

South East Wales Acute Oncology Service Business Case

Table of Contents

FOREWORD.....	1
EXECUTIVE SUMMARY	2
INTRODUCTION	6
STRATEGIC CASE.....	8
ECONOMIC CASE	33
FINANCIAL CASE.....	51
MANAGEMENT CASE.....	57

APPENDIX A - ENGAGEMENT ACTIVITIES

APPENDIX B - ALL WALES PEER REVIEW REPORT

APPENDIX C - SERVICE LINE SUMMARY

APPENDIX D - BENEFITS REALISATION PLAN

APPENDIX E - RISK REGISTER

FOREWORD

The South East Wales Collaborative Cancer Leadership Group (CCLG) was established with a specific aim of providing effective system leadership for Cancer Services across South East Wales and delivering improvements in outcome and service experience for the catchment population. This is to be achieved through the building and nurturing of a sustainable, collaborative cancer community across the region.

It is recognised that, in order to achieve a transformation in outcomes and experience for patients with cancer in South East Wales, it is essential to have a coordinated and aligned approach to change across the whole cancer system. This will require leadership to address systemic barriers and challenges to improvement for Cancer Services across South East Wales. It will require the coordination of commissioning decisions and investments and facilitate the realignment of pathway resources within and between organisations.

It also requires a change in the behaviours of individuals, individual services and organisational decision makers and that attention be given to the dimensions of change including education, training, language and behaviours, research, digital and improvement science. It requires the development and deepening of trusting relationships and new ways of working. It will, importantly, require the application of the dimensions of change in a focused and coordinated manner. The Group will, therefore, be responsible for leading the required whole system changes at a regional level.

At its meeting on 8 January 2020, amongst other priorities, CCLG specifically requested that work be undertaken in developing a collaborative Acute Oncology Service (AOS) model reflecting a regional solution to be developed by the AOS Project Group along with a delivery plan (including timeline) for submission to the CCLG in September 2020. Coordinated by the AOS Multi Professional Steering Group work was undertaken over the Spring and Summer of 2020. Working with a broad range of healthcare professionals across the region and patients and carers, a model for AOS was developed, reflecting the needs across the entire patient pathway.

This was subsequently presented to CCLG at its October 2020 meeting and garnered strong support from all members. Following this CCLG requested that partner organisations develop a single, regional business case along similar principles to the clinical model, evaluating alternative approaches to implementing the model across South East Wales, along with an assessment of the likely investment requirements and implementation timetable.

This document presents the results of the collaborative work undertaken in developing the business case and follows established investment appraisal guidance embedded within the 5 Case Model. It has been developed with extensive involvement of all organisations across South East Wales and is presented as a single, regional business case.

EXECUTIVE SUMMARY

BACKGROUND

This single, regional business case is presented on behalf of Aneurin Bevan University Health Board, Cardiff and Vale University Health Board, Cwm Taf Morgannwg University Health Board and Velindre University NHS Trust. Its purpose is to present a clear set of proposals and investment requirements to enhance Acute Oncology Services (AOS) across South East Wales. In doing so it seeks to present the compelling case for change, a robust options appraisal to assess alternative approaches to implementation, and a set of financial proposals to provide organisations with an estimated level of additional investment required to secure the proposed improvements across the anticipated 3 year timeframe to fully roll out of the clinical model. All of this has been underpinned by an extensive stakeholder engagement exercise combining organisational and professional representation.

Acute Oncology (AO) patients broadly fall into three groups: those whom a first presentation of cancer is suspected in an emergency setting; those with a known cancer who present as an emergency with complications of their treatment; and those with a known cancer who present as an emergency with cancer progression or acute complications of co-morbidities.

AO ensures that cancer patients receive the care they need quickly and in the most appropriate setting. It brings a multitude of benefits to patients, clinicians and the wider system through improved communication, timely access to expert advice, improved patient experience and cost savings through more appropriate use of investigations, early discharge and admission avoidance.¹

Management of AO challenges the whole health and care system across South East Wales, from primary and community care to tertiary specialist service. However, the scope of this business case is the presentation, triage, assessment and management of patients in an acute setting.

CASE FOR CHANGE

In South East Wales, it is estimated that, AOS patients account for 10,000 admissions per year, many of whom have long lengths of stay (average of 9.4 days), which consumes a total of 93,535 bed days. This has a significant impact on an unscheduled care system that is already under pressure.

Further evidence of the scale and impact of AO is set out below:

- 22% of cancer diagnoses present for the first time in the unscheduled care system;

¹ *Acute oncology: Increasing engagement and visibility in acute care settings*. Royal College of Physicians. Oct 2020

- 80% of cancer patients presenting to emergency departments are admitted (compared to 25% of non-cancer patients);
- 20% mortality rate within 30 days of referral to AO and 70% mortality rate within 12 months of referral;
- 60% of Metastatic Malignancy of Undefined Primary Origin / Confirmed Carcinoma of Unknown Primary (MUO/CUP) patients are discussed at multiple multi-disciplinary team (MDT) meetings, 40% do not have any MDT discussion, and only 30% receive any oncology treatment;
- 60% of patients on combination immunotherapy treatment have severe autoimmune reactions;
- 80% mortality rate within 12 months following a diagnosis of Metastatic Spinal Cord Compression (MSCC).

The National Standards for AOS² (2016) were developed to provide a framework for NHS Wales to plan and deliver high quality services for people with cancer (either know or yet to be diagnosed) who present acutely. These standards covered four areas including: the AOS team; rapid assessment for acutely presenting patients; AOS team review of patient management; and information. A Peer Review (2018) of these standards highlighted a range of gaps in the service, including insufficient nursing and oncology presence in Health Boards across the region. This continues to be the case, making the current AOS in Wales an outlier in comparison to other AOS services in the UK: with limited specialist nursing, the service is potentially unsustainable in terms of clinical governance requirements for nurses to work independently; and the variable and inconsistent oncology advice mean there is little support to manage the more complex patients. The much needed investment in AOS would deliver a service broadly comparable to that provided by other centres (such as The Christie NHS Foundation Trust, The Clatterbridge Cancer Centre, as well as smaller sites like North Devon District Hospital) which currently have significantly more nurses per site, sessions for oncology and acute medicine, and run immunotherapy and MUO/CUP services.

A number of strategic drivers reinforce the need to improve and enhance AOS across South East Wales including: Peer Review (2018) noted above; the Quality Statement for Cancer (2021) has a specific requirement under the Safety theme to ensure that fully integrated Acute Oncology Services are available in all acute hospitals; and the Nuffield Trust review (2020) of planned changes to non-surgical tertiary cancer services across South East Wales noted the limited investment in AOS in South Wales, particularly compared to the rest of the UK, as well as the paucity of accurate data and made several recommendations on acute oncology support in Health Boards.

² *National Standards for Acute Oncology*. Cancer National Specialist Advisory Group. June 2016

PROPOSAL

A regional clinical model has been developed which places stronger emphasis on the specific needs of AOS patients, whilst complementing local wider unscheduled care management with a primary focus on ambulatory pathways as an alternative to inpatient admission.

Enhanced nursing will help manage initial presentations, support ambulatory pathways and act as the key worker throughout acute oncology pathway; specialist oncology advice on the ground at Health Boards will provide face to face clinical reviews, as well as education and training for the wider team. Supported by a dedicated virtual advice service, this will allow consistent and timely opinion no matter where patients are admitted. Further specialist support and local enhancements to ambulatory pathways, will mean the most vulnerable cancer patients are appropriately supported and cared for, with acute hospital admission only where absolutely necessary.

To deliver the proposed clinical model across South East Wales there is a need to invest in the service so that the current gaps can be addressed and the anticipated benefits realised. An option appraisal has been undertaken to evaluate alternative approaches to implementing the model across South East Wales along with an assessment of the likely investment requirements and associated benefits.

The fully implemented preferred option for delivering the required improvements to AOS across the region, requires additional annual investment, across the three Health Boards in the region of £2.55m. It is anticipated that it will take three to four years to fully implement the proposals, with a phased build-up of resources and investment.

EXPECTED BENEFITS

There are significant service quality and safety benefits for patients who have access to a structured AOS in terms of their experience and outcomes. AOS ensures continuity and consistency of care where they would otherwise experience significant delays in diagnosis and treatment. Offering specialist oncology support outside the cancer centre, enable patients to access treatment at a location convenient to them.

To help quantify the benefits, empirical evidence from other centres and systems across the UK who have successfully implemented an AOS model that reflect the proposed approach in South East Wales has been used. Benchmarking with these centres demonstrates significant opportunities for admission avoidance (in the range of 40-60%) and length of stay (3-4 days).³

The existing AOS service has already achieved some reductions in length of stay but additional investment will support admission avoidance through staff availability (for rapid assessment of patients), oncology advice, and hot clinics, as well as some further reductions in length of stay.

³ *Acute oncology: Increasing engagement and visibility in acute care settings*. Royal College of Physicians. Oct 2020

Therefore, the quantifiable benefits that have been applied are 25% admission avoidance and 10% reduction in length of stay. These have been clinically endorsed and applied to the baseline position in each Health Board to assess the potential improvement and the impact it could have in freeing up acute capacity.

Whilst these benefits are unlikely to be cash releasing, the analysis shown that the scale of this opportunity is in the order 30,000 bed days, or the equivalent of almost 90 freed up beds across the region, with a value of £4.5m, which if released could be used to support the needs of other service areas within acute hospital settings.

RISKS

There are significant challenges around the implementation of a regional clinical model, across different Health Boards and multiple sites within those Health Boards. The AOS remains a regional service within which there is an aspiration to secure equity of access for patients to a common service standard wherever they live and therefore a requirement to secure full implementation. However, it is recognised that Health Boards have different baseline positions in terms of current service and acute configuration, and all face challenging funding constraints which limit the ability to support service developments including AOS. Allied to this, as a largely people based service, there will be challenges in staff recruitment and deployment. To address these factors organisational specific implementation plans and associated resourcing profiles have been developed and aligned to meet each Health Boards' needs, priorities and constraints.

CONCLUSION

The development of this business case and the work that sits behind is the result of a multi-organisational, multi-professional collaboration across South East Wales, underpinned by strong clinical leadership and considerable stakeholder engagement. This degree of collaboration is reflected in the governance structure to support the implementation and delivery of the service, and will ensure the founding principles of equity of access and shared ownership remain central to the service.

Investment in AOS at this crucial time for the NHS would have a huge impact both for those patients presenting acutely with a known or as yet undiagnosed cancer, and the Health Boards receiving them.

“The impact upon the patient journey and quality of life is notable; particularly where progressive symptomatic needs are able to be met rapidly whilst keeping the patient in their preferred place of care beside their families.”

Isle of Man AOS⁴

⁴ *Acute oncology: Increasing engagement and visibility in acute care settings*. Royal College of Physicians. Oct 2020

INTRODUCTION

1 Introduction and Background

The purpose of this business case is to set out proposals for enhancing Acute Oncology Services (AOS) across South East Wales. Initially outlining the limitations of the existing service, it will present a clear and compelling case for change and go on to demonstrate how the proposed clinical model and preferred option for implementing this will address the identified gaps in service and deliver the required improvements and benefits. It will set out the process by which the preferred option has been selected along with the level of investment required to deliver the proposed improvements over the implementation period. Finally it will establish the organisational and delivery arrangements required to successfully implement the proposed service improvements.

The options appraisal has been developed with input from a wide range of organisational and professional stakeholders and has been facilitated by an external, independent consultant. The preferred option being put forward to the South East Wales Collaborative Cancer Leadership Group (CCLG) and Health Boards (HBs) for consideration is the result of 12 months of collaborative work with consensus being reached across multiple disciplines and multiple organisations in South East Wales.

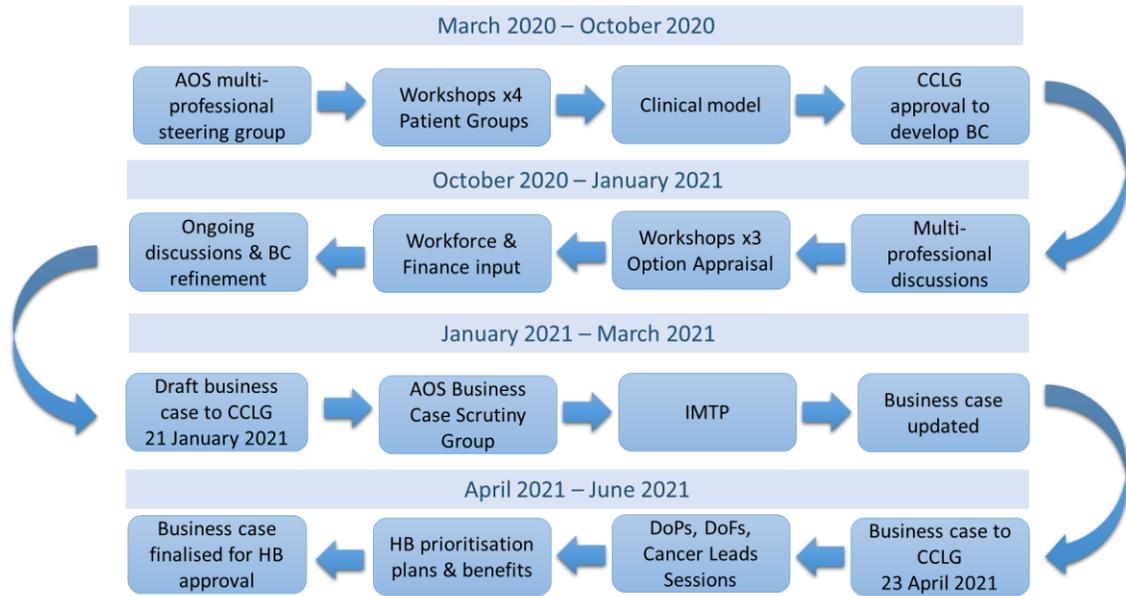
This business case is presented as a single case for the region and once endorsed by CCLG, will go through each stakeholder organisation's governance processes to secure local approval.

In developing this case it is recognised that stakeholder organisations have different starting points in terms of current baseline AOS and this will impact on the rate and sequence of implementation. However, the clinical model is premised on the dual principles of equity of access, and shared ownership and delivery. These will ensure each organisation delivers a broadly similar clinical model so that patients can expect consistency in their management and available resource irrespective of presenting location.

Management of acute oncology challenges the whole health and care system across South East Wales, from primary and community care to tertiary specialist beds. However, the scope of this business case is the presentation, triage, assessment and management of patients in an acute setting as this is a complex group of patients who would benefit significantly from improved access to acute care, with a focus on ambulatory pathways.

Commencing in the spring of 2020 a significant amount of collaborative work has taken place to develop the clinical model and translate that into a set of implementation proposals presented within this business case. The figure below is an overview of the wider reaching engagement activities that have taken place and further details of these activities is provided in Appendix A.

Figure 1: Overview of project engagement



STRATEGIC CASE

2 Introduction

The purpose of the Strategic Case is to make the case for change and to demonstrate how it provides strategic fit across the stakeholder organisations within South East Wales. Making a robust case for change requires a clear understanding of the rationale, drivers and objectives for the proposal and the associated investment by presenting a clear understanding of the existing arrangements: the Business As Usual (BAU), business needs (related problems and opportunities), potential scope (the required service coverage) and the potential benefits, risks, constraints and dependencies associated with the proposal.

2.1 Strategic Context

2.1.1 Cancer Services in South East Wales

The planning and delivery of cancer services in South East Wales is the responsibility of the three Health Boards (HBs) as part of their statutory role in addressing the health needs of the populations they serve. The three HBs in South East Wales are:

- Aneurin Bevan University Health Board (ABUHB)
- Cardiff and Vale University Health Board (CAVUHB)
- Cwm Taf Morgannwg University Health Board (CTMUHB)

A fourth HB, Powys Teaching Health Board does not formally sit within South East Wales but some of its patient population does come into ABUHB and CTM's service provision. In addition, Velindre University NHS Trust (VUNHST) provides non-surgical specialist cancer services to the region through the Velindre Cancer Centre (VCC). A map of organisation across South East Wales is provided below.

Figure 2: Map of South East Wales Health Boards and Velindre University NHS Trust



A significant proportion of patients have all of their cancer care delivered within the HBs. This is supported by VCC through the delivery of a range of outreach services including: Systemic Anti-Cancer Therapies (SACT); outpatient consultations; and Multi-Disciplinary Teams (MDTs). To further the availability and accessibility of radiotherapy services for patients across South East Wales, an Outline Business Case (OBC) for a Radiotherapy Satellite Centre based at Nevil Hall Hospital (ABUHB) has been developed and approved.

The HBs and VUNHST are supported by the Welsh Health Specialist Services Committee (WHSSC) which commissions specialist cancer services on their behalf. They also work in partnership with the All Wales Cancer Network (WCN), Public Health Wales (PHW), NHS Trusts, Community Health Councils (CHC), and voluntary and charitable organisations. More recently, the four HBs, in conjunction with VUNHST and WCN, have formed the South East Wales CCLG. The purpose of the CCLG is to provide effective system leadership for Cancer Services across South East Wales and deliver improvements in patient outcomes experience for the catchment population.

2.1.2 Acute Oncology Service in South East Wales

Acute oncology (AO) ensures that cancer patients who develop an acute cancer-related or cancer treatment related problem receive the care they need quickly and in the most appropriate setting. It brings a multitude of benefits to patients, clinicians and the wider system through improved communication, timely access to expert advice, improved patient experience and cost savings through more appropriate use of investigations, early discharge and admission avoidance.⁵

The core principles underpinning AOS have been defined as to ‘promote education, awareness and early access to specialist oncology input, as well as a more integrated way of working between oncology and acute specialities within hospital trusts’.⁶

In Wales, the AOS has been in development since 2013 and aims to bring together multi-disciplinary clinical expertise to facilitate the rapid identification and appropriate prompt management of patients that present acutely. People living with cancer may need acute or emergency hospital care for a variety of reasons but an admission to acute care often heralds a change in disease trajectory and often leads to uncertainty about the future.

AOS patients broadly fall into three groups as set out below:

⁵ *Acute oncology: Increasing engagement and visibility in acute care settings*. Royal College of Physicians. Oct 2020

⁶ Jones, P, Marshall E, Young A. *Acute Oncology: Sharing Good Practice*. Macmillan, 2014

- Type 1: Acutely presenting - patients in whom a first presentation of cancer is suspected in emergency setting, including Metastatic Malignancy of Undefined primary Origin (MUO) and Confirmed Carcinoma of Unknown Primary (CUP) patients.
- Type 2: Complications of treatment –patients with known cancer (including haematological malignancies) who present as an emergency with complications of systemic anti-cancer therapy (SACT) or radiotherapy treatment, and increasingly with immune toxicity.
- Type 3: Patients with known cancer who present as an emergency with acute complications of disease and/or associated co morbidities

These patient groups are very vulnerable and often have poor outcomes either due to a delay in diagnosis and referral, multiple or sometimes unnecessary tests and interventions, and a lack of early specialist input.

Many patients will initially attend the hospital Emergency Department and Acute Surgical Unit. At the front end of emergency care pathway is normally the Medical Assessment Unit (MAU) but providing efficient and effective care to this complex patient group in a busy MAU presents a key challenge. A good working partnership between the MAU and AOS that enables rapid assessment of patients can result in significant improvement in patient care often resulting in avoided inpatient admission and re-admission.

The AOS pathway within the scope of this business case covers the patient journey from acute presentation, diagnosis, treatment through to discharge. However, there are integral elements that can, and do support patients beyond acute care including: pre-hospital triage; primary and community care that helps keep patients at home; and the optimal arrangements for the provision of specialist inpatient beds. These will be considered outside this business case.

2.2 Case for Change

2.2.1 Existing Arrangements

The current service model in South East Wales is variable both between each HB, and between sites within HBs, and collectively it has limited clinical support locally and from VUNHST. In most HBs, the AOS service is nurse-led by Clinical Nurse Specialists (CNS), normally at a level of one nurse per acute hospital, who are on-site Monday to Friday.

The CNS supports patients and their carers through complex pathways and protocols, acting as the patient advocate. They are responsible for liaising with their local medical teams as well as linking into the on-call team in Velindre Cancer Centre (VCC) via telephone and email, and providing local AO education to other healthcare professionals. Working independently to agreed protocols they can:

- Recognise, manage and educate in broad range of oncology emergencies;

- Recognise and advise in management of suspected new diagnosis of cancer;
- Support clinical teams in decision making in malignancy unknown origin.

CNSs are supported by clinical colleagues in acute medicine, haematology and oncology. However, as there are only six allocated consultant sessions for AO across South East Wales (which are unevenly distributed), this allow very little clinical time to support the AOS team and patients.

The table below sets out the resource and associated funding for the current service in HBs.

Figure 3: Health Board AOS resources and funding

Health Board	AOS Teams (WTE)	Annual Cost
Aneurin Bevan UHB	4.10	£205,350
Cardiff & Vale UHB	4.50	£232,571
Cwm Taf Morgannwg UHB	4.70	£264,804
TOTAL LHBs	13.30	£702,725

The VCC AO teams funded remit is to provide acute inpatient care and support the oncology Assessment Unit within VCC. It runs a virtual daily multi-disciplinary team (MDT) with input from consultant oncologists, consultant radiologists, palliative care and oncology nursing to discuss these patients.

The on call doctor is available to HBs for advice but they can often be difficult to get hold of and advice can be variable, depending on their knowledge of AO, as they primarily deal with VCC patients. The table below sets out the current VCC resource and funding.

Figure 4: VCC resources and funding

Service	WTE	Annual Cost
Acute Oncology Assessment Unit & Acute Oncology MDT	8.05	£530,748
SACT Patient Support Phone Service	3.00	£77,812
TOTAL Velindre Cancer Centre	11.1	£608,560

In Wales, patients with cancer, particularly in the last months of life, frequently present acutely to emergency services on multiple occasions. Of those that die within 60 days of attending an

Emergency Department (ED), cancer is the most common diagnosis. In many instances these patients are admitted into inpatient beds and can frequently spend more than a month in hospital. Unfortunately a proportion of these patients subsequently die in the acute hospital setting. In developing this business case a range of indicators have been established, drawn from a variety of local and national sources, which demonstrate some of the challenges in managing acute oncology presentations, their impact on resources and key outcome measures. This is summarised in the table below.

Figure 5: Cancer presentations, admissions and mortality

Indicator	Findings
Emergency Department (ED) attendances with a cancer diagnosis ⁷	5%
ED admissions with a cancer diagnosis ⁸	25%
Cancer patients presenting to ED who are admitted <i>*Non-cancer patients presenting to ED who are admitted 25%</i>	80%
Patient mortality within 30 days of referral to AO	Approx. 20%
Patient mortality within 12 months of referral to AO	Approx. 70%
Cancer diagnoses that present for the first time in the unscheduled care system	22%
Acute hospital beds are occupied by acute cancer patients ⁹	10%
Emergency ambulance calls being made on behalf of people with cancer	10%
Mortality due to cancer in frequent attendance to ED	28%

In South East Wales, data collected shows the breakdown of referrals to AOS which is summarised in the table below. Although the numbers are relatively small and the data is historic, the impact on acute hospital resources can be significant. By far the biggest proportion across all organisations is 'other' which demonstrates the ongoing difficulties in coding and reliably collecting meaningful AOS data. This inevitably means that activity is not being accurately recorded and actual numbers of presentations are under stated. The manual collection of this data, as well as the duplication to enter it into different formats and systems puts an administrative burden on nursing staff.

⁷ North Mersey Macmillan Project: *Urgent Care and Cancer & Cancer Care of the Elderly*, 2019

⁸ *Sharing good practice Acute oncology*, Macmillan Cancer Care, 2014

⁹ Mansour D, Simcock R, Gilbert D C, *Acute oncology's service: assessing the need and its implications*, *Clinical Oncology*, 2011

Figure 6: Referrals to AOS January to December 2017

Diagnosis / Pathway	ABUHB	CVUHB	CTMUHB*	VCC
Malignancy of Unknown Origin (MUO) / Carcinoma of Unknown Primary (CUP)	66	100	31	31
Neutropenic sepsis	57	24	31	54
Metastatic Spinal Cord Compression (MSCC)	49	57	45	123
Other (no pathway)	1,518	1,660	611	816
Total	1,690	1,841	718	1,024

*Data pre-boundary change (does not include Princess of Wales Hospital, Bridgend)

Many cancer patients are admitted as an emergency across the region and currently have an average length of stay of 9.4 days in hospital. This is often unnecessary, and for many cancer patients, home is the preferred place of care, especially when there is a poor prognosis.

Figure 7: Emergency admissions and length of stay by Health Board 2018/19

Health Board	Admissions	Mean Length of Stay	Total bed-days
ABUHB	3,860	8.3	32,203
CAVUHB	2,702	10.1	27,281
CTMUHB	3,438	9.9	34,051
Total	10,000	9.4	93,535

For patients with Metastatic Malignancy of Undefined Primary Origin (MUO) length of stay is even longer with an average of 25.8 days across the region in 2018. MUO refers to the broad patient group who present with metastatic cancer that do not have an immediately identifiable primary site. As there is no primary tumour identified, these patients often have no specialist team responsible for their care. In the UK, approximately 24 patients are diagnosed with a cancers of unknown primaries every day, with annual new patient case load of around 8,800.¹⁰ In England and Wales it is the fourth most common cause of cancer death.¹¹ Patients often present at an advanced stage, have complex needs, undergo fragmented pathways and have poor patient experience. In about 15 - 20% of these patients, the primary site remains undetected (Confirmed Carcinoma of Unknown Primary - CUP), and overall, patients have a median survival of four to 12 months.¹² The acute presentation of this patient group often results in multiple investigations,

¹⁰ CRUK, About cancer of unknown primary, 2017 (www.cancerresearchuk.org)

¹¹ Metastatic Malignant disease of unknown primary origin in adults: diagnosis and management, NICE Clinical Guideline, 2010

¹² Varadhachary GR et al 2014, Stella GM et al 2012, Hainsworth JD et al 2018

and inappropriate or delayed treatment. Local analysis of CUP/MUO data (2018) demonstrated that despite the majority of new CUP/MUO referrals receiving AO input within the nationally stipulated time frame, only 30% of patients received any oncology treatment; 60% of these were discussed in multiple MDT discussions of different site specific teams; and 40% did not have any recorded MTD discussion. With no current service for these patients, the acute aspects of the MUO/CUP pathway are part of the scope of this business case.

Immunotherapy refers to treatments that use the immune system to destroy cancer. Immunoncology (IO) medicines are relatively new treatments which, for many patients, can achieve excellent outcomes. However, they are associated with immune-related adverse events which can have serious side effects, and are relatively unfamiliar to clinical teams.¹³

Immune-related adverse events can be unpredictable and require a very different approach to the management of toxicities related to other types of systemic anti-cancer therapy (SACT), for example, chemotherapy. Immune-related adverse events may be life threatening, potentially occurring at any time during and for up to two years post treatment. Very few patients manage their therapy without experiencing some immune-related side effects, which can include dermatologic, gastrointestinal, hepatic, endocrine, lung, renal and less common inflammatory events such as neurological and cardiac issues. It is well established that failure to recognise and instigate appropriate management for toxicity results in catastrophic consequences including unnecessary termination of treatment and patient deaths. Given the delay in toxicities, many of these patients will present as an emergency and be referred to AOS, hence the need for an IO pathway in this business case.

Metastatic Spinal Cord Compression (MSCC) is a well-recognised complication of cancer and usually presents as an oncological emergency. Life expectancy once a diagnosis of MSCC has been made is poor, with only 28% of patients surviving more than one year.¹⁴ Early diagnosis, treatment intervention and rehabilitation is therefore necessary to prevent paralysis and to ensure the best possible outcome and quality of life.

There is currently an inequitable service, with spinal surgeons operating on MSCC in just one HB across South East Wales. Inconsistency in patient referrals, and a lack of flexibility of radiotherapy planning and treatment often means patients are admitted or require two visits.

The numbers of patients presenting with MSCC are increasing with advancing treatment techniques and as patients live longer with cancer. The outcomes for MSCC patients in South East Wales are currently below the UK average as they face delays in access to radiology, surgical opinion and radiotherapy treatment.

¹³ Good Practice Guideline for Immuno-Oncology Medicines, Royal College of Radiologists et al,

¹⁴ NICE Clinical Guidelines, 75 *Metastatic Spinal Cord Compression: Diagnosis and Management of Patients at Risk of or with Metastatic Spinal Cord Compression*, Nov 2008

2.2.2 Business Needs

The increasing incidence of cancer in Wales (predicted to grow year on year by 1.5%¹⁵); the changes in clinical practice in oncology (the increased use of radical chemo-radiation); and the unprecedented step changes in the volume/pace of novel and approved anti-cancer treatment (particularly immunotherapy), has, and will continue to result in increased demand for AOS.

The Cancer National Specialist Advisory Group (CNASG) in Wales have developed a set of national standards for Acute Oncology Services (All Wales National Standards for Acute Oncology Services – June 2016) to provide a foundation for the NHS in Wales to plan and deliver effective high quality services for people with cancer, either known, or yet to be diagnosed, who present acutely to the NHS. These standards covered four areas: the AOS team; rapid assessment for acutely presenting patients; AOS team review of patient management; and information.

A Peer Review was undertaken in July 2018 to assess the existing AOS quality and performance against the standards in each HB. The all Wales summary of the findings are directly relevant to the provision of AOS in the South East. The review recognised that whilst significant progress has been made there remain some key gaps in the service which need to be addressed as part of this business case. A summary of the Peer Review findings is provided in the table below and a more detailed report is provided at Appendix B.

Figure 8: Peer Review summary against All Wales National Standards for AOS (July 2018)

Gaps in service
Insufficient oncologist presence in HBs and no specialist oncology Advanced Nurse Practitioners (ANPs) to manage more complex patients with complications of care or cancer progression
CNS presence in each site to cover core service (Mon – Fri 9am to 5pm)
No dedicated lead AOS managers in HBs
Need for additional administrator / co-ordinator time
HBs need daily access to wider dedicated consultant specialist team consisting of oncologist, palliative care consultant, Haemato-oncologist / haematologist, radiologist to help manage complex patients
Insufficient oncologist and no ANP time on site to disseminate knowledge around the management of AO through education
Insufficient oncologist and no ANP time on site to ensure clinical pathways are in place for assessment and management of all patients with complications from cancer or cancer treatment
No MUO or CUP service, supported by regular consultant oncologist support to deal with

¹⁵ Transforming Cancer Services, Programme Business Case, VUNHST 2019

Gaps in service
concerns
No electronic access to past medical history and treatment received or access to dedicated telephone support
No automatic electronic alerts to VCC when a patient with known malignancy, or undergoing active cancer treatment, presents acutely ill to secondary care
No electronic capture of core AOS dataset at VCC or acute site

The CNSAG recognised the differing configurations and challenges across Wales, such as multiple locations and rurality, which may result in additional local requirements. However, the standards they developed describe the core requirements of AOS. Achieving the care reflected in the standards is not solely the responsibility of the acute oncology team and requires engagement and collaboration at all levels of HBs, with cross-directorate, cross-care sector and cross-boundary working.

In addition to the Peer Review there are a number of specific issues relating to AOS in South East Wales which help to further demonstrate the limitations of the existing arrangements and a focus for prioritising investment in the required service enhancements. These are outlined below.

AOS Team

The AOS CNS team model is an outlier in comparison to other AOS services in the UK with limited specialist nursing, the service is potentially unsustainable in terms of clinical governance requirements for nurses to work independently. Whilst the AOS nursing teams are effective and dynamic, the current model means nurses are working without ‘wrap’ of consistent medical or senior expertise. This is a challenge clinically, particularly for them to be involved in complex cases but also for them to take forward service development and ensure they are supported in continuous professional development (CPD).

The limited clinical sessions for physicians to support AO, along with a lack of senior nursing (Advanced Nurse Practitioners - ANPs) means there has not been much support, clinical leadership, education or training for either the nursing or medical teams, and as a result, there has been limited service development since its inception in 2013.

Specialist Oncology

Although daily specialist oncology advice is available through the ‘lunchtime AOS MDT meeting’, there is limited take up from HBs, and it is largely used to discuss VCC patients. Outside the MDT, there is variable clinician input and support due to insufficient funded time. Often the VCC on-call doctor is the point of contact, and accessing advice can prove cumbersome and onerous for colleagues in HBs. It means that advice is often inconsistent due to a lack of acute oncology knowledge and understanding, and not always timely. There is currently no dedicated oncologist

time on site in HBs to ensure complex patients with complications from cancer or cancer treatment are assessed and managed appropriately. This also means there are no or few opportunities to disseminate knowledge through education and training.

Benchmarking with other sites such as The Christie NHS Foundation Trust and The Clatterbridge Cancer Centre demonstrate a significantly higher number of nurses per site and up to five direct clinical contact sessions for oncology consultants per site.

Admissions and length of stay

AOS can reduce admissions by providing timely expert advice and patient safety netting, facilitating same day discharge. It is a core component of ambulatory medicine services, allowing patients to receive essential care and advice without being admitted. AOS can also reduce the length of hospital stays, freeing up valuable bed space. This has been demonstrated by other centres and systems across the UK who have successfully implemented an AOS model that reflect the proposed approach in South East Wales, as noted in the table below.

Figure 9: Data from UK AOS sites on admissions and length of stay

Area of AOS	Benefit / outcome	Organisation
Acute admissions	66% of patients same day discharge after AOS established	West Suffolk Hospital ¹⁶
Acute admissions	90% of patients same day discharge with a AO hot clinic	Royal Preston Hospital ¹¹
Acute admissions	61% of patients same day discharge with an acute admissions unit	VUNHST ¹¹
Inpatients	Reduced length of stay by 4 days after AOS established	West Suffolk Hospital ¹¹
Inpatients	Reduced length of stay by 3.1 days (£2m saving) after AOS established	The Clatterbridge Cancer Centre ¹⁷
MUO/CUP	Reduced length of stay by 3.5 days with new MUO/CUP	North West Cancer Centre, Northern Ireland ¹⁸

¹⁶ *Acute oncology: Increasing engagement and visibility in acute care settings*. Royal College of Physicians. Oct 2020

¹⁷ Neville-Webbe HL et al *The impact of a new acute oncology service in acute hospitals: experience from the Clatterbridge Cancer Centre and Merseyside and Cheshire Cancer Network*. Clinical Medicine. Dec 2013, 13(6) 565-569

¹⁸ Dasgupta. S et al *Integration of a patient-centred MUO/CUP service within a new acute oncology service: challenges and rewards*, Future Healthcare Journal, Vol 8, No1 2021

Area of AOS	Benefit / outcome	Organisation
	service	
Immunotherapy (IO)	40% reduction in admissions after establishing service	The Clatterbridge Cancer Centre ¹¹

With an average length of stay of 9.4 days across the region, understanding why patients are admitted and how to prevent re-admission is crucial. Developing these skills across different professional groups will require time and investment. Competencies should include the acute medical management of unwell patients, specialist oncology knowledge (new therapies and new presentation of metastatic cancer), radiology and confidence in complex conversations. Supporting patient discharge, with input from Allied Health Professionals (AHPs) and Palliative Care teams, will also help prevent further admissions.

The Royal College of Physicians have identified the following as being essential to avoid unnecessary admissions:

- A rapid oncology assessment (within 24hrs of referral) that will identify patients who are suitable for ambulatory / outpatient-driven services;
- Management of anti-cancer therapy complications, advice on disease complications, symptom management, diagnostic pathways for new cancers and offers alternative routes to admission including access to hot / cold oncology clinics;
- A formal working relationship with community, primary care and specialist services in order to improve the quality and speed of patient discharge and to avoid admissions;
- Capacity and pathways to be in place for day-case procedures to occur, such as paracentesis or rapid-access diagnostics without inpatient admission.

Acute medicine in South East Wales has moved successfully and rapidly towards same day emergency care delivery, and there is a real opportunity by increasing engagement and sharing cancer expertise in the acute setting, that it is possible to reduce admissions, reduce length of stay, improve patient journeys and train future clinicians.

MUO / CUP

The lack of a MUO / CUP service in South East Wales means there is an unmet clinical need in the overall management of these patients. This includes ownership of these patients and defining optimal diagnostic and treatment pathways; addressing patient centred needs (anxiety, uncertainty, symptoms, quality of life, cancer related survival); health resource centred needs (multiple invasive and non-invasive investigations, length of hospital stays, readmission rates, multiple MDT discussions across different tumour sites); as well as research needs (early identification and recruitment to clinical trials).

The gap analysis identified through the Peer Review (2018) highlighted the need for a streamlined, resilient and well-resourced pathway for these patients, in accordance with national recommendations (NICE 2010) and peer review measures (NHSE 2014).

Intervention via a dedicated CUP team in several different hospitals in the UK (Sheffield Teaching Hospitals Trust, The Royal Free and Western Health and Social Care Trust) have all shown positive and measurable outcomes, with significant reductions in length of stay (3.5 -11 days), statistically significant reductions in re-admission rates and hospital deaths, and significant benefit in overall survival. Proposals to deliver a similar model of care are at the heart of this business case, as are the benefits that will accrue through its successful implementation.

Immuno-Oncology

The numbers of patients treated with immunotherapy is rising. In VCC the number of patients being treated with immunotherapy rose by 49% between 2018 and 2020, with an average of 225 patients per month by late 2020. As new drugs and new indications for drugs are licenced, including the usage of combination treatments, which have the highest rates of reaction, this rise will only get bigger.

The management of patient toxicity is complex and without specialist advice and education, patients can often be misdiagnosed or undergo inappropriate treatment. Approximately 60% of patients on combination treatments develop severe toxicities. Failure to treat promptly results in lengthier and more complex patient admissions and adverse patient outcomes, particularly in the failure to complete active therapy, resulting in reduced survival.

When The Clatterbridge Cancer Centre set up the IO service, they saw a 40% reduction in admissions after introducing a toxicity service, despite a 20% increase in the number of patients commencing treatment.

In South East Wales there is currently no pathway for these patients and the advice and access to specialist input is ad-hoc. As this is becoming an increasingly common treatment option for cancer patients, there is a need to invest in the development of the acute pathway for patients, including the ambulatory pathway to deliver critical drugs. In doing so, this will help future proof the AOS and the increasing numbers of patients presenting with severe toxicities.

As important however, is raising awareness and educating acute care teams on this new era of drugs and their side effects. North Devon hospitals found that education and training were key to successful implementation, running weekly teaching sessions on oncological emergencies, including IO toxicities to acute teams.¹⁹

¹⁹ *Acute oncology: Increasing engagement and visibility in acute care settings*. Royal College of Physicians. Oct 2020

Metastatic Spinal Cord Compression (MSCC)

MSCC is a potentially devastating complication of cancer which requires rapid decision making by several specialists, given the risk of permanent spinal cord injury. Without a specialist single point of contact for advice and management there are delays in diagnosis and treatment, resulting in ineffective and inefficient management of patients including inappropriate diagnostic tests being carried out, increased length of stays in hospital, as well as deterioration in patient's functional ability, which reduce their prognosis and quality of life.

The Peer Review (2018) highlighted the need for a coordinator across South Wales which is in line with NICE guidance (2008), the NICE Quality Standard (2014) and as recommended in the South Wales MSCC Strategy (2016).

To date there has been no dedicated resource to co-ordinate the care and management of MSCC patients in South East Wales. The development of the MSCC pathway is crucial for timely diagnosis and treatment but will also improve system wide efficiencies, including: communication and education; clinical awareness of local MSCC pathways; and identification of risk factors of MSCC. Co-ordination of this pathway, and attendance at spinal MDTs will ensure there is greater collaboration between the AOS teams, clinical oncologists and surgeons to improve functional outcomes for patients.

2.2.3 The Quality Statement for Cancer

The Quality Statement for Cancer replaces the Cancer Delivery Plan for Wales and sets out a five year plan to improve the quality of cancer services and outcomes across Wales. Building on the work of the 2012 and 2016 Cancer Delivery Plans, the next five year phase of cancer service aims to take advantage of the widespread consensus that has emerged on priority areas, bring programmes to fruition, and maintain the national leadership and local engagement that has been achieved. This will ensure that there is a long-term and consistent approach to improving outcomes as envisaged in the Wellbeing of Future Generations Act and demonstrated by international experience.

The Quality Statement sets out a series of attributes it would like to see embedded in cancer services in Wales across a range of themes covering Equity, Safety, Effectiveness, Efficiency, Person Centredness and Timeliness. There is a specific requirement under the Safety theme to ensure that fully integrated Acute Oncology Services are available in all acute hospitals.

2.2.4 The Nuffield Review

The Nuffield Trust was commissioned by Velindre University NHS Trust to provide independent advice on the clinical model underpinning its planned changes to Velindre's cancer services contained in its Transforming Cancer Services programme.

The work assesses the proposals for the planned changes to non-surgical tertiary cancer services across South East Wales and clinical concerns raised about plans to build the new Velindre Cancer Centre on the proposed site.

Whilst the review made specific recommendations regarding the wider clinical model it also made specific reference to the management and delivery of acute oncology across South East Wales. It documented the limited investment in AOS in South Wales, particularly compared to the rest of the UK, as well as the paucity of accurate data. However, it did acknowledge the collaborative work undertaken as part of this process and many of the recommendations are directly relevant to this case and entirely consistent with the proposed direction of travel set out in this business case. In particular the review recommends that:

- Each local health board (LHB) needs to develop a plan for oncology support for unscheduled cancer patient admissions and acute oncology assessment of known cancer patients, with inpatient admission as an option. This approach will mitigate the risks for inpatients across the network.
- The development of acute oncology services in each LHB is a priority and will help support reductions in acute admissions across the network. A common dataset is required to support the planning of these services.
- Each LHB needs to ensure that there is a plan for providing oncology advice and support for patients admitted via A&E, and for acute oncology assessment of known cancer patients presenting with symptoms/toxicities, with inpatient admission provided as an option on a district general hospital site if needed. The assessment service model should provide for multi-disciplinary input, in particular from palliative care, specialist nursing and allied health professionals.

2.2.5 Spending Objectives

Having outlined the existing arrangements for delivering AOS across South East Wales, and the business needs as highlighted by the peer reviewed and local assessment of service gaps, a set of Spending Objectives were developed. These set out what the project is trying to achieve by way of intended outcomes and what needs to be achieved to deliver the necessary changes highlighted through the business needs.

The table below sets out the project spending objectives which were developed in partnership with the AOS MDT Steering Group, which has broad representation from all four of the stakeholder organisations.

Figure 10: Spending Objectives

Project Spending Objective	Description
Project Spending Objective 1	Improved patient outcomes and experience delivered consistently irrespective of presenting location
Project Spending Objective 2	To avoid unnecessary inpatient admissions but where this is necessary to reduce the average length of stay for patients admitted acutely
Project Spending Objective 3	Provide treatment for patients in the most appropriate setting that balances clinical need with personal choice
Project Spending Objective 4	Identified and improved pathways for patients presenting as MUO/CUP
Project Spending Objective 5	Improving services through better data analysis, greater focus on measuring outcomes and dissemination of knowledge around management of acute oncology across the organisation through education provision

The spending objectives will be used to support the development of the benefit criteria to be used in the non-financial aspects of the option appraisal.

2.2.6 Project scope

The scope of this project is to develop a comprehensive clinical model for acute oncology services in South East Wales covering the pathway from point of arrival in acute setting to discharge from hospital including the management of presentation, assessment, treatment and discharge. It was agreed that this would be run as a regional service across South East Wales.

It should be noted that the AOS pathway is broader than this, and includes primary and community care, as well as tertiary specialist beds, which will be considered outside of this business case.

2.2.7 AOS Clinical Model

In considering the approach to developing the clinical model considerable work has been undertaken by engaging a wider range of stakeholders through a series of workshops which incorporated patient and user input. This informed the development of the clinical model and the founding principles under which it has been developed.

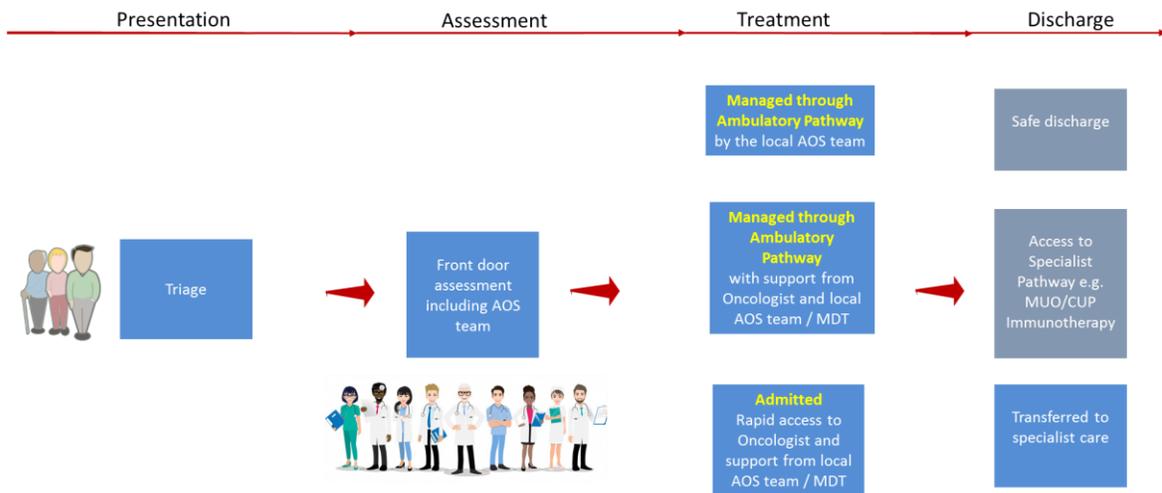
The project was established as a collaboration between Cardiff and Vale, Aneurin Bevan and Cwm Taf Morgannwg and Velindre to ensure a regional perspective of AOS in South East Wales was presented. Two key principles have underpinned the work in developing the clinical approach to enhancing the AOS across South East Wales, namely:

- Equity of access – irrespective of HB of residence, patients presenting to the AOS are assured of equity of access and a common service standard; and
- Shared ownership and delivery – the service model is developed jointly by the three Health Boards (Cardiff and Vale, Aneurin Bevan and Cwm Taf Morgannwg) and Velindre University NHS Trust with clarity around roles and responsibilities.

Recognising the scope of the project, the approach outlined above has developed a clinical model which sets out the key enhancements necessary in delivering the spending objectives and securing the necessary improvements in AOS across South East Wales.

As a starting point, an overview of the high level patient pathway of the project is summarised in the diagram below. This sets out the key and decision points across the patient journey through the AOS.

Figure 11: High level patient pathway

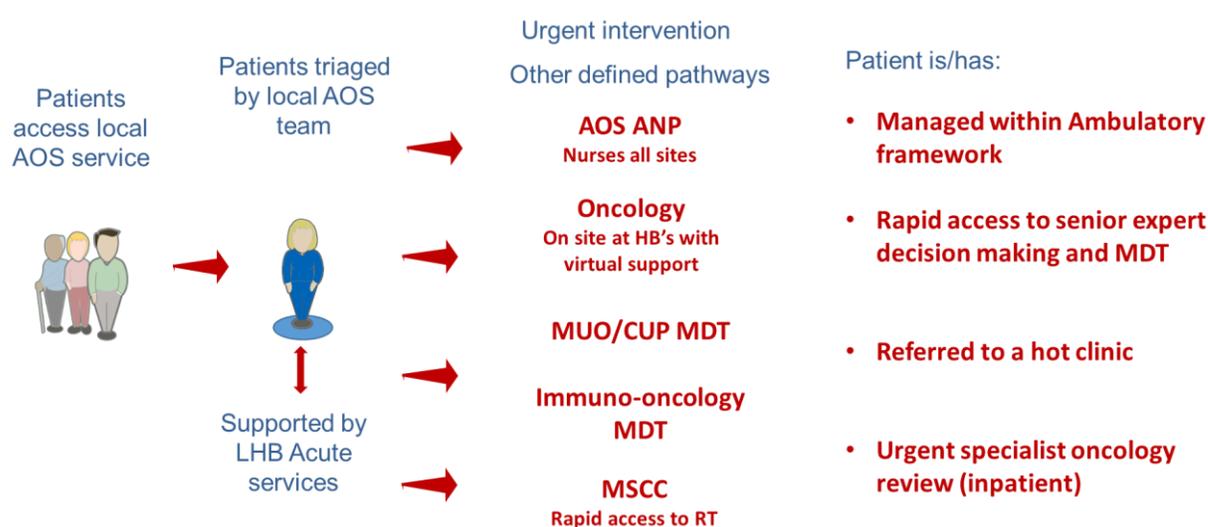


The high level pathway has been used as the foundation for developing the more detailed AOS clinical model which is summarised in the diagram below. This sets out a model which places stronger emphasis on the specific needs of AOS patients whilst complementing local wider unscheduled care management with a primary focus on ambulatory pathways as an alternative to inpatient admission. Where patients do need to be admitted, timely MDT reviews with appropriate specialist oncology input will support reductions in length of stay. It combines

locally based HB resources with enhanced access to specialist oncology input through a mix of predictable and regular physical on the ground presence and virtual support. Other elements include enhancement of specialist nursing input, a new, structured approach to the management of MUO/CUP patients along with access to other specialist pathways.

The model also recognises that timely intervention and honest conversations by AOS teams with patients and their families makes a real difference in the quality of care and patient outcome. Good working partnerships and arrangements between emergency departments, medical admission units, and acute oncology services are key underpinning elements of the model.

Figure 12: Emerging AOS Clinical Model



The areas highlighted in red show the focus of service enhancements and required investment. Further details relating to the respective elements of the proposed enhancements can be found in the table below with more detailed analysis provided in Appendix C.

Figure 13: Proposed service specifications for the enhanced AOS

Area of Investment	Service Proposal
Nursing and Allied Health Professionals	Enhanced CNSs to manage initial presentations and support ambulatory pathways to help avoid admissions, and take on the key worker role throughout acute oncology pathways; ANP senior nursing to lead AOS teams and independent decision making within areas of competency; AHP support patients and facilitate patient management and effective / timely discharge.
Consultant Sessions	Additional Clinical Lead sessions to support AOS team and provide timely senior clinical advice, and provide education and training; Consultant Palliative Care to provide specialist support to MUO/CUP MDT; and

Area of Investment	Service Proposal
	additional Consultant Radiologist time to enable enhanced access to timely radiological investigations and facilitate the rapid decision making.
Specialist Oncology Support	<p>Enhanced HB oncology input comprising mix of physical and virtual support.</p> <p>HB direct time - Oncologist (named, integrated with AOS team) lead via presence on the ground at the HBs, providing face to face clinical review via ward rounds (reducing length of stay) and hot clinics (reducing admissions), education and training (delivered in HBs), and regional pathway development.</p> <p>Virtual Support - Complements the HB direct consultant oncologist by providing virtual touch points throughout the day for all hospitals in South East Wales, allowing consistent and timely advice no matter where patient admitted and avoiding unnecessary admissions.</p>
MUO/CUP Service	<p>New service for cancer patients where primary sites of tumour-origin are not immediately apparent.</p> <p>Consultant Oncologist - Named lead who provides expert advice to HB AOS teams (avoiding unnecessary investigations and reducing length of stay) and Chairs the MUO/CUP MDT.</p> <p>CNS - Key worker and point of contact for patients, providing patient education and support, with remit to develop clinical pathways and links with AOS nursing teams.</p> <p>Consultant Palliative Care - Support to the MUO/CUP MDT</p> <p>Consultant Radiologist & Pathologist - Additional time for input into MDT (as a core member) to review the treatment and care of MUO/CUP patients.</p> <p>Collectively, this will mean better patient experience and outcomes, as well as reducing length of stay.</p>
Immunotherapy Toxicity Service	<p>New service for patients with Immuno-oncology (IO) toxicities.</p> <p>Consultant Oncologist - Regional service lead to establish clear pathways for toxicity management, Chair the MDT, provide education with teams in all acute hospitals as well as developing ambulatory pathways to deliver critical drugs.</p> <p>CNS - Key worker and point of contact for patients, to liaise between primary, secondary and tertiary care, with remit to run a triage clinic and ensure prompt and early management of toxicities; work with the oncology and HB AOS teams, and provide training; manage patients on reducing steroid treatments, enabling early discharge.</p> <p>Consultant Specialists - Provide organ system specific toxicity advice to MDT for patients with severe and life threatening immunotherapy toxicity, improving management of complex reactions and enabling access to timely investigations.</p> <p>This will mean better patient experience and outcomes, as well as</p>

Area of Investment	Service Proposal
	reducing avoidable admissions.
MSCC Pathway	<p>Consultant Clinical Oncologist - Attend spinal MDT and improve communication between spinal surgeons and clinical oncologists.</p> <p>MSCC clinical co-ordination role - Attend spinal MDT and co-ordinate the care and management of MSCC across region as the single point of contact, working alongside AOS consultants and nurses and the spinal surgical team. They will provide strategic regional developments for recognition, investigation, treatment and rehabilitation of patients with MSCC. This will be better for patient experience and outcomes.</p>
Admin support	<p>MDT Co-ordinator (MUO/CUP and Immunotherapy Toxicity) - Provides support to MUO/CUP and Immunotherapy Toxicity MDTs. Ensures discussion conclusions are documented and communicated between organisations including VCC, LHBs and primary care.</p> <p>Medical Secretary - Supports the effective management and planning of patient administration including effective communication and documentation of medical reviews and advice. Administration of MDTs and hot clinics (HBs).</p>

Underpinning the service model are a number of regional enablers, specifically digital and education and training, which are fundamental to the successful delivery of the clinical model and the delivery of the associated benefits. The digital elements include the collection of standardised, structured data using digital forms to improve patient safety, reduce duplication, support data analysis and reporting, and is a key enabler to understanding the impact of service through Patient Reported Outcome Measures (PROMS). The availability of consistent and comprehensive patient data will also support improved mechanisms for communication, facilitating seamless access to specialist advice at point of care, flag admission of diagnosed cancer patients within the region, and enable access to records across the site to facilitate specialist support.

Digital enablement also includes the ability to support virtual clinician to patient and clinician to clinician consultations and engagement. Many of the established video / voice tools are already available (e.g. Attend Anywhere, Consultant Connect and Microsoft Teams) and can be easily deployed into the proposed AOS landscape across South East Wales.

Education and training is recognised a key feature of the service. AOS bridges the gap between oncology and other medical specialties, and the possibility of this shared learning is crucial. In North Devon, weekly teaching sessions for staff working in the emergency department and MAU around oncological emergencies and immune-oncology toxicities have been core to the service.²⁰ In addition to this sharing of knowledge and expertise, there is a need for more formal education

²⁰ *Acute oncology: Increasing engagement and visibility in acute care settings*. Royal College of Physicians. Oct 2020

and training, particularly for nursing and to maintain the principle of equity, the proposal would be to develop a regional education and training programme.

2.2.8 Patient and staff experience

In order to demonstrate the benefit of an AOS for both patients and organisations, the following is an anonymised patient case which depicts their experience now and what it could be like with an enhanced AOS. Alongside the patient story is that of the CNS who took charge of the patient.

Figure 14: Patient experience of AOS now

I had a swelling in my neck and went to my local hospital after feeling unwell for several weeks. I had a scan and the emergency team explained they were 'worried' about it and that it showed some abnormal swellings but not much more than that and I was admitted.

The next day I met a specialist nurse who told me she would stay involved in my care until we understood what was happening, she talked to me and my family together with the ward doctor and they told me it might be cancer. The medical team organised a biopsy of the swelling but I wasn't told the results and I was still in hospital ten days later and feeling worse. I was scared and knew something was not right but too scared to ask too many questions. Everyone was so busy and they didn't seem to know what was happening to me, the specialist nurse came to visit me and told me we were waiting on the results of the biopsy to help decide what the next steps would be.

Eventually, the doctor on my ward told me the biopsy result was ready and that it was lymphoma cancer. I was given some steroids and told that they were arranging an appointment to see a cancer specialist in another hospital. By the time I saw the oncologist I was really ill and I was told I was not fit enough to be treated.

Figure 15: Patient experience of AOS in the future

I had a swelling in my neck and went to my local hospital after feeling unwell for several weeks. The emergency team I saw when I first arrived explained the swelling might be cancer and that I required further investigations, but did not need to be admitted for these. A specialist nurse came to see me in the emergency department and told me she would be acting as my Keyworker whilst I was having these investigations and gave me her contact details. I returned a couple of days later for an urgent biopsy of the swelling, whilst I was there the specialist nurse brought an oncologist to see me. They told me and my family that I probably had lymphoma. They explained what was happening and told me I could go home with an appointment to go back to a clinic and see the cancer specialist.

A week later, I saw a different oncologist who told me the results from the biopsy showed it was an "aggressive cancer" but they were booking me in for chemotherapy that day to give me the best chance to control the disease. It was obviously upsetting news but everything was done so quickly and explained to us, we always felt we knew what was happening.

Figure 16: CNS experience of AOS now and in the future

The acute team contacted me about a 70 year old lady who had presented with a large gland above her clavicle. The radiologist report suspected cancer and a biopsy was arranged. Despite my advice, for the patient to be discharged, she remained an inpatient for ten days on a medical ward waiting for the result. During this time her performance status deteriorated and she became more and more anxious. Once the result was back she was discussed at an MDT and the specialists advised starting her on steroids. She was discharged and told she would get an appointment with the oncologist in the post.

It was frustrating because I kept getting different advice from different oncologists, when I could get through. Once the patient was discharged, I had to update paper records and several different systems before I could see the next patient.

The acute team contacted me about a 70 year old lady who had presented with a large gland above her clavicle. The radiologist report suspected cancer and I met and assessed her in the emergency department. I introduced myself as her Keyworker and explained my role. I telephoned the oncologist at a time when I knew I could speak to them. They suspected lymphoma and suggested an urgent biopsy and referral to the next available clinic on site. I made sure the patient was fully informed of the plan and discharged them to return for the booked biopsy. I updated the patient records on the system once and I was free to see the next patient.

When she attended for the biopsy I was able to arrange for the oncologist to meet the patient and her family to discuss the probable diagnosis and plan.

The next week the patient returned to the onsite clinic to receive her results and treatment plan.

2.3 Anticipated benefits

A range of benefits are anticipated to accrue through the successful implementation of the proposed AOS clinical model which will be both direct and indirect as well as quantitative and qualitative.

There are significant service quality and safety benefits for patients who have access to a structured AOS in terms of their experience and outcomes. AOS ensures continuity and consistency of care where they would otherwise experience significant delays in diagnosis and treatment. Offering specialist oncology support outside the cancer centre, enable patients to access treatment at a location convenient to them.

Whilst some benefits will potentially free up acute hospital capacity which can be used for alternative purposes the ability to make these cash releasing will depend largely on local circumstances and the ability to disinvest in existing practices as the clinical model is rolled out. To help quantify the benefits, empirical evidence from other centres and systems across the UK who have successfully implemented an AOS model that reflect the proposed approach in South East Wales have been used. Benchmarking with these centres demonstrates significant opportunities for admission avoidance (in the range of 40-60%) and reductions in length of stay (3–4 days)²¹ for patients who require inpatient care. The existing AOS service has already achieved some reductions in length of stay but additional investment will support admission avoidance through staff availability (for rapid assessment of patients), oncology advice, and hot clinics, as well as some further reductions in length of stay. Therefore, the quantifiable benefits that have been applied are 25% admission avoidance and 10% reduction in length of stay respectively. These have been clinically endorsed and applied to the baseline position in each Health Board to assess the potential improvement and the impact it could have in freeing up acute capacity. Further details and quantification of these benefits in relation to this business case are provided within the Economic Case section.

A summary of the anticipated benefits, beneficiaries and, critically, the proposals for assessment and measurement are set out in the table below. Further details, including the anticipated impact these benefits will have, can be found in the Benefits Realisation Plan (Appendix D).

Figure 17: Anticipated benefits of implementing AOS clinical model

Benefit	Beneficiaries	Measurement
Equal access to AOS for those in equal need	Patients, staff, Health Boards	Patients per head population, attendances linked to cancer incidence trends
Improved patient experience and better patient outcomes	Patients, staff, families, carers	PROMS

²¹ *Acute oncology: Increasing engagement and visibility in acute care settings*. Royal College of Physicians. Oct 2020

Benefit	Beneficiaries	Measurement
Patients spend more time at home in their last year(s) of life	Patients, families, carers	PROMS, number of days spent in acute hospital in last year of life, patient preferred place of death, mortality rates within 30 days of treatment, palliative care contacts
More patients receive same day emergency care avoiding the need for hospital admission	Patients, Health Boards	Emergency admission rates, 30-day readmission rates, Nos of AOS patients admitted as inpatients, Nos of patients managed through ambulatory pathways, Cost per case
When admitted patients spend less time in hospital as an inpatient	Patients, staff, Health Boards	Inpatient bed days Average length of stay
Patients are not subject to unnecessary investigations or treatment	Patients, Health Boards	Numbers of investigations Patient outcomes and survival
Enhance links with other hospital based specialists / services	Patients, staff	Staff surveys, referral times
Improve effectiveness of AOS team working	Patients, staff	Staff surveys, number of patient handovers
Better professional AOS education and training	Patients, staff	Increase in critical mass of AOS team, staff surveys, retention, qualifications across the team
Digital interaction between staff / patients and staff / staff	Patients, staff, Health Boards, Velindre NHS Trust	Number of digital interactions, reduced time to access specialist opinion
Better AOS data to improve decision making & accuracy of demand and capacity forecasting	Patients, staff, Health Boards	Staff survey Reports
Efficient collection of AOS data allows for inter-operability and more clinical time spent with patients	Patients, staff	Staff survey Reports

In consideration of the development, assessment and measurement of anticipated benefits, and ensuring they have a strong focus on outcomes the project team have been, and will continue to, work with the Value Based Healthcare teams across South East Wales and nationally in further developing our approach to benefits measurement and management.

2.3.1 Risks

Identifying, mitigating and managing the key risks is crucial to successful delivery. Without effective management of the key risks, it is likely that the project would not deliver its intended outcomes and benefits. The Management Case sets out the management of project specific risk, however, the table below sets out the key strategic risks that have been identified to date covering Business, Service and External categories.

Figure 18: AOS project risks

Risk Category	Risk Description
Business	There is a risk that there is a lack of HB support for the preferred model.
Business	There is risk that Health Boards / Commissioners do not agree to support the level of investment required to deliver the model.
Business	There is a risk that to meet the IMTP deadlines for 2021 the business does not go through due diligence and there is a delay in approvals.
Service	There is a risk that a lack of communication with key stakeholders and other disciplines means there is a lack of clinical support.
Service	There is a risk that not considering the whole AOS pathway limits the opportunities to provide a comprehensive, equitable service.
Service	There is a risk that lack of availability of appropriately trained and skilled staff limits the speed of implementation
External	There is a risk that COVID-19 will interrupt the project and take key personnel away from the project.

2.3.2 Constraints

The main constraints in relation to the AOS project are outlined in the table below.

Figure 19: AOS project constraints

Constraint	Overview
Financial constraints	The financial investment of implementing the preferred clinical model will need to be agreed with HBs.
Timescale constraints	The success of the AOS project will be dependent on inclusion in organisational IMTPs after 2021/22.
Service Capacity	The success of the AOS project will be dependent on the capacity of the service to fully implement the model in the agreed timeframe.

Constraint	Overview
Service Capacity	The success of the AOS project will be dependent on the ability to recruit to key posts.

2.3.3 Dependencies

A number of dependencies have been identified in relation to the AOS project, as outlined in the table below.

Figure 20: AOS project dependencies

Dependency	Overview
Funding Availability	Access to appropriate funding to implement the preferred clinical model.
Partnership Working	Co-production between HBs and VUNHST in the development and implementation of the model is essential to the success of the project.
Digital enablement	The need to have in place effective digital solutions to support virtual consultations / engagement and access to better clinical information / data for AOS patients
HB and CCLG Approval	The Business Case must be endorsed by the CCLG and thereafter seek approval through the HB statutory governance.
Pre implementation planning	Appropriately resourced and coordinated pre-implementation planning is critical to the successful implementation starting in 2021.
Compliance with national and UK guidelines	The AOS clinical model must comply with all relevant national and UK guidelines and recommendations.

2.4 Summary

This section of the business case has set out the background to the South East Wales Acute Oncology Service set in the context of wider cancer service delivery arrangements. It has outlined the existing arrangements for service provision and highlighted a range of gaps supported by an independent Peer Review. A set of objectives have been established to realise the benefits arising from enhanced resources and investment, and the proposed clinical model, once implemented will ensure that these benefits can be realised. Finally, a range of factors covering risks, constraints and dependencies have been identified which are critical in ensuring a successful outcome for the project.

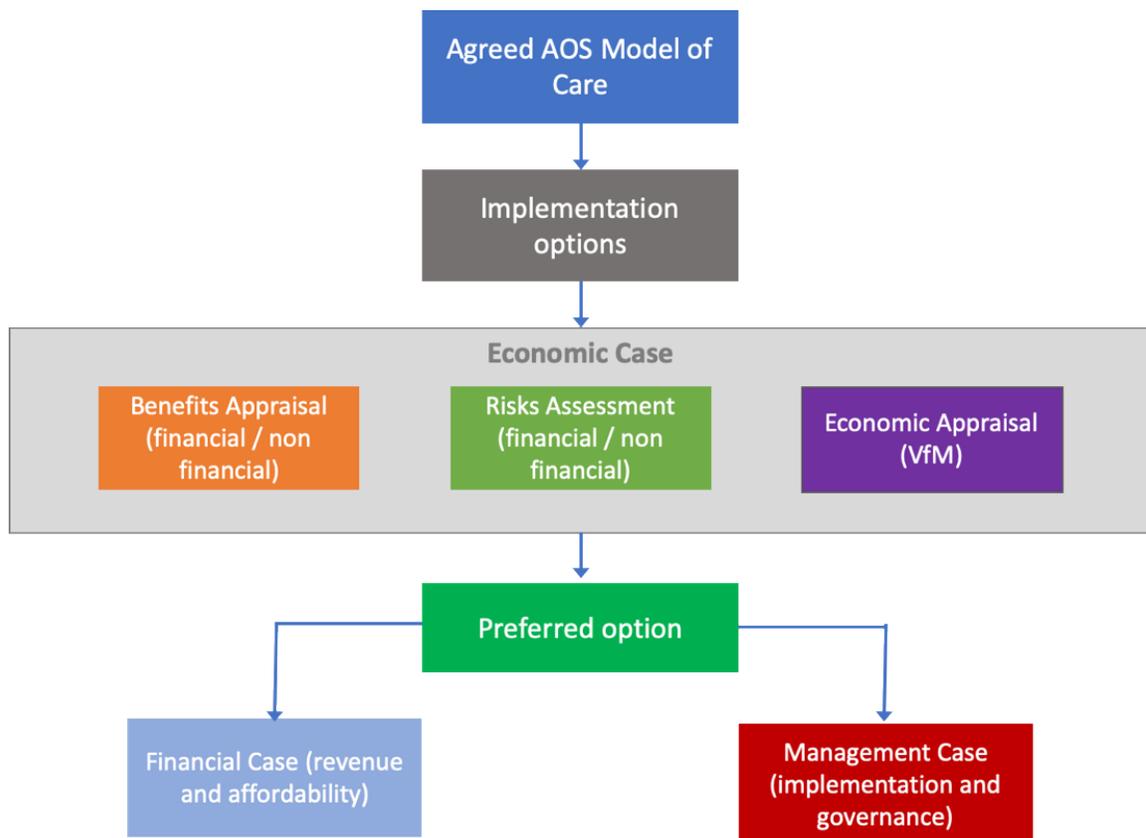
ECONOMIC CASE

3 Introduction

The purpose of the Economic Case is set out the options for implementing the Clinical Model identified within the Strategic Case and then to undertake a detailed analysis of the costs, benefits and risks of these options to ultimately identify a preferred way forward. The objective is to demonstrate the relative value for money of the options in delivering the required outcomes and services and ultimately to identify the solution which secures the optimal balance of costs, benefits and risks.

The Economic Case is set within the context of the wider Option Appraisal which translates the Acute Oncology Service clinical model into a series of alternative delivery solutions culminating in the identification of an agreed way forward. Once identified an assessment of funding and affordability (Finance Case) and deliverability (Management Case) are presented in subsequent sections of the business case. A summary of the process is provided in the diagram below.

Figure 21: AOS option appraisal



There are a number of steps involved in completing the Economic Case comprising the following:

- The process for developing the shortlist of implementation options
- The development of non-financial benefit criteria used to assess the options
- Scoring of the options against the non-financial benefit criteria
- Undertaking a non-financial risk assessment
- Assessing the monetary costs and benefits of the options over the appraisal period
- Summarising the results of the option appraisal and selecting the preferred option

The remainder of this section of the business case will outline how each of the above areas have been tackled and, critically, how stakeholders have been engaged in key aspects of the option appraisal process.

3.1 Developing the options

Options should be consistent with the project scope set out within the Strategic Case and should reflect different routes to delivering the anticipated benefits. As they reflect alternative choices it is possible to assess the differing extent to which investment objectives and associated benefits are secured, resources are applied, and risks are calibrated. As a minimum, an option that delivers the core project scope should be considered. A further option(s) that provide further optional / desirable coverage and a Do Nothing position which acts as a baseline or reference point against which improvements can be measured.

To aid with option development a framework was used to capture the key variables likely to be relevant in implementing the clinical model. These are phrased in four themes as set out below:

- **Theme 1 – Structure:** how the service would optimise combining specialist oncology expertise with locally based resources
- **Theme 2 – Configuration:** how Acute Oncology Services across SE Wales might be organised with particular emphasis on Health Board acute hospitals
- **Theme 3 – Operating:** over what time period would services be available
- **Theme 4 – Phasing:** consider a ‘big bang’ or phased approach and, for the latter, what might be quick wins

Using the four themes and working with a group of stakeholders from all of the South East Wales Health Boards and Velindre, representing a wide range of professional backgrounds, a short list of three options was developed. A summary is provided in the table below which also incorporates the ‘quick wins’ referred to above.

Figure 22: AOS option shortlist descriptions / components

Theme	Option 1 – Do Nothing (business as usual)	Option 2 – Do Minimum (Core Scope)	Option 3 – More Ambitious (desirable / optional scope)
Structure	Oncology input - daily MDT and on-call Clinical leads - one session/week	Oncologist of the day - balance of physical and virtual presence Clinical leads - additional sessions	Oncologist of the day – more physical than virtual presence Clinical leads - additional sessions with cross cover ANP – managed deployment
Configuration	Inconsistent access to AOS and variable CNS support across sites	AOS presence on all sites, appropriately resourced	Hybrid model: Inpatients (hub), ambulatory care (spoke)
Operating	Core hours but inconsistent across sites	Monday to Friday 9am -5pm	Extended day Monday to Friday 9am - 8pm
Phasing	N/A	Staged approach to implementation	Staged approach to implementation
Quick wins	N/A	MUO/CUP pathway Digital (Business Analyst)	MUO/CUP pathway Digital (Business Analyst)

In developing Options 2 and 3, certain elements were considered ‘non-negotiable’ as the expectation was they should be present and resourced appropriately in any implementation option, in order to meet the basic requirements of the clinical model. Specialist oncologist support is included in this but because there was a choice to be made about how this could work, it is included in the options above. A summary of the non-negotiables are provided in the table below.

Figure 23: AOS option ‘non negotiables’

Element	Description
CNS input	Specialist Cancer Nurse Specialists (CNSs) and associated leadership to help manage initial presentations, support ambulatory pathways and act as a key worker through the inpatient pathway
AHP support	Allied Health Professional support to Acute Oncology patients, in particular to facilitate patient management and effective / timely discharge

Element	Description
Diagnostics	Rapid access to diagnostics, particularly radiology (and pathology for MUO/CUP) to support diagnosis and on-going patient management
MUO / CUP and Immunotherapy	A structured pathway for the management of patients falling within these distinct groups of AOS patients
Admin support	To support the effective management and planning of patient administration including clinics and MDT meetings

Lastly, as part of the option development process, potential solutions across the four themes were assessed and excluded on the basis that they were not adequately aligned to the proposed clinical model (for example, 100% virtual oncology input) or that there was insufficient evidence to justify the associated use of resources and case for investment (for example, data did not support running a weekend service). The exclusions are summarised in the table below.

Figure 24: AOS option exclusions

Theme	Excluded from all implementation options
Structure	Oncology input provided on fully virtual basis with no physical presence at acute hospital sites
Configuration	Single designated / centralised AOS hospital site per Health Board
Operating	Weekend service (but allowing for urgent, on-call specialist advice)

3.2 Non-financial benefits assessment

The purpose of the non-financial benefits assessment is to consider the extent to which, on a qualitative basis, the shortlisted options meet the objectives and deliver the anticipated benefits arising from the proposed investment in AOS.

In approaching this part of the option appraisal process there was a strong desire to build on the extensive and effective engagement that was present in the development of the clinical model. In this regard the non-financial assessment incorporated a series of stakeholder workshops with representation from all of the Health Boards in South East Wales and Velindre NHS Trust as well as partner organisations including the Welsh Ambulance Service, Macmillan and the Community Health Council. Stakeholders were drawn from a wide range of professional backgrounds including Oncologists, Cancer Leads, Acute Medical representatives, Nursing, Allied Health Professionals, Palliative Care, Finance, Workforce and Planning.

3.2.1 Developing the benefit criteria

During the workshops a set of six benefit criteria were agreed that would be used to assess the three shortlisted implementation options for AOS. As indicated these reflect both the investment objectives and anticipated benefits highlighted in the Strategic Case. The definition of each criteria have been expanded to provide a more comprehensive indicator of how these would be used to assess and score the options. Further details are provided in the table below.

Figure 25: AOS benefit criteria and descriptors

Criterion	Description
Equity of access	The extent to which the option ensures that the service delivered is available and predictable irrespective of where the patient acutely presents across South East Wales. Patients should expect the range and level of resources provided to be consistent and the outcomes of their care to be at an acceptable standard.
Patient experience and outcomes	The extent to which the option supports a positive patient experience and respects the needs of the individual across the entire admitted care pathway. Patient care and safety is optimised through timely access to care and expertise that reflects where the patient is on their cancer journey and their desired outcome from the intervention. The patient and their carers feel that there has been a measurable benefit from the care received.
Effective and efficient use of resources	The extent to which the option supports optimum patient throughput at an acceptable level of quality whilst making best use of time and resources. This should ensure throughput is optimised and there are no undue delays across the patient pathway from presentation / admission to discharge. This could include avoiding admission into an acute bed and / or where this is required minimizing the amount of time spent in hospital.
MUO / CUP pathways	The extent to which the proposed solution delivers an effective and patient centred approach to the management of MUO / CUP. This would include a structured rapid referral process, a clinical management pathway, CUP/MDT membership, dedicated out-patient clinics and interaction with other professional groups involved in the management of the patient. As a minimum it would be anticipated that access would be provided to an oncologist, a palliative care physician and a specialist nurse or key worker.

Criterion	Description
Optimising the end of life journey	The extent to which the option supports the patients' last year of life and their preferred place of death. This should be optimised through timely access to care and expertise, as they transition from active treatment to best supportive care. This should be overseen by the acute oncology team working closely with Palliative Care. This will include support to family, carers or other people who are important to the patient being cared for.
Education and training	The extent to which the proposed arrangements support formal and informal education and training across all staff involved in the delivery of Acute Oncology. This should cover all professions inputting to the patient pathway from initial presentation through to discharge but also external education through interaction with primary and community health practitioners.

3.2.2 Scoring the options against the criteria

Having developed the benefit criteria these were then ranked and weighted prior to the scoring of the options to assess the extent to which stakeholders judged the options were able to meet each of the criteria. Options were scored on a scale from 0 (could hardly be worse) to 10 (could hardly be better) and the results aggregated to provide a total score for each option. A summary of the ranking, weighting and scoring assessment is provided in the table below.

Figure 26: AOS non-financial benefit scores

BENEFIT CRITERIA		WEIGHT %	Option 1 - Do nothing		Option 2 - Do Minimum (Core Scope)		Option 3 - More Ambitious (Desirable / Optional Scope)	
		W	SCORE	W x S	SCORE	W x S	SCORE	W x S
1	Equity of access	23.3	3.0	69.8	7.0	162.8	9.0	209.3
2	Patient experience and outcomes	20.9	3.0	62.8	8.0	167.4	9.0	188.4
3	MUO / CUP pathways	18.8	1.0	18.8	8.0	150.7	8.0	150.7
4	Education and training	13.2	1.0	13.2	7.0	92.3	8.0	105.5
5	Effective and efficient use of resources	12.5	4.0	50.1	8.0	100.2	7.0	87.7
6	End of life care	11.3	1.0	11.3	7.0	78.9	8.0	90.2
TOTAL		100.0		225.9		752.3		831.7
RANK				3		2		1

The results of the scoring exercise show that, unsurprisingly, Option 1 – Do nothing returns a low score both at individual criteria and aggregate level with a total returning a score in the ‘lower quartile’. This reflects the extent to which the gaps in the current service impact in key areas such as equity of access and patient experience. Options 2 and 3 perform significantly better reflecting the fact that both deliver the key elements of the proposed clinical model. Both options score in the ‘upper quartile’, indicating that they are likely to be capable of realising the investment objectives and delivering the required benefits. However, Option 3 returns a slightly higher score reflecting its additional scope including such features as extended hours and greater presence of roles such as the ANP.

A range of sensitivity tests were undertaken including applying equal weighting to all of the criteria and eliminating the scores for the highest ranked criterion – Equity of access. A summary of these sensitivity tests is shown in the table below.

Figure 27: AOS non-financial benefit scores

Scenario	Option 1 – Do nothing	Option 2 – Do minimum	Option 3 – More ambitious
Baseline scores	225.9	752.3	831.7
Ranking	3	2	1
Equal weighting applied to criteria	216.7	750.0	816.7
Ranking	3	2	1
Exclude scores for top ranked criterion	156.2	589.5	622.4
Ranking	3	2	1

As can be seen from the analysis none of the sensitivities materially alter the relativity of the scoring or the ranking of the options in terms of their non- financial benefits.

3.3 Non-financial risk assessment

In parallel with the non-financial benefits assessment, a review and assessment of non-financial risks associated with implementing the proposed clinical model was undertaken, specifically to consider how these might differ across the shortlist of options. As was the case with the non-financial benefits assessment work with a range of stakeholders in identifying and assessing the key risks was undertaken. The outputs of this work form a part of the wider option appraisal but also help to inform the mitigation and management actions outlined in the risk management plan provided as part of the Management Case.

3.3.1 Developing the risk register

An initial risk register for AOS has been developed focusing on the key areas of risk likely to impact on the successful delivery of the proposals set out within the Strategic Case. These risks have been developed covering three key service themes, namely Strategic Risks, Planning Risks and Operating Risks – a definition of each of these areas is provided below.

- **Strategic risks:** those risks associated with the strategic context in which the project is set and managed
- **Planning risks:** those risks associated with the planning parameters / assumptions used for the project
- **Operating risks:** those risks associated with service delivery and resourcing

In terms of specific risks covered by each theme the table below provides the appropriate analysis. The approach has been to focus on key risks rather than breaking down into larger numbers of individual components - this results in a relatively small number of risk areas concentrating on factors critical to successful implementation.

Figure 28: AOS risks

Risk theme	Risk no	Risk description
Strategic	1.1	Health Boards are unable to prioritise required investment in AOS
	1.2	AOS governance is not adequate to maintain shared ownership and delivery
	1.3	Further phases of AOS model are not taken forward
Planning	2.1	Estimated revenue is unable to meet full costs of implementation
	2.2	AOS demand outstrips capacity resulting in unmet need
	2.3	A lack of adequate pre-go live planning impacts adversely on AOS implementation
Operating	3.1	Inability to access required numbers of adequately trained / skilled Oncologists
	3.2	Inability to access required numbers of adequately trained / skilled nursing staff
	3.3	Digital enablers are not of a standard required to support key elements of the solution(s)

3.3.2 Assessing the risks

All risks have been assessed to establish the likely consequences should they arise (their impact) and the likelihood of them arising (their probability). The assessment scale and associated calibration for each element of the assessment is shown in the table below.

Figure 29: Risk assessment scale

Risk consequence		Risk likelihood	
Score	Rating	Score	Rating
1	Negligible	1	Rare
2	Minor	2	Unlikely
3	Moderate	3	Possible
4	Major	4	Likely
5	Extreme	5	Almost certain

The risk rating is assessed by multiplying together the likelihood and consequence scores. Risks are then classified as Red, Amber, Yellow or Green based on the chart below.

Figure 30: Risk rating

Likelihood	Potential Consequences				
	Negligible (1)	Minor (2)	Moderate (3)	Major (4)	Extreme (5)
Almost Certain (5)	Medium	High	High	Very High	Very High
Likely (4)	Medium	Medium	High	High	Very High
Possible (3)	Low	Medium	Medium	High	High
Unlikely (2)	Low	Medium	Medium	Medium	High
Rare (1)	Low	Low	Low	Medium	Medium

3.3.3 Scoring the risks to assess impact

A workshop was convened to assess the risks using the rating scale highlighted above. The assessment was initially based on a review of Option 2 – Do minimum and then a judgement made on the relative rating of the other options against this position. The results of the risk assessment are shown in the table below with each risk score and rating highlighted along with the relative position for the Do Nothing and More ambitious options.

Figure 31: Risk assessment results

Risk	Score / rating	Option 1 - Do nothing	Option 3 - More ambitious
Health Boards are unable to prioritise required investment in AOS	12	↓	↑
AOS governance is not adequate to maintain shared ownership and delivery	9	↓	↔
Further phases of AOS model are not taken forward	9	↓	↔
Estimated revenue is unable to meet full costs of implementation	9	↓	↔
AOS demand outstrips capacity resulting in unmet need	9	↑	↓
A lack of adequate pre-go live planning impacts adversely on AOS implementation	6	↓	↔
Inability to access required numbers of adequately trained / skilled Oncologists	12	↓	↑
Inability to access required numbers of adequately trained / skilled nursing staff	12	↓	↑
Digital enablers are not of a standard required to support key elements of the solution(s)	12	↔	↔

↓ Lower risk. ↔ Similar risk. ↑ Higher risk

As can be seen from the results of the risk assessment there are a number of areas where a ‘High’ rating has been determined (in some instances this may be greater depending on which option is pursued) indicating these could have a significant bearing on the overall success of the project. Careful mitigation measures will be required to ensure that these risks and their potential impact can be managed. Further analysis is provided as part of the Risk Management Plan highlighted in the Management Case.

3.4 Monetary costs and benefits

This element of the Economic Cases focusses on the assessment of the quantifiable monetary costs and benefits associated with the AOS implementation options. It uses Net Present Value (NPV) analysis to establish the overall economic impact of the options across an appraisal period rather than a single financial year. This allows us to review the economic impact of the alternative AOS delivery solutions and, when combined with the non-financial elements of the options appraisal, identify the 'preferred option' to be taken forward into the Finance and Management cases.

Recognising, at this stage, there is further work to be undertaken on the detailed implementation arrangements within each stakeholder organisation, for the purposes of this business case it is necessary to develop a range of planning assumptions that underpin the estimated costs and benefits associated with each of the options. Whilst these will be subject to review and update, they do reflect the latest position with regard to dialogue between professional groupings / functions and planning and finance colleagues from all of the stakeholder organisations across South East Wales. Further analysis of costs and benefits is provided within the Financial Model which supports the business case and has been shared with relevant personnel from each of the stakeholder organisations.

3.4.1 Monetary costs

Monetary costs broadly reflect the components of the options as set out in Section 3.1 of the business case, however, the tables below sets out more detailed assumptions used to develop the analysis. Note that the resourcing assumptions are closely linked to the service specification outline in section 2.2.7 of the Strategic Case.

Figure 32: Cost analysis assumptions

Input	Assumption
Phasing	Largely reflects Health Board investment prioritisation across a series of 'Implementation Phases' (further detail provided within the Finance Case) combined with the challenges of recruitment across different staff groupings with 4 months as the minimum recruitment time. Consultant level posts are assumed to be the most difficult to recruit and phased over a longer timescale.
Demand growth	This reflects NHS Wales cancer incidence which is rising at an annual rate 1.5-2%. This has been applied to the resource requirements as a proxy for the impact of increases in AOS demand.
Oncologist input	Provides for a combination of regular and predictable physical on the ground support within the Health Board acute sites combined with virtual support via "oncologist of the day" to be available for a full working day 5 days a week. Costs include allowances for annual leave and Supporting Professional Activities (SPAs). Physical support provision incorporates an

Input	Assumption
	allowance for Education and Development to support local teams. Under the more ambitious option the level of on the ground support is expanded.
Other consultant input	<p>This includes allowances for Clinical Leads input within the Health Boards. Allowance is also incorporated for additional resource to support enhancements to the management of immunocology toxicity through a range of specialty inputs from HBs</p> <p>Allowance for Consultant Palliative Care support to the CUP/MUO MDT</p> <p>There is also provision for additional Pathology and Radiology input to support enhanced access to diagnostics for AOS patients</p>
Nursing input	<p>CNS/ANP whole time equivalents (WTE) are based on each HB's assessment of requirements to meet its local implementation across its acute hospital sites. The more ambitious option allows for a longer working day, with a greater proportion of ANP input.</p> <p>Registered nurse and healthcare assistant to provide treatment or support in hot clinics is also incorporated.</p>
AHP input	AHP requirements are based on each HBs assessment of requirements to meet its local implementation across its acute hospital sites. The more ambitious option allows for a longer working day and input to hot clinics.
Other clinical	This includes MSCC coordination and, for the more ambitious option only, some Therapeutic Radiography input.
Admin support	<p>Additional Medical Secretary support reflects an estimate of requirements to support the management of MDT and hot clinics.</p> <p>Call handler input relates only to the more ambitious option and supports a dedicated helpline for patients and GPs</p>
Project management	This allows for dedicated support to manage the implementation of the project across the region.
Digital	IT and business intelligence expenditure has been shaped by discussions with digital leads across the stakeholder organisations. It reflects the need for a time limited scoping study (Discovery phase) combining business analysis and system architecture to further inform requirements and a cost allowance to support the on-going requirements. This will be further developed in line with the more detailed requirements specification.
Training and education	Training and Education expenditure reflects a cost allowance to support formal support for AOS staff across the region. This is in addition to the less formal input provided through the Consultant Oncology input.

The table below provides an analysis of the yearly costs for each of the options across the categories set out in the table above and reflects a fully implemented position which is anticipated to be reached in financial year 2024/25.

Figure 33: Option expenditure analysis

Expenditure heading	Option 1 – Do Nothing £000	Option 2 – Do Minimum £000	Option 3– More Ambitious £000
Consultant Oncologists	175.4	716.9	979.2
Other Consultant input	137.2	350.9	485.9
ANPs	249.7	402.1	613.9
CNSs	446.3	995.2	1,243.7
Other Nursing	-	94.0	182.2
AHPs	98.6	679.9	979.9
Other Clinical	-	77.9	114.2
Admin support / PM	227.4	442.0	547.1
Digital (IT/Business Intelligence)*	-	150.0	166.7
Education and training	-	40.0	90.0
Total	1,334.7	3,948.9	5,402.8

* Includes non-recurrent scoping costs to cover 'Discovery' phase

3.4.2 Monetary benefits

As set out in the Strategic Case there are significant service quality and safety benefits for patients who have access to a structured AOS in terms of their experience and outcomes. AOS ensures continuity and consistency of care where they would otherwise experience significant delays in diagnosis and treatment. Offering specialist oncology support outside the cancer centre, enable patients to access treatment at a location convenient to them. These benefits have largely been assessed through the non-financial appraisal and their measurement incorporated within the Benefits Realisation Plan. However, In addition to these qualitative benefits there are a range of quantitative benefits arising from the implementation of the clinical model which can be assessed and measured in terms of acute hospital capacity released and ultimately valued in cash terms through the application of resource assumptions.

To help quantify the benefits, empirical evidence from other centres and systems across the UK who have successfully implemented an AOS model that reflect the proposed approach in South

East Wales has been used. Specific focus has been given to the impact of an effective AOS on avoiding admissions and, where admission is required, reducing acute length of stay. The benchmarks show us that improvements could be delivered which reflect a range of 40% - 66% of patients discharged the same day, reducing acute admissions; and where acute admission is necessary, patient length of stay has reduced by 3 to 4 days.

As part of the South East Wales AOS business case these benchmarks have been reviewed and clinical consideration given to the potential level of improvement likely to be delivered through the implementation of the proposed model – it is considered realistic to expect a 25% reduction in acute admissions combined with a 10% reduction in length of stay for patients requiring specialist inpatient care. These are then applied to the baseline position in each Health Board to assess the potential improvement and the impact it could have in freeing up acute capacity.

To quantify these benefits, benchmarks have been applied to the baseline position in each Health Board to assess the potential improvement and the impact it could have in freeing up acute capacity which, if released, could be used to support the needs of other service areas within acute hospital settings. Whilst these benefits are unlikely to be cash releasing, for the purposes of the Economic Case an assessment of the cash value of these benefits has been made by applying a direct cost allowance to the bed days released which can then be translated into a value to be incorporated into the overall cost benefit analysis.

In terms of calculating the benefit associated with these improvements for each Health Board the approach set out below has been adopted. This recognises the limitations of existing AOS data capture in establishing a robust baseline, however, proxy measures using Patient Episode Data Wales (PEDW) have been used as the basis for estimating current AOS activity in acute care settings across the region. In summary the approach incorporated four stages, namely:

- Establish an AOS baseline activity position by looking at emergency admissions where cancer is within the top 3 diagnostic codes
- Apply the clinically validated improvement metrics arising from the proposed AOS arrangements within South East Wales (25% admission avoidance / 10% reduction in average length of stay). It is anticipated that a further 5% reduction in length of stay could be achieved through the more ambitious option.
- Translate the improvement potential into bed days (and capacity) released
- Apply a unit cost of £150 reflecting the potential direct cost benefits associated with the bed day reductions

A summary of the results of this analysis is provided in the table below.

Figure 34: Analysis of quantified benefits by Health Board (2018/19 baseline)

Health Board	Baseline AOS bed days	Bed days freed up			Capacity released (Beds)	Annual financial impact
		Avoided admissions	Reductions in LOS	Total		
ABUHB	32,203	8,051	2,344	10,395	30.0	£1,559,250
CAVUHB	27,281	6,820	2,011	8,831	25.5	£1,324,650
CTMUHB	34,051	8,513	2,507	11,020	31.8	£1,653,000
Total	93,635	23,384	6,862	30,246	87.3	£4,536,900

The analysis shows that, across South East Wales, the scale of this opportunity is in the order of 30,000 bed days / 90 beds, which if released could be used to support the needs of other service areas within acute hospital settings across the three Health Boards.

For the purposes of the Economic Appraisal the cashable benefits have been incorporated into the Economic Appraisal as set out below. Cash benefits are phased in a manner which reflects the profile of investment with an appropriate lag factor to recognise the timing between resource deployment and benefit realisation.

3.4.3 Cost benefit analysis results

Applying the assumptions set out above an NPV analysis has been undertaken to provide an economic cost for each of the options based on the approach set out below.

Figure 35: Economic Appraisal assumptions

Input	Assumption
Price base	All costs and benefits are priced at 2020/21 rates
Appraisal period	10 years from initial implementation starting in April 2021
Discount factor	3% in line with investment appraisal guidance

The analysis incorporates the anticipated profile of costs and benefits across the 10 year appraisal period. The Net Present Cost (NPC) for each option is presented as a quantitative assessment of the value for money associated with each option. By incorporating the non-financial benefit scores outlined in section 3.2 the net economic cost to quality score can be assessed. A summary of the analysis is provided in the table below.

Figure 36: Cost / benefit analysis

Heading	Option 1 – Do Nothing £000	Option 2 – Do Minimum £000	Option 3 – More Ambitious £000
Discounted costs	11,830	29,559	42,291
Discounted benefits	-	29,517	38,170
Net present cost (NPC)	11,830	42	4,121
Non-financial benefit score	225.9	752.3	831.7
NPC per benefit point	52.4	0.1	5.0

This shows that across the appraisal period, of the two options other than the Do Nothing, Option 2 – Do Minimum delivers the best balance of monetary costs and benefits returning an overall neutral ratio of economic costs to benefits. When incorporating the non-financial benefit scores it also delivers the best ratio of net economic costs to quality benefits.

3.5 Options appraisal summary

Having concluded the non-financial and financial aspects of the option appraisal process, an overview of each of the shortlisted implementation options can be provided. A summary of the option appraisal is provided in the tables below. Advantages and disadvantages summarise the assessment of the extent to which the option will deliver the main benefits (Section **Non-financial benefits assessment** refers) and incur the main risks (Section **Non-financial risk assessment** refers). Conclusion indicates if the option is likely to meet the **Spending Objectives** and additional requirements set out in the Strategic Case.

Figure 37: Summary of option appraisal

OPTION 1	Do Nothing – Business as Usual (BAU)
Description	<i>This maintains the existing arrangements for AOS</i>
Net Economic Cost	<i>£11,830k (£52.4k per non-financial benefit point). Reflects existing investment with no additional benefits</i>
Advantages	<i>Relatively low economic cost when compared with other options and lower overall risk.</i>
Disadvantages	<i>Does not support the Spending Objectives as indicated by the non-financial benefits score being in the lower quartile. Does not deliver any additional monetary benefits.</i>
Conclusion	<i>Does not meet the Spending Objectives nor deliver the proposed clinical model.</i>

	<i>Does not address the service gaps as identified in the Peer Review.</i>
OPTION 2	Do minimum
Description	<i>This delivers the core scope of the project and the AOS clinical model on a phased basis recognising the challenges around staff recruitment. Addresses gaps in service as identified in the Peer Review. Consistent with the recommendations of the Nuffield Review</i>
Net Economic Cost	<i>£42k (£0.1k per non-financial benefit point). Reflects benefits arising from capacity freed up through avoided admissions and reductions in length of stay</i>
Advantages	<i>Supports the Spending Objectives as indicated by the non-financial benefits score being in the upper quartile. Delivers significant non-cash releasing monetary benefits and potential to free up resources for other service priorities</i>
Disadvantages	<i>Risk profile shows mainly medium risks with some assessed as high requiring careful management.</i>
Conclusion	<i>Meets the Spending Objectives for the project</i>
OPTION 3	More ambitious
Description	<i>This delivers the core scope of the project and the AOS clinical model on a phased basis recognising the challenges around staff recruitment. Addresses gaps in service as identified in the Peer Review. Consistent with the recommendations of the Nuffield Review. It delivers some additional scope including an extended working day which provides for some additional benefits.</i>
Net Economic Cost	<i>£4,121 k (£5.0k per non-financial benefit point). Reflects benefits arising from capacity freed up through avoided admissions and reductions in length of stay</i>
Advantages	<i>Supports the Spending Objectives as indicated by the non-financial benefits score being in the upper quartile.</i>
Disadvantages	<i>Risk profile shows mainly high risks with some assessed as medium requiring careful management.</i>
Conclusion	<i>Meets the Spending Objectives for the project</i>

3.6 Recommended option

Using the results of the option appraisal summary set out above the option that offers the best overall combination of costs and benefits and is best able to meet the project spending objectives is Option 2 – Do Minimum. At this point in time, and for the purposes of this business case, Option 2 – Do Minimum will be taken forward into the Finance and Project Management sections of the business case to demonstrate how it will be funded and implemented.

3.7 Summary

The Economic Case has allowed a set of options to be developed providing different solutions to implementing the AOS clinical model and subsequently assessed their value for money through an option appraisal incorporating non-financial and financial elements. Following a robust process involving a wide range of stakeholders combining organisational and professional perspectives a preferred option has been identified with is Option 2 – Do Minimum - this approach to implementing the AOS clinical model meets the following:

- Supports the key Spending Objectives
- Addresses key gaps in service identified by independent peer review
- Delivers the best combination of costs, benefits and risks

FINANCIAL CASE

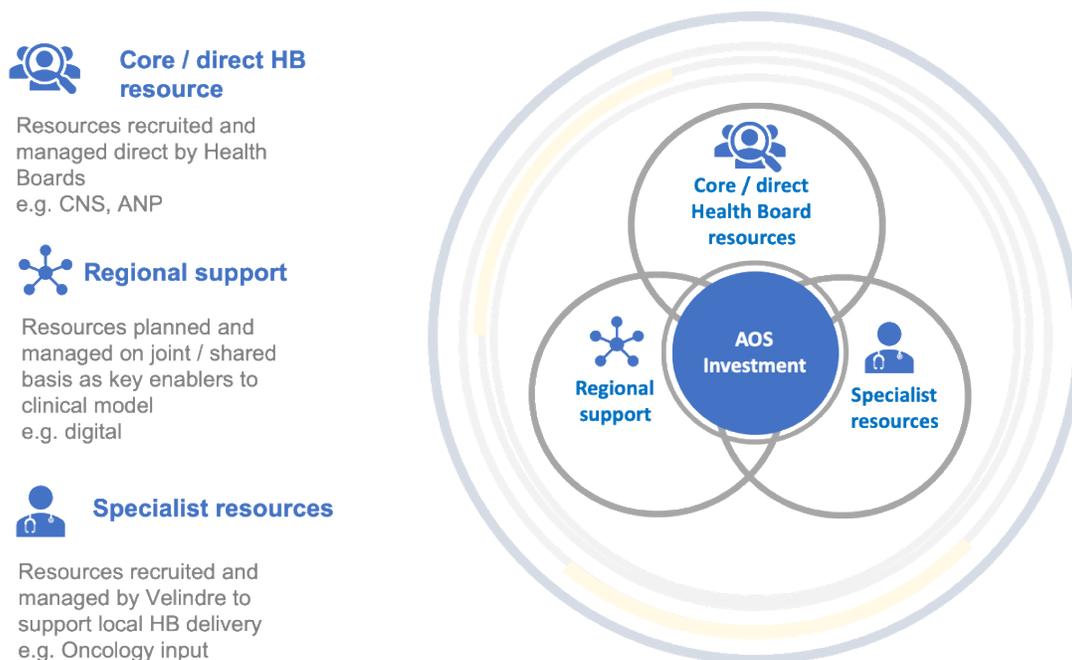
4 Introduction

The purpose of the Financial Case is to demonstrate the affordability of the preferred option, both in the context of the financial profile and funding consequences and the implications for South East stakeholder organisation’s financial plans. This section of the business case sets out the following:

- Arrangements for phasing the proposed investment across the implementation period for the preferred option
- Revenue analysis for preferred option for years 1 to 4 against baseline AOS costs
- The proposed approach to apportioning costs / investment to Health Boards
- The estimated impact of the proposed AOS investment by stakeholder organisation
- Details of further work to be undertaken post business case

In developing the Finance Case it is recognised that the investment requirements cover a range of ‘cost pools’ including locally managed, regional and specialist support. As such funding arrangements need to reflect the likely combination of direct Health Board investment with expanded commissioning arrangements to secure the full range of resources required to successfully implement the proposed service arrangements. This is illustrated in the diagram below.

Figure 38: AOS cost and funding components



4.1 Phasing of investment

In order to implement the proposed clinical model in a manner which is both deliverable and affordable it is necessary to assign a degree of priority to the AOS service lines and associated investment requirements. Working closely with stakeholders from the partner organisations a phased approach has been negotiated which reflects the individual needs of the Health Boards balanced against the challenges in delivering the specialist elements of the service model. It also seeks to priorities investment into areas of greatest need and to ensure that associated benefits are delivered as early as possible in the implementation. In practical terms, phases will not be discrete and there may well be a degree of overlap in their implementation.

As part of this process, working closely with key stakeholders, a three phase approach to implementation has been developed and the service priorities aligned to these which can then be used to profile the associated resources and investment.

Although there are different organisational viewpoints there is a broad consensus on prioritisation, particularly in relation to what should be incorporated within Phase 1. Where organisational priorities are different and this related to the directly managed cost pool it is entirely practical to reflect this in local implementation. However, where there are differences in the priority associated with services which are part of specialist / regional arrangements this presents some practical challenges if organisations wish to operate at different speeds. Although some differences have emerged from the dialogue it has been possible to develop a set of assumptions that can be used to shape investment requirements for all aspects of the proposed service solution.

For the purposes of the business case the table below sets out how investment priorities have been mapped into phases.

Figure 39: AOS investment prioritisation

Area of investment / service line	Phase 1	Phase 2	Phase 3
Clinical Nurse Specialists	✓		
Specialist Oncology (virtual)	✓		
Specialist Oncology (on site)	✓		
MUO / CUP service	✓		
Patient administration	✓		
Project management	✓		
Digital (discovery phase)	✓		

Area of investment / service line	Phase 1	Phase 2	Phase 3
Allied Health Professionals		✓	
Immunotherapy Toxicity		✓	
Advance Nurse Practitioners			✓
MSCC Pathway			✓

4.2 Revenue analysis

By using the assumptions set out in the table above it is possible to show how the investment requirements map out across the proposed service lines and phases of implementation and the additional investment required. These can then be mapped to financial years up to 2024/25 when it is anticipated the model will be fully implemented. Note the mapping to financial years takes into account lead times to implement (particularly in relation to recruitment) the relevant part of the service solution. This analysis is shown in the tables below.

Figure 40: AOS additional investment profile by service line £000

Cost heading	Year 1 – 2021/22	Year 2 – 2022/23	Year 3 – 2023/24	Year 4 – 2024/25
Clinical Nurse Specialists	107.8	367.3	445.0	445.0
Oncologist support	51.3	246.5	426.4	471.7
Other consultant input	19.7	72.8	102.7	119.2
AHPs	30.3	231.6	499.0	581.3
ANPs	29.7	59.4	113.7	152.4
Other nursing	4.3	35.9	82.5	94.0
MUO / CUP	51.8	155.5	155.6	155.6
Immunotherapy Toxicity	0	110.0	142.6	142.6
MSCC	0	0	52.4	89.9
Admin support	26.0	85.5	100.2	103.9
Regional investment*	147.2	245.3	245.4	196.2
Total additional investment	468.2	1,609.8	2,365.5	2,551.6

• Includes Project Manager, Digital and Education and Training some of which is non recurrent

Figure 41: AOS additional investment by phase £000

Phase	Year 1 – 2021/22	Year 2 – 2022/23	Year 3 – 2023/24	Year 4 – 2024/25
Phase 1	468.2	1,288.0	1,535.3	1,499.4
Phase 2	-	321.8	707.1	836.4
Phase 3	-	-	123.1	215.8
Total	468.2	1,609.8	2,365.5	2,551.6

The analysis shows that the invest requirements are relatively modest in year 1 (2021/22) and increase thereafter in years 2 to 4 reflecting the phased implementation of the clinical model and supporting investment across the region.

4.3 Apportionment of costs and investment requirements

By way of further analysis it is useful to break down the total AOS additional investment across the three ‘cost pools’ highlighted in the diagram above. This shows the comparative level of additional investment in AOS and demonstrated that the Core / Direct cost pool takes up the greatest proportion of the requirement. Further details are provided in the table below.

Figure 42: AOS additional investment by cost pool £000

Cost pool	Year 1 – 2021/22	Year 2 – 2022/23	Year 3 – 2023/24	Year 4 – 2024/25
Core / Direct	217.8	852.4	1,343.4	1,495.8
Specialist Support	103.2	512.0	777.0	859.7
Regional Support	147.2	245.4	245.4	196.2
Total additional investment	468.2	1,609.8	2,365.5	2,551.6

In terms of apportioning the additional investment required in AOS the approach recognises the different ways in which expenditure will materialise, depending on the cost pool in which they sit. In developing the business case a set of principles have been established which are aimed at securing an equitable basis for allocating investment to Health Boards reflecting both local implementation planning and likely levels of service demand. These apportionment principles for each cost pool are as follows:

- Core / Direct – apportioned directly to the Health Board based on existing expenditure and local investment intentions. This includes all ANP / CNS and AHP costs and a proportion of Other Consultant and Admin costs
- Specialist Support – where this can be reflected in measurable inputs at Health Board level e.g. ‘on the ground’ Oncologist time / input then this has been used to apportion costs. Other aspects including MUO / CUP and MSCC coordination are allocated on the basis of cancer incidence
- Regional support – allocated to Health Boards on the basis of cancer incidence covering Project Management costs, Digital investment and Education and Training.

Applying these principles to the AOS costs allows an analysis of the additional investment required within each organisation across South East Wales reflecting a combination of the three areas outlines above and the proposed phasing of implementation – this is shown below.

Figure 43: AOS additional Health Board investment by phase and financial year£000

Health Board / Phase	Year 1 – 2021/22	Year 2 – 2022/23	Year 3 – 2023/24	Year 4 – 2024/25
Aneurin Bevan UHB				
Phase 1	167.2	436.5	510.8	496.6
Phase 2	-	147.9	349.1	421.0
Phase 3	-	-	52.0	93.9
Total	167.2	584.4	911.9	1,011.4
Cardiff and Vale UHB				
Phase 1	180.4	537.7	669.2	658.8
Phase 2	-	49.1	70.1	70.1
Phase 3	-	-	15.2	26.1
Total	180.4	586.8	754.4	755.0
Cwm Taf UHB				
Phase 1	120.5	313.9	355.4	344.1
Phase 2	-	124.8	287.9	345.2
Phase 3	-	-	55.9	95.9
Total	120.5	438.7	699.2	785.2

It should be noted that through the established commissioning arrangements Powys Teaching Health Board would be responsible for a proportion of the required investment, however, this is unlikely to reflect a material value.

4.4 Post business case activities

Resource and cost estimates to support AOS have been developed over a relatively short period of time, however, every effort has been made to engage with clinical, planning and finance teams across the stakeholder organisations. It is recognised that further work is required to develop and refine these and to ensure that the requirements reflect local circumstances whilst recognising the need to deliver a sustainable and consistent AOS model across the region. Furthermore there is a need to ensure that the resource estimates can be developed to a level that proves adequate certainty of required investment in AOS to be incorporated within local Integrated Medium Term Plan (IMTP) development for 2021/22 and beyond.

Further work relating to the operational detail of the proposed specialist and regional services will be undertaken to ensure they accurately reflect the local organisational arrangements for delivering AOS within the Health Boards. Final investment requirements will reflect this process although maintaining equity across the region will continue to be a fundamental aspect underpinning this work.

Consideration will also need to be given to developing commissioning and financial control arrangements for the Specialist and Regional aspects of the AOS investment and specifically how these can be aligned to / incorporated within existing mechanisms. At the heart of this will be the need to ensure transparency and assurance that investment is directed to the core elements of the clinical model. Further details are provided within the Management Case section of the business case.

4.5 Summary

The Finance Case has set out the required level of additional investment in AOS to support the implementation of the preferred option identified through the Economic Case. Recognising that costs will build up in a phased manner reflecting, in particular, challenges around recruitment, the investment has been presented over a 3 to 4 year implementation period.

Further consideration needs to be given to developing and agreeing an approach to allocating costs and funding to the Health Boards in South East Wales recognising that this combines elements of direct service provision with commissioning of specialist Oncology support and other shared investment.

It is recognised that further work will be required post business case development to refine and adapt resources to reflect local circumstances and align with IMTP processes.

MANAGEMENT CASE

5 Introduction

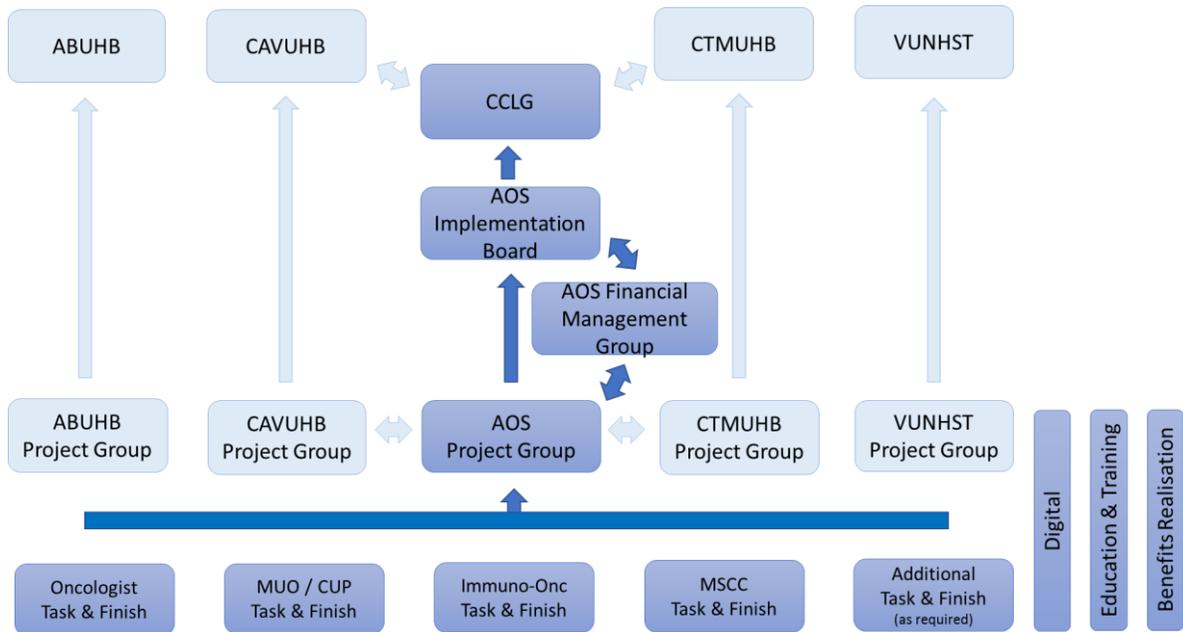
The purpose of the Management Case is to demonstrate that robust arrangements are in place for the delivery, monitoring and evaluation of the project and that the organisational stakeholders are ready and capable of delivering a successful outcome. In doing so, it sets out the governance and processes that will sit behind the implementation of the clinical model across the region. The objective is to demonstrate how the preferred option will deliver the clinical model (including realising benefits and managing risks), the approach to implementation (including change management) and the associated timescales.

5.1 Governance

The development of this business case and the work that sits behind is the result of a multi-organisational, multi-professional collaboration across South East Wales. The governance around implementation and delivery of the clinical model will continue to reflect this degree of collaboration, ensuring the founding principles of equity of access and shared ownership continue.

As the commissioners of this work, CCLG own the successful delivery of the project but HBs have the statutory authority for any investment in the service. Operationally, the project will be overseen by an AOS Implementation Board which will be supported by a Financial Management Group and AOS Project Group, which in turn will be informed by task and finish groups. Further details are provided in the supporting text and diagram below which reflects both the core AOS requirements (depicted in dark blue) and the local HB structures (depicted in light blue).

Figure 44: AOS Implementation Governance



South East Wales Collaborative Cancer Leadership Group (CCLG)

The CCLG provides effective system leadership for Cancer Services across South East Wales, in delivering improvements in outcome and service experience for the catchment population. The Group are responsible for leading whole system changes at a regional level which require the coordination of commissioning decisions and investments and facilitate the realignment of pathway resources within and between organisations. As Project Sponsor, the CCLG will provide regional oversight of the implementation of this project but will refer to HB and Trust Board teams to ensure appropriate and statutory governance is followed.

Health Board and Trust Board

Although the CCLG will provide regional oversight to the AOS project, any local decision making will need to be made through the internal governance processes of the Health Board and Trust Executive teams. HBs will have the statutory authority for any investment in both the local enhancements to AOS, as well as commissioned services from VUNHST.

AOS Implementation Board

The AOS Implementation Board will have overall responsibility for the delivery of the project. This will be a relatively small, discreet group with the Cancer Leads from the four organisations (ABUHB, CAVUHB, CTMUHB and VUNHST) as well as a number of multi-professional representatives, patient representatives and external stakeholders. They will provide strategic

leadership to the AOS project, as well as monitor progress against the implementation plan, ensure project risks are managed appropriately and that the benefits set out in this business case are realised. The Implementation Board will receive monthly highlight reports from the AOS Project Group, and liaise with HB and Trust Board teams to ensure appropriate and statutory governance is followed.

Financial Management Group

As noted in the Finance Case the investment requirements for AOS have been categorised into three areas: direct (resources under the direct management of HBs); regional (resources supporting the region such as digital, education and training, and project management); and specialist (resources largely deployed by VUNHST, predominantly specialist oncology support).

In order to support the regional and specialist elements it is proposed that an AOS Financial Management Group is established, operating within a robust financial control mechanism, to provide financial scrutiny, and manage and monitor the flow of investment for specialist and regional resources, ensuring that resources are released appropriately once firm deployment plans are in place. This group will have financial representatives from the HBs and act on behalf of these organisations. It will ensure that:

- There is alignment between the resources identified within the business case and implementation of the clinical model
- Funding will only be released into the system once there was a clear plan to deploy the required resources
- Phasing of funding reflects the speed of implementation across the region balanced against the need to ensure equity of service access
- Benefits can be measured reflecting a focus on return on investment and value based healthcare

AOS Project Group

The AOS Implementation Board will be supported by an AOS Project Group which will include advisors and leads from the HBs across a number disciplines (clinical and nursing), as well as project and business support. This group will drive the operational implementation of an enhanced AOS across the region, lead the delivery of project outcomes and benefits, escalate project risks and issues to the Board, and facilitate effective communication and engagement across the region and organisations. The regional and cross cutting elements of the service will also report directly into the Project Group.

Health Board / VUNHSTAOS Project Groups

There will be direct, local enhancements to AOS in each HB and these will need to be managed separately by them, ensuring they are in line with the principles of the clinical model of equity of access and shared ownership. Effective and ongoing communication and engagement with each

of the four organisations is crucial. Having these in place (either through existing or new groups) so that the Project Group can feed into and receive information from them, will be key in managing progress against the plan. HB leads sitting on the AOS Project Group will be responsible for this two-way communication but will be supported by the project team.

AOS Task and Finish Groups

Task and finish groups will be established with a remit to refine service models and pathways for each area of investment. They will consider the operational requirements to implement, develop job descriptions and job plans, and determine the most appropriate roll out. The outputs of these groups will be passed up through the AOS governance structure for approval, after which the investment will be released.

Most of the task and finish groups will be clinically led but all will have regional representation, and will draw on expertise from other areas as appropriate. Although they will be established as separate groups, there will some shared themes and possibly resources between the groups and this will be the responsibility of the Project Group to ensure these links are maintained and coordinated appropriately.

Cross-cutting Groups

There are some elements of implementation which will cover multiple elements of the service and will need to both feed into and take information from the task and finish groups and local HB/Trust groups. These areas, such as digital, education and training, and benefits realisation will also inform the AOS Project Group to ensure the outputs across the multiple groups are aligned and consistent.

5.2 Project Management

Successful implementation of the clinical model will require project management input for the co-ordination of the Delivery Groups and their outputs, reporting progress against the plan, as well as escalation of risks and issues. Of particular importance is the close collaboration and liaison with HB colleagues.

The project team will include a Programme Manager who has responsibility for the delivery of the project, making sure it is delivering against the plan, to time and within budget; and a Project Manager who will be responsible for the day to day running of the project with a particular focus on the delivery groups.

Figure 45: Roles and Responsibilities

Role	Name	Responsibility
Senior Responsible Officer (SRO)	To be identified (CCLG)	The SRO is accountable for the success of the AOS implementation project. The SRO owns the vision for the AOS project and is required to provide clear

Role	Name	Responsibility
(Chair - Implementation Board)		leadership and direction.
Project Director (Chair – Project Group)	To be identified	The Project Director reports to the SRO and is operationally accountable for project delivery of the AOS project. They will provide leadership and are responsible for enabling effective project delivery.
Clinical Leads (Implementation Board)	Ian Williamson (ABUHB) Meriel Jenney (CAVUHB) Calum Forrester-Paton (CTMUHB) Hilary Williams (VUNHST)	The Clinical Leads will be responsible for providing leadership within their organisations, and ensuring a clinical focus is maintained in all aspects of the project and that patient experience and quality is always a primary consideration.
Programme Manager	Jenny Stock	The Programme Manager has overall responsibility for the delivery of the project and ensure it is delivered to time, cost and quality. Key to this will be the efficient and effective use of project resources, and the identification and management of, interdependencies, risks and issues, and benefits delivery.
Project Manager	TBC	The Project Manager will be responsible for the day to day running of the project including support for the task and finish delivery groups.

5.3 Implementation

There are significant challenges around the implementation of a regional clinical model, across different HBs and multiple sites within those HBs. It is recognised that individual HBs have different baselines in their current AOS and therefore, different priorities. Some elements of the implementation plan will occur at different times and be delivered in different ways, but all aspects of the clinical model should be achieved within the designated timeframe.

As noted in the Financial Case, phased investment plans for each HB have been developed and these will shape the detailed implementation plans for each HB. There were strong similarities between the HB plans, most notably with nursing and oncology support prioritised for immediate investment. Other areas also recognised as key included the MUO / CUP pathway and digital enablers (which also reflected the quick wins identified in the option appraisal process). Where services are required to be delivered across the region (with investment from all three HBs to ensure equal access for patients) the decision was made to move to that service in line with the majority view.

An overview of the regional phases is set out in the table below. In reality the phases will overlap with each other (phase 2 will start before phase 1 has been completed), and this is based on the premise that some services could take years to fully implement (such as the specialist oncology support).

Figure 46: Health Board Investment Phases

Phase 1	Phase 2	Phase 3
Clinical Nurse Specialists Specialist Oncology - Virtual Specialist Oncology – Onsite MUO/CUP Service AOS Lead (ABU) Consultant Sessions – Clinical Lead (ABU/ CAV) Patient administration Education and training Digital discovery Project management	Allied Health Professionals Immunotherapy Toxicity Service Consultant Sessions – Other (CAV)	Advanced Nurse Practitioner (ABU / CTM) MSCC Pathway

Lead times for recruitment have also been applied to the investment plan, which again will be reflected in the implementation plans. The table below is a high level implementation plan and it pulls together the individual HB phasing plans into one so it remains a regional programme which can be held to account through the AOS governance.

Work to develop the operational implementation plans will be picked up by the task and finish groups and will run in parallel with the business case approval process.

Figure 47: High Level Implementation Plan

Element	Phase 1	Phase 2	Phase 3
Nursing/ AHPs	CNS recruitment plan	AHP recruitment plan	ANP recruitment plan
Oncology	Virtual support for HBs and on-site presence (including hot clinics)		
Consultant Sessions	Increased sessions to support AOS team	Sessions to support Immuno-oncology service	
MUO/CUP	New MUO/CUP service – develop pathways and establish MDT		
Immuno-oncology	<i>Immuno-oncology service – develop pathways and guidelines (Macmillan funding)</i>	Immuno-oncology service developed, MDT established	
MSCC			Scope MSCC pathways
Patient Administration	Recruited as required	Recruited as required	
Digital / Business Analysis	Discovery and design – scope baseline (process, pathways, data items, methods of documentation, duplication)	Informed by outputs from phase 1.	Informed by outputs from phase 1.
Education & training	Regional education and training programme		
Project management	Project Manager recruited		

5.4 Workforce

A critical part of the implementation will be the workforce strategy. A high level workforce plan including associated costing will be developed and aligned to the clinical model.

The proposed service model will be appropriately resourced by a team of skilled nurses and AHPs, with specialist oncology support. This requires a change in the current workforce model. The intention of the workforce plan will be to ensure that an equitable service can be provided across the region, aligned with the clinical model, in order to ensure the delivery of quality and safe care and will seek to address future clinical and workforce challenges.

The high level plan will be created to capture the workforce requirements taking into account the future and existing skills and capabilities required to deliver an equitable AOS service in the short, medium and longer term. It is intended that workforce planning will support the clinical model through:

- Creating a more flexible workforce, sharing staff across locations within HB's with additional support provided by the AOS Lead and administrators;
- Developing and implementing a structure for career progression, learning and development to support succession planning and to provide wider service development of skills in acute oncology;
- The more detailed workforce plan being developed will address any future recruitment and skills gaps;
- Using the workforce flexibility to manage workload pressures within HBs;
- Retention of highly skilled and experienced staff within Specialist Oncology Services;
- Increased opportunities to develop clinical expertise - training and opportunities for medical and nursing, occupational therapists and AHP in acute oncology;
- The opportunity to develop the right skills for the future;
- Greater opportunities to share learning and best practice between teams and wider services.

Improvements to the quality of service and pathways for patients will be achieved as a result of more collaborative working appropriate services, reducing risk and improving patient experience. The challenges ahead in having a workforce that can effectively and efficiently provide care in an AOS are recognised.

Expansion of the AOS as a regional approach is an opportunity to make increased efficiencies in delivering services. The plan will help ensure that the right staff are in the right place at the right time, aligned with the long term model of care for AOS across South East Wales. Acknowledging the differences and difficulties in recruitment across the region, and to maintain the equitable and collaborative nature of the project, a regional nursing recruitment plan will be developed.

5.5 Change Management

Change can be challenging but by taking a systematic approach clinical teams will be supported in seeing where change has been affective. The change process is underpinned by a number of principles:

- Recognise the need to maximise the benefits of change for patients, who should be at the heart of the changes made;
- Take advantage of the pre-implementation phase to start the change process;
- Work in partnership with stakeholders to engage all those involved in the delivery of care in the change process;
- Focus on staff skills and development so they are both capable and empowered to deliver the service effectively and to a high quality standard.

A full Change Management Plan will be developed during the implementation phase.

5.6 Communication and Engagement

Effective communication and engagement with all stakeholders is vital in the delivery of a successful project.

The development of the clinical model and this business case has been the result of a huge amount of collaboration, with clear and effective communication key to reaching a consensus across four organisations and many professional disciplines. Continuing a high level of communication and engagement will be even more important during implementation, with an increasing number of stakeholders involved as the enhanced service is rolled out.

A communication plan will be developed during the implementation phase.

5.7 Benefits Management

Benefits management is the identification, optimisation and tracking of expected benefits from the implemented change. A benefit realisation plan will help assess whether the identified benefits set out in the Strategic Case (and below) deliver the project spending objectives (also set out in the Strategic Case) and are able to meet the agreed measures of success.

The benefit management process includes the following stages:

- Identification – selection of appropriate and significant benefits
- Planning – how, when and by whom the benefits will be delivered (ownership, accountability and timeframe)
- Deliver – successful delivery of the benefits plan
- Review – continuous improvement through incremental change or new projects

Measuring and monitoring the delivery of benefits is key in assessing the extent to which they are being delivered against the plan. A proportion of the benefits will be ‘hard’ or quantifiable (such as admissions and length of stay) but many will require ‘soft’ or qualitative measures to assess their delivery. In some instances, measurement can be achieved through existing systems and information sources. However, there is a recognition that these existing sources can be unreliable,

and in other instances there is a gap which will require new arrangements to effectively monitor them.

Given the complexity of working across the region and multiple organisations, management of the benefits throughout the life of the project will be led by the AOS Project Group. The following table sets out the anticipated benefits of implementing the AOS clinical model but further details, including the anticipated impact these benefits will have can be found in the Benefits Realisation Plan (Appendix D).

Figure 48: Anticipated benefits of implementing AOS clinical model

Benefit	Beneficiaries	Measurement
Equal access to AOS for those in equal need	Patients, staff, Health Boards	Patients per head population, attendances linked to cancer incidence trends
Improved patient experience and better patient outcomes	Patients, staff, families, carers	PROMS
Patients spend more time at home in their last year(s) of life	Patients, families, carers	PROMS, number of days spent in acute hospital in last year of life, patient preferred place of death, mortality rates within 30 days of treatment, palliative care contacts
More patients receive same day emergency care avoiding the need for hospital admission	Patients, Health Boards	Emergency admission rates, 30-day readmission rates, Nos of AOS patients admitted as inpatients, Nos of patients managed through ambulatory pathways, Cost per case
When admitted patients spend less time in hospital as an inpatient	Patients, staff, Health Boards	Inpatient bed days Average length of stay
Patients are not subject to unnecessary investigations or treatment	Patients, Health Boards	Numbers of investigations Patient outcomes and survival
Enhance links with other hospital based specialists / services	Patients, staff	Staff surveys, referral times
Improve effectiveness of AOS team working	Patients, staff	Staff surveys, number of patient handovers
Better professional AOS education and training	Patients, staff	Increase in critical mass of AOS team, staff surveys, retention, qualifications across the team
Digital interaction between staff / patients and staff / staff	Patients, staff, Health Boards, Velindre NHS	Number of digital interactions, reduced time to access specialist opinion

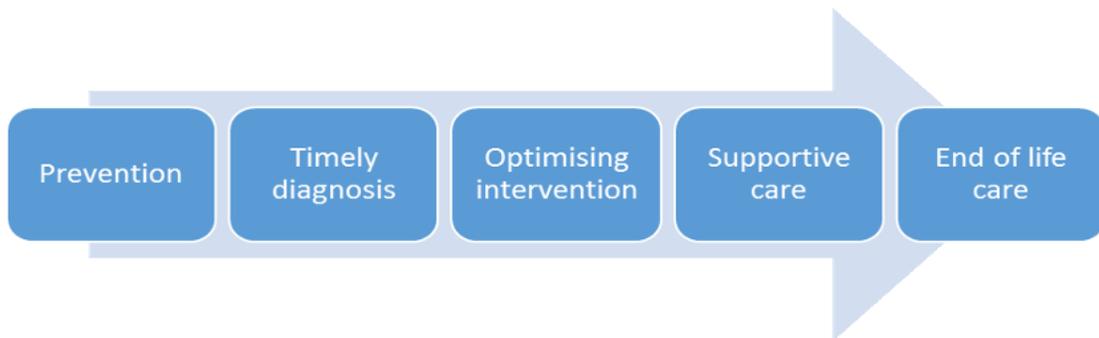
Benefit	Beneficiaries	Measurement
	Trust	
Better AOS data to improve decision making & accuracy of demand and capacity forecasting	Patients, staff, Health Boards	Staff survey Reports
Efficient collection of AOS data allows for inter-operability and more clinical time spent with patients	Patients, staff	Staff survey Reports

5.8 Value-based Healthcare approach to acute oncology

Identifying the benefits, and the approach to delivering and measuring them, are enshrined in the principles of value based healthcare (VBHC). VBHC seeks to improve the health outcomes that matter most to the people by asking people about their outcomes and creating a data-driven system which seeks to provide the timely information to citizens, clinical teams and organisations to inform the decision-making that leads to those outcomes in a way that is financially sustainable²²

Achieving the outcomes that matter to patients requires a population health, whole system approach as indicated below.

Figure 49: Elements of patient pathway



Although this business case considers only part of the above pathway, it is recognised in the Strategic Case that acute oncology covers the whole pathway and these elements will be picked up outside of this business case. Translating this pathway for acute oncology patients is set out below:

- Preventing acute oncological emergency presentations as far as is possible. Fully equipping patients with knowledge of what to look out for and what to do. Linking this to advance care planning so that intervention is appropriate to the patient’s context and preferences.

²² Value based Healthcare

- Clear pathways and points of contact for all professionals likely to encounter acute oncological emergencies (along with continuing education on presentations).
- Early intervention to maximise recovery and quality of life.
- Supportive care – use PROMs as assessment of symptom burden.
- Advance care planning to ensure appropriate response and palliation in the community where this is needed.

Embedding VBHC in the delivery of AOS will support benefit realisation. In doing so, it is important to think about the costs associated with as many examples of acute oncology emergency as possible, and that clinical outcomes and PROMs are considered alongside each other. There is an ongoing commitment to link the identified benefits with VBHC.

5.9 Risk Management

A risk is the possibility of a negative event occurring which adversely impact on the project. Identifying, mitigating and managing the key risks is crucial to successful delivery.

The risk management process includes the following stages:

- Identification – ascertain what the possible risks are
- Assessment – determine the likelihood and impact of the risk occurring
- Control – identify ways that can reduce the likelihood and impact of the risks occurring (mitigate)
- Monitoring – review whether the situation has changed and whether the mitigation measures working

The Economic Case set out the key implementation risks, their likelihood and impact. The risks will be managed through a risk register and a full risk register can be found in Appendix E. The Project Manager is responsible for continuous review of the risks throughout the life of the project and the governance structure allows for risks to be escalated from the Project Group to the Implementation Board, who will oversee them during the life of the project.

5.10 Summary

The Management Case has set out the regional governance that will oversee the regional implementation, and the project processes, including management of risks, benefits and change. It has demonstrated that with appropriate governance structures, well developed plans and project management, the implementation of this clinical model will be successful in meeting the two core principles of equity of access and shared ownership and delivery across the region and organisations.