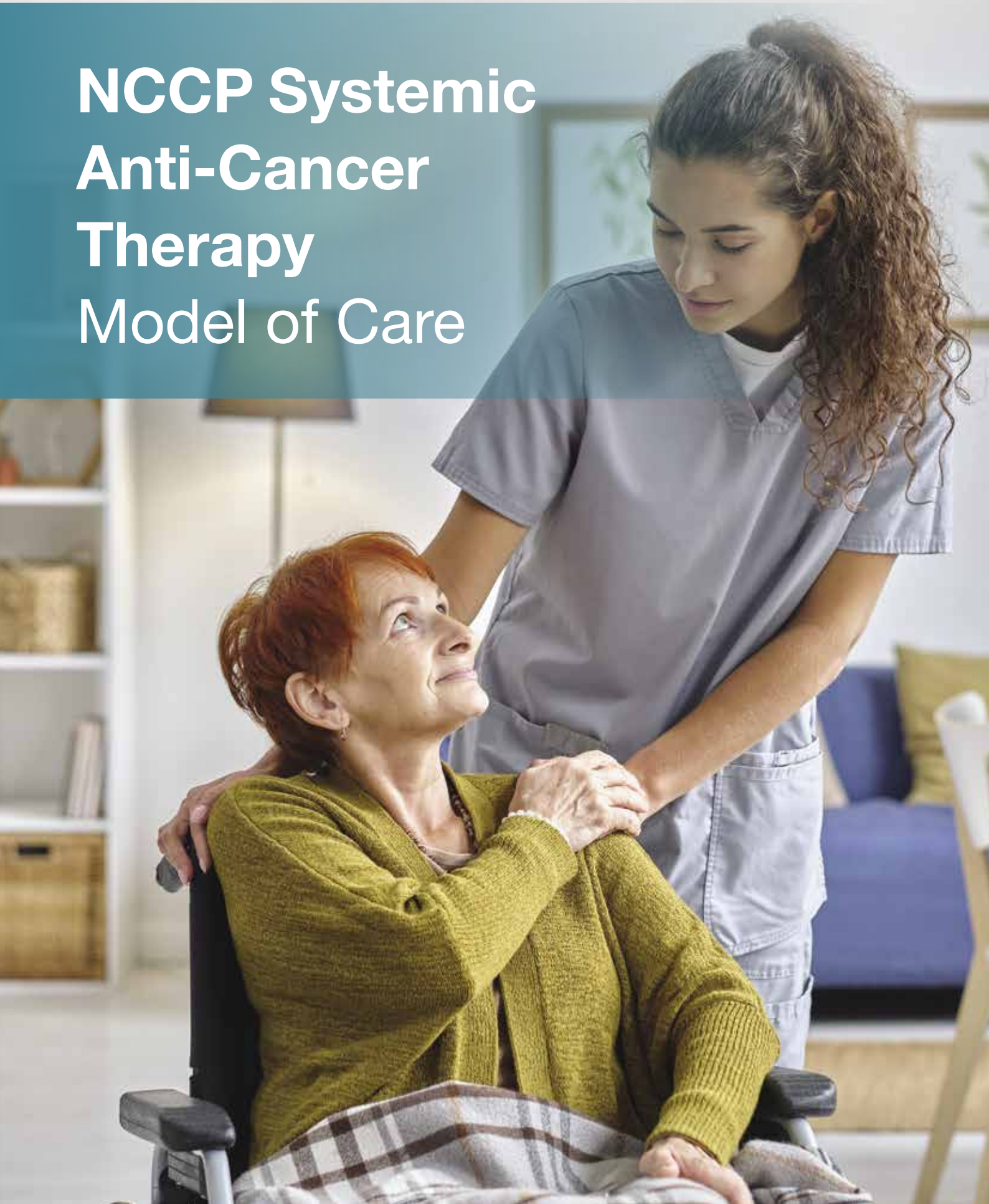
National Cancer Control Programme

NCCP Systemic Anti-Cancer Therapy

Model of Care



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NCCP National Director's Foreword

In Ireland, one in two people is expected to develop cancer in their lifetime. As the incidence and prevalence of cancer in Ireland increases, the importance of implementing the National Cancer Strategy becomes even more urgent. This involves acting at every stage of the cancer pathway, from prevention and early detection, through diagnosis and treatment, ensuring quality of life for all those living with and after cancer and providing appropriate end of life care where needed.

For most people who receive a cancer diagnosis, the treatment they receive can have a very significant impact on them and the lives of their loved ones. It can also have long-lasting ramifications both physically and psychologically. It is critical, therefore, that all cancer services are planned and delivered in a way that makes that difficult journey a more manageable one and delivers the best outcomes for that individual person.

Cancer treatment with curative intent has three principal forms: surgery, radiation oncology and systemic anti-cancer therapy. Most people with cancer will receive one or more of these treatments. The role of systemic anti-cancer therapy in the treatment of cancer has increased substantially over the past 20 years, driven by advances in research and development of cancer drugs and related testing, with increasingly targeted and personalised approaches to treatment. This is hugely welcomed.

The NCCP's Systemic Therapy Programme was established to keep pace with these advances and to develop an equitable, coordinated and evidence-based approach to SACT services, in a way that best supports those providing services to deliver the best care to their patients.

I strongly welcome the development of this Model of Care, which will provide a framework for the continued development of SACT services nationally. The involvement of so many stakeholders in its development, as well as the open consultation process on its contents, can only strengthen its implementation throughout the service.

I would like to thank Professor Maccon Keane for his stewardship in bringing together so many stakeholders in the development of this Model of Care. I also wish to thank all of those who contributed to its development over several years, and to acknowledge the leadership shown by the team in the NCCP in their tireless effort to compile and distil the work and views of so many.

I look forward to this Model of Care guiding the future development and delivery of systemic anti-cancer therapy for the people of Ireland and the learning from its implementation informing the direction for the next Cancer Strategy in the coming years.

Professor Risteárd Ó Laoide
NCCP National Director

Chairperson's Foreword

Ensuring the successful administration of systemic anti-cancer therapy (SACT) to Irish patients with cancer is a major challenge facing the Irish health service.

As background, the incidence of cancer is rising. The National Cancer Registry of Ireland (NCRI) estimates that there will be a 97% increase in the incidence of cancer in Ireland between 2010 and 2040. Medication therapies for cancer are also improving apace. Over the last decade, advances in cancer medicine have delivered SACT for many cancers that were previously untreatable. These advances have also delivered multiple lines of very effective therapies for cancers for which previously there was only moderately effective therapy. We have seen the advent of whole new fields of systemic anti-cancer medications including immunotherapies and targeted therapies. These developments have revolutionised the care of patients with many cancers including kidney cancer, leukaemia, lung cancer and melanoma and cellular therapies are now showing promise in improving outcomes for patients with lymphoma.

Furthermore, radical improvements are happening in our ability to precisely identify patients who will best benefit from a specific anti-cancer medication. Increasingly we can identify the therapy likely to be of maximum benefit by sequencing the individual patient's cancer genome. This diagnostic shift is moving us forward into the era of personalised precision medicine for patients with cancer.

Cumulatively these successes in diagnostics and therapeutics have added to significantly improved outcomes in terms of cancer survival and significantly improved quality of life through reduced side effects of medications for patients with cancer.

These successes and the projections for even greater success have now led to cancer migrating from an acute illness to a more chronic illness for many patients. These successes necessitate development in the way we approach delivery of care to cope with this improvement. From a healthcare stand point, the Irish Health Service Executive (HSE) needs to develop capability and capacity to ensure that patients suffering from cancer receive their SACT in a way that guarantees them best outcomes and prioritises their quality of life.

It is with this as background and on recommendation of the National Cancer Strategy in 2017 that the National Cancer Control Programme (NCCP) was tasked with developing a model of care to cope with the increasing number of patients who are receiving SACT. The core goal of the group was to develop a model of care for delivery of SACT that would guarantee the availability of the very best quality SACT to patients. This SACT is to be delivered in a manner that inconveniences patients as little as possible, maintains the very best quality of life and improves patient outcomes.

The group convened at NCCP under my chairmanship has produced this model which endeavours to deliver SACT as close as possible to the patient's home. This model delivers cancer care under the single governance structure, such that patients can get access to all standard of care SACT including cancer clinical trials wherever they live in Ireland.

The development of this model has been an enormous task under very difficult circumstances. It is a testament to those who sat on the original committee and who later joined the committee that this model has come to fruition despite the great pressures on all working in the health service through both the COVID-19 pandemic and the

Ransomware attack. I would personally like to thank every member of the SACT Model of Care Steering Group for their work and perseverance. I reserve special thanks and praise for the NCCP Systemic Therapy Programme team led by Patricia Heckmann under the leadership of Professor Risteárd Ó Laoide and in particular, AnneMarie DeFrein, Terry Hanan, Cathleen Osborne, Ciara Mellett and for special thanks to Tracy Folliard, all of whose work has cumulatively led to this document. I believe this model will form a template for the highest quality SACT to be delivered to the Irish population over the next ten to twenty years.

Professor Maccon M. Keane M.D., F.R.C.P.I
NCCP Medical Oncology Clinical Advisor
Consultant Medical Oncologist

Acknowledgements

The NCCP Systemic Anti-Cancer Therapy Model of Care Steering Group would like to acknowledge the patients and their families whose input and sharing of their experience within cancer services, expertise and advice has shaped the development of this Model of Care. We would also like to acknowledge the work of Ian Dawkins, NCCP Cancer Intelligence and Rebecca Parkin, administrative support.

The NCCP Systemic Anti-Cancer Therapy Model of Care Steering Group membership is detailed below.

Current Members

- Prof Maccon Keane (Chair), National Clinical Lead for Medical Oncology, NCCP / University Hospital Galway
- Dr Michael Fay, Consultant Haematologist, The Mater Misericordiae University Hospital
- Prof Ray McDermott, Consultant Medical Oncologist, Clinical Trials Ireland
- Prof Patrick Morris, Consultant Medical Oncologist, Beaumont Hospital
- Dr Brian Creedon, Consultant in Palliative Medicine / Clinical Lead, HSE Palliative Care Programme
- John Kennedy, Patient representative
- Patricia Heckmann, Assistant National Director, Systemic Therapy Programme, NCCP
- Tracy Folliard, Systemic Therapy Programme Manager (Project Lead), NCCP
- AnneMarie DeFrein, Deputy Chief Pharmacist (Project Support), NCCP
- Terry Hanan, NCCP National Clinical Lead for Cancer Nursing, NCCP
- Cathleen Osborne, Assistant Director of Nursing, NCCP
- Ozlem McDonnell, Cancer Intelligence, NCCP
- Dr Una Kennedy, GP Liaison NCCP
- Anne Marie Gilmartin, CNMII, IANO – University Hospital Limerick
- Mary Kelly, ANP Haematology, Midlands Regional Hospital Tullamore
- Olivia Flynn, Chief II Pharmacist, University Hospital Limerick
- Grainne Sheill, Senior Physiotherapist, St James's Hospital
- Josephine Earls, Business Manager, University Hospital Limerick
- Karl Silver, Cancer Policy Unit, Department of Health

Previous Members

- Karen Ryan, Consultant in Palliative Medicine / Clinical Lead, HSE Palliative Care Programme
- Tara Byrne, Patient representative
- Fiona McEntee, Patient representative
- Ciara Mellett, Systemic Therapy Programme Manager, NCCP
- Prof Deirdre Murray, Cancer Intelligence, NCCP
- Olivia Grady, CNS, Sligo University Hospital
- Emma Hayes, Lymphoma Clinical Nurse Specialist, St James's Hospital
- Fiona Weldon, CNS St James's Hospital
- Grant Carroll, Chief II Pharmacist, Beaumont Hospital
- Jacqueline Robinson, Cancer Services Manager, St James's Hospital
- Catherine McKenna, Radiation Therapy Services Manager
- Sine Vasquez, Senior Oncology Physiotherapist, Beaumont Hospital
- Declan Whelan, Cancer Policy Unit, Department of Health

Executive Summary

A broad objective of the National Cancer Strategy 2017-2026 (the Cancer Strategy) is to have models of care in place that ensure that patients receive the required care, in a timely fashion, from an expert clinical team in the optimal location.

In line with Sláintecare, the Cancer Strategy advocates that patients with cancer should have access to high quality care staffed by appropriate specialists. While this should be as close to home as possible, including community options, centralisation of specialist high intensity Systemic Anti-Cancer Therapy (SACT) services is required to optimise outcomes for patients.

Provision of SACT services is enabled by appropriate staffing, services and infrastructure in addition to diagnostics. Outcome measurement and reporting as well as clinical trial access and research will ensure that Irish SACT services are quality focused and that patients will have access to a world class service.

The ongoing implementation of the NCCP led National Cancer Information System (NCIS), a key eHealth project, will provide a single SACT longitudinal record which will support the implementation of the Model of Care even more so with the increasing use of Oral Anti-cancer Medicines (OAMs).

The development of this Model of Care focuses on services for adult patients and considered the requirements of Sláintecare, the Cancer Strategy as well as other key strategies. Strategies for the provision of SACT services for children and adolescents and young adults with cancer are being managed in a separate work stream within the NCCP.

The primary aim for all cancer services is to provide evidence-based care that is effective, safe, of high quality and patient-centred, supported by national standards and clinical guidelines. The NCCP is acutely aware of the historic and current challenges that exist in SACT services nationally. This patient-centred SACT Model of Care has been developed collaboratively in order to address these issues and to also provide a strategy for the future of SACT services nationally. An integrated approach across workforce planning, hospital and community services and capital planning as well as the support of all stakeholders will be key to the successful implementation of this Model of Care.

Patricia Heckmann
Assistant National Director NCCP
National Network Lead – Systemic Therapy Programme

1

Background

Cancer has been recognised as a major health concern in Ireland since the establishment of the first Consultative Cancer Council by the Irish Government in 1948 (1). In the past 20 years in particular, Government policy has placed a particular emphasis on the need to properly plan for the growing incidence and prevalence of cancer, with the publication of three national cancer strategies, in 1996, 2006 and 2017 (2-4). In 2007, the NCCP was established in the HSE to lead on the implementation of cancer policies in the health services and to improve performance and patient outcomes in cancer services. The ongoing patient safety and quality improvement agenda in the health service has also benefitted cancer programmes and patient outcomes, as have health promotion and disease prevention initiatives.

Cancer is not a single disease. It includes many diseases that can affect various parts of the body. The number of cancers diagnosed annually in Ireland is increasing, mainly due to a growing and ageing population. According to the NCRI, the cumulative lifetime risk of being diagnosed with an invasive cancer[1] is approximately 1 in 2 for both men and women (5). It is estimated that the number of patients receiving SACT for the treatment of their cancer will increase by an average of 70% between 2015 and 2045 (6). Survival rates from cancer are also significantly improving according to the NCRI (5). This may be attributable to improvements in the prevention, screening and treatment of cancer.

As the needs of our population change, our focus on the way in which cancer care is designed and delivered is evolving. The National Cancer Strategy 2017-2026 recommended the development of a model of care for cancer[2] (4). This approach to organisation of care is recognised by Sláintecare as well as other international healthcare systems to ensure the provision of an architectural framework to support a flexible and responsive delivery system for SACT services (7).

This SACT Model of Care builds on the previous work of the NCCP Systemic Therapy Programme including the NCCP Oncology Medication Safety Review Report (2014) (8) and the NCCP OAM Model of Care (2018) (9). The 25 recommendations of this document (Appendix 1) aim to address the gaps in the Irish healthcare system affecting SACT services as identified through the comparison of current SACT services and international evidence.

1 Excluding non-melanoma skin cancer.

2 The NCCP will further develop the model of care for cancer to achieve integration between primary care and hospital settings at all stages of the cancer continuum, from diagnosis to post treatment care.

1.1 SACT as a Treatment for Cancer

The National Cancer Strategy 2017-2026 describes cancer care as a continuum including prevention, screening, diagnosis, treatment and survivorship with an associated patient pathway as described in Figure 1 and Figure 2 below. SACT is one of the three main treatment modalities alongside surgery and radiotherapy and has led to improved overall survival for many cancers in both the curative and palliative settings (10). The SACT pathway is illustrated in Figure 3 commencing at the point of agreement on the SACT treatment plan through the patients full course of SACT to follow up and discharge or long-term SACT.

Figure 1: Cancer Care Continuum

Figure 2: Patient Cancer Care Pathway

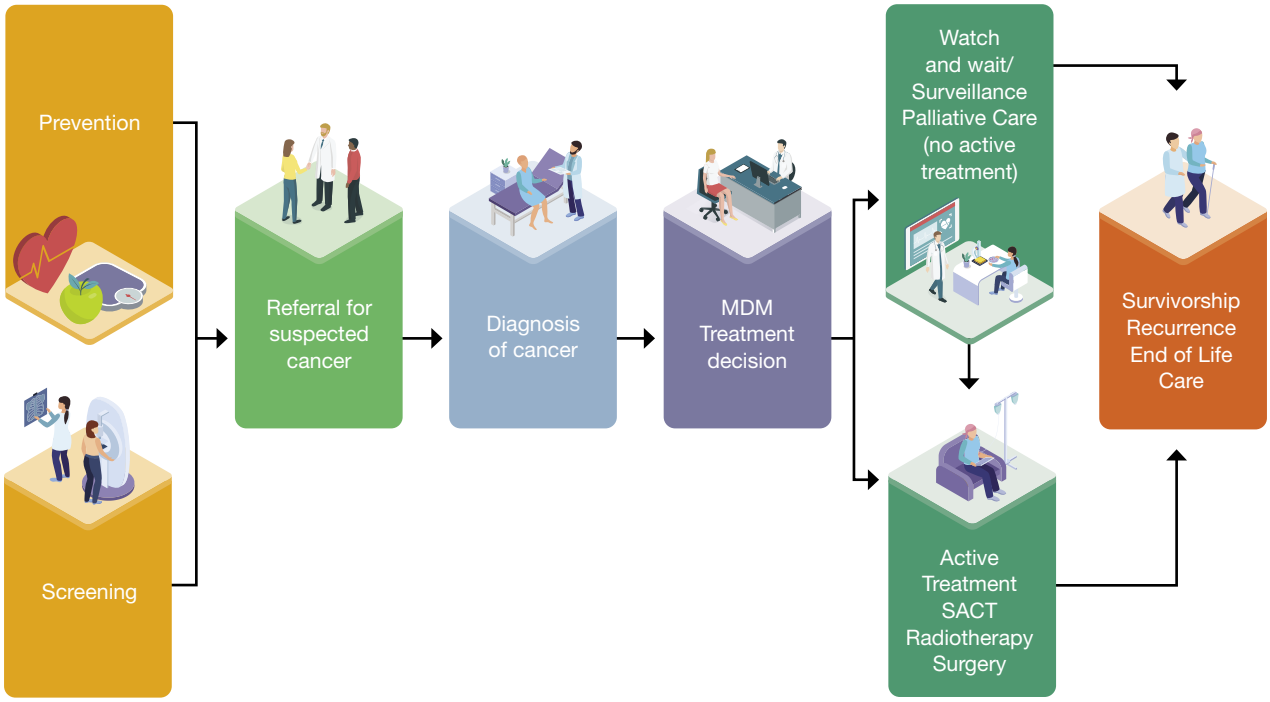
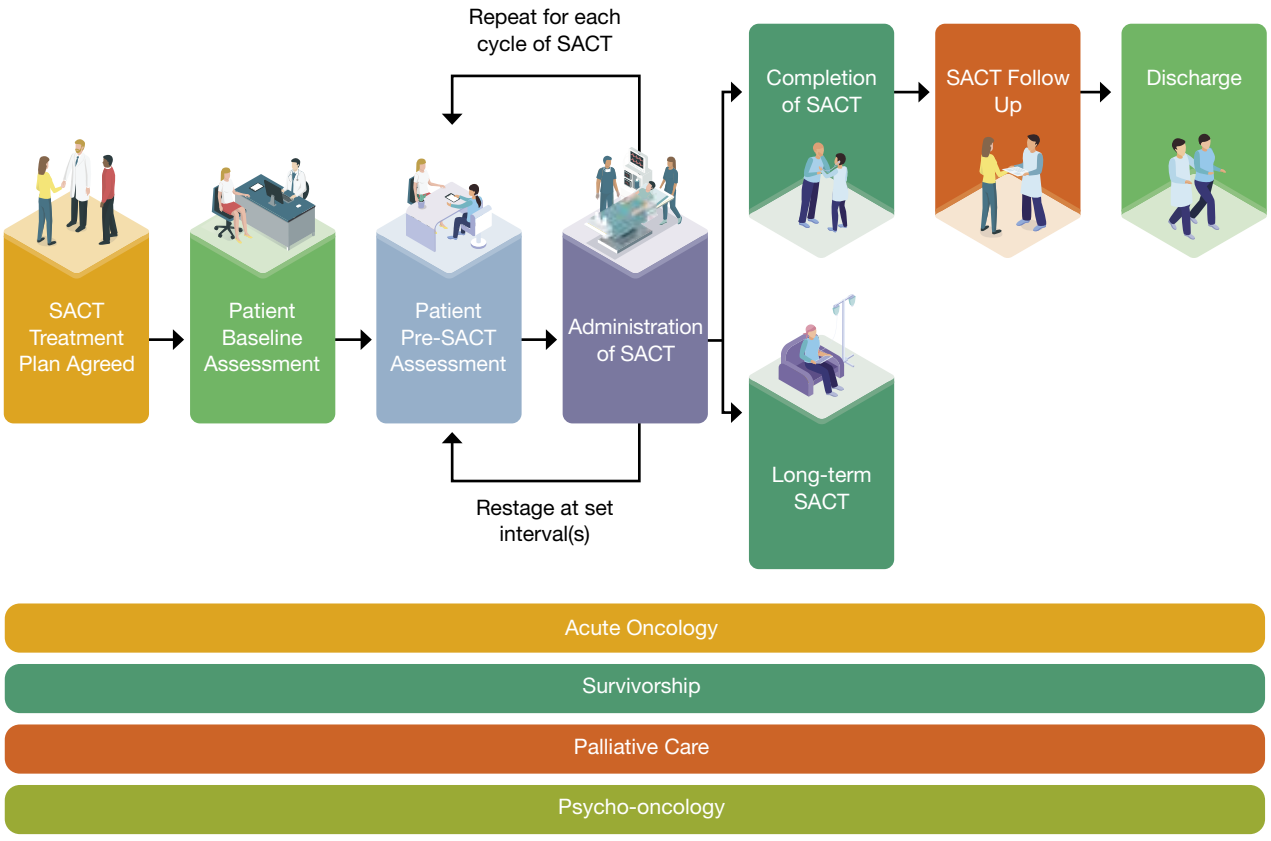


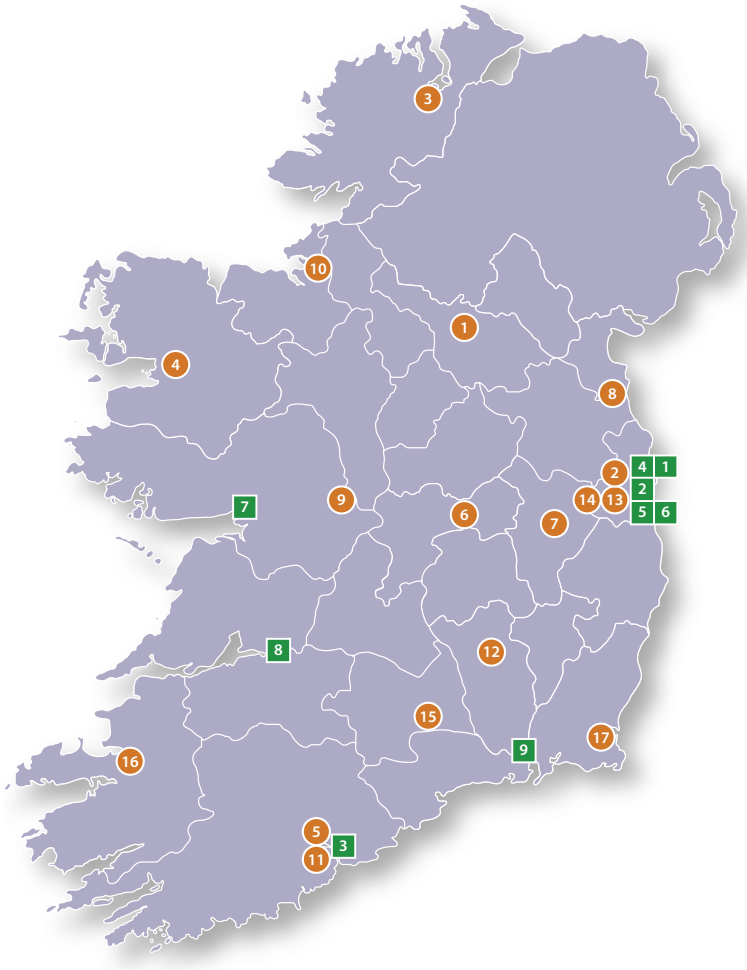
Figure 3: SACT Pathway



SACT is a collective term to describe the growing number of differing therapies used in the treatment of solid tumour and haematological cancers. SACT includes, but is not limited to, chemotherapy, targeted therapies and immunotherapies and can be used on its own or in combination with other cancer treatment modalities such as surgery and radiotherapy as well as being given at various points throughout a patient's cancer journey. Much SACT treatment is time limited but increasingly some cancers may require long term, and in some cases lifetime, SACT treatment compounding the challenges facing SACT service delivery.

SACT can be administered in a variety of ways including parenterally, orally (OAMs), topically or via other routes, such as limb infusion and is often accompanied by supportive medications, such as anti-emetics, growth factors and preventative antibiotics, aimed at the prevention and treatment of its side effects. Parenteral SACT is primarily delivered in 26 publicly funded hospitals including the nine NCCP designated cancer centres as shown in Figure 4; this is most commonly in an ambulatory care setting but some treatments require in-patient admission. Patients on OAMs are primarily also managed at one of these hospitals, with their OAM being dispensed mainly in community pharmacies and patients self-administering in their home setting. There are also a limited number of community-based SACT providers, both oral and parenteral. SACT services are also provided with private healthcare.

Figure 4: Publicly funded SACT hospitals



Designated Cancer Centres

1. Beaumont Hospital
2. CHI at Crumlin
3. Cork University Hospital
4. Mater Misericordiae University Hospital
5. St James's Hospital
6. St Vincent's University Hospital
7. University Hospital Galway
8. University Hospital Limerick
9. University Hospital Waterford

SACT Hospitals

1. Cavan General Hospital
2. Connolly Hospital
3. Letterkenny University Hospital
4. Mayo University Hospital
5. Mercy University Hospital
6. Midlands Regional Hospital Tullamore
7. Naas General Hospital
8. Our Lady of Lourdes Hospital Drogheda
9. Portiuncula University Hospital
10. Sligo University Hospital
11. South Infirmary Victoria University Hospital
12. St Luke's General Hospital Kilkenny
13. St Luke's Hospital Rathgar
14. Tallaght University Hospital
15. Tipperary University Hospital
16. University Hospital Kerry
17. Wexford General Hospital

1.2 Drivers of Change for SACT Services in Ireland

There are many challenges facing SACT services in Ireland. The main drivers of these challenges include:

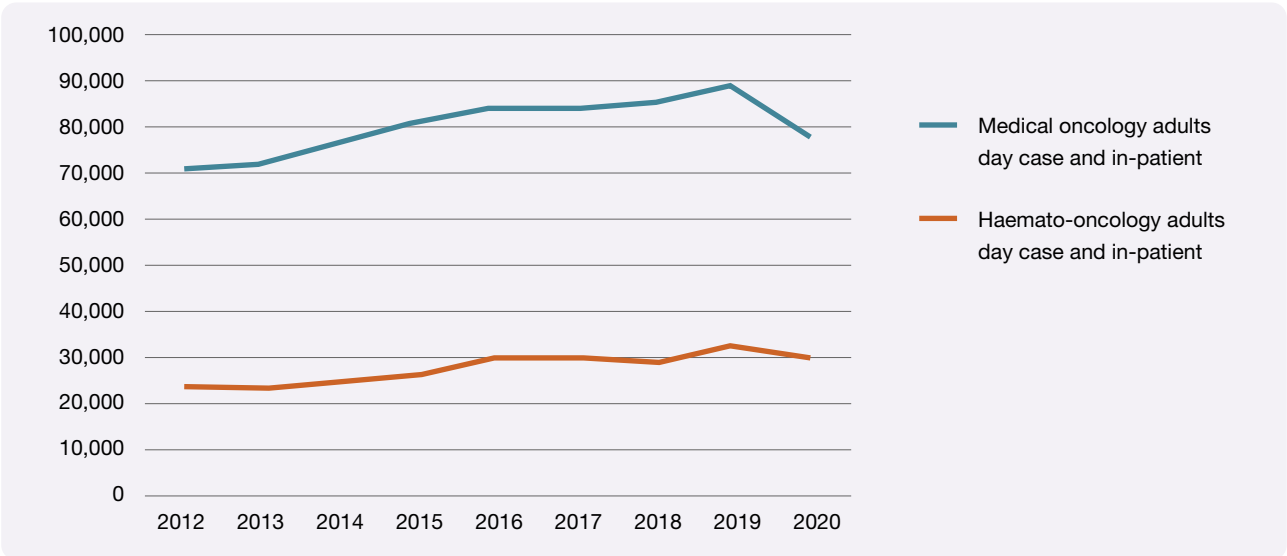
1. increasing patient numbers due to population growth and an ageing population
2. increasingly complex treatments
3. increased costs of new treatments
4. historical underinvestment in workforce, physical day ward infrastructure and capacity (chair numbers)

1.2.1 Incidence and Prevalence

The incidence and prevalence of cancer is growing and the number of cancer cases in 2045 is expected to be double that in 2015 (6). It is estimated that approximately 36,907[3] invasive cancers were diagnosed annually between 2018-2020 (5). In 2014, it was estimated that 33,000 people receive SACT annually with an acknowledgement that this number will grow (11). It is estimated that the number of patients receiving SACT for the treatment of their cancer will increase by 58-81% between 2015 and 2045 (6). Figure 5 illustrates the annual increase in total (day case and in-patient) SACT activity 2012-2019 for all adult (16+ years) episodes coded in HIPE (Hospital In-Patient Enquiry) having a SACT procedure and split by medical oncology and haematology diagnosis. The drop observed in 2020 due to the COVID-19 pandemic may be less than shown as SACT activity outsourced to private facilities in response to the pandemic may not be captured in HIPE.

Survival rates from cancer have improved, with five-year survival increasing from 45% to 61% in the past decade and five-year survival for breast cancer now at 82% (4). These improved patient outcomes include those patients receiving long-term SACT as well as those receiving subsequent treatment for progression or recurrence of their cancer, which has increased the demand for SACT in Ireland. This increased demand on SACT services has resulted in significant capacity pressures in day wards nationally. The NCCP project the need to increase day ward capacity by 70% by 2026 to meet demand (12, 13). The need for investment in SACT day wards and aseptic compounding infrastructure was also acknowledged in the National Development Plan 2021-2030 in line with the National Cancer Strategy 2017-2026 (14).

Figure 5: Medical Oncology and Haemato-oncology HIPE all discharges (day case and in-patient) 2012-2020 for adults (16+ years) with a pharmacotherapy discharge code. (Source: HIPE Portal)



3 All invasive cancers including non-melanoma skin cancers

1.2.2 Population Growth and Changing Demographics

Projected increases in the size and average age of the Irish population in Ireland over the next 30 years have significant implications for the number of cases of cancer, as cancer is predominantly a disease of the elderly. This SACT Model of Care must remain adaptable and responsive to the changing demographics of the population, including consideration for the increase in urban population and the increasing age of patients. It must also take account of the needs of lower socio-economic groups and marginalised groups.

1.2.3 Planning and Resourcing of Services

SACT services have developed over time in response to the growing role of SACT in the treatment of many cancers. However, the development of SACT services has largely been local, with individual hospitals advocating for change in a climate of competing priorities across healthcare. A structured national or regional planning of these services is required to address the historical underinvestment in workforce, physical day ward infrastructure and capacity (chair numbers) (15).

Since 2012, new SACT and new indications for existing SACT are managed under the standard assessment process in place for the consideration of HSE reimbursement of new drugs. This assessment process is intended to arrive at decisions on the funding of drugs that are clinically appropriate, fair, consistent and sustainable. All cancer drugs which have been approved for reimbursement since 2012 have gone through this process.

Acknowledging the growth in the number of patients with cancer and the use of SACT in their treatment, defining a SACT Model of Care is paramount to ensuring a comprehensive approach to provide staffing and facilities for a safe and high quality service for both staff and patients alike.

1.3 Strategic Policy Direction

The strategies which inform cancer services development are constantly evolving. Some of these changes and reforms will impact on how SACT services are structured and delivered. This Model of Care has been developed considering the following key strategy documents:

- The National Cancer Strategy 2017-2026 (4)
- National Cancer Strategy 2006: a Strategy for Cancer Control in Ireland Evaluation Panel Report (2015) (15)
- Sláintecare (2017) (16)
- NCCP Report on the Implementation of the 2006 Strategy (2014) (11)
- National Cancer Strategy 2006 (3)
- Cancer Services in Ireland, a National Strategy (1996) (2)
- The Establishment of Hospital Groups as a transition to Independent Hospital Trusts (2013) (17)
- Health Information and Quality Authority: A Guide to the National Standards for Safer Better Healthcare (2012) (18)
- eHealth Strategy for Ireland (2013) (19)
- NCCP Oncology Medication Safety Review Report (2014) (8)
- NCCP Oral Anti-Cancer Medicines Model of Care (2018) (9)
- NCCP Guidance on the Provision of Parenteral Systemic Anti-Cancer Therapy and Supportive Care in Community Services (2020) (20)
- NCCP Guidance on the Built Environment of a Haematology/Oncology Day Ward (2020) (21)
- NCCP National Systemic Anti-Cancer Therapy (SACT) Competency Programme for Nurses Working in Cancer Care (2021) (22)
- NCCP Psycho-oncology Model of Care (2020) (23)
- NCCP National Cancer Survivorship Needs Assessment (2019) (24)

A summary of the key points of a number of these strategies is available in Appendix 2.

2

Scope and Methodology

2.1 Scope

The scope of the SACT Model of Care includes the following aspects of the medical oncology and haemato-oncology care of adult patients from the time that a recommendation to treat with SACT is made at the multi-disciplinary team meeting (MDM) to the completion of treatment in addition to the broader aspects of service improvement and safety:

- Patient experience
- Organisation of services
- Governance
- Quality and safety
- Data and information management
- Innovations in SACT
- Clinical trials
- SACT pathway
- Acute Oncology
- Workforce planning

This SACT Model of Care focuses on the SACT pathway as detailed in Figure 3. Key components of the overall cancer pathway may be referenced in this Model of Care, however they are considered out of scope as they are broader than the SACT pathway. Areas that are considered outside the scope of this document include:

- Children, Adolescent and Young Adult (CAYA) systemic therapy
  - A National Model of Care for Paediatric Healthcare Services in Ireland is in place (25).
  - A National Model of Care for CAYA Cancer Services is in the process of being developed by the NCCP CAYA Programme.

- Surgery
- Radiation oncology
- Diagnostics other than key diagnostics relative to the SACT pathway, for example, companion diagnostics predictive of choice of SACT
- Non-malignant haematology services
- Survivorship and psycho-oncology
  - Models of Care for Psycho-oncology (23) and Survivorship (24, 26) are currently in place
- The roles and responsibilities of HSCP disciplines involved in the SACT pathway
- MDMs

2.2 Methodology

2.2.1 Steering Group

A Steering Group was established by the NCCP in 2015, to include representation from a range of service provider bodies including medical, nursing, pharmacy and HSCPs, as well as patient representation, the Department of Health (DoH) and NCCP management. The Steering Group was responsible for key decision making in relation to project scope, guiding principles and key priorities including the overarching structure of this report as informed by the literature review. Due to competing demands, work on the Model of Care ceased for a period 2016-2019. The membership of the group and the Terms of Reference are provided in Appendix 3 and Appendix 4. The Group met six times between 2019 and 2021 and seven times between 2015 and 2016.

2.2.2 Literature review

A literature review of international evidence of SACT models of care and other relevant areas was undertaken, along with a review of current services and local policies and guidelines relevant to the SACT services in Ireland. A gap analysis of the current SACT services in Ireland compared to the international literature was carried out to formalise the recommended changes to the current services.

2.2.3 Data collection

A variety of data was utilised to support this SACT Model of Care including HIPE data as well as data and key information from international evidence as relevant. Where specific information was unavailable, the NCCP liaised with relevant stakeholders.

2.2.4 Consultation

The NCCP conducted a targeted and a public consultation for the SACT Model of Care utilising the NCCP website as well as social platforms such as Twitter®. Information sessions were also provided to the key stakeholders included in the targeted consultation as well the National Cancer Patient Advisory Committee. A list of the stakeholders included in the targeted consultation can be found in Appendix 3.

2.2.5 Approval

The SACT Model of Care was agreed by the SACT Model of Care Steering Group and approved by the NCCP National Executive Team.

3

Overall Vision and Principles

In determining the overall vision and principles to guide the development of this model of care, the SACT Model of Care Steering Group considered the international models for SACT service delivery and the objectives of relevant health service strategies in Ireland, including the National Cancer Strategy 2017-2026 (4). This has also been informed by the HSE's core values of care, compassion, trust and learning, along with Sláintecare's National Framework and Principles for the Design of Models of Care (2019) (7).

3.1 Overall Vision

The overall vision for the SACT Model of Care is that patients with cancer will receive a safe, timely, high quality, patient-centred service that is accessible and appropriate to their needs.

3.2 Principles of the SACT Model of Care

Informed by the literature review, the Steering Group identified the core values which would underpin this SACT Model of Care. These six guiding principles are presented in Table 1 below aligned to the Sláintecare Principles for Models of Care (7).

Table 1: SACT Model of Care Guiding Principles and correlating Sláintecare Model of Care Principles (7)

Principle 1

Patient Centered Care

Key points

- The patient's experience during the SACT pathway is paramount
- The patient has a key role in their own care, including self-care and self-management along with deciding on the SACT plan with their consultant and other relevant health care professionals
- The patient has a key role in informing the design of the SACT Model of Care

Sláintecare Principles[4]: 2, 3, 5, 6

Principle 2

Access to Services

Key points

- Equity of access to services
- Timely access to SACT services nationally

Sláintecare Principles[4]: 1, 4

Principle 3

Multi-Disciplinary Approach

Key points

- A multidisciplinary team approach to the care of patients must be a core objective of the SACT Model of Care in order to provide the best outcomes for patients
- An appropriate range of disciplines are available for assessment, treatment and management of patients

Sláintecare Principles[4]: 7

Principle 4

Evidence Based Practice

Key points

- SACT services must be based on the best evidence available in order to provide the highest quality of care to patients

Sláintecare Principles[4]: 7, 9

Principle 5

Safe Service

Key points

- Safe care is fundamental to the provision of SACT services
- Safety of the SACT services requires expertly trained staff undergoing continuous professional development along with the appropriate safety measures in relation to the SACT regimens or drugs used
- Measurable safety measures must be available and reported in order to ensure safety standards are met

Sláintecare Principles[4]: 9

Principle 6

Resources

Key points

- Resources vital to SACT services include staff, IT and infrastructure
- These resources must be provided at each point of the SACT pathway in order to provide the right care, in the right place, at the right time and by the right person

Sláintecare Principles[4]: 2,8

4 Sláintecare Principle 1: Population health perspective; Principle 2: Person-centred; Principle 3: Health and wellbeing; Principle 4: Equity; Principle 5: Coordination of care; Principle 6: Self-care and self-management; Principle 7: Top of licence practice and teamwork; Principle 8: Supported by technology; Principle 9: Quality and safety

4

International Approaches to SACT Models of Care

Models of care are increasingly being used to set out the type of care that patients can expect to receive for a particular condition or illness. Models of care are not static but subject to change over time and therefore must be flexible. The World Health Organisation (WHO) recognises redesigned models of care as an innovation that can contribute to addressing the challenges facing health systems (27). This chapter reviews international practice that has influenced the design of a model of care for SACT in Ireland.

4.1 Patient Experience

The patient experience of their cancer care journey is recognised internationally as a fundamental component of a model of care (28-30). In the UK, patients and families, when confronted with a cancer diagnosis, are faced with fragmented care, gaps in provider communication, emotional distress and potential or realised socioeconomic issues (31). This description of cancer care could be compared to many healthcare systems, including Ireland. A number of key considerations exist in current literature to address these multifactorial issues that may occur during the patient's SACT pathway. These considerations include the following:

4.1.1 Communication

Improved communication with patients is recognised as a key component of improving the patient experience (28, 32). Clinical staff should ensure that patients, families and carers understand the condition, nature, potential benefits and risks of proposed treatment and future lifestyle requirements and limitations (28). According to the 2018 UK Cancer Patient Experience Survey, variations existed on side effects being explained to patients in an understandable way (33). The information provided should always be at a level and in a format appropriate to the patient's and carer's understanding (28).

4.1.1.1 Telehealth

Telehealth, also known as telemedicine, refers to the remote delivery of healthcare services by HSCPs using information and communication technologies (34). An array of technologies can be used including, but not limited to, telephone, video or audio conferencing, electronic messaging, digital photography and instant messaging. Prior to the COVID-19 pandemic, telehealth had not been consistently employed in health care systems to deliver routine service. According to the WHO, 40% of the European Region reported having a telehealth policy (34). The absence of an international legal framework, a lack of policies that govern patient privacy and confidentiality and the risk of medical liability for health professionals were cited as just some of the barriers to embracing telehealth (34). Furthermore, the WHO report that governance, policy or strategy, scientific development and evaluation are factors that can facilitate telehealth development (34).

Supported by the WHO (34), the use of telehealth in SACT care should be maintained, for example to facilitate care at home and in the community and in particular for patients receiving long-term or life-long SACT.

4.1.2 Patient Choice

It is reported internationally that the patient should play an active role in decision making during their SACT care, in particular in the agreement of the SACT treatment plan with their consultant (28, 35-38). This is often referred to as “No decision about me, without me.” Patients should be informed of their treatment options and potential outcomes at all stages of their treatment to ensure shared informed decision-making (28, 37). The Achieving World Class Cancer Outcomes, a strategy for England 2015-2020 paper states that patients should have access to all their test results and treatment records online (29). Patients should feel empowered to be equal partners in decisions around their care.

4.1.3 Seamless Pathway

Patients should be made aware that SACT, in some instances, can be delivered closer to home rather than in the hospital where the patient may have received their diagnosis and treatment plan and perhaps may even have commenced their treatment. Patients should be assured that their primary consultant has the accountability and responsibility for their experience across the entirety of the pathway and that their SACT will be delivered in a setting that is most appropriate for their individual needs and treatment (28). The patient pathway through cancer services should be seamless (28, 29, 39). Patients should not notice their transition between organisations in the provider network. They should not feel that they have been abandoned when their care is transferred from a specialist centre to their local hospital or primary care (28).

All healthcare workers have a responsibility to ensure smooth transitions of care for patients (40). It is acknowledged that policies and procedures are required to ensure that the transfer of patients to a more local SACT service does not cause delays for patients, nor a break in the continuity of their care. Prompt electronic data transfers, clear arrangements and key contact person support are said to be vital to achieving the seamless transfer of patients (29).

4.1.4 Digital Communication

Patients report that they often have to recount their clinical history to different clinicians who don't have access to their records and have expressed frustration with sporadic and often impenetrable access to information about their diagnosis and treatment or about research opportunities (29). Digital communication has a fundamental role in improving communication and empowering patients with the information they need to aid the informed decision-making process (29). A number of countries are developing digital tools to aid the patient through their cancer care. These countries include Sweden, who are developing a digital 'My Care Plan' and the National Health Service (NHS) England. These digital tools would essentially be a clinical data application, through which a patient would be able to access all their relevant health records (28, 36).

4.1.5 Carers Considerations

Carers (professionals, relatives and friends) should be acknowledged as partners in patients' care and should be appropriately communicated with and supported with information and professional help as needed and in line with the patients' wishes. It should be noted that carers have information needs that can be different to patients' needs. As SACT services rely on carers' understanding and reinforcing of key messages, supporting the carer is vital (41). It is also important to ensure, rather than assume, that these people are willing and able to help (28).

4.1.6 Patient Assessment

The importance of understanding the need for physical, psychological, social, spiritual and financial support for people with cancer and their carers is recognised internationally (42, 43). Having a system for routine assessment offers an opportunity for health care professionals to understand and respond to patients' specific needs and improve the overall patient experience during their cancer care, for example screening for risk of malnutrition, frailty and psychosocial needs (32, 44). Another benefit of a regular patient assessment is to help people with cancer to make choices and to self-manage their condition on a day-to-day basis, hence minimising the risk of a crisis which can lead to an emergency or unplanned admission (43).

4.1.7 Designated Key Contact Person or Team

A designated key contact person or team is seen as a solution to many of the challenges that arise for patients during their cancer journey and, as a result, many countries have integrated them into the SACT multi-disciplinary team (MDT) The key contact person is viewed as crucial to achieving a seamless care pathway for patients by reducing barriers as well as improving outcomes for patients and the wider SACT MDT (31, 45-47). A designated key contact person or team can act as a point of contact for advice and reassurance, both within the acute setting and most importantly when the patient returns home and during follow-up care.

Currently, there is no consensus on the scope of practice, qualifications and competencies for key contacts (31). The qualification to become a member of the key contact team varies internationally and therefore their roles and responsibilities also vary considerably (31). A variety of papers report lay people, cancer services administrative personnel, social workers and nurses all performing the duties of a key contact person or team (31, 45, 46).

Roles and responsibilities carried out by the designated key contact team members in a SACT service include coordinating services, scheduling tests, scheduling appointments, patient education, patient assessment, compliance and engagement, identification of patients' specific needs, identifying barriers, locating resources and financial assistance while working within the culture and customs of the local community (31, 48). Many of the roles and responsibilities undertaken often require a highly specialised set of skills and disease-specific knowledge which are necessary to provide patient-centred care throughout the cancer care continuum, including SACT, and promote positive outcomes for patients (31).

4.2 Organisation of Services

SACT services are organised in a variety of ways internationally. Many services have developed in response to their population needs rather than in a prospectively planned manner for the future needs of the country and their patient population. A number of themes for organising SACT services exist in international models of cancer care including the levels of services available in particular locations.

4.2.1 Levels/Types of SACT Services

Internationally, cancer services approach their organisation of SACT services in a manner that best suits their population size, density and demographics. A common feature of the organisation of cancer services internationally is the use of Levels or Types to organise the service (49-54). A thematic analysis of the different Levels/Types is documented in Table 2.

The Levels/Types are largely based on the complexity of SACT in addition to the services provided. The majority of international SACT services define Level/Type 1 as those services where the most complex SACT regimens, often requiring in-patient care, are provided. These typically are provided in an acute hospital or designated cancer centre with the expertise, infrastructure and staff required to safely administer this complex care. In contrast, the lowest risk and lowest level of complexity of care, Level/Type 4, can be delivered to the same quality and safety standards in the community, including primary care facilities and the home (51, 52).

Centralisation and devolvement of SACT services were evident in the majority of health care services included in this review. The aim of the centralisation of specialised SACT services is to improve patient outcomes. The availability of specialist infrastructure, staff and wider MDT support in a number of Level/Type 1 and 2 hospitals contributes to this aim.

The devolvement of less complex SACT services from Level/Type 1 and 2 hospitals to Level/Type 3 and 4 SACT services is in line with the patient-centred approach to SACT care where this care can be provided in a location closer to the patient's home, where clinically appropriate.

Centralisation and devolvement of SACT services as appropriate to the patients' needs is also key to addressing the projected demand on SACT services as a result on the growing incidence and prevalence of cancer internationally. Devolving patients to Level/Type 3 and 4 services creates capacity in Level/Type 1 and 2 SACT hospitals for patients requiring more complex SACT care (36).

SACT outreach is another model used by health services to both enable care closer to the patient's home and devolve certain aspects of lower complexity SACT service away from the Level/Type 1-3 SACT hospitals (55-57). This has been shown to help alleviate capacity challenges in SACT hospital day wards. These outreach services remain governed and staffed by the SACT hospital while being in an off-site location. For example, in the UK, the Christie NHS Foundation Trust has a large network of outreach SACT services including a mobile chemotherapy unit, primary care centres and a hospice day unit[5].

Other considerations are taken into account when defining Levels or Types of SACT services. Some countries include affiliation with an academic institute and their responsibility for research, clinical trials and training in their definition of Levels/Types (36, 58). Level or Type 1 hospitals may also play a role in the governance structure of the lower Levels/Types, e.g. producing nationally agreed guidelines, defining the level or structure of the region (36).

5 https://www.christie.nhs.uk/about-us/about-the-christie/the-christie-international/specialist-oncology-advice-and-assurance/systemic-anti-cancer-therapy-sact-advice

Table 2: Commonalities per Level/Type of SACT Services in International Approaches to SACT Models of Care

Levels/ Types	SACT service location	Common themes*
1	Cancer Centres	• Highest complexity of care • Dedicated in-patient beds • Specialised infrastructure e.g. HEPA filtered rooms • Research • Teaching • Skilled expertise • Multidisciplinary case management • SACT outreach services
2	Acute SACT Hospital	• Medium to high complexity of care • Dedicated in-patient beds • SACT services provided under the direct supervision of an on-site medical oncologist or haematologist • Limited teaching and research responsibilities • SACT outreach services
3	Acute SACT Hospital/Satellite	• Low to medium complexity of care • SACT service provided with a visiting medical oncologist or haematologist or no medical oncologist or haematologist and is a nurse-led unit • Formalised links to a higher Level / Type hospital • Limited teaching and research responsibilities • Ambulatory facilities (no in-patient beds) • SACT outreach services
4	Primary/ Community Care including SACT at home	• Low-risk complexity of care • Patient selection criterion is important • Generally, nurse-led or patient-led • Patient choice
*The following themes are common across all Levels/Types SACT services: - Clear governance structures - Compliance with national standards/accreditation - Infrastructure - Access to diagnostics, out of hours services as appropriate to the Level/Type of SACT service being provided		

4.2.2 The Growing Need for Community SACT/Type 4 SACT Services

Internationally, there is increasing development of SACT services in the community with the aim of delivering care in the lowest complexity setting where clinically appropriate (29, 35, 59, 60) . The North of Scotland Cancer Network (NOSCAN) acknowledge that the overall SACT service could be expanded to benefit increased capacity via careful planning of community SACT services (61).

Community SACT services may be provided in a variety of settings including primary care centres, public health facilities, dedicated community infusion clinics, community pharmacies, GP surgeries as well as in the patient's home. Variations in practice in terms of patient selection criteria, patient choice, access, experience, education and support and community provider education and training resulted in a recommendation for standardisation of care in the community in both Canada and the North of Scotland Cancer Network (35, 61). The lack of a formalised process for sharing information and communication between the acute hospitals and community services was seen as a key component of the shortcomings of community SACT services (35) and highlighted as a necessity by the North of Scotland Cancer Network (61). Defining the patient population suitable for treatment in these settings is essential to ensure a quality and safe service and is the approach of many countries (29).

The North of Scotland Cancer Network outlined that their community SACT services are set up as a shared care model with the cancer centres, with treatment initiation, support and expert advice given from the cancer centres (local to them) with all aspects of care fully compliant with quality standards (61, 62). Other links with the cancer centres were outlined by the North of Scotland Cancer Network, including contingency arrangements and opportunities for training and updates to maintain essential competencies, learn new skills, and develop close working relationships with the wider SACT team (61).

Alternative methods of delivery of care may be required for community SACT services to work effectively. For example, pre-SACT blood tests may be taken more locally by a GP or community SACT service and pre-SACT assessment conducted via telephone for patients living at a distance from the SACT service (61). As noted by Southern Health, Australia, GPs could play a role in care of patients during SACT but education would be a vital component of this service expansion (59).

4.2.2.1 Community Pharmacy Services

The development of SACT in the community, in particular OAMs, has highlighted the importance of the role of the community pharmacist (63). Cancer Care Ontario, Canada describe community pharmacists as an integral component of the community SACT service (35). Internationally, concern associated with OAMs dispensed in the community is cited, including lack of education on SACT, patient information, time and staff in the community pharmacy setting (63, 64). A number of actions to improve the community SACT service via community pharmacists are discussed in literature. These include continuous education on relevant SACT for community pharmacists, digital systems for sharing patient information and a community pharmacist-led telephone follow-up for assessment of patients on OAMs (63). Furthermore, close collaboration amongst community pharmacists, oncology pharmacists, nurses and physicians can lead to safe medication and improved clinical outcomes for patients (63).

4.2.3 Drug Funding

There are a variety of drug funding models in place. However, centralised patient-based funding models where drug funding follows the patient, rather than to a location, is a common aim in these drug funding models as it ensures equity in accessibility and removes "post code lottery" type access restrictions (35).

The increasing cost of new cancer drug treatments is cited as an ongoing challenge (65). NHS Scotland have acknowledged the need to consider whether new medicines deliver the clinical trial outcomes in a real world setting and as a result are supporting a project on the clinical effectiveness of cancer medicines in clinical practice (65). Competition in the market with the introduction of biosimilar medicines has been shown to decrease treatment costs (66).

Drug repurposing is another strategy to identify new uses for approved or investigational medicines outside the scope of their original medical indication. Non-commercial repurposing of off-patent medicines for cancer treatment has the potential of addressing currently unmet needs in a cost-effective way, especially in areas that are not attractive for the industry, such as rare cancers (67).

In 2016, the Scottish Government stated that there was no comprehensive approach to assessing repurposed off-patent medicines that have the potential to be a more effective treatment for particular diseases than the available licenced drugs (65). They specify that they need to undertake work to establish improvements to their current approach in this area (65).

Repurposing of off-patent medicines and some of the solutions presented are fully aligned with major EU strategic documents including the Europe's Beating Cancer Plan and the EU's 2020 Pharmaceutical Strategy for Europe (68, 69). The WHO have also outlined the need for further work in this area in their 2021 policy brief (67).

4.3 Governance

Countries who define their SACT services per Level or Type of SACT Service appear to have one clear governance structure as a prerequisite (29, 59). South Australia clearly defines the governance roles of cancer services as overseeing and endorsing formal links such as service level agreements and memorandums of understanding within and across health regions in order to maximise the provision of speciality and support services as close to home as safely as possible, and to enable timely access to distant services when required world(39). The governance also includes oversight of the continuous development and implementation of standardised policies, procedures and guidelines. In the UK, the National Chemotherapy Advisory Group (NCAG) report in 2009 also recommended the development of specific protocols and policies to be adhered to (70).

Governance pertaining to community SACT services, in particular, state that satellite services when established should be linked to a central unit in the provider network, for example a cancer centre (36, 52, 61, 71, 72). The provider network as a whole should ensure governance of quality and safety through protocols and pathways and enable standardised care and smooth transfer across settings (36, 52, 72, 73).

4.4 Quality and Safety

Quality and safety is intrinsic to the operation of all healthcare systems and is identified as such in many international models of care for cancer (35, 36, 74-77). Accreditation certification, for example the European Cancer Centre (ECC) certification, the Organisation of European Cancer Institutes (OECI) or the Joint Accreditation Committee ISCT-Europe and EBMT (JACIE) are often adopted by healthcare systems internationally to achieve formal recognition of a safe, high quality cancer service.

Standardisation of SACT services is cited as an effective method to produce a quality and safe service (35, 52, 72). Standardisation of SACT services is complex in itself and requires work on every level of the service. The standards, based on evidence, provide a tool for organisations to embed accreditation and quality improvement activities into their daily operations and are said to support the delivery of healthcare (75).

National SACT protocols aim to improve patient outcomes, increase patient safety and reduce treatment variation by providing nationally consistent evidence-based best practice treatment protocols for information to support health professionals in the delivery of cancer treatments at the point of care. Other benefits include improvements in efficiency, standardisation of practice, clarity, international equivalence and consistency in SACT outcome data (78). National SACT protocols are in place in many countries including Canada and Australia (79, 80).

4.4.1 Policies, Procedures, Protocols and Guidelines (PPPGs)

Evidence-based PPPGs are often included in the quality standards. They are to be adhered to in order to achieve and maintain the quality and safety standards in place (74, 75).

Many of the PPPGs particular to SACT care tend to cover the safe handling, administration and disposal of cytotoxic and systemic therapy consumables (36, 52, 70, 72). It is also specifically acknowledged that the prescribing and dispensing of oral chemotherapy must be carried out to the same service standards as for parenteral chemotherapy (52, 72).

4.4.2 Monitoring and Evaluating

The need for effective monitoring and evaluation of SACT care is recognised as a key method of ensuring that the system remains safe, efficient and of high quality (35). There are a number of tools utilised to monitor and evaluate SACT care and many utilise PPPGs as a standard to measure against. Methods to monitor and evaluate SACT services include, but are not limited to, the following:

- KPIs
- Risk assessment and management of all procedures
- Incident reporting
- Patient feedback and satisfaction surveys
- Service review
- Strategic planning
- Clinical indicator data to satisfy accreditation
- Clinical indicator data to satisfy other statutory obligations
- Training and competency records
- Clinical audit

4.4.3 Electronic Prescribing

Electronic prescribing systems have been internationally acknowledged as a vital component of any safe SACT service, including both hospital-based and community-based services (42). Electronic prescribing of all cancer medicines has been mandatory for providers of SACT in the UK since 2006 because of the clear and well-evidenced implications for patient safety of manual prescribing (29).

Electronic prescribing is said to promote quality and safety during out of hours care (65), as well increase the ability for remote patient management which is key for patients in rural areas (61).

4.5 Data and Information Management

The majority of healthcare systems have a data and information management policy which they adhere to, including a policy on General Data Protection Regulation (GDPR). The highest performing healthcare systems are supported by data sharing (often in real time), improvement programmes, performance management and research (65). Accurate and systematic recording of data is fundamental to improving patient outcomes (65).

4.6 Innovations in SACT

Recent years have seen many innovations in SACT services delivery, automation, digitisation in addition to the development of immunotherapy, new molecular targets for personalised medicines and advanced therapy medicinal products (ATMPs). While new treatment options are providing improved outcomes for patients it must be acknowledged that these innovations are often associated with significant costs.

4.6.1 New SACT treatments

4.6.1.1 Targeted Therapy and Immunotherapy

Due to advances in the understanding of the molecular pathways that drive the development and progression of human cancers, novel targeted therapies have become an exciting new development for anti-cancer medicine (81). These targeted therapies act to block the growth of cancer cells by specifically targeting molecules required for cell growth and tumourigenesis (81). Due to their specificity, these new therapies are expected to have better efficacy and limited adverse side effects when compared with other treatment options, including hormonal and cytotoxic therapies (81).

4.6.1.2 Advanced Therapy Medicinal Products (ATMPs)

Advanced therapy medicinal products constitute an innovative class of heterogeneous research-driven biopharmaceuticals which includes gene therapy medicinal products, somatic cell therapy medicinal products, tissue-engineered products and combined products (82). There are numerous ATMP clinical trials underway with almost one quarter of those focused on the treatment of cancer (82). This alone illustrates the potential for a new wave of SACT in the near future. An example of an ATMP in clinical use is chimeric antigen receptor-T cell (CAR-T cell) Therapy.

4.6.1.2.1 CAR-T Cell Therapy

Chimeric Antigen Receptor-T Cell Therapy (CAR-T Cell Therapy) is a new class of adoptive cellular immunotherapy (83). CAR-T cell therapies have demonstrated improved remission rates compared with standard chemotherapies amongst adult patients with relapsed/refractory malignancies but are associated with unique acute toxicities. Intensive monitoring, accurate grading, and prompt management of toxicities with aggressive supportive care, anti-interleukin-6 (anti-IL-6) therapy, and/or corticosteroids for severe cases are required to reduce the associated morbidity and mortality (83, 84).

In order to implement a CAR-T cell therapy programme in a healthcare system, there are a number of requirements including regulatory, accreditation, technical and logistical (83). Clinical considerations include the location of the service, the MDT available and the specialised training of staff (83).

4.6.1.3 Radiopharmaceuticals

Unstable isotopes and their capacity to provide the targeted delivery of ionising radiation for a determined duration has resulted in their use for both curative and palliative treatment for cancer (85). It is said that a promising era of novel malignancy-specific radiopharmaceuticals, including radioimmunotherapy, is actively emerging and has the potential to improve the management and outcomes for patients with cancer (85).

4.6.2 Molecular Testing and Personalised Medicines

Cancers that arise in the same part of the body and appear the same according to conventional pathology may have highly heterogeneous prognoses, determined by specific molecular changes in the individual patient's cells (29). Molecular testing in cancer care involves the use of molecular biomarkers in diagnosis, prognosis, disease monitoring and treatment options (65, 86). Molecular testing identifies patients suitable for personalised treatments and is key to improving patient outcomes and ensuring value for money through the treatment of the correct patient cohorts.

Molecular testing to guide treatment for solid tumours in England has increased by an average of 51% per year since 2011 (29). Molecular testing can range from single gene testing to comprehensive next generation sequencing (NGS) of tumours with panels of > 50 cancer related genes. NHS Scotland devised a robust framework for national molecular testing in order to meet specific quality standards such as safe, equitable, efficient, effective, person-centred and timely care (86). Specific recommendations on molecular testing, including cohorts of patients that should be tested, have been made by the NHS (29).

4.6.3 Cytogenetics

Chromosomal abnormalities are found mostly in haematological malignancies. Hence, cytogenetics plays an important role in risk stratifying patients and thus guiding SACT options, monitoring response to treatment and also as a prognostic marker in these diseases (87). Cytogenetics testing is becoming more refined, more affordable and more accessible (88).

4.6.4 Automated Compounding Technology

Automated compounding technology has the potential to reduce compounding errors, reduce costs, allow for significant productivity gain and higher service level (89, 90). The potential benefits of automated compounding devices would lead to increased SACT resilience for hospital pharmacies. However, it is cited that the potential benefit is highly dependent on the type of automation device in use (89). Further research into this relatively new technology is required in order to produce evidence-based recommendations (89, 90).

4.6.5 Pharmacist Prescribers

Internationally, non-medical prescribers (NMPs) are established in SACT services, including nursing staff and other HSCPs. Oncology pharmacists also have the training and expertise that places them in an optimal position to provide evidence-based care to patients with cancer (91). In some countries, pharmacists who have completed an accredited prescribing course and registered their qualification with their regulatory body are authorised to prescribe medications, including SACT. A non-medical prescribing pharmacist may assume the professional responsibility for performing patient assessments, ordering drug therapy-related laboratory tests, administering drugs and selecting, initiating, monitoring, continuing and adjusting drug regimens under a defined protocol (91).

The role of pharmacists as non-medical prescribers is evolving. Non-medical prescribing pharmacists in the NHS England have improved patient care without compromising on patient safety and allowing more flexible team working (92). In NHS Scotland, the aim is that all pharmacists providing pharmaceutical care will be pharmacist independent prescribers by 2023 (93).

4.7 Research and Clinical Trials

Treatment on a clinical trial is regarded internationally as the gold standard of care (94). Clinical trials are vital for improving and advancing cancer treatments and for the licencing of drugs. Many healthcare systems set standards in order to enhance their clinical trial programmes including recommendations such as specifying that patients should be enrolled into and treated on a clinical trial, where a clinical trial for their particular cancer is available (29, 65, 87). There is evidence to suggest that the outcomes for patients treated within the context of clinical trials is superior to those outside formal trials (87).

4.8 SACT Pathway

4.8.1 SACT Treatment Plan

Section 4.1.2 outlines how patient choice and involvement in the decision making process are fundamental to improving the overall patient experience. Patients should be informed of their possible treatment options, the intention of treatment and the expected outcomes as well as possible side effects in addition to the outcome where a decision is made not to proceed with treatment (41). Other considerations include any appropriate clinical trials.

4.8.2 Patient Baseline Education and Assessment

A pre-initial SACT treatment review or baseline assessment could improve the introduction of patients to the SACT service by ensuring that patients are well informed and have consented to their SACT treatment plan. It may also relieve some of the stress patients feel when attending for their first SACT treatment (61). This appointment gives patients and carers the opportunity to ask further questions before commencing SACT, after digesting the information provided to them by their consultant and nurse.

This baseline assessment should include educating patients and carers on important points including how to take medication, for example OAMs, what to do in the event of specific side effects, for example, neutropenic sepsis and other oncological emergencies (9). There is a need for local information in the SACT treatment plan such as parking, information centres, pharmacy services and support groups (33).

A referral for multimodal preventative prehabilitation should also be considered as required (95). Prehabilitation interventions should start as early as possible and in advance of any cancer treatment (96). Prehabilitation provides an opportunity to improve the physiological function and psychological wellbeing of patients, thereby improving resilience to the effects of cancer treatments and enhancing quality of life before, during and after treatment. This may include referral to dietitians, speech and language therapy, physiotherapy, occupational therapy, psycho-oncology and other HSCPs as referred to in Workforce Planning (Chapter 6).

4.8.3 Patient SACT Assessment

Pre-SACT assessment occurs before each cycle of SACT is administered. The purpose of this review is to identify any toxicities experienced in the previous cycle, assess the individual's fitness to continue and implement any planned changes to the SACT treatment plan as necessary (41, 97). Monitoring at set intervals during the patient's SACT therapy plan is also recommended to assess the response to the SACT and recommend any changes to the plan that are required (41, 97).

4.8.4 Completion of SACT

It is acknowledged that the completion of SACT can be a vulnerable time for patients as they are uncertain about their future (65). Providing support at this point of the SACT pathway is important. Informing the patient about follow-up reviews, any tests that may be required, what signs and symptoms to look out for and how to contact the team if required, is important. It is cited that the ultimate goal is to ensure that patients have the knowledge, understanding, confidence and skills to live well on their own terms and with the health conditions they have (65).

In the UK, the Macmillan recovery package is completed and given to the patient and a copy sent to their GP on completion of SACT (98). This approach is also supported by the Scottish Government (65).

It is evident that not all patients receiving SACT will come to the point of completion. Many patients will receive SACT indefinitely and this is outlined further in Section 4.8.7

4.8.5 SACT Follow-Up

SACT follow-up care plays a vital role in caring for patients who are often concerned about recurrent disease by providing ongoing expertise of specialist advice and enables access to services (99, 100). However, there is debatable value for follow-up for many cancers in terms of early diagnosis of recurrence, improved survival and meeting people's needs (65, 99, 100). With the growing number of patients with cancer surviving, the focus of follow-up care is shifting towards the management of a chronic condition and hospital-based follow-up places a significant burden on hospital out-patient clinics and is described as unsustainable (99, 100).

Primary care follow-up, nurse-led follow-up, facilitated by telehealth follow-up or a combination of these could be options to help avoid the acute hospital setting and to enhance the follow-up care of patients closer to home (99). A personalised follow-up care pathway is another alternative follow-up model as trialled in England, Northern Ireland and Australia and is being adapted by the United States and Scotland (100). This involves a risk stratification process that triages patients to different care depending on their care needs and has been shown to improve patient outcomes as well as being a more efficient use of the healthcare system and reducing costs (100). The risk stratification is based on several factors, including risk of recurrence, subsequent cancers, late effects, the severity of ongoing treatment sequelae, functional ability, psychosocial issues, health literacy and the ability to self-manage (100).

4.8.6 Discharge

It is common practice internationally that all patients that have received SACT and are discharged from the care of the medical oncologist or haematologist should receive a summary of the diagnosis and details on the treatment they received, along with guidance on post-treatment management. The patient and the patient's primary care provider should also receive a copy of the treatment summary. A treatment summary is said to improve the transition of care from oncology to primary care settings and has been welcomed by GPs in the UK (101).

Onward referral to HSCPs should also be considered at this point (102). The personalised treatment and support provided by HSCPs can have a significant impact on recovery, improving the health and wellbeing of a person after cancer treatment (102). Patients may also benefit from receiving information about cancer support services in their local community.

4.8.7 Long Term SACT/Chronic Malignancies

Many cancers can now be referred to as chronic malignancies. Increasingly, a number of cancer types are requiring long-term and even lifelong systemic therapy which has important implications for each patient (10). The needs and experiences of these patients are likely to differ from those on SACT for definitive periods of time or those that are at the end of their life (103). Psychological burden remains high in the chronic phase of cancer and patients report ongoing difficulties in accessing support and services (103). Younger patients who have been ill for longer and those who have less social support are cited as being particularly vulnerable (103). Efficient pathways to allow prompt access to supportive care, expertise and advice are important for these cohorts of patients.

4.9 Acute Oncology/Haemato-oncology

As highlighted by the NHS, emergency cancer care places an enormous pressure on the urgent care services and is frequently associated with poor patient experience and poor outcomes (104). As reported by Cancer Care Ontario, almost half of all patients with colon cancer and breast cancer who receive adjuvant chemotherapy regimens visit the emergency department or are admitted to hospital at least once within four weeks of receiving chemotherapy, and about half of those patients visit a second or third time (35). A number of healthcare systems cite proactive and standardised strategies, such as patient education, telephone triage and acute oncology services, to try and avoid the need for emergency department presentation and, if emergency department presentation is necessary, strategies on how to manage the patient at that point (35, 42).

4.9.1 Patient Education

Many drug-related side effects are predictable, may be preventable, for example mucositis, and should be taken into account when setting individual SACT treatment plans and in planning appropriate system resourcing to care for these patients during treatment (41). Side effects from treatment, for example neutropenia, infection and fever are the reasons why the majority of patients undergoing SACT present at an emergency department (35).

Urgent complications tend to start in the patient's home and patients often need assessment, advice and treatment for side effects and complications (41). By appropriately educating the patient on their SACT therapy plan and on the potential side effects or complications that may arise during their care, patients may act on symptoms at an earlier stage and may avoid subsequent emergency department attendance (48). Timely interventions and advice for grade one and two toxicities can sometimes prevent escalation of symptoms and consequent morbidity (41).

4.9.2 Telephone Triage

Telephone triage is an essential component of acute oncology care in many healthcare systems (28). The NHS state that patients undergoing SACT must have access to a 24-hour helpline (24 hours a day, seven days a week) for urgent advice about side effects or symptoms of infection from chemotherapy (42). A 24-hour telephone line can reassure patients and keep them at home or fast track them into hospital, as necessary (41). Roe and Lennan (2014) reported that the presence of a 24-hour telephone triage system resulted in a reduction in mean length of stay from 10 days to 6.5 days, suggesting a 35% reduction in SACT-related emergency admissions was achieved (41).

The helpline must be answered by healthcare professionals with expertise in SACT side effects who will be able to give advice. Those giving the advice should at least have access to basic information about a patient's condition and treatment. They should also actively manage the pathway of care if an acute assessment is required. Processes should be in place to track or follow up any actions that occur following the call. This should be subject to regular audit of the effectiveness of the advice. Telephone advice and triage services should operate at least to the standards described in the UKONS (UK Oncology Nursing Society)[6].

6 https://www.ukons.org/

4.9.3 Acute Oncology Service (AOS)

The 2009 NHS National Chemotherapy Advisory Group (NCAG) Report and NHS England recommended that all hospitals with emergency departments must establish an AOS to bring together the necessary expertise from emergency medicine, general medicine and oncology (70). The NHS state that an effective AOS will enhance patient experience and clinical effectiveness and ensure that equitable, safe, high quality emergency cancer care is consistently provided for non-elective / emergency adult patients (70). AOSs have been rolled out across England since the NCAG 2009 report (70). However, as identified by the NHS, a more standardised approach to the roll out of AOS should have been employed (29).

The NCAG report specified that policies and procedures must be in place for the oncological assessment of patients with cancer at an emergency department (70). These protocols must be readily accessible and cover managing complications seen in the emergency department, for example, neutropenic sepsis. Processes for rapid referral and assessment by a medical oncology or haemato-oncology team, including treatment and transfer where appropriate, must be in place. This may require training for more junior doctors (42, 70).

5

Current Provision of SACT Services

As detailed above, SACT services are provided in 26 public hospitals. The manner in which these services are currently provided, considering the existing policies and reports, is detailed in the relevant sections below.

5.1 Patient Experience

Patient input, engagement and feedback needs to be strengthened (15). The National Cancer Strategy 2017-2026 sets out that the experience of patients can inform improvements in models of care (4). The National Cancer Survivorship Needs Assessment: 'Unmet needs of cancer survivors in Ireland: A scoping review 2019' also provides evidence of the need to take patients' needs into account (105). Improvements in this area have been made such as NCCP patient engagement, patient representation groups and the DoH Cancer Patient Advisory Group.

While the HSE implemented a patient experience survey in 2015[7], there is no formal recording of patient experience on a national basis in SACT services.

5.1.1 SACT Treatment Plan

As reported in the 2014 Oncology Medication Safety Review Report, a SACT treatment plan is in place for the majority of patients (8). The report recommends what must be included in this plan and this is based on the patient's therapy plan.

5.1.2 Communication

Some patients may receive a copy of communication pertaining to aspects of their care (including their SACT treatment plan) at frequent intervals, for example, GP or primary care correspondence. However, variation exists nationally.

7 https://www.hse.ie/eng/services/list/2/primarycare/patient-experience-survey/

5.1.2.1 Telehealth

While the use of telehealth solutions in SACT care in Ireland has been limited to date, interest in this area of working has increased in recent years, driven by the eHealth Strategy for Ireland (19), improved technology and its acceptance by staff and patients.

During the COVID-19 pandemic, there was an increase in the use of telehealth facilities to reduce the requirement of patients to attend hospitals. To support this, there is a HSE Procedure for the Management of Virtual Outpatient Clinics[8] and a patient information leaflet[9] developed by the NCCP.

5.2 Organisation of Services

5.2.1 Managed Cancer Control Networks for SACT Services

The 2006 Strategy resulted in the formation of four Managed Cancer Control Networks, one per Regional Division at that time (3). SACT services are a component of the Cancer Control Networks. The original aim of the Managed Cancer Control Networks was to facilitate the provision of care which is fully integrated between primary care, hospitals, palliative care, psycho-oncology and supportive care. It was also stated that the Managed Cancer Control Networks must feature the sharing of patients, expertise and resources (3). There is variation in how the Cancer Control Networks currently operate.

The Strategy also identified an evidence-based requirement to establish specialist Cancer Centres, each serving a minimum population of 500,000. Hence, eight Cancer Centres were established. There were originally two Cancer Centres per Cancer Control Network (3).

The O'Higgins Report (17), which recommended the development of the Hospital Groups, specifically highlighted the existing nature of Cancer Control Networks and the importance of maintaining these linkages. However, with the establishment of the Hospital Group structure, the Cancer Control Networks have evolved over time and there are now seven Cancer Control Networks, one per Hospital Group. The SACT hospitals within these Cancer Control Networks broadly align to the Hospital Group structure, however variation exists.

The delivery of medical oncology services in Ireland was and still is provided in a "hub and spoke" configuration within the Managed Cancer Control Network. This includes the NCCP designated cancer centres, with full time consultant staff as well as other SACT hospitals, which often have a part-time consultant commitment. These services developed around the sessional commitments of consultant medical oncologists and haematologists, where posts often encompassed sessions in two or more hospitals within a geographical area.

'Hub' hospitals manage the care of patients requiring more complex SACT regimens and have designated in-patient beds and often take the lead in treatment planning decisions. Less complex SACT is often delivered in a 'spoke' hospital closer to the patient's home in accordance with the specific SACT treatment plan and taking into account the patient's preferences. However, the delivery of services in these hub and spoke configurations varies.

The haemato-oncology SACT service are based at specified sites with some operating as hub and spokes.

8 https://www.hse.ie/eng/about/who/acute-hospitals-division/outpatient-services-performance-improvement-programme/procedure-for-the-management-of-virtual-outpatient-clinics.pdf

9 https://www.hse.ie/eng/services/list/5/cancer/patient/leaflets/virtual%20health%20clinic%20%20web.pdf

5.2.2 Hospital Group Structures

The current Hospital Group structure for acute services in the HSE was established in 2013 resulting in six Hospital Groups, with the Children's Hospital Group becoming Children's Health Ireland (CHI) at the start of 2019. Each of the Hospital Groups has an associated Cancer Control Network.

As noted in the Report on the implementation of 'A Strategy for Cancer Control in Ireland 2006', the structure of the Hospital Groups had a varying impact on the existing structure of medical oncology and haemato-oncology services (11).

5.2.3 Organisation of HSE Hospital Models

There are four generic hospital models defined by the HSE. The purpose of these models is to provide a clear delineation of hospital services based upon the safe provision of patient care within the constraints of available facilities, staff, resources and local factors. These models are hierarchical in nature from Model 1 which includes community/district hospitals up to Model 4 where the hospitals can admit undifferentiated acute medical patients (106).

5.2.4 Where Patients Receive SACT

The location where the patient receives their SACT is dependent on the disease type, the treatment required and the type and complexity of the SACT treatment plan they are prescribed. The patient's condition and distance from the hospital may also be taken into account when making the decision of where to administer SACT. The location of where SACT is delivered is detailed in Table 3. Notably, there are currently no SACT outreach services.

Cancer services are also provided in several private hospitals and it is estimated that 30% of cancer care occurs in private hospitals (15). Very limited data is available on private hospital activity.

Table 3: Location of SACT Services

SACT service	Details	Corresponding references
In-patient wards	• A number of SACT hospitals have designated SACT in-patient beds. • Patients receiving complex SACT regimens may need to be admitted as an in-patient for close observation or isolation during their treatment. • Other patients who may be unable to travel long distances on a daily basis may require admission in order to receive their SACT.	(20)
Ambulatory day units	• The majority of patients requiring SACT receive their treatment in a treatment space in an ambulatory day unit setting. • Ambulatory day units tend to be located on the site of or in an acute hospital. • Many ambulatory day units have a combined medical oncology and haemato-oncology service. A number of hospitals have separate medical oncology and haemato-oncology units and others have a service for just medical oncology or haemato-oncology. • Ambulatory day units typically operate Monday to Friday, 8am-6pm, however variants on this exist. • A day unit usually consists of an open plan room with multiple reclining chairs.	(4, 9, 15, 21)
Community SACT services	• Parenteral SACT services in the community are limited at the moment, however supportive SACT is offered in a variety of community SACT services. • Community pharmacy services include dispensing of OAMs. • Examples of community SACT services currently in operation include: – The NCCP Community Oncology Nursing Programme which enables community nurses to deliver some aspects of care to oncology patients in their community. – Community infusion clinics providing services for oncology patients such as low-risk infusions, pre-SACT blood tests and supportive care for SACT patients. – The provision of SACT directly to patients by third party / private providers under contract with the hospitals/HSE.	(9, 20, 107)
Specialist referral centres	Several of the SACT hub hospitals act as referral centres on a regional or national basis for specialist and often highly complex SACT regimens. The profile of the patients catered for by SACT hospitals therefore varies depending on referral pathways. Examples of a specialist referral pathway includes the allogeneic stem cell transplant service, neuroendocrine tumours (NETs) and neuro-oncology service. The management of these patients may remain in the specialist referral centre or be transferred back to the referring hospital to facilitate the care of patients closer to home.	(4)

5.2.5 SACT Supply and Production

The centralisation of SACT preparation in hospital pharmacy departments followed from the publication of the DoH's "Guidelines for the Safe Administration of Cytotoxic Medical Preparations in the Treatment of Patients with Cancer" (108) and the National Cancer Strategy of 1996 and 2006 (2, 3). The development of pharmacy SACT services varied across the 26 hospitals resulting in different models of preparation and provision of SACT including local compounding in a controlled environment such as an Aseptic Compounding Unit (ACU) or stand-alone cabinet, on bench top or outsourced to a third party provider.

As a result there is a mixture of aseptic compounding services in the 26 public hospitals providing SACT cancer services. These include: 1. Hospitals with ACUs allowing for advance preparation of SACT as they have the facility to extend the expiry dates of the compounded products from a microbiological perspective. 2. Hospitals with stand-alone isolators - preparing product for immediate use. 3. Hospitals completely dependent on outsourcing of compounded SACT.

5.2.6 Drug Funding

SACT is currently funded through three separate funding streams in the Irish public healthcare system:

1. The community drug schemes of the Primary Care Reimbursement Services (PCRS) (including the High Tech arrangements, the GMS [General Medical Services] and the DPS [Drugs Payments Scheme]) for drugs self-administered by patients at home).
2. Hospital-based budgets for drugs administered in hospitals.
3. The Oncology Drug Management System (ODMS) for specific high-cost drugs administered in hospitals. The drugs/indications included in the ODMS are listed on the NCCP website here.

There has been a standard HSE assessment process in place for new drugs, and new indications for existing drugs, since the implementation of the Irish Pharmaceutical Healthcare Association (IPHA) 2012 agreement between the DoH, HSE and the pharmaceutical industry, and was followed by subsequent Framework Agreements of 2016 and 2021 (109, 110). This is underpinned by the Health (Pricing and Supply of Medical Goods) Act 2013 (111). This process ensures that there is transparency in the pricing and reimbursement application process. All cancer drugs which have been approved for reimbursement since 2012 have gone through this process.

The NCCP continue to support the uptake of best value biological products such as biosimilar products into the healthcare market in Ireland. Biosimilar and generic products represent some of the ways forward to obtain sustainability and maximise the funding for new medicines to be made available for patient treatment (112).

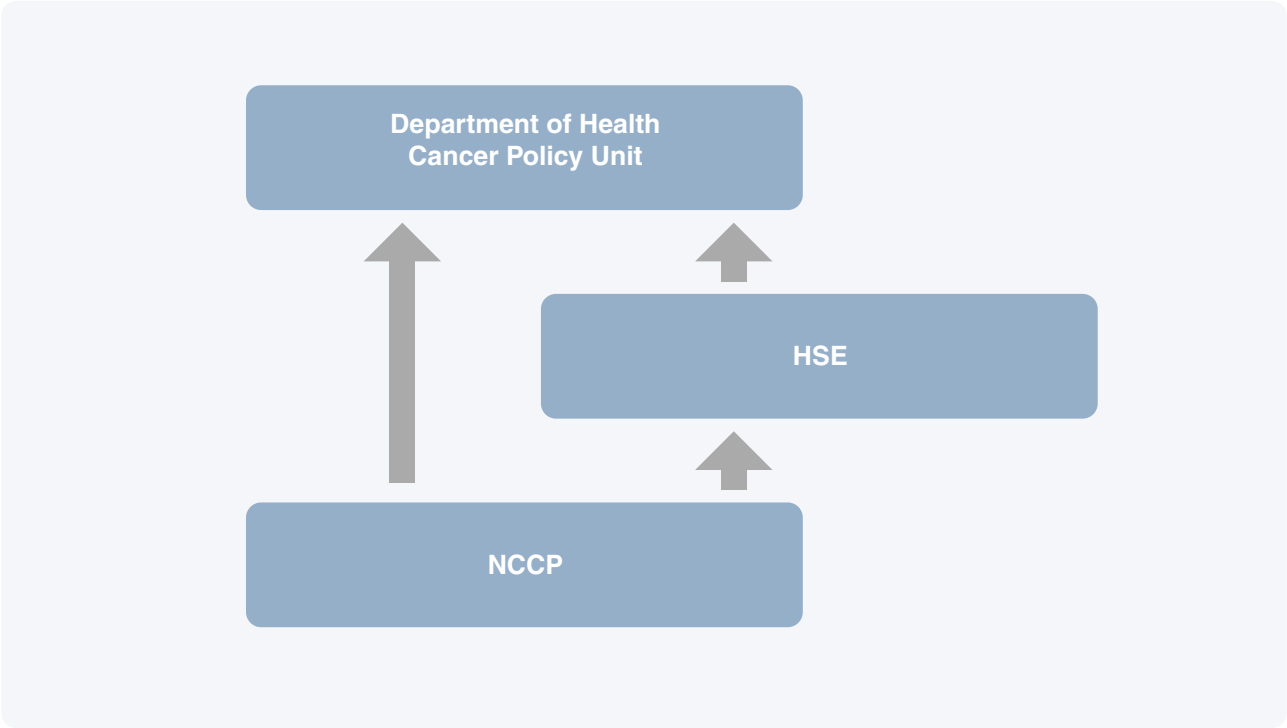
5.3 Governance

The NCCP was established in 2007 following the publication of the National Cancer Strategy 2006 (3) and is responsible for the planning, organisation and delivery of cancer services in 26 hospitals in Ireland that provide cancer care. The NCCP's National Programme for Systemic Therapy was established in late 2012, with the aim of organising and developing medical oncology and haemato-oncology services. This national programme is responsible for developing the quality and safety of SACT services, through the development of national protocols and guidelines, audits, the support of expensive oncology drugs, implementation of quality and enabling systems and the development of national plans for the future of systemic therapy services, including the implementation of National Cancer Information System (NCIS).

Governance of SACT services in Ireland is centred on the existing NCCP Cancer Control Networks. In many cases, this is also aligned with the Hospital Groups structure, although variation exists. While it is clear that the management of the patient is the responsibility of the individual consultant medical oncologist or haematologist, in overall terms, there is scope for more clearly setting out the governance structure for SACT services.

The NCCP published the Guidance on the Provision of Parenteral Systemic Anti-Cancer Therapy and Supportive Care in Community Services in 2020 (20). This outlines the governance arrangements for community services. More broadly, the HSE Governance structure for cancer services is outlined below in Figure 6.

Figure 6: HSE Governance Structure for cancer services



5.4 Quality and Safety

SACT services operate within the overarching quality and safety frameworks and guidance documents[10] including the Health Information and Quality Authority (HIQA) standards and quality[11] (18). A number of designated cancer centres have opted to attain accreditation certification. In addition, the NCCP has agreed a number of quality and safety initiatives for SACT services as detailed in Appendix 5. While the majority of services have implemented the recommendations as appropriate to their services, there are some variations nationally.

5.4.1 National Cancer Information System (NCIS)

NCIS is a clinical information system that supports the care of medical oncology and haemato-oncology patients across Ireland. NCIS is highlighted in the National Cancer Strategy 2017-2026 (4) and HSE Service Plan 2020. This system will be used in all SACT hospitals.

NCIS has a number of key functionalities which will be used by various health care professionals including:

- electronic prescribing
- electronic medication administration records
- support for aseptic compounding
- MDM documentation and reporting
- access to a patient's longitudinal cancer record. This will ensure that all relevant healthcare providers will have access to the patient's data in an appropriate and timely manner
- enhanced medicines governance
- improved communication with the patient
- improved communication of patient information
- support for effective data recording and report generation
- integrated clinical decision support and alerts to support safe prescribing
- optimised use of drugs using evidence-based medicine

The roll-out of NCIS across 26 SACT hospitals within scope is in progress with seven sites live at time of publication.

10 https://www.hse.ie/eng/about/who/qid/framework-for-quality-improvement/framework-for-improving-quality-in-our-health-service.html

11 www.HIQA.ie

5.5 Data and Information Management

Hospitals currently have varying data and information management policies. There have been recent improvements in the management of data and information in Ireland in recent years with the publication of the eHealth Strategy for Ireland (19) and developments such as HealthLink, Picture Archiving and Communication System (PACS), and National Integrated Medical Imaging System (NIMIS). Some key projects specific to cancer care and SACT include the NCCP Cancer Intelligence Programme with KPIs and performance data collection and drugs audit.

All SACT services must abide by GDPR which came into force in 2018[12].

12 https://www.hse.ie/eng/gdpr/hse-data-protection-policy/hse-data-protection-policy.pdf

5.6 Innovations in SACT

The use of SACT is constantly evolving and there are continuing innovations in, for example, the development of new drugs and new indications for existing drugs, as well as new molecular targets. Innovations in recent years have included the growing use of immunotherapy drugs and molecular targeted therapies.

Where a new innovation has service development requirements, this is considered through the national service planning process. This may be, for example, the requirement for the availability of a companion diagnostic test e.g. programmed death-ligand 1 (PD-L1) testing or breast cancer gene (BRCA) testing to inform SACT options or the establishment of a new service such as CAR-T cell therapy.

5.6.1 Molecular Testing and Personalised Medicine

In terms of SACT, there are a limited number of drugs with dedicated molecular targets which are approved for reimbursement by the HSE. The HSE has ensured that the required companion molecular diagnostic tests, to identify those patients who may or may not benefit from treatment, are available to those patients attending publicly funded hospitals providing cancer services. Additional molecular testing may be used to stratify a patient's treatment plan, however availability of this varies. This system does not cover treatment of patients in a Private Hospital. The NCCP established a Cancer Molecular Diagnostics (Drugs) Advisory Group in 2017 to advise on relevant cancer molecular diagnostic testing requirements that are predictive for drug treatment.

5.6.2 Additional Innovations

Recent innovations being considered through these processes, as appropriate, include targeted therapy and immunotherapy, ATMPs, radiopharmaceuticals, peptide receptor radionuclide therapy (PRRT), cytogenetics.

Automated computed technology in hospital pharmacies for SACT is not currently widely used in Ireland. However, there are a number of SACT hospitals undertaking pilots with automated devices who aspire to incorporate this technology into their service. There are also no pharmacist prescribers in Ireland currently.

5.7 Research and Clinical Trials

Clinical trials may be sponsored by a cooperative and collaborative clinical trial research group, may be academically-led or industry-led. The largest collaborative cancer research infrastructure in Ireland is the Health Research Board (HRB) funded National Cancer Clinical Trials Research Network. Currently fulfilled by Cancer Trials Ireland (CTI)[13], which was established in 1996 and which operates a hub and spoke model supporting clinical trials units in each of the cancer centres. Its establishment put formal structures in place to ensure strong links with international cancer research groups and to facilitate Irish patients to participate in a wide variety of internationally-led clinical trials. Since then, 15,000 patients have taken part in more than 350 cancer trials. A key recommendation of the National Cancer Strategy 2017-2026 is to increase the number of patients with cancer on clinical trials from 3% to 6% (4).

There are clearly defined governance and training requirements that are a pre-requisite of a trial protocol including those relating to Good Clinical Practice and mandated consenting protocols. Many hospitals have dedicated cancer clinical trial units on-site or will have close links to a unit in line with their hub and spoke.

13 https://www.cancertrials.ie/

5.8 SACT Pathway

Many hospitals have a pathway in place for the treatment of patients with SACT similar to the pathway outlined below and in line with the NCCP Oncology Medication Safety Review Report and the NCCP Oral Anti-Cancer Medicines Model of Care (8, 9). However, the recommendations of these two reports are not, as yet, fully implemented thus leading to variation within the SACT pathway nationally. There is also variation in the availability of services which support patients on their SACT journey for example, prehabilitation and psycho-oncology.

5.8.1 SACT Treatment Plan

The patient will typically attend an appointment with their consultant medical oncologist or haematologist to discuss their diagnosis and agree a SACT treatment plan. Consent for the SACT treatment plan may be obtained at this point. The SACT treatment plan agreed will depend on a number of elements such as type of disease, the treatment options available, patient comorbidities and performance status and the wishes of the patient.

5.8.2 Baseline Assessment

Patients are assessed for an array of issues as part of their baseline assessment, for example, co-morbidities, social support, oral hygiene, fertility. Patient education is a component of the patient's baseline assessment and includes education on their SACT therapy plan. A standardised baseline assessment form has been developed by the NCCP to support hospitals.

5.8.3 Pre-SACT Assessment

The pre-SACT assessment of the patient is performed before each cycle of SACT is administered to ensure they are fit for their treatment. This may include an analysis of blood results and any other tests required to inform suitability to proceed with treatment.

5.8.4 SACT Administration

SACT is administered to the patient as outlined in their SACT therapy plan and corresponding SACT regimen. This can be provided in a variety of locations as outlined in Table 3.

5.8.5 Treatment Monitoring/Restaging

A review of the patient to assess response to SACT including toxicities and efficacy of the treatment is performed. Restaging investigations may be requested and the SACT therapy plan may be altered depending on the outcome of this review.

5.8.6 Follow up

The frequency a patient is reviewed post-SACT will depend on factors such as the individual tumour type and the patient's response to treatment. Currently, follow-up care typically takes place in the out-patients department in the hospital the SACT was administered in.

5.8.7 Discharge

Patients who have completed their course of SACT and follow up may be discharged from the care of their medical oncologist or haematologist. The National Cancer Strategy 2017-2026 recommended that all hospitals should offer patients a patient treatment summary and care plan as part of their support (4). Many hospitals will provide a discharge summary letter to the patient and the patient's GP, however variation exists with the discharge process. Some patients will have access to a self-management programme, for example, the NCCP Cancer Surviving and Thriving Programme[14].

5.8.8 Long-term SACT/Chronic Malignancies

Patients with particular chronic malignancies may often remain under the care of a haematologist or medical oncologist for an extended period of time and often for the rest of their lives.

5.9 Acute Oncology/Haemato-oncology

Similar to international reports, emergency cancer care places a burden on the HSE in Ireland. There is an emphasis on prevention of SACT-related side effects through careful planning of SACT treatment plans, along with education of patients and having timely access to advice from relevant staff in order to empower patients to deal with side effects at home or undergo review when necessary.

However, the education that patients receive can be varied as highlighted by the Oncology Medication Safety Review (8). Access to advice in Ireland can vary also. The majority of SACT hospitals can provide a contact number for patients to call during normal ambulatory day unit working hours. However, after hours, inconsistencies exist. The Oncology Medication Safety Review Report recommended that all SACT hospitals should utilise telephone triage protocols, using evidence-based scoring/assessment, to facilitate accurate and standardised patient assessments (8). This has been implemented in the majority of SACT hospitals, but not all.

AOS in Ireland were considered in the International Panel Report and the National Cancer Strategy 2017 (4, 15). Work is progressing on establishing an AOS in Ireland, including the identification of educational needs for nurses. As an initiative of the NCCP in 2020, there is currently an acute oncology clinical nurse specialist (CNS) position in each of the 26 SACT hospitals. An NCCP AOS nursing forum has been established to provide strategic leadership and to develop a peer-to-peer supportive structure. Quality metrics have been defined and are collected nationally. Template PPPGs have been developed to support nurses in these roles.

14 https://www.hse.ie/eng/services/list/5/cancer/profinfo/survivorship-programme/cts.html

6

Workforce Planning

It is accepted internationally that in order to provide safe, high quality SACT services that meet the needs of patients, a highly trained and appropriately resourced workforce with a multidisciplinary approach is required (29). The SACT workforce in Ireland comprises a highly trained and experienced group of healthcare professionals across a range of disciplines who have proven to be resourceful and adaptive in the midst of a global pandemic. The NCCP, HSE and DoH are working towards improvements in workforce planning and are constantly evaluating services for their evolving needs.

This Model of Care outlines the future staffing requirements for a number of disciplines based on currently available data. This should inform future workforce plans for cancer services. Workforce planning must also consider factors such as specific occupations and grades including an assessment of the required skills and competencies, part-time work, male to female ratios, retirements and minimum staffing levels to ensure a safe and quality service can be provided. SACT services workforce planning should also consider education and specialist training requirements, sub-speciality, rarer cancers, SACT service location and the changing patterns of care in medical oncology and haemato-oncology. The detailed site by site workforce planning will need to take into account the development of specialisation of disciplines within the broader MDT, for example Advanced Nurse Practitioners (ANPs) and other Non-Medical Prescribers (NMPs). The staffing ratios for consultants[15] in this chapter may change in the future depending on the availability of these specialist disciplines within the MDT.

In response to a recommendation in the National Cancer Strategy 2017-2026 (4), the NCCP are undertaking an overarching cancer services workforce plan and many of the considerations highlighted here will be included in this work. This Model of Care refers to workforce planning at a high level for a number of disciplines. It is acknowledged that many other disciplines are vital to the patient's SACT pathway and they are expected to be included in the wider cancer services workforce plan. This may also consider community care services for patients with cancer.

All disciplines within the SACT MDT should be adequately supported by administrative and other support staff.

15 The staffing ratios for consultant medical oncologists and consultant haematologists are population based for the Republic of Ireland and do not reflect the private sector SACT services operating currently.

6.1 Medical Oncology Consultants

The model for delivery of medical oncology care varies significantly worldwide. The specialty of medical oncology has developed significantly in Ireland and the demand on the medical oncology service is growing resulting in a need for greater numbers of consultant medical oncologists. This demand is driven by increasing patient numbers, increasing survival rates, the development of new drugs, technologies and treatment opportunities with more treatment options for patients (4, 6, 11).

Consultant medical oncologists are responsible for the management of their patients throughout their SACT treatment plan. This includes the care of patients receiving their SACT in all SACT services.

6.1.1 Recommended Minimum Staffing for Consultant Medical Oncologists

There have been a number of reports identifying the need to increase the number of consultant medical oncologists in this country considering the population-based requirements. See Table 4 for more details.

Table 4: Reports citing the requirement to increase the number of consultant medical oncologists in Ireland

Report	Consultant medical oncologist workforce planning comment
National Cancer Strategy 2006 (A Strategy for Cancer Control in Ireland) Evaluation Panel Report (2014) (15)	34 consultant medical oncologists in place in 2014. • Approximately 60 consultant medical oncologists at a minimum is required
Report of the National Task Force on Medical Staffing (2003) (113)	45 medical oncologists by 2013 to achieve a one medical oncologist per 87,000 population ratio or 1.15 per 100,000
National Doctors Training and Planning (NDTP): Demand for Medical Consultants and Specialists to 2028 and the Training Pipeline to Meet Demand (2020) (114)	41 consultant medical oncologist posts in place in 2020 i.e. the equivalent of one medical oncologist per ~100,000 population in Ireland • By 2028, a further 58 medical oncologists are required • A total of 99 medical oncologists are required by 2028

There are variations in the international recommendations for benchmarking and therefore it can be difficult to directly apply them to Ireland. For example, Australia report an optimal workload of 150 new patients per consultant per annum, equating to 1.84 per 100,000 population[16] (115), while an American Society of Clinical Oncology (ASCO) survey reported that 3.5 medical oncologists per 100,000 population would be required in the USA by 2005 (116, 117). It is reported that NHS England have a 0.7 consultant medical oncologists per 100,000 population and NHS Scotland have 0.5 per 100,000 (114).

There are currently 71 WTE[17] (whole-time equivalent) consultant medical oncologist posts throughout SACT hospitals. The current population of the Republic of Ireland is 4.9m with an annual increase of 0.8%[18]. This is the equivalent of 1.49 consultants per 100,000 population. While it must be noted that there are variances in the model for delivering medical oncology internationally, when comparing the Irish ratio to international benchmarks, it is clear that this discipline is understaffed.

Taking the NDTP (114) recommendation and accounting for the expected increase in population, by 2028 and a population of 5.2m, 99 medical oncologists are required which is the equivalent of 1.9 per 100,000 population. This is an increase of 28 WTE consultant medical oncologists incrementally by 2028.

16 Based on 2014 population of Australia.

17 A number of these posts were allocated in 2021 and 2022 and are currently being recruited.

18 https://www.cso.ie/en/media/csoie/newsevents/documents/census2016summaryresultspart1/Census2016SummaryPart1.pdf

6.2 Haemato-Oncology Consultants

Similar to medical oncology, the specialty of haemato-oncology has also developed significantly in recent years and the demand on the haemato-oncology service is growing, resulting in a need for greater numbers of consultant haematologists. There are two important distinctions regarding haematology. The first is that haematology is a speciality of pathology with consultants having laboratory and clinical commitments, with many working approximately 50:50 across both elements of the discipline, although variation exists. The second is that haematologists may work in malignant, non-malignant and transplant sub-specialities. A recent survey[19] of consultant haematologists working in malignant services indicates that an average of 62% (5%-100% range) of their time is spent on malignant work and 30% (5%-95%) on non-malignant work. For consultants working in a hospital with a transplant service, an average of 19% of their overall time is on this service.

Consultant haematologists are responsible for the management of their patients throughout their SACT treatment plan. This includes the care of patients receiving their SACT in all SACT services.

6.2.1 Recommended Minimum Staffing for Consultant Haematologists with a Malignant Speciality

It has been reported that there is a need for additional consultant haematologists in Ireland. See Table 5 for more details.

Table 5: Reports citing the requirement to increase the number of consultant haematologists in Ireland

Report	Consultant haematologist workforce planning comment
Report of the National Task Force on Medical Staffing (2003) (113)	There should be 45 Haematologists employed by 2013 to achieve a one haematologist per 58,000 population ratio. This report did not distinguish between malignant and non-malignant work in the haematology numbers. It also did not include some subspecialty posts such as transfusion centre posts.
NDTP: Demand for Medical Consultants and Specialists to 2028 and the Training Pipeline to Meet Demand (2020) (114)	The NDTP report does not specify haemato-oncology alone. This discipline is included in the pathology numbers supplied so cannot be directly interpreted. However, the NDTP report that for all pathology disciplines, a further 50% increase in workforce is required to meet the estimated needs of the population by 2028.

International ratios and benchmarks for haematology in general, and haemato-oncology in particular, are difficult to apply given the variations in practice in different jurisdictions (118-123). New Zealand reported having 70 haematologist's in 2016 equating to 1.49 per 100,000 population, with Australia having 2.4 per 100,000 population in 2009 (118). The Royal College of Physicians (UK) estimated that the total number of haematologists required to deliver a high quality service was at 1,250 (headcount) in 2013 (122). Based on the 2013 UK population[20], this equates to 1.95 consultant haematologists (headcount) per 100,000 populations.

19 Self-reported data. Consultants with a commitment to malignant services have been included in this data.

20 https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland

There are approximately 70 WTE[21] consultant haematologists posts in SACT hospitals. The percentage of malignant work undertaken by these consultants varies. Consultant haematologists with no malignant haematology commitments have been excluded from this figure.

Taking the NDTP recommendation of a 50% increase and accounting for the expected increase in population, by 2028 and a population of 5.2m[22], 81[23] consultant haematologists are required which is the equivalent of 1.56 WTE per 100,000 population. These consultant haematologists may have a malignant and non-malignant workload.

6.3 SACT Nursing

A highly skilled and experienced SACT nursing workforce is key to providing a safe and high quality SACT service in the medical oncology and haemato-oncology disciplines. Where SACT services are nurse-led, they are delivered under the guidance and protocols agreed for the service. There are specific roles within the SACT services where nurses can enhance the quality of care to patients. As well as inpatient and ambulatory day care, there are also roles in patient coordination, patient education, follow-up and review, and links to survivorship programmes. Other nursing roles include acute oncology, prehabilitation clinics and medication management.

There are many different avenues for career development and advancement for SACT nurses, including CNSs, ANPs, clinical facilitators and cancer clinical trial nurses. Please see Appendix 7 for more details on the grades and roles of nurses that are involved in SACT services.

6.3.1 Challenges with SACT Nurse Staffing

It is known that there can be challenges in nurse staffing in Ireland, particularly in filling vacancies. Nursing staffing levels in ambulatory day units was noted as a concern in the International Panel Report (15) including a reliance on agency nurses.

There is also a deficit in the use of more specialised nursing roles such as ANPs and CNSs in SACT services. As reported in the Achieving World Class Outcomes report, there is an urgent need for investment in cancer specialist nursing roles, particularly for rarer cancers and certain geographies (29). The Evaluation Panel Report noted the low number of ANPs across the cancer service compared with other jurisdictions and comments that this impacted on their ability to significantly contribute to the management of patients receiving SACT (15). Since their report, the number of ANPs in cancer services nationally has now increased to 95 and additional candidates are working towards registration[24]. The integration of ANPs in medical oncology and haemato-oncology teams provides a multitude of benefits as outlined in Appendix 7.

The advancement of nursing practice provides an opportunity to redefine parameters for practice between nursing, medicine and related professions on the healthcare team. There is also a need for additional skills and support for nurses providing services to patients with cancer in the community.

Feedback from ambulatory day units in Ireland is that recruitment and retention is also a challenge. Options for how to recruit more nurses into medical oncology and haemato-oncology must be considered, including appropriate supports for nurses moving into cancer services, as well as retaining highly experienced nurses. Rotation of nursing staff between ambulatory day units and SACT in-patient wards is one such option and

21 A number of these posts were allocated in 2021 are currently being recruited.

22 https://www.cso.ie/en/media/csoie/newsevents/documents/census2016summaryresultspart1/Census2016SummaryPart1.pdf

23 Based on 50% increase in 2020 figures of consultant haematologists

24 Correct at June 2022 with recruitment ongoing for a number of these posts

has been successfully implemented in a number of SACT hospitals. The potential to rotate hospital nursing staff between affiliated community SACT services should also be considered. The clinical facilitator role is also an important component of the support system for nurses as they contribute to the development, evaluation and maintenance of nursing standards as outlined in A strategy and Educational Framework for Nurses Caring for People with Cancer in Ireland (124).

6.4 SACT Pharmacy

Hospital pharmacy cancer services are an essential component of the SACT pathway. The competencies necessary for pharmacists working in cancer services are detailed in the NCCP National Competency Framework for Pharmacists Working in Cancer Care (125). The NCCP recognise specialisation of hospital pharmacists as key to supporting the safe delivery of hospital pharmacy cancer services as well as increasing efficiencies in ACUs, enhancing job satisfaction for pharmacists working in cancer services and improving the SACT service for patients.

There is a recognised need for additional pharmacy staffing in SACT services in Ireland, including new ways of responding to challenges such as medicine safety and supply. The International Panel Report identified shortages of pharmacists as one of the important workforce issues (15). The NCCP developed a Hospital Pharmacy Cancer Services Workforce Planning Framework in 2019, together with a subgroup of the SACT Resilience Working Group. The core elements of a pharmacy SACT service are detailed in this Framework which should be used to identify the workforce requirements in each hospital in a standardised manner.

The workforce planning data from the hospitals using this Framework have indicated that there are approximately 91 pharmacists[25] and 83 pharmacy technicians in cancer services in public SACT hospitals[26] in Ireland. Additionally, using this agreed Framework, the hospitals have reported a deficit of 36 pharmacists and 5 pharmacy technicians.

Non-medical prescribing (NMP) has been in practice internationally for a number of years. In Ireland, nurses and midwives are the only non-medical profession with legislative authority to prescribe. The Pharmaceutical Society of Ireland (PSI)'s "Future Pharmacy Practice in Ireland" document supports the development of pharmacist NMP as part of the evolving role of the pharmacist (126). This also aligns with the principles of Slaintecare (127) and is supported by Irish Society of Medical Oncology (ISMO) and Irish Haematological Society (IHS).

The establishment of non-medical pharmacist prescribers in SACT services is also supported by the NCCP as it would enhance service efficiencies where patient pathways could be further improved, for example in the management of patients requiring OAMs. The progression of NMPs would also enhance the role of the pharmacist in the MDT and provide additional job satisfaction.

25 A number of these posts were allocated in 2021 and are currently being recruited.

26 Self-reported data from 21 of 25 Adult SACT hospitals.

6.5 Health and Social Care Professionals (HSCPs)

There are a wide range of HSCPs that play a vital role in the care and management of patients preparing for SACT, undergoing SACT and follow up and survivorship. This includes physiotherapy, dietitians, speech and language therapy, occupational therapy, social care, psycho-oncology and many others. A full list of HSCPs is available at the following link: https://www.hse.ie/eng/about/who/cspd/health-and-social-care-professionals/the-26-health-and-social-care-professions/.

There are currently a limited number of HSCPs dedicated to cancer services. It is important to develop a workforce plan for cancer that includes all disciplines including all HSCPs involved in the care of patients with cancer to ensure that patients can access the appropriate care in a timely manner.

6.6 Palliative Care Services

Palliative care services are intrinsically linked with cancer services as a large proportion of patients accessing palliative care services have a cancer diagnosis. As in cancer services, nurses and HSCPs are an integral part of the palliative care service and the deficits in these cohorts need to be addressed (128).

Deficits also exist for palliative care consultants. According to the National Doctors Training and Planning (NDTP) report in 2017, there were 0.8 consultants (headcount) per 100,000 population (129). The National Clinical Programme for Palliative Care recommends that by 2026, Ireland will require between 1.1 and 2.2 consultants (headcount) per 100,000 population (129).

7

Findings and Recommendations

The findings and recommendations of this section pertain only to the gaps identified between the existing Systemic Anti-Cancer Therapy (SACT) service and best practice as identified in International Evidence - Models of Care (Chapter 4) and Principles of the SACT Model of Care (Section 3.2). The aim of the following recommendations is to ensure the provision of a safe and quality SACT service for all service users.

The integration of these recommendations with recommendations from existing national guidance and strategy documents will inform a SACT Service Specification. This Service Specification will then underpin the structure and operation of SACT services going forward.

There are also a number of overarching recommendations which cross the continuum of cancer care and do not pertain only to SACT services. These are not included in the recommendations below but are acknowledged as key to a quality and safe service.

7.1 Patient Experience

As identified in international literature and further highlighted in the National Cancer Strategy 2017-2026 and the Evaluation Panel Report (2014), healthcare services need to be patient-centred (4,15). Communication with the patient and their carers, empowering the patient and carers through education and identifying the specific needs of each individual patient, is key to the design of a patient-centred model of care.

Each patient must have a SACT treatment plan recommended by the consultant medical oncologist or haematologist and agreed with the patient and their carer(s) as appropriate. The SACT therapy plan is a component of the SACT treatment plan. Further information on the detail of a SACT treatment plan is available in Section 7.8 (SACT Pathway).

Creating a seamless pathway in SACT care through the coordination of services and gaining access to them in an effective and efficient manner is essential to improving the patient experience. Enablers to this seamless pathway, as seen in the international literature, would include a regular patient assessment (as addressed in Section 7.8 through a baseline assessment and a pre-SACT assessment) and a designated point of contact for each patient. These enablers would enhance the patient experience during their SACT treatment plan. They would also support the patient's carer(s) who often play a key role in the patient's cancer journey.

Further to the NCCP Guidance on the Built Environment of a Haematology/Oncology Day Ward (21), other facilities for patients within SACT services should be considered, for example, access to free WiFi. Extended opening hours and weekend opening hours can enhance the patient experience and facilitate working patients. The appropriate support services must be in place for any site working outside their standard opening hours. Other technological advancements that may enhance the patient experience should also be incorporated in line with the eHealth Strategy, for example, digital communication. There is also an increasing role for telehealth solutions in SACT services as they provide a virtual location for providing patient care.

Currently, no one individual designated contact person is assigned to each patient throughout their entire cancer continuum. SACT services should formally assign a designated point of contact to each patient that will be their single point of contact throughout their SACT treatment plan, regardless of where their SACT is delivered. This person or team would aid the coordination of the patient's planned SACT pathway. The roles and responsibilities of this designated contact person or team can be locally defined to best suit the patient needs and the service.

It is important to attain feedback from patients and carers in order to improve cancer services. The National Cancer Strategy 2017-2026 recommended[27] that a nationally defined patient experience survey is developed (4). The NCCP has engaged with HIQA and other relevant stakeholders in the development of this survey to ensure cancer services, including SACT services, are incorporated.

Table 6: Patient Experience Recommendations

	Recommendation	Lead
1	All SACT services should ensure patients are involved in decisions relating to their care.	All SACT services
2	Each patient must have a SACT treatment plan recommended by the consultant medical oncologist or haematologist and agreed by the patient and their carer(s), as appropriate.	All SACT services
3	The NCCP will define focused 'patient with cancer experience' surveys to incorporate treatment and survivorship in line with the National Cancer Strategy.	NCCP
4	Telehealth solutions should be utilised in SACT service delivery as appropriate and in line with the national and local PPPGs.	HSE, All SACT services

27 National Cancer Strategy rec 35: The NCCP will define focused patient with cancer experience surveys to incorporate treatment and survivorship in line with HIQA's standard approach for the National In-Patient Acute Care Patient Experience Survey

7.2 Organisation of Services

7.2.1 SACT Services Types

In Ireland currently, there are commonalities in the organisation of SACT services across jurisdictions, however, variations also exist. These variations are typically due to a range of factors, such as geography, population, patient numbers and infrastructure. The need for a clearly defined organisation of SACT services is required.

The use of Levels/Types to organise SACT services is utilised by a number of international healthcare systems as an effective way to identify where it is clinically appropriate to deliver SACT. Considering this approach and in order to ensure a clear delineation from the current model structure utilised by the acute hospitals, it is recommended that the organisation of SACT services in Ireland is defined by Types, ranging from Type 1 as the highest complexity to Type 4 as the lowest. These Types define where SACT can be delivered as appropriate to the complexity of the drugs and specific needs of the patient's SACT treatment plan, irrespective of their other cancer treatments e.g. surgery. Figure 7 describes the recommended structure for the organisation and delivery of SACT services in Ireland.

The 26 SACT hospitals and community SACT services alignment to the Types of SACT services is located in Appendix 6.

Type 1-3 SACT services may have full time or part time medical oncology and haemato-oncology specialist teams. In the absence of the specialist team, local arrangements must be in place to ensure timely access to another medical team, who, under the advice of the specialist team, will facilitate the medical management of the patient.

For Type 1-4 nurse-led SACT services, including SACT outreach, dedicated pathways for access to medical oncology and haemato-oncology specialist teams must be in place. These arrangements must be documented in PPPGs. All SACT services should also have access to the relevant MDT members including HSCPs where necessary.

Devolvement of less complex SACT regimens away from Type 1 and Type 2 SACT hospitals to Type 3 and Type 4 SACT services, as appropriate, is recommended in order to improve capacity throughout Ireland and provide care closer to the patient's home. Further to this, Type 1-3 SACT hospitals should establish SACT outreach clinics to enable care closer to the patient's home as well as to create capacity within the SACT hospital campus.

SACT outreach services differ from Type 4 community SACT services as they are an extension of Type 1-3 hospitals from an off-site location. SACT outreach services are resourced by the Type 1-3 SACT hospital, including staffing, medicines and other supplies. SACT outreach must be managed by a clinical nurse manager 2 (CNM2) or equivalent at a minimum. Services provided must be in line with the hospital's PPPGs. These services may include delivering low to medium complexity SACT and other supportive medications, as well as phlebotomy, OAM clinics, patient assessments and education and follow up appointments. In the development of SACT outreach services, consideration must be given to the staffing resources required noting that there may be challenges where staff work across a number of sites.

Certain specialist, low volume, often in-patient, more complex SACT regimens may need to be centralised to a limited number of Type 1 and Type 2 SACT hospitals and this is recommended to improve patient outcomes. This centralisation approach is also in line with the National Cancer Strategy 2017-2026 (4).

7.2.2 SACT Supply and Production

Type 1-3 SACT hospitals may operate a hybrid model which may include SACT production by the ACU, benchtop preparation of monoclonal antibodies (130) and / or outsourcing to a third party within a contracted / service level agreement (SLA) (131). Hospital pharmacy supply and production of SACT should consider capacity issues, optimisation of available resources (facilities and staff resources), cost implications, SACT type and maximisation of efficiencies.

Type 1 and Type 2 hospitals should have an ACU for the production of SACT. This may be located on-site or may be a shared ACU providing SACT to more than one hospital. Type 3 SACT hospitals may or may not have an ACU for the production of SACT, depending on the activity levels i.e. the volume of SACT to be administered to patients. The ACU may be located on-site or a may be a shared ACU.

Figure 7: Recommended Types of SACT Facilities

Type 1 SACT Service Cancer centre	• Provision of all complexities of SACT, including specialist referrals and certain centralised services • Ambulatory day unit • Designated in-patient care • Linked with academic institutions for education, training and research, including clinical trials • Aseptic compounding unit • MDMs • SACT outreach service
Type 2 SACT Service SACT hospitals with in-patient care	• Provision of low, medium and some high complexity SACT • Ambulatory day unit • Designated in-patient care • Linked with academic institutions for education, training and research, including clinical trials as appropriate • Aseptic compounding unit • MDMs or linked in with Type 1 hospital MDMs • SACT outreach service
Type 3 SACT Service SACT hospitals	• Provision of low to medium complexity SACT • Ambulatory day unit • MDMs linked in with Type 1 or 2 hospitals • Linked with academic institutions for education and training • +/- Aseptic compounding unit • Research including clinical trials will be linked with Type 1 or Type 2 hospitals • SACT outreach service
Type 4 SACT Service Community SACT	• Provision of low and some medium complexity SACT • Provision of supportive SACT services • Research including clinical trials will be linked with Type 1 or Type 2 SACT services

The reorganisation of hospital and community services into integrated Regional Health Areas and the further development of community services under Sláintecare will provide a platform for the development of SACT services as set out above.

Table 7: Organisation of SACT Services Recommendations

	Recommendation	Lead
5	All SACT services will be organised and delivered in line with the Types detailed in Figure 7. • Type 1 and Type 2 SACT hospitals must have adequate bed numbers in dedicated in-patient wards for patients receiving SACT and for the management of SACT-associated toxicities. • All SACT hospitals should have formalised links to relevant MDMs to enable discussion of patients as appropriate. • SACT hospitals should establish SACT outreach services.	NCCP/HSE All SACT services
6	Certain SACT services should be devolved to Type 3 and Type 4 depending on the complexity of the SACT regimen and associated supports required.	NCCP, HSE, All SACT services
7	Certain specialist, low volume, often in-patient, complex SACT regimens should be centralised to a limited number of Type 1 or Type 2 SACT hospitals. This includes specialist haemato-oncology services.	NCCP, HSE

7.3 Governance

It is recommended that a single governance system is established for SACT services in Ireland in line with the guiding principles of this report and the National Cancer Strategy 2017-2026 (4). A single governance system will enhance the transparency of SACT services and aims to provide a quality and safe SACT service for patients and staff alike. The single governance structure for all SACT services is demonstrated in Figure 8. The governance system is hierarchical in nature.

7.3.1 NCCP

The NCCP will retain its national governance functions for SACT services. This includes the reporting of KPIs, audits and a continuation of its role in the development of national guidance and standard templates for local adoption as relevant to SACT services. These may include PPPGs, national SACT regimens, position papers and other resources. Where recommendations are made in relation to SACT, all SACT services are expected to implement and ensure adherence to such recommendations.

7.3.2 NCCP Cancer Control Networks for SACT services

The O'Higgins report established the Hospital Groups in 2013 which resulted in seven Hospital Groups (including CHI), each with an associated Cancer Control Network (17). This report noted that these Hospital Groups should not be in conflict with existing NCCP arrangements and did not propose to dismantle any of the existing NCCP centres (17).

Each NCCP Cancer Control Network is responsible for the governance of a SACT hospital in their NCCP Cancer Control Network along with the Type 4 community SACT services in their locality. They are also responsible for the governance of MDMs in their NCCP Cancer Control Network, including the availability of the MDMs of all SACT hospitals in their NCCP Cancer Control Network. It is acknowledged that these NCCP Cancer Control Networks have evolved over the lifetime of the National Cancer Strategy 2017-2026 (4) and may continue to evolve.

Currently, there are some situations where SACT spoke hospitals are not aligned to the same Hospital Group and NCCP Cancer Control Network. Particular attention is required where this misalignment occurs, to define the governance of SACT services and for the provision and availability of MDMs. It is anticipated that the establishment of Regional Health Areas (RHAs) and ongoing work in Sláintecare will result in a more cohesive alignment of NCCP Cancer Control Networks, in particular Type 2 and 3 SACT hospitals and Type 4 community services.

The NCCP Cancer Control Network's governance ensures that SACT services are in line with any legislative requirements as well as with national NCCP guidance and recommendations. The NCCP Cancer Control Network is also responsible for the distribution of all SACT services in their Network to ensure capacity for the provision of SACT is utilised efficiently and effectively. This includes the devolvement of patients away from Type 1 and Type 2 SACT hospitals to utilise capacity, where available, in Type 3 and Type 4 SACT services. This may ensure that patients are treated as close to home as possible, that waiting times for patients receiving SACT are effectively managed and that KPIs are met.

Each NCCP Cancer Control Network is expected to have a nominated cancer services team that will contribute to service planning within their NCCP Cancer Control Network, including service planning for SACT services. This team will comprise of a clinical lead who should be supported by a nursing lead, a pharmacy lead and a business manager lead. There are a number of these NCCP Cancer Control Network teams already established or in development. Appropriate communication structures should be in place to ensure information on medical oncology and haemato-oncology SACT from all SACT services within the NCCP Cancer Control Network is communicated to the NCCP Cancer Control Network team and to the representative attending the quarterly meetings with the NCCP.

7.3.3 Type 1-4 SACT services

All SACT services must operate in line with the organisation of services in this Model of Care and have a responsibility to abide by legislative requirements and national PPPGs governing SACT. All SACT services must report, as required, to the NCCP Cancer Control Network and the NCCP.

All Type 1-4 SACT services should have a nominated clinical lead for haemato-oncology and medical oncology to oversee the coordinated approach to SACT delivery and service planning. The clinical leads should be supported by a nursing lead, a pharmacy lead and a business lead. This SACT service team are responsible for communicating to their SACT service locally as well as to the NCCP Cancer Control Network.

The service delivery of community SACT services will be determined and aligned with national HSE governance arrangements. In most cases this will be through governance arrangements for community services. The governance arrangements will include funding and procurement arrangements including the supply and dispensing of medication. Where a third party service is contracted to provide SACT services in the patient's home, a service level agreement with the HSE must be in place which clearly outlines the governance structures in place.

7.3.4 Clinical governance

The responsibility for the management of the patient is with their primary consultant medical oncologist or haematologist, regardless of which Type of SACT service they are attending.

Clinical governance structures for SACT must be integrated into organisational governance functions with clear lines of accountability and responsibility for all clinical governance functions. Each SACT service, irrespective of Type, will be responsible for adhering to this governance structure.

Figure 8: HSE SACT Services Governance Structure

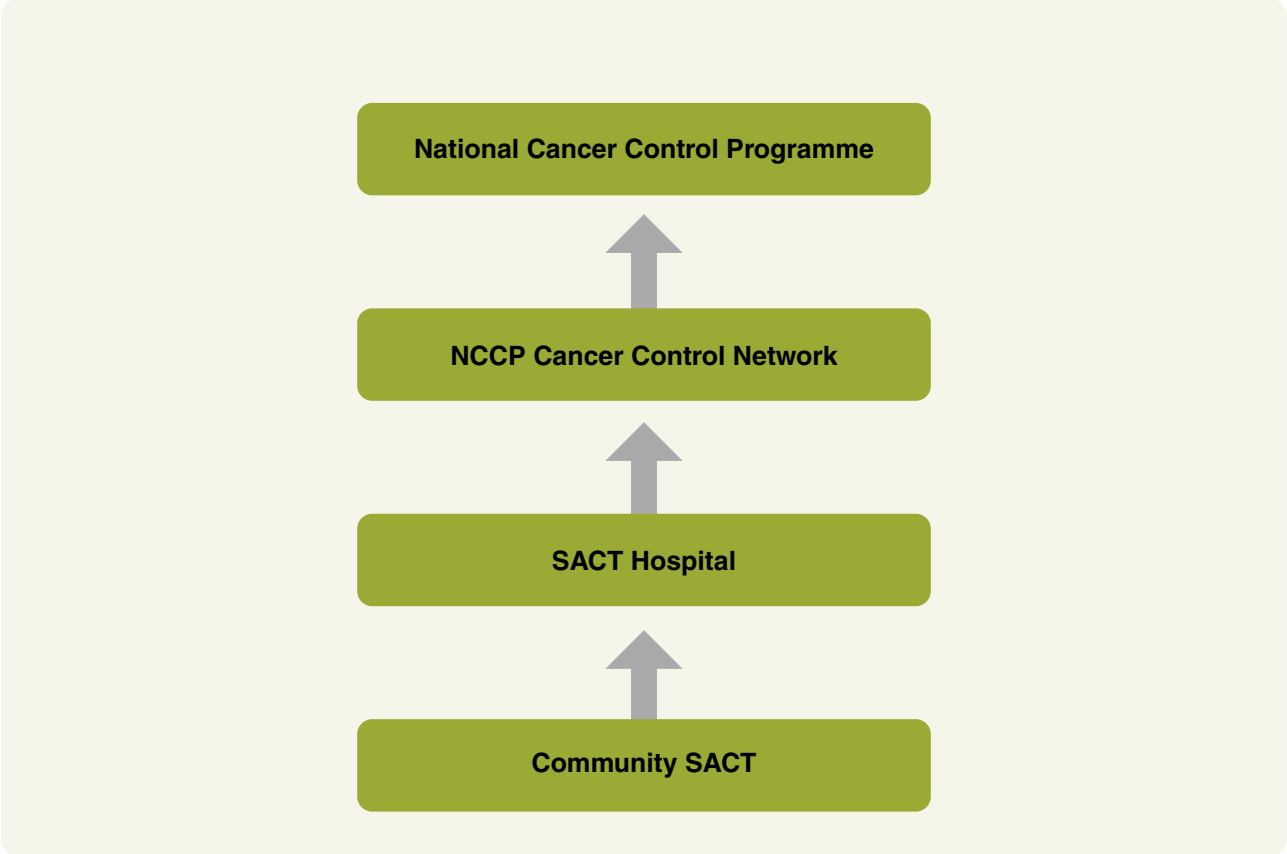


Table 8: Governance Recommendations

	Recommendation	Lead
8	The governance of all SACT services is based on the governance structure as demonstrated in Figure 8. The establishment and structure of any new SACT services should align to this governance.	DoH, HSE, NCCP, NCCP Cancer Control Networks, all SACT services
9	Each location providing SACT cancer services should be part of a NCCP Cancer Control Network • NCCP Cancer Control Networks should have a nominated cancer services team including a clinical lead and should be supported by a nursing lead, a pharmacy lead and a business lead.	NCCP Cancer Control Networks, All SACT services
10	Type 1-3 SACT hospitals should have a nominated clinical lead for their SACT service to oversee the coordinated approach to SACT delivery and service planning. Type 4 SACT services must have clear governance arrangements in place from community to hospital.	All SACT services

7.4 Quality and Safety

A quality and safe SACT service is underpinned by a number of components including standardisation of SACT services, a nationally implemented information system as well as clear patient information and communication throughout the SACT service. The NCCP play a key role in working with cancer services stakeholders to develop and agree national guidance to ensure quality and safe SACT services are in place. Future developments in this area may include a NCCP approved accreditation process or quality framework.

7.4.1 Standardisation of SACT Services

Standardisation of SACT services is key to the development of a quality and safe service. Standardisation of all aspects of SACT care is to be addressed through the recommendations made in this Model of Care. There are a number of components to standardising SACT services, including:

7.4.1.1 Policies, Procedures, Protocols and Guidelines (PPPGs)

Evidence-based policies, procedures, protocols and guidelines (PPPGs) will be developed by all SACT services to achieve and maintain the quality and safety standards in a particular location. PPPGs may be local, regional, national or other. Local and regional PPPGs should follow national guidance where available. These PPPGs should adhere to the HSE PPPG framework[28] and should include, at a minimum, the PPPGs indicated in the 2014 NCCP Oncology Medication Safety Review Report (8). Where national policies are in place, local protocols should adhere to them.

28 https://www.hse.ie/eng/about/who/qid/use-of-improvement-methods/nationalframeworkdevelopingpolicies/

7.4.1.2 Monitoring and Evaluating

SACT services will be monitored at hospital, regional (NCCP Cancer Control Networks) and national level as per the above governance structure. Regular quality meetings in all SACT services should be in place. These may be stand-alone meetings or part of a wider hospital or Hospital Group quality meeting. Monitoring and evaluation measurements may include:

- KPIs
- Quality Indicators
- Audit of cancer services locally and nationally e.g.
  - Clinical audit
  - National drug usage audits
  - Audits of number of patients being discussed at MDMs
- Monitoring of overall service improvements in line with funding and service developments
- Incident reporting in line with HSE and local requirements
- Reporting requirements to support accreditation
- Environmental monitoring of ACUs
- Patient and service user feedback should be incorporated where appropriate

7.4.2 National Cancer Information System (NCIS)

NCIS has the ability to support and improve a quality and safe SACT service through enhanced medicines governance, improved communication of patient information, support for the safe and efficient delivery of SACT, a shared record for patients attending for SACT and support for the effective data recording and report generation. It is recommended that all SACT hospitals implement NCIS to achieve and strengthen a quality and safe SACT service.

SACT outreach services, Type 4 SACT services and community pharmacies should also be considered when implementing ehealth solutions such as a national electronic patient record system or shared-care record in order to support their service and ensure safe transitions of care. Remote electronic prescribing of SACT may also need to be considered.

Table 9: Quality and Safety Recommendations

	Recommendation	Lead
11	All SACT services and the NCCP will be responsible for maintaining a quality and safe service and will be monitored and evaluated regularly. PPPGs will be developed and adhered to in all SACT services, as appropriate to that service, to support a quality and safe service.	All SACT services, NCCP
12	The NCCP will lead on the development of all national KPIs and quality indicators in SACT services.	NCCP
13	All SACT services should be supported by a national information system such as NCIS. • Electronic prescribing of parenteral SACT should be in place in all SACT services by 2025, and expanded to include other areas such as OAMs and supportive care once available.	All SACT services, NCCP, HSE

7.5 Data and Information Management

Data and information management and quality and safety are intrinsically linked. Data and information management systems can facilitate a safe and quality SACT service and aid reporting mechanisms.

It is recommended that each SACT service should have an explicit data and information management strategy document in place that considers the following from a provision of SACT perspective:

- Types of data
- Quality of data
- Data protection and confidentiality
- Accessibility
- Transparency
- Analysis of data and information
- Use of data and information
- Dissemination of data and information
- Risks
- Business continuity measures

The implementation of NCIS will support many aspects of data and information management in hospitals. Where possible, a shared patient record should be in place to facilitate the sharing of patient records between hospitals and primary care. This would be to support the seamless management of patients throughout the entire continuum of cancer care. There are a number of ongoing ehealth projects (eHealth Ireland) such as the national electronic patient record (ePR), national patient portal, shared care record. NCIS is aligned to those as relevant.

Table 10: Data and Information Management Recommendations

	Recommendation	Lead
14	All SACT services should have a data and information management strategy document.	All SACT services
15	The NCCP will engage with the emerging eHealth strategy to optimise the use of SACT services data.	NCCP

7.6 Innovations in SACT services

7.6.1 Advances in SACT and Diagnostics

New SACT and new indications for existing SACT, as well as new molecular tests, continue to become available resulting in additional treatment options with reduced toxicity and improved patient outcomes.

Advances in diagnostics, such as molecular testing, that inform decisions on SACT are now an essential component of the management of patients with cancer. These new innovations should be assessed by the NCCP and recommended for implementation, as appropriate[29]. Once recommended, all new SACT and diagnostics that inform decisions on SACT should be implemented in a timely manner to ensure that the treatment of patients in Ireland keeps up to date with these advances.

7.6.2 Advances in Hospital Pharmacy Cancer Services

Although much work has been done in the area of hospital pharmacy cancer services in Ireland, there are areas where innovations are ongoing that may enhance these services. Resilience in ACUs is key to ensuring that these services can continue to safely provide SACT in hospitals. The development of automated computed technology has the potential to support this safe service, increase efficiencies in ACUs, as well as improve the SACT service for patients through improved turnaround times and efficiency gains.

Table 11: Innovations in SACT Recommendation

	Recommendation	Lead
16	New therapeutics and diagnostics in SACT should be rapidly implemented following the recommendation of the NCCP and the HSE.	NCCP, HSE

7.7 Research and Clinical Trials

It is acknowledged worldwide that clinical trials are the gold standard of care. Research and clinical trials are also pivotal to the advancement of SACT therapies. It is essential that all patients have access to clinical trials where clinically appropriate. In order to accomplish this, the workforce needs must be addressed to ensure that there are adequate numbers and skill mix in the workforce to support research and clinical trials in SACT services, as appropriate to the service provided.

All research and clinical trials carried out in hospitals should align to the Types as detailed in the organisation of services referred to in Section 7.2.

Table 12: Research and Clinical Trials Recommendation

	Recommendation	Lead
17	All patients should have access to a clinical trial where clinically appropriate. Clinical trial services should be enhanced/developed in SACT services to support the availability of trials to all patients undergoing SACT.	HSE/NCCP, all SACT services

29 In line with standard HSE processes

7.8 SACT Pathway

SACT services form part of the overall pathway of care for many patients with cancer as demonstrated in Figure 2. The SACT pathway is detailed in Figure 9. In addition, many other services support the SACT pathway such as acute oncology and psycho-oncology. Not all patients will require these services but clear referral pathways and the ability to make available these services is vital for a patient-centred model of care.

As outlined in Current Provision of SACT Services (Chapter 5), the components of the SACT pathway are already in place. However, variation exists in how these components are undertaken. The patient experience recommendation is intrinsically linked to the SACT pathway and must be incorporated.

Figure 9: SACT Pathway

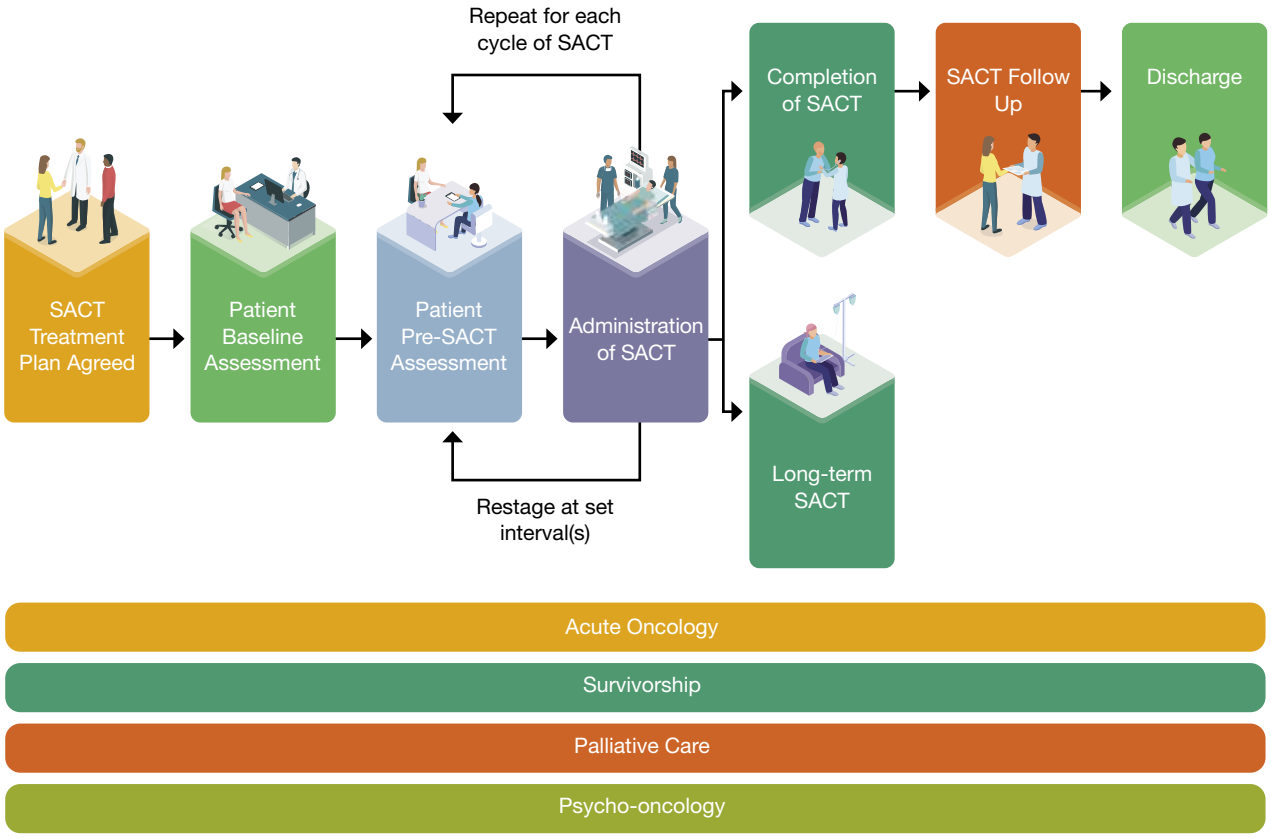


Table 13: SACT Pathway* Requirements

*This pathway begins once there is agreement that a patient is to receive SACT

SACT Pathway	
SACT treatment plan	The patient's treatment plan should include the following information at a minimum: • Diagnosis and staging according to an internationally recognised staging system • Performance status and co-morbidities • Treatment intent • Treatment regimen/SACT therapy plan • Pre-treatment investigations where required • Planned numbers of cycles • Frequency and method of assessment if appropriate including restaging • Any deviation from treatment regimen / SACT therapy plan and rationale for deviation • Patient's preferences • Patient consent • Location of where the SACT is delivered, taking into consideration any devolution or centralisation of services, as appropriate.
Baseline assessment	Each patient should undergo a baseline assessment which includes an assessment of the patient's physical, social, psychological, emotional and spiritual needs and standardised education as relevant to the patient's SACT treatment plan. A nationally standardised baseline assessment template is available here, and includes assessment for referral to a variety of HSCPs, including dietitians, speech and language therapy and prehabilitation.
Pre-SACT assessment	Prior to each cycle of SACT, all patients should have a pre-SACT assessment carried out as relevant to the patient's needs and SACT treatment plan. A nationally standardised pre-SACT assessment template is available here. A pre-SACT blood test may be required as part of the patient's SACT treatment plan. Where a two-day treatment model is in place, consideration should be given to the utilisation of phlebotomy services in Type 4 services and SACT outreach services to facilitate care as close to the patients home as possible and minimise visits to Type 1-3 SACT hospitals.
Treatment monitoring/ restaging	The SACT treatment plan defines the scheduled treatment monitoring / restaging intervals. Restaging may include investigations such as physical exams and diagnostics including blood tests and imaging. Access to these investigations must be available in a timely manner to inform the continuing appropriate treatment of the patient. The outcome of these investigations may result in a change to the SACT treatment plan and will be communicated appropriately to the patient and their carer(s).
Completion of SACT	Relevant information must be given to each patient and the patient's GP and any other primary care facility that the patient is linked with.
Follow-up care	An individual follow-up care plan should be provided to each patient.
Discharge	Each patient should be given a summary of their diagnosis, the treatment they have received and relevant post-treatment information. A copy of this should also be sent to the patient's GP and any other primary care facility that the patient is linked with. Onward referral to relevant HSCPs should be completed as appropriate to the patient's needs.
Long-term and life-long SACT	Continual assessment of this cohort of patients' needs and benefit of treatment is essential to ensure patient-centred care is provided throughout their lives.

7.8.1 SACT Delivery

SACT can be delivered in an in-patient ward, ambulatory day unit, SACT outreach clinic or in the community, including the patient's home. The following points must be considered:

- It is essential that staff are competent in the care of SACT patients.
- The delivery of SACT may be devolved or centralised as detailed in Organisation of Services Section 7.2.
  - Where patients are referred to a specialist referral centre, for example allogenic stem cell transplant or NETs, the management of these patients may remain in the specialist referral centre or be transferred back to the referring hospital to facilitate the care of patients closer to home
- An ambulatory day unit in Type 1-4 services including SACT outreach should be managed by a CNM2 or equivalent at a minimum.
- An ambulatory day unit encompasses the following which should be co-located:
  - out-patients departments
  - haemato-oncology and medical oncology day wards
  - ancillary spaces, for example, dedicated space for patient assessment including triage and acute assessment, patient education, OAM clinics, offices, procedure rooms, clinical trials space and high cost / short shelf life SACT preparation where appropriate

  These ambulatory day units should also be supported by:
  - adequate staffing of the SACT MDT
  - dedicated services e.g. phlebotomy
  - IT supports e.g. NCIS, NIMIS, Laboratory information system (LIS) access, National Medical Laboratory Information System (MedLIS)
  - support staff e.g. portering, administration, cleaning
  - pharmacy services including cancer drug preparation area/ ACUs[30]
  - PPPGs as previously outlined
- There is a need to improve the built environment of many existing locations where SACT is delivered, including patient segregation and isolation facilities.
  - The NCCP Guidance on the Built Environment of a Haematology/Oncology Day Ward (21) should be adhered to when developing SACT day unit facilities.
- It is recommended that Type 4 SACT services and SACT outreach services should be expanded. A seamless pathway between the hospital and community SACT service should be established. The patient's treatment pathway should remain the same, with any medical oncologist or haematologist reviews, scans or phlebotomy appointments occurring in the same manner as if the patient had opted for treatment in a hospital setting.

30 ACUs may also be co-located with the ambulatory day unit

Table 14: SACT Pathway Recommendations

	Recommendation	Lead
18	The SACT pathway should follow the steps as outlined in Table 13. This will need the development of each of the steps as outlined.	NCCP, All SACT services
19	All staff involved in the provision of care to SACT patients should operate according to the appropriate competencies and standards as relevant to the SACT service being delivered. • Nursing staff involved in the administration of SACT must have completed the 'National Systemic Anti-Cancer Therapy (SACT) Competency Programme for Nurses Working in Cancer Care' or equivalent (22).	HSE, All SACT services
20	Type 4 SACT services will be developed and expanded where appropriate, in a standardised manner.	NCCP/HSE
21	The design and layout of haemato-oncology and medical oncology ambulatory day units will be aligned with the NCCP Guidance on the Built Environment of a Haematology / Oncology Day Ward and updated as required to encompass infection control and prevention advice together with public health guidance.	NCCP/HSE

7.9 Acute Oncology/Haemato-oncology

Standardisation of education to patients, as outlined in the SACT pathway in Section 7.8, should be implemented in order to assure safe use of medication, promote adherence and ensure early recognition of side effects to prevent emergency SACT-related episodes. A validated tool for telephone triage such as the UKONS 24-hour telephone triage system should be utilised in all SACT services and the contact details given to the patient.

Acute oncology service (AOS) is a medical oncology and haemato-oncology service and refers to the service supporting the unplanned complications of patients with cancer. All unscheduled care of patients should be managed through the AOS. For all SACT hospitals, an AOS should be developed. This service must be supported by PPPGs for the assessment of patients with cancer at an emergency department and the management of common complications of SACT e.g. neutropenic sepsis. Further training may be required to implement an AOS.

Type 3 and Type 4 SACT services and non-SACT hospitals should have PPPGs in place detailing the agreed pathways for the rapid referral and assessment by a medical oncology or haemato-oncology team, including "treat and transfer"[31] in a timely manner where required. PPPGs should detail the appropriate steps including the referral processes and governance. These may be supported by national guidance where appropriate.

31 Treat and transfer includes management on site and rapid referral/transfer to the appropriate SACT hospital

Table 15: Acute Oncology/Haemato-oncology Recommendations

	Recommendation	Lead
22	National guidance should be developed to support AOS. • All SACT services should have local PPPGs in place for management of unscheduled care of SACT patients in line with national guidance. A validated telephone triage tool should be used in all SACT hospitals and staffed appropriately. Contact details should be given to patients.	NCCP, All SACT services
23	All SACT hospitals should establish an AOS supported by the relevant local PPPGs. • Staff should receive training as appropriate to the service to be provided, noting that this may include staff outside the cancer service, e.g. emergency medicine.	All SACT services All non-SACT hospitals
24	Type 3 SACT hospitals and non-SACT hospitals with an emergency department should have processes in place for the assessment, rapid referral and transfer of patients to an acute SACT hospital in a timely manner.	Type 3 SACT hospitals and non-SACT hospitals

7.10 Workforce Planning

The details of the workforce plan for SACT services is in Workforce Planning (Chapter 6).

Table 16: Workforce Planning Recommendation

	Recommendation	Lead
25	Adequate staffing should be in place to support a safe and quality SACT service as detailed in Workforce Planning Chapter 6. The National Cancer Strategy 2017-2026 (4) Recommendation 50 on workforce planning should be progressed to further identify the needs of the full SACT service.	NCCP, All SACT services

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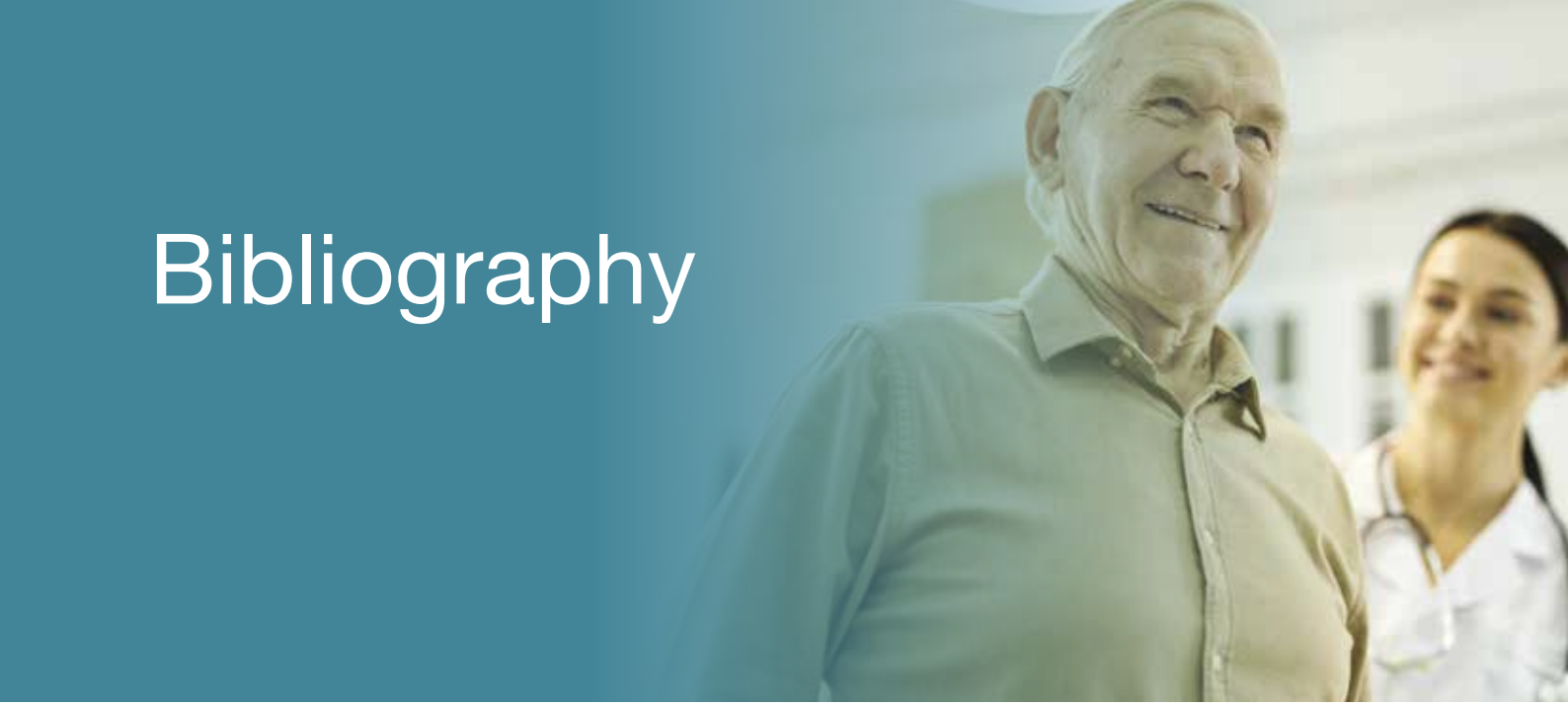

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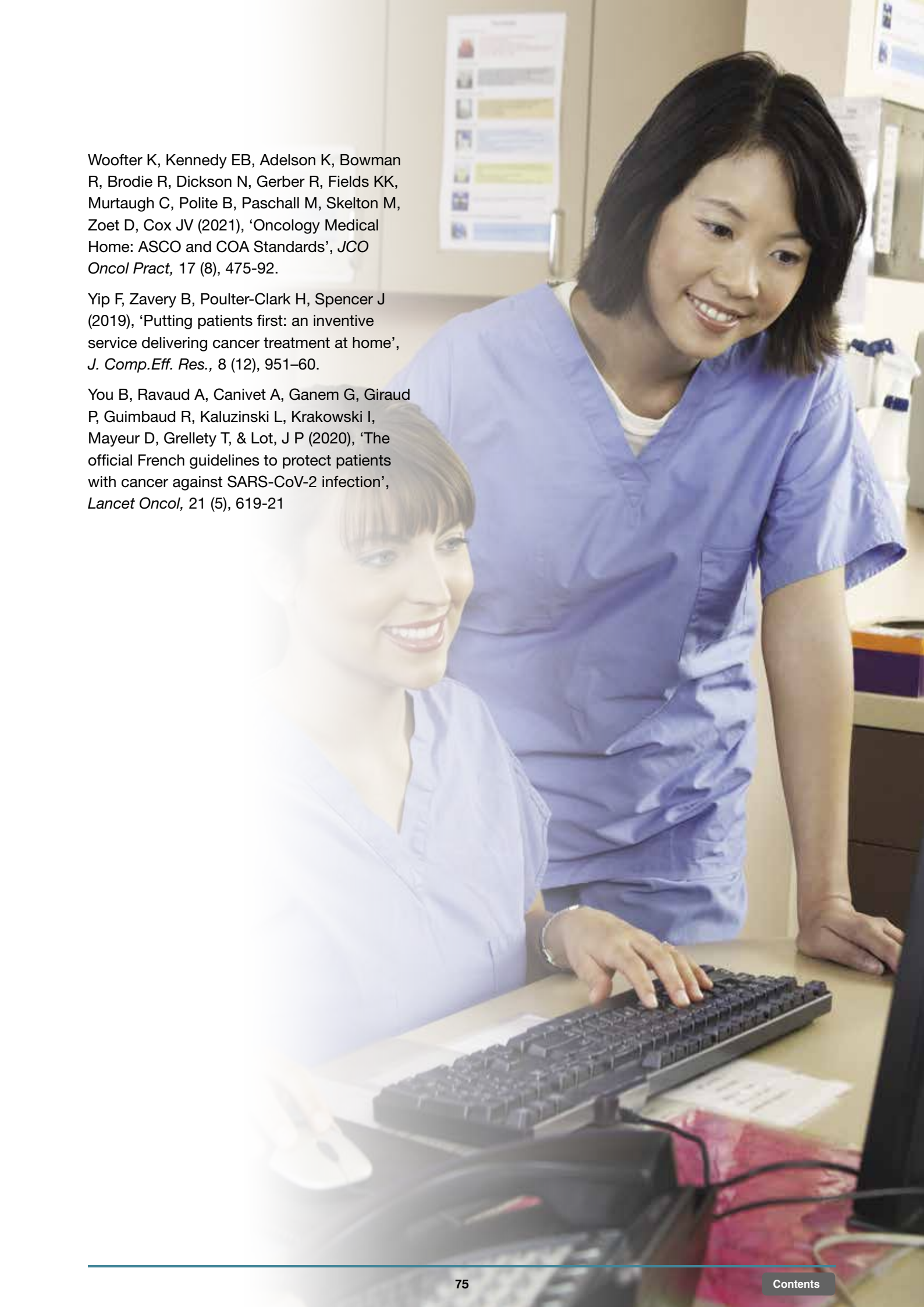


Appendix 1

Recommendations from the SACT Model of Care

Rec.	Recommendation	Responsibility	Section
1	All SACT services should ensure patients are involved in decisions relating to their care.	All SACT services	Patient Experience
2	Each patient must have a SACT treatment plan recommended by the consultant medical oncologist or haematologist and agreed by the patient and their carer(s), as appropriate.	All SACT services	Patient Experience
3	The NCCP will define focused 'patient with cancer experience' surveys to incorporate treatment and survivorship in line with the National Cancer Strategy (4).	NCCP	Patient Experience
4	Telehealth solutions should be utilised in SACT service delivery as appropriate and in line with the national and local PPPGs.	HSE, All SACT services	SACT pathway
5	All SACT services will be organised and delivered in line with the Type detailed in Figure 7. • Type 1 and 2 SACT hospitals must have adequate bed numbers in dedicated in-patient wards for patients receiving SACT and for the management of SACT-associated toxicities. • All SACT hospitals should have formalised links to relevant MDMs to enable discussion of patients as appropriate. • SACT hospitals should establish SACT outreach services.	NCCP/HSE All SACT services	Organisation of services
6	Certain SACT services should be devolved to Type 3 and Type 4 depending on the complexity of the SACT regimen and associated supports required.	NCCP, HSE, All SACT services	Organisation of services
7	Certain specialist, low volume, often in-patient, complex SACT regimens should be centralised in a limited number of Type 1 or Type 2 SACT hospitals. This includes specialist haemato-oncology services.	NCCP, HSE	Organisation of services

8	The governance of all SACT services is based on the governance structure as demonstrated in Figure 8. The establishment and structure of any new SACT services should align to this governance.	Department of Health (DoH), HSE, NCCP, NCCP Cancer Control Networks, all SACT services	Governance
9	Each location providing SACT cancer services should be part of a NCCP Cancer Control Network. • NCCP Cancer Control Networks should have a nominated cancer services team including a clinical lead and should be supported by a nursing lead, a pharmacy lead and a business lead.	NCCP Cancer Control Networks, All SACT services	Governance
10	Type 1-3 SACT hospitals should have a nominated clinical lead for their SACT service to oversee the coordinated approach to SACT delivery and service planning. Type 4 SACT services must have clear governance arrangements in place from community to hospital.	All SACT services	Governance
11	All SACT services and the NCCP will be responsible for maintaining a quality and safe service and will be monitored and evaluated regularly. PPPGs will be developed and adhered to in all SACT services, as appropriate to that service, to support a quality and safe service.	All SACT services, NCCP	Quality and Safety
12	The NCCP will lead on the development of all national KPIs and quality indicators in SACT services.	NCCP	Quality and Safety
13	All SACT services should be supported by a national information system such as NCIS. • Electronic prescribing of parenteral SACT should be in place in all SACT services by 2025, and expanded to include other areas such as OAMs and supportive care once available.	All SACT services, NCCP, HSE	Quality and Safety
14	All SACT services should have a data and information management strategy document.	All SACT services	Data and information management
15	The NCCP will engage with the emerging eHealth strategy to optimise the use of SACT services data.	NCCP	Data and information management
16	New therapeutics and diagnostics in SACT should be rapidly implemented following the recommendation of the NCCP and the HSE.	NCCP, HSE	Innovations in SACT services
17	All patients should have access to a clinical trial where clinically appropriate. Clinical trial services should be enhanced/developed in SACT services to support the availability of trials to all patients undergoing SACT.	HSE/NCCP, all SACT services	Clinical Trials and Research
18	The SACT pathway should follow the steps as outlined in Table 13. This will need development of each of the steps as outlined.	NCCP, All SACT services	SACT pathway

19	All staff involved in the provision of care to SACT patients should operate to the appropriate competencies and standards as relevant to the SACT service being delivered. • Nursing staff involved in the administration of SACT must have completed the 'National SACT Competency Programme for Nurses Working in Cancer Care' or equivalent (22).	HSE, All SACT services	SACT pathway
20	Type 4 SACT services will be developed and expanded where appropriate, in a standardised manner.	NCCP/HSE	SACT pathway
21	The design and layout of haemato-oncology and medical oncology ambulatory day units will be aligned with the NCCP Guidance on the Built Environment of a Haematology/Oncology Day Ward (21) and updated as required to encompass infection control and prevention advice together with public health guidance.	NCCP/HSE	SACT pathway
22	National guidance should be developed to support AOSs. • All SACT services should have local PPPGs in place for management of unscheduled care of SACT patients in line with national guidance. A validated telephone triage tool should be used in all SACT hospitals and staffed appropriately. Contact details should be given to patients.	NCCP, All SACT services	Acute Oncology/ Haemato-oncology
23	All SACT hospitals should establish an AOS supported by the relevant local PPPGs. • Staff should receive training as appropriate to the service to be provided, noting that this may include staff outside the cancer service, e.g. emergency medicine.	All SACT services All non-SACT hospitals	Acute Oncology/ Haemato-oncology
24	Type 3 SACT hospitals and non-SACT hospitals with an emergency department should have processes in place for the assessment, rapid referral and transfer of patients to an acute SACT hospital in a timely manner.	Type 3 SACT hospitals and non-SACT hospitals	Acute Oncology/ Haemato-oncology
25	Adequate staffing should be in place to support a safe and quality SACT service as detailed in Workforce Planning Chapter 6. The National Cancer Strategy 2017-2026 (4) Recommendation 50 on workforce planning should be progressed to further identify the needs of the full SACT service.	NCCP, All SACT services	Workforce Planning

Appendix 2

Strategic policy direction informing the SACT Model of Care

Policy direction	
National Systemic Anti-Cancer Therapy (SACT) Competency Programme for Nurses Working in Cancer Care (2021) (22)	The NCCP Oncology Medication Safety Review Report (2014) (8) recommended the requirement to develop and implement specialist competency training needs for all disciplines working in the areas of clinical oncology and aseptic manufacturing. It also highlighted the need to develop generic guidance on specific oncology training programmes or competency assessments for all nurses, pharmacists and doctors. The aim of the National SACT Competency Programme for Nurses Working in Cancer Care is to standardise the education and assessment of SACT administration and patient care nationally, to ensure consistently safe and high-quality SACT practice. Upon completion of the programme, registered SACT administrators can move between employers without the need for retraining which will be more efficient and effective for services. This national programme will be provided by a number of nursing organisations, e.g. the Regional Centre of Nursing and Midwifery Education (RCNME) in all of the Type 1 and Type 2 SACT service hospitals. Cancer nurses from Type 3 and Type 4 SACT services, or any of the SACT hospitals, will have equal opportunity to feed into the programme being delivered at any location nationally.
Guidance on the Provision of Parenteral Systemic Anti-Cancer Therapy and Supportive Care in Community Services (2020) (20)	A key focus of the National Cancer Strategy 2017-2026 (4) is attaining an integrated continuum of care for patients through primary, secondary and tertiary care. Central to this is the provision of appropriate cancer care services in the community, including SACT. This is an overarching guidance document for the establishment and provision of community-based SACT services.
Guidance on the Built Environment of a Haematology/Oncology Day Ward (2020) (21)	This guidance was developed in response to Recommendation 9 of the Oncology Medication Safety Review Report (2014) (8) to develop nationally agreed guidelines on the optimum requirements of the built environment of haemato-oncology and medical oncology day wards. This report specifically considers the following in terms of the design of a haemato-oncology and/or medical oncology day unit: - minimising the risks to patients and staff due to the use of cytotoxic drugs - minimising risk of infection in a vulnerable population - respecting the dignity and comfort needs of patients - providing care in a safe and secure environment - facilitating efficient processes and optimising use of staff time - adherence to relevant legislative requirements and national policies

Psycho-oncology Model of Care (2020) (23)	The Model of Care for Psycho-Oncology published in 2020, provides a framework to support the provision of psychological care to patients with cancer across the cancer continuum and their families. This framework proposes that the model of care is delivered through an integrated care approach aligning with the Sláintecare principles of right care, at the right time, in the right place. The Model of Care proposes a 'hub and spoke' design with a Psycho-Oncology multidisciplinary team (MDT) in each of the designated cancer centres, which was recommended in the National Cancer Strategy. The Psycho-Oncology MDT offers psychosocial intervention and support in the acute setting, as well as supporting community Psycho-Oncology services in other SACT hospitals and professionally-led community cancer support centres and services through the 'hub and spoke' model. Community cancer support centres provide comprehensive support services and are open to all patients with cancer irrespective of their stage of cancer, including support of patients receiving palliative care. They provide a variety of services to patients, their families and carers. This includes core services such as the provision of information, psychological supports and cancer survivorship programmes as well as complementary therapies, support groups and drop-in services. They are particularly relevant to patients attending SACT services.
National Cancer Survivorship Needs Assessment (2019) (24)	The National Cancer Strategy 2017-2026 (4) recommended conducting a national cancer survivorship needs assessment to ascertain the most suitable model of survivorship healthcare (Recommendation 41). The ALLIES model of survivorship care was developed from this needs assessment. This patient-centred model of care has a set of key principles; assessment, linking in, linking out and onward, informing, empowering, and providing support and services. These principles aim to improve the coordination of services, empower patients through information and education, identify the need for services and ensure access to them in an effective and efficient manner. The ALLIES model uses risk stratification to assess and identify need. The components of the model are a survivorship pathway that can contain survivorship sessions, treatment summary and care planning, access to tumour specific follow-up clinics, survivorship clinics, survivorship programmes and symptom control, management and resolution.
Oral Anti-Cancer Medicines Model of Care (2018) (9)	The National Cancer Strategy 2017-2026 (4) recommended the development of a model of care for OAMs (Recommendation 23). The publication of the NCCP OAMs Model of Care Recommendations represents a significant advance in patient safety for cancer care. The recommendations of this report focus on ensuring a safe OAMs model of care. They incorporate the OAMs recommendations of the Oncology Medication Safety Review Report (2014) (8) and the National Cancer Strategy 2017-2026 (4). These recommendations, when implemented in conjunction with the existing recommendations of the NCCP Oncology Medication Safety Review (8), seek to establish a safer OAMs Model of Care.
Sláintecare (2017) (16)	The Report by the Dáil Committee on the Future of Healthcare (2017) (16) aims to deliver a health and social care service that meets the future needs of our population. Over a ten-year period, it aims to deliver a universal health service that offers the right care, in the right place, at the right time, with a priority focus on developing primary and community services within a national policy context. The development of appropriate locations for the SACT services, in line with this Model of Care, aligns with the overall vision of Sláintecare.

National Cancer Strategy 2017-2026 (4)	The publication of the National Cancer Strategy 2017-2026 included a number of conclusions and recommendations relevant to SACT, including: - Development of a comprehensive model of care for SACT, to provide a roadmap to facilitate the implementation of the Strategy over its target period of 10 years. - Capital developments for day care services and pharmacy capacity - A significant increase in staffing to provide SACT services, including medical oncologists and haematologists, advanced nurse practitioners, medical oncology and haemato-oncology nurses, pharmacists and health and social care professionals (HSCPs) - A comprehensive workforce plan for all cancer services - Appropriate MDMs, centralisation and treatment arrangements to meet the diverse needs of patients with haematological cancers - A model of care for OAMs - Equitable access to the most advanced treatments available - Implementation of NCIS - Centralisation of services for acute haematological malignancies - Appropriate facilities for the treatment of adolescents and young adults with cancer and joint appointment of medical oncologists and haematologists for adolescent/young adult care between the National Centre for Child and Adolescent Cancer and other cancer centres - Develop of a framework for the delivery and location of molecular diagnostics - Protected time for research for consultants and advanced nurse practitioners (ANPs) and cancer research staff fully integrated into care delivery - A range of key performance indicators (KPIs) and healthcare indicators
National Cancer Strategy 2006: a Strategy for Cancer Control in Ireland Evaluation Panel Report (2015) (15)	The external review by Warde et al (15) of the Cancer Strategy 2006 (3), identified significant deficits in the SACT service, which were highlighted in the National Cancer Strategy 2017 (4). Principal amongst these deficits were: - The design of SACT day care facilities; there is a need to improve pharmacy facilities, day ward capacity and patient experience and to ensure that appropriate facilities are available for the management of acutely unwell patients requiring review. - 24/7 cancer care so that no patient with cancer requiring emergency care related to their treatment is required to access that care through the Emergency Department. - Better links with general practitioners (GPs). - Nursing staff shortages, which were recognised as being “a major concern as regards patient safety”. The lack of ANPs in Ireland was described as “startling”. - A severe lack of HSCPs. - A shortage of pharmacists, to the point of raising patient safety concerns. - A minimum of 60 additional consultant medical oncologists. - A review of staffing needs in medical oncology, particularly in areas outside Dublin.

NCCP Oncology Medication Safety Review Report (2014) (8)	The NCCP Oncology Medication Safety Review Report assessed the oncology medication policies and practices in the 26 hospitals in Ireland involved in the administration of SACT from a patient safety and quality perspective. This report made 93 recommendations to improve the provision of SACT services in the 26 hospitals. Since its publication, work has progressed on the implementation of the report, through local implementation in hospitals and through national groups to develop guidelines and policies. Many of the outstanding recommendations from the Oncology Medication Safety Review Report are dealt with in this Model of Care. The following guidance documents, which are relevant to the SACT Model of Care were developed to fulfil the recommendations of this 2014 review: - NCCP Guidance on Intrathecal Chemotherapy (132) - NCCP Guidance on the Safe Use of Neurotoxic Drugs (including Vinca Alkaloids) in the Treatment of Cancer (133) - Guidance on the Built Environment of a Haematology and Oncology Day Ward (21) - Consent Form for SACT[32] - Minimum Personnel for Day Wards (134)
NCCP Report on the Implementation of the 2006 Strategy (2014) (11)	In 2014, the NCCP published a report outlining the progress it had made on the implementation of the 2006 Cancer Strategy (3). The report outlined that since the 2006 Strategy, the role of SACT had changed significantly and now plays a much more prominent role in curing and controlling cancer. The NCCP formally established national programmes for medical oncology and haemato-oncology (collectively known as the "Systemic Therapy Programme") in late 2012. These programmes provide a framework for national oversight and audit of oncology drug use, adherence to protocols and oncology drug expenditure. Activities include the development of chemotherapy protocols, publication of the Medical Oncology Safety Review Report (8) and the establishment of the Technology Review Committee for new drugs or expanded indications for existing drugs. Separately, the National Plan for Radiation Oncology[33] sets out the national model of care for radiation oncology, and progress was made on the centralisation of diagnosis, treatment planning and surgical oncology.
The Establishment of Hospital Groups as a transition to Independent Hospital Trusts (2013) (17)	This report, often called the O'Higgins Report, resulted in the establishment of the Hospital Groups. Each Hospital Group was recommended to have a NCCP Cancer Centre. This report noted that these Hospital Groups should not be in conflict with existing NCCP arrangements and did not propose to dismantle any of the existing NCCP centres. This report specifically highlighted the existing nature of Cancer Control Networks and the importance of maintaining these linkages.
National Cancer Strategy 2006 (3)	The 2006 Strategy had a strong focus on prevention and research, as well as major structural changes to the organisation and delivery of cancer services. These included the establishment of managed cancer networks and the designation of cancer centres. Other key recommendations from the strategy were the development of care pathways, the establishment of specialised teams for the management of site-specific cancers and the organisation of specialised care, including surgical services, into cancer centres. At that time, SACT services were a relatively small component of the treatment of patients with cancer. In order to support the implementation of the strategy in the HSE, the NCCP was subsequently established in 2007.
Cancer Services in Ireland, a National Strategy (1996) (2)	This strategy outlined the need for a National Cancer Strategy to build upon the steps taken under the recommendations of Shaping a Healthier Future (1994) (135) and to ensure that Ireland has a high quality cancer service throughout the country. One of the key principles was to ensure that those who develop cancer receive the most effective care and treatment and that their quality of life is enhanced to the greatest extent possible.

32 https://www.hse.ie/eng/services/list/5/cancer/profinfo/medonc/safetyreview/consent.pdf

33 https://www.hse.ie/eng/services/list/5/cancer/profinfo/radonc/

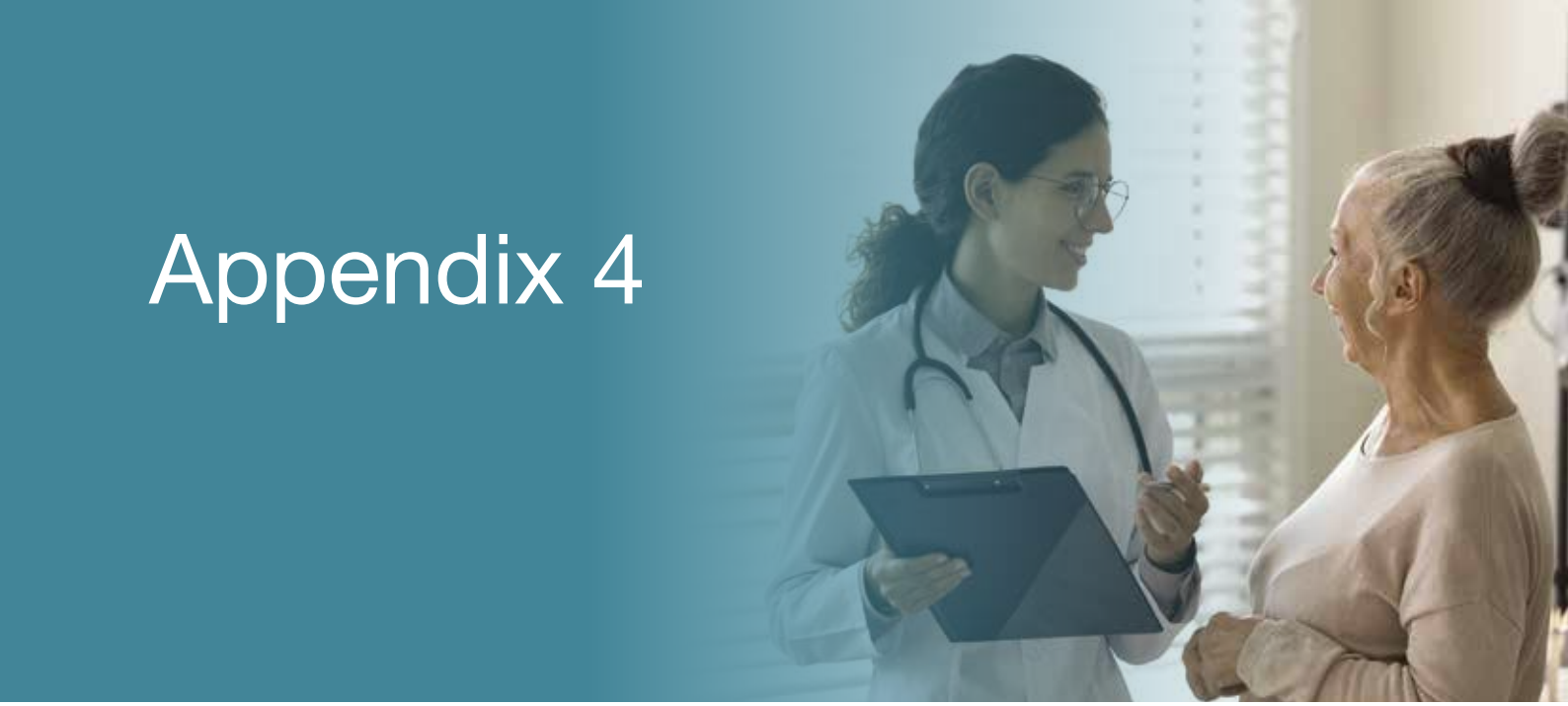
Appendix 3

SACT Model of Care Steering Group membership

Representing	Name	Title	Location / Organisation	Start date	Step down date
NCCP	Prof Maccon Keane (Chair)	National Clinical Lead for Medical Oncology	NCCP University Hospital Galway	2015	
NCCP	Patricia Heckmann	Assistant National Director, Systemic Therapy Programme	NCCP	2015	
NCCP Project Lead	Tracy Folliard	Systemic Therapy Programme Manager	NCCP	2019	
NCCP Project Support	AnneMarie DeFrein	Deputy Chief Pharmacist	NCCP	2020	
NCCP Nursing	Terry Hanan	NCCP National Clinical Lead for Cancer Nursing	NCCP	2019	
NCCP Nursing	Cathleen Osborne	Assistant Director of Nursing, NCCP	NCCP	2019	
HPAI	Olivia Flynn	Chief II Pharmacist	University Hospital Limerick	2019	
DoH	Declan Whelan	Cancer Policy Unit, DoH	Department of Health	2019	2020
DoH	Karl Silver	Cancer Policy Unit, DoH	Department of Health	2020	
IHS	Dr Michael Fay	Consultant Haematologist	The Mater Misericordiae University Hospital	2015	
IANO	Anne Marie Gilmartin	CNMII	IANO – University Hospital Limerick	2019	
Professional Bodies Alliance	Grainne Sheill	Senior Physiotherapist	St James's Hospital	2020	
CTI	Prof Ray McDermott	Consultant Medical Oncologist	Clinical Trials Ireland	2015	
ISMO	Prof Patrick Morris	Consultant Medical Oncologist	Beaumont Hospital	2015	
NCCP	Prof Deirdre Murray	Cancer Intelligence	NCCP	2015	2020
NCCP	Ozlem McDonnell	Cancer Intelligence	NCCP	2020	

HSE Palliative Care Programme	Dr Brian Creedon	Consultant in Palliative Medicine Clinical Lead, HSE Palliative Care Programme	HSE Palliative Care Programme	2019	
Haematology Nursing	Mary Kelly	ANP Haematology	Midlands Regional Hospital Tullamore	2020	
NCCP GP Liaison	Dr Una Kennedy	NCCP GP Liaison	NCCP	2020	
Cancer Services Business Manager	Josephine Earls	Business Manager, University Hospital Limerick	University Hospital Limerick	2019	
Patient representative	John Kennedy	Patient representative		2019	
Europa Donna	Tara Byrne	Patient representative		2015	2019
HPAI	Grant Carroll	Chief II Pharmacist	Beaumont Hospital	2015	2019
IANO	Olivia Grady	CNS, Sligo General Hospital		2015	2019
HAI	Emma Hayes	Lymphoma Clinical Nurse Specialist	St James's Hospital	2015	2018
HAI	Fiona Weldon	CNS St James's Hospital		2018	2019
Europa Donna	Fiona McEntee	Patient representative		2015	2019
Professionals Bodies Alliance	Catherine McKenna	Radiation Therapy Services Manager		2015	2020
NCCP	Ciara Mellett	Programme Manager, Systemic Therapy	NCCP	2015	2019
Steering Group	Jacqueline Robinson	Cancer Services Manager	St James's Hospital	2015	2019
Steering Group	Karen Ryan	Consultant in Palliative Medicine Clinical Lead, HSE Palliative Care Programme	HSE Palliative Care Programme	2015	2019
Steering Group	Sine Vasquez	Senior Oncology Physiotherapist	Beaumont Hospital	2015	2019

Appendix 4



SACT Model of Care Steering Group Terms of Reference

NCCP Systemic Anti-Cancer Therapy Model of Care Steering Group Terms of Reference

Introduction

The Systemic Anti-Cancer Therapy (SACT) Model of Care Steering Group is responsible for developing a SACT Model of Care to cover all relevant areas, for approval by the National Cancer Control Programme (NCCP) National Executive. The intention is to develop a roadmap for the Model of Care required to allow the NCCP and hospitals providing systemic anti-cancer therapy to meet the growing prevalence of cancer and the increasing use of systemic therapy in its treatment.

Scope

The work of the steering group will involve the development of a Model of Care and associated workforce planning requirements that will encompass SACT services of medical oncology and haematology[34]. The plan will relate to patient care from the point of the MDM to conclusion of treatment and relates to care provided in hospitals and the community.

The Model of Care will consider issues and services related to the patient pathway for SACT, including, but may not be limited to:

- The services delivered
- The location of services including hospitals and community
- Governance
- Capacity
- Safety and quality
- Workforce planning
- Infrastructure

The SACT Model of Care will not include survivorship (which is being comprehensively addressed under a separate NCCP programme).

34 Excluding pre-malignant / non-malignant haematology

Chairmanship

The Steering Group will be chaired by the NCCP Clinical Advisor on Medical Oncology for the duration of the project.

Membership

The membership of the Steering Group shall be determined by the NCCP. Membership shall include at a minimum:

- One consultant medical oncologist, nominated by ISMO
- One consultant haematologist (with an interest in oncological malignancies), nominated by IHS
- One palliative medicine consultant
- One oncology nurse, nominated by Irish Association for Nurses in Oncology (IANO)
- One haematology nurse, nominated by Haematology Association of Ireland (HAI)
- One hospital pharmacist, nominated by Hospital Pharmacists Association of Ireland (HPAI)
- One allied health professional representative
- One hospital cancer management representative
- One clinical trial representative, nominated by CTI
- NCCP Assistant National Director and Chief Pharmacist for the Systemic Therapy Programme
- NCCP Lead for Cancer Intelligence
- NCCP National Programme Manager for Systemic Therapy
- NCCP Nursing Representative
- Department of Health Cancer, Blood and Organs Policy Unit
- Patient representative(s)

Duration of Membership

Appointment of members will be for the duration of the development of the SACT Model of Care.

Reporting Relationships

The steering group reports to the National Director of the NCCP.

Quorum

The quorum for meetings of the group shall be 5 members.

Planned Review of Terms of Reference

The terms of reference will be reviewed annually or as required.

Support

Meeting rooms/secretariat support will be provided by the NCCP.

Meeting Frequency

Meetings will be held monthly initially until a draft SACT Model of Care is developed or as required. Meetings will ordinarily be held in the NCCP Offices. All meetings will be made available by teleconference.

Consultation

Other individuals, groups or representative bodies may be consulted with during the course of the work of the group, for example:

- Paediatrics
- Specific allied health areas e.g. social work.
- Community nursing – it is proposed to consult with community nurses through the community oncology nurses group.
- Groups representing specific haematological malignancies such as Lymphoma Forum, Acute Leukaemia Forum, Myeloma Group etc.
- General practice – consultation/sub-group on draft plan, particularly in relation to communications between acute and primary care.

Sub-Groups

The Steering Group may convene sub-groups, as appropriate, to progress its work.

Communications and circulation of documentation

Communication with members will ordinarily be by e-mail. Documentation will be circulated in advance of meetings, where possible.

Requirements of Chairman, members & invited experts

The Chairman and members must complete a conflict of interest declaration.

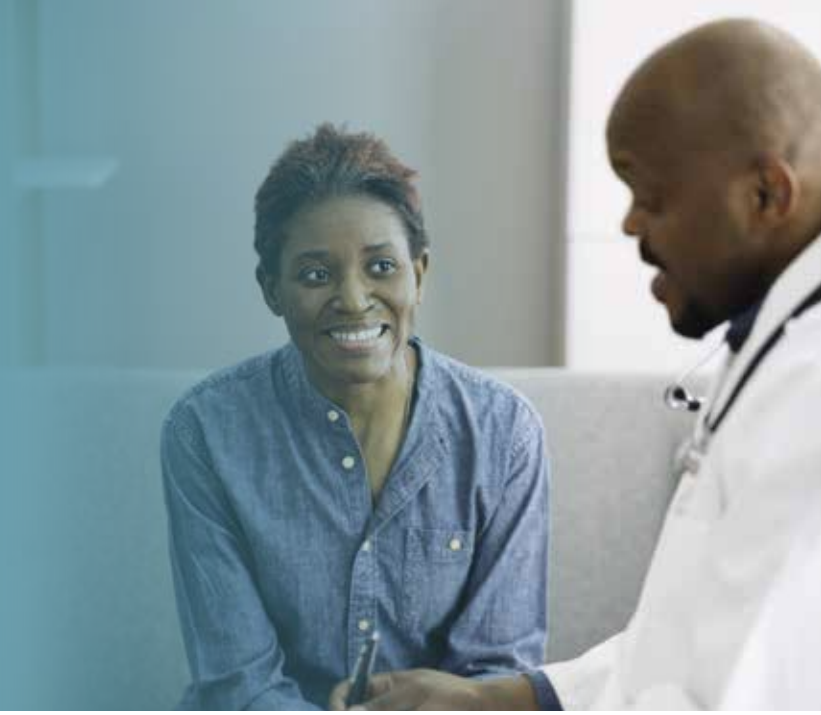
The Chairman, members and invited experts should treat all discussions and documentation as confidential.

Appendix 5

List of targeted stakeholders for SACT Model of Care consultation

HSE Community Operations
HSE Acute Hospitals Directorate
HSE Quality & Patient Safety Directorate
Quality Improvement Division
CORU (Health and Social Care Professionals Council)
Haematology Association of Ireland (HAI)
IHS
ISMO
Irish Nurses and Midwives Organisation (INMO)
Cancer Patient Advisory Committee.
IANO
HPAI
Irish Cancer Society
26 SACT hospitals
7 Hospital Groups

Appendix 6



NCCP Quality and Safety Measures for SACT services

Quality and safety in SACT	Available at the following links
• NCCP Oncology Medication Safety Review Report (8) • NCCP Guidance on the Safe Use of Intrathecal Chemotherapy in the Treatment of Cancer (132) • NCCP Guidance on the Safe Use of Neurotoxic drugs (including Vinca Alkaloids) in the Treatment of Cancer (133) • Oral Anti-cancer Medicines Model of Care Recommendations (9)	• https://www.hse.ie/eng/services/list/5/cancer/profinfo/medonc/safetyreview/oncreview.pdf • https://www.hse.ie/eng/services/list/5/cancer/profinfo/medonc/safetyreview/itcguidance.pdf • https://www.hse.ie/eng/services/list/5/cancer/profinfo/medonc/safetyreview/neurotoxicguidance.pdf • https://www.hse.ie/eng/services/list/5/cancer/profinfo/medonc/safetyreview/oam%20model%20of%20care%20recommendations.pdf
Nationally agreed chemotherapy regimens	• https://www.hse.ie/eng/services/list/5/cancer/profinfo/chemoprotocols/
KPIs	Medical Oncology KPI: For patients receiving a new parenteral systemic therapy in the day ward setting, the timeline between the date that it is agreed that the patient is deemed ready to treat and the administration of the new parenteral systemic therapy will not exceed 15 working days. This include haemato-oncology patients.
National Cancer Information System (NCIS)	Electronic prescribing programme for SACT, currently live in three hospitals with the roll-out ongoing.
Other resources as detailed and linked below:	

Guidance Documents

NCCP Guidance on the use of Biosimilars in Cancer Treatment

NCCP Guidance on the Provision of Parenteral SACT and Supportive Care in the Community

NCCP Guidance on Bevacizumab Rapid Infusion Rate

NCCP Guidance on riTUXImab Rapid Infusion Rate

NCCP Oncology Medication Safety Review

NCCP Guidance on Intrathecal Chemotherapy

NCCP Guidance on Neurotoxins (including Vinca Alkaloids)

NCCP Guidance on Dose Banding for SACT

NCCP Classification Document for Systemic AntiCancer Therapy (SACT) Induced Nausea and Vomiting

NCCP Supportive Care: Antiemetic Medicines for inclusion in NCIS (Medical Oncology)

NCCP Guidance: Making Best Use of SACT Aseptic Compounding Capacity

NCCP Guidance Document for Off Site Transportation of Products from Hospital Pharmacy

NCCP Guidance: Pharmacy Benchtop preparation of monoclonal antibodies (mAbs) used in the treatment of cancer

NCCP Guidance for Medical Radioisotopes Facilities and Services in the event of Brexit

NCCP Guidance: Patient selection for the use of immunoglobulin replacement therapy in cancer patients with secondary immunodeficiency

NCCP Guidance on the Management of Acute Capacity Challenges in Systemic Anti-Cancer Therapy Ambulatory Day Units

NCCP Guidance on the Built Environment of a Haematology/Oncology Day Ward

Resources

NCCP Olaparib Tablets Communication to Pharmacists

BRCA Testing (PARP inhibitors)

NCCP Quality Assurance Resources for Hospital Pharmacy Cancer Services:

NCCP Extravasation Classification of Systemic Anti-Cancer Therapy

NCCP Capacity Planning for Parenteral SACT (Pharmacy)

NCCP Hospital Pharmacy Cancer Services Workforce Planning Framework

NCCP Recommendation on Preparation of Reduced Dose BCG;

NCCP SACT regimens

Dose Banding for Systemic Anticancer Therapy

List of approved drugs for reimbursement

NCCP Guidance on the Retention and Disposal of SACT Prescriptions and Compounding Worksheets

NCCP National Competency Framework for Pharmacists Working in Cancer Care

NCCP National Systemic Anti-Cancer Therapy (SACT) Competency Programme for Nurses Working in Cancer Care

NCCP Evidence Reviews

Patient Assessment Forms

Patient Assessment Forms

Appendix 7

Organisation of SACT services per Type, including the 26 SACT hospitals

Type 1 SACT Service	Type 2 SACT Service	Type 3 SACT Service	Type 4 SACT Service
CHI at Crumlin (Paediatrics and AYA)	Tallaght University Hospital	University Hospital Kerry	Community infusion clinics
Beaumont Hospital	Sligo University Hospital	Portiuncula University Hospital	Primary care centres
Cork University Hospital	Letterkenny University Hospital	St Luke's Hospital Rathgar	GPs
University Hospital, Limerick	Midlands Regional Hospital, Tullamore	Mayo University Hospital	Home
University Hospital Waterford	Mercy University Hospital	Tipperary University Hospital	
St James's Hospital		Cavan General Hospital	
Mater Misericordiae University Hospital		St Luke's General Hospital, Kilkenny	
St Vincent's University Hospital		Wexford General Hospital	
University Hospital Galway		Naas General Hospital	
		Connolly Hospital	
		Our Lady of Lourdes Hospital, Drogheda	
		South Infirmary Victoria University Hospital	

Appendix 8

SACT Nursing Roles

Nursing Grade/Title	Role in provision of SACT
Staff nurse	The majority of staff nurses provide direct patient care involving the delivery of complex SACT regimens and the management of the side effects of treatment or disease. This incorporates telephone triage, patient assessment, education and an in-depth knowledge of treatment regimens to ensure that SACT is administered safely and side effects are managed promptly. Staff nurses are challenged on a daily basis to deal with the numerous symptoms patients may experience as a result of their SACT or disease. They triage patient problems and assist in the evaluation of symptoms and the initiation of interventions. A staff nurse working in this specialist area is required to expand skills and competencies to perform venepuncture, cannulation, care and management of care and management of central venous access devices, SACT administration and deliver nurse-led services. There is an expectation that the staff nurse completes local, national and postgraduate specialist programmes to enhance their clinical skills. All staff nurses who are naïve in the administration of SACT are expected to undertake the National SACT Competency Programme (22), having worked in the area of cancer care for a minimum of three months. This will ensure that patients with cancer benefit from high-quality nursing care, which focuses on the delivery of SACT safely to the patient, and supports the patient both physically and psychologically with the debilitating side-effects that are associated with SACT.
Clinical Trial Nurses	The clinical trials nurse is involved in implementing and monitoring a clinical trial. Their responsibility is to ensure that the rights and well-being of the research participants are protected and to advance scientific knowledge by ensuring that data generated by the trial is accurate and verifiable. They are involved in direct care, education, data collection and coordination of care. They must adhere to Good Clinical Practice (GCP) which is an international ethical and scientific set of standards for the design and conduct of research involving humans including: protocol design, conduct, performance, monitoring, auditing, recording, analyses, and reporting. They take a leading role in recruitment of participants, securing informed consent, ensuring the integrity of protocols are maintained and reporting adverse events.

Clinical facilitators	Assist staff by providing support and guidance in the orientation of new staff, working with experienced staff in further developing the necessary skills and competencies needed to care for and manage patients with cancer. They engage directly in clinical practice, and therefore, the role can be embedded in the clinical team, working alongside front line staff. They contribute to the development, evaluation and maintenance of nursing standards, policies, protocols and guidelines. They act as the clinical skills facilitator for partner programmes with higher institutes of education to ensure the quality of clinical placements as well as developing and delivering education programmes locally. Their function is to ensure that the staff have the required and appropriate clinical care skills and competencies to effect timely patient care and intervention.
Clinical Nurse Manager (CNM)	The post of CNM is a pivotal role in service planning, co-ordinating, and managing activity and resources within the clinical area. The main responsibilities are quality assurance, resource management, staff and practice development, performance management, facilitating communication, professional / clinical leadership. The role exists in all SACT services. Cancer coordinators (CNM 2 grade) also have a role in providing education, identifying concerns and referring patients and their families to available resources.
Clinical Nurse Specialist (CNS)	They are generally categorised as haematology or oncology CNS's with various roles including care and management of in-patients, co-ordination and management of both consultant and nurse-led clinics and sometimes involvement in the telephone triage service. They are expert practitioners who have attained, at a minimum, a post graduate qualification in their specialist area of practice. The role is defined under 5 core competencies - clinical, education, consultation, advocacy and audit. The CNS is often the main point of contact for patients throughout their treatment. They coordinate the patients care from the time of referral to their service. The CNS has the primary responsibility for educating the patient/carer in relation to potential side effects of therapy and the management of toxicities if they occur. The CNS reviews the treatment plan with the consultant, is aware of expected outcomes and possible complications, and assesses the patient's general physical and emotional status. The CNS is expected to be aware of the results and general implications of all relevant laboratory, pathology, and imaging studies. Assessment of the patient's understanding of the disease and proposed treatment is fundamental in allaying anxiety and formulating a therapy plan. The CNS should be assigned to care for patients according to tumour sites.
Advanced Nurse Practitioner (ANP)	Advanced level of clinical nursing practice educated to Master's Degree Level or higher and having completed specialist training in medical oncology/haematology to become an ANP. ANPs have four core competencies which define their role: **Autonomy in Clinical Practice:** Responsible for clinical decision-making at advanced practice level through patient caseload management. Performs health assessments, plans and initiates care and treatment to achieve patient-centred outcomes and evaluates their effectiveness, initiating and terminating a care episode. **Expert Practice:** Performs health assessment, plans and initiates care and treatment to achieve patient-centred outcomes and evaluates their effectiveness, initiating and terminating a care episode. **Professional and Clinical Leadership:** Clinical leaders who initiate and implement innovation and change in their healthcare service in response to patient/client need and service demand. **Research:** They identify, initiate and integrate nursing research in their area of the healthcare environment that can incorporate best evidence-based practice to meet patient/client and service need. They are required to carry out nursing research which contributes to quality patient/client care and which advances nursing and health policy development, implementation and evaluation. The role of ANPs is well established in medical oncology and haematology in the acute services. New ANP roles have been approved in recent years in other areas including Psycho-Oncology, Geriatrics and as a candidate ANP in oncology in the Community.

Nurse prescribing: radiological	The standards and requirements for education programmes for nurse authority to refer persons for medical radiological and other imaging ionising radiation procedures (136) recognise that a registered nurse who has successfully completed an approved education programme and the necessary training in radiation protection can refer for medical radiological and other imaging procedures. When referring for a medical radiological or other imaging procedure, the nurse adheres to their scope of practice, the speciality within which they practise and the person's care pathway, relevant to their role. The current legislation (SI 256) requires appropriate continuing education and training after qualification including relevant radiation protection requirements. The clinical governance arrangements, to which local health care teams are accountable for the quality, safety and satisfaction of a person in the care they deliver, must have supporting structures in place. This expanded role function is used in a variety of care areas i.e. day care, outpatients department (OPD), referral for restaging scans.
Nurse prescribing: medicinal	Medicinal prescribing is an expansion of a registered nurse's scope of practice. Clinical governance arrangements are put in place to support safe and professional practices for the implementation of nurse prescribing. The registered nurse prescriber is required to prescribe within their scope of practice and must continue to maintain and demonstrate their competency while fulfilling their role (137). The nurse prescriber must also undertake audit of their prescribing practices as determined by their local health service provider's audit process for prescribing and medicines management. The result of the audit of prescribing practice must be documented and reported to the person who has the overall responsibility and authority for the governance of the registered nurse prescriber. The introduction of nurse prescribing has created opportunities to enhance cancer services care delivery.

Appendix 9

Abbreviations

Abbreviation	Detail
ACU	Aseptic Compounding Unit
ALLIES	assessment, linking in, linking out and onward, informing, empowering, and providing support and services
ANP	Advanced Nurse Practitioner
AOS	Acute Oncology Service
ATMP	Advanced Therapy Medicinal Product
BRCA	BReast CAncer gene
CAR-T cell	Chimeric Antigen Receptor-T cell
CAYA	Child Adolescent and Young Adult
CHI	Children's Health Ireland
CNM	Clinical Nurse Manager
CNS	Clinical Nurse Specialist
CTI	Clinical Trials Ireland
DoH	Department of Health
DPS	Drugs Payment Scheme
EBMT	European Society for Blood and Marrow Transplantation
ECC	European Cancer Centre
ePR	electronic patient record
GDPR	General Data Protection Regulation
GP	General Practitioner
HAI	Haematology Association of Ireland
HIPE	Hospital In-patient Enquiry
HIQA	Health Information Quality Authority

HPAI	Hospital Pharmacists Association of Ireland
HRB	Health Research Board
HSCP	Health and Social Care Professional
HSE	Health Service Executive
IANO	Irish Association for Nurses in Oncology
IHS	Irish Haematology Society
INMO	Irish Nurses and Midwives Organisation
IPHA	Irish Pharmaceutical Healthcare Association
ISMO	Irish Society of Medical Oncology
JACIE	Joint Accreditation Committee ISCT-Europe and EBMT
KPI	Key Performance Indicator
MDT	Multidisciplinary Team
MDM	Multidisciplinary Team Meeting
MedLIS	National Medical Laboratory Information System
NCIS	National Cancer Information System
NCRI	National Cancer Registry of Ireland
NIMIS	National Integrated Medical Imaging System
NMP	Non-medical prescriber
NSP	National Service Plan
OAM	Oral Anti-Cancer Medicine
ODMS	Oncology Drugs Management Scheme
OECI	Organisation of European Cancer Institutes
OPD	Outpatients department
PACS	Picture Archiving and Communication System
PCRS	Primary Care Reimbursement Service
PPPGs	Policies, Procedures, Protocols and Guidelines
PRRT	Peptide Receptor Radionuclide Therapy
PSI	Pharmaceutical Society of Ireland
RCNME	Regional Centre of Nursing and Midwifery Education
RHA	Regional Health Area
SACT	Systemic Anti-Cancer Therapy
SLA	service level agreement
UKONS	United Kingdom Oncology Nursing Society
WTE	Whole-time equivalent

Appendix 10

Glossary

Phrase	Definition
Acute Oncology Service (AOS)	Acute Oncology Service involves the care of cancer patients who develop an acute cancer-related or cancer treatment related problem.
Adjuvant SACT	SACT delivered after surgery or radiotherapy aimed at destroying cancerous cells that may have spread beyond surgical or radiotherapy treatment site
Advanced Nurse Practitioner (ANP)	Highly skilled practitioners and clinical leaders delivering quality care to an agreed group of patients/clients. They are committed to gathering and disseminating nursing research, mentoring nurses, and sharing information in the classroom, clinical environment, on national/international stages and professional publications. Advanced Nurse Practitioners also serve as change agents who coordinate and evaluate health care, and formulate policy which advances nursing practice and improves patient/client outcomes.
Advanced Therapy Medicinal Products (ATMPs)	Medicines for human use that are based on genes, tissues or cells. They offer ground-breaking new opportunities for the treatment of disease and injury. There are three main types: gene therapy medicines, somatic-cell therapy medicines and tissue-engineered medicines.
Ambulatory Day Unit	A hospital unit that provides medical care on an outpatient basis, without requiring an overnight stay.
Aseptic compounding	Aseptic compounding involves the reconstitution or 'mixing' of drugs into ready-to-use intravenous (IV) preparations.
Aseptic Compounding Unit	A dedicated area in the hospital where aseptic compounding takes place.
Automated Compounding Technology	This technology is capable of aseptically transferring one or more sterile component solutions to a sterile final container for a patient preparation, thereby replacing or decreasing the need for drawing up component solutions with syringes, increasing the accuracy of the ingredient delivery.
Biological product	A biological product contains an active substance that is produced from a biological source such as living cells. Biological medicines are also called biologics.
Biosimilar medicines (biosimilars)	A biological medicine that is highly similar to another biological medicine (also known as a reference medicinal product) which already has a marketing authorisation and has been approved for use in patients. As such, biosimilars contain a version of the active substance of an approved biological medicine and generally should be used in the same way for its own approved indications.
Cancer Genome Atlas	A landmark cancer genomics program which has molecularly characterised over 20,000 primary cancer and matched normal samples spanning 33 cancer types. It is a joint effort between NCI and the National Human Genome Research. The data has led to improvements in our ability to diagnose, treat, and prevent cancer.

Cancer Incidence Rate	The number of new cancers of a specific site/type occurring in a specified population during a year, usually expressed as the number of cancers per 100,000 population. Age standardised: The rates are calculated by applying the age-specific rates for the location being studied to a theoretical world-wide standard population, usually expressed per 100,000 persons per year.
Cancer Prevalence	The number of people now living who have ever been diagnosed with cancer. It includes people diagnosed with cancer in the past as well those who were recently diagnosed.
Cancer screening	Examinations to detect cancer before symptoms appear. This may involve blood tests, urine tests, other tests, or medical imaging. Screening is usually offered for all individuals in a defined population group based on criteria such as age or gender, also called Population Cancer Screening.
Cancer service Type	It is recommended that the organisation of SACT services in Ireland is defined by Types, ranging from Type 1 as the highest complexity to Type 4 as the lowest. These Types define where SACT can be delivered as appropriate to the complexity of the drugs and specific needs of the patient's SACT treatment plan, irrespective of their other cancer treatments e.g. surgery.
Chemotherapy	The use of drugs, singly or more usually in multiple combinations, to treat or cure cancer. Chemotherapy kills cancer cells or slows the process of cancer cells growing or multiplying. Also known as "cytotoxic drugs", chemotherapy acts on both cancer cells and normal cells, often resulting in significant toxic effects to non-cancerous tissues. The sequential use of different chemotherapy agents is increasingly employed to address tumour resistance as it emerges.
Chimeric Antigen Receptor-T (CAR-T cell) Therapy	A new class of adoptive cellular immunotherapy that involves ex vivo genetic modification of T cells to incorporate engineered CARs specific for particular tumour targets.
Clinical trial	A research study designed to test new treatments or a new way of using known treatments. The goal is to find more effective and better ways to treat or prevent cancer. A clinical trial is also known as a clinical study, research study, or medical research.
Community infusion clinic	Community clinics providing SACT infusions and other services. They offer the opportunity to alleviate over-stretched hospital day wards and provide step down facilities for different patient groups.
Cycle	A cycle of SACT is as defined in the treatment regimen and refers to the time between one round of SACT until the start of the next.
Cytogenetics	Cytogenetics involves testing samples of tissue, blood, or bone marrow in a laboratory to look for changes in chromosomes, including broken, missing, rearranged, or extra chromosomes. Chromosomes are long strands of DNA and protein that contain most of the genetic information in a cell.
Cytotoxic	Any agent or process that is directly toxic to cells preventing their replication or growth. Chemotherapy and radiotherapy are forms of cytotoxic therapy.
Drugs Payment Scheme (DPS)	Under the Drugs Payment Scheme (DPS) an individual or family will pay no more than a defined amount each calendar month for approved prescribed drugs and medicines.
Electronic prescribing	Electronic prescribing is defined as a prescriber's ability to electronically send an accurate, error-free and understandable prescription directly to a pharmacy from the point of care.
Endocrine Therapies	Endocrine therapies can slow or stop the growth of cancers that are dependent on hormones for their growth. This includes agents that block the body's ability to produce hormones and those that interfere with how hormones behave in the body.
Gene therapy	Gene therapy involves the genetic modification of cells to produce a therapeutic effect or the treatment of disease by repairing or reconstructing defective genetic material. In cancer treatment, gene therapy works by using the body's own immune system by inserting genes into cancer cells which then trigger the body to attack the cancer cells as foreign invaders i.e. genes are inserted into cancer cells so that chemotherapy, radiation therapy, or hormone therapies can attack the cancer cells more easily.
General Medical Services (GMS)	The General Medical Services (GMS) Scheme provides access to medical and surgical services for persons for whom acquiring such services would present undue hardship. Under the GMS scheme, persons are entitled to a Medical Card (MC) or a GP Visit Card (GPVC).

Generic	A generic medicine contains the same quantity of active substance and is used in the same dose to treat the same condition as a reference medicine. It meets the same standards of quality and safety and has the same effect as a reference medicine.
Haematology	The branch of medicine concerned with conditions affecting the blood and lymph systems.
Haemato-oncology	The combined medical practice of haematology (the study of the blood's physiology) and oncology (the study of cancer). This type of medicine diagnoses and treats cancerous blood disorders and cancers and manages symptoms of these diseases and resultant tumours (if present).
Health and Social Care Professionals (HSCP)	HSCPs are involved in providing interventions in therapeutic, rehabilitative, re-enablement, health and social care and diagnostic services. HSCPs work in all settings including acute, community, disability, specialist, mental health, primary care, residential and services for older persons.
High tech	The high tech arrangement of the Primary Care Reimbursement Service (PCRS) Drugs Scheme provides for the supply and dispensing of high technology medicines through retail pharmacy businesses as per prescriptions written in the hospital.
Hospital In-patient Enquiry (HIPE)	HIPE is the principal source of national data on discharges from acute hospitals in Ireland. HIPE collects demographic, clinical and administrative data on discharges from, and deaths in, acute public hospitals nationally.
Immunotherapy	Immunotherapies include drugs that enhance or suppress the patient's own immune system to prevent cancer or fight cancer. Some monoclonal antibodies fall within the category of "targeted therapies".
Key Performance Indicator (KPI)	Quantitative and qualitative measures of the nature and extent to which an organisation is using resources, providing services, and achieving its service performance objectives. KPIs are used to measure, monitor and evaluate performance. KPIs are set by the HSE's leadership team.
Medical Oncologist	A consultant doctor with training and experience in the treatment of cancer with cancer drugs. Medical Oncologists are supported by oncology nurses, oncology pharmacists and other health professionals.
Medical Oncology	The branch of medicine concerned with the treatment of cancer with drugs and other therapies.
Molecular testing	Molecular testing or diagnostics allows certain cancers to be treated based on their genetic profile and can be used to determine the success of cancer treatment and in selecting treatment regimes for particular cancers. It is used to identify molecular biomarkers in the diagnosis, prognosis, and disease monitoring and treatment stratification of human neoplastic conditions.
Mucositis	Mucositis is the painful inflammation and ulceration of the mucous membranes lining the digestive tract, usually as an adverse effect of chemotherapy and radiotherapy treatment for cancer. Mucositis can occur anywhere along the gastrointestinal (GI) tract, but oral mucositis refers to the particular inflammation and ulceration that occurs in the mouth. Oral mucositis is a common and often debilitating complication of cancer treatment.
Multidisciplinary Team (MDT)	The multidisciplinary team (MDT) may include the following: Medical / surgical team, nursing team, medical social worker, occupational therapist, physiotherapist, speech and language therapist, dietician, discharge co-ordinator, pharmacist, radiographer, radiation therapist
Multidisciplinary Team Meeting (MDM)	MDMs refer to the multidisciplinary team meetings held among a group of relevant health professionals to discuss a patient's health condition. In the context of cancer, terms such as Multi-Disciplinary Cancer Case Conferences are often used to reflect the fact that these meetings are intended to consider, agree and decide issues such as a cancer diagnosis and elements of a patient's treatment plan. Throughout this model of care, the term MDMs, which is commonly used in Ireland, refers to these cancer case conferences.
National Cancer Information System (NCIS)	(NCIS) is a single national computerised system that records and stores information relevant to a patient's cancer care record. This information includes: • Name and Address • Medical History • Cancer Diagnosis • Treatment Possibilities • Cancer Drug Treatment

Neutropenia	Neutropenia is when the level of neutrophil white blood cells are low, putting the patient at risk of infection.
Neutropenic sepsis	Neutropenic sepsis is a life-threatening inflammatory reaction to an infection, which can happen in patients with neutropenia (a low level of neutrophils in the blood). It is a potentially fatal complication of anticancer treatment.
Non-medical prescribing (NMP)	Any prescribing completed by a healthcare professional other than a doctor or dentist.
Oncology Drugs Management Scheme (ODMS)	The ODMS was introduced by the NCCP in 2012 to oversee and manage the funding of specified hospital-administered SACT to public hospitals. The Primary Care Reimbursement Service (PCRS) facilitate the operation of this system. The system also addresses the growth in costs associated with new drugs and new indications of hospital administered systemic anti-cancer drug treatment and allows for the introduction of a "money follows the patient" funding model. This scheme entitles hospitals to recoup, in full, the costs of the specified SACT administered to patients approved for funding for agreed indications by the HSE Drugs Group.
Oncology pharmacist	A hospital pharmacist who has demonstrated their appropriate competence in cancer services and is locally authorised / accredited for the task
Oral Anti-cancer Medicine (OAM)	An Oral Anti-Cancer Medicine is defined, for the purpose of this document, as a drug with direct anti-tumour activity that is administered by mouth for the treatment of cancer. It encompasses all drugs with direct anti-tumour activity and targeted therapies such as the tyrosine kinase inhibitors. It excludes hormonal therapy used to treat cancer.
Palliative care	An approach that improves the quality of life of people facing the problems associated with life-limiting illness and supports their families. The palliative care approach focuses on the prevention and relief of suffering by means of assessing and treating pain and other physical, psychosocial or spiritual problems. The aim of palliative care is to enhance quality of life and, wherever possible, to positively influence the course of illness. Palliative care also extends support to families.
Parenteral	Administration of a drug by a means other than by mouth or alimentary canal, most commonly given in a hospital day ward, administered as follows: intravenous (injected into a vein), intrathecal (injected into the fluid around the spine), sub-cutaneous (injected under the skin), intra-arterial (injected into an artery), intra-muscular (injected into a muscle), intra-peritoneal (injected into the peritoneal cavity).
Peptide Receptor Radionuclide Therapy (PRRT)	PRRT is a molecular therapy (also called radioisotope therapy) used to treat a specific type of cancer called neuroendocrine tumours or NETs.
Personalised medicines	A medical model using characterisation of individuals' phenotypes and genotypes (e.g. molecular profiling, medical imaging, lifestyle data) for tailoring the right therapeutic strategy for the right person at the right time, and/or to determine the predisposition to disease and/or to deliver timely and targeted prevention.
Phlebotomy	The drawing of blood from a vein
Picture Archiving and Communication System (PACS)	A medical imaging technology used primarily in healthcare organisations to securely store and digitally transmit electronic images and clinically-relevant reports.
Prehabilitation	Prehabilitation (prehab) means preparing for cancer treatment before it starts. It is a programme of support and advice and covers healthy eating, exercise and mental wellbeing. Cancer prehabilitation involves physical and psychological assessments to identify patient's baseline functional level and possible pre-existing comorbidities. This allows the implementation of appropriate interventions aiming to optimise patient's health before starting acute treatments.
Primary care	Primary Care services cover many of the health or social care services that are found in the community, outside of the hospital setting. This includes GPs, Public Health Nurses and a range of other services provided through the Local Health Office.
Primary Care Reimbursement Service (PCRS)	The PCRS is part of the HSE, and is responsible for making payments to healthcare professionals, for the free or reduced costs services they provide to the public.
Primary consultant	The consultant who initiates the SACT Therapy Plan for that patient and is responsible for the review and on-going management of the patient's treatment.

Psycho-oncology	A multi-disciplinary speciality focusing on the psychological and mental health care of people affected by cancer, their carers and families.
Radioimmunotherapy	Radioimmunotherapy (RIT) involves a small amount of radioactive material (radionuclide) that is combined with a molecule engineered in a laboratory (monoclonal antibody). This monoclonal antibody-radionuclide compound is called a radiopharmaceutical. Monoclonal antibodies are able to recognize and bind to specific features of cells, such as antigens and cell receptors. When injected into the patient's bloodstream, the radiopharmaceutical attaches to cancer cells, delivering a high dose of radiation to be delivered to the tumour.
Radiopharmaceutical	A drug that contains a radioactive substance and is used to diagnose or treat disease, including cancer. Also called radioactive drug.
Regional Health Areas	Slaintecare has recommended the re-organisation of hospital and community services into integrated six Regional Health Areas.
SACT outreach services	SACT outreach is a model used by health services to both enable care closer to the patient's home and to devolve certain aspects of lower complexity SACT service away from the SACT hospitals. SACT outreach services remain governed and staffed by the SACT hospital while being in an off-site location.
SACT pathway	The SACT pathway begins once there is agreement that a patient is to receive SACT. SACT services form part of the overall pathway of care for many patients with cancer. In addition, many other services support the SACT pathway such as acute oncology and psycho-oncology.
Somatic cell therapy medicinal products	Somatic cell therapy medicinal products contain cells or tissues that have been manipulated to change their biological characteristics, or cells or tissues not intended to be used for the same essential functions in the body. They are intended for the prevention, diagnosis and/or treatment of diseases via pharmacological, immunological or metabolic actions.
Survivorship	This care focuses on non-medical needs that cancer patients may have. Survivorship offers care and support to help patients and family members cope with life after diagnosis and treatment and improve overall quality of life. Cancer survivorship or living with and beyond cancer should be seen as part of the continuum of cancer care.
Systemic Anti-Cancer Therapy (SACT)	SACT is defined as all drugs with direct anti-tumour activity that are administered for the treatment of cancer, including but not limited to chemotherapy, targeted therapies and immunotherapies. This includes SACT used in clinical trials and in compassionate use programmes and excludes hormonal therapy used to treat cancer.
Targeted therapies	Targeted therapies block the growth and spread of cancer by interfering with specific molecules ("molecular targets") that are involved in the growth, progression and spread of cancer. Most targeted therapies help treat cancer by interfering with specific proteins that help tumours grow and spread throughout the body. Targeted therapies are used in some cancers where chemotherapy is of little benefit.
Telehealth	The remote delivery of healthcare services by HSCPs (health and social care professionals) using information and communication technologies, including, but not limited to, telephone, video or audio conferencing, electronic messaging, digital photography and instant messaging.
Telephone triage	Telephone triage is defined as an interactive process between the healthcare worker and caller (patient or caregiver) that occurs over the telephone and involves identifying the nature and urgency of the health care needs and determining an appropriate plan of care and disposition of the call.
Tissue-engineered products	Tissue-engineered products contain cells or tissues that have been modified so they can be used to repair, regenerate or replace human tissue.
Workforce planning	The process of analysing, forecasting, and planning workforce supply and demand, assessing gaps, and determining target workforce management interventions to ensure that an organisation has adequate staff with the right skills in the right places at the right time.

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