic Surgery service; details of how the service model has been developed; the needs assessment for the service; the service specification requirements for the service; the issues raised from the public consultation; the service model itself and any outstanding issues relating to this.

1. Background

Thoracic surgery is one of the specialised services that WHSSC commissions for the people of Wales. For patients living in North Wales, this service is provided by Liverpool Heart and Chest Hospital NHS Foundation Trust. This is one of the largest thoracic surgical centres in the United Kingdom, with six consultant surgeons, serving a catchment area that spans across the north west of England and North Wales. Patients in northern Powys access the thoracic surgery service at Heartlands Hospital, Birmingham, which has recently become part of the University Hospitals Birmingham NHS Foundation Trust. By contrast, in South Wales there are two smaller services based at Morriston Hospital, Swansea and the University Hospital of Wales, Cardiff. The service at Morriston has two consultant surgeons, and the service at the University Hospital of Wales, has three consultant surgeons. There has been concern for a number of years that these two smaller services are not sustainable, and may not be able to fully meet the needs of the population of South Wales.

The Thoracic Surgery Review Project was established to determine the service model for South Wales (i.e. one thoracic surgery centre or two) and depending on the outcome of the first stage, if a single site was supported, determine the location of the centre.

A Project Board was established to form recommendations on the future provision of adult thoracic surgery in South Wales. The Project Board was informed by a review of the adult thoracic surgery services, which was undertaken by the Royal College of Surgeons. The Royal College of Surgeons undertook a review of the services in South Wales and recommended that in order to provide sustainable and high-quality thoracic surgery, there should only be one hospital delivering the adult service. It was considered that changes to cardiac and adult thoracic surgery would mean there would not be a staffing resource that could adequately sustain a two site model in the future.

Following an extensive engagement exercise across South Wales, in which the views of service users and other stakeholders were sought on the information required in order to make a recommendation on the future provision of thoracic surgery services in South Wales, the Project Board recommended that a single thoracic surgery centre should be developed for South Wales.

An Independent Panel was convened to review the options for locating the centre and to make a recommendation on the preferred location for the single thoracic surgery centre.

The Independent Panel recommended that Morriston Hospital should be the location for the proposed single thoracic surgery centre. Formal public consultation was then undertaken on this proposal. Outlined in section 10 below are details of the further development work raised in this consultation.

2. Development of Service Model

In order to develop the service model for the single Adult Thoracic Surgery Service for South Wales a monthly Implementation Board has been established with membership from the six affected Health Boards, as well as WAST and WHSSC to oversee the implementation of the new service.

To start the process of understanding the issues with the current provision of services and to develop the service model a Clinical Summit was held on 15th March 2019. 50 people attended and heard feedback from visits to other thoracic surgery centres; an outline of what a single centre could look like and what relationships with the Major Trauma Centre would need to be. Two workshop sessions were held focusing on perspectives on local vs centralised services for adult thoracic surgery and on managing benign conditions.

As a result of this summit the following actions were taken:

- Site visits and teleconference discussions arranged with Thoracic Surgery Centres in the UK;
- Service Model Task and Finish group established;
- Work commenced on Strategic Outline Case for capital requirements of new Adult Thoracic Surgery Centre;
- Workforce Task and Finish group established;
- Agreement developed outlining cover requirements from Thoracic Surgery to Major Trauma Centre;
- Benign Conditions Task and Finish Group established;
- Targeted patient and carer engagement process developed and implemented.

A second Clinical Summit was held on 24th May 2019, with 52 attendees. There were presentations on how Thoracic Surgery is provided by Liverpool Chest & Heart Hospital and relationships with Betsi Cadwaladr UHB, as well as Norwich and Nottingham services; what our patients and relatives have told us matters to them; a focus on pulmonary prehabilitation hub and spoke model provided by Swansea Bay UHB and pulmonary prehabilitation services in Cardiff & Vale UHB; and how the Enhanced Recovery Programme is delivered by Cardiff & Vale UHB. The Service Model and Benign Conditions Task and Finish Groups also met.

Subsequently these two Task and Finish Groups have met several times and their conclusions have been incorporated into the service model outlined in this report.

A third Task and Finish Group was established in August 2019 to map and create a future workforce plan based on key priorities as well as identifying any issues. This encompasses 19 professional groups across the Health Boards. Due to the complexities faced by this group, in January 2020 the Implementation Board agreed to split the work groups into two sections; a local workforce plan which is being incorporated as part of the individual health board meetings on delivering the service model and a new workforce plan has been

established to ensure joint working between C&V UHB and SBU HB in delivering the service model and current service provision.

A third Clinical Summit was held on 15th November 2019, with 55 attendees. There were presentations on the Future of Surgery - The Royal College of Surgeons View & the Welsh Prospective, Drivers for Thoracic Surgery, Task & Finish Group progress reports as well as updates funding support for the Major Trauma Centre, refresh of the thoracic service specification and revision of activity projections. Furthermore, there were presentations on what do our patients and relatives tell us that matters to them, the draft service model as well as the draft suspected/confirmed lung cancer pathway. A table top exercise took place to enable stakeholders to provide their views on the draft service model/pathway which has been included in the model.

Discussions have taken place about the likely impact on thoracic surgical activity and case mix if Lung Health Check (Computerised Tomography (CT) screening of high risk population) service is introduced in Wales prior to the new service going live. However, it has been agreed that the implications of this will be considered separately to this development of the service model.

3. Assessment of Need

When the public consultation on the future pattern of adult Thoracic Surgery services for South Wales was carried out, the following reasons for change were outlined:

- Over the last year, patients in Wales with lung cancer have waited longer than they should have for surgery;
- Patients in Wales with lung cancer have some of the lowest survival rates in Europe, although we know we have expert surgeons;
- Patients who need surgery, but do not have lung cancer, have very long waiting times, and our doctors and nurses tell us this is affecting the quality of care they can provide;
- Thoracic surgery is becoming increasingly specialised and better outcomes come from larger centres (elsewhere in the UK and Europe, services are being reorganised into larger centres);
- Changes in the way surgeons practice mean we cannot continue to staff our two units in the way we have done in the past;
- Patients will have access to high quality specialist care in a surgical centre of excellence.
- Evidence shows that thoracic surgery patients are likely to have better outcomes (survive longer, with fewer complications from their disease or treatment and quicker recovery) when treated in larger thoracic surgery centres;
- A larger single adult thoracic surgery centre will be more resilient, i.e. more able to cope with unpredictable changes such as episodes of staff sickness, vacancies and changes to national government policy.

South Wales has a legacy of heavy industry and coal mining; both of which contribute significantly to lung disease. Primary lung cancer, related to tobacco use is the commonest cause of cancer death in Wales. It is therefore essential that cases are detected early in order to provide the best prognosis.

In Wales, lung cancer has the widest absolute inequalities in incidence of any cancer; the most deprived fifth of the population has more than two and a half times the incidence than the least deprived. Lung cancer has the highest absolute numbers of deaths and highest mortality rate of any cancer in Wales. Lung cancer mortality rates are also highly unequal across socio-economic groups: mortality rates in the most deprived fifth are nearly 3 times greater than in the least deprived. Surgery is known to provide the best chance of survival. However, patients often present with advanced disease making surgery less likely to be suitable or successful.

During 2012-2016 in Wales, nearly half of the diagnosed lung cancers were diagnosed at stage 4. It is therefore essential that cases are detected early in order to provide the best prognosis. Lung cancer is the third common cancer in Wales by number of newly diagnosed cases per annum. While incidence in men is decreasing, it is increasing in women. Overall incidence of lung cancer is decreasing. The highest overall incidence rate is in Cwm Taf Morgannwg UHB which is two-thirds higher than the lowest in Powys. Geographical differences in lung cancer across Wales are primarily due to historic trends in smoking and exposure to tobacco smoke, especially in areas of deprivation (WCISU, Public Health Wales 2015).

The largest single disease requiring management by thoracic surgery is primary lung cancer. There are two types of lung cancer: Non-Small Cell Lung Cancer (NSCLC), which accounts for approximately 85% of lung cancers, and Small Cell Lung Cancer (SCLC) which accounts for approximately 15%. There are three common sub-types of NSCLC:

- squamous cell carcinoma:
- large cell carcinoma:
- adenocarcinoma.

Although survival has been improving, Wales has poor survival rates for lung cancer compared to other parts of the UK and many European countries. A recent Lancet Oncology 2019 publication highlights a study involving 3.9 million people and comparing cancer outcomes for 7 developed countries that have comparable universality in health care. This shows Wales to be at the bottom of the table for the five-year survival of patients with lung cancer as well as all other cancer types.

While the lung cancer resection rate in Wales is equivalent to average UK rates, the annual National Lung Cancer Audit has demonstrated that there is wide variation in surgical resection rates across the UK. Rates in Wales are lower than in best performing areas of the UK and in comparison, and lower than the best performing European countries. The resection rate in Wales will need to increase further in order to improve lung cancer survival in Wales

There is clinical agreement that the resection rates need to be improved, in line with the developed nations in the world and this service model aims to achieve this.

In addition to the treatment of lung cancer, there are many other conditions which require thoracic surgery. These include other types of thoracic malignancies, pneumothorax, various forms of thoracic sepsis and a large group of other conditions of the chest.

The activity requirement for a single thoracic surgery centre in South Wales outlined in (Appendix A). WHSSC has identified in this paper that there has been stable total demand

over the last 3 years of between 1000 and 1100 cases per annum in South Wales given current referral pathways and practice.

This paper outlines that future need and demand for thoracic surgery is difficult to quantify and forecast, and the Clinical Summits identified that this was particularly the case for benign conditions. The Royal College of Surgeons Inherited Review highlighted the issue of unmet need for thoracic surgery. It is recognised that there is unmet need in Wales for thoracic surgery to treat non-malignant conditions. The need to prioritise capacity for lung cancer has meant that patients with other conditions are often managed medically when they might benefit from a surgical procedure to treat their condition. WHSSC stated that a single centre should have the flexibility to be able to provide access to surgery to meet the needs of non-cancer patients within a clinically appropriate timeframe.

WHSSC has previously sought advice over published sources of comparative data for rates of thoracic surgery to treat non cancer indications and had concluded that this data was not available. Therefore projected activity for the new single centre did not incorporate any activity for benign conditions. The Benign Conditions Task and Finish Group has now reviewed current activity data from Cardiff & Vale and Swansea Bay University Health Boards and have evidenced that benign conditions activity will increase and have identified the activity assumption of 600 cases per annum. This is in addition to the baseline planning figures included in WHSSC's assumption and public consultation.

The single centre should:

- Have capacity to treat the current levels of demand, and case mix (Appendix B), presenting to each centre;
- Treat patients within the targets set out in the thoracic surgery performance framework;
- Have the ability to increase capacity to meet the expected increasing trend of lung resections in the short to medium term;
- Have the ability to provide a timely service for patients who require urgent care for non-cancer indications;
- Have the ability to increase capacity to be able to treat previously unmet need.
- Be able to increase activity by 20% to accommodate future growth in demand for resection and unmet need for non-cancer indications.

A pragmatic approach has been taken to allow for the flexibility to increase capacity by up to 20% across the case mix to meet future increases in demand and unmet need for non-cancer indications in particular. This has been compared with an alternative approach of estimating the increase in total activity if the ratio of cancer to non-cancer was 50:50 (on the basis of clinical advice that this is an appropriate benchmark for the balance between cancer and non-cancer surgery). These two approaches have produced very similar estimates of the increased activity requirement of up to 1300 cases from the current level of approximately 1100.

4. Service Specification Requirements

The initial service specification sets out the requirements and quality standards of care essential for delivering thoracic surgery for people with diseases of the chest. The thoracic surgery service specification was developed as part of the Thoracic Surgery Review and

was published in March 2017. Following initial work on the service model, it was evident that the original specification needed revision. After consultation a revised service specification was approved and published by WHSSC (Appendix C).

The Thoracic Surgery service set out in this specification aims is to define the requirements and standard of care essential for delivering thoracic surgery for people with diseases of the chest. The objectives of the specification are to

- Describe in detail the requirements and quality standards required to deliver thoracic surgery service for people who are residents in Wales;
- Ensure minimum standards of care are met for the use of thoracic surgery;
- Ensure equitable access to thoracic surgery;
- Identify centres that are able to provide thoracic surgery for Welsh patients;
- Improve outcomes for people accessing thoracic surgery services.

To provide a sustainable, high quality, equitable service that is patient centred and optimises the quality of patient and family experience to improve outcomes for people accessing thoracic surgery services.

The specification describes a service model based on a thoracic surgery centre with dedicated facilities (theatres, ward, HDU (level 2) and access to ITU (level 3)) for the delivery of surgery, with the out-patient components of the service delivered through a network of clinics held both at the thoracic surgery centre and in other locations across the region. Apart from the pre-admission assessment and admission to the thoracic centre for surgery, the other components of the service (first out-patient appointment with the surgeon, post-surgical follow-up, prehabilitation and rehabilitation) and enhanced recovery after thoracic surgery (ERATS) should be delivered, where possible, on an outreach basis closer to patients' homes. Furthermore, the specification describes that there must be dedicated thoracic theatre sessions with at least one whole-day list per week, per surgeon. Anything less than this would mean that it would be impossible for surgeons to provide sufficient level of activity for their employing Health Board/Trust to be assured of their competencies.

This principle was also supported by the outcome of the public consultation on the proposal for a single thoracic surgery service at Morriston Hospital, which emphasised local provision where possible to maximise accessibility and mitigate the impact of additional travel for patients and families.

Patients are referred for lung cancer surgery through the established pathway via the lung cancer MDTs; referrals for non-cancer conditions are received directly from respiratory physicians.

In February 2019, the Thoracic Surgery Review Project Board considered areas for policy development and identified the following two areas: surgical assessment and operative treatment of non-cancer thoracic diseases.

It is recognised that there is unmet need for thoracic surgery for non-cancer thoracic conditions. Due to capacity constraints, patients are often treated medically (e.g. for empyema or pneumothoraces) when they might benefit from a surgical procedure to treat their condition.

A commissioning plan has been developed by WHSSC, which sets out the criteria and process for referral to thoracic surgery in order to define which patients would benefit from surgery, ensure consistency in the criteria applied across Wales and improve equity in access to thoracic surgery for these conditions (Appendix D).

The providers will be expected to monitor against the full list of Quality Indicators derived from the service description components described in section 5.

The providers should also monitor the appropriateness of referrals into the service and provide regular feedback to referrers on inappropriate referrals, identifying any trends or potential educational needs.

The thoracic surgery performance framework, sets out measures and reporting frequency, (Appendix E). The performance framework includes the following components:

In particular the provider will be expected to perform against the following target outcomes:

- Cancer Waiting Times – National Optimum Pathway and the Single Cancer Pathway.
- Referral to Treatment waiting times.
- Thoracic surgery component waiting times for patients on cancer and elective pathways.
- Urgent treatment/transfer times (non-cancer indications)
- Resection rates by MDT
- Thoracic Surgeon attendance at Lung Cancer MDT
- Intra-operative pathology findings and advice
- Length of stay for patients having lung surgery – cancer and non-cancer
- Prehabilitation and rehabilitation key performance indicators and outcomes
- Activity performance against contract baseline
- Reporting of adverse events/SUI
- Process measures (including performance against cancer and elective waiting times targets)
- Clinical outcomes: data submissions to national registries and audits for benchmarked comparison with UK (including the Society for Cardiothoracic Surgery database, National Lung Cancer Audit)

In addition, thoracic surgery services should have systems in place to routinely collect patient reported experiences and outcome measures for all patients.

These Key Performance Indicators (KPIs) are in addition to performance and quality reporting requirements specified in WHSSC contracts with providers of thoracic surgery.

5. Quality and Patient Safety

The Thoracic Surgery Services will work to the written quality standards and provide monitoring information to the lead commissioner. The quality management systems must be externally audited and accredited.

The Thoracic Surgery Services must enable the patients, carers and advocates informed participation and to demonstrate this. Provision will be made for patients with communication difficulties.

Quality Indicators (standards)

- Thoracic surgery must be performed by qualified surgeons who have full GMC Registration with a licence to practice, and specialised in general thoracic surgery in accordance with National and European regulations.
- A surgeon practising in thoracic surgery must have extensive and updated knowledge of all aspects of pathophysiology, epidemiology, and diagnosis, perioperative, intraoperative and postoperative care of patients with surgical disease of the chest.

Minimum volumes

- The thoracic surgery unit should undertake a minimum of 150 primary lung resections per year.
- The thoracic surgery unit should have a minimum of 3 full time general thoracic surgeons.

The following targets should be achieved:

- Cancer waiting time targets ¹
 - Urgent Suspected Cancer treatment within 62 days of referral from Primary Care.
 - Non Urgent Suspected Cancer: treatment within 31 days of the decision to treat.
- The results of frozen section analysis of intra-operative specimens should be communicated to the operating surgeon within 1 hour of the sample being taken.
- Urgent (non-cancer) inpatient treatment:
 - Indications for urgent treatment (such as empyema or pneumothorax) often requiring in-patient transfer from General Hospitals to the thoracic surgery unit:
 - Transfer to the thoracic surgery unit and treatment within 48 hours of referral.
- Patients with non-malignant conditions on elective referral pathways should be treated within the referral to treatment targets for Wales:
 - 95% within 26 weeks from GP referral to treatment
 - No patient should wait in excess of 36 weeks from referral to treatment.
- Where there is a clinical suspicion of malignancy, patients referred for a diagnostic biopsy of lung or mediastinal lymph node should have this performed within a clinically appropriate timeframe. The time from referral for diagnostic biopsy to performing the biopsy for these patients will form part of the performance monitoring of the service.

National Standards:

The service must measure and report outcomes specified by the Society for Cardiothoracic Surgeons for submission to the SCTS Thoracic Surgical Database;

- Post-operative mortality
- Post-operative complications
- Air leak after lung resection for primary cancer
- Return to theatre
- ITU readmission
- Need for ventilation

¹ NHS Wales is replacing these targets with the Single Cancer Pathway (a target of 62 days from the point of suspicion). Also see 4 Service Specification Requirements.

Surgeons' appraisals should include specific reference to thoracic outcomes and activities.

Other quality standards

- The provider will have recognised system to demonstrate service quality and standards.
- The service will have detailed clinical protocols setting out nationally (and local where appropriate) recognised good practice for each treatment site.
- The quality system and its treatment protocols will be subject to regular clinical and management audit.
- The provider is required to undertake regular patient surveys and develop and implement an action plan based on findings

The thoracic surgery service is underpinned by the quality standards as outlined in the:

- NICE Quality Standard for Lung Cancer and the British Thoracic Society (BTS) guidelines on the radical management of patients with lung cancer (2010),
- British Thoracic Society guidelines on pulmonary rehabilitation: accredited by NICE (2013),
- ESTS Guidelines for enhanced recovery after lung surgery (Jan 2019),
- National Standards for Rehabilitation of Adult Cancer Patients and the recently published guidance on Prehabilitation for People with Cancer.
- WHSSC Commissioning Policy: Positron Emission Tomography (PET), CPA50a (2019)
- WHSCC Commissioning Policy: Stereotactic Ablative Body Radiotherapy (SABR) for the Management of Surgically Inoperable Non-Small Cell Lung Cancer in Adults, CP76 (2014)
- Improving Supportive and Palliative Care for adults with cancer, NICE Cancer Services Guidance (CG64) March 2004
- Lung Cancer: Diagnosis and Management, NICE Guidelines (NG122), March 2019
- Suspected Cancer: Recognition and Referral, NICE Guidelines (NG12) July 2017
- End of Life Care for Adults: Service Delivery, NICE Guidelines (NG142) October 2019
- Lung Cancer in Adults, NICE Quality Standards (QS17), December 2019
- End of Life Care for Adults, NICE Quality Standards (QS13) March 2017.
- Thoracic Surgery – Adults NHS England Service Specification, (170016/S) July 2017
- All Wales policy making decisions in individual patient funding requests (IPFR)

The providers are expected to participate in relevant national audits, including the National Lung Cancer Audit and in peer review of lung cancer services.

6. Issues Raised from Public Consultation

There were a total of 804 respondents to the public consultation. Many of these respondents expressed multiple views across their responses and therefore the total number of issues identified within the themes is 1,441.

In general responses were that any new single site service must:

- Be properly resourced
- Have sufficient capacity to meet demand
- Have access to the best facilities and equipment
- Be highly efficient, enable waiting times to be reduced
- Continue to drive better integrated care pathways so that the time spent at the surgical centre is as short as possible

Specific comments regarding implementation included:

- Early recovery after surgery protocols
- Outreach services – how will various local health boards provide non-surgical aspects of treatment
- Post-operative respiratory failure as an outcome measure
- Minimally invasive techniques
- Travel and accommodation support for patients and families

7. Service Model

Thoracic Surgery should be identified as a separate service line within the hospital's directorate management structure.

Thoracic surgery involves operations for conditions affecting the chest, including the lungs, mediastinum, pleura, diaphragm, the sympathetic nervous system, in some cases the pericardium and chest wall. It excludes conditions affecting the heart and great blood vessels (which are the remit of cardiac surgery) and the oesophagus (which are the remit of the upper GI surgeons).

The largest single disease requiring management by thoracic surgery is primary lung cancer. The remaining conditions include other types of thoracic malignancies, pneumothorax (collapsed lung), various forms of thoracic sepsis and a variety of other conditions which fall outside the remit of other surgical specialties.

The following procedures should be part of the clinical and surgical provision from a thoracic surgical team:

- Resection, repair, reconstruction and diagnosis of the lung for benign or malignant disease or injury (includes primary and metastatic lung cancer).
- Procedures to manage diseases of the pleura and pleural space problems, including management of primary (mesothelioma) or secondary pleural neoplasms, pleural effusion, pneumothorax and thoracic empyema.
- Operations for chest wall and pleural space pathologies, including diagnosis, resection and reconstruction for neoplasms, infections or necrosis, repair of chest wall deformities (pectus deformities), as well as the management of traumatic chest wall disorders with or without instability.
- Surgical procedures of the mediastinum, including biopsy of mediastinal lymph nodes and resection of neoplasms and cysts, drainage of infections, mediastinal lymphadenectomy, mediastinotomy, mediastinoscopy and other video-assisted or open mediastinal approaches.
- Resection, reconstruction and drainage of the pericardium.

- Diagnostic and therapeutic endoscopic procedures using both the flexible and rigid scopes and instrumentation of the tracheobronchial tree and assisted by image guided means.
- Surgery of the thoracic sympathetic nerves.
- Surgical procedures of the diaphragm.
- Operations to provide thoracic exposure for interventions to be performed by allied specialists (i.e. cardiovascular, neurosurgeons, orthopaedics, invasive radiologists, general surgery.).
- Functional interventional procedures to manage emphysema.
- Surgery for traumatic injuries of the chest or organs within the chest.
- Operations to the thyroid gland in case of intrathoracic lesion (retrosternal goitre or cancer) as joint cases with ENT.
- Providing thoracic tissue samples for diagnosis by surgical means within the frame of inter-specialty commitments whenever less aggressive methods failed.
- Management of the surgical and non-surgical complications of the procedures listed above.
- Minimally invasive approaches (video assisted thoracoscopic surgery [VATS]/robotic surgery) to the mediastinum, lung and chest wall.²
- Ability for postoperative care and management of complications consequent to the above-mentioned surgical procedures.

The Thoracic Surgical Team should have the ability to discuss indications, contraindications operability/ resectability and prognosis of the above-mentioned surgical procedures within multidisciplinary teams. These MDT teams include:

- Lung cancer MDT
- Mesothelioma MDT
- Interstitial Lung Disease MDT
- Emphysema/COPD MDT
- Colorectal MDT
- Sarcoma MDT
- Complex cases MDT

PATHWAYS

We have worked with the Cancer Network looking at the Single Cancer Pathway for thoracics and developed a Surgical Pathway for suspected and confirmed lung cancer (Appendix F). This pathway is subject to change as there are ongoing discussions on the adoption of the National Optimal Lung Cancer Pathway. A Benign Disease Pathway was developed which covers for referral pathways for Emergency, urgent and semi-urgent thoracic procedures including cover the Major Trauma Centre (Appendix G). Both Pathways have been developed and agreed by the Task & Finish Groups and the Thoracic Implementation Board.

² At the present time, Health Technology Wales' guidance with regard to robot assisted thoracic surgery is that there is currently insufficient evidence to support routine adoption. It is therefore not currently commissioned by WHSSC. This position will be reviewed as the evidence base develops and further guidance is published.

Central vs local care

As a hub and spoke model, apart from the pre-admission assessment and admission to the thoracic centre for surgery, the other components of the service (first out-patient appointment with the surgeon, post-surgical follow-up, prehabilitation and rehabilitation) and enhanced recovery after thoracic surgery (ERATS) should be delivered, where possible, on an outreach basis closer to patients' homes, unless clinical facilities are required which are not available at a local site or in exceptional circumstances

Care Locally

- Assessment for suitability for thoracic surgery.
 - There is clinical consensus that patients should have all their diagnostics locally, with outpatient appointments being held there too, as well as other components outlined below
- If once, any thoracic surgery related complications have been addressed, patients require on going hospital care, they should be repatriated back to a local DGH hospital for further management.

Prehabilitation, Rehabilitation and Enhanced Recovery.

A lung cancer prehabilitation and rehabilitation model of care has been developed by health professional across South Wales (attached as Appendix H). The model of care is based on prehabilitation and post treatment rehabilitation services being delivered as close to the patients home as possible. Post-surgical inpatient rehabilitation will be based on the principles of enhanced recovery after surgery

- Prehabilitation is a service which aims to ensure patients are fit for radical treatment. Patients with lung cancer should have the opportunity for referral to a prehabilitation programme within their local health board in line with the National Optimum Pathway for Lung Cancer in Wales.
- Patients with a resectable lung cancer who are not fit should be offered a prehabilitation programme prior to referral to thoracic surgery.
- Patients with a resectable lung cancer who are of borderline fitness for surgery should be offered a prehabilitation programme prior to refer to thoracic surgery
- The principle of co-production is important to the successful delivery of prehabilitation. Patients should be supported to understand their responsibilities for self-care and how prehabilitation, and other services, will support them.
- There should be clear pathways established in the thoracic surgery units to provide an enhanced recovery programme. Enhanced recovery programmes are supported by a multi-disciplinary team including physiotherapy, occupational therapy, dietetics and nursing staff.
- Enhanced recovery pathways enable patients to recover at a faster pace from major surgery and should be adopted by the thoracic surgery centre.
- Each patient should have their multi-professional rehabilitation needs considered before, during and after treatment. These include nutrition, physical and emotional needs. Referral to a local Allied Health Professional (AHP) services should be made in a timely manner in order to meet these needs. This complies with the National Prehabilitation Standards for Wales.
- Where a patient has on going rehabilitation needs these must be met locally.

- The link between low exercise capacity, depleted nutritional reserves, poor performance status and treatment related complications are important elements in the decision making process regarding treatment. Therefore, the importance of a comprehensive, dedicated Prehabilitation / enhanced recovery after Thoracic Surgery, based on individual patient outcomes, delivering a single approach to assess and deliver rehabilitation to patients closer to their home was considered critical to the success of the operations and the recovery of patients.
- Prehabilitation is a multidisciplinary pre-treatment rehabilitation programme, which aims to develop personal empowerment, physical and psychological resilience and long-term health. Prehabilitation and rehabilitation are delivered by a range of healthcare professional and support staff, including a multi-professional AHP team approach which includes Dietetics, Occupational Therapy, Physiotherapy and Speech and Language Therapy (SLT), plus other healthcare professionals depending on individual patient need. Within the prehabilitative phase, it is suggested that patients should have access to physical activity/exercise, dietary and psychological support as minimum (Macmillan, 2018). In addition, evidence is emerging of the role of SLT in supporting lung cancer patients with speech and swallowing difficulties.
- There should be appropriate assessment of patients' rehabilitative needs before, during and after treatment and the provider must ensure that high quality rehabilitation is provided in line with the network agreed rehabilitation pathway and standards.
- Physiotherapy and Occupational Therapy staff should also be ward based with exercise bike and associated equipment located within an area of the ward to facilitate easy exercising of patients.
- Access to Dietetics / Speech and Language Therapy / Psychology / Psychiatric Liaison Service should be available at the Centre.

Care Centrally

- Pre-admission assessment
 - A pre-admission assessment process must be clearly outlined and holistic and to include an anaesthetic review. Patients will attend the centre for their pre-admission assessment as this enables them to meet the staff who will be caring for them when they have their operation and to introduce them to the Centre to improve their overall experience and assist them in preparing for surgery. During the assessment a date needs to be agreed with the patient based on the assumption that patients will be admitted on the day of surgery, unless there is clinical reason requiring admission the day before surgery or unless there is an issue around transport.
 - Different centres considered in the UK have adopted different approaches to day of surgery admission. The option could be considered of offering reduced cost hotel accommodation in the area near to the Centre for the patient and their carer/family member the night prior to surgery if they are not able to travel on the day. This would minimise the number of bed days required prior to the surgery at the centre. To support this approach an admission unit would be required at the centre with chairs and shower facilities for patients and space for relatives. Facilities for relatives will also be needed on the ward while they are waiting for patients to have their operations, such as a rest room with refreshments and entertainment facilities.
- Admission for surgery

Acceptance Criteria

The service outlined in this model is for patients ordinarily resident in Wales, or otherwise the commissioning responsibility of the NHS in Wales. This excludes patients who whilst resident in Wales, are registered with a GP practice in England, but includes patients resident in England who are registered with a GP practice in Wales.

Patient Referrals:

- Patients usually access thoracic surgery as a tertiary service via referrals from respiratory physicians and other hospital consultants. A small proportion of patients will be referred to the service directly from primary care, or as emergencies via A & E departments especially following trauma.
- Referrals to thoracic surgery for patients with primary lung cancer are agreed by the lung cancer MDT. Referrals for other conditions may also be referred via the relevant MDT.
- Patients admitted under respiratory medicine with acute conditions requiring urgent treatment are referred urgently as inter-hospital transfers.

Enablers

For patients unable to make their own transport arrangement to attend a clinical appointment either locally or at the single centre, pre-admission assessment or surgical admission they may be able to access transport via Non-Emergency Patient Transport Services (NEPTS) subject to the application of the Welsh Government patient eligibility criteria (Appendix I), or community transport/other transport mechanisms

Patient transport requests will need to be planned in advance, taking into account travel times and the service provision of NEPTS and other transport providers. Consideration will need to be given to the time patients using NEPTS transport will need to arrive for their appointments, so that appropriate planning can be put in place and patients will need to be discharged / repatriated within the agreed timescales.

Holistic Needs Assessment:

As recommended by NICE Guidelines, patients with lung cancer should be offered a holistic needs assessment at each key stage of care that informs their care plan and the need for referral to specialist services. The holistic needs assessment is usually carried out by the clinical nurse specialist.

Referral links for patient support & Information

- There should be close links with support services such as social workers, psychiatrists, chaplain, bereavement support and the primary health care team.
- Patients should be provided with information about their condition, about thoracic surgery and treatment process, so they are informed on what to expect from the service.
- Patients should be provided with contact details (including named person/s to contact) should they need to communicate with the service.

Lung Cancer Multi-Disciplinary Team Meetings (MDT)

Thoracic surgeons are core members of the Lung Cancer MDT. All patients referred to thoracic surgery for further assessment of suitability for surgical resection of lung cancer must be referred through the Lung Cancer MDT.

The thoracic surgery service will ensure that thoracic surgeons' job plans include sufficient allocation for Lung Cancer MDT meetings, including cross cover for annual leave, study leave and sickness. Weekly MDTs were considered necessary in each area with two Thoracic Surgeon, with the first surgeon in attendance and the second surgeon via video-link. The job plans of the surgeons includes sufficient time for travel to and attendance at the Lung Cancer MDTs in their region.

Multi-disciplinary teams were identified by other Centres as key to establishing effective joint working between the Centre and the supporting hospital services. Membership of MDTs must align with the minimum standards.

For those hospitals without on-site thoracic surgery it is essential that the populations they serve are not disadvantaged in any way. Those hospitals should have nominated surgeons working in the regional centres, such that thoracic surgical expertise can be accessed throughout the working week.

MDTs should have in place access to the full range of radiology facilities and the technology to facilitate the electronic transfer of images between the referring hospital and the thoracic surgery centre.

MDTs should have a clinical grade microscope with video camera for projecting histopathology images for discussion.

Other MDTs

Thoracic Surgeons may also participate in a number of other MDTs including :

- Mesothelioma MDT
- Interstitial Lung Disease MDT
- Emphysema/COPD MDT
- Colo-rectal MDT
- Sarcoma MDT
- Complex cases MDT

Complex Cases MDT:

Complex patients should be discussed at a weekly complex cases MDT including as a minimum representation from thoracic surgery and anaesthetics. Wider membership may also include radiology, pathology and pre/rehabilitation. This MDT will provide multi-disciplinary team opinion on surgical treatment

The complex MDT will provide a second opinion for:

- Patients with borderline resectability and acceptable fitness for surgery, and not initially accepted for surgery;
- Patients with a resectable lung cancer who are of borderline fitness and not initially accepted for surgery.

The number of MDTs across South Wales needs to be reviewed with the consolidation of MDTs in the South East area required in order for this service model to be delivered.

Inpatient Care

The thoracic surgery service will include the following infrastructure and service components (as set out in the WHSSC service specification):

- Thoracic surgery service will have designated resources:
 - Dedicated thoracic surgery ward beds
 - Dedicated thoracic surgery theatre(s)
 - Dedicated thoracic surgery High Dependency Unit (HDU) (level 2 (and access to Intensive Therapy Unit (ITU), level 3)

Framework for Thoracic High Dependency Care Unit:

High dependency care requires a level of care intermediate between that available on a general ward and that on an ICU.

A high dependency unit (HDU) should be able to provide monitoring and support to patients with, or at risk of developing, acute or acute-on-chronic single organ failure. An HDU can act as a 'step-up' or 'step-down' facility between the general ward and intensive care unit.

High dependency care is appropriate for the following categories of patient:

- Post-operative thoracic patients who need close observation or monitoring for longer than a few hours.
- Patients requiring support for a single failing organ system, but excluding those needing advanced respiratory support.
- Patients requiring a level of observation or monitoring not possible on a general ward.
- Patients no longer needing intensive care, but who are not yet well enough to be returned to a general ward.

Examples may include (but are not limited to):

- patients with invasive arterial pressure monitoring,
- central venous pressure monitoring,
- The need for more than 40% oxygen via fixed performance mask ventilatory support with continuous positive airways pressure (CPAP) or non-invasive (e.g. mask) ventilation.
- Support for circulatory instability due to hypovolaemia from any cause and which is responsive to modest volume replacement.
- patients requiring epidural analgesia or intravenous opioid infusions for pain control,
- Patients no longer needing intensive care, but who are not yet well enough to be returned to a general ward.

It should not manage patients requiring multiple organ support or mechanical ventilation.

HDU admitting 'general trauma' patients should be sited close to the ICU, but this may not be necessary for post-thoracic surgery patients.

The thoracic HDU should be single-specialty and this will influence the mix of cases and the nursing skills required.

The HDU should have:

- A clear operational policy.
- An average nurse: patient ratio of 1:2, with an additional nurse in charge and the flexibility to increase staffing numbers and skills according to patient needs.
- The grade and skill-mix of nurses needs to reflect the possibility that patients may be physiologically unstable and that nursing intensity around individual patients may fluctuate.
- Immediate availability of junior medical staff from the admitting specialty (Thoracic surgery) with on-call cover from the *ICU/anaesthesia*.
- Continuous consultant cover from the admitting specialty (Thoracic surgery) and on call cover from the *ICU/anaesthesia*.
- An identifiable consultant as director. For thoracic HDUs, this should be the director of the *cardiothoracic/general ICU*.
- Isolation for Level 2 patients.
- Intermediate 4 bedded unit – Level 1
- Telemetry beds/units (12 units)
- Workforce Planning
- Appropriate monitoring and other equipment for the work undertaken.
- Access to appropriate physiotherapy on a 24 hour basis as required dependant on patient needs.
- Pain control team to manage post-surgical and trauma analgesia requirements.
- Continuing education, training and audit.
- Dedicated thoracic theatre sessions with at least one whole-day list per week per surgeon. Anything less than this would mean that it would be impossible for the surgeons to provide sufficient level of activity for their employing Health Board/Trust to be assured of their competencies.

Interdependencies with other services or providers

The thoracic surgery service must have access to the following services. It is anticipated these services will be co-located with the thoracic surgery centre

- Respiratory medicine will be provided on same site to thoracic surgery services centre and critical clinical adjacencies will be considered as part of the plan for the unit.
- Respiratory pathology laboratory.
- Haematological, biochemical and microbiological laboratories
- Cellular Pathology & Molecular Service
- Endoscopic examinations by bronchoscopy and oesophagoscopy (including endobronchial ultrasound and endoscopic ultrasound)
- Radiological investigation by plain X-Ray, contrast studies, ultrasound needle biopsy, vascular imaging and computed tomography (including PET CT)
- Support from the full range of specialist thoracic pathology services.

- Dedicated physiotherapy, dietetics, occupational therapy, pain management, and speech and language therapy to deliver multimodal prehabilitation and rehabilitation.
- Support from all other hospital services especially interventional radiology and pulmonary rehabilitation.
- Pharmacy
- Cardiac Surgery:
 - Cardiothoracic trainees: ST1-3 trainees are shared with cardiac surgery up to ST3. From ST4-ST8 trainees specialise in either thoracic or cardiac surgery including non-training middle grades (but are still required to cover emergencies in both disciplines) The thoracic surgery service will therefore require a close working relationship with cardiac surgery with regard to training. It is recognised that in the long run, training requirements and the relationship between the two specialties may change
 - Anaesthetics and theatre nursing: It may be appropriate to share anaesthetics and nursing skills and expertise across thoracic and cardiac surgery to provide operational efficiencies and service resilience. It is recognised the extent to which thoracic and cardiac surgery services benefit from sharing staff with these skills will vary across providers.
- Intensive care: Occasionally thoracic surgery patients may require ITU while still under the care of the thoracic surgery service. This may be provided via cardiac or general ITU.
- In addition to these co-located services, a proportion of patients will require access to the Non-Emergency Patient Transport services provided by WAST.
- Emergency Provision
- A dedicated properly equipped and suitably staffed emergency theatre. The theatre staff, including anaesthetist and their ODPs, should have the necessary training and experience in thoracic surgery as a mandatory requirement.
- Non trauma thoracic emergencies and out of hours service.
 - The service will provide 24/7 emergency cover by general thoracic surgical consultants (with or without mixed-practice cardiothoracic surgical colleagues). This may be delivered with support from surgical trainees, non-training middle grade doctors and appropriately trained advanced care practitioners.
 - Cross cover of rotas from consultants with a purely cardiac practice or from consultants from other specialties is unacceptable
 - The service will ensure that there is 24/7 cover of thoracic surgical inpatients.
 - A sustainable on call rota should not be more frequent than 1 in 4.
 - There will need to be an appropriate rota for junior medical staff including non-training middle grades doctors, advanced care practitioners, cardiac sub specialty trainee (ST4-ST8) rotating through thoracic surgery, appropriate to the activity of the thoracic unit and in line with the SCTS Workforce Report. This may result in requiring an independent thoracic rota for junior medical staff.
- The Surgeons on the rota should be able to deal with the full range of thoracic surgical emergencies.
- The service will ensure there is 24/7 physiotherapy cover to support any inpatient respiratory emergencies.
- Trauma (including major trauma) thoracic emergencies

- The thoracic surgery service will provide advice and support to trauma and major trauma services in accordance with locally agreed protocols.
- This support will be in alignment with the expectations and guidance set out in the Society for Cardiothoracic Surgery position statement on trauma ³.

As in other areas of surgery, robotic assisted surgery is a developing technologies and use of 3D imagery within thoracic surgery. A modern thoracic surgery service will need to have the capability to use robotic surgery and 3D imagery where it provides better patient outcomes and is cost effective. To support the future development of robotic and 3D capability, a policy will be developed for surgical techniques to identify where these technologies adds most value. At the present time, Health Technology Wales' guidance with regard to robotic assisted thoracic surgery is that there is currently insufficiently evidence to support routine adoption. It is therefore currently not currently commissioned by WHSSC. This position will be reviewed as the evidence base develops and further guidance is published.

Consideration has been given as to whether patients should be managed on pooled waiting lists or their care managed by an individual surgeon. There is a clinical consensus that while there can be efficiencies to having pooled lists where patients are allocated to the surgeon with most availability, actually patients and clinicians' relationships are vitally important, particularly when they are receiving life changing diagnoses and treatment options, as is often the case in this service. Therefore, to achieve this it is proposed that each pair of thoracic surgeons per MDT should have shared lists, to ensure continuity of care and cross cover and appropriate access times. Furthermore, the clinical consensus is that patients should have their care managed by an individual surgeon in the new service

Psychology was identified by other Thoracic Surgery centres as a core part of the multi-disciplinary response required to support patients, particularly those patients who have a non-curative diagnosis and it was agreed that this should be included in the service model for the new service.

A Pain Management Specialist Nurse has been identified by clinicians as a core part of the service to provide dedicated support to all patients and to be included as part of the service model for the new service.

Timely access to pathology and other test results by the Centre was highlighted as critical to ensure that timely clinical decisions can be made. This has been a significant problem in a number of Centres providing services across different organisations and this will need some concentrated work to ensure that this does not become a problem for Thoracic services across South Wales. Timely access to pathology and other tests is required for decision making. To ensure this can happen the service will require investment to fund additional staff, microscopes and consumables. This will include the need to support genetic sequencing of EGFR by automated PCR and companion diagnostic immunohistochemistry PDL1, ALK1, ROS1, the ability to interpret molecular markers for precision medicine. Around 8% of these tests are performed on resection specimens and fall under the remit of Swansea Bay as we house the tissue blocks in file.

³ Provision of Cardiothoracic Surgery for Cover for Trauma in United Kingdom and Ireland. Society for Cardiothoracic Surgery in Great Britain and Ireland (2020).

It was clear from other centres that having an effective multi-disciplinary team in place to support patients holistically and coordinate their care between the Centre and local services was of critical importance, and that the nursing, Allied Health Professionals and psychology staff were key to achieving the best outcomes for patients.

The Specialist Care Team in the Centre should comprise:

- Consultant-led care by general thoracic surgeons
- Cardiothoracic trainees ST1-3 trainees and thoracic sub-specialised trainees ST4-ST8.
- Non training middle grade doctors and advanced care practitioners (surgical assistants).
- Consultant anaesthetists with specialist thoracic expertise
- Theatre staff with thoracic expertise
- Respiratory care team with specialist interventional expertise
- A designated team of radiologists with specialist interventionist expertise
- Specialist ward and HDU nurses with thoracic expertise
- Thoracic nurse specialist support in all areas
- Lung cancer nurse specialist support in thoracic surgical clinics and wards
- Specialised thoracic physiotherapy, occupational therapy, dietetics, speech and language therapy and psychology (including out of hours and at weekends as necessary)
- Pharmacy Support
- Specialist support in post-operative pain management control
- Access to specialist palliative care
- A designated team of pathologists with specialist thoracic expertise including the ability to interpret molecular markers for precision medicine.
- Designated administrative staff to ensure all clinical staff are supported in the timely delivery and monitoring of the service
- Case managers

Speed of access was considered key to the success of the Centres looked at in the UK. Their aim was to operate within 2 weeks of the MDT, and this could be a target adopted for the new service.

A self-contained bedded unit for Thoracics only with attached critical care / HDU beds was considered necessary. A significant proportion of these beds should be en-suite rooms with facilities for relatives to stay incorporated within them to support patients and reduce the impacts of travelling to the Centre. In addition, accommodation on the Morriston Hospital site should be available for relatives as required. Patients should be informed of anticipated discharge date on admission, evidence by the Royal College, states 6-10 days with a baseline of 5 days post operation. Effective discharge planning will be required to ensure that these discharges can be made in a timely manner with effective support in place within patients' homes. The culture of the Centre should be for patients to be as independent as possible, encouraging them to wear their own clothes not PJs, with the design of the Centre aimed to promote independence by for example including a dining room and rehabilitation room.

Advanced Nurse Practitioners should be ward based who coordinate patients' care and manage delivery of their care plans and drive patients through the pathway. They will provide thoracic service assistance to junior medical staff / Registrars and work autonomously, running follow-up clinics for chest drains, flutter bags wound and vac-pump dressing management and patient support and education.

Physiotherapy and Occupational Therapy staff should also be ward based with exercise bike and associated equipment located within an area of the ward to facilitate easy exercising of patients.

Based on the current patient population the majority of patients will be discharged from the Surgical Centre home. However, as increasingly frail patients are able to be operated on it is likely that more will need to be repatriated to local hospitals_instead of discharged home directly.

Follow up

- Patients will attend their post-surgery follow up locally with the thoracic surgeon-
- Patients will be offered a specialist follow up appointment within 6 weeks of surgery (oncological patients should be re-discussed at MDT within 4 weeks post-surgery) and regular specialist follow up thereafter, which may be delivered in a local setting and include a protocol led clinical nurse specialist follow up.
- Ongoing follow up and ongoing surveillance will be carried out by Chest Physicians in the local hospital.
- Rapid and comprehensive feedback to referral teams including the patient's GP to ensure that as much follow up care as possible can be provided locally.
- Where a patient has ongoing rehabilitation needs, these will be met locally.
- An agreed referral process back to the centre for patients requiring specialist advice or support. Urgent cases should be on an immediate basis. Failure to attend an appointment without explanation should be followed up.

It will be important that Thoracic Surgeons are available to discuss patients with local respiratory clinicians in between MDTs by phone / email. Any patients who have recurring problems after surgery are referred back to the local MDT as if a new patient to ensure that there is easy access back into the system if required. It is essential that these local hospitals ensure that all relevant patient information, especially documentation and imaging via PACS is readily available to the Centre. To support this process and effective joint working between the Centre and the local hospitals an electronic referral management system needs to be in place.

Supportive and Palliative Care

All services caring for patients with progressive life threatening disease have a responsibility to provide care with a palliative approach. All patients should have access to specialist palliative care services as described in the CSCG Minimum Standards for Specialist Palliative Care (NHS Wales 2005).

8. Education, training and research

- Providers of thoracic surgery should be linked to a University.

- There must be programmes for ongoing education and development for all professionals involved in the service. Providers are expected to offer programmes for ongoing education and development for all professionals involved in the service.
- Patients should be given the opportunity to enter approved clinical trials for which they fulfil the entry criteria.
- There should be an ongoing programme for research activity in line with

European Guidelines⁴ for a clinical research programme within a general thoracic surgery unit. This will be led by surgeons and other MDT members with relevant qualifications and interests.

- The academic programme of a thoracic unit should be led by surgeon(s) with experience and expertise in clinical research as evidenced by specialized training through the acquisition of a higher (research) degree (MD or PhD), research grants and publication output.
- The Health Board should support academic surgeons with dedicated and protected (non-clinical) research time within the job framework.
- Surgeon(s) undertaking any health care outcome research, systematic reviews and meta-analyses should have access to the services of a professional medical librarian, epidemiologist, medical statistician and/or health economist as appropriate to the research focus.
- Surgeon(s) that are 'developing' randomized trials as part of their clinical research programme should have access to a formal clinical trials unit and a research and development office for the administrative support of grant applications.
- Surgeon(s) 'participating' in clinical trials should have access to dedicated supporting personnel such as research managers, database managers academic pathologists and research nurses All tissue based research will provide funding support to the Histopathology laboratory for block identification, testing, interpretation, reporting and filing.
- Surgeon(s) developing translational clinical research should have the access listed in points 5 and 6, and in addition access to basic science laboratories and supporting personnel (e.g. post-doctoral scientists and lab technicians).

9. Clinical Governance

Each Health Board will have robust clinical governance mechanisms in place to ensure that local services are delivered in line with the demands of their local patient population. There must be governance processes in place where local pathways and the services that support them are monitored and reviewed, with opportunities for the escalation of any issues.

⁴ Alessandro Brunellia, Pierre Emmanuel Falcoz et al. European guidelines on structure and qualification of general thoracic surgery. European Journal of Cardio-Thoracic Surgery, 2014: 45 (2014); 779-786

10. Further Development Work

1. Rib Fixation:

Whilst many patients can have rib fractures treated conservatively, a subgroup and increasing group of patients do benefit from early rib fixation to reduce the risk of complications. The South Wales Trauma Network went live on the 14th September 2020. Patients with significant chest injuries in the presence or absence of multisystem trauma are largely transferred to the Major Trauma Centre and as part of their management maybe considered for rib fixation. This includes patients who are ventilated for managing their chest injuries. Patients who fulfil the criteria for rib fixation who are less acute, are discussed directly with the nearest thoracic surgery service directly and are considered for transfer/fixation on a case-by-case basis. The current approach does mean patients who require early rib fixation may not be gaining access to this service in a timely manner. However, the network has issues clinical guidance as to which patients should be referred.

Thus, there is no formalised regional rib fixation service serving the population of South Wales, West Wales and South Powys and this agreement needs to be sought as part of the broader service development.

2. Thoracic Prehabilitation and Rehabilitation Model of Care:

Collaborative multimodal prehabilitation and rehabilitation activity has been raised during individual health board meetings, as this has been identified as a core component of this service model. However, there is no dedicated thoracic prehabilitation service across the region apart from the Swansea Bay UHB physiotherapy service. Further work is required to establish funding for these services within each health board to maximise the quality of life, treatment options and survival for our lung cancer population.

3. Access to Transport

Any changes to the provision of NEPTS as a result of the planned changes (including additional patient activity over and above current baseline activity, and or increases in journey distances / vehicle job cycle times) may require additional investment to increase operational capacity. This will need to be agreed and commissioned via the NEPTS DAG (Delivery Assurance Group) and EASC.

The following commissioning policy is planned for development by WHSSC which will need to further inform this service model:

Priority Area	Product	Timeline
Non Cancer - Benign Conditions. (including NHS England Policy development (Surgery for pectus deformity))	Commissioning Policy	For development in March 2021

11. **Conclusion**

This service model has been developed through a series of clinical summits, clinically led task and finish groups and has undergone a series of iterations to reflect comments and changes. All iterations have been approved by the Implementation Board whose membership consists of all health boards WAST and WHSSC. The final changes of this service model have taken place to align with the revised agreed service specification which was signed off by the Joint Committee in WHSSC.

APPENDICES

Appendices reference & Document Title	
A & B - Thoracic Surgery Demand 2019 v0.2	 Appendix A+B Thoracic Surgery_De
C - Welsh Health Specialised Services Committee (WHSSC) – Specialised Services Service Specification : CP144 Adult Thoracic Surgery September 2020 V2.0	 Appendix C WHSSC Service Specification
D - Thoracic Surgery Commissioning Plan, April 2019	 Appendix D_Thoracic Surgery (
E – Thoracic Surgery Performance Framework v1.0	 Appendix E Thoracic Surgery Per
F - Surgical Pathway for Suspected and Confirmed Lung Cancer (October 2020)	 Appendix F NOP surgery 2019 v62 da
G - Benign Conditions Pathway (October 2020)	 Appendix G BENIGN PATHWAYS (
H – Thoracic Prehabilitation & Rehabilitation Model of Care v0.07 Oct 2020	 Appendix H Thoracic Prehabilitat
I – NEPTS Eligibility Criteria	 Appendix I NEPTS Eligibility Criteria.pd

Strategic Outline Case (SOC)

Development of a Single South Wales Thoracic Surgery Centre at Morriston Hospital



Document control sheet

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Executive Summary

Introduction

This Strategic Outline Business Case (SOC) seeks support from Welsh Government (WGov) for strategic capital investment of between £24.07m - £42.236m (including non-recoverable VAT and Optimism Bias) to develop a single Thoracic Surgery Centre in South and West Wales and South Powys (referred to as 'South Wales') at Swansea Bay University Health Board's (SBUHB's) Morriston Hospital, Swansea.

Background

Thoracic surgery is an operation or series of operations for conditions affecting the chest, including lungs, mediastinum, pleura, diaphragm, the sympathetic nervous system the chest wall, the contents of the chest, and the lungs. Most thoracic surgery is performed on patients with lung cancer, although thoracic surgeons also operate on patients with other types of thoracic malignancies, pneumothorax, various forms of thoracic sepsis and a large group of miscellaneous conditions which fall outside the remit of other specialities. Thoracic surgery is also performed on non-cancerous conditions such as punctured lungs or complications from pneumonia, and biopsies on people with certain types of lung disease to help get a diagnosis. It does not include the surgery on the heart and great blood vessels, which is undertaken by Cardiac Surgeons; or surgery of the oesophagus, which is undertaken by Upper Gastrointestinal Surgeons.

Wales operates two different thoracic surgical models: Patients living in North Wales access this service from Liverpool Heart and Chest Hospital NHS Foundation Trust. This is one of the largest thoracic surgical centres in the United Kingdom, with six consultant surgeons, serving a catchment area that spans the north west of England and North Wales (patients in northern Powys access the thoracic surgery service at Heartlands Hospital, Birmingham, which has recently become part of the University Hospitals Birmingham NHS Foundation Trust). In contrast to North Wales and most of the rest of the UK, South Wales operates two small services, which are based at Morriston Hospital, Swansea and the University Hospital of Wales (UHW), Cardiff. The service at Morriston has two consultant surgeons, and the service at the University Hospital of Wales has three consultant surgeons. Patients from South East Wales and parts of mid Wales have their surgery at UHW.

The Strategic Case

A. Strategic Context

The population of South Wales, South Powys and West Wales is 2.2 million. The number of patients requiring thoracic surgery (both cancer and non-cancer reasons) Over the 5 years up to and including 2019/20, admitted patients care has averaged at 425 spells at Morriston Hospital and 628 episodes at UHW, a combined average of approximately 1053 p.a. This level of activity per centre is unsustainable. Health outcomes and patient experience are below national rates and fail to meet the needs of South Wales' population, which has a legacy of heavy industry and coal mining; both of which contribute significantly to the incidence of lung cancer/disease. This SOC is the culmination of a lengthy collaboration between South Wales' six Health Boards and Welsh Ambulance Service NHS Trust, by the specialist commissioner Welsh Health Specialised Services Committee (WHSSC) and key stakeholders.

B. The Case for Change

There has been concern for a number of years that whilst both Morriston and UHW Hospital sites have good standards, their small services are unsustainable and may not fully meet the future needs of the population of South Wales. These concerns have been highlighted in several external independent reviews, reports and public consultations between 2013-2018, which have been commissioned by Health Boards and WHSSC:

- In July 2013 Abertawe Bro Morgannwg University Health Board ('SBUHB' from the 1st April 2019) commissioned an external independent review of the cardiac services at Morriston Hospital. The '**Ramsden Report**' (reported Sept. 2013) identified key issues with the cardiac services service Morriston Hospital a (follow-up visit reported in November 2014);
- In January 2017 Welsh Health Specialised Services Committee's (WHSSC's) **Invited Review by the Royal College of Surgeons of England** review of thoracic surgical services thoracic surgery in

South Wales recommended that in order to provide sustainable and high-quality thoracic surgery, there should only be one hospital delivering the adult service. A Thoracic Surgery Review Project Board ('Project Board') was established to form recommendations on the future provision of adult thoracic surgery in South Wales, and an Independent Panel recommended that Morriston Hospital should be the location for the proposed single adult thoracic surgery centre.

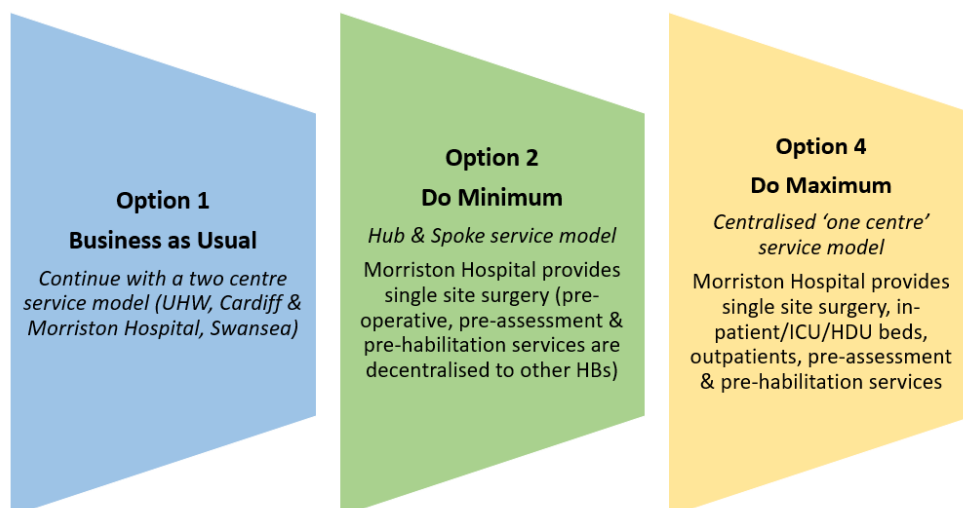
There followed a two-stage WHSSC led consultation exercise in which the views of service users and other stakeholders were sought to make a recommendation on the future provision of thoracic surgery services in South Wales:

- **WHSSC's Public Consultation on the Future Shape of Thoracic Surgery services in South Wales: Involving our Stakeholders** (November 2017), which confirmed that thoracic surgery services in South Wales should be provided on one site.
- **WHSSC's Public Consultation - Location of the Single Site Thoracic Surgical Centre** (January 2018), which agreed the new centre should be based at Morriston Hospital in Swansea.

On 29 January 2018 the WHSSC Joint Committee approved the recommendations following public consultation that thoracic surgery should be provided from a single site for South Wales (covering SBU, Hywel Dda, Cwm Taf (Cwm Taf Morgannwg from 01.04.2019), Aneurin Bevan, Powys Teaching Health Board and CV UHBs). The Panel's conclusion that the new unit should be based at Morriston Hospital in Swansea was also agreed. This 'one-site' 'Swansea model' is supported by all five South Wales HBs' and by Powys Teaching HB.

This business case supports development of a single thoracic surgery centre in South Wales, 'fits' with SBU HB's *Organisational Strategy: Better Health, Better Care, Better Lives 2019 - 2030, Clinical Services Plan 2019-2024* and Annual Plan. It 'fits' with Hywel Dda, Cwm Taf Morgannwg, Aneurin Bevan and CVU HBs' clinical strategies. It supports key national and regional strategic drivers for investment. The potential service scope for this investment is as follows:

Figure – Potential Service Scope Options



SBUHB has recently begun a public engagement programme on changes to the role and function of the three main hospitals in Swansea Bay to support implementation of its Clinical Services Plan and Annual Plan 2021/22. The health board is proposing to create three centres of excellence with each hospital specialising in different aspects of healthcare. Morriston Hospital will become the centre of excellence for **URGENT AND EMERGENCY CARE, SPECIALIST CARE AND REGIONAL SURGICAL SERVICES**, including complex medical interventions. This is a general principle which has already been outlined and agreed in past public consultations. To facilitate this, most planned care services currently provided at Morriston Hospital will be transferred to other sites, enabling capacity to be freed up to support urgent and emergency care services, and more specialist services. These changes are set out in the Health Board's engagement document *Changing for the Future* (July 2021).

The development of a single thoracic surgery centre will standardise the delivery of thoracic surgery services in South Wales; improve long term sustainability; standardise quality standards and patient pathways; improve equity of access and the patient experience, and; improve health outcomes by providing the population of South Wales with a fit for purpose single site Thoracic Surgery centre, in accordance with best practice and the recommendations of the above reviews and consultation processes.

Under this arrangement all thoracic surgery will be undertaken at the 'Hub' (Morriston Hospital) in dedicated theatres, with access to the right equipment and the right staff, and other Health Boards' local hospitals will provide 'spoke' services, unless clinical facilities are required which are not available at a local site or in exceptional clinical circumstances. An alternative approach to a fully staffed HDU (level 2) is a Thoracic Enhanced Care Unit or T-ECU (level 1+). Following their surgery patients will be recovered in the theatre recovery area (thoracic anaesthetic team). Once appropriate, a majority of patients who have undergone a routine thoracic surgical procedure will then be transferred to the T-ECU under the admitting thoracic surgical team for ongoing close observation, monitoring and care, which will be provided by the thoracic surgical on-call team and advanced critical care practitioners (ACCPs) with support from the anaesthetic on-call team.

The key benefits include:

- providing capacity to deliver 1,300 cases p.a.;
- providing a best practice dedicated thoracic surgery hybrid theatre that supports improved health outcomes for patients;
- supporting equitable provision of care across Wales for, e.g. resection rates, variability of surgical procedures, timely care;
- supporting a more sustainable medical and nursing staffing model; and;
- meeting unmet service need, especially for benign work and supports MDTs.

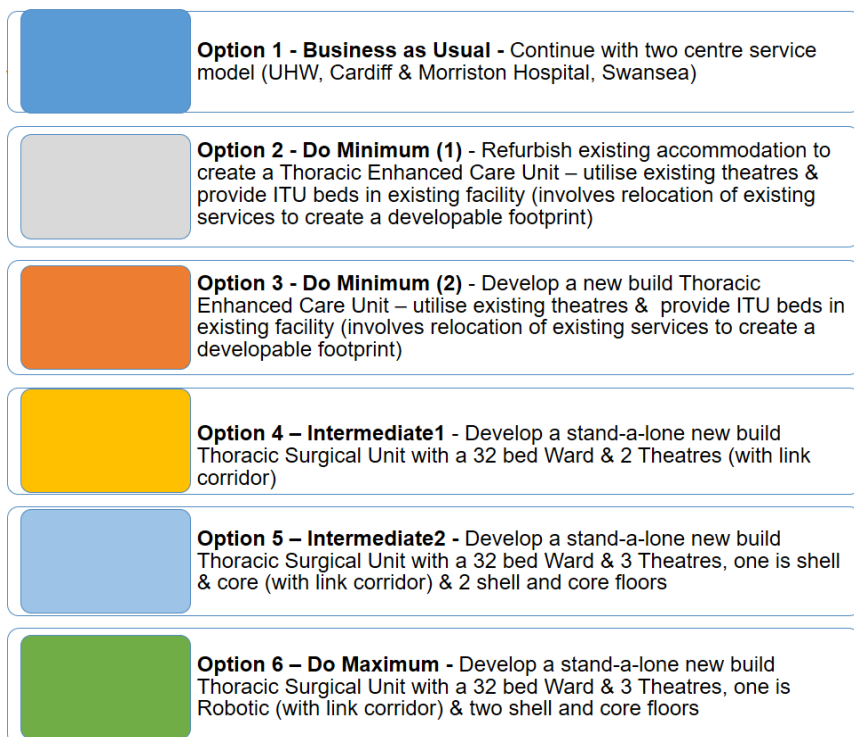
The Economic Case

The spend objectives were agreed as follows (please see Section 1.12):

- To provide a fit for purpose single site Thoracic Surgery Clinical Network service for the South Wales population.
- To increase the capacity of thoracic surgical services to meet planned need.
- To improve the quality of South Wales' thoracic surgical services.
- To improve the efficiency, effectiveness and economy of South Wales' thoracic surgical services.

The public consultation on the optimum configuration of the Thoracic Surgery Unit for South Wales concluded there should be one Centre at Morriston Hospital. A long list of framework options were developed to deliver this solution.

Each long list option was compared against the spend objectives and Critical Success Factors (CSFs) for the project and four options were shortlisted for detailed appraisal at Outline Business Case stage (please see **Appendix I – Framework Options**). Options 2 – 6 all allowed for a development at Morriston Hospital with Health Board delivery and capital funding from WGov):

Figure – Shortlist Options

The Commercial Case

This project's procurement strategy will follow the *Designed for Life; Building for Wales*³ procurement route and be publicly funded. The required services include enabling works at Morriston Hospital as required, including the supply of essential infrastructure services, road works and car parking; development of a compliant and future proofed Thoracic Surgery Centre, and; technical commissioning.

Funding and Affordability

The indicative financial implications of the proposed investment for each shortlisted option are as follows:

Figure – Capital Requirements (£000 incl. VAT and excluding Optimism Bias)

	Option 1 Business as Usual	Option 2 Do Minimum1	Option 3 Do Minimum2	Option 4 Intermediate1	Option 5 Intermediate2	Option 6 Do Maximum
Departmental Costs	2,014	23,400	14,097	16,187	23,401	23,817
On Costs		994	569	437	437	471
Less Location Adjustment	-60	-731	-440	-498	-715	-728
Works Costs Total	1,954	23,663	14,226	16,126	23,123	23,560
Fees	316	4,300	2,772	3,071	4,170	4,238
Non Works Costs	1,236	687	588	689	689	701
Equipment Costs	101	1,868	1,066	1,334	1,216	3,311
Planning Contingency	541	3,052	1,865	2,122	2,919	3,181
Total	4,148	33,570	20,517	23,342	32,117	34,991
Less recoverable VAT	-53	-716	-462	-512	-694	-706
Base Project Cost	4,095	32,854	20,055	22,830	31,423	34,285

Figure – Capital Requirements (£000 incl. VAT and including Optimism Bias)

	Option 1 Business as Usual	Option 2 Do Minimum1	Option 3 Do Minimum2	Option 4 Intermediate1	Option 5 Intermediate2	Option 6 Do Maximum
Capital Outturn	3,456	27,975	17,098	19,452	26,765	29,159
OB Adjustment	813	6,479	3,960	4,505	6,198	6,753
Sub Total	4,269	34,454	21,058	23,957	32,963	35,912
Plus VAT	854	6,891	4,211	4,791	6,593	7,182
Total	5,123	41,345	25,269	28,748	39,556	43,094
Less Recoverable VAT	-65	-882	-569	-622	-844	-858
Project Costs (adjusted for OB)	5,058	40,463	24,700	28,126	38,712	42,236

The overall revenue affordability of each shortlisted option are as follows:

Figure – Revenue Impact (£000's)

	Option 1 Business as Usual	Option 2 Do Minimum1	Option 3 Do Minimum2	Option 4 Intermediate1	Option 5 Intermediate2	Option 6 Do Maximum
Pay	7,958	12,509	12,509	16,190	16,190	16,190
General Non-Pay	2,508	2,518	2,480	2,528	2,514	2,765
Hotel Services	283	218	218	282	497	494
Estates	205	158	158	189	345	343
Total	10,953	15,404	15,366	19,189	19,546	19,791

A full assessment of capital and revenue affordability shall be made at Outline Business Case (OBC) stage.

The Management Case

To ensure successful project delivery a robust project management reporting structure has been established. The Health Board's experience of developing and delivering complex projects in a Prince2 environment ensures diligent management and thorough clinical involvement throughout all parts of the development. The indicative milestones are set out below:

Figure – Key indicative milestones

Activity	Due Date
Implementation Board signs off SOC	Aug. 21
WHSSC Management Board endorse SOC	Aug. 21
WHSSC Joint Committee endorse SOC	Aug. 21
Health Boards scrutinise and endorse SOC	Aug. – Oct. 21
Submit SOC to WGov for approval	Oct. 21
WGov approve SOC	Dec. 21
Appoint Supply Chain Partner, Health Board Cost Advisor & Health Board Project Manager from Designed for Life Regional Framework	March 22
Implementation Board signs off OBC	Nov. 22
WHSSC Management Board endorse OBC	Nov. 22
WHSSC Joint Committee OBC	Nov. 22
Health Boards scrutinise and endorse OBC	Dec. 22
Submit OBC to WGov for approval	Dec. 22
WGov approve OBC	Feb. 22
Implementation Board signs off FBC	June 23
WHSSC Management Board endorse FBC	June 23
WHSSC Joint Committee endorse FBC	June 23
Health Boards scrutinise and endorse FBC	July – Aug. 23
Submit FBC to WGov for approval	Aug. 23
WGov approve FBC	Sept. 23

Mobilise on site	Sept. 23
New build completed (subject to contractor's programme)	Sept. 25
New build commissioning	Oct. 25
New build operational	Nov. 25
Technical Project Evaluation (approx. 3 months post new build handover)	Jan. 26
Project Evaluation (12 months post operational status)	Nov. 26

Please see **Appendix N - Management Control Plan**.

Recommendation

This SOC presents a compelling case for change and we recommend on this basis that WGov approve this SOC and that this project progress to Outline Business Case (OBC) stage. This scheme can be undertaken as a separate contract and building services could start in 3rdQtr/2023, subject to funding approval.

Signed & Dated:

Mrs Siân Harrop-Griffiths, Executive Director of Strategy
Senior Responsible Owner, SBU HB

1 The Strategic Case

1.1 Introduction

This Strategic Outline Business Case (SOC) seeks support from WGov of between £24.07m - £42.236m (including non-recoverable VAT and Optimism Bias) for capital investment to develop a single Thoracic Surgery Centre for South and West Wales and South Powys (referred to as 'South Wales') at Swansea Bay University Health Board's (SB UHB's) Morriston Hospital, Swansea.

1.2 Background

Thoracic surgery is an operation or series of operations on any part of the chest, including the chest wall, the contents of the chest, and the lungs. Most thoracic surgery is performed on patients with lung cancer, although thoracic surgeons also operate on patients with other types of thoracic malignancies, pneumothorax, various forms of thoracic sepsis and a large group of miscellaneous conditions which fall outside the remit of other specialities. Thoracic surgery is also performed on non-cancerous conditions such as punctured lungs or complications from pneumonia, and biopsies on people with certain types of lung disease to help get a diagnosis. It does not include the surgery on the heart and great blood vessels, which is undertaken by Cardiac Surgeons; or surgery of the oesophagus, which is undertaken by Upper Gastrointestinal Surgeons.

Wales operates two different thoracic surgical models: Patients living in North Wales access this service from Liverpool Heart and Chest Hospital NHS Foundation Trust. This is one of the largest thoracic surgical centres in the United Kingdom, with six consultant surgeons, serving a catchment area that spans the north west of England and North Wales (patients in northern Powys access the thoracic surgery service at Heartlands Hospital, Birmingham, which has recently become part of the University Hospitals Birmingham NHS Foundation Trust). In contrast to North Wales and most of the rest of the UK, South Wales operates two small services, which are based at Morriston Hospital, Swansea and the University Hospital of Wales (UHW), Cardiff. The service at Morriston has two consultant surgeons, and the service at the University Hospital of Wales has three consultant surgeons. Patients from South East Wales and parts of mid Wales have their surgery at UHW.

1.3 Part A - The Strategic Context

The population of South Wales, South Powys and West Wales is 2.2 million. The number of patients requiring thoracic surgery (both cancer and non-cancer reasons). Over the last 5 years up to and including 2019/20, admitted patient care has averaged at 425 spells at Morriston Hospital and 628 episodes at UHW, a combined average of approximately 1053 p.a. This level of activity per centre is unsustainable. Health outcomes and patient experience are below national rates and fail to meet the needs of South Wales' population by;

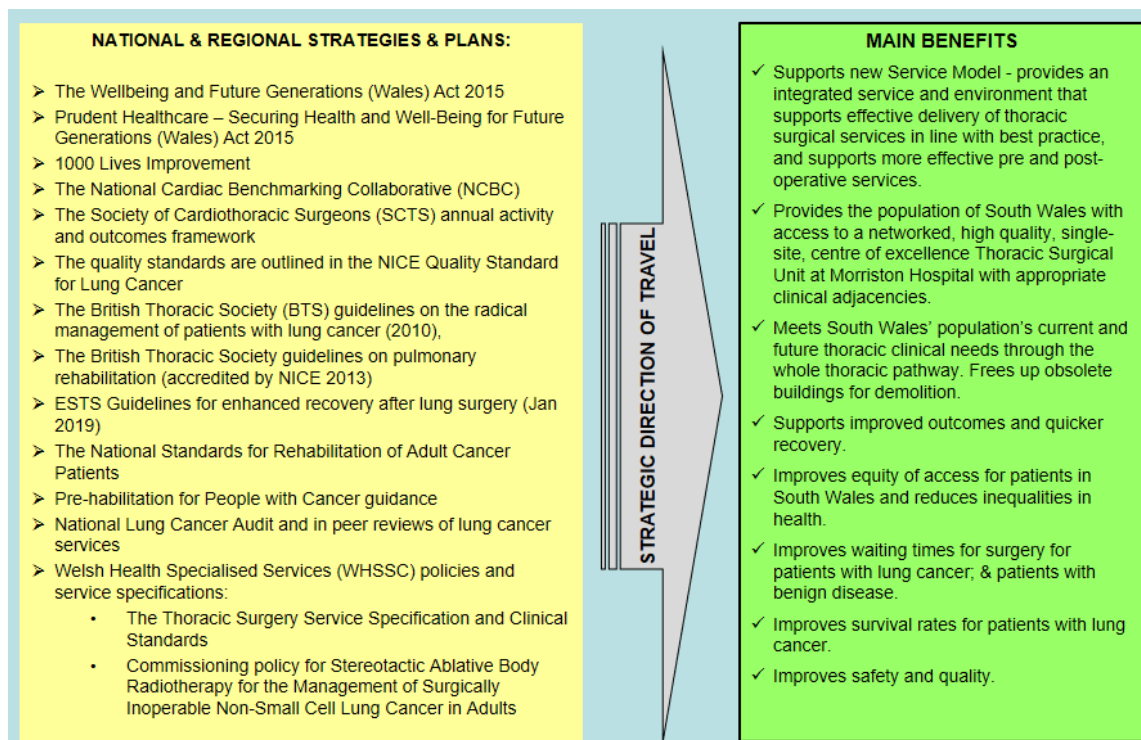
- Patients in Wales with lung cancer have waited longer than they should have for surgery;
- Patients in Wales with lung cancer have some of the lowest survival rate in Europe, although we know we have expert surgeons who produce very good outcomes'
- Patients who need surgery but do not have lung cancer have very long waiting times, and our doctors and nurses tell us this is affecting the quality of care they can provide;
- Thoracic surgery is becoming increasingly specialised and better outcomes come from larger centres (elsewhere in the UK and Europe, services are being reorganised into larger centres) and;
- Changes the way surgeon practice mean we cannot continue to staff the two units in the way we have done in the past.

South Wales has a legacy of heavy industry and coal mining; both of which contribute significantly to the incidence of lung cancer/disease.

1.4 Business Strategies

This SOC supports the following national, regional and local strategies plans and drivers for change and delivery of the main benefits:

Figure 1 – Business Strategies



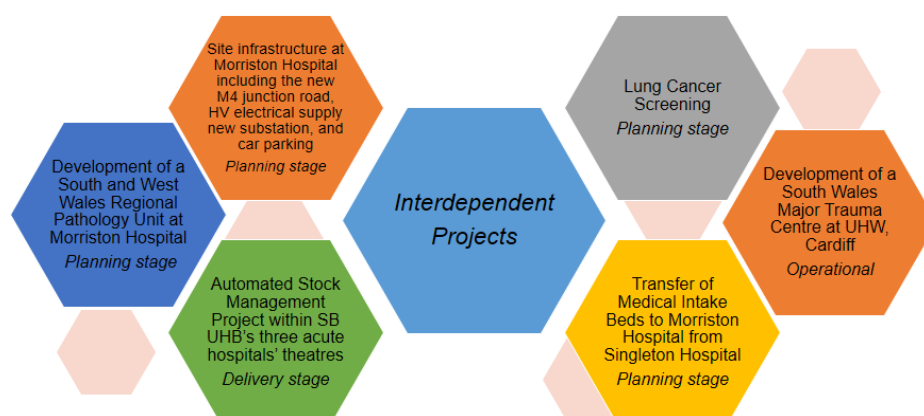
This business case 'fits' with SBU HB's *Organisational Strategy: Better Health, Better Care, Better Lives 2019 - 2030*, *Clinical Services Plan 2019-2024* and *Annual Plan 2021/22*. It 'fits' with Hywel Dda, Cwm Taf Morgannwg, Aneurin Bevan and CV UHBs' clinical strategies. It supports the outcomes of public engagements.

SBUHB has recently begun a public engagement programme on major changes to the role and function of the three main hospitals in Swansea Bay. SBUHB has recently begun a public engagement programme on changes to the role and function of the three main hospitals in Swansea Bay to support implementation of its Clinical Services Plan and Annual Plan 2021/22. The health board is proposing to create three centres of excellence with each hospital specialising in different aspects of healthcare. Morriston Hospital will become the centre of excellence for **URGENT AND EMERGENCY CARE, SPECIALIST CARE AND REGIONAL SURGICAL SERVICES**, including complex medical interventions. This is a general principle which has already been outlined and agreed in past public engagements. To facilitate this, most planned care services currently provided at Morriston Hospital will be transferred to other sites, enabling capacity to be freed up to support urgent and emergency care services, and more specialist services. These changes are set out in the Health Board's engagement document *Changing for the Future* (July 2021).

1.5 Key Interdependent Projects

The following projects are interdependent with this investment:

Figure 2 – Interdependent Projects



1.6 South Wales Thoracic Service

Morriston Hospital, Swansea

SB UHB's Morriston Hospital is responsible for delivering thoracic surgery services to residents of SBU, Hywel Dda and Bridgend area of CTM UHBs plus patients from Powys who access respiratory services in those health boards. Morriston provides thoracic surgery to a population of 380,000.

Thoracic surgery forms part of Morriston's larger cardiothoracic department, which is staffed by five cardiothoracic surgeons and two thoracic surgeons and one vacant locum post. The consultant cardiac surgeons are responsible for providing the majority of on-call cover for patients, with two thoracic surgeons providing on-call cover on their operating days. WHSSC have approved funding for a third thoracic surgeon in Swansea but there is not the capacity to provide an on-call rota staffed solely by the thoracic surgeons at a consultant level, and nursing levels are constrained due to the number of unfilled vacancies. This potentially poses a delay to 'Go Live' if critical posts are not recruited to in time for the centre opening.

Morriston's thoracic surgeons have access to one theatre and each surgeon operates once a week, typically performing resections, biopsies and lobectomies and chest surgery. Morriston's two MDTs are predominantly undertaken by video-conferencing due to the geographical areas being covered. Attendance is usually high, with the lowest rate being 88%. The two MDTs are SB UHB (patients from Morriston, Singleton and Neath Port Talbot); and; West Wales patients from Hywel Dda.

Swansea Bay UHB is currently commissioned by WHSSC to deliver mobile PET scanning service 2 days/week, and a business case has recently been approved for submission to WGov for a permanent scanner at Singleton Hospital as part of the South West Wales Cancer Service.

In response to the Pandemic, both Swansea & Cardiff services implemented a bi-weekly MDT to review all patients identified for treatment across South Wales, to agree relative prioritisation and ensure that capacity on both sites is used to greatest effect.

Cardiff University Hospital of Wales

CVU HB's UHW provides thoracic surgery to patients served by Cwm Taf Morgannwg, Aneurin Bevan, Powys and CV UHBs. This service covers patients being referred from Llandough, Royal Gwent, Nevill Hall, Royal Glamorgan and Prince Charles Hospitals. In total, UHW provides thoracic surgery to a population of 1.5 million people.

Similar to Morriston, the thoracic team in Cardiff is part of the wider cardiothoracic surgery service consisting of five consultant cardiac surgeons and three consultant thoracic surgeons. WHSSC approved a 4th operating surgeon to support the thoracic on call linked to the establishment of the major trauma centre at Cardiff in 2020. Consultant thoracic on-call is provided by the thoracic surgery consultants working a 1 in 5 rota, the 5th slot currently being covered as locum cover.

UHW's thoracic surgeons have access to 5 theatre days per week and use VATS approach for 80% of the range of procedures, including lobectomies, mastectomies and pleural biopsies. They also provide airway stenting, Chest wall stabilization after multiple rib fractures. CV UHB provide specialised surgery to all South Wales population in relation with VATS thymectomy, Pectus surgery, Lung Volume Reduction Surgery (1) surgical lung volume reduction, (2) endobronchial or endoscopic lung volume reduction, which includes endobronchial valve implantation, its replacement and coil insertion. (LVRS) Endobronchial Valve Replacement (EBVR). Cardiff currently house the only permanent positron emission tomography (PET) scanning facility for the whole of South Wales.

UHW contributes to 5 MDT meetings per week. Attendance has improved in recent years, since the appointment of a third thoracic surgeon, and now a fourth, with rates consistently above 90% and approaching 100%. The MDTs are held at the Royal Glamorgan Hospital, University Hospital Llandough, Royal Gwent Hospital, Nevill Hall Hospital, and Prince Charles Hospital. Pre-habilitation is part of the Cardiff pathway, where all routine checks and assessments are done via pre-assessment.

1.7 Current Activity

The following table shows activity reported outturn against the LTA for both current services over the last 5 years.

Figure 3 - Activity Outturn (all procedures): Thoracic surgery outturn by centre over five years

Year	SBUHB - Spells	C&VUHB - Episodes	Total Activity
2015/16	407	591	998
2016/17	421	615	1036
2017/18	474	646	1120
2018/19	414	672	1086
2019/20	408	627	1035

Source: provider contract monitoring returns to WHSSC.

In order to illustrate the casemix currently managed by the 2 centres the activity reported by the 2 centres in 2019/20 has been re-stated on a spell basis and a consistent categorisation applied as follows

Figure 4 – 2019/20 Activity

2019/20 Outturn				
		SBU	C&V	Grand Total
Cancer	Resection	156	175	331
	Complex	1	2	3
	Major	8	5	13
	Intermediate	13	18	31
	Other - No Proc	2	4	6
Cancer Total		180	204	384
Non Cancer	Resection	13	45	58
	Complex	26	81	107
	EBVR		17	17
	Major	17	47	64
	Intermediate	59	94	153
	Other - No Proc	14	16	30
Non Cancer Total		129	300	429
PNCO	PNCO	31	18	49
Trauma	No Procedure	41		41
	Procedure	27		27
	Exc		87	87
Trauma Total		68	87	155
Grand Total		408	609	1017

1.8 Part B - The Case for Change

There has been concern for a number of years that whilst both Morriston and UHW Hospital sites have good standards their small services are unsustainable and may not fully meet the future needs of the population of South Wales. These concerns have been highlighted in several external independent reviews, reports and public consultations between 2013-2018, which have been commissioned by Health Boards and by the specialist commissioner WHSSC:

- In July 2013 ABM UHB (now SBU HB), commissioned an **external independent review** of the cardiac services at Morriston Hospital. The '**Ramsden Report**' (reported Sept. 2013) identified key issues with the cardiac services service Morriston Hospital. In September 2014 ABMU HB commissioned a follow-up external independent review of cardiac services at Morriston Hospital. The findings from this return visit were reported in November 2014.
- In January 2017 **WHSSC's Invited Review by the Royal College of Surgeons of England** review of thoracic surgical services thoracic surgery in South Wales recommended that in order to provide sustainable and high-quality thoracic surgery, there should only be one hospital delivering the adult service – *"It is the review team's recommendation that WHSSC adopts a single site thoracic surgery service model for South Wales. The review team considered that this reconfiguration was in the best interests of patient care and was the most sustainable option for thoracic surgery going forward. It was considered that changes to cardiac and adult thoracic surgery would mean there would not be a staffing resource that could adequately sustain a two site model in the future..."* Following the (above) Royal College of Surgeons review of services a **Thoracic Surgery Review Project Board** ('Project Board') was established to form recommendations on the future provision of adult thoracic surgery in South Wales. An **Independent Panel**, comprising a range of clinical experts from North Wales and England, patients or their relatives, an equalities representative, representatives from the third sector (voluntary and charity organisations) and an Independent Chair, were asked to look at the options and make recommendations on the location for the single centre using the criteria developed during the consultation process and agreed by the Project Board. The Independent Panel

recommended that Morriston Hospital should be the location for the proposed single adult thoracic surgery centre.

- There followed a two-stage WHSSC led consultation exercise in which the views of service users and other stakeholders were sought to make a recommendation on the future provision of thoracic surgery services in South Wales:
 - o **WHSSC's Public Consultation on the Future Shape of Thoracic Surgery services in South Wales:** Involving our Stakeholders (November 2017) first stage, which decided whether Morriston Hospital, Swansea or the University Hospital of Wales, Cardiff should continue to provide two separate thoracic surgical services, or whether one of those hospitals should provide a larger, combined service for the whole of South Wales. This stakeholder consultation confirmed that thoracic surgery services in South Wales should be provided on one site.
 - o **WHSSC's Public Consultation - Location of the Single Site Thoracic Surgical Centre** (January 2018) second stage, which agreed the new centre should be based at Morriston Hospital in Swansea, conditional upon the detailed workforce model and medical rotas to provide the 24/7 thoracic surgery cover being signed off by WHSSC, and to a number of mitigating actions/assurances identified by stakeholder Health Boards and Community Health Councils (CHCs).

On the 29th January 2018, WHSSC approved the recommendations to provide thoracic surgery for South Wales from a single site, and that the new centre should be based at Morriston Hospital in Swansea.

In November 2018, the five South Wales UHBs and Powys Teaching Health Board, considered the outcome of the WHSSC led public consultation and recommendations on the future of thoracic surgery in South Wales.

Following conclusion of the Public Consultation on location of a single centre, an Adult Thoracic Surgery Commissioning Plan was approved through WHSSC via its Management Group to Joint Committee (**Appendix B – Thoracic Surgery Commissioning Plan**).

The Adult Thoracic Surgery Implementation Board received comprehensive reports from three South Wales Thoracic Surgery Clinical Summits (**Appendix H- Clinical Summits**) held in March, and May and November 2019, where Medical Directors', Clinical Directors, Thoracic Surgeons, Pathologists, Anaesthetists, Radiologist, Physiotherapists, Senior Managers from the 6 Health Boards, WAST, CHC and commissioning participants were invited to inform development of the project, service model and pathways (**Appendix R – Service Model**). SB UHB led on behalf of all the 6 Health Boards, an 'in your shoes' patient engagement exercise. The outcome of which was presented at the last clinical summit and further informed the service model.

A **Thoracic Surgery Service Specification for Wales** was agreed through a formal WHSSC process including consultation on behalf of all the participating Health Boards (**Appendix J – Service Specification** for full details).

On 29th January 2018 the WHSS Joint Committee approved the recommendations following public consultation that thoracic surgery should be provided from a single site for South Wales (covering SBU, Hywel Dda, Cwm Taf Morgannwg, Aneurin Bevan, Powys Teaching Health Board and CVU Health Boards). The Panel's conclusion that the new unit should be based at Morriston Hospital in Swansea was also agreed. This 'one-site' 'Swansea model' is supported by all five South Wales UHBs' and by Powys Teaching Health Board.

1.9 Needs Assessment

South Wales has a legacy of heavy industry and coal mining; both of which contribute significantly to lung disease. Primary lung cancer, related to tobacco use is the commonest cause of cancer death in Wales. However, the population in Wales has a poor survival rate for lung cancer compared to the UK¹, the rest of Europe and the USA.

¹ Five-year relative survival for lung cancer in men in England (8%) is below the average for Europe (12%). Wales (8%) and Scotland (8%) are also below the European average but Northern Ireland (11%) is similar to the European average. Across the European countries for which data is available, five-year relative survival in men ranges from 5% (Bulgaria) to 15% (Austria); Five-year relative survival for lung cancer in women in England (10%) is below the average for Europe (16%). Wales (10%), Scotland

Surgery is known to provide the best chance of survival. However, patients often present with advanced disease making surgery less likely to be suitable or successful. It is essential that cases are detected early in order to provide the best prognosis. Based on current referral pathways and practice WHSSC confirms there has been stable total demand over the last 3 years of between 1,000 and 1,100 cases p.a. in South Wales. Therefore, WHSSC will commission us to deliver 1100 cases plus 20% uplift totalling 1300 cases p.a.

1.10 Problems with Status Quo

Patients in Wales with lung cancer have some of the lowest survival rates in Europe (14%). South Wales' 5-year lung cancer survival is now over the 5-year target but our performance 'gap' is 25%. Our patients wait longer than they should for treatment and would have better health outcomes if they received their treatment at larger specialist centres. This can only be achieved if South Wales increases its re-section rates 25-30% (NB. It is anticipated part of the 'gap' will be closed by early diagnosis/screening following the introduction of National Lung Screening is currently at planning stage).

Practice in thoracic surgery is changing. Historically heart (cardiac) and chest (thoracic) operations have been performed by the same surgeon - cardio-thoracic surgeons. These surgeons are now being replaced by full time cardiac or thoracic surgeon with 24/7 emergency cover and thoracic surgery is becoming increasingly specialised.

South Wales needs access to safe, sustainable and effective thoracic surgical services which can offer the best experience for patients requiring thoracic surgery. The Royal College of Surgeons have recommended that to ensure the future sustainability and quality of thoracic surgery in South Wales, there should only be one hospital delivering the service. A larger single adult thoracic surgery centre will be more resilient and more sustainable. A single site would be able to cope more effectively with unpredictable changes such as episodes of staff sickness, vacancies and changes to national government policy. **Appendix L – Public Consultation** documents details the consultation and decision making process underpinning confirmation of the south Wales' Thoracic Unit being developed on one site rather than two site (i.e. 'Business as Usual') delivery model. Going forward, multi-disciplinary training will be undertaken across two sites. The implementation of the **Major Trauma Unit (MTU) in September 2020** involves involve surgeons who already work together, aligning more closely to support MTU.

There is no formalised regional rib fixation service² serving the population of South Wales, West Wales and South Powys (compared to other trauma networks) Early estimates from other trauma networks indicate a rib fixation rate of 20 (range 16-27)/year, although this likely to increase as awareness improves and new evidence emerges. Whilst many patients can have rib fractures treated conservatively, an increasing group of patients do benefit from early rib fixation to reduce the risk of complications (e.g. pain, infection), reduced hospital length of stay and enhanced patient experience. The South Wales Trauma Network went live on the 14th September 2020. Patients with significant chest injuries in the presence or absence of multisystem trauma are largely transferred to the Major Trauma Centre (UHW) and as part of their management maybe considered for rib fixation. This includes patients who are ventilated for managing their chest injuries. Patients who fulfil the criteria for rib fixation who are less acute, are discussed directly with the nearest thoracic surgery service (UHW or Morriston Hospital) are considered for transfer/fixation on a case-by-case basis. The current approach does mean patients who require early rib fixation may not be gaining access to this service in a timely manner. However, the MTN network has issued clinical guidance as to which patients should be referred.

(9%) and Northern Ireland (12%) are also below the European average. Across the European countries for which data is available, five-year relative survival in women ranges from 9% (Scotland) to 20% (Austria).

² Rib fixation involves surgical treatment of fractured ribs using titanium plates to stabilise the ribs while they heal and hold the ribs in their correct location

The network recently met with thoracic services in South Wales and with support from external thoracic surgeons are undertaking some benchmarking as to whether clinical standards set out are being followed across the network and use TARN data to predict likely rib fixation activity. This will help determine which pathways need to be made more robust and guide operational modelling for a regionalised rib fixation service. Presently, the proposed plan for less acute referrals is to be referred to the nearest thoracic surgeon available, to help with current delays. However, after centralisation of thoracic services takes place, it is likely that rib fixation will continue to be undertaken at both UHW and Morriston Hospital sites, and therefore some thoracic surgical presence will need to be maintained at the MTC for this purpose. The group is scheduled to meet again in autumn 2021 to discuss further once the benchmarking and data becomes available.

1.11 Benchmarking

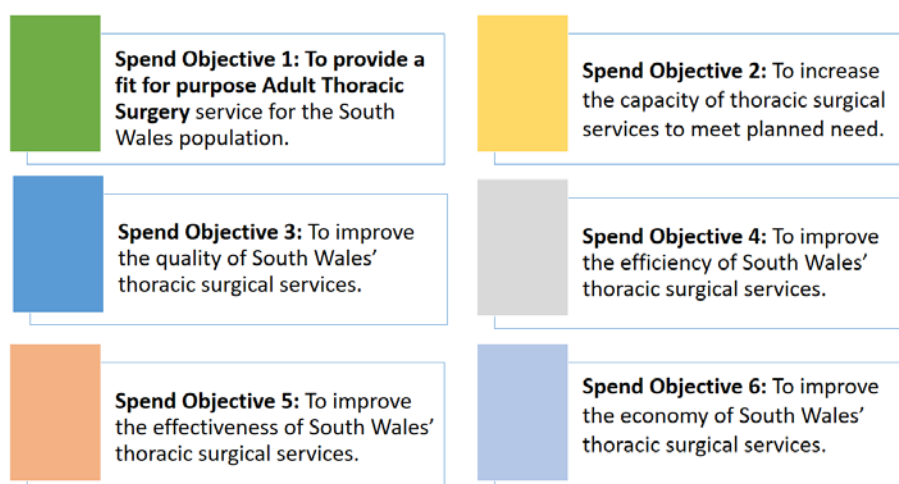
Benchmarking visits and liaison with Guys & St Thomas', Brighton, Manchester, Liverpool Chest & Heart Hospital, and Nottingham and Norwich Thoracic Units during 2019 and Betsi Cadwalder informed the case's operational and functional requirements. These three Units have a similar population base and would be a good comparison to South Wales:

Bristol	Birmingham	Nottingham
Bristol's 32-bedded Thoracic Unit is shared with Head and Neck services. Unit's 5 thoracic surgeons carried out 880 thoracic operations in 2016/17 (mainly VATS). Their team approach services a large catchment area and provide pre-assessment with patient's being admitted to surgical admission unit day of surgery, with discharge directly back to a dedicated ward, post-operation. Enhanced recovery pathways, worked towards discharge of day 4 post operation.	Birmingham's 24-bedded ward thoracic surgical patients are supported by a 4-bedded HDU with inclusion criteria, and a 5 thoracic surgeon team. It carried out 1,052 in 2016/17 (including meso and pectus, mainly VATS). This unit provides rapid access to cancer services and next available appointments for Respiratory Clinic. It has a Pre-habilitation service as part of the respiratory service and Pre-assessment with day of surgery admission to surgical admission unit. Its ward is post-surgery only with a 4-bedded HDU.	Nottingham's 24-bedded ward has a 4-bedded HDU, which only supports post-operative patients. It carries out approx. 1,000 operations a year. It manages Thoracic daily in Pre-assessment unit, with access to anaesthetic, medical physio and nursing support. It supports Day 4 discharge. A number of operational clinical 'good practices' and services were identified as being essential to the success of the new South Wales Centre, these included providing a Pre-assessment service and a Day of Surgery Assessment service.

1.12 Spend Objectives

In accordance with NHS Wales's guidance, the key spend objectives have been identified as follows:

Figure 6 – Spend Objectives



All of the above are to be achieved by the start of 2025 and evidenced by the start of 2026, subject to funding and planning approvals (for detailed spend objectives' baselines and targets see **Appendix D – Benefits Realisation Register**). Locating a single site may prove a potential disbenefit and may result in some patients have to travel further for their thoracic surgery. To mitigate against this, patient transport arrangements, and possible overnight stay pre surgery is being considered

1.13 Business Needs

To achieve an improvement in the patient experience and in survival rates against UK standards, thoracic surgeons will need access to new technology and modern infrastructure; Clinical and Nursing Teams' working practices will need to change to ensure the new service we deliver the best possible care. Patients will attend the Centre for their pre-operative assessment as this enables them to meet the staff who will be caring for them when they have their operation and to introduce them to the Centre to improve their overall experience and assist them in preparing for surgery. Patients will also attend the centre for their operation. Where significant travelling for patients is involved family support and transport will be provided. Facilities for relatives will also be provided on the ward while they are waiting for patients to have operations. Patients will attend their post-surgery follow up locally with the thoracic surgeon. Ongoing follow up and ongoing surveillance will be carried out by Chest Physicians in the local hospital.

Investment is required to support delivery of a new service model and patient pathways in compliance with UK best practice. It will improve the quality of care, provide fit for purpose, dedicated and networked thoracic surgical services to the population of South Wales. The new service should comprise a single specialist thoracic surgical Unit in Morriston Hospital, as informed by lengthy formal and targeted patient and carer engagement processes, which helped develop and refine the new a 'hub and spoke' service model. Implementation arrangements will ensure timely access to surgery for benign and malignant chest diseases.

Under this arrangement all thoracic surgery will be undertaken at the 'Hub' (Morriston Hospital) in dedicated theatres, with access to the right equipment and the right staff, and other Health Boards' local hospitals will provide 'spoke' services, unless clinical facilities are required which are not available at a local site or in exceptional clinical circumstances.

An alternative option to a fully staffed HDU (level 2) is the **Thoracic Enhanced Care Unit** or **T-ECU** (level 1+). Following their surgery patients will be recovered in the theatre recovery area (thoracic anaesthetic team). Once appropriate, a majority of patients who have undergone a routine thoracic surgical procedure will then be transferred to the T-ECU under the admitting thoracic surgical team for ongoing close observation, monitoring and care, which will be provided by the thoracic surgical on-call team and ACCPs with support from the anaesthetic on-call team. Hence, a T-ECU does not have to be sited close to the ICU. It should not manage patients requiring multiple organ support or mechanical ventilation. These patients will be managed in the ICU (elective thoracic surgical cases in the CITU. Trauma and emergency transfers for example, empyema etc., in the general ITU). It is appropriate for the following categories of patients (**Appendix W – T-ECU Pathways**):

- Post-operative thoracic patients who need close observation or monitoring for longer than a few hours.
- Patients requiring support for a single failing organ system, but excluding those needing advanced respiratory, cardiac or renal support.
- Patients requiring a level of observation or monitoring not possible on a general ward.
- Patients no longer needing intensive care, but who are not yet well enough to be returned to a general ward.

Morriston will be staffed by a team of eight thoracic surgeons providing 24-hour emergency cover supported by specialised MDTs and the implementation of a complex case MDT. Surgical practices and services will be specialised and standardised. Design of practices and services will be based on an evidence-based approach for optimising service delivery to patients and maximising survival rates (achieving these standards will be critical to improving outcomes, diagnosis and interventions for the population of South Wales). WHSSC's Service Specification details these arrangement.

1.14 Infection Prevention and Control and Design Solution

The architectural design strategies for this development will include best practice infection prevention measures for health-care facilities. This will include providing: fully compliant bed spacing; access to isolation facilities for infection prevention and control towards curbing the spread of Covid-19 and other infectious diseases; design which supports social distancing to ensure adequate spacing in waiting areas, corridors, hallways, stair and entrance lobby to support social distancing; design which enhances natural ventilation to maximise the movement of air within a space, and; and design which enhances daylight or sunlight to support good fenestrations and daylight in structures can sway the spread of airborne pathogens.

When services are relocated out of the Morriston Hospital site in the future, the released space will be refurbished ensuring the areas are fit for purpose, improving bed spacing to meet HBN standards as well as accommodating a high level number of single rooms. Overall, this will improve patient experience and will have better outcomes, reduce the risk of infection, prevention and control issues

1.15 Forecast Activity

The detailed commissioning volumes will be subject to further refinement and validation but for planning purposes an activity profile has been developed that reflects:

- Combined activity of the current centres – approximately 1100 cases.
- Provision of for growth in demand – up to 1300 cases.
- A rebalancing of Cancer and Non Cancer procedures so that volumes of each are broadly aligned and the in total over 600 non cancer procedures are undertaken.

The current and forecast volumes have been broken down by complexity (based on clinical coding) as follows:

Figure 8 – Current and Forecast volumes

		2019/20 Outturn			Proposed
		C&V UHB	SB UHB	Total	
Category 1	Category 2				
Cancer	Resection	175	156	331	392
	Complex	2	1	3	4
	Major	5	8	13	15
	Intermediate	18	13	31	37
	Other – no procedure	4	2	6	7
Non Cancer	Resection	45	13	58	97
	Complex	81	26	107	177
	EVBR	17	-	17	33
	Major	47	17	64	102
	Intermediate	94	59	153	250
	Other – no procedure	16	14	30	48
PNCO	PNCO	18	31	49	58
Trauma	No procedure	-	41	41	48
	Procedure	-	27	27	32
	Exclude	87	-	87	-
Grand Total Admitted Patient Care		609	408	1,017	1,300
New Outpatients		468	304	772	987
FU Outpatients		1,000	531	1,531	1,956

1.16 Service Interdependencies

WHSSC's Service Specification identifies number of service interdependencies, which must be integrated or co-located with the single site centre:

- Theatre & Recovery, Anaesthetic and Nursing Teams & Advanced Nurse Practitioners services
- Respiratory Medicine (this is the prime referring speciality for most conditions requiring thoracic surgery. Respiratory physicians are core members of lung cancer and emphysema MDTs).
- Respiratory Pathology Laboratory.
- Out-patient clinic space, including facilities for pre-op assessment and pre-admission.

- Support from all other hospital services including interventional radiology.
- Support from Haematological, Biochemical and Microbiological laboratories and Cellular Pathology & Molecular Services;
- Endoscopic examinations by bronchoscopy and oesophagoscopy (including endobronchial ultrasound and endoscopic ultrasound);
- Radiological investigation by plain X-Ray, contrast studies, ultrasound needle biopsy, vascular imaging and computed tomography (including PET-CT);
- Dedicated Physiotherapy, Dietetics, Occupational Therapy, Pain Team, and Speech and Language Therapy to deliver multimodal pre-habilitation and rehabilitation, and;
- Support from all other hospital services especially Interventional Radiology and Pulmonary Rehabilitation.
- Pharmacy
- Cardiac Surgery
- Intensive Care
- Emergency Provision
- Appropriate Support into Major Trauma Centre

The following support services are also essential:

- Pain Management and Specialist Palliative Care Service
- Psychology and Psychiatric Liaison Service
- Dietetics, Speech & Language
- Pathology and Pharmacy
- HSDU
- Physiotherapy and Occupational Therapy

There will be links with approved clinical trials, educational links with University partners, and close links with support services such as Social Workers, Psychiatrists, Chaplain, Bereavement support and the Primary Health Care Team. WHSSC's Service Specification supports the use of robotic assisted thoracic surgery and the use of 3D imagery to support this service. Minimally invasive approaches (video assisted thoracoscopic surgery VATS/Robotic Surgery relating to Option 5). **Appendix T – SWOT Robotic Surgery**, however, at the present time, Health Technology Wales' guidance with regard to robot assisted thoracic surgery is that there is currently insufficient evidence to support routine adoption. It is therefore not currently commissioned by WHSSC. This position will be reviewed as the evidence base develops and further guidance is published during the completion of OBC and FBC.

1.17 Digital Technology

SBUHB has learnt from Covid and some of our optimum solutions will utilise modern digital technology to provide, e.g. state of the art technology video assisted thoracoscopic surgery (VATS) in theatres to support MDT working across multiple sites (enabling remote access to advice, e.g. from Morriston Hospital's Respiratory consultants for local patients), allowing appropriate clinical advice to be provided remotely without incurring onerous travel, and digital / Audio Visual solutions, which will enable communications between sites and services that are distant to ensure efficient and effective service delivery. The Digital Strategy for this project will be detailed at OBC stage.

1.18 Transport

The impact of travel and transport for patients and staff was concluded as part of the Public Consultation process when re-location of the service to one site was raised during key stakeholder workshops. In developing the Service Model the issues of mitigating transport issues has been addressed.

1.19 Transitional Arrangements

Services and consultant staff are already working more closely together to align practices and to support cross-cover working during Covid-19 pressures. As we move towards one centre working, MDT arrangements will be planned for and ongoing discussions between participating Health Boards will inform the transitional process, informing the incorporation of outreach working and 'spoke' services delivery into individual Health Board's IMTPs.

There are elements of the new Service Model, which are not dependent on single site delivery, specifically, those services which will continue to be delivered in remote Health Boards. These services should be implemented in advance of the building works being completed.

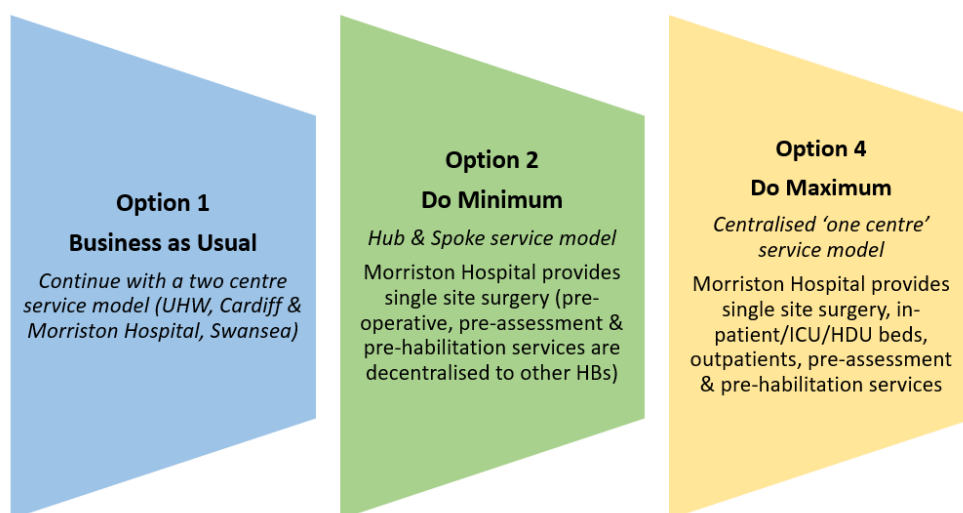
1.20 Commissioner Support

WHSSC is a Joint Committee of the seven Local HBs (LHBs) in Wales. WHSSC propose to commission the service of thoracic surgery in accordance with the criteria outlined in the agreed Service Specification (28 March 2017), which was agreed through a formal WHSSC process including consultation. This specification aims to provide a sustainable, high quality, equitable service that is patient centred and optimises the quality of patient and family experience.

1.21 Potential Scope

This section describes the potential scope for the project in relation to the above business needs in terms of modalities and service drivers. The potential scope has been assessed against a continuum of need. The potential service scope options within these ranges are described in the figure below:

Figure 9 - Potential Service Scope Options



1.22 Main Outcomes and Benefits

The main potential outcomes benefit to patients, the Health Board and the wider health community would be classified in terms of cash releasing benefits (CRBs), non-cash releasing benefits (NCRBs), quantifiable or quantitative benefits (QBs), and non-quantifiable or qualitative benefits (NQBs).

The key service and clinical benefits per Service Solution Option are detailed below:

Figure 10 – Hi-level Comparison of each Service Solution Options' - Service & Clinical Benefits

Key Service & Clinical Benefits	Service Solution Options			
	Business as Usual Option Continue with a two centre service model (UHW, Cardiff & Morriston Hospital, Swansea)	Morriston Hospital provides single site surgery		
		Do Minimum Option Develop a Thoracic Surgical Unit (32 beds, 2 dedicated Theatres, 8 HDU-style beds & Pre-Assessment / Surgical Support or Develop a Thoracic Enhanced Care Unit (T-ECU) delivery (pre-operative, pre- assessment & pre- habilitation services are decentralised to other Health Boards)	Intermediate Option Develop a Thoracic Surgical Unit (32 beds, 2 dedicated Theatres, 8 HDU-style beds & Pre-Assessment / Surgical Support) plus 3rd Theatre (shell and core) & two extra floors for future expansion	Do Maximum Option Develop a new build stand-a-lone Thoracic Surgical Unit with link corridor (includes: a Surgical Ward & 3 Theatres (one is Robotic), HDU-style beds, ITU-style beds, Pre-Assessment, Surgical Support & 2 shell and core floors)
Provides capacity to deliver 1,300 cases p.a.	X	✓	✓	✓
Meets UK-wide Cancer: Benign service delivery 50:50 ratio	X	✓	✓✓	✓✓
Provides a future-proofed facility	X	✓	✓✓	✓✓
Provides a best practice dedicated thoracic surgery hybrid theatre that supports improved health outcomes for patients	X	X	X	✓
Supports equitable provision of care across Wales for, e.g. re-section rates, variability of surgical procedures, timely care, etc.	X	✓	✓	✓✓
Anaesthetics – supports patients requiring OOHs emergency thoracic surgery	X	X	✓	✓
Supports a more sustainable medical and nursing staffing model	X	✓	✓	✓
Supports increase in number of lung cancer patients & their timely care following implementation of planned Lung Cancer Screening	X	✓	✓	✓
Meets unmet service need, especially for benign work and supports MDTs	X	✓	✓	✓
Supports research opportunities	X	✓	✓✓	✓✓✓
Supports training and teaching requirements	X	✓	✓✓	✓✓✓
Promotes policy making and effective management	X	✓	✓	✓✓
Outcome	Fails to deliver any service & clinical benefits	Delivers nearly all the service & clinical benefits	Delivers all the service & clinical benefits	Optimises delivery of all service & clinical benefits

Appendix U - Comparison of Service Solution Options for a detailed comparison of each option's clinical and operational benefits.

Clinical performance and benefits will be evidenced under the agreed Thoracic Surgery Performance Framework. Regular feedback will be sought from patients, carers and stakeholders sets out details of the main benefits (this will be detailed at OBC stage). As a regional investment the economic gross value added benefits of this project shall be broadly measured at Outline Business Case stage in terms of supporting the wider-societal aims of the Future Generations Act and Additionality Guidance³. The principal focus of this economic appraisal will be the direct and indirect health outcomes related benefits the project is expected to deliver in the short, medium and long-term. The quantification of these benefits will concentrate on the wider-NHS and Welsh economy rather than the UK generally, including improved equity of access.

1.23 Main Risks

The main business and service risks associated with the potential scope across all the options for this project are shown below, together with their counter measures, are detailed in **Appendix P – Risk Register**. **Appendix O – Option & Risk Appraisal Group Membership** sets out details of the appraisal team members.

1.24 Constraints

The key constraints are as follows:

- Continued commitment of all Health Boards to implement the new Service Model.
- The new service model must demonstrate measurable health outcomes for patients.
- Ability to recruit and retain sufficient qualified and non-professionally qualified staff.
- The solution must be located on the existing Morriston Hospital site, adjacent to diagnostic pathology and Emergency Dept. services.
- The solution must allow the service to meet planned local demand and regional targets.
- Network delivery arrangements must work within local geographical constraints.
- The solution must be affordable in capital and revenue terms and be delivered within project budget.

1.25 Dependencies

The success of this project is subject to the following dependencies:

- Availability of capital funding from the Welsh Government and Commissioner support.
- Releasing suitable capacity at Morriston Hospital with key clinical adjacencies.

³ Additionality Guide, 3rd Edition, English Partnerships - October 2008

2 The Economic Case

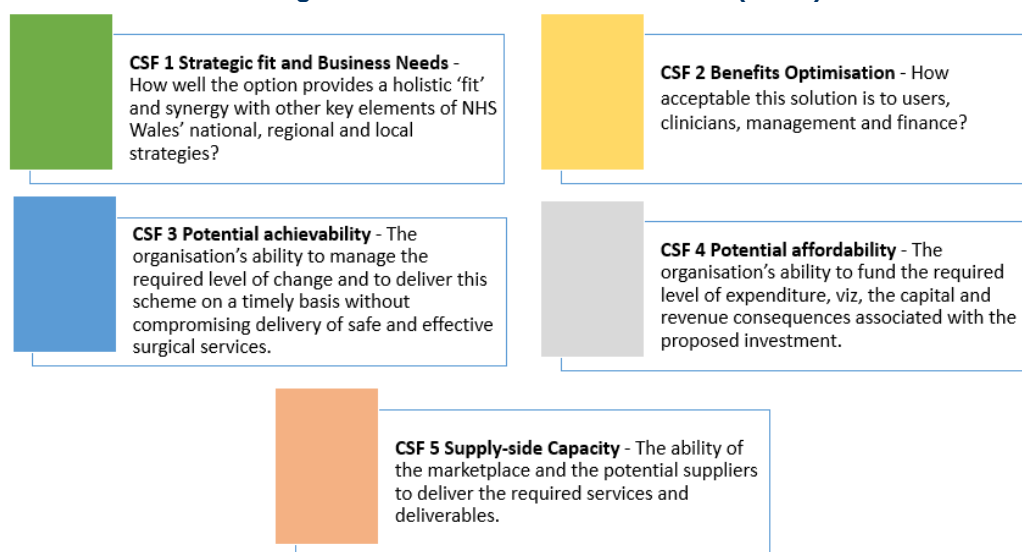
2.1 Introduction

In accordance with the Capital Investment Manual and requirements of HMT's *The Green Book: Central Government Guidance on Appraisal and Evaluation* (2018), this section of the business case demonstrates the wide range of options that have been considered in response to the potential scope identified in this SOC.

2.2 Critical Success Factors

The Critical Success Factors (CSFs) have been identified to allow evaluation of the potential options. These are shown below:

Figure 11 – Critical Success Factors (CSFs)



2.3 Methodology

The Appraisal Group identified a range of framework options (as follows) in accordance with Treasury Green Book and Capital Investment Manual and was informed by an Options Appraisal Workshop. A list of participants is attached in **Appendix O – Option & Risk Appraisal Group Membership**.

- **Potential Service Scope Options** – what is the potential coverage of the service to be delivered (the 'what');
- **Potential Service Solution Options** – the potential clinical services' which could be delivered under the preferred service scope option (the 'how');
- **Potential Technical Solution Options** – the potential technical (i.e. estates) options for delivering the preferred service solution option (the 'where');
- **Potential Implementation Options** – the potential timescales options for delivering the preferred service scope, preferred service solution, preferred technical solution options (the 'when');
- **Potential Service Delivery Options** – who will deliver the preferred service scope, preferred service solution, preferred technical solution, preferred implementation options (the 'who');
- **Potential Finance Options** – the potential funding and affordability options for delivering the preferred service scope, preferred service solution, preferred technical solution, preferred delivery options.

The service solution options were informed by WHSSC's Service Specification. The technical (estates) solutions were split-out from the service solution and were informed by Morriston Hospital's Masterplan, and by the required clinical adjacencies identified within the above and by feedback from two South Wales Adult Thoracic Surgery Clinical Summits held in March, & November 2019 respectively.

2.4 Stakeholder Involvement

The key stakeholders involved in the planning process to date includes the following:

Figure 12 – Key Stakeholders



The key service scope and service delivery solutions were determined by independent expert panels and by public consultation with stakeholders as follows:

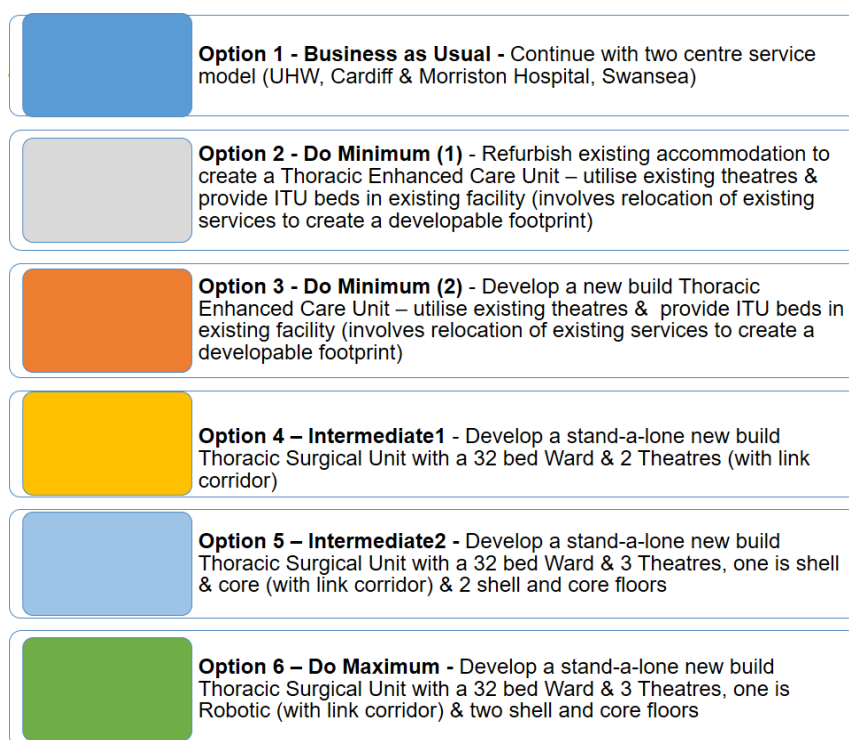
- A single site thoracic surgery service solution was supported by **WHSSC's Invited Review by The Royal College of Surgeons of England (January 2017)** of thoracic surgical services thoracic surgery in South Wales.
- A one site thoracic surgery services solution in South Wales was supported by WHSSC's Public Consultation on the Future Shape of Thoracic Surgery services in South Wales: Involving our Stakeholders (November 2017).
- **WHSSC's Public Consultation to determine the most appropriate location for development of a single Site Thoracic Surgical Centre** (29th January 2018) approved the recommendations to provide thoracic surgery for South Wales from a single site, and that the new centre should be based at Morriston Hospital in Swansea.
- From the outset there was wide **stakeholder consultation** across six Health Boards, WAST, SB UHB - CHC, WHSSC via three Clinical Summits.
- On behalf of the six Health Boards, SBU led a series of **patient engagement** 'in your shoes' sessions to engage with patients who have undergone thoracic surgery, (Sept-November 2019).

2.5 The Long Listed Options

The long list of options was generated using the Scoping Options framework. The sections below summarise the assessment of each scoping option as they were assessed against the Investment Objective and CSF criteria to determine their short list suitability. The framework options findings are summarised in **Appendix I – Framework Options**. The possible solutions were carried forward into the short list for further appraisal and evaluation. All the 'discounted' options were excluded at this stage.

2.6 Summary of Short List Options Framework

Based on hi-level non-financial analysis the short list is as follows:

Figure 13 – Short List Options

A preferred way forward option has not been identified at this stage.

The current condition of the Morriston Hospital site means that backlog maintenance is a significant factor, and whenever refurbishment of existing facilities is undertaken, these issues need to be addressed as part of these works, so providing fully HTM / HBN compliant and appropriate facilities but also contributing to significant additional capital costs.

In relation to the new option, assumptions have been made that a whole set of service reconfigurations planned within Swansea Bay UHB will be undertaken and that these will release facilities within the Morriston site which could be repurposed to provide the required Thoracics facilities. However these service changes are currently the subject of public consultation which may or may not result in these changes being implemented. Proposed is the transferral of significant levels of planned care activity not requiring critical care facilities to other hospital sites, which will release space in Morriston Hospital. However, the relative priorities for the use of this space will need to be taken into account, assuming that the proposals are agreed following public consultation. As a result complex discussions around bed reconfiguration/modelling will be developed as part of the OBC development for Thoracics where confirmation that sufficient space has been released for the thoracic and other priorities to be implemented on the Morriston Hospital site.

2.7 Indicative Capital and Revenue Costs of each Short Listed Option

Capital Costs

The project's cost advisor, AECOM, has prepared indicative SOC stage capital costs based on the agreed Schedules of Accommodation (please refer to **Appendix Q – Schedule of Accommodation** for high-level Schedules of Accommodation for Option 2 & 3, and for Options 3, 4 and 5). The indicative capital costs (excluding VAT and Optimism Bias) for each shortlisted option (please see **Appendix E – Cost Forms**) are as follows:

Figure 14 – Indicative Capital Costs (excl VAT £000s and Optimism Bias above baseline)

	Option 1 Business as Usual	Option 2 Do Minimum1	Option 3 Do Minimum2	Option 4 Intermediate1	Option 5 Intermediate2	Option 6 Do Maximum
Departmental Costs	1,678	19,500	11,747	13,490	19,501	19,847

On Costs	-	829	474	364	364	393
Less Location Adjustment	-50	-609	-366	-415	-596	-607
Works Costs Total	1,628	19,720	11,855	13,439	19,269	19,633
Fees	263	3,583	2,310	2,559	3,475	3,532
Non Works Costs	1,030	572	490	574	574	584
Equipment Costs	84	1,557	888	1,111	1,014	2,759
Planning Contingency	451	2,543	1,554	1,769	2,433	2,651
Total	3,456	27,975	17,097	19,452	26,765	29,159

Option 1 (BAU) includes an estimate of full backlog costs for the current cardiac estate on the Morriston Hospital and Cardiff bases but these costs cannot be avoided through adoption of one of the new build option as the existing accommodation will continue in operation.

The key assumptions underlying the development of the capital costs are:

- Capital Cost include works, non-works, abnormals allowances, equipment costs (a detailed equipment list will be provided at OBC stage) and planning contingency.
- VAT is at 20% except for the professional fee and other vat recoverable elements.
- The BIS PUB SEC indices at this stage is Q3/2021 (272). The location factor is 97%.
- This SOC excludes a Generic Economic Analysis (GEM) at this stage.
- There are no capital requirements in other Health Boards.

The indicative capital costs (excluding VAT and including Optimism Bias) for each shortlisted option (please see **Appendix V – Optimism Bias Mitigations**) are as follows:

Figure 15 - Capital Requirements (£000 excl VAT £000s and including Optimism Bias)

	Option 1 Business as Usual	Option 2 Do Minimum1	Option 3 Do Minimum2	Option 4 Intermediate1	Option 5 Intermediate2	Option 6 Do Maximum
Capital Outturn	3,456	27,975	17,098	19,452	26,765	29,159
OB Adjustment	813	6,479	3,960	4,505	6,198	6,753
Sub Total	4,269	34,454	21,058	23,957	32,963	35,912

Figure 16 – Indicative Works Programme per Option

	Option 1 Business as Usual	Option 2 Do Minimum1	Option 3 Do Minimum2	Option 4 Intermediate1	Option 5 Intermediate2	Option 6 Do Maximum
Start on site	June 2022	Sept 2023	Sept 2023	Sept 2023	Sept 2023	Sept 2023
Handover	May 2023	Sept 2025	Sept 2025	Sept 2025	Dec 2025	Feb 2026
Commissioning	June 2023	Oct 2025	Oct 2025	Oct 2025	Jan 2026	Mar 2026
Operational	July 2023	Nov 2025	Nov 2025	Nov 2025	Feb 2025	Apr 2026

Revenue Costs

The baseline and indicative future revenue cost for each shortlisted option are outlined in the figure below:

Figure 17 – Revenue cost impact of the Shortlisted Options (£000's)

	Option 1 Business as Usual	Option 2 Do Minimum1	Option 3 Do Minimum2	Option 4 Intermediate1	Option 5 Intermediate2	Option 6 Do Maximum
Pay	7,958	12,509	12,509	16,190	16,190	16,190
General Non-Pay	2,508	2,518	2,480	2,528	2,514	2,765
Hotel Services	283	218	218	282	497	494
Estates	205	158	158	189	345	343
Total	10,953	15,404	15,366	19,189	19,546	19,791

The revenue costings include the following assumptions:

- Costed at 2020/21 prices.
- Recurrent costs include the following recurring staff and non-staff costs:
 - o Thoracic Consultants
 - o Anaesthetists
 - o Intensivists
 - o Ward Staff
 - o Theatre Staff
 - o Specialist nursing including pain, ACCPs, SCPs
 - o Therapists
 - o Radiologists and Radiographers
 - o Pathology
 - o Maintenance
 - o Theatre and ward clinical consumables
 - o HSDU
 - o Hotel Services
 - o Administration
 - o IT support

3 The Commercial Case

3.1 Introduction

This section of the SOC outlines the proposed 'deal' as outlined in the Economic Case. The SOC is seeking to secure public funding from the WGov's 'All Wales Capital Programme'.

3.2 Required Services

The required services include enabling works at Morriston Hospital as required, including the supply of essential infrastructure services, development of a compliant Thoracic Surgery Centre, and technical commissioning.

3.3 Key Appointments & Contract Arrangements

A number of key appointments will be made via the WGov's Building for Wales Framework to ensure delivery of this project:

- Supply Chain Partner (construction and design team services).
- Health Board Project Manager (HBPM).

The following will be appointed through an appropriate framework procurement route:

- Health Board Cost Advisor (HBCA).

Supervisor and other technical services are to be provided by the Health Board.

3.4 Required Facilities and Compliance

The South Wales Thoracic Surgical Unit will be in compliance with the following Health Building Note/Welsh Health Building Note (HBN/WHBN) & Health Technical Memorandum/Welsh Health Technical Memorandum (HTM/WHTM) NHS design guidance: WHBN 01-01 Cardiac Facilities; WHBN 04-04: Adult In-Patients⁴; HBN 26: Facilities for Surgical Procedures; HBN 12: Out-Patients dept., and; WHBN 04-02: Critical Care Units.

The operation of the Unit must comply with the European Guidelines on Thoracic Surgery 2014. **Appendix Q – Schedule of Accommodation** sets out high level Schedules of Accommodation for Option 2 & 3, and for Options 3, 4 and 5. The estates solution and site location of the thoracic surgical unit on the Morriston site will be confirmed at OBC stage, **Appendix F – Drawings** sets out indicative footprint and location options.

3.5 Potential for Risk Management

A risk register has been compiled and costed relative to risks that apply over the whole of the project lifecycle at this stage (**Appendix P – Risk Register**). The planning contingency has been assessed by an independent cost advisor. The planning contingency is 10% of works, fees, equipment and non-works. This assessment of risk and complies with NHS Wales Shared Services Partnership – Specialist Estates Services (NWSSP - SES) guidance at this planning stage.

3.6 Indicative Timescales

The indicative milestones are set out below (**Appendix N – Management Control Plan**):

⁴ minimum 50% ratio of single beds

Figure 18 – Key indicative milestones

Activity	Due Date
Implementation Board signs off SOC	Aug. 21
WHSSC Management Board endorse SOC	Aug. 21
WHSSC Joint Committee endorse SOC	Aug. 21
Health Boards scrutinise and endorse SOC	Aug. – Oct. 21
Submit SOC to WGov for approval	Oct. 21
WGov approve SOC	Dec. 21
Appoint Supply Chain Partner, Health Board Cost Advisor & Health Board Project Manager from Designed for Life Regional Framework	March 22
Implementation Board signs off OBC	Nov. 22
WHSSC Management Board endorse OBC	Nov. 22
WHSSC Joint Committee OBC	Nov. 22
Health Boards scrutinise and endorse OBC	Dec. 22
Submit OBC to WGov for approval	Dec. 22
WGov approve OBC	Feb. 22
Implementation Board signs off FBC	June 23
WHSSC Management Board endorse FBC	June 23
WHSSC Joint Committee endorse FBC	June 23
Health Boards scrutinise and endorse FBC	July – Aug. 23
Submit FBC to WGov for approval	Aug. 23
WGov approve FBC	Sept. 23
Mobilise on site	Sept. 23
New build completed (subject to contractor's programme)	Sept. 25
New build commissioning	Oct. 25
New build operational	Nov. 25
Technical Project Evaluation (approx. 3 months post new build handover)	Jan. 26
Project Evaluation (12 months post operational status)	Nov. 26

4 Funding and Affordability

4.1 Introduction

The purpose of this section is to set out the indicative financial implications of the proposed investment (as set out in the Economic Case) and proposed Deal (as described in the Commercial Case).

4.2 Capital

A capital cost assessment of the shortlisted options has been undertaken by AECOM, Cost Advisors based on NHS Departmental Cost Allowances (DCAGs) applied to the proposed schedules of accommodation. The high level capital costs of the shortlisted options (incl. VAT and excluding Optimism Bias) are as follows (**Appendix E – Cost Forms**):

Figure 19 – Capital Requirements (£000 incl. VAT and excluding Optimism Bias)

	Option 1 Business as Usual	Option 2 Do Minimum1	Option 3 Do Minimum2	Option 4 Intermediate1	Option 5 Intermediate2	Option 6 Do Maximum
Departmental Costs	2,014	23,400	14,097	16,187	23,401	23,817
On Costs		994	569	437	437	471
Less Location Adjustment	-60	-731	-440	-498	-715	-728
Works Costs Total	1,954	23,663	14,226	16,126	23,123	23,560
Fees	316	4,300	2,772	3,071	4,170	4,238
Non Works Costs	1,236	687	588	689	689	701
Equipment Costs	101	1,868	1,066	1,334	1,216	3,311
Planning Contingency	541	3,052	1,865	2,122	2,919	3,181
Total	4,148	33,570	20,517	23,342	32,117	34,991
Less recoverable VAT	-53	-716	-462	-512	-694	-706
Base Project Cost	4,095	32,854	20,055	22,830	31,423	34,285

The key assumptions underlying the development of the capital costs are:

- Capital Cost include works, non-works, abnormals allowances, equipment costs (a detailed equipment list will be provided at OBC stage) and planning contingency.
- VAT is at 20% except for the professional fee and other vat recoverable elements.
- The BIS PUB SEC indices at this stage is Q3/2021 (272). The location factor is 97%.
- This SOC excludes a Generic Economic Analysis (GEM) at this stage.
- There are no capital requirements in other Health Boards.

Figure 20 – Capital Requirements (£000 incl. VAT and including Optimism Bias)

	Option 1 Business as Usual	Option 2 Do Minimum1	Option 3 Do Minimum2	Option 4 Intermediate1	Option 5 Intermediate2	Option 6 Do Maximum
Capital Outturn	3,456	27,975	17,098	19,452	26,765	29,159
OB Adjustment	813	6,479	3,960	4,505	6,198	6,753
Sub Total	4,269	34,454	21,058	23,957	32,963	35,912
Plus VAT	854	6,891	4,211	4,791	6,593	7,182
Total	5,123	41,345	25,269	28,748	39,556	43,094
Less Recoverable VAT	-65	-882	-569	-622	-844	-858
Project Costs (adjusted for OB)	5,058	40,463	24,700	28,126	38,712	42,236

The indicative capital costs (excluding VAT and including Optimism Bias) for each shortlisted option (**Appendix V – Optimism Bias Mitigations**) are as follows:

4.3 Income and Expenditure Analysis

The hi-level revenue analysis is below and details the impact on Income and Expenditure is as follows:

Figure 21 – Revenue Impact £000's above baseline

	Option 2 Do Minimum1	Option 3 Do Minimum2	Option 4 Intermediate1	Option 5 Intermediate2	Option 6 Do Maximum
Pay	4,551	4,551	8,232	8,232	8,232
General Non-Pay	31	- 27	20	6	257
Hotel Services	- 64	- 64	- 1	214	211
Estates	- 47	- 47	- 16	140	138
Total	4,471	4,412	8,236	8,592	8,838

The revenue costings include the following assumptions:

- Costed at 2020/21 prices.
- Recurrent costs include the following recurring staff and non-staff costs:
 - o Thoracic Consultants
 - o Anaesthetists
 - o Intensivists
 - o Ward Staff
 - o Theatre Staff
 - o Specialist nursing including pain, ACCPs, SCPs
 - o Therapists
 - o Radiologists and Radiographers
 - o Pathology
 - o Maintenance
 - o Theatre and ward clinical consumables
 - o HSDU
 - o Hotel Services
 - o Administration
 - o IT support

Additional revenue implications that may be associated with the preferred option, once this is agreed, would be managed through the development process for the WHSSC Integrated Commissioning Plan which is agreed each year by Health Boards through the WHSSC Joint Committee.

Attached at **Appendix M** are **Letters of Support** from each Health Board to the SOC.

5 The Management Case

5.1 Introduction

The section of the SOC addresses the achievability of the project.

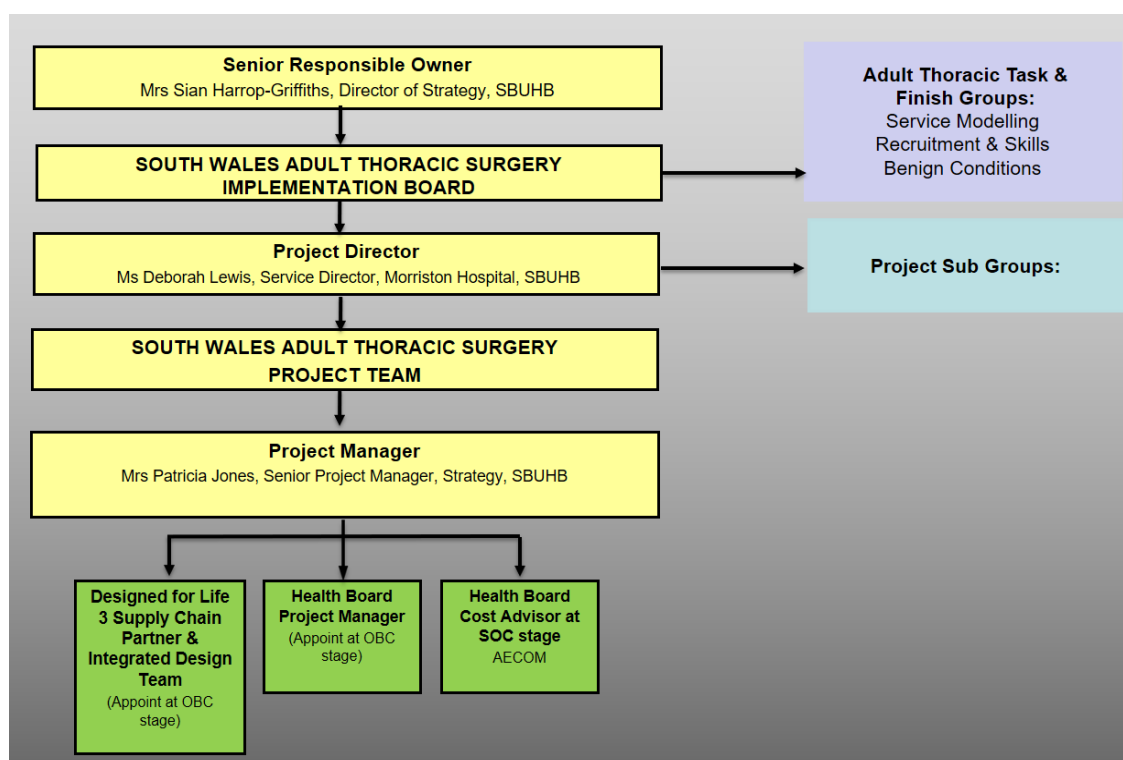
5.2 Project Management Arrangements

To ensure successful project delivery a robust project management reporting structure has been established. The structure is based on the Prince2 principles, with key members of the project team trained in Prince2 methodology. The Health Board's experience of developing and delivering complex projects in a Prince2 environment ensures diligent management and thorough clinical involvement throughout all parts of the development.

- The Senior Responsible Owner (SRO) is Mrs Siân Harrop-Griffiths, Executive Director of Strategy, Strategy, SB UHB.
- The Project Director, Ms Deborah Lewis, Service Director, Morriston Hospital Delivery Unit, has the authority and responsibility to manage delivery of the project on behalf of the key stakeholders. The Project Director reports via the Project Board to the SRO.
- The Project Manager, Mrs Patricia Jones, Senior Project Manager, Strategy, SB UHB, supports the Project Director.
- The Clinical Lead is Consultant Cardiothoracic Surgeon, Miss Malgorzata Kornaszewska.

The reporting structure is shown below:

Figure 22 – Reporting Structure



The Adult Thoracic Surgery Implementation Project Board includes representatives from the six affected Health Boards, Welsh Ambulance Service NHS Trust (WAST) and WHSSC (**Appendices A & S – Adult Thoracic Surgery Implementation Project Board Membership & Terms of Reference**).

5.3 Commissioning Plan

Following conclusion of the Public Consultation on location of a single centre, an Adult Thoracic Surgery Commissioning Plan (2019) was approved through WHSSC via its Management Group to Joint Committee.

A summary of this is attached at **Appendix J - The Adult Thoracic Surgery Commissioning Plan**. Transitional Commissioning Arrangements will be developed to support the decommissioning of the old services and to establish the new service. These will be developed alongside the transition plan for implementing the new service.

5.4 Equality Impact Assessment (EIA)

In line with the statutory duty placed on each Health Board under the Wales Public Sector Equality Duty 2011, an Equality Impact Assessment (EIA) was undertaken on the proposals for a single adult thoracic surgery centre and preferred location for South Wales (**Appendix G – EIA**).

5.5 Building Research Establishment Environmental Assessment Method (BREEAM)

The pre-construction BREEAM assessment will be provided at OBC stage following confirmation of detailed design and consultation with the BREEAM Advisor and planning authorities following agreement of outline planning permissions, subject to the final technical solution.

5.6 Achieving Excellence Design Evaluation Toolkit (AEDET)

An AEDET assessment will be progressed with NWSSP-SES representatives at OBC stage once design proposals has been detailed.

5.7 Decarbonisation Strategy

A Decarbonisation Strategy will be detailed at OBC stage.

5.8 Community Benefits Strategy

A Community Benefits Strategy will be detailed at OBC stage.

5.9 Arrangements for Benefits Realisation

Details on Benefits Realisation are attached at **Appendix C - Benefits Register Plan** and **Appendix D - Benefits Realisation Register**. These will further detailed at OBC stage and a Benefits Realisation Tracker will be monitored by Project Board during the development and delivery stages of this project to evidence the realisation of benefits.

5.10 Arrangements for Risk Management

A risk framework has been established which outlines the process for managing risk associated with developing this project, including a structure for identifying and mitigating operational and construction related risks. The risk register uses qualitative and quantitative measures to calculate the overall level of risk according to likelihood of any risk occurrence multiplied by the potential impact. The Project Board will formally review the risk register at key stages of the project. A capital and operational risk register are attached at **Appendix P - Risk Register**.

5.11 Post Evaluation Arrangements

All projects are subject to post-construction review evaluation in accordance with recognised best practice and NHS guidance.

5.12 NHS Wales Gateway Review (Stage 0 – Business Justification)

A Risk Potential Assessments (RPA) has been carried out for this project. A copy is included in **Appendix K - Gateway Review - RPA**. A Gateway '0' review could be arranged WGov would carry out post submission of this SOC and prior to the submission of an OBC in accordance with WGov Investment Guidance. Further Gateways would be completed according to Office of Government Commerce (OGC) guidelines following further evaluation.

5.13 Contingency Plans

The Health Board can identify two major category of project failure: failure to achieve business case approval to deliver the project; failure of the main contractor to deliver the new build to time.

The contingency plan for the project in the event of failure to achieve business case approval is for the Health Board to continue to revise its plans, working with WGov to develop a single site Thoracic Surgical solution for the population of South Wales that is acceptable.

In the event of Supply Chain failure, SB UHB would seek recompense in line with the agreed contractual arrangements and other contractor to complete the project.

Appendix A – Adult Thoracic Surgery Implementation Project Board Membership



Microsoft Word
Document

Appendix B – Service Specification



Adobe Acrobat
Document

Appendix C – Benefits Realisation Plan



Microsoft Word 97
- 2003 Document

Appendix D – Benefits Realisation Register



Appendix d -
Benefits Realisation

Appendix E – Cost Forms

Option 1



Appendix E -
Thoracic Ward SOC

Option 2



Appendix E
-Thoracic Ward SOC

Option 3



Appendix E
-Thoracic Ward SOC

Option 4



Appendix E
-Thoracic Ward SOC

Option 5



Appendix E
-Thoracic Ward SOC

Option 6



Appendix E
-Thoracic Ward SOC

Appendix F – Drawings



Appendix F -
Drawings.docx

Appendix G – EIA



Adobe Acrobat
Document

Appendix H – Thoracic Summits



Microsoft Word
Document



Adobe Acrobat
Document



Appendix H -
Conference Report

Appendix I – Framework Options

Framework Options:



Appendix I -
Framework Options

Framework Options Summary:



Appendix I - Long
List v2.docx

Appendix J – The Adult Thoracic Surgery Commissioning Plan



Adobe Acrobat
Document

Appendix K – Gateway Review - (RPA)



Appendix K - RPA
Thoracic.docx

Appendix L – Public Consultation



Adobe Acrobat
Document

Appendix M – Letters of Support

Other letters of support to follow

Appendix N – Management Control Plan



Appendix N -
Thoracic Indicative F

Appendix O – Option & Risk Appraisal Group Membership



Microsoft Word
Document

Appendix P – Risk Register

Operational Risk Register (Sept 2020)



Microsoft Excel
Worksheet

Strategic Risk Register (July 2021) based on option 6



Appendix P -
Capital Risk Register

Appendix Q – Schedule of Accommodation

Option 2 & 3 *'PACU' style SOA using two existing theatres and access to CePOD theatre)*



Appendix Q - SOA
Option 2 & 3.pdf

Option 4, 5 & 6 *Stand-alone solutions with link corridor across to main nucleus*



Appendix Q -
Option 4, 5, 6 Stand

Appendix R – Service Model



Adobe Acrobat
Document

Appendix S – Terms of Reference



Microsoft Word
Document

Appendix T – SWOT Robotic Surgery



Microsoft Word
Document

Appendix U – Comparison of each Service Scope and Service Solution Option



Appendix U
Benefits of each Ser

Appendix V – Optimism Bias Mitigations



Appendix V -
Optimism Bias mitig.

Appendix W – T-ECU Pathways



Appendix W - TECU
Pathways.pptx

Abbreviations

AEDET	Achieving Excellence Design Evaluation Toolkit	IMTP	Integrated Medium Term Plan
ABMU HB	Abertawe Bro Morgannwg University Health Board	MDT	Multi-Disciplinary Team
AHP	Allied Health Professional	NCRBs	Non Cash Releasing Benefits
AME	Annually Managed Expenditure	NEC	New Engineering Contract
ARCH	A Regional Collaboration for Health	NICE	The National Institute for Health and Care Excellence
BAU	Business as Usual	NWSSP	NHS Wales Shared Services Partnership
BIS	Business Innovation and Skills (Firm Price Index) Tender Price Index of Public Sector Building Non-Housing	SES	– Specialist Estates Services
PUBSEC		OBC	Outline Business Case
BREEAM	Building Research Establishment Environmental Assessment	OCP	Organisational Change Policy
BRP	Benefits Realisation Plan	OGC	Office of Government Commerce
CRBs	Cash Releasing Benefits	OOHs	Out of Hours
CRUK	The Cancer Research UK's	PDP	Portfolio Delivery Plan (ARCH)
CSF	Critical Success Factor	PEP	Project Execution Plan
CSP	(SB UHB's) Clinical Service Plan	PET	Positron Emission Tomography
CSS	Clinical Support Services	PIA	Privacy Impact Assessment
CT	Computed Tomography	PPE	Post Project Evaluation
CVU HB	Cardiff and Vale University Health Board	QA	Quality Assurance
DECAG	Departmental Cost Allowance Guide	RIBA	Royal Institute of British Architects
DCC	Direct Clinical Care	RPA	Risk Potential Assessment
DGH	District General Hospital	RTT	Right to Treatment
DGM	Divisional General Manager	SB UHB	Swansea Bay University Health Board
DoH	Department of Health	SCP	Single Cancer Pathway
ECAG	Equipment Cost Allowance Guide	SCTS	Society for Cardiothoracic Surgeons
EIA	Equality Impact Assessment	SDCP	Site Development Control Plan
EQA	External Quality Assessment	SOC	Strategic Outline Business Case
FBC	Full Business Case	SOP	Standard Operating Procedure
GEM	Generic Economic Model	SPA	Supporting Professional Activity
HB	Health Board	TAT	Turn Around Time
HBCA	Health Board Cost Adviser	VATS	Video-assisted thoracoscopic surgery
HBPM	Health Board Project Manager	VfM	Value for Money
HCSE	Health Care Systems Engineering	WAST	Welsh Ambulance Service NHS Trust
HDU	High Dependency Unit	WGov	Welsh Government
HUHB	Hywel Dda University Health Board	(W)HBN	Welsh Health Building Note
HIA	Health Impact Assessment	WHSSC	Welsh Health Specialised Services Committee
HMT	Her Majesty's Treasury	(W)HTM	Welsh Health Technical Memorandum
ICU	Intensive Care Unit	WTE	Whole Time Equivalent