



Ymddiriedolaeth GIG
Prifysgol Felindre
Velindre University
NHS Trust



Gwasanaethau Canser yn Ne-Ddwyrain Cymru
Transforming Cancer Services in South East Wales

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Our ref: SH-rg/2019-08

15th July 2019

Dr Dai Lloyd AM
Chair, Health, Social Care and Sport Committee
National Assembly of Wales
Cardiff Bay
Cardiff
CF99 1NA

Dear Dr Lloyd

Thank you for your letter dated the 14th June 2019 requesting further information on our Transformation Cancer Services Programme and the Blood Donor Clinics appointment system.

Transformation Cancer Services Programme (TCS)

Attached is the working plan for the TCS Programme which will give an insight into the proposed clinical service model, key service requirements and the informatics vision for delivering cancer services in the future. This will be developed further, as we move through the programme of work.

The TCS programme was established by the Trust in 2014/2015. The following information is attached in response to a request made by the Health, Social Care and Sport Committee following the scrutiny session attended by the Trust on June 4th 2019.

- a. Clinical operating model the Trust is seeking to introduce through the programme (Annex 1)
- b. Programme Spending Objectives and Benefits (Annex 2)
- c. The appraisal of the workforce operating model undertaken by the Trust (Annex 3).

Sustainability and Funding of the model

The Trust is working with Local Health Boards, Health Education and Improvement Wales and third sector organisations to develop the workforce for the future which can support the delivery of the clinical model. Initial workforce modelling has been undertaken at a programme level.

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Mae'r Ymddiriedolaeth yn croesawu gohebiaeth yn y Gymraeg

correspondence in Welsh

This Trust welcomes



This is being used to develop the operational clinical model and associated workforce e.g. skills, capabilities, numbers of staff, training and education requirements etc). Local Health Board commissioners are fully engaged in the design process and the sustainability of the future workforce model will be subject to scrutiny and assurance through a series of additional business cases as part of the overall programme. This work has commenced and will be tested over the coming months.

Blood Donor Clinics

The Welsh Blood Service is required to ensure the supply of blood products closely matches the demand from hospitals, aligned with the principles of Prudent Healthcare. When supply is greater than demand, date expiry of red cells can occur. When supply is less than demand, an import of red cells from a UK partner service may be required. WBS works hard to ensure we have adequate supply and we do not waste the generous gift of donors or resources.

When hospitals order blood from the Welsh Blood Service, the orders are placed according to the blood group requirements of their patients. As such, the Welsh Blood Service strives to ensure the blood group profile of its collections activity closely matches the orders placed by hospitals according to the eight blood groups; O, B, A, AB (+ and -) in order to deliver a prudent blood supply chain.

Appointments were originally introduced in response to donor feedback requiring guaranteed time to attend clinic. The benefit for WBS is that by offering donors the opportunity to book appointments, the WBS is able to estimate the blood group profile of its collections activity as appointments enable the service to identify the donors who will attend and their blood group. This provides us with better forward planning information to align supply and demand. It also avoids peaks and troughs in clinic attendance. We always try and maintain a balance of appointments and walk in slots to make sure that wherever possible, walk-in donors are always welcomed and accommodated. If there is a need to recruit a specific blood group that arises in the days before a clinic, the walk in slots are used to accommodate appointments for the specific blood group type donors that we urgently need. This can have the impact of reducing our ability to accommodate walk in donors but this is only done when it is absolutely necessary to sustain our supply. When this happens, we have a system to inform any walk in donor why we cannot accommodate them that day and offer them the next opportunity we can to donate at another local session. We continually review the balance of appointment versus walk in slots at each session that we run to make sure they offer as many options as possible for donors. In the future, with further investment in technology, we hope to have a system developed to allow donors access to 'real time' on clinic appointment availability to enable them to decide whether to attend.

Blood services across the world are recognising that we need to be more sophisticated in the way we manage the relationship between supply and demand. Important to this is the need to invite donors according to their blood group profile, and we recognise that this will mean we have to work with donors to help them understand how their group fits in with our need and how frequently we would like them to donate. This is a long term project, however we are currently working on IT systems that will help us to do this in future and at an appropriate stage will be bringing donors in to help us shape this work for the future.

Donor feedback is a vital component in informing service delivery and supporting us in achieving our ambition of delivering excellence in a sustainable way. In this regard, donor feedback overwhelmingly suggests a donor preference for appointments. The Welsh Blood Service circulates a monthly feedback survey to every donor who has donated in a given month. For the 2018 calendar year, 77% of donors stated they wanted to be able to book appointments to donate.

We hope the above provides further clarity for the TCS Programme and the WBS Donor appointment system but please do not hesitate to contact me if you require any further information.

Regards,



Mr Steve Ham
Chief Executive Officer

ANNEX 1: TCS - CLINICAL SERVICE MODEL

Introduction

- 1.1.1 The case for service change and redesign has been well made. The purpose of this section is to set out the Trust's response through an integrated, prudent and patient centred service delivery model.

Summary of proposed Service Model

- 1.1.2 This section of the document will describe a vision of how non-surgical oncology services could be delivered for the current and future population of South East Wales, based on the values and principles developed from working with and listening to people affected by cancer, our staff and our partner organisations.
- 1.1.3 The scope of the service model largely reflects VCC's role in a broader system of care i.e. adult, non-surgical oncology. This includes scheduled aspects such as systemic anti-cancer therapy, radiotherapy, inpatient and outpatient care and all the essential services that wrap around and support these. A great deal of care is currently delivered outside of VCC in Local Health Board (LHB) settings. This needs to continue with more care delivered locally to patients where safe and possible. Unscheduled care is an essential component; again, there are significant benefits to patients and the health care system if non-surgical oncology services better supports the wider healthcare system better across the region. Health care is a complex system and it will improve through all partners continuing to work collaboratively.
- 1.1.4 Across the region, high quality care is regularly delivered by people who passionately believe in doing the very best they can and who maintain the service by 'going the extra mile', time and again. A great deal of care across the patient pathway is delivered to a high standard by colleagues outside Velindre and that some patients never need to access our services, but care also often straddles organisational boundaries. The development and delivery of outreach services closer to patients' homes continues, but piecemeal development has led to a fragmented, inefficient service on multiple locations. The people affected by cancer tell us very clearly that they want and expect teams to work together seamlessly, in a system that works for them, with their best interests at heart. Velindre is a centre of excellence. There is a need for excellence everywhere and the current clinical model has occasionally served to reduce collaboration with colleagues in local hospitals. Some patients travel unnecessarily for treatments. The lack of equality of access for all patients delivers a variable patient experience.
- 1.1.5 Doing nothing is not an option. Demand is growing due to rising incidence of cancer, an ageing population and both the number of available treatments and

their complexity. Our current estate at VCC is not fit for purpose in size and function with no capacity to expand.

Without investment and change, the quality of care will fall, patient experience will worsen, outcomes will decline and costs will increase. There will be a greater move towards centralisation which will affect access and increase the impact/burden of treatment on patients, society, the economy and the environment. There is a risk that the staff who care so passionately about the way they look after patients may become demoralised, recruitment/retention will fall and the care we aspire to deliver and that our patients deserve will not be possible.

- 1.1.6 Rather than merely reacting to service pressures and problems, there is a need to redesign the regional service in a planned, strategic and purposeful manner which will deliver greater consistency and access to excellent care at the point of need. Patients and our clinical colleagues outside of Velindre have told us that the current service model leads to fragmented care, with particular problems of communication and support at transition points across the patient pathway.
- 1.1.7 This clinical service model provides a solution to a real and imminent problem, enabling high quality care, delivering best patient experience/outcomes within a sustainable framework. The model is very simple. It is designed to meet the inevitable and substantial growth in demand for cancer care and provide that care closer to where patients live. It is designed to place the people affected by cancer at the centre of care: from information provision and support, decision making and treatment, through to involvement in service development. It will support greater integration of Velindre's services and staff with those providing planned and unplanned care across the whole patient pathway. It improves not only the way that care is delivered, but how people and organisations work together to plan and improve future services and how people affected by cancer can be at the centre of this.
- 1.1.8 To truly transform services in a meaningful way, it is not enough to make a step change in facilities and delivery. The Trust needs to develop new ways of working – including patient and staff involvement, service intelligence data, closer collaboration in service improvement, education, research and innovation. These functions are essential for high quality clinical care. As such, they are established as part of the current service and must be included in future plans.
- 1.1.9 Currently they are dispersed throughout the hospital site which creates limitations and inefficiencies. Our proposals will see a nVCC co-located with these services and functions within the planned Centre for Learning and Innovation, creating synergies and an openness for collaboration. Whilst this is focused on supporting and delivering high quality clinical care, regional working and regional benefits, it also creates exciting additional opportunities around areas such as research, innovation, technology and industry collaboration. It will support teams to work together across the region, allowing VCC to fulfil its role as a regional cancer centre. Clinical services will have the

knowledge, ability and agility to respond to future changes. It will support the long term delivery of high quality clinical care and create the research/evidence base to place South East Wales at the heart of how future oncology care is shaped, improving patient care, experience and outcomes, and our reputation nationally and internationally.

- 1.1.10 The service model will be prudent with resources, focuses on what is important to people affected by cancer and which delivers care in novel ways, closer to patients' homes. Further benefits for patients and the health care system will be created, beyond the scope of the TCS project via the closer working between Velindre and Local Health Board staff through the Velindre@ facilities and the leadership and collaboration opportunities created by the Centre for Learning and Innovation. Working together, we can seize this opportunity to truly transform Cancer Services for the patients of South East Wales.

Scope of the Service Model

- 1.1.11 As discussed within the strategic context VCC has a long term strategy 'Shaping our Future Together' which sets out a clear vision for the delivery of specialist cancer services for the next 10 years.

"To lead in the delivery and development of compassionate, individualised and effective cancer care to achieve outcomes comparable with the best in the world"

- 1.1.12 The TCS Programme seeks to deliver this strategy in two distinct phases, supporting the care we deliver and that of our partners:

- Phase 1: Improve regional non-surgical tertiary oncology services; and
- Phase 2: Adding further value across the whole pathway of services in relation to cancer.

- 1.1.13 This Service Model sits within the scope of Phase 1 of the TCS Programme and includes:

- Improved delivery of non-surgical specialist cancer services;
- Provision of more care and treatment closer to patients' homes;
- Development of a Velindre Radiotherapy Satellite Centre@ (RSC) and Velindre@ Outreach oncology services (including SACT/Outpatients and Ambulatory Care);
- Improved collaboration between VCC and other teams through the local provision of care supported by enhanced local facilities;
- Improvement of the AOS across South East Wales; and
- Improved education, research, service improvement and collaboration across South East Wales.

1.1.14 The Centre for Learning & Innovation (C4Li) underpins the clinical service through providing capacity to deliver core education and training for our staff to enable core services to be maintained. However, by definition, its scope is broader than that of the clinical service. It creates exciting additional opportunities for the whole of the cancer community in South East Wales. This is described in more detail in section 3 of this clinical service model.

1.1.15 It is recognised that in conjunction with key partners and stakeholders VCC can support, contribute and add value to other elements of the cancer pathway in addition to the core services it is commissioned to provide. This will provide additional benefits to the population of South East Wales and to the health care system more broadly. This is included within Phase 2 of the TCS Programme. It is important to recognise that this is not included as part of the scope for this proposed Model but that the developments included support and facilitate these additional, future improvements.

Development of the Service Model

1.1.16 The Service Model has been developed following an extensive programme of engagement with patients, their families and carers, Velindre staff, local LHBs, voluntary sector and other partners. A summary of our engagement can be found at PBC/SC/SC4.

1.1.17 A range of engagement events and workshops have been undertaken with key stakeholders, including:

- Accelerated Design Events – over 290 key partners, stakeholders and staff attended a series of one day events to test the proposed Service Model.
- Experience Based Design Workshops – over 100 staff, patients and carers attended a series of events to map and discuss patient pathways and identify opportunities for improvement. Further detail on these events and workshops can be found at appendix PBC/SC/SC6.
- Health Board Engagement Workshops – over 100 staff from across the LHBs in South East Wales have attended various engagement workshops.
- Health Board meetings – internal meetings with key LHB leads (Including clinicians and service managers).
- Regular events to involve *Velindre staff* about the Service model.
- *Community Health Council (CHC) meetings* – attendance at Local Health Board CHC meetings.
- A series of detailed *Focus Group* meetings with patients and other people affected by cancer.



- Local community meetings.

1.1.18 Listening to our patients and stakeholders has allowed us to better understand the things that they value and what's important to them about the delivery and provision of Cancer Services (see Table 5-1).

Table 0-1: Key messages from our patients, stakeholders and key partner organisations

Quality of care/patient outcomes
<ul style="list-style-type: none"> • Many aspects of care are already good – we must not lose these strengths. • Care needs to be delivered closer to the patients' place of residence, to improve access to excellence and to avoid hospital admission unless necessary. • Patients and Velindre staff are keen that we maintain the quality, support and 'ethos' of Velindre when delivering more care closer to home. • The 'experience' of how a patient is cared for is really important. • Outcomes are important – not just length of life, but quality of life. • We should all aspire for excellence in the care we deliver. • Safety and quality of care are paramount. • 'Transition points' (e.g. between levels of care, different types of treatment or follow up are important as can lead to gaps in patient support/communications). • Teams need to work seamlessly together across organisational boundaries.
Delivering Services
<ul style="list-style-type: none"> • Patients need to be actively involved in clinical decisions about them and in developing clinical pathways/models of care. • Patients expressed concerns that doing less at Velindre may threaten the perceived quality of care to be delivered. • Value to each attendance is important, with patients having control and choice where possible. • Services should work for patients, intuitively supporting care rather than feeling like another 'barrier' to contend with. • Patients stated that travelling to and parking at hospitals was often more stressful than the actual clinical attendance. • Education of patients and staff and information provision to patients are important to good clinical care. • Research opportunities for patients throughout the region need to be improved • Care needs to be sustainable – both in terms of financial costs and ability to develop and change in the future.

Wider health system

- Other parts of the system e.g. unscheduled care, workforce availability, IT) need to be enhanced in order to support the service model.
- Investment in workforce planning and modernisation is vital in order to ensure the availability of a skilled workforce to meet the future demands placed on the health care system.
- There needs to be more integration between care providers for both scheduled and unscheduled aspects of care between Velindre Cancer Services and local LHBs.
- There needs to be reduced fragmentation in the system by sharing clinical, diagnostic and treatment information between health care providers including primary care.
- Greater presence and visibility of Velindre teams in local LHBs is needed.
- Lessons learned in Transforming Cancer Services (TCS) could be applied across all of Wales.

Shaping Services that People Value

1.1.19 Increasing cancer incidence, complexity of treatment, survival and demands on non-surgical Cancer Services in South East Wales will make these services unsustainable in the near future. This will impact on care quality, patient experience/outcomes and the cost of delivering care will increase.

1.1.20 To address this the Trust needs to deliver services differently by placing patients at the centre of design and delivery of care, building upon the approach of 'value' based care that meets individual needs and health related goals. The Trust need to explore the locations from where care is delivered and how teams collaborate in this. It is important that resources are used efficiently and that every pound is spent effectively, adding the greatest benefit and value to the patient, organisations, wider health-system and society.

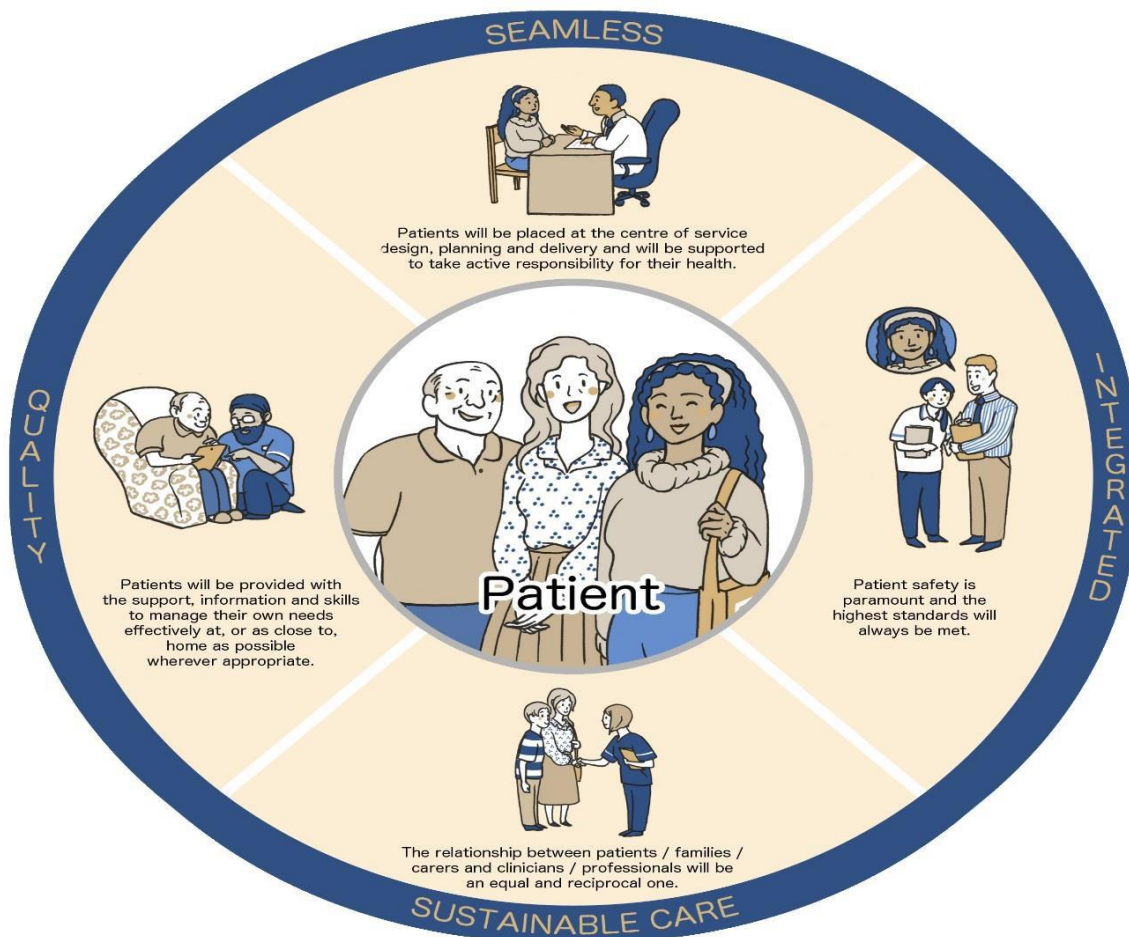
1.1.21 This requires a better understanding of:

- What is of value to people?
- Patients' goals for care and priorities, then determining in partnership a treatment plan that best meets these values;
- Treatment pathways (spanning different teams/organisations) and what skills/roles are needed to deliver care;
- The benefits, cost and impact of treatment;
- The outcomes that accurately reflect the quality of care we deliver, aligned with the needs of our patients; and
- Benchmarking performance against other similar services, nationally and internationally.

Our Core Principles

- 1.1.22 Velindre's core principles (see Figure 5-1) are framed around the key messages that emerged from listening to patients, their families and carers, Velindre staff, local LHBs, the voluntary sector and other partners.
- 1.1.23 The Service Model has been designed based on these core principles to ensure that the design and delivery of future Cancer Services meets the needs and expectations of our patients, healthcare partners and wider stakeholders.

Figure 0-1 TCS Core Principles



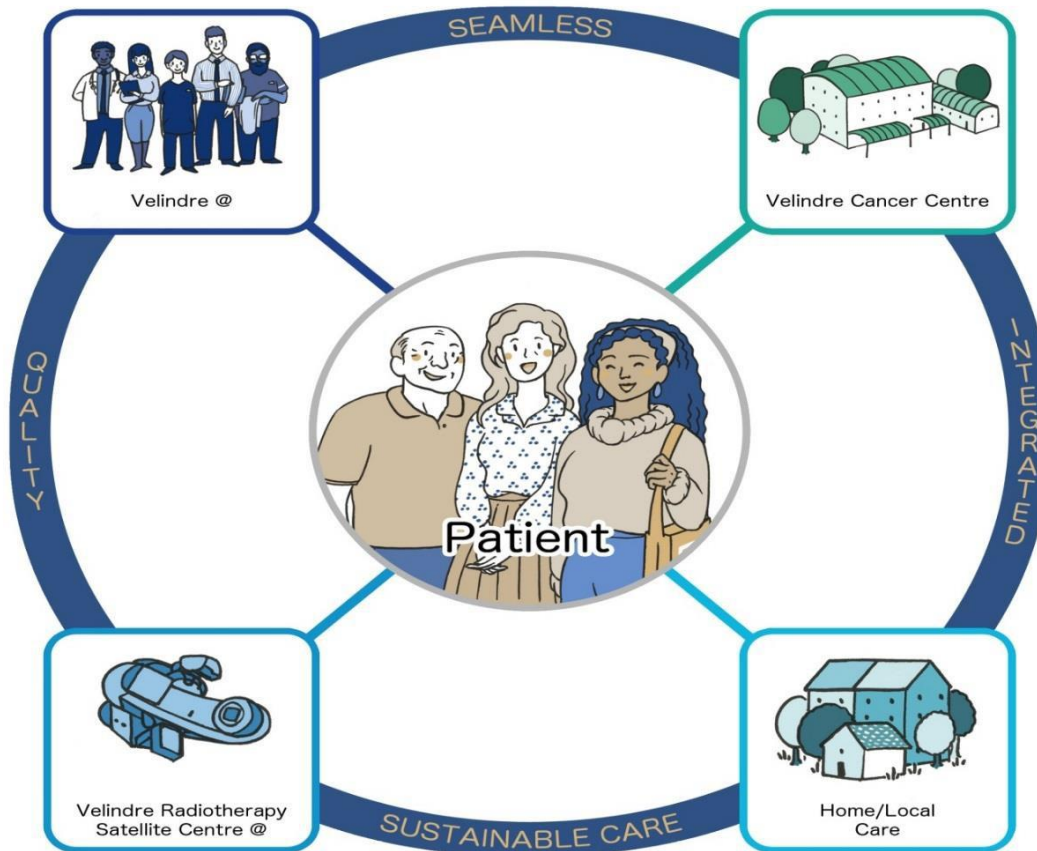
Our Service Model: How we will deliver Tertiary Cancer Services at home, closer to home and in a specialist Cancer Centre

- 1.1.24 The service model seeks to promote a new relationship which works in partnership with people to identify realistic goals, to design and deliver services around patients' needs and to achieve this in a truly sustainable way. This requires the whole system of public and voluntary sector services to work together better, across traditional boundaries within the resources available. There will need to be integration (from public health to primary and community

to hospital and social care), whether working as public employees, independent practitioners or not-for-profit organisations to achieve the best possible outcomes aligned with patients' values and priorities.

- 1.1.25 This will require patients to be empowered so that they can make informed decisions about their treatment and will necessitate staff working in new and different ways. It will require fundamental changes in the way in which the whole system operates. Optimising information technology, quality improvement systems, patient involvement, education and embracing innovative approaches to healthcare will all be essential to achieve high levels of service quality in a sustainable way.
- 1.1.26 The patient will be central, within an integrated network of services organised around them. The organising principle seeks to 'pull' high quality care towards the patient that is accessible in their preferred place to support them achieving their personal goals during treatment and when living with the impact of cancer. This includes all aspects of clinical care and support and also appropriate research opportunities that patients may wish to participate in.
- 1.1.27 The model builds on our current provision of services both at VCC and South East Wales, but improves this through strategic planning, design and delivery of this new clinical service model. It is based on a range of evidenced based pathways and the provision of seamless care which will require all organisations to work together to provide patients with all the care, support and information they require at the earliest opportunity in their journey.
- 1.1.28 To facilitate the successful implementation and delivery of the service model investment is required to support delivery from the following locations.

Figure 0-2: Service Model – potential locations where patients will access care



1.1.29 **Home/Local Care:** Patients will be able to receive care at their place of residence or in their local community (e.g. via primary care facilities, mobile services, 3rd sector services). Services delivered in this setting include outpatient reviews, some ambulatory care and some Systemic Anti-Cancer Therapy (SACT) chemotherapy delivery. Education and information provision will also be accessible locally. Technology and collaboration with local/community teams will be important in delivering these (e.g. telemedicine, web based information provision).



1.1.30 It aims to increase the provision of our services via home/local care to at least 10% of outpatient/SACT activity (from 5% currently). It is not known what the optimal proportion of home based care is for our patients. Once developed and evaluated, we would seek to increase this proportion beyond 10% where beneficial. Whilst more convenient for many patients and in some cases more

efficient, some aspects of home/local care will be less efficient than hospital based services.

1.1.31 **Health Boards:** A range of cancer care occurs within the LHBs, with a significant proportion of patients having all their care delivered by the LHB team. This needs to be seamlessly planned with the non-surgical aspects of the pathway, as patient care can move from one team to another. The Velindre@ Outreach facilities and collaborative working will support this, but in addition to that, Velindre clinical staff will deliver planned support to LHB inpatients and local AOS.

1.1.32 It is expected that as more patients have their care delivered locally to them, acute problems will be managed increasingly within LHB settings. This already occurs, but the proportion of patients managed locally will increase. To support this, Velindre teams will be present in LHBs working closely with fellow clinicians and professionals, to see patients and guide investigations/treatment. Experience suggests that this can improve patient experience, quality of care and reduce length of stay, benefitting the people affected by cancer and LHB teams jointly.

1.1.33 **Velindre@:** These facilities will provide SACT, outpatient services, education and information provision and ambulatory care procedures within LHBs. They will not have inpatient beds – if admission is needed this will be via LHB teams/facilities, supported by oncology teams, or via VCC. They will be planned jointly with LHB teams, supporting collaborative working and helping to meet the needs of LHB and Velindre commissioned parts of the care pathway. This joint working will generate additional opportunities for benefits to patients beyond the scope of the clinical service model (for example, opportunities to support earlier diagnosis or links with surgical oncology or haematology teams within LHBs).



1.1.34 These local centres of excellence will improve efficiency, experience and access by collaboratively developing planned and delivered services within each LHB. With planning, we can move from a variable, poorly planned service to a high quality, sustainable service to deliver care without the need for as many patients to travel to the main Cancer Centre in Whitchurch.



1.1.35 **Velindre Radiotherapy Satellite Centre@:** This will provide radiotherapy treatment for approximately 20% of our patients (provided by 2 new linear accelerators). This means better access for patients, reduced travel for patients and less use of transport services. It will mean that some patients from one LHB population may have access to their radiotherapy from within another LHB catchment population. This will mean that fewer patients need to travel to VCC for their radiotherapy. However, it should

be noted that not all radiotherapy treatments will be available at the satellite facility at the day of opening, although it is envisaged that a full range of radiotherapy treatments will be introduced over time in a phased manner. Will be treated as quality and safety are paramount.

- 1.1.36 **VCC:** The Cancer Centre will provide specialist and complex cancer treatment including SACT, radiotherapy (including brachytherapy and unsealed sources) and specialist palliative care, inpatient facilities (being open for admission 24 hours/day, 7 days/week), a specialist oncology assessment unit and outpatient services, radiology and nuclear medicine. Due to its geographical location (i.e. within the Cardiff and Vale University Health Board area) it will also form part of the system providing local care to patients for whom it forms the nearest non-surgical cancer facility. Patients will only have to travel to VCC if we cannot deliver their care more locally. It will also host the 'Centre for Learning and Innovation' – a system resource for VCC and the region, supporting clinical care throughout South East Wales via links with Velindre@ facilities.



- 1.1.37 The staff delivering care and the culture in which they work will be essential.



This is not just about physical facilities, although new facilities are needed to deliver world class care to the people of Wales. Through better ways of working together, linked with other aspects of the programme, the reputation of cancer care will improve, supporting staff recruitment, retention and career progression.

- 1.1.38 It is also critical to look at how unscheduled care is supported. This is included in the scope of the clinical model. By planning this alongside scheduled elements, we create the environment where both elective and emergency care can be delivered well. The closer working relationships between Velindre staff and primary care/LHB staff through better integration of services will support both scheduled and unscheduled care, to the benefit of patients and the broader health care system.



- 1.1.39 **Leadership:** The locally delivered care across many settings will require strong leadership, governance and cross organisational collaboration. VCC has a key role in this, supporting LHB and other teams but also in leading developments in the parts of the pathway where we have responsibility. The additional resources and function that the Centre for Learning and Innovation (C4Li) provides will be important in supporting care across the region, including opportunities for service intelligence data, ongoing pathway work, patient involvement, and collaboration.

- 1.1.40 We have summarised the range of services which will be provided from which location in Fig. 5-3.

Figure 0-3: How the model will operate in practice

Service	Treatment Type:	Community		Secondary Care			Tertiary Care
		Home	Primary Care	Health Board	Velindre@	Radiotherapy Satellite Unit	VCC
Patient Information & Advice		✓	✓	✓	✓	✓	✓
Education		✓	✓	✓	✓	✓	✓
SACT	Oral/sub-cutaneous	✓	✓	✓	✓	✓	✓
	Simple Parenteral	✓	✓	✓	✓	✓	✓
	Complex						✓
	Chemo-radiation					✓	✓
Ambulatory Care Procedures		✓	✓	✓	✓	✓	✓
Outpatient Appointments:	New			✓	✓	✓	✓
	Chemotherapy assessment	✓	✓	✓	✓	✓	✓
	Follow Up	✓	✓	✓	✓	✓	✓
Specialist Palliative, Allied Health Care and therapies		✓	✓	✓	✓	✓	✓
Research *Phase 1 research will continue to be provided by the C&V Clinical Research Facility	Qualitative Research	✓	✓	✓	✓	✓	✓
	Phase 1*						✓
	Phase 2				✓ (less complex)		✓
	Phase 3				✓	✓	✓
	Phase 4	✓	✓	✓	✓	✓	✓
	Radiotherapy Research					✓	✓
	Radiotherapy clinical trials					✓	✓
	Molecular therapy						✓
	Functional Imaging for Radiotherapy						✓
Radiology and Nuclear Medicine	MRI/CT			✓			✓
	Nuclear Medicine (diagnostic)			✓			✓
	Nuclear Medicine (non-imaging therapeutic)						✓

	PET-CT			✓			✓
Radiotherapy	Radical					✓	✓
	Palliative					✓	✓
Inpatient Services	Inpatient Beds			✓			✓
	Assessment Unit			✓			✓
	Surgery			✓			
Acute Oncology		✓	✓	✓	✓	✓	✓

How we will get there?

1.1.41 The journey to this improved service model has already begun. Many aspects do not need new facilities and we can start improving patient care/experience before these are developed. However these improvements will be limited without the addition of new facilities, so these are essential, alongside clinical teams working better together and in new ways.

1.1.42 The Trust will:

- Continue to deliver best practice, evidence based treatments, safely and robustly;
- Involve the people affected by cancer and all appropriate partner organisations in our planning;
- Benchmark with other similar cancer centres and where possible, contribute to the development of guidelines/the evidence base through research;
- Modernise all aspects of our care (scheduled and unscheduled), prior to the development of the new Cancer Centre, improving efficiency and quality;
- Develop opportunities for teams (including patients) to collaboratively review, improve and evaluate care pathways and justify those aspects that need to be delivered in secondary/tertiary care;
- Work collaboratively with each LHB team to develop care pathways that meet the needs of their patients and align with the principles of the TCS programme, including community based care to avoid attendance at a hospital unless necessary;
- Work collaboratively with each LHB team to understand how activity at the new Velindre@ facilities will support and align with cancer related activity within that LHB;
- Plan and develop the Velindre Radiotherapy Satellite@ Centre & Velindre@ facilities with LHBs;
- Review our distribution of clinical activity through the week and seek to even this flow and improve efficiency;
- Build our capacity to deliver more care away from VCC (for both scheduled and unscheduled care);

- Work collaboratively with primary care teams to understand and pilot safe ways of delivering care within the primary care setting;
- Work collaboratively with community/third sector teams to understand what additional care can be delivered locally, e.g. via mobile services;
- Work collaboratively with academia and industry partners to maintain and build relationships;
- Develop accessible education/information resources for people affected by cancer and staff to support local delivery of high quality care; and
- Explore, pilot and evaluate IT solutions to deliver more care locally e.g. via telemedicine.

Key Transformative changes of the Service Model

Table 0-2: Key Transformative Changes of the Clinical Model

Change:	Benefits:
<p>A decentralised model including:</p> <p>Velindre Radiotherapy Satellite Centre@ Velindre@ (SACT & Outpatients) in Health Boards</p>	<ul style="list-style-type: none"> • Increase in capacity/capability of cancer services across South East Wales; • Reduced patient waiting times, speedier access to treatment; • Improved patient experience with care provided closer to home; • Reduced travelling times for patients, their families and carers; • More efficient use of resources and a reduction in the unit cost of treatment; • Hospital admission avoidance unless appropriate; • Improved speciality input for patients admitted to LHB locations; • Radiotherapy treatment available in two locations; • Improved SACT capacity across the region; • Better access to core components of health care 7 days/week; • Wider access to clinical trials and research across the region; and • Increased number of palliative patients dying in 'preferred' place
<p>A specialist Cancer Centre</p>	<ul style="list-style-type: none"> • Capacity to meet future demand with more patients taking part in research; • Improved standards of privacy, confidentiality and dignity across patient areas; improved patient experience, quality of care and outcomes; • Ability to fully support its partners and to play an active, regional role; • Leadership in non-surgical cancer services and palliative medicine; • More rapid uptake of new technologies; and • Support clinical care throughout the South East Wales region via the C4Li facilities/functions
<p>Better team working between organisations</p>	<ul style="list-style-type: none"> • Co-location of services supports both scheduled and unscheduled care and creates additional opportunities for further benefits; • Supports achieving the best possible clinical outcomes and the best treatment delivered quickly and effectively;

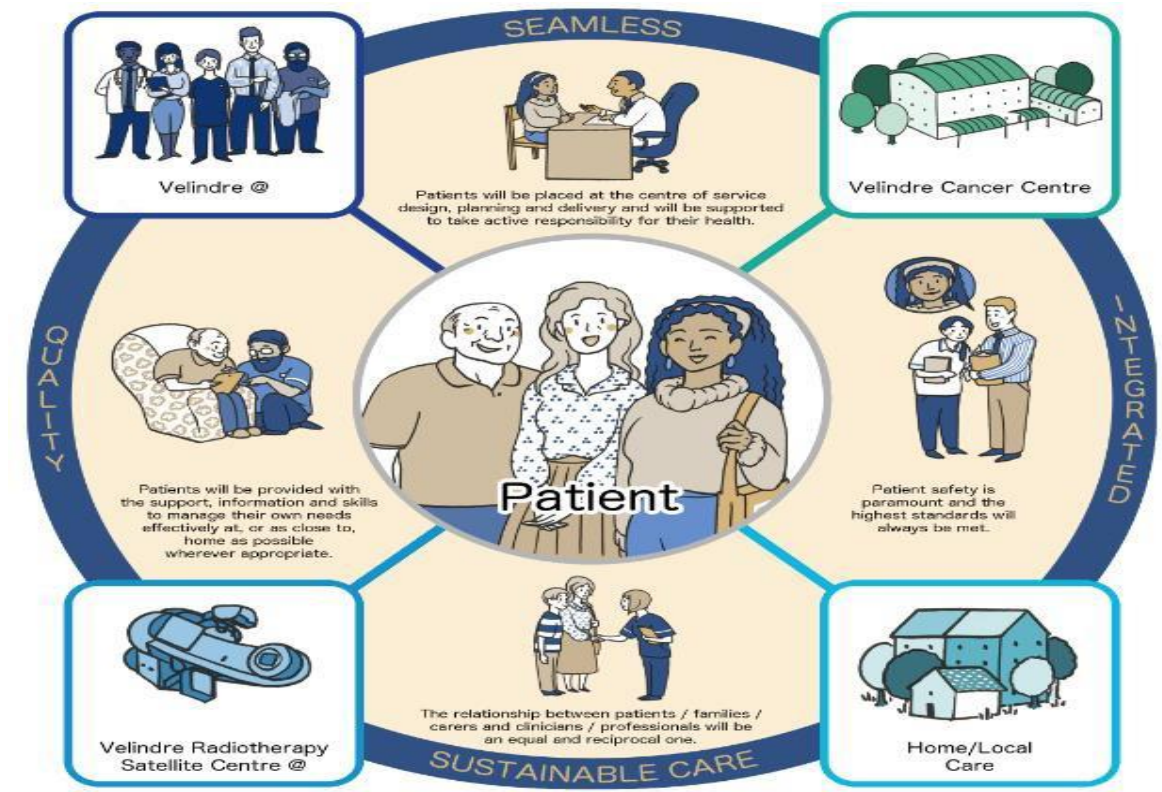
Change:	Benefits:
	<ul style="list-style-type: none"> • Patient information sharing will improve efficiency of healthcare; • Future 'agility' of clinical care is improved; and • Better specialist oncology support for patients in LHB locations
Enhanced AOS provision across South East Wales	<ul style="list-style-type: none"> • Cancer assessment unit at VCC that will operate an 'assess to admit' policy; • Enhanced oncology presence within each LHB; and • Strengthened network approach to AOS with VCC providing a Hub for AOS across the region.
Centre for Learning & Innovation	<ul style="list-style-type: none"> • Patient experience and involvement used to shape services; • Education and support will improve co-production of health services between patients and healthcare professionals; • Recruitment, retention and career progression for staff; • Data to understand services better; benchmarking; • Enhanced research across the region; • Enhanced quality improvement, innovation and cross organisational working; and • Enhanced co-operation with other cancer centres.

Key Messages

1.1.43 Putting together the key principles developed through listening to and engaging with the people affected by cancer and key partners, alongside the development of new facilities, we can create an exciting, regional care system that supports the long term sustainability of non-surgical oncology in South East Wales and creates opportunities beyond this.

1.1.44 People are central to the service model – by placing the people affected by cancer at the heart of changes and by supporting the staff that provide high quality care for patients, we can deliver truly person focused care.

Figure 0-4: Service Model & Core Principles



Patient Pathways and Clinical Services

1.1.45 Patients referred to Velindre Cancer Services for treatment may be at the start of their treatment journey or they may already have had surgery and be offered additional cancer treatment as part of their ongoing management plan.

1.1.46 There are many different tumour types/treatments and a huge variety of patient pathways related to them. Broadly these can be divided into two types of care pathways:

- **Scheduled Care:** refers to planned care provided after referral from a primary or secondary healthcare professional.
- **Unscheduled Care Pathway:** is by definition urgent, with a need to take action at the time of contact with services. Unscheduled care does not include the delivery of routine or non-urgent services.

- 1.1.47 The Trust have used a patient pathway approach based on the key principles described by our patients/stakeholders and our expert knowledge of how care is currently delivered, to develop the Service Model. This approach has enabled us to better understand what information, care, treatment and support our patients require in their journey; and where and how these can best be provided to ensure that patients and their families receive the things they value most from their care. It is, by design efficient and delivers the best possible quality of care and outcomes, at the time and place of patient need. It will require more integration between teams and organisations to realise these benefits and has the potential to deliver further benefits through collaborative planning and working.



Scheduled Care Pathway

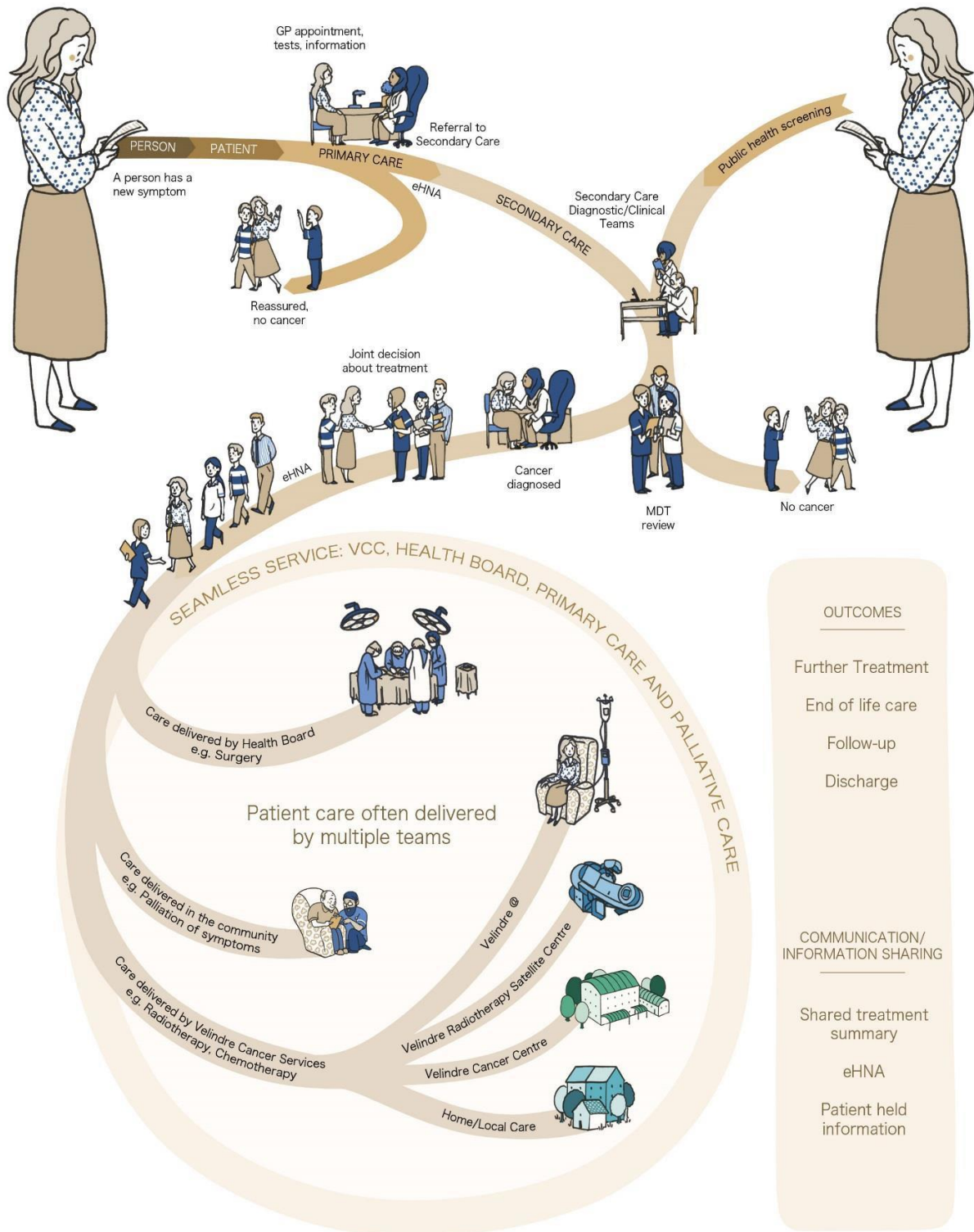
- 1.1.48 The scheduled care pathway encompasses all planned activities for patients, including outpatient attendances, chemotherapy and radiotherapy preparation and delivery, investigations and supportive treatments. It typically commences when a patient or their primary/secondary care team are concerned that a cancer may be present – this may come after a referral from primary care, a direct presentation to secondary care or via screening programmes. Diagnostic work and communication of results are performed in secondary care with initial input from Velindre staff via LHB multi-disciplinary team meetings, where a treatment plan is developed. Following this, care may be delivered locally to the patient (e.g. supportive care via community / hospice palliative care teams), within LHBs (e.g. surgery) or via a referral to Velindre teams, if SACT or radiotherapy are being considered. It is important to note that patients usually have care plans that involve more than one provider, that treatment can be arranged in different ways and in different sequences, as appropriate for each patient.
- 1.1.49 Patient involvement in decisions about them is crucial. Treatment and care needs to be seen in a broader context of the patient's overall needs – supported via electronic Holistic Need Assessment (HNA) completion and sharing of information between appropriate care providers.

- 1.1.50 Not all care is planned, and supporting the urgent, unplanned aspects of cancer care is equally important. Please see the unscheduled care section for more detail on this.
- 1.1.51 The scope of the TCS programme is centred on the services provided by the teams based at VCC, although these may be delivered away from the main cancer centre in collaboration with other teams/organisations as they often are already. The Trust recognises the huge amount of high quality cancer care is delivered without any input from Velindre staff. Through this programme, we aim to support these teams and to offer more integrated care across the region – the Trust is also keen to collaborate in areas beyond our scope to deliver additional benefits to patients whenever and wherever possible. The developments within the TCS programme will significantly improve patient care and experience and create the environment for further opportunities for additional improvements.

Key Transformative Changes:

- New and/or enhanced facilities to facilitate world class care, both within LHBs and at VCC;
- More planned care delivered closer to patients' places of residence;
- Support for unscheduled aspects of care through co-location, planning and integration of teams;
- High quality education/information provision for people affected by cancer and staff;
- Improved information sharing between clinical teams; and
- Regional service improvement, research delivery and innovation.

Figure 0-5: Scheduled Care Pathway



Integrated working between all clinical teams: communication, information sharing.

Whole pathway supported by service/quality improvement, education, research/development and innovation via Centre for Learning and Innovation.

Scheduled Care Pathway: How it will work?

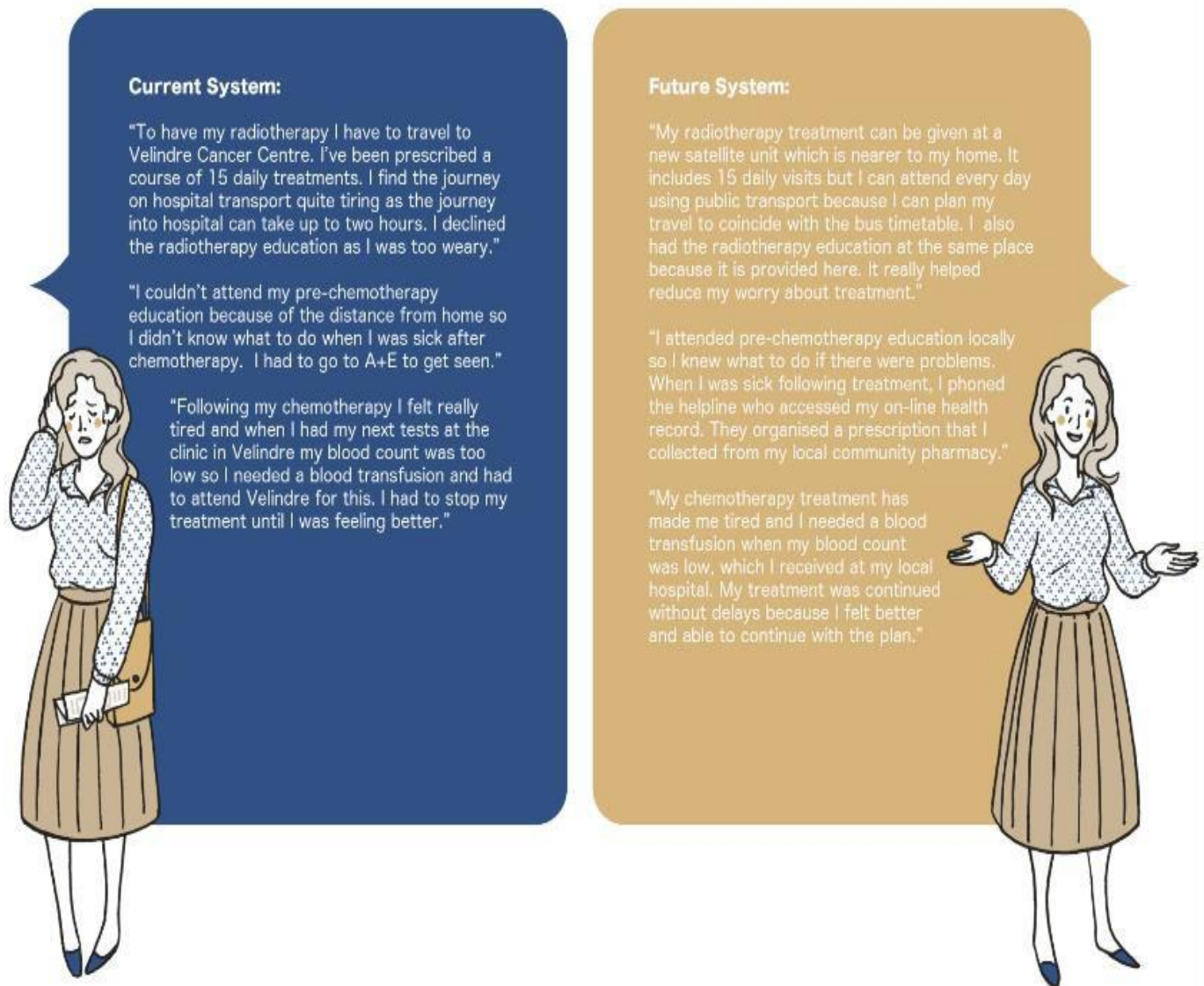
- 1.1.52 Alongside a referral to services provided by Velindre teams (if this is needed for an individual patient), the referring team and the primary care team will be supporting the patient and will complete a Holistic Needs Assessment. This will be available to the patient and all appropriate clinical teams. Education and information provision for the people affected by cancer and clinical staff will inform and improve patient experience at this stage. The patient will attend for an initial outpatient appointment to discuss their diagnosis, building on information, investigations and treatment they have already received. This will be planned to ensure all necessary information is available and that it meets the needs of the patient, including the opportunity to be seen by a variety of health care professionals. The opportunity to participate in research may be offered at this stage, or a later stage. Palliative Medicine Teams will form an important element of the care team, earlier in the pathway, when appropriate and beneficial to the patient.
- 1.1.53 Collaborative planning and information sharing between Velindre and LHB teams, including clinical information and service intelligence data, will optimise and enhance this early part of the pathway to improve patient experience, make best use of resources and ensure rapid sharing of information with patients and health care professionals.
- 1.1.54 The initial outpatient consultation will occur at one of two locations:-
- The secondary care hospital within the patient's local LHB. The Velindre Clinical Team will see the patient within the local secondary care hospital where they work closely with the clinicians and professionals within the hospital as part of a Multi-Disciplinary Team. In the future a far greater proportion of planned activity will occur at purpose built, enhanced Velindre@ facilities which will be located within the local LHB, closer to the patient's home.
 - VCC: if this is closest to the patient's place of residence or when necessitated on clinical grounds, for example where they have a cancer that is relatively rare and services are provided on a regional or national basis.
- 1.1.55 **The proportion of activity delivered locally will increase in a planned way to enhance patient access and experience without impacting on LHB teams.**
- 1.1.56 During the first outpatient consultation the patient and health care professionals will discuss what the patient values most and clarify and understand what they wish to achieve from their care. Expertise will be available to ensure that the patient's needs are met and that they get maximum value from this attendance. Attendance will be planned to ensure that the required services are available to the patient and maximum value is provided to the patient from each attendance. Following this, a treatment plan will be agreed and the HNA Assessment updated.

- 1.1.57 Appropriate information provision, communication skills and joint decision making will create an agreed treatment plan that will set out the range of treatment and support services that the patient will receive, together with a set of planned follow-up appointments in accordance with their treatment. This care plan will be shared with the patient and all appropriate clinical professionals.
- 1.1.58 A significant number of patients will be offered **SACT** as part of their treatment plan. If so, the patient will have a specific assessment and be provided with additional information/supportive education to prevent/minimise side effects and help self-management. Patients can receive their treatment in a number of locations:
- Home/Local: Patients could receive their treatment at home or within their local community (via mobile services or potentially via new services in primary care) if this best suits their personal circumstances and it is beneficial and safe. This may be self-administrated (e.g. oral therapies) or provided by a Velindre managed service.
 - Velindre@: Patients could receive their treatment within their local LHB if it is the location closest to their home and will usually be provided by Velindre staff. In some cases services may be integrated with existing LHB/Haematology delivery facilities.
 - VCC: Patients could receive their treatment at VCC if it is the location closest to their home or it necessitated on clinical grounds. Some patients will therefore have to travel further to receive complex SACT treatments which are only safe to provide at VCC.
- 1.1.59 Patients may also undergo a number of procedures (ambulatory care) related to their cancer or its treatment. These might include care of pumps, care of intravenous line sites, a blood transfusion or other simple procedures. These **Ambulatory Care** procedures will be planned and provided at the most convenient location, e.g. the patient's home, their GP surgery, mobile services, within their local LHB, (typically via the Velindre@ facility) or at VCC. This will be determined by the patient in consultation with the Clinical Team based on ease of access and clinical need.
- 1.1.60 **Radiotherapy treatment** will form part of treatment for many patients (approximately 40% of all cancer patients' curative treatments). If radiotherapy is offered as part of the patient's treatment plan they will attend an initial appointment with the Velindre team to discuss agree and plan their treatment. If a patient requires admission to hospital this will be to the hospital that is co-located with the Radiotherapy Satellite Centre@ or to VCC (whichever is most appropriate). Depending on the nature of the planned radiotherapy treatment, patients could have their treatment at one of two locations:-

- Velindre Radiotherapy Satellite Centre@: A radiotherapy satellite centre will be developed which will provide radiotherapy treatment and support services within South East Wales.
 - VCC: Patients will attend VCC if it is the nearest location to their place of residence or necessitated on clinical grounds e.g. radiotherapy treatment is considered to be complex or for research that can only be safely provided at VCC.
- 1.1.61 Patients will be provided with a wide range of **supportive care and therapies** during and after their treatment e.g. Speech and Language Therapies (SALT), Physiotherapy and Dietetics and Occupational Therapy and Palliative Care team support. Patients will receive these service at all locations as determined by their needs and will be provided in partnership between their LHB, community teams and VCC. Patients' needs will be anticipated so services are available to the patient when needed to minimise problems/identify early and treat rapidly, improving quality of life, care experiences and avoiding admission.
- 1.1.62 Patients who require planned admission to hospital for their treatment will use the Inpatient Services of their local hospital or VCC, dependant on clinical need. **Dedicated inpatient services** will not be available at any of the Velindre@ facilities.
- 1.1.63 Many patients will need **radiological investigations**. These will be arranged as part of a planned pathway, with the imaging test being done as local to the patient as possible. Image sharing will support rapid, expert reporting and will reduce duplication and improve efficiency.
- 1.1.64 Patients may wish to have the opportunity to enter a **clinical trial** or **research** studies which could include quantitative interventional studies or qualitative studies. These will be available at varying stages of the scheduled care pathway and in many locations. Some research may need to be delivered only from VCC if necessitated on clinical grounds or due to legislation e.g. ARSAC certification. Overall we aim to improve patient access and choice by supporting more research to be delivered locally to patients.
- 1.1.65 Patients requiring **follow-up appointments** during and after treatment will receive these appointments planned in advance by their clinical team. The frequency of appointments will be determined by the treatment they have received and their future needs and will only be provided if they add value to healthcare for patients. An additional Holistic Needs Assessment will be performed at the end of treatment and a care summary and ongoing care plan will be shared with the patient and all appropriate clinical professionals. Patients will be able to access follow-up appointments in a number of ways:
- Home/Local community through the use of telephone consultation or the use of digital technology. This will be available to all patients and will significantly reduce the need for them to travel for their consultation with the clinician.
 - Within the patient's local LHB (Velindre@ or local hospital).

- VCC if this is closest to the patient's place of residence or necessitated on clinical grounds.
- 1.1.66 Appointments will be provided by a range of clinical staff appropriate to need, including with advanced nurse practitioners, allied health professionals and palliative care teams). Patients will also be offered control of the frequency and method of their follow-up appointments in accordance with the principles of co-production. They may wish to have contact via alternative means about a specific issue rather than attending an outpatient clinic.
- 1.1.67 Pre-planned attendances for scheduled follow-up will be supported **by urgent access clinics** to enable patients to be seen rapidly in the Outpatient setting, thereby reducing/preventing future acute presentations and utilisation of unscheduled care pathways.
- 1.1.68 Some patients will require **palliative and end of life care**. This will be provided at home, in a local hospital, hospice or VCC. Specialist palliative care and end of life care will be provided by Velindre. This will be networked with all other services and providers of palliative and end-of-life care. To provide seamless, high quality care, it is important that the Palliative Care Teams are involved in patient care earlier in their treatment. It is important that all patients are able to receive the things they value most and die in one of their preferred places. Figure 5-6 provides an example of how services will be different from a patient perspective when being treated through the proposed model as compared to the existing model.

Figure 0-6: Patient with Breast Cancer Treated with Radiotherapy and Chemotherapy



(N.B please note: these are illustrative examples and not direct patient quotes).

Scheduled Care Pathways: How we will get there:

1.1.69 The Trust will:

- Review all aspects of our planned care pathway, collaboratively with other care providers, looking to modernise and deliver care locally wherever possible.
- Align this work with the principles given to us by our patients (closer to home, choice, control, quality and safety).
- Involve the people affected by cancer, our staff and our partners in this work.
- Support our workforce to develop, including reviewing advanced/extended roles.
- Create a better, more efficient care system through this.
- Understand the impact of changing care needs on other providers, sharing and working together to plan for this.

- Build capacity and improve facilities in LHBs through improved efficiency, the development of a Velindre Radiotherapy Satellite Centre@ and Velindre@ facilities.
- Build capacity and improve efficiency at VCC, including the development of a new specialist cancer centre in Whitchurch, Cardiff.
- Improve team working, service improvement and service intelligence data.
- Look to support other developments, e.g. haemato-oncology services, primary care, rapid diagnosis hubs.

1.1.70 In order to ensure that patients receive the highest quality of care in the right place at the right time, a significant amount of work has been undertaken on pathway redesign. We anticipate that the closer collaboration between Velindre and LHB staff created by joint working within Velindre@ facilities will deliver greater opportunities for improvement of patients' scheduled care pathways, beyond those described in this Service Model.

Scheduled Pathway: Enabling Change

- 1.1.71 Patient involvement in developments will be essential to ensure the service reflects their needs and works for them. Staff involvement and engagement will support successful service redesign whilst data and business intelligence will be vital in helping us to understand current and future demand and the benefits of change and service modernisation.
- 1.1.72 Information Technology (IT) will be critical to support high quality clinical care and improve efficiency. Clinical information sharing (patient held records, treatment summaries, investigation results) will be the norm, reducing waste and duplication. It will also support communication and education, increasing access and giving staff more time to deliver clinical care.
- 1.1.73 Clinical governance across the pathway will be essential, especially as care is more dispersed and delivered by a broader range of health care professionals. This will require strong service intelligence data and collaboration. Patient experience and outcome data will also be a central element to this. Understanding the current service, knowing the future demands and regional service improvement programmes will support ongoing improvements. The principles of the C4Li will form the hub for this, supporting activities across the region before it is developed as a physical entity.
- 1.1.74 Patient/carer information and education will be critical to ensure active involvement in decision making and in supporting patients to manage their own health. These will be delivered in accordance with the principles of the Service Model i.e. high quality information/education, delivered close to the patient's place of residence.

Unscheduled Care Pathway

- 1.1.75 High quality, coordinated services which are designed to meet the needs of patients requiring unscheduled care are essential. These will be planned and integrated seamlessly between care providers. A network wide information and alert system will be established to direct patients to the most appropriate team based on clinical need. Patient education, particularly around how to self-manage or seek help when their clinical condition changes will be important for those patients already known to have cancer. Triage, assessment, care close to home and admission only when necessary will be features. For those patients presenting acutely with a new cancer diagnosis, collaboration, information sharing and availability of expert clinicians locally when needed will be key. Whenever possible, patients on the unscheduled care pathway will move back onto the scheduled care pathway for ongoing care.
- 1.1.76 The scope relates to adults with solid tumour malignancies in South East Wales, but improving care for these patients creates opportunities to support and improve other aspects of cancer related health care too. The Trust has already seen benefits to patient care realised from AOS developments within the South East Wales region but there is more that can be done to maintain and further improve care as demand for and pressure on services increase.

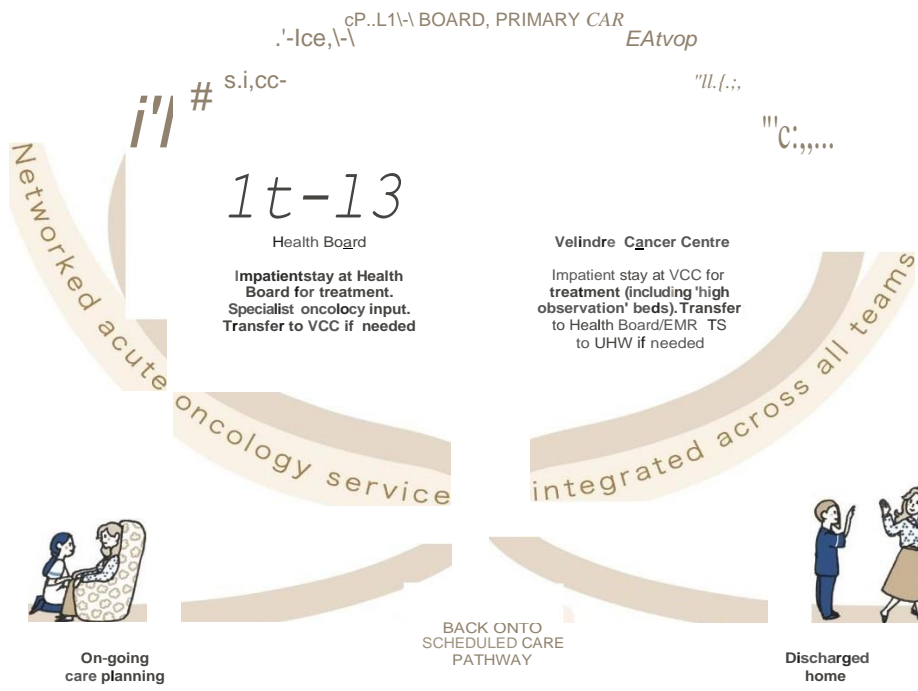
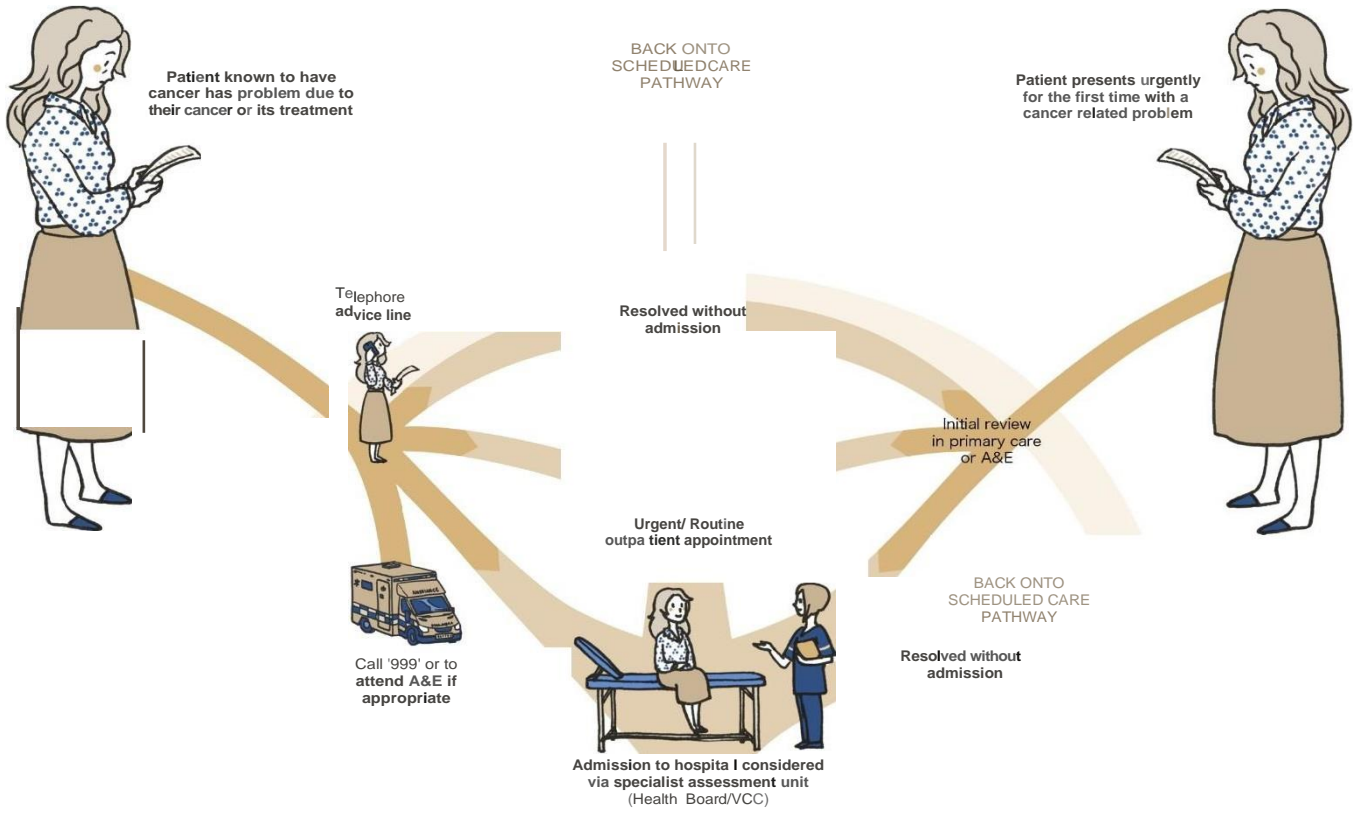
Key Transformative Changes:

Admission only when necessary, local care when appropriate, shorter lengths of stay and better access to specialist advice/input through:

- A dedicated oncology assessment unit at VCC;
- Access to specialist adult solid tumour oncology input within LHBs;
- Collaborative working ensures rapid review of inpatients in LHBs reducing length of stay;
- Telephone triage for all patients known to Velindre Cancer Teams;
- High quality education/information provision for people affected by cancer;
- A network wide AOS team to co-ordinate, communicate and direct patients appropriately and to ensure teams work well, across the region;
- Admission only when necessary and reduced length of stay reduces inpatient bed use;
- More care delivered locally;
- More pre-hospital care and appropriate admission avoidance;
- A shift from inpatient to outpatient/ambulatory care through access to urgent outpatient appointments/ambulatory treatments;
- Reduced burden on LHB Accident & Emergency/Medical Admissions Units;
- Planned Emergency Medical Retrieval and Transfer Service (EMRTS) support to VCC;
- Regional service improvement framework for AOS; and

- Develop research/education in AOS.

Figure 0-7: Unscheduled Care Pathway



Integrated working between all clinical teams communication. Information sharing.

Whole pathway supported by service quality improvement, education, research/development and innovation via Centre for Learning and Innovation

Unscheduled Care Pathway: How it will work

1.1.77 The nature of the Unscheduled Care Pathway dictates that there are a number of different routes into the system and end points; broadly this splits into two main patient groups:

- Patients known to have cancer, who present urgently with complications of that cancer or their treatment;
- Patients not known to have cancer, who present urgently for the first time with complications of that cancer.

All patients that are known to have cancer and are on active treatment and become unwell will contact the **VCC 24 hour clinical hotline** for an initial telephone assessment using a validated national assessment tool. This initial contact will determine what care and support is likely to be required and who can best provide this care for the patient. Prior education of patients/carers and information sharing between teams will support in this. The pathways available will include:

- Self-care. The patient will be advised that they can safely manage their condition without seeking further medical assistance. Novel technologies such as point of care testing for neutrophil counts and telemedicine will be explored to further refine triage and to support care away from hospital settings when safe to do so.
- GP, Community Palliative Medicine team or a local service such as their Local Community Pharmacy. The patient can manage their condition within their local community with assistance from primary care. Linking in with Local Authority and Social Care systems may be important here.
- Planned outpatient appointment (urgent or elective) at their local hospital e.g. via enhanced local facilities in the Velindre@ unit, hospice or VCC. The patient's condition can be safely managed but would benefit from a timely consultation with their supervising clinician. Avoiding admission by having the capacity to see/treat patients urgently as outpatients blurs the boundary between scheduled and unscheduled care and benefits patients and health care providers.
- Attendance at a specialist Assessment Unit. Patients will be directed to an appropriate assessment unit for a clinical assessment, either at VCC or within their LHB. This will be undertaken in a dedicated assessment unit for a period of no longer than 12 hours, supported by senior decision making by consultant oncologist and in line with UK acute care standards. At this point, the patient will be admitted to VCC, their LHB hospital or the appropriate care will be signposted and planned. For example, arranging an appointment with their GP, specialist or palliative care team.

- Attendance at their local A&E/MAU or the patient may call an ambulance. Whilst the above will encourage patients to access planned care pathways directly, it may be necessary for patients to be directed to an Emergency Department or to call an ambulance immediately. The AOS team will have contacted the relevant emergency department to ensure they are aware of the diagnosis and treatment plan for this patient.

1.1.79 The service will also provide vital support for patients who become unwell acutely as their first presentation of a previously undiagnosed cancer. These patients won't contact the telephone advice line, but will either be referred after a primary care consultation or after an urgent presentation to a local A+E/MAU. They will be identified by the local acute oncology teams with support from local specialist and Velindre staff. The current **AOS** will be enhanced across South East Wales including a planned presence of Velindre senior clinical staff within LHBs to support inpatient and AOS care locally. Clinical information will be readily available to all appropriate clinical teams through robust IT systems, including daily AOS MDT discussions hosted by VCC. Urgent radiotherapy will be available via VCC and the Radiotherapy Satellite Unit. Inpatient care and access to specialist advice will improve. Length of stay will be shortened. Education of staff and regional service intelligence data/service improvement will be essential. **Future opportunities for detection in primary care and referral for rapid diagnostic assessment without admission will be developed and evaluated.**

The service will provide dedicated oncology support from nurses (CNSs /Nurse Practitioners) and Velindre Oncologists to patients in each local LHB. There will also be AHP roles supporting metastatic spinal cord compression, other pathways and early discharge. **Palliative medicine** advice will also be central as many patients require symptom control and may not be fit enough or want radiotherapy or SACT.

Overall, it is anticipated that as more scheduled care is delivered locally and facilities and expert knowledge are more readily available within LHBs, more unscheduled care episodes will be managed locally but that these will be supported by additional oncology input within each LHB. There is further work required to fully define exactly what support this involves which will be undertaken collaboratively with LHB partners. The model currently identifies the need for one consultant per and two senior nurses per LHB. It is anticipated that these additional roles will be clarified and in place before the new Cancer Centre opens in 2022.

1.1.82 The proposed development of the **Radiotherapy Satellite Centre@** within Aneurin Bevan LHB (scheduled to open in 2021) will further enhance opportunities to deliver unscheduled care away from VCC as this creates opportunities for patients to have emergency radiotherapy locally, without the need for uncomfortable hospital transport or an inpatient transfer. The details of what emergency treatments may be available via the Radiotherapy Satellite

Centre@ will continue to develop as the capability of the satellite services develops over time.

- 1.1.83 VCC will be **open to acute admissions 24 hours/day, 7 days/week** as it is now, but this service will be enhanced 7 days/week by an **assessment unit**. Supported by the telephone triage service to direct patients appropriately, a network AOS service and senior clinical decision makers on site, this will offer rapid assessment and treatment (e.g. ambulatory care procedures, urgent palliative radiotherapy) to patients in the region. It will improve patient access to urgent care, improve patient care and experience, will help avoid admission and will reduce the burden on LHB MAU/ A&E services. The diagram overleaf explains how services will be different from a patient perspective.

Figure 0-8: Cancer of Unknown Primary- Patient Perspective

Cancer of Unknown Primary – Patient Perspective

Current System:

"I made several visits to my GP as I felt unwell and was losing weight and had back pain. I had some tests at my local hospital and saw a number of different consultants. It was hard to know what was going on or what the problem was. During this time I got less well."

"I was admitted to a medical ward in my local hospital as I became quite poorly. My GP referred me through their medical assessment unit. I had some more tests and was finally told that I had cancer that had spread. This was really difficult for me and my family."

"My GP and hospital teams were great, including the palliative care team, but after they told me I had cancer it wasn't possible to see a cancer specialist for 6 days. When they came one evening, they were really helpful and kind, but those 6 days were a long time to wait. My family weren't there that time which was tough. I wasn't well enough to have any chemotherapy – I wonder if I had have found out earlier, if I could have had more treatment?"

"I got home after nearly 3 weeks in hospital, but wasn't really well enough to do much with my family."

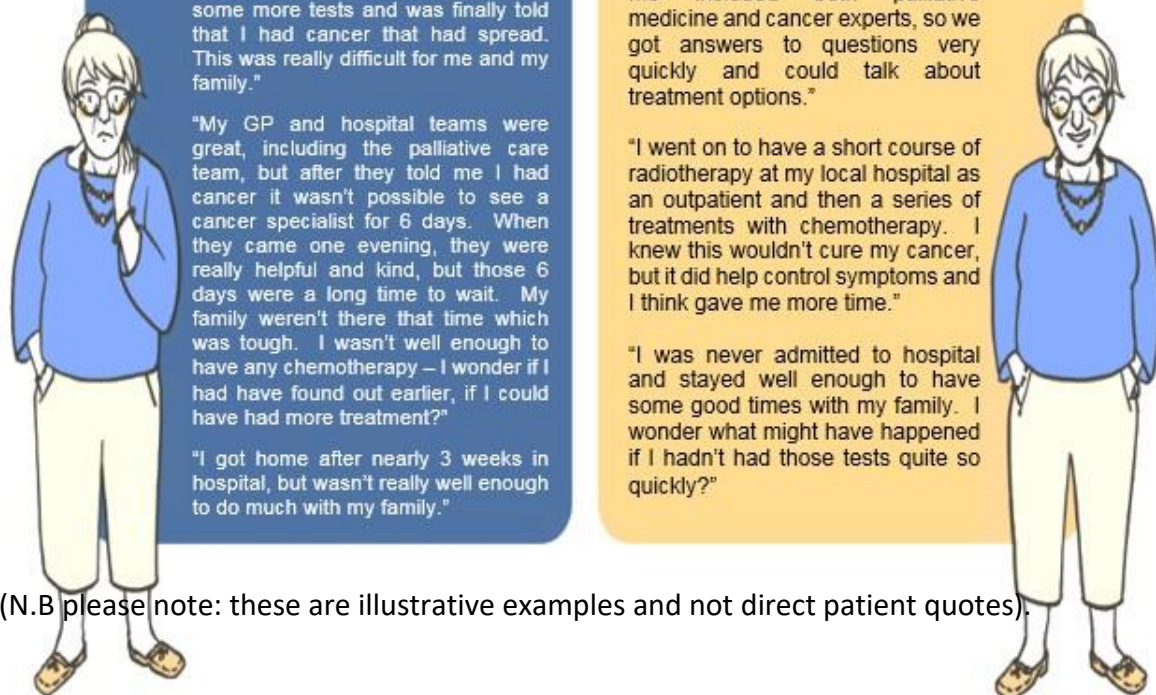
Future System:

"My GP was worried that something serious was wrong as I felt unwell and was losing weight and had back pain. I was sent to a local outpatient clinic for urgent tests and had these really quickly. It was tiring but good that things moved fast."

"I got the test results back really quickly. It was tough on me and my family, but the team looking after me included both palliative medicine and cancer experts, so we got answers to questions very quickly and could talk about treatment options."

"I went on to have a short course of radiotherapy at my local hospital as an outpatient and then a series of treatments with chemotherapy. I knew this wouldn't cure my cancer, but it did help control symptoms and I think gave me more time."

"I was never admitted to hospital and stayed well enough to have some good times with my family. I wonder what might have happened if I hadn't had those tests quite so quickly?"



(N.B please note: these are illustrative examples and not direct patient quotes).

Unscheduled Care Pathway: How we will get there

1.1.84 The Trust will:

- Pilot a specialist oncology assessment unit at VCC, understanding the benefits of this to patients and to the health care system before implementing initially on a 5 day and subsequently on a 7 day basis.
- Work collaboratively with each LHB team to develop local care pathways that meet the needs of their patients and which align with the principles of the TCS programme, including local assessment units within LHBs and community based care to avoid admission unless necessary.
- Develop accessible education/information resources for people affected by cancer and staff.
- Develop an integrated electronic health record for cancer patients available to people affected by cancer and service providers at the point of need.
- Work collaboratively across the region and across organisational boundaries to improve the current AOS.
- Understand the current and future needs of a regional AOS through service intelligence data, benchmarking and forecasting.
- Share best practice between teams.

Unscheduled Care Pathway: Enabling Change

Patient involvement in developments will be essential to ensure the service reflects their needs and works for them. Staff involvement and engagement will support successful service redesign whilst data and business intelligence will be vital in helping us to understand current and future demand and the benefits of change and service modernisation.

In order to deliver a transformative regional AOS, we will develop working groups that will collaborate between VCC, LHBs and the Wales Cancer Network to understand the current service (activity, limitations and strengths) and that will also work together, linking in with other aspects of scheduled/unscheduled care.

- 1.1.87 Service intelligence data will need to be gathered and shared, with organisations working together to create a sustainable plan that works for patients across organisational boundaries. This will include understanding what oncology presence is needed within each LHB and detail around how the VCC assessment unit will support and benefit other parts of the service. This

will be an ongoing process, rather than a one-off, step change. This alone would offer significant changes to unscheduled care, but also creates additional opportunities to further improve care in areas aligned to but outside of the scope of the TCS programme.

Core Clinical Services Described in Detail

Radiotherapy Services

Radiotherapy Services will be delivered at two locations to provide more comprehensive access to services across South East Wales and to reduce travel times for patients, families and carers:

- at VCC in Whitchurch Cardiff
- at a Radiotherapy Satellite Centre@

Wherever care is provided by Velindre staff, the standards and quality synonymous with the Velindre brand will be consistent. All radiotherapy accommodation at the new VCC and Satellite Centre will be purpose built and designed to optimise inter and intra departmental flows and to improve patient experience. Patients receiving radiotherapy at VCC will have access to the inpatient facilities at the hospital if the patient is unwell and admission is required after treatment or if receiving treatment that is complex in nature necessitating admission. The Radiotherapy Satellite Centre@ will not have inpatient facilities; however patients that require admission will have access to inpatient facilities at the local LHB or at VCC.

Velindre has implemented intensity modulated, stereotactic and image guided radiotherapy to become a leading cancer centre in the UK. Such developments allow radiotherapy to be delivered more precisely increasing the chance of disease control or cure and reducing the chance of side effects. Velindre currently does not plan to deliver proton beam therapy but will keep this emerging treatment technology under close review. It will have access to PET-CT for radiotherapy planning purposes and will have the ability to implement MR-linac technology subject to a review of the effectiveness of this new technology. To support initial treatment and quality/safety at the Radiotherapy Satellite Centre@, initially treatment will be available for patients having palliative radiotherapy or radical breast/prostate radiotherapy. Over time, the scope of treatments will increase.

A service efficiency machine will be in operation at the VCC to provide resilience and continuity of care during service planning (and in the event of machine breakdown), providing capacity to deal, for example, with unexpected peaks in workload without increasing waiting times for patients, minimising the need for cancellations or rescheduling while maintaining high quality of care and patient experience. There will be dedicated access for radiotherapy research at both the VCC and Radiotherapy Satellite Centre@ and provision for the development/safe implementation of new radiotherapy techniques.

Operating hours

Radiotherapy services will operate 9.5hrs a day 5 days a week at both the VCC and the Radiotherapy Satellite Centre@. Patients will be supported by an emergency palliative radiotherapy service (7 days a week) at VCC (and ideally at the Radiotherapy Satellite Centre@ too, pending discussions with the hosting LHB). This will also support some category 1 patients having treatment during weekends when clinically beneficial. (*category 1 defined as: patients which have rapidly growing tumours being treated with radical (curative) intent for whom any prolongation of the overall treatment course is not advised). Whilst it is recognised that there is a clinical benefit to having 7 day emergency radiotherapy provision at the Radiotherapy Satellite Centre@, this will require careful joint planning with the host LHB and consideration of appropriate staff to deliver this safely.

Where Services will be delivered

It is projected that 20% of radiotherapy activity will be provided at the Radiotherapy Satellite Centre@. This will be transformational for patients who currently spend up to 2-3 hours travelling to Velindre hospital for up to a 7 week course of treatment and for patients having short courses of palliative radiotherapy who will no longer have to travel for this at a time when they may be struggling with difficult symptoms. These patients will travel much shorter distances to receive treatment at the Radiotherapy Satellite Centre@. The Radiotherapy Satellite Centre@ will be delivered in partnership with Aneurin Bevan LHB, where there is access to appropriate clinical support and other services (e.g. pharmacy services/operational support services). It is possible that the Radiotherapy Satellite Centre@ will be co-located with an outreach SACT/Outpatient Service (Velindre@) – providing opportunities for delivering additional treatments such as chemo-radiotherapy at the Radiotherapy Satellite Centre@ in the future.

A phased introduction of tumour types treated at the Radiotherapy Satellite Centre@ will be initiated, enabling over time for the majority of tumour types to be treated there. Some tumour types which are highly specialised or managed on a regional or national basis will only be treated at VCC where dedicated equipment is located.

Local Health Board Impact

Unwell Patients: Patients may experience side effects during or following radiotherapy treatment and may require hospital admission for monitoring and ongoing care. Aneurin Bevan LHB (supported by Velindre staff) will be expected to provide access to appropriate inpatient facilities should a patient become unwell before / during or after treatment and requires admission.

The vast majority of the admissions fall within the general/emergency palliative groups and is anticipated to be 1-2 per month

Spinal Cord Compression: It is anticipated that 20% of spinal cord compression patients will be cared for at the Radiotherapy Satellite Centre@. These patients often require access to inpatient facilities for treatment with input from a wide variety of clinical teams including nursing, palliative medicine, allied health care professionals and oncology teams. This

equates to circa 40 patients per year or 3 patients per month that may require an inpatient admission.

Benefits

Improved local access and reduced travel times for patients, families and carers
Best in class facilities providing the best patient experience possible, better access to radiotherapy research and faster adoption of radiotherapy developments/techniques
Better integration of Velindre and LHB teams.

SACT, Pharmacy, Aseptic & Ambulatory Care Services

The SACT delivery model builds upon the principles of moving care closer to home by shifting a greater proportion of treatment into the community and local delivery via LHB based Velindre@ facilities. The complexity and safety of delivery, rather than the site of the primary tumour or the stage of the disease will influence delivery location. To further improve access, patients will receive SACT treatments at their nearest delivery site which might not be within their resident LHB.

There will be one system for electronic prescribing of chemotherapy across the whole of South East Wales for both solid tumour and haematological malignancies. In-line with this, SACT treatment will be delivered:

- At home/in the local community.
- In a Velindre@ facility or LHB location.
- At VCC.

SACT delivery at VCC

Patients will only attend VCC for SACT treatment if:

- Velindre is the closest facility providing SACT treatment
- If the patient's SACT regimen is not available at the Velindre@ facility (e.g. due to complexity/clinical safety).
- If the patient's SACT regimen necessitate an inpatient stay.
- If the patient is enrolled onto a Phase 1/complex clinical trial, where they will receive their trial treatment in designated clinical trial facilities, reflecting the increased level of complexity and acuity related to this activity.

SACT delivery via Velindre@

There will be a number of Velindre@ facilities located across South East Wales where they will have the greatest impact in improving access to services and reduce travel times for patients, families and carers.

The Velindre@ facilities consolidates current SACT provision and will provide an enhanced and equitable service across South East Wales. The facilities will be integrated with local cancer and voluntary sector services. This networked approach will enable patients to access a wide range of treatment, care and support services locally. Velindre currently uses the

Tenovus Mobile Treatment Unit and will continue to integrate the use of these flexible delivery units alongside new, enhanced Velindre@ facilities.

There will be no inpatient facilities at the Velindre@ facilities. Patients requiring admission will have access to inpatient beds at their local hospital or at VCC. All planned inpatient SACT delivery will be at VCC.

Description of Service: Pharmacy & Aseptic Services

Pharmacy and aseptic services have a central role in supporting the delivery of SACT both at the VCC and in the wider community. The future model will require access to dedicated pharmacy and aseptic services at all appropriate locations across South East Wales, to ensure equity of service delivery and access.

VCC will work with LHBs to determine the optimal clinical and technical pharmacy services provision for patients treated across South East Wales within a Velindre @ facility.

SACT services will be co-located with ambulatory care services to improve patient experience, efficiency, flexibility and workforce skill mix. There will be capacity to deliver some simple ambulatory care procedures aligned with outpatient attendances when this best improves patient care and experience.

Operating Hours

SACT/ambulatory care services will operate for 12 hours a day five days a week at both VCC and at the Velindre@ facilities.

The pharmacy service will be available 7 days per week, 52 weeks per year as required to support optimal service delivery and patient need.

Where Services will be delivered

SACT Services

There will be an enhanced networked model with a number of SACT delivery sites as outline below:

- 45% of activity delivered at VCC.
- 45% of activity delivered at Velindre@ facilities.
- 10% of activity delivered locally at home/community.

SACT services at the Velindre@ facilities will be supplemented by a range of ambulatory care, supportive care and outpatient services.

Ambulatory care procedures/services may be provided by supporting community centres including local third sector providers and the new Maggie's Centre located alongside VCC.

Pharmacy will support VCC directly and will oversee Velindre@ services delivered on behalf of the Cancer Centre through Service Level Agreements with LHBs and other agencies as appropriate (dependent on (extended) pharmacy model).

Pharmacy & Aseptic Services

VCC pharmacy will work collaboratively with LHB partners to ensure that any processes surrounding the procurement of pharmaceuticals, specifically those of a specialised nature, e.g. Early Access Medicines Scheme/Patient Access Scheme does not preclude the use of such medicines at locations remote to VCC.

VCC will include an early phase clinical trials unit delivering where appropriate novel therapies.

The model of (pharmacy) provision of Investigational Medicinal Products as part of a clinical trial is being considered. This model will be dependent on accepted clinical trial governance procedures, staff resources and skill sets and local aseptic facilities and may vary between LHBs.

Local Health Board Impact

- Potential to co-locate with haematology services offers additional benefits.
- SACT units within LHBs would require support and unwell patients may require admission.
- More patients will be treated across LHB boundaries, at their closest SACT delivery facility.

Benefits

- More SACT/SACT procedures delivered within LHB/home/community setting
- Improved efficiency of SACT delivery
- More SACT related procedures delivered locally (e.g. PICC line insertion/maintenance)
- Enhanced opportunities for flexibility/treatment time choices

Inpatient Services

The delivery of Inpatient services is based upon four fundamental principles:

- Patients will be assessed for admission, rather than admitted for assessment.
- Patients will only be admitted where and when it is essential.
- Wherever possible procedures will be undertaken as a day case (e.g. paracentesis and blood transfusion).
- Expert clinical advice will be available at the place of admission, in a timely manner.

Therefore, care will shift from an inpatient to an outpatient setting. VCC will continue to manage patients with complex needs whether their LHB admission is scheduled or

unscheduled and will better support admissions within LHBs. The improved system wide capability will allow some patient activity currently undertaken at VCC to be repatriated back to the LHBs, with local support from Velindre teams.

Scheduled admission includes patients receiving the following treatment:

- Highly complex SACT regimens that necessitate an inpatient stay.
- Complex radiotherapy treatment that necessitates an inpatient stay.
- Novel therapies including radioisotopes.
- Planned AHP intervention, i.e. dietetic support for head and neck patients.
- Clinical Trials including Phase 1 and complex studies.

Unscheduled admission into VCC may be required if:

- The patient becomes unwell during treatment and VCC is the nearest hospital to the patients' place of residence.
- The patient becomes unwell in an acute setting and is referred by the AOS service.
- A patient requires urgent radiotherapy or ongoing radical radiotherapy that should not be interrupted and can only be delivered at VCC.
- A patient becomes unwell and requires specialist intervention from supportive palliative and allied health professionals.

There will be a high observation area for the supervision of patients that require level 1 care. If the patient becomes acutely unwell, arrangements will be in place with the LHB critical care teams for rapid retrieval, stabilization and transfer (via the EMRTS) to the most appropriate place of care.

Operating Hours

Inpatient services will be provided 24/7 and for 52 weeks a year. A telephone support hot line will provide a 24/7 service.

Velindre will be open for emergency admissions 24/7, with enhanced support from a specialist multidisciplinary Assessment Unit, open for 12 hours a day, 5 days a week until 2022 then for 7 days a week thereafter.

Where Services will be delivered

It is projected that VCC will need 50 beds by 2032. Of these, 4 will be assessment unit beds and two will be isolation cubicles for radio-isotope therapies.

A proportion of patients traditionally admitted as inpatients to VCC could be appropriately managed at the LHBs. This will necessitate greater involvement and support of Velindre teams within LHBs.

Aneurin Bevan LHB will host the Radiotherapy Satellite Centre and will need to offer inpatient care for additional patients (potentially from outside their LHB) who are accessing radiotherapy via the Satellite Centre.

An AOS will be in place at VCC and local LHB across South East Wales to ensure that patients presenting with acute new cancers, acute cancer related complications or toxicity from cancer treatment are identified at the earliest opportunity and directed to the most clinically appropriate pathway of care. This will include dedicated consultant oncology and Advanced Nurse Practitioners/Clinical Nurse Specialist presence at each LHB.

A rapid assessment service will be run from VCC by an acute oncology team, which is consultant/Advanced Nurse Practitioner led.

A four bedded assessment unit will be incorporated into the inpatient ward area at VCC. This will enable the 'assess to admit' model of care to be implemented. Alongside the application of an admission policy the assessment unit will play an important role in patient triage and where appropriate shifting inpatient treatment towards ambulatory care. This will facilitate more timely diagnosis and treatment for patients that are unwell and where clinically safe and appropriate deliver a reduction in admission and length of stay.

Local Health Board Impact

Additional admissions to LHBs will equate to the following, spread between Local Health Boards as below:

	1.1	2.8	4.6	5.6
	1.4	3.4	5.6	6.9

Additional specialist oncology input within LHBs will help offset this growth, via admission avoidance and reduction in length of stay. The exact distribution of these beds will vary dependent on the location of Velindre@ facilities. The presence of a Radiotherapy Satellite Centre in South East Wales will result in a small additional shift in admissions (see Radiotherapy section for details), e.g. patients needing inpatient radiotherapy for MESCC.

Benefits

Admission avoidance and reduced length of stay will reduce demand for inpatient services in both VCC and LHB facilities.

Better patient experience: more care delivered as day case, fewer admissions and when admitted, more likely to be local to place of residence.

Reduced impact of inpatient bed use by non-surgical oncology patients on other aspects of health care system.

More efficient use of inpatient beds.

Greater specialist oncology presence within LHBs.

Outpatient Services

The aim of outpatient services are to provide high quality, efficient outpatient care and attendances for new patients, patients currently having treatment (e.g. SACT and radiotherapy) and for those on follow-up, delivering this closer to patients' homes, utilising

technology when beneficial and delivering best value to patients from each attendance. Greater capacity for urgent outpatient review and subsequent treatment will reduce the need for patients to access inpatient or other aspects of unscheduled care.

A range of services will be provided at VCC and Velindre@ facilities including:

- Specialist Oncology and Palliative care teams.
- Clinical Psychology/Occupational Therapy/Physiotherapy/Dietetics/SALT/Complementary therapy.
- Welfare Rights/Relate/Relationship advice.
- Patient education/Cancer Information and Support Programme (CISP).
- Simple ambulatory procedures, aligned with outpatient attendance (e.g. phlebotomy).
- The majority of ambulatory care will be delivered alongside SACT delivery.

Pre-planned appointments will be supported by the ability to see patients urgently as outpatients, reducing need for patients to access care via emergency routes.

Multi-disciplinary outpatient teams will be present in both VCC and Velindre@ facilities. They will work from a central base (to support communication, team working and learning) with access to electronic patient records, and all necessary clinical information.

Operating Hours

Outpatient services will be available Monday to Friday 9am – 5pm.

Where Services will be delivered

There will be dedicated oncology outpatient facilities at both VCC and each Velindre@ facility. Use will also be made of telemedicine to deliver services via patients' home or locally when possible and appropriate.

The following regional services will remain at VCC (regarding OP attendances): Anal Cancer, CNS Cancer, Sarcoma, and Melanoma, NET, Thyroid and Testicular cancer, although future changes to align with other service developments will be explored. Lymphoma patients will continue to receive oncological support into the MDT as well as their radiotherapy planning and treatment at VCC however; in the future they will be seen in haematology outpatient clinics at their respective LHBs.

Local Health Board Impact

- Velindre@ facilities within LHB would require support/un-well patients may require admission.
- Better integration of Velindre/Local Health Board teams – more opportunities for joint clinics, new ways of working.
- Ability for Local Health Boards to shape and plan activity within Velindre@ facilities to support their needs.
- Through joint planning, scheduled care teams will be able to better support unscheduled care too.

Benefits

- More attendances delivered locally to the patient, or via telemedicine to improve access.

- Reduced impact on other service from increasing demand for non-surgical oncology services.
- More efficient outpatient service: extended roles and technology to support this
- Best value to patients created from each attendance through planning and communication.
- Shift from inpatient to outpatient care.

Specialist Palliative Care

The proposed model shifts the balance of care from the acute hospital environment towards the patient's place of residence and the local community. It is anticipated that there will be a shift from inpatient palliative care provision to outpatient and ambulatory care. The patient's goals and needs will be placed at the centre and they will have the option of receiving fast and effective palliative care and support at:

- The patients' home or usual place of residence.
- At a local hospice.
- As an inpatient within their local LHB or at VCC.

Palliative care services will be provided by local LHBs through an integrated approach across primary, community, secondary and tertiary services in seamless partnership with local authorities and the third sector. This will enable patients and their families to receive the medical, psychological and social support to remain at home, within a hospice in local communities or within a local hospital if their clinical and/or preference necessitates this. In order to support patients to remain at home and within the local community, Velindre provides a wide range of support, aiming to provide compassionate care in living and dying, and crucially reducing distress in the terminal phases of illness.

- Palliative care consultants will work in a networked arrangement across the community (home, hospice, clinics, and day care), local LHBs, local charities and VCC will provide expertise at the point of need.
- Palliative care hubs within local LHBs will be networked to the Velindre@ facilities and VCC. This will enable a systematic, consultant-led approach to be adopted in line with patient need and the 6 strategic aims of the Welsh End of Life Care Strategy.

An advice line provided by Velindre Palliative Care Services will be easily accessible to all clinicians, who will be able to speak to one of our specialists. This provides access to expertise, guidance and peer support, enables patients to move seamlessly across the system and transfers knowledge amongst professionals.

Operating Hours

Specialist Palliative Care Services will be provided for inpatients at VCC. Outpatient services, day hospital services etc. will benefit from early palliative care on site review and link-up with community services, day care centres and the hospices. There will be a dedicated out-of-hours palliative care contact line.

Where Services will be delivered

VCC will have a dedicated specialist palliative care team providing an advisory service, supporting other departments in the cancer centre. Palliative Care services will continue to be available in the community, local hospices and LHB settings.

Local Health Board Impact

The additional proportion of patients accessing care via Velindre@/Radiotherapy Satellite Centre@ will require support from local palliative care services.

Benefits

- Improved patient experience and reduced impact on LHB services by avoiding the use of unscheduled services e.g. A+E, MAU. Enhance delivery of the strategy of the End of Life Care Board for Wales:
- Supporting living and dying well;
- Detecting and identify patients early;
- Delivering fast, effective care in palliative illness;
- Reducing the distress of terminal illness for the patient and their family; and
- Support training and research in palliative and end of life care.

Radiology & Nuclear Medicine

VCC will continue to provide radiology and nuclear medicine diagnostic, non-imaging diagnostic and therapeutic services for cancer patients in South East Wales. These include:

- All inpatients at VCC.
- All day case attendees to VCC.
- All clinical trials undertaken at VCC.
- Radiotherapy patients attending VCC who develop complications.
- Therapeutic agents; e.g. Ra-223 dichloride.
- Nuclear medicine non-imaging diagnostic investigations (e.g. CR51 EDTA GFRs)
- Repatriation of patients receiving peptide receptor radionuclide therapy (PRRT) for neuro-endocrine tumours who currently travel to London for treatment.

VCC will work with other radiology providers to ensure patients undergo radiological investigations as close to their local residence as possible but attend Velindre where clinical need, convenience, safety and/or expertise necessitates. Image sharing will be essential and routine, wherever imaging is performed.

PET-CT (largely for research and radiotherapy planning rather than diagnostic needs) at VCC will be placed, to allow patients in South East Wales to access modern planning techniques, equivalent to those at other tertiary cancer centres.

Operating Hours

The Radiology and Nuclear Medicine Service will be provided for 7.5 hours a day and for 5 days a week with an on call radiology service provided out of hours.

Inpatient beds (when needed for therapeutic nuclear medicine) will be available, supported by our inpatient services.

Where Services will be delivered

It is currently predicted that a proportion of the radiology investigations currently provided at VCC will be provided locally in the LHBs, as care shifts from a centralised to a locally delivered model. The type and volume of procedures by LHBs will include CT, MRI, plain film, ultrasound scans.

Radiological imaging undertaken locally (at LHBs or VCC) will be available at any other site due to the implementation of the Vendor Neutral Archiving PACS system which then enables examinations carried out locally to be reported centrally at Velindre if required.

Local Health Board Impact

Small increase in radiological investigations due to more care being delivered locally
Improved image sharing and reporting will partially offset this.

Benefits

- Better patient experience.
- More efficient health care through less wasted resource/duplication.
- Greater capacity for radiology for people affected by cancer, reducing the impact on other radiology services across the region.

Clinical Aspects of Research

Research delivery will mirror the Service Model by taking the research to the patient wherever it is possible and safe to do so. There will be a Clinical Trials Facility at VCC with increasing numbers of patients recruited into Phase I, II, III and IV SACT trials at VCC.

Some late phase (III & IV) clinical trials and research will be undertaken within the home/local community and Velindre@ facilities subject to appropriate governance processes for each individual trial. We will continue to work closely with the Cardiff & Vale Clinical Research Facility to deliver early phase trial research collaboratively.

The regional network portfolio of clinical studies will be expanded and diversified to encompass a range of research utilising a variety of methodologies that will span the patient journey, including an increased focus on limiting toxicity and improving quality of life, palliative care and end-of-life care and improving outcomes.

A minimum target of 20% of the number of new patient referrals annually will be recruited into (observational or interventional) clinical research, which includes SACT, radiotherapy and qualitative research. This will be supplemented by the broader aspects of clinical research, with recruitment into clinical trials growing towards a target of between 10-15% of the number of new patient referrals annually entering interventional studies.

VCC will continue to provide a research infrastructure that supports partners' Academic Scientific Research Strategy.

Operating Hours

The Clinical Research Facility will operate from 8am until 8pm for five days per week, supported by 24/7 access to emergency clinical support via AOS services.

Where Services will be delivered

Studies that will be performed at Velindre only are:

- Velindre-led early phase SACT (collaborating with C+V CRF when appropriate).
- Some late phase (II, III & IV) SACT clinical trials.
- Complex SACT trials.
- Complex radiotherapy trials where the technology is only available at VCC.
- SACT/Radiotherapy combinations.
- Radionuclide therapy research.

It is anticipated that a number of Phase III & IV SACT Trials will be undertaken at the Velindre@ facilities and/or VCC.

If patients require a planned inpatient stay as part of the trial, this will occur at VCC.

Telemedicine will be used wherever possible to limit unnecessary travel for patients and staff, and to use available resources efficiently and effectively.

Local Health Board Impact

Greater patient numbers entering trials locally will require support, dependant on the requirement of each trial. This will be planned in advance to avoid unnecessary and avoidable impacts.

Benefits

- Better access to research, locally, for patients.
- Improved trial portfolio for the region of South East Wales.
- Improved reputation of research in South East Wales.
- Better collaboration between academic and clinical teams.

Clinical Aspects of Education

Education will be focused around the needs of the people affected by cancer and health care professionals and will be delivered in line with the principles of the service model.

High quality information/education will be available to patients/carers to support active involvement in decision making, self-management and cancer literacy.

Education will support the delivery of high quality clinical care, wherever it is delivered and to safely adapt to new treatments/technologies/clinical advances.

Education will support all elements of the care pathway, from early diagnosis, treatment decisions to living with the impact of cancer and palliative/end of life care.

Education/training will support both scheduled and unscheduled care (for example, by ensuring patients/staff are aware of treatment developments and the potential complications of these).

Education/training will be planned regionally to support all of those involved in cancer care – clinical and non-clinical staff throughout South East Wales.

IT will be crucial in delivering individualised information/education to patients, carers and health care professionals, improving access and flexibility.

Operating Hours

The Education Service will operate 7:00am – 8:00pm 5 days a week with opportunities for evening and weekend events. Library access will be 24 hours a day for staff.

Where Services will be delivered

- Facilities will be provided both at VCC (Via the C4Li) and Velindre@ facilities to enable access locally.
- Virtual access will support delivery locally and flexibly to patients/staff.
- VCC will host a specialist library.

Local Health Board Impact

- LHB teams will have access to and be able to book facilities in the C4Li.
- Velindre@/Radiotherapy Satellite Centre@ facilities will have space for meetings/education – for use by patients and LHB teams.
- When appropriate, Velindre staff may wish to access LHB education events.

Benefits

- Improved ability for patients to be involved in clinical decisions and to self-manage – reduces demand on health care services.
- Safer patient care.
- Improved collaboration, reduced duplication, improved efficiency.
- Increased capacity in the region and ability to deliver education via technology.
- Improved access to education: can meet training standards more easily.
- Better staff career progression, retention and morale.
- Improved links between clinical and academic/training teams.

Key Messages Patient Pathways and Clinical Services

Core Support Services Described in Detail

- 1.1.88 It is not enough to merely have a clinical delivery service model. High quality clinical care relies on key support services such as governance structures, service data and improvement, education, research and development. Enabling patients to have a central role in developing, evaluating and shaping future service changes is also crucial – through use of patient feedback and structured patient involvement programmes. Staff and teams need to develop pathways that span organisational boundaries and to be able to adopt innovative approaches to delivering patient care.
- 1.1.89 Service intelligence data is essential and will be generated in a meaningful way to support clinical teams in understanding the strengths of the current service, areas for improvement, the value of planned changes and in anticipating new service needs.
- 1.1.90 These support services underpin the quality of care and enable teams to improve services further, in a safe and sustainable manner, thereby preventing a one off step change that rapidly becomes outdated. We therefore describe these in addition to the core clinical services in the previous section as it is equally important to look at transformation of these essential services.

Figure 0-9: Centre for Learning and Innovation (C4Li)



Clinical Governance/Service Improvement

1.1.91 Delivering high quality clinical care collaboratively in partnership between organisations will require strong clinical governance. Care will be delivered closer to patients' homes in a seamless manner between different professionals and organisations requiring stronger **cross organisational learning** and a hub from which to build these relationships. This begins with the ability to understand current activity and outcomes through **meaningful clinical data** and **patient experience** information, to understand what is important to our patients and to place them at the centre of service design and delivery. We will also **involve patients** directly in service review and design. **Benchmarking** with other similar Cancer Centres will be central to understanding how our services perform for our patients. These processes will support in forecasting future needs to give **service resilience** and sustainability in the long term.

The Service Model will deliver high quality care and continuous improvement of this. Small scale improvements within individual teams or services will be planned and translated into sustainable improvements **across the region**. Our strategic approach is influenced by national and local drivers including 1000 Lives +, Prudent Healthcare Principles, co-production with our patients, carers and the public and a desire to play our role supporting partner Organisations. Local strengths such as SCIF (Significant Clinical Incident Forum) will play a greater role across the region in an open, no blame learning environment.

Improved **connections** will be made between clinical teams, develop and use our data to support quality improvement, and to utilise the growing improvement science evidence base and good practice examples emerging from other parts of Wales, UK and internationally. We will contribute to the global health agenda through building on our international health partnerships with colleagues in sub-Saharan Africa and in other countries with developing health systems.

A culture of continuous service improvement will be integral to the delivery of clinical care, with creative thinking/innovative solutions underpinned by evidence based learning and research, linked through to education programmes to share best practice and deliver successful improvements where these need to be made. Visible leadership and staff engagement are fundamental to success – especially given the more dispersed nature of non-surgical Cancer Services in the future.

1.1.95 Key to these aims will be:

- Data (service intelligence) and audit (local and national).

- Patient involvement and patient experience data (e.g. Patient Reported Outcome Measures & Patient Reported Experience Measures).
- Benchmarking with similar cancer centres.
- Cross organisational learning/collaboration: sharing best practice and service improvement; pathway development between organisations.
- Horizon scanning and forecasting.
- Clinical Governance (with strong links to education).

Research & Development

The Trust will know how our clinical services are performing through strong service intelligence (including patient experience data) and clinical governance – this tells us about the ‘now’. We need to develop and deliver excellence in clinical care for the future through research, development and innovation. This is a **strategic priority** for Velindre and for Wales. Through enhanced research and development (of novel drugs, therapies and development/implementation of new technologies) which will directly benefit our current patients and generate an evidence base to guide cancer care for future generations.

The opportunity to participate in research will be a core component of the clinical care delivered **across the region** such that patients can discuss options for participation in research with their health care professional team, wherever care is delivered.

The Trust will build on our already existing excellent national and international reputation in research to widen the scope of the research we offer to our patients throughout their care pathway and the region. VCC has many national/international research leads and will broaden this with a multi-professional research portfolio which supports current and future **research leaders** through the trajectory of their careers.

This will enhance the reputation of the Trust, attracting non-commercially sponsored projects and investment from the **commercial sector**, a competitive area that is driven by performance and proven track records.

The vital link between laboratory drug development and administration to patients will provide patients with opportunities to access experimental novel therapies when they have limited or often no other conventional treatment options left. This will also support strong links between **clinical and academic teams**. Early phase trial work will be delivered through VCC collaboratively with the Clinical Research Facility at UHW due to the clinical nature of these trials.

- 1.1.101 It is important to build upon Velindre’s reputation for leading and participating in Phase II/III trials to deliver **regional access** for late phase SACT trials, when safe to do so. We will support all partners (academic and clinical) to meet

national targets related to research, delivering benefits to patients across the region and to our partners.

1.1.102 **Radiotherapy and physics research** are also essential. This incorporates radiotherapy clinical trials, academic medical physics research, and nuclear medicine/molecular radiotherapy. We will deliver radiotherapy clinical trials, novel SACT and radiotherapy combination treatments and trial quality assurance. Radiotherapy research and development and safe introduction of new radiotherapy techniques and technology will both be available to patients at VCC and the Radiotherapy Satellite Centre@ to ensure equity of access to cutting edge treatments.

In conjunction with our partners, we will explore new research areas including improvement science, health economics, education and qualitative and quantitative research opportunities at other stages of the cancer pathway (e.g. epidemiology, prevention, early diagnosis, unscheduled care, end of life care).

Supporting researchers in all profession is a priority as we identify and develop **future talent**. PhD programmes will support nurses, radiographers and AHPs to undertake original clinical research within their areas of expertise, run in collaboration with academic partners.

A vibrant, dynamic **research culture** will be embedded across the region. Patients will receive the very best treatment at every stage of their journey, with opportunities for both interventional and qualitative research, and researchers from all disciplines can engage in projects that will enhance care and enrich their professional careers.

The Trust will:

- Deliver a wider range of research opportunities for patients, delivered by a broad range of health care professionals closer to patients' places of residence.
- Support the national priority to generate wider economic and social benefits through the development of strategic partnerships and collaborative working within South East Wales, Wales and internationally to achieve excellence.
- Play an active supporting role to our partners but also fulfil our leadership role as a specialist non-surgical cancer centre.
- Enhance opportunities to integrate academic research and clinical teams, stimulating new ideas for research.
- Develop and deliver new technologies safely into routine clinical practice
- Innovate new methods of delivering care and adopt these appropriately, gathering and sharing evidence of benefit.
- Align the wide range of expertise within and outside South East Wales around a coherent strategic research agenda that supports the highest quality clinical care, academic excellence, and evidence based innovation.
- Provide the resources required for the consistent delivery of high quality, innovative research.
- Horizon scan to maintain our position at the forefront of cutting edge research.

- Contribute to the global knowledge on cancer biology and treatment.
- Attract, develop and retain quality researchers across all disciplines and professions.

1.1.107 As research/technological developments translate into routine clinical practice and become new standards of care, service intelligence data will be gathered to evaluate the real world effectiveness/benefits, alongside patient reported outcomes and experience data to fully understand the impact of new treatments from a patient perspective.

Education

Education is **fundamental** to the sustainable delivery of high quality care and the best outcomes for patients, as captured in VCC's mission of delivering the best quality patient care, world class education and research which improves lives. Education is inextricably linked to the quality of patient care. It also supports in translating the knowledge gained from service improvement work and research/development as described above safely into everyday clinical practice.

Education includes education and information provision for **patients and families**; education and learning for **health care professionals AND non-clinical staff** and education as part of a broader network formed of **partnerships with stakeholders**.

The Trust's role is one of many partners in a complex care/ education system. It is vital that Velindre plays its part in this system, working with and learning with/from other organisations so education is planned and delivered prudently.

Velindre is committed to prioritising information provision, education and learning for patients and carers and embedding this in the **clinical model** as this will support patient involvement in clinical decisions and will help equalise the patient/professional relationship.

Education delivery will align with the principles of the clinical model, including quality, delivery closer to home, supporting patient involvement and equalising the patient/professional relationship and in the use of technology to deliver education/learning more flexibly to improve access. As such, it will be delivered on a **regional basis**, utilising technology to improve access for patients, carers and staff.

1.1.113 Velindre is committed to prioritising education and learning for staff to maintain and develop the current and **next generation** of both healthcare professionals and non-clinical staff. This will maintain quality of clinical care, allow the safe adoption of new clinical practices and can reduce preventable harm and unnecessary variations in clinical practice. With new treatments always being developed, it is important that patients and staff (regardless of professional role

or location, be it primary care, secondary care or tertiary care) have the knowledge to deliver **safe, high quality care** wherever and whenever it is needed.

- 1.1.114 Education programmes will support the delivery of clinical care (both scheduled and unscheduled) in an integrated manner across South East Wales, involving a more diverse number of clinical staff delivering care more locally to patients in a variety of locations.
- 1.1.115 Education helps us meet the projected increase in demand for non-surgical oncology services in South East Wales through **patient education/activation and self-management** and will support the long-term sustainability of clinical care through reputational benefit, staff recruitment and retention.

Technology is an important enabler for education/learning. It can support patients accessing high quality information/education more locally and also helps staff – especially as flexible working increases.

Education provision, both for Velindre staff and through partnership working with our **LHB colleagues** and with higher education institutions to deliver undergraduate and postgraduate education events and courses. We will meet all appropriate training standards to deliver a high quality training experience for a broad range of health care professionals.

Velindre will develop our **international role** – building on existing links and developing new ones – that support education in other countries with reciprocal arrangements that our staff can benefit from too, bringing skills back that benefit patient care in South East Wales.

It will also explore opportunities and collaboratively develop our role in supporting/delivering education that helps with cancer prevention and early diagnosis – both for patients and professionals.

This stretches to a exploring and collaboratively developing our education role in society, supporting cancer/health related education in schools and in healthcare career promotion, supporting the economy of South East Wales. This also involves supporting cancer care in developing nations – building on the work the Trust already does via Wales in Africa.

The Centre for Learning and Innovation

- 1.1.121 Any health care provider needs facilities to deliver research and development, education, service improvement, innovation/technology and to support patient involvement as described in the previous sections - they are critical for both the short and long term quality of patient care and the long term sustainability of clinical care. Currently, VCC already delivers these functions, but teams are spread throughout the hospital which impacts on efficiency and outputs. The

lack of physical facilities/space further limits our abilities in these areas and also limits our ability to work with/support partner organisations.

1.1.122 Within the future Clinical Model, essential functions will be co-located with the 'Centre for Learning and Innovation'. This creates efficiencies and synergies. It is not a separate entity – it is a core part of the specialist cancer centre and will support the regional delivery of care through an open approach, utilising technology and links with existing and new facilities such as the Velindre @ and Radiotherapy Satellite Centre@.

The C4Li will therefore offer the opportunity to form a **regional hub**, adding to the network across Wales to support patients and staff locally, to deliver benefits throughout the region, to all members of the Cancer Community in South East Wales and beyond. It will allow teams to **continuously improve services** and to realise their ambitions relating to quality of clinical care and will assist VCC in delivering its values of being accountable, bold, caring and dynamic.

This will have a strong **patient and carer focus**, placing them at the centre of health care decisions. It will be aligned with the principles of the Service Model and will underpin this. It will support national strategies such as prudence. It will very much be 'outward facing' allowing greater opportunities to integrate and collaborate across traditional boundaries.

The C4Li will **improve clinical care** via facilitating research, education & training, quality improvement and innovation across all partner agencies and create the hub for local, national and international learning networks with leadership from all professional disciplines and stakeholders involved in cancer services and care. It will help further improve the **reputation** of VCC and its partners in cancer care and assist in attracting and retaining staff across the region.

The C4Li will be a physical space bringing together a range of clinical, professional, academic and managerial experts in patient involvement, research, innovation, education and service improvement. It will also form a **virtual hub** for collaboration, and communication across South East Wales. This will be the 'engine room' for continuous improvement and give opportunities for use by other service providers, partners and stakeholders with a common agenda of sustaining, improving and transforming cancer services. This will help the long-term sustainability of non-surgical cancer care in South East Wales.

1.1.127 It will support all staff involved in caring for those affected by cancer – including those in clinical and non-clinical roles. Its scope will be broader than the clinical model as it will be available for use by all members of the cancer community in South East Wales with additional opportunities for supporting health care beyond this.

1.1.128 It forms arguably one of the most transformative and exciting elements of the TCS Programme and supports the ongoing clinical agility to continuously

develop and improve clinical services – establishing the long term sustainability of non-surgical Cancer Services in South East Wales.

1.1.129 We will seek to promote the new C4Li to partners prior to its opening and actively engage with them, in order to involve others in the planning, maximize the benefits delivered and ensure best use once developed.

Figure 0-10: Core Function of the C4Li



- Linking service improvement teams across the region
- Patient experience: PROMS and PREMS
- Patient involvement in service design/planning
- Patient safety, complaints/concerns, reporting, risk management, clinical incident review (e.g. SCIF)
- Quality improvement projects
- Developing service improvement science and delivery
- Pathway development (local and regional)
- Data – business intelligence, dashboards, performance outcomes, quantifying benefits/impacts, benchmarking, accountability
- Audit – local, regional and national
- Forecasting, modelling
- International health role
- Reputation

Know what we do

- Linking education teams and delivery across the region
- Patients: Information provision, education, activation
- Staff – interprofessional education and training; clinical and non-clinical staff
- Supporting education for partner organisations
- Workforce – culture, organisational development, recruitment, retention, career progression, apprenticeships
- Developing education improvement – evidence base and quality
- Technological delivery
- Library and knowledge management service
- Income generation/cost saving
- Sharing best practice
- International health role
- Reputation

Learning together

- Promoting the delivery of research across the region
- Improving access for patients and treatment options for patients
- Linking clinical research teams across the region
- Linking clinical and academic teams
- Clinical-academic career progression
- Multidisciplinary research
- Early phase, SACT and radiotherapy research
- Qualitative and quantitative research
- National/international role
- Income generating/cost savings
- Reputation

Knowing what we need to do

- Linking/developing innovation across the region
- Supporting clinical care through innovation
- Translate research evidence into an adoption and diffusion process
- Link academic healthcare and industry partners to maximise patient and commercial benefits
- Develop a coordinated, systematic approach to managing academic healthcare and industry collaborations
- Maximisation of opportunities for our knowledge management processes
- Reputation

Knowing what we need to do

Knowing how to get there: sharing best practice and best use of resources.

Underpins and essential to success of the regional clinical service model.
Benefit to / resource for all partners in delivering quality cancer care.
Synergies and opportunities of planning and delivering these functions together.

Summary & Conclusion

1.1.130 We have the opportunity to develop non-surgical cancer services in a way that supports and improves services for a generation or more, across the region. If we do not seize this, the increasing incidence of cancer and rising demand on services will have the opposite effect – reducing quality, worsening access and patient experience. Outcomes from treatment will be worse and the cost to healthcare, society and the population of South East Wales will increase.

1.1.131 We owe it to our patients to respond to this need in a planned, collaborative manner. The health care system looking after the people affected by cancer is complex, with teams interdependent on others. We are keen to play our part alongside partners – supporting them and when beneficial, playing a leading role.

Our service model describes a vision for non-surgical cancer services that maintains and improves quality, allows care to be delivered more locally in a way that copes with increasing demand prudently and efficiently. It transforms care from a system that is struggling and moving away from the principles that patients tell us are important to a patient focused, locally delivered care model.

It also supports the long term sustainability of care by placing those affected by cancer at the centre of planning and delivery and by focusing on service improvement, research, education and innovation to deliver an agile system that can respond and change as new treatment developments. Cutting edge cancer care will be delivered, in modern facilities with modern equipment with the ability to continuously develop the service and to contribute to the evidence base defining best standards of care for others to follow.

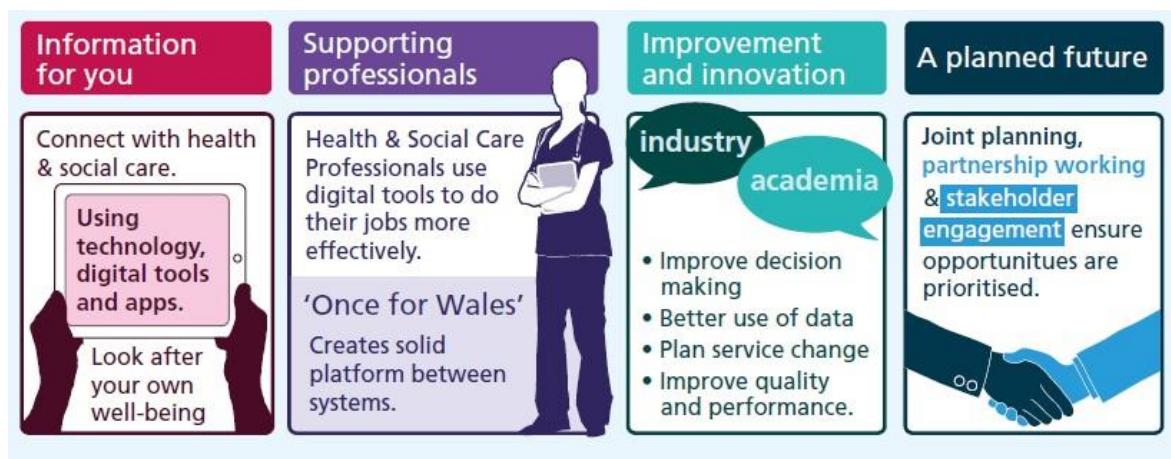
It will create a regional model of care that the people affected by cancer and the staff who care for them can be proud of. It will require teams and people to work differently, to be open to change and to collaborate, placing patients at the centre of decisions to deliver non-surgical cancer care that is shaped around their needs and priorities.

2 VELINDRE NHS TRUST INFORMATICS & DIGITAL EXCELLENCE

2.1.1 Velindre NHS Trust has been implementing significant developments in Information Management and Technology (IM&T) systems which have been a combination of national programmes, internationally used systems and bespoke local developments all of which have enabled the transformation of services for professionals, patients, and donors. The Trust however must continue to develop its IM&T to support the organisational and clinical priorities and to ensure that next generation IM&T is used to enhance service delivery.

2.1.2 At the heart of the informatics vision are the four principles from the “Informed Health and Care: A Digital Health and Social Care Strategy for Wales” (2015).

Figure 2-1: Informed Health and Care: A Digital Health and Social Care Strategy for Wales



2.1.3 Velindre NHS Trust has produced an ambitious strategic programme, “**Digital Excellence**”, which over the next five years, will implement a range of national technology solutions, while growing our capacity and capability to embrace innovative technologies. This is based on the fundamental premise that high quality healthcare in the 21st century cannot be delivered with out of date or obsolete legacy systems, and/or paper based information recording and delivery.

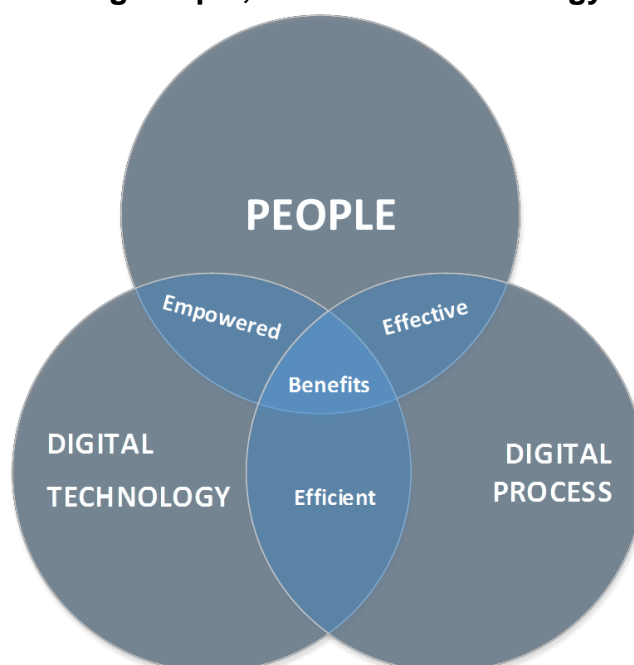
2.1.4 To this end, VCC aims to take a lead on building international partnerships and working in collaboration with NHS Wales Informatics Service (NWIS) and other Local Health Boards to develop robust, shared designs for modern health information systems delivered “Once for Wales”.

2.1.5 Velindre continues to support the development and delivery of national products and services working in partnership with NWIS. In the short to medium term, the approach will be to identify opportunities that maximise the benefits of investment in existing information and technology in order to provide more joined-up service provision. This approach will support

prioritised service improvements and ensure the workforce becomes familiar with increased ways of digital working.

- 2.1.6 By utilising IM&T as a critical enabler to support service transformation, Velindre aims to fundamentally redesign administrative, operational and clinical processes to maintain high levels of data quality, and not only ensure information is accurate and up to date, but also embedding state of the art technologies to deliver exceptional services.
- 2.1.7 Our digital working is aligned to the Trust’s organisational strategy, “**Building Excellence**”, which once digitally enabled, will be more empowered, efficient and effective in realising the benefits intended from implementing digital systems. As shown below, people with access to digital technology are more empowered, people following digital processes are more effective and digital processes powered by digital technology are more efficient.

Figure 2-2: Joining People, Process & Technology



- 2.1.8 The Transforming Cancer Services Programme provides Velindre with the platform to showcase new technology and embed national standardised ways of working to deliver our core services. A key principal for our vision is:
To provide a modern, fully integrated, location independent, electronic view of information, in order to support high quality delivery of services
- 2.1.9 The refreshed *Cancer Delivery Plan for Wales 2016–2020*¹ highlights the need to set the strategic direction for cancer information and intelligence and align it to the overarching NHS Wales Informed Health and Care Strategy. In order to deliver, there is a clear need for the collection, retrieval, linkage and

¹ <http://gov.wales/docs/dhss/publications/161114cancerplanen.pdf>

distribution of cancer data, information and health intelligence to be delivered through a robust and integrated approach.

2.1.10 By using technology to enable information about cancer services and outcomes to be more available to patients, it is our ambition that this will support them to make the right decisions about their care.

2.1.11 Clearly, this information needs to be up-to-date, accurate and available across organisational boundaries, wherever services are being delivered. Making this a practical reality for our staff and patients is a significant challenge in light of the continued reliance on the number and variation in applications in use across the organisation; across the whole of NHS Wales and the level of investment in technology required to enable and sustain change and modernisation.

“Digitally Enabled, Patient Centred Services”

The future vision for a Cancer patient in Wales is one that is informed and empowered across their complete treatment pathway. Furthermore by personalising the pathway, the patient will be able to make informed decisions regarding their planned care.

In linking the four strands of the digital health strategy, the following outlines how the Transforming Cancer Services programme utilises digital technology to provide Cancer services appropriate to the 21st Century.

Information for you

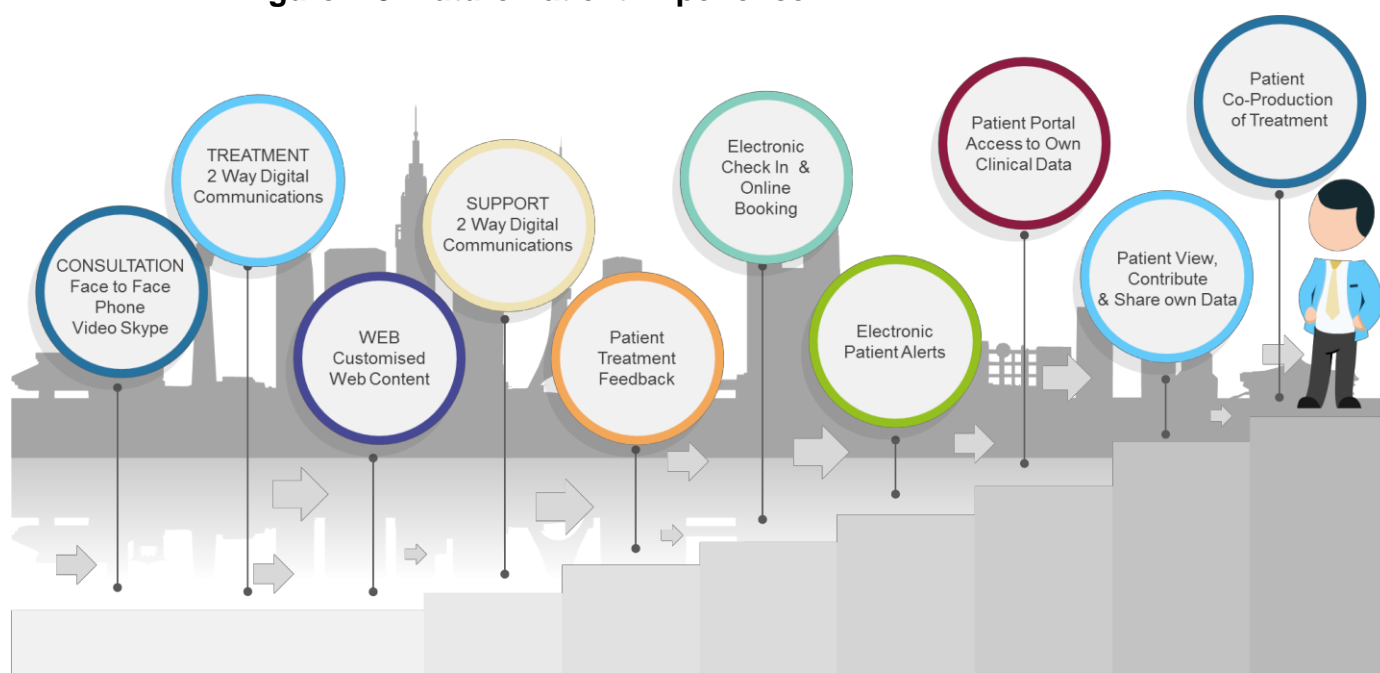
“People will be able to look after their own wellbeing and connect with health and social care more efficiently and effectively with online access to information and access own records. Organisational boundaries are not barriers to effective care as information is available electronically and joined up.”

Velindre patients generally feel well supported and indeed describe an overwhelmingly positive experience of cancer services but modern technology enables us to create a new ‘digital’ 2 way relationship with people affected by cancer. We recognise that we need to develop this new relationship which will ensure patients, carers and healthcare professionals have appropriate access, expertise and support to use this new technology. This will require education, investment in new systems and a change in culture for people affected by cancer and healthcare professionals alike.

2.1.15 Through the use of digital technology Patients will be able to look after their own well-being and connect with health and social care more efficiently and effectively, with online access to information and their own records; undertaking a variety of health transactions directly, using technology, and using digital tools and apps to support self-care, health monitoring and maintain independent living.

- 2.1.16 The focus of the future clinical design will be patient centred rather than healthcare centred ensuring the patient has access to the service and data they require in the manner that is most appropriate to them; at that specific point in time of their treatment.
- 2.1.17 Furthermore we plan to empower the patient to book the service mode that suits them best. They may choose to book a skype call with a clinician either for video or audio, reducing the need for sometimes challenging commuting; yet still able to discuss on the call the contents of their test results and their treatment with full access to the information in the hands of the patient. The patient will also share this information with other health professionals of their choosing and at their own discretion. This will further reduce the burden on them to travel and queue and enable them to preserve their strength.
- 2.1.18 In addition to this, through enhance information services, the public will have access to support in order for them to lead healthy lives. Where cancer does occur, they and their carers will have access to understandable information in a form personal to them to ensure they can actively participate in their cancer care and make the right choices for them.

Figure 2-3: Future Patient Experience



Velindre Patients will:

- View their information through online access to their records, supporting them to make better decisions about their health and care and take more control of their well-being, in line with principles of prudent healthcare and sustainable social services. They should also be able to submit their own advance care plan(s) for inclusion into “their” health care record.

- ☐ Amend their records, feeding in details they may have gathered from other sources, such as apps and wearable devices, to play an active part in developing and improving the quality of the information held about them and their health and well-being.
- ☐ Routinely use digital apps, wearable devices and other online resources to be well-informed and active participants in their care, able to make informed decisions and lifestyle choices to maintain their well-being.
- ☐ Connect online with health and care services in the same way they do with other aspects of their life. They will be able to book appointments online, order repeat prescriptions and use the internet, email and video conferencing to connect with clinicians and care professionals in a way that suits them, potentially reducing delays and costs to the service and service users.
- ☐ Use digitally-enabled services to monitor long-term conditions and daily tasks to support independent living for those individuals and families where this is required.

Supporting professionals

“Health and social care professionals will use digital tools and have improved access to information to do their jobs more effectively with improvements in quality, safety and outcomes. Focus on cultural change, knowledge and skill development to enable “our people” to work well within a digital enabled environment and make the most of emerging opportunities.”

Velindre professionals will use digital tools and have improved access to information to do their jobs more effectively with improvements in quality, safety and efficiency. A ‘Once for Wales’ approach will create a solid platform for common standards and interoperability between systems and access to structured, electronic records in all care settings to join up and co-ordinate care for service users, patients and carers.

For the first time healthcare professionals will have access to a single health record which will contain all relevant previous information for that patient and allow them in turn to communicate regarding care plans and holistic needs assessments with the rest of the cancer community supporting the patient across their care pathway.

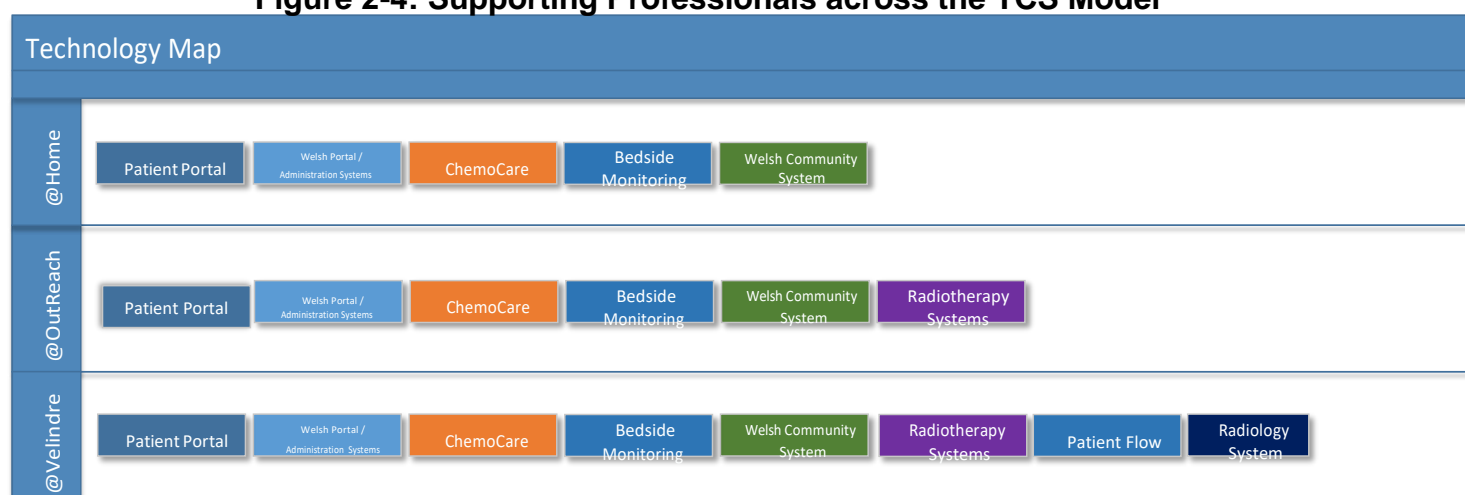
“Capture Once, Use Many Times”

- 2.1.21 As the cancer pathway is complex and crosses many interfaces between people and organisations the future design will remove the previous silos of information that existed between legacy systems and organisations. The focus of the future design will be patient centred rather than healthcare centred while

still ensuring the professional has access to all the services and data that they require.

- 2.1.22 The replacement for Patient Administration System (PAS) and Electronic Patient Record (EPR) workflows will capture the essence of the current design of IMT services at Velindre and integrate these into an improved national design to create a more patient centred and nationally data integrated modern and reliable system design.
- 2.1.23 Patient data such as results and reports will be accessed in a national design portal service which will be able to filter and retrieve data from all over Wales to present a clear picture to clinicians of the most relevant patient data for that point in time.
- 2.1.24 Furthermore, systems will be accessible via a number of different methods to suit the data and method available so for example test results could be viewable or requested on a handheld device for convenience but larger handheld devices would be used where better views of data were required such as in portals. Keyboards, voice dictation or laptops would be accessible for more detailed reporting requirements.
- 2.1.25 Velindre will be at the forefront of this technology roadmap designed to reduce organisational silos and to support patient coproduction for Wales.

Figure 2-4: Supporting Professionals across the TCS Model



Velindre healthcare professionals will:

- Capture information electronically at the point of care delivery, in a structured format so it can be used to provide a common information base and integrated records across all health and social care settings.
- Use information and electronic care records to collaborate fully with citizens, ensuring options and decisions are co-produced and care is co-ordinated and joined-up around the personalised needs of the individual service user, patient and their carer.

- ☐ Use technology routinely in all care settings to support them to do their jobs effectively, with online decision support, electronic records and automated ways of working, to improve quality and safety and reduce risk.
- ☐ Be encouraged and supported to use digital tools that are available to those working in other sectors: email, internet and video conferencing.
- ☐ Use data and information to understand the outcomes they are achieving, to support research and carry out audit, learn from incidents and drive improvements in performance.
- Adopt a 'digital first' philosophy when designing and delivering new services, to promote mobile, flexible, digitally-enabled service and workforce models.
- ☐ Be skilled to work well within a digitally- enabled environment.

Improvement and Innovation

“Make better use of available national data sources and local information in combination with emerging new technologies, to support informed decision making and service planning, population health, research and development. Exploit opportunities for new innovation partnerships for innovative and complex analytics that linked “Big Data” will bring, by utilising new approaches of large scale linked dataset analysis as well as the more traditional methods of turning data into information.”

Velindre will make better use of available data and information to improve decision making, plan service change and drive improvement in quality and performance. Collaboration across the whole system, and with partners in industry and academia, will ensure digital advances and innovation is harnessed and by opening up the 'once for Wales' technical platform allow greater flexibility and agility in the development of new services and applications.

Communication, information and intelligence will be the key enablers for NHS Wales to meet the rising demand for cancer care, to provide complex new treatments and support, to improve outcomes and reduce inequalities for people affected by cancer across Wales. We will use information to ensure that every healthcare professional and patient have access to the information they require at their time of need to enable them to plan and deliver the highest quality of care together. During this period of integration of informatics systems we will maintain the high level of experience that patients receive in Wales. Our plans for integrated systems of care will improve patient outcomes, particularly survival, through prevention and timely access to diagnosis and effective treatments. We must though also build in an 'engine' for innovation

and transformation if we want cancer services to be comparable with the best in the world.

- 2.1.28 Organisations, providers, practices and teams must know how well they are performing at individual, cohort and population levels. This will allow systems to share best practice and commissioners and providers to focus on those areas that are less than the best.
- 2.1.29 Such secure databases of linked information automatically collected from source, and with appropriate information governance applied, are ‘gold mines’ to be exploited by research teams and commercial industry to understand the value of current treatments and systems of care and to develop new ones.

As technology and medicine continues to develop, the ambition in cancer care is personalised medicine or precision oncology. This will be delivered through information from the patient, their cancer, diagnostic tests and treatments determining the right treatment for that patient’s disease at that time. Information systems will provide linked information, complex analysis and algorithmic continuous learning. Artificial intelligence will play an increasing role in healthcare diagnostics and therapeutics, and we will provide the information for these new systems in a timely and usable way.

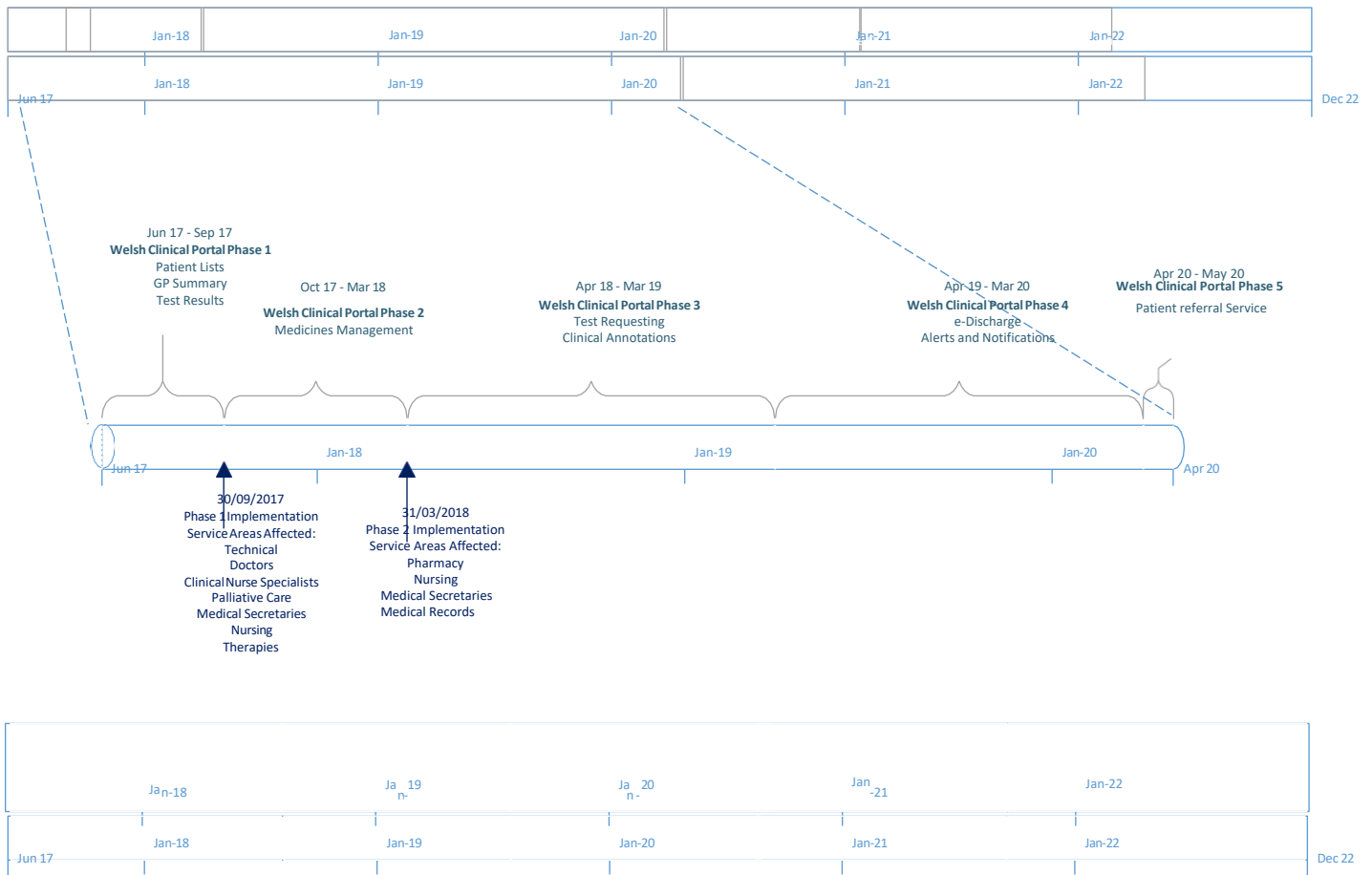
Velindre are committed to:

- ☐ Focusing on making better use of national data sources and local information to support informed decision making and improve cancer service planning, population health, research and development.
- Build a more ‘open’ technical platform to allow greater flexibility in the development of new applications based on clear national cancer standards and system interoperability.
- ☐ Engage with stakeholders in refreshing our plans and co-designing our digital future: frontline staff, citizens, third sector organisations, industry and university partners, nationally and internationally, to provide a new approach to harnessing innovation, learning from what works elsewhere and adopting these solutions in an agile, rapid and responsive way to realise the benefits and achieve better outcomes for the people of Wales.

A Planned Future

“Joint planning, partnership working and stakeholder engagement across NHS Wales involving the third sector and academia to ensure opportunities are prioritised and realisation of benefits.”

Figure 2-5: Velindre Cancer Centre 5 year plan for Informatics



2.1.31 Increasing use of technology and future cloud services supported by electronic authentication services for security such as swipe cards and biometrics will enable staff to work with less restriction of organisational boundaries.

2.1.32 Patient's accessibility to their own data and co-production with patients is predicted to increase as more systems become more capable of this. Collaboration with external partners will also be partly driven from this.

2.1.33 Although organizations have a statutory duty to provide healthcare for their resident population, they now have a duty of care to not let geographical or pathway boundaries get in the way of providing access to effective, efficient, excellent and equitable care to the people of Wales. This will be achieved through the strategic planning of services at a National, regional and local level, through bold and decisive leadership and a workforce committed to both deliver high quality and safe care and to continuously improve that care. Data, information and intelligence are key to underpinning both planning and continuous improvement in integrated healthcare services.

"If Velindre integrates patient information then they can integrate patient care"

3 KEY SERVICE REQUIREMENTS

3.1 Introduction

3.1.1 This purpose of this section is to outline the key service requirements in relation the proposed Service Model:

- Future capacity requirements; and
- Future workforce requirements.

3.2 Modelling future demand, capacity and workforce

3.2.2 The Trust has developed a comprehensive activity model to project future demand for cancer services in South East Wales.

3.2.3 2016/17 has been used as the baseline activity year for the model. The 2016/17 data set has been subject to rigorous review to ensure accuracy and completeness with an external data validation exercise being undertaken to assure a robust baseline position.

A blueprint for the demand, capacity, workforce and financial model has been produced and approved by the TCS Programme Management Board. The functionality of the model has been subjected to quality assurance tests by the Trust's advisory team GE Healthcare Finnamore and by the Trust Programme Team.

3.3 Structure of the activity and capacity model

3.3.1 Demand projections are based on the Trust's planning and principles document. This covers the period 2016/17 (the baseline year) to 2031/32.

3.3.2 The base data was subject to comprehensive review and further work was undertaken by the Trust to improve its accuracy and completeness, prior to commencing the modelling of projected future activity.

3.3.3 Projected capacity for all clinical areas which are activity driven within the model form the basis of the functional content and schedule of accommodation. Where improvements in utilisation and efficiency have been agreed, these were applied to the capacity outputs.

3.3.4 Future workforce requirements include the impact of service redesign as well as growth in activity and efficiency improvements within the demand and capacity elements of the model. This is a core part of the model and a considerable amount of time has been spent with clinical teams to ensure a comprehensive representation of the future workforce requirements.

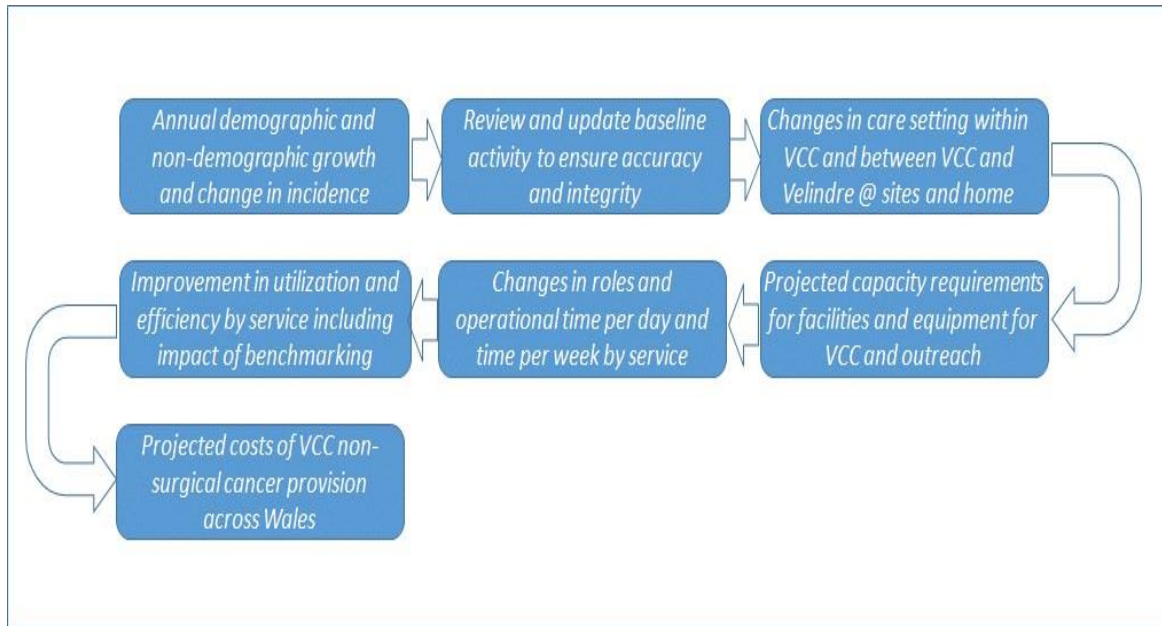
3.3.5 A series of workshops have also been held with clinical teams to discuss and agree modelling units, drivers, utilisation and efficiency assumptions and to

consider modernisation opportunities, including potential extensions to the working day and working week.

3.3.6 Forecast expenditure requirements are expressed in real terms (i.e. net of inflation). The model allocates non-pay costs to workflows and pay costs by WTE (for the mid-point in each grade) by workflow for the baseline and subsequent years.

3.3.7 The steps within the model are summarised in the diagram below.

Figure 3-1 Steps in developing model



3.3.8 Each of the four elements of the model have been reviewed by the Trust's Informatics, Workforce & OD and Finance teams to test the logic and assumptions underpinning the model and changes were made to the model where these were deemed necessary.

3.4 Key modelling assumptions

3.4.1 The assumptions used to drive the model were developed by the Trust and approved by the TCS Programme Management Board. The key drivers are outlined below.

Table 3-1: Key growth assumptions

Service	Annual growth assumption/years	
	2016/17 - 2022/23	2023/24 – 2031/32
Radiotherapy	2%	2%
SACT	5%	2%
Inpatients	2%	2%

Service	Annual growth assumption/years	
	2016/17 - 2022/23	2023/24 – 2031/32
Outpatients and Ambulatory Care	2%	2%
Radiology (CT & MRI) and Nuclear Medicine	9%	2%

3.4.2 Forecast capacity requirements are outlined in the Table 7-2 (see Appendix PBC/SC.S7 for individual LHB activity information packs).

Figure 3-2: Projected capacity requirements to 2031/32

3.5

Capacity Requirements		Update with 2016/17			
		2016/17	2021/22	2031/32	
Operational Requirements Ambulatory Care (chairs) 2016/17 data calculated from warehouse - source CANISC Diagnostic Imaging (machines) 2016/17 data calculated from warehouse - source RADIS (original baseline 2014/15 figures included cancellations. This has been removed for 2016/17 baseline) The number of different operational models for the new service. The operating scenario assessment process was designed to validate the following: • Ensure there is sufficient capacity to meet projected demand for cancer services provided by Velindre;	Total	6.5	7.6	9.3	
	VCC	4.6	4.2	5.1	
	Outreach	2.0	3.4	4.2	
	Total	CT	1.0	1.5	1.9
		Interventional	0.0	0.0	0.0
		MR	1.0	1.6	1.9
		Nuclear Medicine	0.0	0.0	0.0
		Plain Film	0.1	0.1	0.2
		Screening	0.0	0.0	0.0
		Ultrasound	0.2	0.2	0.3
	VCC	CT	1.0	1.3	1.6
		Interventional	0.0	0.0	0.0
		MR	1.0	1.3	1.6
		Nuclear Medicine	0.0	0.0	0.0
		Plain Film	0.1	0.1	0.1
		Screening	0.0	0.0	0.0
		Ultrasound	0.2	0.2	0.2
	Outreach	CT		0.2	0.3
		Interventional		0.0	0.0
		MR		0.2	0.3
Nuclear Medicine			0.0	0.0	
Plain Film			0.0	0.0	
Screening			0.0	0.0	
Ultrasound			0.0	0.0	
Inpatients (beds)	Total	40.2	56.9	668.6	
	VCC	40.2	50.2	57.3	
	Outreach		6.8	11.3	
Outpatients (rooms)	Total	21.0	30.4	36.2	
	VCC	17.8	23.7	22.6	
	Outreach	3.2	6.7	13.6	
RT prep (rooms)	Total	3.9	4.7	5.4	
	VCC	3.9	3.5	4.3	
	Outreach		1.1	1.1	
RT (linac)	Total	7.7	9.1	9.7	
	VCC	7.7	7.5	7.8	
	Outreach		1.5	1.9	
RT Non Linac	Total	0.1	0.1	0.1	
	VCC	0.1	0.1	0.1	
	Outreach				
SACT (chairs)	Total	25.5	27.0	32.9	
	VCC	16.6	12.1	14.8	
	Outreach	7.7	12.1	14.8	
	Home	1.3	2.7	3.3	

3.5.1

ed a number of different operational models for the new service. The operating scenario assessment process was designed to validate the following:

- Ensure there is sufficient capacity to meet projected demand for cancer services provided by Velindre;

- Meet patients' needs and aspirations for the availability of treatment over extended operating time;
- Demonstrate to the Local Health Boards that the Trust is transforming the way in which it provides services to achieve optimum value for money; and
- Ensure that the capital costs for the scheme do not exceed the £210m limit set by the Welsh Government.

3.5.2 All of the above were viewed in the context of the need to provide a safe and high quality service and to retain and recruit staff effectively. The scenarios were developed based on different assumptions in relation to:

- The need to extend the working day;
- The need to extend the working week, where services were not already provided on a 7 day basis; and
- Whether these changes should be applied consistently across all services or to individual services.

3.5.3 Eight operating scenarios, including the current model, were evaluated by a multidisciplinary group comprising the TCS Programme core team and clinical service leads and facilitated externally. The assessment was undertaken based on each scenario's:

- Non-financial assessment which included the extent of alignment with the PBC's investment objectives and Critical Success Factors; and
- Financial assessment as defined by the impact on the estimated unitary charge and Trust pay and non-pay.

3.5.4 The preferred operating scenario (Scenario 8) scored the highest based on a combined non-financial and financial score. This scenario included the following components:

- SACT/Pharmacy: 12 hours, Monday – Friday;
- Radiotherapy: 9.5 hours, Monday – Friday;
- Outpatients: 2 x 3.5 hour sessions, Monday – Friday;
- Acute Oncology Service: 7 days;
- Radiotherapy Urgent Care for Category 1: 7 days; and
- Acute Palliative Care: 7 days.

3.5.4 One of the key features of the preferred operating scenario is providing Category 1 radiotherapy on a 7 day basis which is likely to afford biological advantages from extended treatment availability (see "The Timely Delivery of Radical Radiotherapy: Standards and Guidelines for the Management of Unscheduled Treatment Interruptions", Board of Faculty of Clinical Oncology, Royal College of Radiologists, 2008). The Royal College of Radiologists has stated that "the data reviewed shows very strong evidence that prolongation of overall treatment time affects treatment outcome or local tumour control (cure rates)" for a defined list of tumours.

3.6 Workforce requirements

3.6.1 The projected workforce requirements are set out in Table 7-2.

Table 3-2: Projected workforce requirements to 2031/32

Staff Group	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2031/32
Admin & Trust Wide Services	201.1	210.5	218.9	218.0	221.7	222.3	225.6	265.8	268.0
Allied Health	25.2	22.1	13.8	13.8	19.8	19.8	19.8	19.8	19.8
Medical	67.4	79.6	81.6	82.9	85.6	88.6	93.8	95.2	106.7
Medical Physics	55.3	54.9	57.7	58.6	60.4	66.9	60.2	61.6	64.6
Nursing	167.9	199.5	204.6	191.3	202.8	208.1	223.6	227.1	251.5
Pharmacy	45.5	33.5	31.6	34.3	39.0	39.9	39.0	50.0	47.5
Radiography	108.9	103.4	105.4	107.4	109.5	116.6	116.4	118.9	134.5
Total	671.3	703.6	713.6	706.3	738.9	762.1	778.3	838.3	892.5

Conclusion

The Trust has set out a clear rationale for assessing its future service requirements which are closely aligned to the proposed model of care. It has used established tools and techniques to assess future demand for non-surgical cancer services across South East Wales. This has allowed the Trust to translate anticipated disease incidence into a set of future capacity and workforce requirements up to 2031/32. In doing so it has worked closely with staff groups in establishing what these changes mean for its future workforce which will be embedded within its future strategy.

ANNEX 3: PROGRAMME SPENDING OBJECTIVES

Introduction

3.7.2 The purpose of this section is to outline the spending objectives for the Programme. The spending objectives provide a basis for appraising potential options and for post-project evaluation.

Spending objectives

3.7.3 The following TCS Programme spending objectives (PSOs) were developed at stakeholder workshops, which were attended by representatives with a broad range of service views:

Spending objective 1: To provide patients and carers with quality services that deliver optimal clinical outcomes;

Spending objective 2: To deliver sustainable cancer services to the population in the most effective way;

Spending objective 3: To be a leader in education, research, development and innovation; and

Spending objective 4: To comply with all relevant standards.

3.7.4 The spending objectives were approved by the TCS Programme Management Board who provided the Trust Board with assurance that they were:

- Aligned with the national context for healthcare developments in Wales
- Aligned with the Velindre cancer strategy and with the strategic context of the TCS Programme;
- Specific, measureable, achievable relevant and time-constrained (SMART); and
- Focused on business needs and vital outcomes rather than potential solutions.

3.7.5 The spending objectives were subsequently shared and agreed with Welsh Government.

Anticipated Outcomes

3.7.6 The four PSOs are shown in Table 8-1 along with anticipated outcomes.

Table 0-1: Spending objectives and outcomes

Spending objective	Anticipated outcomes
<p>PSO1: To provide patients and carers with quality services that deliver optimal clinical outcomes</p>	<ul style="list-style-type: none"> • Improved cancer survival rates. • Improved mortality rates. • Increase in care delivered closer to home. • Increased access to radiotherapy. • Improved patient safety. • Recruitment and retention of workforce. • Enhanced patient and carer experience.
<p>PSO2: To deliver sustainable cancer services to the population in the most effective way</p>	<ul style="list-style-type: none"> • Reduced unit cost for all services. • Improved utilisation of equipment, building and staff resources. • Sufficient service capacity to meet demand. • Skilled, high calibre, motivated and patient focused workforce. • Reduced energy consumption and carbon emissions.
<p>PSO3: To be a leader in education, research, development and innovation</p>	<ul style="list-style-type: none"> • Increased number of clinical trials available for patients. • Increased percentage of patients recruited into interventional clinical trials for each cancer site. • Increased percentage of patients recruited into clinical trials for each cancer site. • Increased number of patients consenting to donate tissue. • Increased number of trials sponsored by Velindre. • Increased number of clinical trials with Velindre named chief investigators. • Improved patient education concerning condition, care and treatment.
<p>PSO4: To comply with all relevant standards</p>	<ul style="list-style-type: none"> • Attainment of national indicators for cancer care and meeting best practice standards. • Provision of support to LHBs in achieving waiting time targets. • Compliance with building regulations and standards. • Compliance with all recognised environmental standards.

Conclusion

3.7.7 In setting out the spending objectives for the Programme the Trust has sought to clearly describe what it and its partners are seeking to achieve. These have been used to inform the anticipated benefits that the Programme will deliver as well as set the basis for post-Programme evaluation which will assess the extent to which these objectives have been realised.

Chapter Summary:

- TCS Programme spending objectives developed at stakeholder workshops, which were attended by representatives with a broad range of service views;
- Spending objectives were approved by the TCS Programme Management Board
- Spending objectives shared and agreed with Welsh Government.

ANNEX 3: Appraisal of Operational Delivery Models

1.0 Purpose

1.1 The purpose of this document is to provide a description of:

- The operational models considered by the Trust for meeting forecast activity levels
- The options appraisal of the potential operational models.

2.0 Introduction

2.1 The Trust has evaluated a number of different operational models for the nVCC Project. The operating model assessment process was designed to test each option against the following important factors:

- To provide sufficient capacity to meet forecast activity levels
- To meet patients' needs and aspirations for the availability of treatment over extended operating time
- To demonstrate to the Local Health Boards that the operational model provides value for money
- To ensure that the capital cost of the scheme does not exceed any affordability threshold set by WG.

2.2 All of the above were viewed in the context of the need to provide a safe and high quality service and to retain and recruit staff effectively. The scenarios were developed based on different assumptions in relation to:

- The need to extend the working day;
- The need to extend the working week, where services were not already provided on a 7 day basis; and
- Whether these changes should be applied consistently across all services or to individual services.

3.0 Short-listed Operation Models

3.1 Eight operating scenarios, including the current model, were evaluated by a multidisciplinary group. The assessment was undertaken based on each scenario's:

- Non-financial assessment which included the extent of alignment with the Projects Spending Objectives and Critical Success Factors
- Financial assessment as defined by the impact on the estimated unitary charge and Trust pay and non-pay.

3.2 The clinical operational model, for core clinical services, for each of the eight short-listed operational models is summarised in *Table 1*.

Table 1 – Short-listed Operational Models

Scenario	Definition
1. 5 day service	<ul style="list-style-type: none"> • Current model of operational availability based on (2 sessions per day) 5 days per week except inpatients (24/7).
2. 6 day Service	<ul style="list-style-type: none"> • SACT, Pharmacy, Outpatients and Radiotherapy services delivered 6 days (2 sessions per day) per week • Inpatient services operated on a 24/7 model • All support services available to support above clinical operational model.
3. 7 day service	<ul style="list-style-type: none"> • All services delivered assumed 7 day (2 sessions per day) per week • Inpatient services operated on a 24/7 model.
4. Hybrid of extended working day	<ul style="list-style-type: none"> • SACT, Pharmacy and Outpatients services delivered 6 days (2 sessions per day) per week • Radiotherapy service open 7 days, 9.5 hours per day • Inpatient services operated on a 24/7 model • All support services available to support above clinical operational model.
5. Extended working day	<ul style="list-style-type: none"> • Outpatients services delivered 5 days (3 sessions) per week • SACT & Aseptic Pharmacy services delivered 12 hours per day for 5 days per week • Radiotherapy services delivered 10.5 hours per day for 5 days per week • Inpatient services operated on a 24/7 model • All support services available to support above clinical operational model.
6. Extended working day	<ul style="list-style-type: none"> • Outpatients services delivered 5 days (3 sessions) per week • SACT & Aseptic Pharmacy services delivered 14 hours per day for 5 days per week • Radiotherapy services delivered 11 hours per day for 5 days per week • Inpatient services operated on a 24/7 model • All support services available to support above clinical operational model.
7. Extended working week hybrid	<ul style="list-style-type: none"> • Outpatients services delivered 5 days (3 sessions) per week

	<ul style="list-style-type: none"> ● SACT & Aseptic Pharmacy services delivered 12 hours per day for 5 days per week ● Radiotherapy services delivered 10.5 hours per day for 5 days per week ● 7 day Radiotherapy urgent care on an on-call basis for Category 1 and acute palliative care ● Inpatient services operated on a 24/7 model ● All support services available to support above clinical operational model.
8. Extended working week hybrid	<ul style="list-style-type: none"> ● Outpatients services delivered 5 days (2 sessions) per week ● SACT & Aseptic Pharmacy services delivered 12 hours per day for 5 days per week ● Radiotherapy services delivered 10.5 hours per day for 5 days per week ● 7 day Radiotherapy urgent care on an on-call basis for Category 1 and acute palliative care ● Inpatient services operated on a 24/7 model ● All support services available to support above clinical operational model.

4.0 Appraisal of the Short-listed Options

4.1 The short-listed options were evaluated and scored against the following Critical Success Factors and Spending Objectives.

Critical Success Factors:

Critical Success Factor 1- Workforce capacity and capability - Which option provides us with the right competences, skills and numbers of workforce to meet forecast need?

Critical Success Factor 2- Achievability - How achievable is the delivery of the option? - does the workforce exist and can we access? If not can we train our own / create a market / work with universities / training providers?

Critical Success Factor 3- Strategic Fit - How is the option aligned with current WG strategies relating to workforce? How is the option aligned to the Trust OD strategy? How is the option aligned to the principles of prudent health?

Spending Objectives:

Spending Objective 1- To provide patients and carers with quality service that deliver optimal clinical outcomes - To what extent would the option contribute to improved quality of services?

Spending Objective 2- To deliver sustainable cancer services to the population of SE Wales - To what extent would the option ensure that service provision

was sustainable in the long-term? To what extent would the option provide us with the flexibility to respond to changes in the internal or environment?

Spending Objective 3- To be a leader in education, research, development and innovation - To what extent would the option contribute to our strategic aim to be a leader in education, research, development and innovation?

Spending Objective 4- To comply with all relevant standards - To what extent would the option enable us to comply with relevant standards?

The result of the initial evaluation showed that eight was the preferred model this was confirmed after a number of additional sensitivity analyses were undertaken.

- 4.2 The short-listed options were then subjected to a financial appraisal. This involved an assessment of the capital and revenue implications of each of the short-listed options.

5.0 Evaluation Framework

- 5.1 A number of workshops were facilitated by GE Finnermore and attended by an appropriate representation of clinical, planning & performance, finance and Workforce & OD. The purpose of the workshops was to evaluate and score the eight operational scenarios that had been collaboratively developed. To enable this the following methodology was followed:

- Identification and agreement of evaluation criteria and weighting
- Ranked in order of importance
- Attribute weighting to each criterion
- Score each option from 0 to 10
- Normalise scores relative to highest scoring option
- Combine with normalised final scores
- Agree a preferred service delivery scenario

- 5.2 *Table 2* summarises the outcome of the non-financial appraisal of the eight short-listed options.

Table 2 – Non-financial Appraisal

	Criteria Weights	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8
Evaluation Criteria	Weighted Scores								
Workforce capacity and capability	15	135	105	75	90	120	90	120	135
Ease of implmentation	25	225	175	75	100	200	175	200	175
Strategic fit	10	40	60	90	80	60	70	80	80
To provide patients and carers with quality service and to improve patient experience	22	110	176	220	176	154	176	198	176
To deliver sustainable cancer services to the population of SE Wales	18	54	108	90	126	162	144	126	162
To be a leader in education, research, development and innovation	7	28	42	63	56	42	49	49	49
To comply with all relevant standards	3	9	24	27	21	21	24	21	24
TOTALS	100	601	690	640	649	759	728	794	801

		Operational Availability Scenarios							
		Additional Days Scenarios			Additional Days & Extended Hours	Additional Session Per Day/ Extended Hours		Additional Days & Extended Hours	
	Scenario	Scenario 1 5 Day Service	Scenario 2 6 Day Service	Scenario 3 7 Day Service	Scenario 4 Extended Working Week Hybrid	Scenario 5 Extended Working Day	Scenario 6 Extended Working Day	Scenario 7 Extended Working Week Hybrid	Scenario 8 Extended Working Week Hybrid
Non-Financial	Weighted Score	601	690	640	649	759	728	794	801
	Normalised Score	75	86	80	81	95	91	99	100
	Rank	8	5	7	6	3	4	2	1
Financial	Raw Score	69.09	69.31	70.94	69.34	70.49	70.18	68.67	68.54
	Normalised Score	99.2	98.9	96.6	98.8	97.2	97.7	99.8	100.0
	Rank	3	4	8	5	7	6	2	1
Combined	Normalised Score	174	185	177	180	192	189	199	200
	Rank	8	5	7	6	3	4	2	1

	£m for 2021/ 22							
Unitary Charge	18.79	17.68	17.02	17.40	18.09	17.79	17.84	17.90
Retained Pay	34.60	35.93	38.22	36.24	36.70	36.69	35.22	35.55
Retained Non-Pay	15.70	15.70	15.70	15.70	15.70	15.70	15.61	15.09
Costs for Scoring	69.09	69.31	70.94	69.34	70.49	70.18	68.67	68.54

6.0 Preferred Option

6.1 Based upon the above analysis the preferred option was identified as option 8. A summary of the main benefits of this option are listed below.

- Achieves forecast activity levels and quality standards without significant out-of-hours premium payments
- Focuses care around delivery benefits/areas of patient need
- Ability to start/deliver Category 1 (radical) and urgent palliative radiotherapy 7 days a week
- Better integrated care, timely input of oncology into Health Board teams
- Admission avoidance, reduces length of stay, enhanced care out of hours, and improved care in the right setting.

7.0 Key Features of the Preferred Option

7.1 The key features of the Preferred Operational Delivery Model are detailed in the following tables.

Inpatients:

- 7.2 The delivery of Inpatient services is based upon four fundamental principles:
- Patients will only be admitted where and when it is essential
 - Wherever possible procedures will be undertaken as a day case (e.g. paracentesis and blood transfusion)
 - Expert clinical advice will be available at the place of admission, in a timely manner.

Current Model	<ul style="list-style-type: none"> • 43 beds including 2 isolation cubicles • A treatment helpline provides a 24/7 service • Open 24hours/7 days a week / 52 weeks a year • 80% bed occupancy.
New Model	<ul style="list-style-type: none"> • 50 beds including 2 isolation cubicles • 4 bed assessment unit operational from April 2018; operating 12 hours a day, 5 days a week until 2022/23 then 12 hours a day 7 days a week. • A telephone helpline will provide a 24/7 service. • Inpatient beds open 24 hours/7 days a week/ 52 weeks a year • 80% bed occupancy • Additional clinical oncology presence in Health Boards to support acute oncology.
Benefits	<ul style="list-style-type: none"> • Admission avoidance and 1.5% reduction in length of stay year on year for 10 years will reduce demand for inpatient services in both VCC and LHB facilities • Better patient experience: more care delivered as day case, fewer admissions and when admitted, more likely to be local to place of residence • Reduced impact of inpatient bed use by non-surgical oncology patients on other aspects of health care system

- More efficient use of inpatient beds
- Greater oncology presence within HBs.

SACT:

7.3 The SACT delivery model builds upon the principles of moving care closer to home by shifting a greater proportion of treatment into the community and local delivery via HB based *Velindre@* facilities. The complexity and safety of delivery, rather than the site of the primary tumour or the stage of the disease will influence delivery location. To further improve access, patients will receive SACT treatments at their nearest delivery site which might not be within their resident HB.

7.4 There will be an enhanced networked model with a number of SACT delivery sites as outline below:

- 45% of activity delivered at the new Velindre Cancer Centre
- 45% of activity delivered at Velindre Outreach Centres
- 10% of activity delivered locally at home/ community.

Current Model	<ul style="list-style-type: none"> • 17 chairs at VCC • 8 hours a day / 52 week a year • 60-80% utilisation depending on day of the week.
New Model	<ul style="list-style-type: none"> • 16 chairs in nVCC • 12 hours a day/ 52 week a year • 85% utilisation.
Benefits	<ul style="list-style-type: none"> • More SACT / SACT procedures delivered within HB / home / community setting • Improved efficiency of SACT delivery • More SACT related procedures delivered locally (e.g. PICC line insertion/ maintenance) • Enhanced opportunities for flexibility/ treatment time choices.

Radiotherapy:

7.5 Radiotherapy Services will be delivered at two locations to provide more comprehensive access to services across South East Wales and to reduce travel times for patients, families and carers:

- At the new Velindre Cancer Centre (80%)
- Radiotherapy Satellite Centre at Nevill Hall Hospital (20%)

7.6 Wherever care is provided by Velindre staff, the standards and quality synonymous with the Velindre brand will be consistent. All radiotherapy accommodation at the new VCC will be purpose built and designed to optimise inter and intra departmental flows and to improve patient experience. Patients

receiving radiotherapy at VCC will have access to the inpatient facilities at the hospital if the patient is unwell and admission is required after treatment or if receiving treatment that is complex in nature necessitating admission.

<p>Current Model</p>	<ul style="list-style-type: none"> • 8 Linacs at VCC (7 clinically operational linacs) • 9.5 hour day • Monday to Friday with emergency cover on weekends • Servicing undertaken within working week • Linac service resilience capacity.
<p>New Model</p>	<ul style="list-style-type: none"> • 8 Linacs at VCC Including a service resilience linac • 9.5 hours, 5 days a week service • 7 days a week service available from 2022/23 to provide urgent palliative, emergency and Category 1 treatment cover at VCC (equivalent to 2 linacs) • 87% utilisation of linac capacity (NRAG recommendation).
<p>Benefits</p>	<ul style="list-style-type: none"> • Best in class facilities providing the best patient experience possible, better access to radiotherapy research and faster adoption of radiotherapy developments/techniques • Improved patient choice • Better integration of VCC and LHB teams. • Improved efficiency of Radiotherapy service delivery; • Access to emergency treatment 7 days/week, will enable more patients to benefit from treatment and planning available without gaps. • For some patients this will result in a reduction in inpatient length of stay as they complete RT earlier • Access to urgent treatment may speed up symptom control, and potentially reduce the length of stay if an IP (HB or VCC), This in turn may improve the patient's experience • Patients: having optimal RT without extended overall treatment time means that patients can avoid having twice daily fractionation.

Outpatients:

- 7.7** The aim of outpatient services are to provide high quality, efficient outpatient care and attendances for new patients, patients currently having treatment (e.g. SACT and radiotherapy) and for those on follow up, delivering this closer to patients' homes utilising technology when beneficial and delivering best value to patients from each attendance. Greater capacity for urgent outpatient review and subsequent treatment will reduce the need for patients to access inpatient or other aspects of unscheduled care. Outpatient delivery sites:
- 55% at the new Velindre Cancer Centre
 - 35% at Velindre Outreach Centres
 - 10 % at home.

Current Model	<ul style="list-style-type: none"> • 24 rooms at VCC • 2 sessions per day, 5 days /week, 52 weeks /year • 75% utilisation of OP rooms for general appointments.
New Model	<ul style="list-style-type: none"> • 28 outpatient rooms at VCC • Reduce DNA rates from 5% to 3% • Improvements taken forward to flatten activity across the working week and increase utilisation to 85% and 70% for MDT secondary contacts, palliative care and trials.
Benefits	<ul style="list-style-type: none"> • More attendances delivered locally to patient, or via telemedicine to improve access. • Reduced impact on other service from increasing demand for non- surgical oncology services. • A shift from inpatient to outpatient/ ambulatory care through access to urgent outpatient appointments/ ambulatory care treatments • More efficient outpatient service: extended roles and technology to support this • Best value to patients created from each attendance through planning and communication.