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TE AHO O TE KAHU CANCER CONTROL AGENCY

CANCER SERVICES PLANNING

The Model of Care for Adult Systemic Anti-Cancer Therapy Services in Aotearoa, New Zealand

July 2024

FOREWORD

It gives us pleasure to present this Model of Care for adult Systemic Anti-Cancer Therapy (SACT) in Aotearoa, New Zealand.

Cancer is the leading cause of death in New Zealand. In the last four decades the number of therapies available and indications for their use have substantially expanded and this trend is expected to continue. Currently one in every three people with cancer are thought to receive SACT however the health system has limited awareness of the treatments being delivered, the system's ability to deliver the required care, the outcomes gained or their equity.

The healthcare reforms and recent innovations in data and technology provide an opportunity to review and re-shape how SACT services are designed and delivered. Recognising this, Te Aho o Te Kahu has facilitated a project to look at how whole of system SACT services are structured and how outcomes, patient and whānau experiences, sustainability and equity could be enhanced and strengthened. The work that followed has involved site visits across the motu and extensive stakeholder consultation. The healthcare professionals and support services delivering SACT are dedicated, compassionate, and driven. However, services are strained necessitating a range of immediate and longer term actions to bring about meaningful change.

Transformational actions are identified throughout the document, which if implemented, are considered to have potential to create a positive system shift in how services are delivered and sustained. In identifying these actions and writing this document we have also come to recognise a series of tensions that emerge when trying to balance competing factors, such as care and treatment closer to home, patient-carer continuity, the required workforce and physical facilities. The proposed model sets up an ability to see our system through data and information so we can adapt the way we identify the resources needed and work out how we land the resources made available.

It is a challenging task ahead as the actions to be undertaken and their associated trade-offs, are prioritised. It will be important for decision makers to recognise that optimised quality of care and workforce sustainability are unlikely to occur where services are working at maximum possible patient through-put.

Te Aho o Te Kahu would like to acknowledge all stakeholders involved in this project particularly consumers and whānau who shared their lived experiences, those working in SACT services and non-government organisations who support and advocate for whānau.

We also acknowledge the many whānau living with cancer and who have lost loved ones to cancer. We hope that through this report, the abilities of staff to provide care that places your needs and wishes, and the needs and wishes of your whānau, at the centre, will be further strengthened.



Dr. Johanna Paddison, MBBBS, FRACP, PhD
Medical Oncologist and Clinical Advisor to Te Aho o Te Kahu

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We wish to acknowledge the role and contribution of all those who took part in the development of the Model of Care for adult Systemic Anti-Cancer Therapy, through our stakeholder engagement process.

The time, effort and expertise contributed by clinical and operational staff, consumers and whānau, has been invaluable in shaping the direction of this work and informing the key steps to achieve optimal and sustainable systemic anti-cancer therapy services across Aotearoa.

We would like to acknowledge the contribution of the following stakeholders:

- Cancer services staff at the following sites:
    - Rotorua Hospital
    - Tauranga Hospital
    - Waikato Hospital
    - Dunedin Hospital
    - Wairau Hospital
    - Nelson Hospital
    - Auckland City Hospital
    - Christchurch Hospital
    - Burwood Hospital
    - Wellington Hospital
    - Palmerston North Hospital
    - Wairarapa Hospital
    - Hawkes Bay Hospital
    - Dunstan Trust Hospital
    - Manukau Super Clinic
    - Middlemore Hospital
    - North Shore Hospital
    - Whangarei Hospital
    - Timaru Hospital
    - Ashburton Hospital
    - Gisborne Hospital
- Medical Oncology Working Group
- Haematology Working Group
- He Ara Tangata Consumer Reference Group
- Te Aho o Te Kahu Lived Experience Advisors – Disability and Cancer
- Cancer Society
- Cancer Nurses College
- Systemic Anti-Cancer Therapy project team (Janfrey Doak, Simon Pointer, Johanna Paddison, Eila Cunnah, Kath Goodyear, Ashley Shearer, David Schaaf, Jane Lyon, Liz Dennett, Humphrey Pullon)

This document represents the culmination of all that you have shared and feedback through the project team site visits, hui and many other discussions.

Ngā mihi nui for taking the time to contribute.

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PURPOSE OF THIS DOCUMENT

Changing how services are designed can be highly impactful in addressing inequities, with the right approach and priority *(Gurney, Campbell, Jackson, & Sarfati, 2019)*.

The purpose of this document is to outline the case for change, and future model of care, to improve the design and delivery of adult Systemic Anti-cancer Therapy (SACT) services in Aotearoa New Zealand. SACT is a collective term used to describe a growing number of pharmaceutical agents used to treat cancer.

Developing this model of care is part of a national programme of work to respond to growing constraints and inequities in services, in order to achieve optimal SACT care and treatment for patients and whānau which are sustainable for the future.

Over the last ten years, the volume of SACT delivered in Aotearoa has increased. This can be attributed to an increasing prevalence of cancer, mostly due to population growth and an ageing population, expanding clinical applications and broadening eligibility criteria for SACT. This means that patients have more treatment options for much longer periods of time. These options are often more effective and less toxic compared with treatments available in the past. As a result, patients are living longer with their cancer and with a better quality of life.

An increased number of patients requiring more care for longer periods, place growing demands on cancer service providers. Investment in the current service delivery model has not kept pace with these changes leading to workforce and infrastructure constraints and increasing wait times, further exacerbating inequities of access. It is expected this growth in service demand will continue.

The 2011 Cranleigh Health Report on New Models of Care for Medical Oncology signalled these emerging challenges and offered principles and methods to improve the effectiveness and efficiency of service delivery. There has been progress on a number of the recommendations in this report but the service delivery model has remained largely unchanged and the challenges continue to grow. Strategies to manage demand have often been reactive and confined to individual services. This reflects the District Health Board operating model prior to the 2022 Pae Ora Act and health reforms. This resulted in missed opportunities for a nationally integrated strategic and operational approach that strengthened service delivery.

The ongoing development and implementation of the new structures following the health reform provides an opportunity for more coordinated action. Given the growing capacity constraints and rapid pace of innovation, there is an urgent need to move forward with a modern and responsive model of care for SACT in Aotearoa.

This document is a first step in the transformation of SACT service delivery by defining optimal care in the context of the current and anticipated future state. The steps in this model will form the basis of a detailed implementation plan. It acknowledges that developing the model has not occurred in isolation and that the next stage of implementation planning will need to include and maintain momentum on current sector projects. This includes the introduction of new medicine business cases and the work of Te Aho o Te Kahu, Cancer Control Agency (the Agency) on the Optimal Cancer Care Pathways.

DEVELOPING THE MODEL OF CARE

He Mahere Ratonga Mate Pukupuku, the Cancer Services Planning Report, reflects Phase One of a multi-year programme of work to develop and provide strategic advice to improve the delivery, efficacy, and equity of cancer treatments within the reformed health system (Te Aho o Te Kahu, 2022b). The report describes the current state of cancer treatment services, the challenges and inequities faced and provides evidence-based opportunities where health entities could improve cancer outcomes.

For SACT, the report found that rapid and ongoing growth in demand has meant that the existing models of service delivery are insufficient. Currently, cancer treatment services deliver high quality care for most people, most of the time. However, of particular concern is the fact that our system does not serve everybody equally. Māori and other populations are poorly served by the healthcare system. This has led to inequity of access and outcomes.

Phase Two of the Cancer Services Planning programme sees the development of new models of care across four key cancer treatment modalities (surgery, radiation therapy, stem cell transplant and SACT). These new models of care aim to respond to the immediate and short-term service delivery constraints and ensure there is a strong foundation upon which to build sustainable services into the future.

The term 'model of care' has different interpretations but fundamentally describes how health services are delivered. Depending on the context, a model of care can be as broad as an end-to-end operating model that shapes how services are designed and delivered, or as specific as a single treatment care plan. In this document, the model of care describes how services should be designed and delivered to ensure that the needs of all patients and whānau in need of SACT, are met consistently and equitably.

This model of care is a synthesis of the voices of those who best understand SACT – from patients and whānau who experience treatment, through to those who deliver care both within and external to hospital services, as well as those tasked with safeguarding the system, ensuring that services are of both high quality and sustainable.

It reflects a culmination of information, building on international examples from Ireland, Australia, Canada, and the United Kingdom, the Cranleigh Health Report on New Models of Care for Medical Oncology developed by the Ministry of Health, Manatū Hauora (the Ministry) in 2011, and site visits undertaken in 2023/2024 to SACT services around Aotearoa.

Visits to 22 Health New Zealand | Te Whatu Ora (Health NZ) SACT sites have been crucial to the development of this model of care. Discussions during these visits have provided valuable insights into the current challenges which services face, innovations and initiatives that have made a meaningful difference to the patient and whānau experience, as well as staff delivering care and treatment. Visits were undertaken as part of a wider stakeholder engagement processes. For a list of sites visited refer to Appendix 1.

Te Tiriti o Waitangi and the Model's Development

As a departmental agency of the Ministry, the Agency is acutely aware of its' obligations and aspirations under Te Tiriti o Waitangi. This model of care has been developed with Te Tiriti o Waitangi at the forefront of our considerations. This includes how the model of care functions to address bias and discrimination, how to balance leadership between providers and Māori communities, how to share decision-making and resources, and for providers to be accountable for Māori health equity. To ensure Te Tiriti principles were consistently considered, and prioritised, the following framework has been applied.

Te Tiriti o Waitangi Principles	The steps to achieve the future state in this Model of Care will enable commissioners and service providers to:
Tino Rangatiratanga Provides for Māori self-determination and Mana Motuhake in the design, delivery, and monitoring of health and disability services	Provide Māori whānau with the information and resources they need to exercise Tino Rangatiratanga over their treatment. Ensure services are designed sustainably and in partnership with appointed equity champions and Māori consumer representatives.
Equity Requires the Crown to commit to achieving equitable health outcomes for Māori	Put in place a range of priorities and resources to ensure that Māori have equitable access to SACT services. Support the inclusion of indigenous remedies with other treatments where appropriate.
Active Protection Requires the Crown to act, to the fullest extent practicable, to achieve equitable outcomes for Māori. This includes ensuring that it, its agents, and its Treaty partner are well informed on the extent, and nature, of both Māori health outcomes and efforts to achieve Māori health equity	Be informed by key strategic documents and programmes focused on equitable health outcomes for Māori, including: • Government response to Hauora Manaaki Ki Aotearoa Whānui - the Health and Disability System Review • Government response to Komiti Whiriwhiri Take Māori - Māori Committee inquiry into Health Inequities • Whakamaua: Māori Health Action Plan 2020 - 2025 • He Pūrongo Mate Pukupuku o Aotearoa 2020 - The State of Cancer in New Zealand 2020 • Rongohia Te Reo, Whatua He Oranga – The Voices of Whānau Māori Affected by Cancer 2023 • Te Pae Tata – Interim New Zealand Health Plan 2022 • He Korowai Oranga: The Māori Health Strategy 2022 • Pae Tū: Hauora Māori Strategy 2023
Options To provide for kaupapa Māori health services and to ensure that all healthcare services are provided in culturally appropriate ways that recognise and support the expression of hauora Māori models of care	Strengthen relationships with kaupapa Māori health providers who in turn can support people and whānau to receive treatments in a mana enhancing manner. Incorporate insights and opinions from Kaupapa Māori health providers, Māori health professionals and Māori patients and whānau to understand cultural sensitivity and opportunities for improvement. Recognise that kaupapa Māori health providers have a meaningful influence which they naturally incorporate in their daily work routines. Support all people working in SACT and cancer treatment services to develop their knowledge of and ability to deliver culturally safe care. This includes: • Embedding cultural protocols and priorities into service designs • Ensuring all staff members are familiar and comfortable with key concepts such as tapu, noa and tikanga practices

Te Tiriti o Waitangi Principles	The steps to achieve the future state in this Model of Care will enable commissioners and service providers to:
	• Ensuring staff understand and can apply various Māori health models (Te Whare Tapa Wha, Te Wheke, Te Pae Mahutonga, and Te Waka o Meihana) • Recognising and supporting any whānau Māori who may be disconnected from their cultural roots.
Partnership The principle of partnership, which requires the Crown and Māori to work in partnership in the governance, design, delivery, and monitoring of health and disability services. Māori must be co-designers, with the Crown, of the primary health system for Māori	Partner with Māori (including Hei Āhuru Mōwai, clinicians, health providers and whānau) to develop a robust clinical and operational governance structure that is consistent with: • Te Pae Tata, Interim New Zealand Health Plan • He Korowai Oranga: The Māori Health Strategy • Whakamaua: The Māori Health Action Plan • He Mahere Ratonga Mate Pukupuku • Pae Tū: Hauora Māori Strategy 2023

Being Equity-led and Whānau Centred

The voices of consumers have been a key influence in developing this model of care. Learnings from site visits have highlighted the importance of embedding a patient and whānau-centred approach to care planning. There has been a deliberate focus on how to improve the accessibility, availability, acceptability, and standardisation of service delivery.

Each step described in the future state, has been tested for its influence in addressing inequity and how it reflects a whānau centred approach. The following questions have been developed to guide the analysis:

- Who is most affected by this issue/work, and how are they affected?
- Are Māori needs and aspirations identified?
- How will this work improve the experience of people and their whānau?
- What Māori and Pacific health gains will come from this work?
- Will this work develop or progress kaupapa Māori initiatives?
- How do the wider determinants of health impact on this work?
- How are Māori, Pacific peoples and tāngata whaikaha involved in planning and decision-making?
- How will this work contribute to more equitable cancer outcomes for Māori, Pacific peoples and/or tāngata whaikaha?
- What unintended consequences might arise? Who will be impacted?
- Are there risks for widening the equity gap? How could these be mitigated?

STRUCTURE OF THIS DOCUMENT

This document outlines a model of care for optimal SACT delivery which is intended to guide providers on how to evolve and enhance SACT services. The model also has value as a quality tool and can be used by providers to inform ongoing quality improvement and timely investment planning. This document will be complemented by an upcoming implementation plan, which will support commissioning entities and service providers to develop their own change and improvement plans.

The document is presented as a current and future state. The current state describes the pathway for patients and whānau having SACT treatment from the perspective of how existing services are organised and function. It highlights current constraints and areas for improvement, as well as those aspects of the existing service design that work well and need to continue in future.

The future state sections focus on the aspects of service delivery that need to change to deliver optimal and seamless pathways for patients and whānau needing SACT. Each main section includes an overarching narrative that describes the intent and rationale for the opportunities to improve, alongside a set of specific next “steps’ that demonstrate optimal SACT delivery and will inform implementation planning. The steps to achieve the future state detailed in each section, articulate improvement actions identified from sites visits, and in discussions with stakeholders and consumers. These are supported by established evidence.

Additionally, more transformative actions have been included. These reflect a more significant quantum of change or require a more comprehensive understanding before considering implementation but offer significant potential to re-shape and prepare services for the future. These are identified in green boxes.

All steps have been informed by the aspirations of providers, patients and whānau experiencing SACT services, as well as best practice research. The document is informed by Rongohia Te Reo, Whatua He Oranga - The Voices of Whānau Māori Affected by Cancer report with quotes from this report included throughout the model (Te Aho o Te Kahu - Cancer Control Agency, 2023). The quotes and report findings are highlighted in orange speech icons throughout this document.

TE AHO O TE KAHU
CANCER CONTROL AGENCY

The Current State

Current State

What is Systemic Anti-Cancer Treatment?

SACT is a collective term used to describe a growing number of pharmaceutical agents used in cancer treatment. It includes treatments such as cytotoxic chemotherapy agents, targeted therapies, hormone therapies, immunotherapies and radionuclides. The treatment may be used with an aim of curing cancer, or to provide symptom relief and palliation. It can be given in conjunction with other treatments such as radiation therapy or surgery.

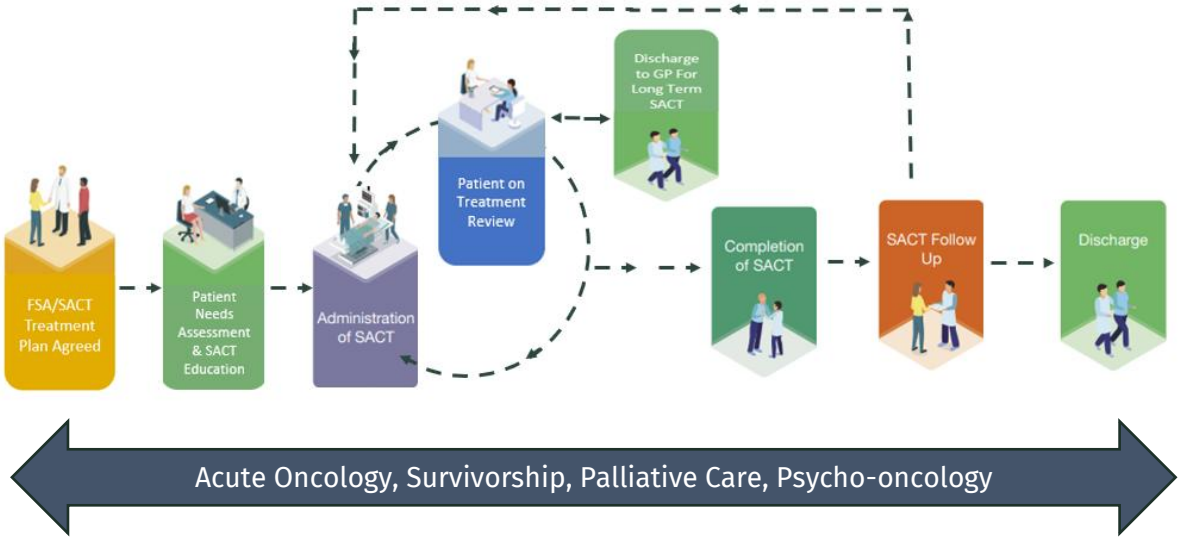
The majority of SACT is prescribed by medical oncologists or haematologists but can also be prescribed by some other specialists, nurse practitioners and pharmacist prescribers. Some treatments, such as hormone therapy, may be managed in primary care. The treatment can also be given in multiple ways and settings. The treatments include parenteral preparations (medicines given by a route other than orally) which are delivered in outpatient (hospital or community) or inpatient settings, as well as oral anti-cancer medications dispensed via a community pharmacy.

Many patients and whānau with cancer will have SACT as part of their cancer treatment plan. New Zealand Cancer Registry data from 2021 shows that there were 27,500 new cancer registrations that year. In the same period, there were 9,815 medical oncology and 3,004 malignant haematology First Specialist Assessments (FSAs) undertaken, which equates to nearly 1 in every 2 patients with cancer. 57% of patients seen by Medical Oncology services and 36% of those seen by Haematology services went on to receive intra-venous SACT. A further 19% of medical oncology patients started SACT with the use of oral only agents. The rate of oral only treatment is expected to be greater in haematology than medical oncology. Haematology data that provides a numeric estimate, is not currently available.

The SACT Patient Pathway

SACT treatment is complex and includes many steps, often repeated over a number of months or years. Patients and whānau engage with a range of health professionals and support services during this time, which spans from receiving a cancer diagnosis through to what happens once treatment is finished. The following diagram (Figure 1) is a high-level representation of the SACT pathway and has been adapted from the Irish SACT model of care (National Cancer Control Programme, 2017). It describes the steps that patients and whānau experience when needing SACT as part of their cancer treatment.

Figure 1 SACT pathway



Diagnosis of cancer



A diagnosis and referral occur at the beginning of a cancer pathway. For medical oncology, a referral is almost always made by the diagnosing clinician or as an output from the cancer multi-disciplinary meeting (MDM[1]). While for haematology, referral is more likely to come from primary care and the patient may not have a definitive diagnosis. A MDM generally takes place at the initial diagnosis and treatment planning review stage where a recommendation is made for optimal care and treatment. A patient may also be reviewed at a MDM during treatment. Not all patients are reviewed at a MDM.

First Specialist Assessment (FSA) SACT Treatment Plan Agreed



The lead clinician undertakes or supervises a FSA with the patient and whānau. The patient and whānau are informed of treatment and care options (including unfunded options and clinical trials), the intention of SACT treatment and expected outcomes as well as possible side effects. For medical oncology and haematology, there may be a series of investigations before a definitive diagnosis can be made, at which point treatment options can be discussed.

[1] Cancer Multidisciplinary Meetings (MDM) are a forum for collaboration between health professionals with expertise in the diagnosis and management of cancer. At these meetings, participants collectively review all clinical, psychosocial, and cultural information pertinent to each patient's care, and recommend personalised treatment and care options based on best practice treatment pathways

Patient Needs Assessment and SACT Education



A pre-initial SACT treatment review or baseline assessment follows the decision to progress with SACT. This appointment gives patients and whānau the opportunity to ask further questions before commencing treatment. This assessment and education may occur in the same visit as the FSA or at a later date. Standardised education relevant to the patient's SACT treatment plan is provided and includes educating patients and whānau on how to take medication, what to do in the event of specific side effects, and other oncological emergencies. Ideally, in addition to patients' physical needs, social, psychological, emotional and spiritual needs are also assessed. Other baseline investigations may be performed as clinically indicated. Information on support services is provided to the patient such as parking, transport and accommodation arrangements. Additional information on non-governmental organisations and allied health services to support their experience before, during and after treatment may be given such as counselling, social work, physiotherapy and dietician services.

Administration of SACT



SACT administration may occur in the inpatient setting, outpatient area or at home. The patient may receive a singular SACT medication or a combination of SACT drugs. Many SACTs have associated supportive medications taken to prevent or manage side effects. SACT treatments are typically broken down into cycles where SACT is given according to a specific schedule. For example, a person might receive SACT every day for 1 week followed by 3 weeks with no SACT. These 4 weeks make up one cycle. Patients receiving SACT usually receive a number of repeating cycles as part of their treatment plan. During palliative intent treatment, patients may have periods of observation interspersed with periods of active SACT. Curative intent treatment is generally for a defined number of cycles. However, there are a number of cancer types now treated with long-term SACT which has important implications for patients, whānau and delivering services.

Patient On Treatment Review



Patients have pre-SACT assessments carried out as required by the patient's needs and SACT treatment plan, in many instances that involves clinical review prior to each cycle of SACT. The purpose of the review is to identify any toxicities experienced in the previous cycle, assess the patient's fitness and willingness to continue and, if present, to monitor symptoms the cancer is causing. Interval imaging, tumour markers and blood parameters may be used to assess response during a patients treatment. This clinical review and any results can lead to adjustments to the SACT treatment, supportive and/or symptom controlling medications as required. When treatment is delivered with palliative intent, care may include access to advance care planning and introduction to locally available palliative care and support services.

Discharge to GP for Long Term SACT



Some patients are discharged back to their GP while they continue long-term SACT. This is common, for example, for hormonal therapies (breast cancer, prostate cancer), and for myeloproliferative neoplasms (hydroxycarbamide, imatinib).

Completion of a period of SACT



Following completion of SACT, the next steps may vary depending on the intent of the treatment. The completion of periods of both curative and palliative intent SACT are vulnerable times for patients given uncertainties about the future. Key information is provided at this point of the SACT pathway such as 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 needed. Ideally documentation of the follow up plan is provided to the patient so that they can refer to this when required. Relevant information is also given to the patient's primary care provider and any other primary care facility that the patient is linked with.

SACT Follow-Up



SACT follow-up care plays a vital role in caring for patients who are often concerned about recurrent disease or who may require additional SACT at a later date. Primary care follow-up or follow-up facilitated by telehealth can help provide follow-up care closer to home.

Discharge



After a period of follow-up, or following the completion of SACT, patients are discharged from medical oncology or haematology services. In palliative situations, clearly identified clinicians to support on-going symptom control are a critical aspect of the discharge pathway. In many areas of Aotearoa, the lead physician following discharge is the patient's general practitioner. In medical oncology, most long-term follow up monitoring after curative intent treatment is undertaken by services outside of medical oncology; mainly by surgical, respiratory and primary care services. For haematology patients, a higher proportion are followed up by haematology services over the long-term.

In curative and palliative intent situations, guidance on post-treatment management is important. Onward referrals to health professionals such as social worker and physiotherapist, may also be considered. Patients may benefit from receiving information about cancer support services available in their local community.

Acute Oncology



Acute oncology is the management of patients who develop symptoms as a consequence of cancer or cancer treatment. Acute oncology care may be required at any point during a patient's care pathway. Patients often make first contact to report a symptom concern through nurse-led phone triage systems. Acute oncology assessments are generally undertaken in emergency departments. A limited number of sites have specialised assessment units that operate within working hours. Patients requiring inpatient acute oncology care are admitted to hospital under medical oncology, haematology or general medicine physician care.

Distribution and Description of Services

The majority of SACT in Aotearoa is provided in specially designed day units in the outpatient setting. A small number of SACT treatments require administration during an inpatient stay. Some patients may be able to self-administer SACT, for example with some subcutaneous preparations (which are injected under the skin) or with oral medications.

Figure 2 SACT Centre Locations



All major hospitals in Aotearoa have some form of SACT service. There are various ways to delineate these services, but generally haematology SACT services (including haematopoietic stem cell transplant) operate across six levels and medical oncology SACT services across four levels. See explanation on the next page which defines SACT by speciality and service level. The adjacent map *(Figure 2 SACT Centre Locations)* shows where some or all aspects of SACT services are located. The six Level 4 and above cancer services are denoted with coloured bubbles. The size of the bubbles is proportional to the population of the catchment area for Level 4 and above services.

Centralisation of more complex specialised services aims to improve patient outcomes. The devolvement of less complex services to level 1-2 from level 3-4 helps to provide care closer to home (and assists with capacity issues at level 3-4 sites).

Patients undergoing combined SACT and radiation therapy (chemoradiation) receive this at level 3.5 or level 4 services. These patients receive SACT concurrently (at the same time) or before or after radiation therapy. The care and coordination of patients receiving chemoradiation can be complex. Patients can experience significant toxicities and require timely access to allied health support (such as dietician, dental and speech language therapists).

The Service Level Descriptions in Figure 3 outline the various activities in each Health NZ SACT location. The levels are based on the complexity of treatment given and the availability of support services such as radiology, laboratory and inpatient facilities. See Appendix 2 for more detail about links to these support services.

Figure 3 SACT Service Level Description

Level	Service Level Description
1	- Treatment plan supervised by a registered medical specialist with credentials in medical oncology or haematology who reviews patient locally (in-person or via telehealth) or at a higher-level service, to which patients and whānau travel. - Predominantly a nurse led SACT site. - Infusion unit likely medical oncology, haematology and general medicine combined. Usually administers initial (first cycle) courses for limited number of SACT regimens with low risk of infusion reactions and low complexity. Provides maintenance courses of SACT subsequent to initial courses (first cycle) commenced at levels 2, 3 or 4 services. Infusion scope varies by site with some sites infusing first and/or subsequent cycles of regimens with higher incidences of infusion reaction, at times when specialists are present in the unit. - Under protocolised circumstances some on-treatment reviews may be delegated by the registered medical specialist to delegates with suitable credentials. - Is part of a network with higher level services to ensure protocols remain current. - Participates in clinical trials linked to level 4 services or independent clinical trial units. - Inpatient admissions under general medicine. *Medical oncology Level 1 sites: Kaitaia, Whakatāne, Hawera, Kenepuru, Ashburton, Kaikoura, Burwood, Balclutha, Dunstan, Oamaru, Wairoa* *Haematology Level 1 sites: Kaitaia, Rotorua, Gisborne, Thames, Whakatāne, New Plymouth, Hawera, Hawke's Bay, Wairarapa, Whanganui, Greymouth, Takaka, Timaru, Blenheim, Ashburton, Invercargill, Balclutha, Dunstan, Oamaru*
2	The services provided in the level above as well as: - Infused treatments where treatment is day unit based; including initial courses for regimens with all levels of infusion reaction incidence. - Medical oncology treatment plans supervised by visiting medical oncology specialists or via telehealth. - May have onsite haematology SMOs. *Medical oncology Level 2 sites:, North Shore, Manukau Super Clinic, Gisborne, Taupō, New Plymouth, Whanganui, Wairarapa, Greymouth, Blenheim, Invercargill (Waitakere service start date to be confirmed)* *Haematology Level 2 sites: Whangārei, Tauranga, Nelson*
3	The services provided in the levels above as well as: - On-site haematologists. May have access to haematology inpatient facilities and may have capability to provide inpatient SACT. - On-site medical oncologists providing on-site initial assessment and treatment oversight for common malignancies; initial assessment and treatment oversight for low volume cancer types may be provided by local clinicians or by Level 4 clinicians via telehealth. Inpatient care under registered medical specialist with credentials in internal medicine. - Co-located predominantly with general surgical services. No radiation oncologist presence. - Provides teaching to training individuals across a variety of disciplines and may be credentialled to train registrars. - Part of service network with higher level services to prevent isolation of practice. - Participates in regional and national MDM's. May host regional MDMs. - May have established research links with academic institutions. - May provide teaching to training individuals across all associated disciplines and may be credentialled to train registrars. - May have clinical trial unit or participate through independent clinical trial sites. *Medical oncology Level 3 sites: Whangārei, Rotorua, Tauranga (3.5), Hawke's Bay, Timaru, Nelson* *Haematology Level 3 sites: North Shore, Middlemore*

Level	Service Level Description
4	The services provided in the levels above as well as: - Provides initial assessment, management and treatment plans for all adult malignancies, in collaboration with wider hospital specialties and services. - Dedicated medical oncology and haematology infusion units. - Provides inpatient systemic anti-cancer therapy as required. - Inpatient care under registered medical specialist with credentials in medical oncology or haematology. - Is co-located with radiation oncology and subspecialised surgical services. - Provides assessments and treatment oversight to patients at sites remote from locality via telehealth +/- visiting clinics. - Provides acute leukaemia care under haematology. - May be referral site for recognised cancer specialty, such as adrenal, bone or thyroid cancer (Medical Oncology only). - Reference site for all medical and haematology service levels (such as provision of peer support to prevent isolation of practitioners at other levels). - May host national MDMs. *Medical Oncology Level 4 sites:, Auckland, Waikato, Palmerston North, Wellington, Christchurch, Dunedin* *Haematology Level 4 site: Dunedin*
5	The services provided at level four **and** autologous transplantation (Haematology). *Haematology Level 5 sites: Waikato, Palmerston North (Dunedin, North Shore Hospital, Middlemore in future)*
6	The services provided at level five **and** allogeneic transplantation (Haematology). *Haematology Level 6 sites: Auckland, Wellington, Christchurch*

Trust Hospitals

The Service Level Description table includes a number of Trust Hospitals where SACT is delivered. Trust Hospital funding is dependent on private contracts to support growth as part of a public (Health NZ) private partnership arrangement. Trust Hospitals, utilise a rural generalist hospital model for delivery of SACT, supported by oncologists and haematologists based in a different service. For example, Dunstan Hospital in Central Otago, is supported by oncologists and haematologists at Dunedin Hospital.

Rural Generalist Hospitals

Rural generalist hospitals work closely with rural general practices, allied health, and other clinical and social support services to improve the health and wellbeing of rural communities. They can deliver a wide range of SACT and SACT related services and provide a critical link for patients transitioning to and from other sites for treatment (including radiation therapy and surgery). They can also have links with other rural hospitals.

Site visits highlighted benefits for patients and whānau who would otherwise have to travel significant distances to receive care and treatment. The value of working as "generalists" where a range of tasks can be undertaken by different staff was highlighted. Demand for services and patient complexity at these hospitals is increasing and the need to balance delivery of SACT infusions with other non-cancer infusions is a challenge.

Private Providers

Within Aotearoa, SACT is delivered in both the public and private setting. There are a number of private providers for SACT in addition to the sites detailed previously. Public SACT is not routinely outsourced to private SACT providers. This is in contrast to services such as radiation oncology and surgery where outsourcing is an established practice.

Private SACT providers have grown rapidly over the last decade to meet increasing demand for available treatments that are not funded in the public system. The business model utilised by private providers does not offer inpatient services. Treatment-related toxicities and cancer-symptom management requiring hospitalisation are managed through admissions to public hospital services (Te Whatu Ora, 2023a).

Typically, private providers are able to offer more favourable working conditions, including higher remuneration and more flexible working hours, to the workforce. Private providers do not contribute to the formal training of the workforce (e.g advanced trainee registrar programme). The SACT workforce across both public and private providers is often comprised of the same senior medical officers.

Across the country there is variability in how privately funded oral treatments are managed. Some public services prescribe and manage patients on unfunded oral treatments. Other services require patients to access private SACT providers for ongoing follow up, laboratory and radiology investigations. Patients accessing both privately funded and publicly funded intravenous SACT may be under the care of both public and private specialists, or only private specialists depending on their location in Aotearoa.

Inequities and Service Delivery Issues

How services are designed and operate is a key contributor to whether patients and whānau face unnecessary barriers to getting the care they need, and optimal outcomes they should achieve. Across all aspects of cancer care these barriers create inequities.

There are longstanding inequities and barriers for patients and whānau to access the National Travel and Accommodation (NTA) support they need. This can result in financial hardship for some patients and whānau. Health NZ are currently progressing work to modernise the current NTA scheme.

For Māori, there are inequities when comparing the effects of colonisation, racism, and social determinants with non-Māori. Because of this, Māori are directly impacted by socioeconomic inequalities (Te Aho o Te Kahu, 2021). Māori experience longer and slower pathways through health care, have hospitalisation rates that are disproportionately low, yet represent high in disease and mortality rates, are more likely to live in rural areas where access to services and treatment can be problematic (Ellison-Loschmann & Pearce, 2006) and are less likely to receive appropriate levels of care in screening (Te Aho o Te Kahu, 2021).

These barriers to care also disproportionately impact Pacific peoples, as well as those living in socioeconomically deprived communities particularly rural areas, those living with mental illness, disabled peoples and the SOGIESC-diverse (sexual orientation, gender identity and expression, and sex characteristics) community (Te Aho o Te Kahu, 2022b).

Māori experience significant barriers in receiving SACT and are less likely to receive adjuvant chemotherapy for colon and breast cancer than non-Māori. They can also experience significantly longer delays in receiving adjuvant treatment for breast cancer than non-Māori, with inequities persisting after adjusting for deprivation and rurality (Hill, et al., 2010) (Lao, Kuper-Hommel, Laking, Chepulis, & Lawrenson, 2020) (Lawrenson, et al., 2018).

Māori do not always receive the same benefit from new and innovative treatments as non-Māori. For example, a study looking at overall survival improvements in multiple myeloma in Aotearoa following the funding of bortezomib, found that although overall survival increased at a population level, there was no increase in survival for Māori, Pacific Peoples and those in the most deprived quintiles (Chan & Milne, 2020).

Some of these studies were published more than ten years ago, and it is difficult to know whether this has improved, stayed the same or even worsened since this time. This highlights one of the current challenges of not having a readily available national view of SACT access, treatment and outcomes data.

International literature suggests that poorer outcomes in more deprived individuals may be due to delays in seeking medical attention, poorer tolerance and adherence to treatment, and increased treatment complications (Te Aho o Te Kahu, 2022b).

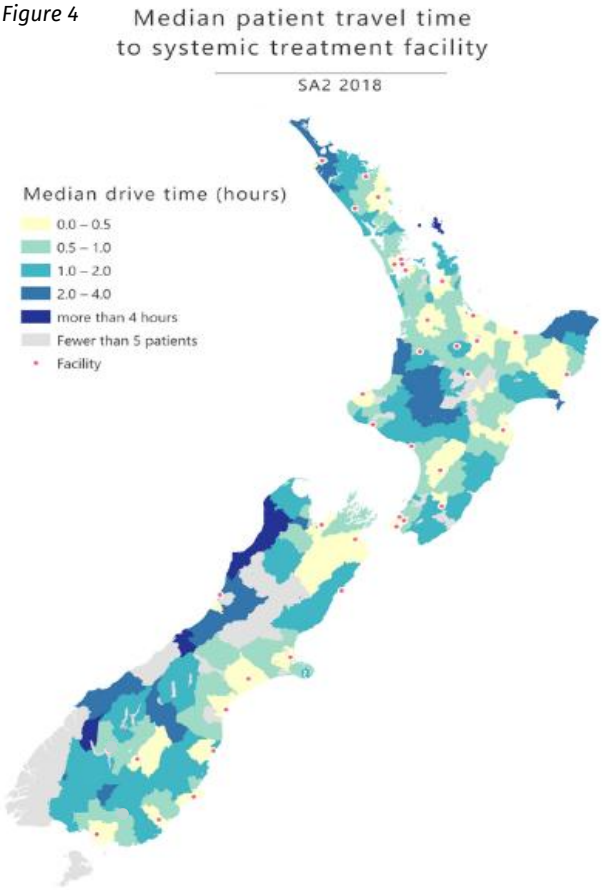
The experiences of patients and whānau and the need to improve service design and delivery was reinforced at the Agency Community Hui held in 2021. The aim of these Hui was to hear the stories and experiences of whānau Māori, so that their voices could help shape the future direction of cancer care. Rongohia Te Reo, Whatua He Oranga - The Voices of Whānau Māori Affected by Cancer report was released in 2023. It summarises the themes and insights from the Hui and highlights the need for action to respond to the challenges patients and whānau experience (Te Aho o Te Kahu - Cancer Control Agency, 2023).

Equity of Access

The geographic distribution of services impacts equity of access to SACT. This is in the context of inequities of access to diagnostic services, primary care and other treatment modalities which can impact models of care.

An example of this can be demonstrated through SACT for patients with non-small cell lung cancer. Between 2015 and 2018 the proportion of patients with non-small cell lung cancer who received SACT varied by District, from 13% to a high of 38% (Te Aho o Te Kahu, 2022b).

Figure 4



This adjacent map shows public hospital sites where SACT was delivered in 2018 (red dots) with a sliding colour scale to show regions by median travel time to a SACT service. This graph was produced using outpatient attendances for SACT delivery in national collections data.

The range of SACT administered at each site varies. In addition, some sites are not open all days of the week and may only deliver some SACT treatments on the days when visiting senior medical officers are on site.

Changes to the geographic distribution since 2018 will impact median travel times. Another caveat with this graph is that this captures patients who received SACT and does not show distances from a SACT centre for patients who did not receive SACT.

Living close to SACT sites does not remove all barriers to access. Some patients and whānau who live in urban centres may face barriers to access public transport and car parking.

Equity of access to SACT care requires consideration from within a broad context. For example, supervision of hormonal treatments as part of early breast cancer care is devolved to primary care in some sites. Other sites retain this large patient cohort due to concerns regarding barriers to access primary care.

Facilities and Infrastructure

The current model of care for SACT largely relies on patients and whānau coming into hospital settings to receive treatment. Many medical oncology and haematology services are facing physical constraints in both inpatient and outpatient settings.

It is evident from site visits that **there are SACT facilities which are well beyond their expected lifespan.** Where upgrades have occurred, they have largely been piecemeal attempts to make best use of existing buildings rather than significant step changes to increase floor space. Additionally, the age of facilities mean that they often lack modern design that can improve workflows and enable effective use of technology.

Physical infrastructure and capacity constraints can lead to challenges with making services whānau-centred. Site visits, consultation with patients and whānau and from the Māori cancer hui, report that there isn't always room for whānau to attend appointments and that there is often limited privacy for private conversations to occur (Te Aho o Te Kahu - Cancer Control Agency, 2023).

There has been **little substantive growth in the size or scale of cancer treatment facilities in at least the past two decades.** Day units are often shared spaces with other specialties, which can create a challenging environment to deliver SACT care. Several sites have recently established new satellite services in re-purposed clinical spaces however current workforce constraints in both rural and urban settings are a challenge to enabling continuity of services. Where new facilities have been developed, this has not always been accompanied by the resource and workforce required to support its utilisation.

Within SACT services, **inpatient capacity is impacted by the broader hospital capacity.** Population growth, increasing emergency presentations and the impact of COVID-19 are constraining all aspects of hospital care and services placing pressure on bed capacity.

The New Zealand Infrastructure Commission, Te Waihanga commissioned the New Zealand Institute of Economic Research to model hospital building costs over the next thirty years. Research modelled of a range of Health NZ identified health system shifts and efficiency improvements and has tested the potential impact of service redesign ideas to reduce health infrastructure requirements. This analysis identified that a range of ambitious solutions implemented with a high degree of effectiveness, offered little opportunity for infrastructure investment savings and led a reduction in the infrastructure investment need, by only 12% (NZIER, 2023).

The report also noted that many New Zealand **health facilities did not provide sufficient space in the immediate area of beds for clinical safety and effectiveness** and identified the shortfall in square metres relative to the Australasian Health Facility Guidelines (AusHFG, healthfacilityguidelines.com.au) (NZIER, 2023).

Site visits highlighted the impact of **limited space in SACT day units, thus limiting infusion capacity.** Where treatment chairs are sub-optimally spaced, there is the potential to result in safety concerns and in some cases limit the ability of staff to work effectively and efficiently. Limited physical space places limitations on the ability to have whānau present during treatment, which can have a very negative impact on the patient's experience.

Equally, **outpatient clinic space and procedure room availability can be a limiting factor in creating outpatient assessment capacity.** Some sites have tried to address this through ad hoc arrangements such as seeing patients outside of hours or implementing extended clinic sessions and days of work.

Limitations on office space for non-clinical contact work also create a challenging environment for clinicians to work in. Many senior medical officers share with others (including registrars) and in one site, office space was used as a procedure room. There are significant challenges when additional workforce is needed to meet demand. This workforce also needs physical space, that is fit for purpose, to work effectively and efficiently (Te Aho o Te Kahu, 2022d).

Acute oncology assessment settings vary across Aotearoa. For most sites, acute assessments are generally completed in emergency departments by combinations of emergency medicine doctors and members of the medical oncology, haematology, general medical or surgical teams depending on the admission rights operating at the particular site. Where dedicated acute assessment units are present, these provide physical space separate from the emergency department for the assessment and management of symptoms from cancer and the side effects of treatment. Of note, while all sites have during and after hours processes in place to meet the needs of patients requiring urgent assessment, these arrangements are typically geographically based not complexity based.

Auckland City Hospital's acute assessment unit is not co-located within or near the oncology service, has limited access to procedure rooms and is not well designed to meet patient and whānau needs. By contrast, Dunedin Hospital has had a dedicated nurse-led oncology haematology assessment unit located adjacent to the oncology day unit for approximately ten years. This has provided flexibility with staffing and additional infusional capacity for the day unit at peak times. The increase in patients on treatment and required infusion hours without expansion of the day unit has meant the unit has increasingly taken space that was designed for acute assessment and acute assessments are increasingly needing to be undertaken in the emergency department. Key factors contributing to this are lack of physical space and insufficient staffing. Wellington's Blood and Cancer service recently rebuilt and expanded their facility which included a dedicated acute assessment unit, however they have not been able to use it due to insufficient staffing.

A New Medicines Survey undertaken in 2022 representing inpatient and outpatient services (Deep Dive 1, see below) highlights building and infrastructure constraints.

Deep Dive 1 – New Medicines Survey 2022

- *Almost all outpatient chemotherapy units (88%) were booked to capacity, reporting that it was "difficult" or "doable but challenging" to book an urgent category A patient (treat within 24 hours) or semi-urgent category B patient (treat within 2 weeks).*
- *All respondents indicated that their new patient clinic and follow-up clinic slots were either "all booked" or "almost booked" to capacity each week.*
- *In the inpatient setting, respondents indicated they were booked to capacity each week across a mix of specialities (cancer and non-cancer) who share the wards and beds.*
- *Three respondents (17%) reported that any expansion of services would require expansion of the physical space.*

Workforce

The current **national and international shortage of health professionals has resulted in a vulnerable workforce under significant pressure**. This limits the ability of sites to meet current and potential future demand for treatment (including participation in research and clinical trials).

Service efficiency, from the perspective of measuring Full Time Equivalent (FTE) and workload outputs, likely varies across districts and regions due to factors such as the number of satellite services being overseen, the structure of care teams, number and scheduling of clinics undertaken, inpatient and outpatient responsibilities and the training and supervision requirements for both registrars and nursing roles.

There is variability in subspecialist versus generalist oncology practice across Aotearoa and this has a substantial impact on models of care.

The New Medicines Survey (Deep Dive 2 below) identifies the workforce challenges and their impact on services.

Deep Dive 2 – New Medicines Survey

- *Challenges with recruitment to advertised positions were reported, both for nursing and SACT prescribers, and lengthy recruitment timeframes of over 12 months with positions not yet filled. This was particularly evident in haematology.*
- *There was commentary on the difficulties of getting suitably qualified specialist nursing staff, with very few applicants.*
- *The need for a coordinated national programme to improve recruitment to all aspects of SACT workforce was highlighted (including for trainees).*
- *Existing staff vacancies in SACT administering nursing roles and SACT prescriber roles (Consultants, Registrars and Nurse Practitioners) were a challenge, and for many sites this was a major constraint to meeting current demand. Some of these roles had been open to recruitment for almost 18 months.*

Examples of supporting commentary include:

- *"Staff shortages have meant that we have had to close chairs, as we haven't had sufficient staffing."*
- *"We could extend hours to create quite a lot more chair time. We need nurses and staff to manage this."*
- *"We've had to close some day-ward chairs due to insufficient nursing staff."*
- *"With regard to nursing positions, the high acuity of the patients and poor nursing ratios, makes it very difficult to retain staff, as the stress and workload of the job is high."*

Senior Medical Officers

There is no international benchmark for the number of **medical oncologists** per capita. A recent Australian workforce review reported 633 medical oncologists registered in Australia, equivalent to around 2.5 per 100,000 population. This is higher than the current number of medical oncologists in Aotearoa, roughly 2.0 per 100,000 population. Therefore, Aotearoa has roughly 20% fewer medical oncologists than Australia on a per capita basis. Although Māori make up 16.5% of the total population of Aotearoa, only 2% of medical oncologists identify as Māori (Te Aho o Te Kahu, 2022b).

Similarly, there are no international benchmarks for the number of **haematologists** per capita. The Royal College of Pathologists of Australasia (RCPA) reports 520 haematologists in Australia, around 2 per 100,000 population. This is higher than the number currently in Aotearoa, around 1.3 per 100,000 population. Therefore, Aotearoa has roughly 35% fewer haematologists than Australia on a per capita basis (Te Aho o Te Kahu, 2022b). These figures do not distinguish malignant from non-malignant haematology practice.

An added complication in measuring the workforce is the consideration of FTE. Many clinicians report being paid for fewer hours than they actually work and the number of hours per 1.0 FTE varies across the country between 40 and 50 hours per week. Services also reported that a greater proportion of senior medical officers work part-time than previously.

The Association of Salaried Medical Specialists Single Employer Collective Agreement identifies three components to senior medical officer work: clinical contact, clinical non-contact, non-clinical non-contact. The latter does not have a patient National Health Index (NHI) associated with it, the former do and encompass patient facing and non-patient facing clinical activities such as MDM meeting preparation and participation. The Collective Agreement states at least 30% of work should be non-clinical non-contact activities (activities where no NHI is involved such as service improvement and continuing medical education). Staff identified at site visits that this contractual arrangement is often not met.

Senior medical officers also report that in recent decades, the **burden of clinical non-contact duties has increased** due to increasing amounts of time required for participation at MDMs, care coordination between specialities and between sites, and completion of administrative duties. It has also been highlighted that as Aotearoa falls further behind in access to standard of care treatments, more time is spent identifying and facilitating alternative treatment options and arrangements such as compassionate access scheme participation and Named Patient Pharmaceutical Applications. Senior medical officers report that during the last 20 years, the number of registered indications for treatment has increased along with the complexity of clinical decision-making. The impact of senior medical officers spending more of their time with more complex patients may have unintended negative consequences for service workflows and volumes given added pressures resulting from working at maximised scope. Some services report that many of their senior medical officers are signalling intentions to reduce their FTE in the near future. Strain from dealing with the most complex patients whilst also supervising other clinical staff who are seeing patients under the care of the senior medical officer, is identified as an increasing issue.

Service continuance arrangements for planned and unplanned leave are limited. Cover for patients on infusion treatments is often provided by remaining staff adding to the clinical load already booked to their care. Reviews for patients on oral treatments (where possible) and follow up reviews tend to be deferred until the absent staff member returns, adding to the strain of returning to work.

One large centre utilises a strategy of diverting Fellow capacity from research activities to clinical reviews to assist with covering the increased rate of senior medical officer leave during the summer period.

Registrars

Currently there are challenges recruiting and retaining registrars within services which can impact on their familiarity of SACT medicines and supporting oncology information systems. Recently modified contracts caused disruption with workflows and resulted in generating additional work for senior medical officers.

There is **no national approach to determine SACT service requirements for registrar training placements or future planning to meet forecasted need.** There are also no direct links between the College of Physicians and SACT services to support a collective response.

Stakeholders noted that haematology training is currently limited by the number of training posts, particularly the availability of the laboratory component of training. Many laboratories embedded in public hospitals are run by private providers necessitating more complex contractual and collaborative arrangements to facilitate training when compared to other specialist training programmes that operate solely within public health services.

Accreditation of sites to train registrars can be at risk where there is a shortage of senior medical officers. This can also impact succession planning.

Nursing

Nurses work across a range of settings and roles to support patients along the SACT pathway. The nursing workforce is the largest health workforce in Aotearoa, with over 69,000 nurses (Te Kaunihera Tapuhi o Aotearoa - Nursing Council of New Zealand, 2023). The nursing workforce has a high proportion of internationally qualified nurses. In March 2023, 36.4% of nurses in Aotearoa were internationally qualified. This high proportion contributes to underrepresentation of Māori. Only 3.3% of the current oncology nursing workforce identifies as Māori (Te Kaunihera Tapuhi o Aotearoa - Nursing Council of New Zealand, 2020).

While specific modelling for nursing who administer SACT is not currently available, modelling by Health Workforce New Zealand estimates by 2031 there will be a 12% decrease in cancer nursing FTE compared to 2021, based on average rates of new entry, re-entry and exit over the past three years. This does not take into account current workforce shortages or changes to models of care. The Agency has commissioned Health NZ to undertake a cancer nursing workforce modelling project, which will detail the current registered nurse and advanced practice workforce, and future need over the next ten years.

Nursing and SACT Administration

Nurses who administer SACT have completed designated anti-neoplastic drug administration courses. This enables them to administer chemotherapy to patients and manage many common side effects. Nurses who deliver care that meets the health needs of those who require SACT are essential to the workforce of inpatient medical oncology and haematology wards, and outpatient infusion units. Nurses can also work outside of these settings. See appendix 5 for further examples.

Site visits consistently highlighted fluctuations in the availability of anti-neoplastic drug administration certified nursing staff. This negatively impacts the capacity and sustainability of SACT delivery.

While nurses from other areas can support medical oncology and haematology areas during times of staffing challenges, these nurses are not able to administer SACT. The certification process for SACT and, in particular antineoplastic drugs, takes time. Recruitment, training and retention is essential for the stability of access to SACT in inpatient and outpatient areas where SACT is administered.

Senior Nursing and the SACT Pathway

Designated senior nursing roles include clinical nurse specialists and nurse practitioners. Senior nursing roles work at the top of scope, or in advanced scopes of practice, to support patients along the SACT pathway. In 2012, the cancer nurse coordinator initiative provided funding to establish 40 new cancer nurse coordinator roles across the country (Litmus, Cancer Nurse Coordinator Initiative Evaluation Final Report , 2016). The purpose of the cancer nurse coordinator role is to improve patient outcomes by coordinating care for patients with cancer and to facilitating timely diagnosis and initiation of treatment. The cancer nurse coordinator role has three caseload models: generalist, tumour stream specific and population based. In 2015, there were 71 cancer nurse coordinators across all Districts (Litmus, Evaluation of the Cancer Nurse Coordinator Initiative - Second Annual Report, 2015).

Clinical nurse specialists are nurses who are working at the top of their scope of practice. They have in-depth knowledge of their specialty and evidence-based nursing. The clinical nurse specialist role is diverse. While there are no SACT specific clinical nurse specialists, patients along the SACT pathway will be supported by clinical nurse specialists within medical oncology and or haematology speciality. Within these specialties, clinical nurse specialists may have a tumour stream focus, pathway focus or broader generalist focus.

Nurse practitioners are skilled practitioners with an advanced scope of practice. Nurse practitioners manage episodes of patient care as the lead healthcare provider. Within medical oncology and haematology, nurse practitioners work independently as part of a specialist team. Their role may include reviewing patients in clinics, prescribing SACT and supportive medications, requesting diagnostic tests and performing acute procedures. Since the first nurse practitioner was registered in Aotearoa in 2001, the workforce has continued to grow. In 2021 there were nine nurse practitioners in medical oncology or haematology. A nurse practitioner Special Interest Group is associated with the Cancer Nurses College.

A formalised pathway and nationally consistent requirements to transition from generalist registered nurse to an advanced nursing practice role, e.g. cancer nurse specialist or a cancer nurse coordinator, is not currently established. Services have had to facilitate this transition through a variety of processes. However, there is national workforce planning underway which supports the nursing pipeline planning for a sustainable future.

Suitably qualified nurses can apply to the Nursing Council of New Zealand for authorisation as a designated prescriber and prescribe from a list of medicines specified by notice in the New Zealand Gazette by the Director-General of Health as required under section 105(5A) of the Medicines Act 1981 and in amendments to the Misuse of Drugs Regulations 1977.

An expanded table of advanced nursing role definitions and descriptions is included in Appendix 3.

Pharmacy

Pharmacists are medicines experts, who specialise in the safe and effective use of medicines.

The majority (77%) of practising pharmacists in Aotearoa work in community pharmacies, with 14% or just over 500 pharmacists working in hospital pharmacies and across all medical and surgical specialties. The Aotearoa pharmacy workforce is relatively young. Māori and Pacific Peoples are under-represented in the workforce, comprising only 1.5% and 1.0% of registered practising pharmacists, respectively. In recent times the types of roles pharmacists undertake have increased e.g., electronic prescribing, informatics, regulatory and provision of primary care-based activities. Increasingly, oral SACT treatments are available and many of these are dispensed in community pharmacies (Pharmacy Council - Te Pou Whakamana Kaimatu o Aotearoa, 2019).

It is currently difficult to quantify the amount of pharmacy resource dedicated to oncology and haematology in Aotearoa and there is variation in the FTE assigned and clinical pharmacy services provided in the different services and settings. Hospital pharmacy managers have highlighted that **the supply side of pharmacy i.e. dispensing, is always prioritised over other services offered.** In times of reduced staffing, one strategy employed is to revoke clinical pharmacy services to wards, to ensure continuity of dispensing. Very few sites have dedicated clinical pharmacy services for outpatient services, where the majority of SACT services lie. Most only have resource for supply functions in the outpatient setting.

Site visits identified that hospital **pharmacies are finding it challenging to compete with community pharmacies** (as these have become more commercialised) and Australia in terms of remuneration and working conditions, which can impact the delivery of SACT services.

Feedback from pharmacists and other clinicians indicated that pharmacist roles in oncology and haematology are often only resourced for dispensing of SACT. This means there is less resource for clinical trials and other tasks and responsibilities such as prescribing, development and review of medicine policies and guidelines, quality improvement work and maintenance of SACT treatment charts (either paper-based or in an electronic system).

There are currently no established training and development programmes in Aotearoa for pharmacists to specialise in SACT and no national training courses or programme in chemotherapy manufacturing. Courses to become pharmacist prescribers are through either Auckland or Otago Universities but are not held every year.

There are currently no dedicated funds for pharmacists working in SACT services to access as part of a coordinated workforce pipeline plan. Pharmacists report varying success in applying for financial support to complete the necessary post-graduate study through their local hospitals. Many have self-funded courses or sought grants from the New Zealand Hospital Pharmacy Association (a voluntary incorporated society) or even local rotary clubs. Another challenge is that there is currently no guarantee of a new, advanced scope role upon completion of training.

Other challenges highlighted by the pharmacy workforce are limitations to participating in clinical trials due to competing demands on site, space, room and servicing trial requirements.

The devolvement of SACT compounding to third party suppliers was highlighted by pharmacists as an issue that has led to the loss of institutional knowledge of compounding. Pharmacists have noted that this becomes apparent when formulations or routes of administration need modification for particular clinical circumstances (for example fluid restriction, infusion reactions). As third-party manufacturers are not licensed pharmacies, rather pharmaceutical compounding facilities, it is incumbent on the pharmacist in haematology/oncology to research and authorise any compounding or pharmaceutical stability outside the usual parameters.

With the advent of targeted therapies for cancer, many of which are administered orally, an increasing proportion of SACT is dispensed by community pharmacies. Additionally, the supportive medications, which sometimes outnumber the anti-cancer medicines within a SACT regimen, are generally oral medications dispensed by community pharmacy. Community pharmacists often have minimal access to electronic information about the patient that would enable them to clinically check the prescription as part of the dispensing process. Information such as which SACT regimen the person is on, any dose adjustment reasons and recent blood test results are often not visible to community pharmacy in the way that they are for hospital pharmacists.

Prescribers of SACT can be authorised prescribers or designated prescribers. Authorised prescribers can independently prescribe, supply, sell, administer or arrange for the administration of any medicine that relates to their area of practice. Current authorised prescribers of SACT are medical oncologists, haematologists and nurse practitioners. Designated prescribers may only prescribe from a list of medicines published in the New Zealand Gazette by the Director-General of Health under section 105 (5A) of the Medicines Act. Designated prescribers are also expected to prescribe collaboratively alongside an authorised prescriber and have limited permission to diagnose. Current designated prescribers include pharmacist prescribers and registered nurse prescribers.

The kaiāwhina workforce (non-regulated roles in the health and disability sector) has an important role. They can be the first point of contact for patients and whānau coming into the hospital and are an essential conduit between services and potentially primary care. There is variation in how these roles are set up and how access for patients is managed.

Allied Health is a broad term that covers a range of professionals. Many allied health professionals are essential to support the care and treatment of patients with certain types of cancer. For example, speech language therapists, physiotherapists and dieticians are an important part of the team for head and neck cancer patients. Psychologists have a key role as well as social workers, in providing psychosocial and a range of support for patients. These roles are important contributors to continuity of care.

Feedback from site visits suggests there is variable allied health service provision across Aotearoa. For example, management of lymphoedema for patients in some areas is offered as part of their treatment. In other areas patients are expected to fund this themselves. Access to pre-habilitation and rehabilitation services and facilities is also limited.

Allied health service provision can include dedicated roles for oncology and haematology. Within services, access to allied health staff can vary between the inpatient and outpatient settings, with outpatients waiting long periods to access, or being unable to access, wrap around support.

In areas without dedicated allied health service provision, other workforces attempt to fill the gaps to support patients and whānau, for example a referral to a social worker can occur where there is not timely access to a psychologist.

Data and digital support for services is a key enabler of delivering optimal patient care and treatment. Site visits highlighted that some services do not have sufficient experienced staff to support oncology software systems or provide data analyst support. In the absence of data analyst support (or similar role), reporting tasks are commonly undertaken by clinical staff who often do not have sufficient non-clinical time allocated for this.

Administration staff are critical to workflow in healthcare as identified in external reports and site visits (Cranleigh Health , 2011). Site visits highlighted that the flow of clinical decision making is often impaired by delays in the typing and uploading of dictated clinic letters and other documentation, in many instances these delays are enduring, not short term or transient issues. In addition to workflow disruption, these delays have safety implications and staff identified that inefficient work arounds are regularly used by senior clinicians, registrars and others to enable timely communication and increase patient safety.

In recent times there has been a shift towards devolving clinical tasks to non-clinical staff including administrators, such as day unit scheduling. However, it was noted at site visits that allocation of some booking tasks to staff with a non-clinical background may, for example, lead to underutilisation of available infusion capacity. Scheduling tasks are significant, given the predominance of recurring time-critical planned care outpatient activities in oncology services.

The palliative care workforce is 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 other health professionals and support services are an integral part of the palliative care service. Currently there is variable resourcing for, and access to, palliative care and how these services are delivered, particularly for those living outside of major centres. This will become an even bigger issue as the demand for palliative care services increases, with modelling suggesting that the number of patients needing palliative care will increase by more than 50% between 2016 and 2038 (Ministry of Health, 2017).

There are a wide range of other key support roles and services that play a vital part in the care and management of patients preparing for SACT, undergoing SACT, follow up and survivorship. These include fertility preservation services, which are critical for many cancer patients, particularly the Adolescent and Young Adults (AYA) group.

Data, Information and Technology

Significant progress has been made over the past decade in the data and digital environment. The progressive implementation of clinical software systems in cancer services has been a key enabler to:

- Planning and delivering safe, quality care and treatment.
- Creating efficiencies and enhancements to workflows.
- Increasing the visibility of patient care and treatment.
- Providing a means to collect patient data and information to support audit, monitoring and service improvement.



These systems are often disparate and disconnected which creates a significant challenge for both patients and clinicians, particularly as patients move between service providers in different districts and regions for treatment. Fragmented patient records can result in:

- A reliance on workarounds and manual processes to ensure complete information is available which is time inefficient, creates risk and removes the ability to streamline sequencing of assessment to treatment.
- Repeat tests and scans when information is incomplete or unable to be reliably sourced.
- Placing a burden on patient and whānau to bridge gaps in transferring information between clinicians, hospitals and primary care.

SACT is ordered via a prescription, in electronic or paper form. Electronic prescribing systems can reduce errors and improve patient safety for prescribing, dispensing and administering of systemic therapies (Te Aho o Te Kahu, 2022b). These platforms are foundational to collection of standardised data about treatment volumes. However, **electronic prescribing systems are not fully implemented across Aotearoa** and those which are implemented can have different versions across the same region. This means different patient care plans for the same treatment may exist, impacting ability to easily transfer patients between sites.

Site visits highlighted examples of disruptions to clinical workflow, from data and digital infrastructure malfunctions such as remote server access malfunctions, taking clinical staff multiple hours of input to resolve, reducing their capacity to undertake clinical work.

Work is progressing to improve information on SACT, including the ACT-NOW programme. ACT-NOW aims to better understand how SACT is being delivered across Aotearoa by collecting treatment and treatment-related data (including intervention rates, complications, consistency of protocols and effectiveness of interventions) from electronic prescribing systems and working with clinicians and other stakeholders to identify opportunities to improve services.

Pathology, Laboratory and Radiology Services

Pathology, Laboratory and Radiology services are critical to any health system. Pathology and laboratory services are those that conduct tests on blood, tissue and other bodily substances. Radiology is the production of images of the internal structures of the body.

The diagnostic information and expertise these services provide are fundamental to SACT treatment decisions and monitoring treatment response. Pathologists and Radiologists are key members of cancer MDMs. Patient cases discussed at MDMs benefit greatly from subspecialty expertise in these fields.

There is regional variation in how pathology, laboratory and radiology services are delivered, with a mixture of public and private providers. Site visits highlighted challenges in decision making at FSA due to delays in pathology reporting and in decision making due to the absence of formal radiology reports at the time of oncology follow up appointments. This can impact service capacity as patients may require another clinic appointment as a result. Stakeholder feedback also identified instances where radiology was not being performed due to resource constraints.

Underdeveloped and variable reflex testing pathways (where the pathologist establishes a predefined order for testing of specific cancer types) were also identified as disrupting both pathology and oncology workflows and decision making. **Variation in the application of different laboratory panels and access to molecular and genetic testing** were highlighted as key contributing factors creating inequities for patients.

Quality, Safety and Risk Management

Quality, safety and risk management has a key role in ensuring services are delivered safely and effectively for patients and staff. There are well established regulatory guidelines and requirements which must be met. The safe delivery of SACT requires consideration of compounding, storing, transporting, administering and disposal requirements. Critical principles including verification by more than one practitioner and managing adverse events, also need to be considered.

Currently there is variation across SACT services regarding approaches to quality improvement work, waitlist monitoring and reporting, risk identification and management, resourcing of quality focussed roles and clinical and operational leadership in this setting.

A recent Health and Disability Commissioner Report emphasised the **importance of an effective accountability and performance framework where patients are the focus** and patient safety concerns are signalled, acted upon and evaluated (Health and Disability Commissioner, 2022).

Access to registers that record adverse events and patient harm is quite restricted. Hence it is difficult to obtain accurate, real-time data and information which captures and reflects the morbidity and mortality occurring as a result of SACT administration.

Work underway as part of the ACT-NOW programme is demonstrating development of national measures which could be progressed to identify potentially unwarranted variations in clinical practice.

New Medicines

The approval and implementation of new medicines funded by The Pharmaceutical Management Agency, Te Pataka Wahioranga (Pharmac) is a significant challenge for SACT services and can have a measurable impact on their capacity to deliver care and treatment. New indications for existing treatments can also have a major impact on services.

Historically there has been **no national mechanism in place to support any additional workforce needed as new SACT medicines are approved**. There is a mismatch in timing between approvals for new SACT and workforce availability or development. Individual services may apply for additional resource through local business case processes which may or may not be approved. Overall, services have had to continue to absorb increases in patient demand resulting from the introduction of a new medicine (Te Whatu Ora, 2023a).

In June 2022 the Agency undertook an assessment for the Interim Health NZ Workforce Taskforce to quantify the workforce needed to implement four new SACT medicines released for consultation by Pharmac. Te Aho o Te Kahu included immune checkpoint inhibitors for advanced non-small-cell lung cancer in this work, anticipating this new treatment would be implemented in April 2023 resulting in increased patient demand on the medical oncology workforce and other services such as radiology and pathology.

This novel and needed collaborative approach achieved strong clinical engagement prior to April 2023 when immunotherapy was introduced. However, whilst funding was approved by Health NZ in March 2024, more work is needed to streamline and embed the process and the timeliness of funding decisions to ensure sufficient lead in time for services to prepare and adopt recommendations and avoid a negative impact on cancer care delivery. A case study (Appendix 4) describes the process and value add to SACT services to address this key challenge for the sector.

New Initiatives and Innovations

In recent years, districts providing care to the most geographically dispersed populations have innovated. This approach has led to a number of initiatives and care structures which enable and support delivery of SACT closer to home and or with less reliance on visits to hospital. Site visits identified examples where services are adapting new ways of working and adopting local innovations. These are further described in the Future State and in Appendix 5. **Currently there is no national mechanism to share and or scale up new innovations developed** within the sector. This means the full benefits of new innovations in improving the delivery of SACT are not currently realised for patients, whānau and staff. Furthermore, this can have unintended consequences of creating and exacerbating inequities.

Research and Clinical Trials

Research and clinical trials are an important part of cancer care and treatment and whilst they are viewed as fundamental to optimal patient care, they are not fully embedded in many services. Clinical trials are a key mechanism for testing safety and efficacy of new treatments. As more is understood about ethnic variation in outcomes from SACT (both in terms of efficacy and safety), it is important that clinical trials represent the population of Aotearoa.

Clinical trials can be designed and led by pharmaceutical (sponsor led) companies or less commonly, clinicians (investigator led). There are collaborative clinical trial groups between Aotearoa and Australia, who conduct investigator-led multi-centre trials across both countries (e.g Australia and New Zealand Breast Cancer Trials Group and Australasian Leukaemia and Lymphoma Group). A significant benefit of conducting local investigator-led trials is that it is more likely the characteristics of the New Zealand population are represented and reflected in the results. Clinical trials also provide access to treatments that are not publicly available for patients (including treatments which are proven to be safe and effective in other countries).

Access to research and clinical trials around the country varies substantially, with smaller hospitals and rural areas having the least access (largely due to limitations in staff and resource as well as funding to support travel and accommodation for patients), likely disproportionately impacting on Māori. Aotearoa is thought to have low participation rates in clinical trials compared to other jurisdictions and when compared to international targets (Te Aho o Te Kahu, 2022b). An increasing issue is patients being unable to participate in international trials due to not having had the required prior treatments. Private providers have emerging participation in the delivery of cancer clinical trials.

The Ministry is leading work to strengthen the environment for clinical trials in the health system, which is a key action under Strategic Priority 2 of the New Zealand Health Research Strategy (2017–2027). This involves considering what is required to have an equitable and sustainable national approach to clinical trials in the health system. In 2020, the Ministry partnered with the Health Research Council of New Zealand to fund research to inform the design of a national, equity-centred model for clinical trials in New Zealand. The Enhancing Aotearoa New Zealand Clinical Trials research project was co-led by researchers from the University of Auckland and the University of Otago. The project was completed in July 2022 and proposes a model and roadmap for a National Clinical Trials Network for consideration by health agencies. The Ministry is working closely with Health NZ, with input from the Health Research Council, the Ministry of Business, Innovation and Employment and the Agency to consider how the proposal and this model could be implemented.

Currently there is a **lack of infrastructure and resources in hospitals to support clinical trials** and a lack of awareness by patients and clinicians about existing trials that are available (Te Aho o Te Kahu, 2021) (Gurney, et al., 2020). There is no mechanism in place which provides direct visibility of clinical trials open for recruitment in Aotearoa, for both patients and SACT services to access which means patients may be missing out on opportunities to participate.

At site visits, clinicians identified that the added task and time requirements needed to recruit and manage patients during clinical trial participation are often not accounted for in workload planning. The administrative load associated with principal investigator and sub-investigator roles was highlighted as inadequately recognised. **Clinicians highlighted that the value of their participation in and support of research is under recognised.**

In sites where clinical trial units are fully integrated into SACT services there are benefits such as having dedicated resource to set up and coordinate trials and undertake trial administration responsibilities. There can also be a reduction in pressure on services where there are dedicated trial facilities.

An example of a model which fosters and embraces cancer research, innovation and clinical trials has been established in Auckland (see Appendix 5).

Non-Government Organisations

Non-Government Organisations (NGOs) have an important role supporting patients and whānau through the SACT pathway.

For example, community Māori and Pacific Health providers, Leukaemia and Blood Cancer New Zealand and the Cancer Society provide a number of important support services such as education, advocacy, navigation, accommodation, meals, transport, counselling, supportive care and links to other programmes. This sector provides a key role in bridging current systems gaps. Currently the Cancer Society is under pressure to meet increasing demand for services which is exceeding supply in a number of locations. For example, demand for accommodation has been further heightened as a result of patients being transferred between sites for radiation treatment due to acute workforce shortages.

New Zealand Blood Service

The New Zealand Blood Service provide blood products for transfusions. They are commonly required for haematology patients but are also needed by medical oncology patients as part of managing the side effects of treatment (see Appendix 6).

Pharmac

The Pharmaceutical Management Agency (Pharmac) is a New Zealand Government organisation that is responsible for approving SACT for public funding in Aotearoa based on a number of factors, including unmet need, effectiveness, value for money, budget impact and suitability for use.

Pharmac has a relatively unique approach to SACT funding compared with other countries. It is generally evident that there are fewer SACT medicines publicly funded in Aotearoa compared with other high-income countries with similar health systems, such as Australia. This difference in funding is a very real concern for patients, their whānau, and the people and organisations caring for them (Te Aho o Te Kahu - Cancer Control Agency, 2022a).

TE AHO O TE KAHU CANCER CONTROL AGENCY

The Future State

The Model of Care for Adult Systemic Anti-Cancer Therapy Services in Aotearoa, New Zealand

Future State

The goals of SACT care and delivery are to support patients to live longer and to live better. Living longer means the right treatment given at the right time, delivered by staff with the right expertise. Living better means care must be appropriate, available, accessible, affordable, and effective.

The establishment of the Agency along with the restructure of District Health Boards into Health NZ, provided a unique opportunity for these entities to meet these goals by joining in partnership, to transform the future delivery of SACT services across Aotearoa.

A system with strong leadership and governance supported by sustained investment, will underpin delivery of SACT services, helping to ensure **access to, experience of and outcomes from SACT are equitable for patients;** and that where health system productivity losses can be managed and safety maintained, **care and treatment are delivered closer to, or in the home**.

To achieve this the system needs to: See the volumes of care being delivered; Forecast future demand for SACT; Quantify the health-benefit gained from SACT and what could be achieved with the right resources, recognising that resources are limited and must be balanced against many areas of cancer control and the health sector; Have mechanisms for assessing the quantitative and qualitative trade-offs that different courses of action generate in relation to outcomes, patient, whānau and staff experiences and resource use. **Having weighed the competing possibilities, the system must take action to deliver the volume of care that provides the greatest health benefit to patients and whānau equitably**.

Robust sustainable SACT services which improve equity and patient outcomes will be achieved through the following principles:

- **Being responsive to obligations and aspirations under Te Tiriti o Waitangi.**
- **Leadership and governance** that guides sustainable SACT delivery, that brings about the best outcomes and patient experiences possible.
- **Setting up a robust "home grown" workforce** resourced to meet the responsibilities and duties to be undertaken, enabled through identified pathways and training to work at 'top of scope' particularly for nursing and pharmacy staff and supported by a robust administrator workforce.
- **Ensuring buildings and infrastructure are fit for purpose and adhere to Health and Safety guidelines** with potential for expansion to meet future demand.
- **Creating a data and digital environment to "see our system",** providing visibility of the patient journey and electronic records across districts, with timely accurate data and information to inform decision making and a mechanism for reviewing the performance, quality and consistency of care and treatment delivered across Aotearoa.
- **Ensuring resources accompany the implementation of new medicines** validated by national modelling and embedded business planning.

1. SYSTEM LEADERSHIP & GOVERNANCE

Key Attributes:

Establishment of strong national clinical leadership and governance structures (including strategic, technical and operational) which are responsive to relevant health legislation and strategies is foundational to the delivery of optimal SACT services. Quality data and information from sources such as the New Zealand Cancer Registry, national collections and the ACT-NOW programme, will provide for evidence based decision making and achievement of equitable access to SACT care, delivered in a way which improves outcomes, is patient and whānau centred and is sustainable into the future.

Consistent with Te Pae Tata, the approach includes the development of national strategic networks, and regional hospital and specialist service networks. He Mahere Ratonga Mate Pukupuku recommends a networked leadership structure to drive improvement (Te Aho o Te Kahu 2022). This is consistent with the priority of the health reforms to establish structural arrangements that unify and simplify the healthcare system, including a standardised operating model of nationally led planning and regional service delivery.

Both Te Pae Tata and He Mahere Ratonga Mate Pukupuku propose three levels of leadership for robust clinical (including quality and safety) and operational governance. These levels are designed to connect strategic thinking with frontline expertise, integrating policy into practice.

"Māori cancer leadership is needed at every level"

The three levels of SACT leadership below underpin implementation of the future steps. It is critical that there is interaction at each level with all key providers of cancer care. These levels will be inclusive of consumers, Māori and Pacific peoples as partners in leadership, governance and co-design of services including continuous quality improvement work.

- **National strategic medical oncology and haematology leadership** drives planning and decision making, including determining priorities, approaches to service delivery and improvement monitoring. Above this sits the broader system leadership that determines factors such as budgetary priorities for SACT services versus other aspects of cancer care and versus other health system activities.
- **Technical SACT leadership** focusses on quality and consistency of care and managing the integration of policy into practice. This requires both SACT subject matter expertise and lived experience.
- **Operational leadership takes** responsibility for the delivery and maintenance of a robust and resilient model of care, through effective operational management at national, regional and local service levels.

How future leadership groups align with the Agency's existing National Haematology Working Group, the National Medical Oncology Working Group, and the Health NZ National Clinical Networks currently being established, are yet to be determined.

The networks will be accountable to the national Hospital and Specialist Services team, sitting under the Director for System Delivery. These networks will be charged with developing national standards and models of care, identifying ways to address variation in service quality and outcomes, addressing equity and identifying new evidence-based solutions. Te Pae Tata identifies the establishment of regional and national networks as a key step in removing unwarranted variations in access to care, waiting times and clinical practice.

Health NZ operational leadership have responsibility and accountability for ensuring the steps identified and described in the model of care are implemented, relevant to operational delivery.

District and regional SACT services have responsibility and accountability for ensuring the steps identified and described in the model of care are implemented, relevant to best practice care and delivery of SACT.

NGOs such as the Cancer Society, Māori, Pacific and other community providers are likely to have key roles in supporting delivery of the Future State.

Steps to achieve the future state:

1.1. Health NZ, in partnership with the Agency, continue work to lead establishment of SACT strategic, technical and operational leadership and governance structures and determine key responsibilities, functions and accountability for decision making.

1.2. Health NZ clinical and operational leads, in partnership with the Agency, to progress national cancer priorities with a focus on the areas below, highlighted through stakeholder engagement:

1.2.1. **Operationalise the model of care** giving deliberate attention to the impact variations in district structure and need, have on local model of care requirements.

1.2.2. **Develop a national prioritisation approach (which includes district and regional input) to identify the work to be done first,** with a focus on the immediate areas needing urgent attention as identified through stakeholder and sector engagement.

1.2.3. **Undertake a workforce analysis which builds a national view of FTE, taking a task-oriented perspective and focussed at district level.** Beginning with the workforce required to complete the on-treatment review and follow up requirements, as these activities incur a high proportion of the medical oncology and haematology workload (compared to FSA).

1.2.4. **Forecast district demand and capacity** across SACT services related to workforce, treatment spaces and building facilities so work can be undertaken to address these. **Identify vulnerable services and areas of constraint.** Become familiar with the factors which contribute most to setting the sustainable service capacity limit of each district.

1.2.5. **Monitor and evaluate SACT waitlists and refresh medical oncology and malignant haematology FSA and treatment prioritisation categories** including local and regional escalation pathways.

1.2.6. **Establish agreement to align best practice and consistency of care** nationally.

1.2.7. **Embed a national business case framework which will quantify resource and funding** needed to support the successful implementation of new medicines.

1.2.8. **Undertake work to assess implementation of opportunities to create capacity**. Examples from stakeholders include moving to more community-based infusion services; rapid access clinics e.g., specific immuno-oncology toxicity outpatient clinics; national approach to rationalising follow up and surveillance practices and a review of indications for requesting contrast in radiology interval imaging (Te Whatu Ora, 2023b).

1.2.9. **Develop national SACT policy and procedures**, such as

1.2.9.1. **Establish a national approach to molecular testing** achieving consistency in application of tests available and equity of access across Aotearoa. Support horizon planning and future opportunities to advance precision medicine.

1.2.9.2. **Determine whether unfunded SACT are to be prescribed and managed through the public system** (including compassionate access schemes or early access schemes and privately or self-funded medicines).

1.2.9.3. **Establish processes for review, assessment and introduction of new innovations and technologies** (with consideration of disinvestment where needed), including horizon scanning of new cancer medicines or new treatment indications for existing medicines.

1.2.10. **Develop national reporting mechanisms** to identify and address unwarranted variation and evaluate new interventions and changes in practice. Reporting to include prospective forecasting and data to identify inequities so that these can be addressed. Through this work identify the populations of patients seen (and not seen) and treated at each site and where variation exists as part of "seeing our system". This will inform decision making regarding such things as resourcing, waitlist management and workforce modelling.

1.2.11. **Establish a regional and or national process for establishment of new SACT services** which are not currently listed in the SACT Service Level Descriptions (Figure 3).

1.3. Health NZ to establish and maintain effective service delivery leadership and operational structures for SACT services. These arrangements will take responsibility for delivery of a robust and resilient model of care for SACT. To support these structures, Health NZ to ensure the following clinical and operational leadership arrangements are in place:

1.3.1. Levels 3-6 to have **clinical and operational leadership with dedicated FTE** allocation to enable participation in local, regional, national clinical and operational leadership and governance activities to ensure work such as service planning, audits and quality improvement work can be undertaken.

1.3.2. Level 2 SACT to have a clinical and an operational lead for their SACT service to oversee the coordinated approach to SACT delivery and service planning.

1.3.3. Level 1 SACT services to have clear leadership arrangements in place from community to hospital.

1.4. Health NZ to ensure districts where SACT is delivered, have strong connections into regional network structures and through to national networks, as these are established. These networks are to be multidisciplinary with representatives from all key services involved in cancer care delivery and support including clinical, equity, diagnostic and key business operational leads. These networks must have robust communication plans in place with all key clinical and operational staff at national, regional and district level.

1.5. Health NZ and SACT services to develop recommendations for SACT as part of the “Choosing Wisely" campaign where low benefit clinical interventions can be avoided, ensuring patients and whānau and health professionals have well-informed conversations around treatment options, leading to better decisions and outcomes.

2. DISTRIBUTION OF SERVICES

Key Attributes:

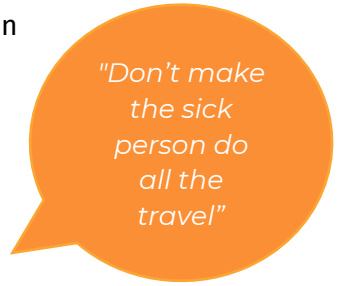
SACT will be provided in the right environment to ensure patients receive high quality care and treatment where services can safely deliver this. Care and treatment will be as close to home as feasible to minimise travel requirements for patients and whānau.

Steps to achieve the future state:

2.1 Health NZ to include aspects of local service delivery as part of capacity planning estimates. Work to be undertaken to better understand and quantify the resource implications for services providing outreach clinics.

2.2 Health NZ to undertake work to understand the impact of high deprivation and rurality for patients and whānau accessing services.

2.3 Health NZ to assess opportunities to expand and strengthen the rural generalist hospital model to provide care closer to home for example, acute oncology and outreach nursing activities. Ensure Trust hospitals are resourced to meet the needs of their population based on demand for SACT care and treatment.



2.4 Health NZ to develop a national work programme which identifies existing local models which bring care closer to home, that could be shared more widely and scaled up if feasible. Appendix 5 provides local and international examples for consideration.

Transformational actions

2.5 Health NZ to **develop mechanisms to facilitate inter-district equity of access to all aspects of care and treatment** including molecular and genetic testing, specialised scans, specialised investigations e.g. endobronchial ultrasound and waitlists to access care.

2.6 Health NZ continue work to enable SACT delivery to be shifted to community facilities where it is safe to do so and meets clinical requirements, contributing to the goal of care delivered closer to home. Where non-hospital based community SACT delivery opportunities are identified, the accompanying funding structure needs to ensure care can be equitably accessed. Community SACT provision includes injected hormone treatment through primary care which currently occurs in many regions.

2.7 Health NZ to consider a **whole of infusion services view** to delivery where non-SACT and SACT treatments are delivered in the same location, by the same teams.

3. SERVICE DELIVERY

Key Attributes:

Patients and whānau will continue to be empowered to participate actively in their care and to make informed decisions about their health, as they transition through their SACT pathway. The future state will increase use of team-based structures and will deliver well-coordinated and equitable care and treatment which is patient and whānau centred.

Patients and whānau will share decision making with teams of senior medical officers, nurse practitioners, pharmacist prescribers, clinical nurse specialists and registrars. Patients will be given all relevant information, presented in a way that they understand. Where care is occurring in a team-based structure, documented pathways will assist teams to hold in mind a shared overview of the intended plan.

The quality of wrap around support and care will be an essential component and focus for how services are designed and delivered.

Steps to achieve the future state:

3.1 Health NZ to **prioritise the immediate actions to be taken which ensure SACT services have capacity to deliver timely, safe and effective SACT**. This will be informed by steps 1.2.3-1.2.5 previously described.

Holistic patient and whānau centred services

3.2 Health NZ and SACT services to increase utilisation of kaiāwhina roles to provide conduits between community and hospital services, reducing barriers and streamlining the pathway for patients and whānau.

3.3 Health NZ to respond to indigenous populations and co-design services that work for Māori such as the Kia Ora E Te Iwi programme (a Cancer Society initiative) and Whānau Hauora Integrated Response Initiative (WHIRI), see Appendix 5.

"Holistic care is needed for both patients and whānau."

3.4 SACT services to ensure that patients and whānau receive holistic care that meets their cultural and spiritual needs. This includes the support of patients and whānau in their use of rongoā and traditional healing practices which are an important contributor to the experience of care and treatment planning for Māori and Pacific peoples.

3.5 Health NZ clinical leadership to develop national guidance and principles to support safe use of traditional healing therapies, including interactions with SACT medicines, to provide a tool to guide discussion and care planning with patients and whānau. A co-design approach to development of this tool is to be undertaken with Māori and Pacific representatives, practitioners, pharmacists, clinicians, patients and whānau.

3.6 SACT services to continue to undertake Needs Assessments (see Appendix 7) for all patients receiving treatment, and their whānau, at the time of referral for treatment. To achieve this Health NZ to ensure this activity is resourced and funded.

3.7 Health NZ to ensure timely access to fertility preservation services, particularly AYA patients.

3.8 Health NZ to ensure timely access to palliative care and hospice (including respite care) is available, particularly for patients living outside of larger centres.

3.9 Health NZ to ensure patients have timely access to psychosocial support including counselling services and specialist psychologists to meet their needs.

3.10 Health NZ to ensure all AYA patients have access to an AYA Key Worker.

3.11 Health NZ to ensure patients have access to pre-habilitation and rehabilitation services to meet their needs.

3.12 Health NZ continue to ensure patients and whānau have access to key wrap around support including access to an interpreter where needed, dietician services, physiotherapists, social workers, community and outreach cancer services, wig and prothesis services and occupational therapy to meet their needs.

3.13 Health NZ to ensure SACT services have dedicated administration staff support and links to facilitate travel and accommodation coordination requirements.

3.14 Health NZ operational planners to ensure it is recognised that connection and trust are fundamental components of therapeutic relationships. Structures that enable generation of these dynamics such as clinic consultation durations that enable whakawhānaungatanga, to be in place.

3.15 Health NZ support SACT services to implement patient reported experience and outcome measures (as part of a cancer system wide PREMs and PROMs implementation) to understand and improve the patient and whānau experience of care and treatment and evaluate implementation of new models of care.



Transformational Actions

3.16 Health NZ to **ensure cancer navigators (both clinical and non-clinical roles as part of a team approach) are available to support and guide patients and whānau through the system,** particularly vulnerable patients including those with disabilities and mental health conditions. Where established cancer nurse specialist and cancer nurse coordinator roles are in place, ensure the number of these roles meets the needs of their population particularly where there is a high population of Māori and Pacific peoples.

Cancer navigators, as part of cancer care teams, will improve continuity of care, and support well-coordinated transitions across the patient's diagnostic and treatment pathway. This will improve the patient and whānau experience of care and treatment (Patel, et al., 2024).

3.17 Health NZ to **continue modernising the NTA scheme** to ensure it meets the needs of patients and whānau. For example provide funding up front rather than reliance on reimbursement, provide funding which is reflective of actual costs incurred. (e.g. accommodation allowance).

Delivering care and support services closer to or in the home

3.18 SACT services to review linkages with wider hospital workforces and identify how other workforces can support SACT patients to receive patient and whānau centred care. Examples include the use of district nursing services for undertaking central venous access device routine cares at or closer to home.

3.19 SACT pharmacists to explore opportunities to extend the shelf life of medicines to support care closer to home (e.g. Palmerston North have implemented extended stability studies and cold-chain delivery validation processes to enable delivery of azacitidine to patients at home for self-administration by injection under the skin).

3.20 Health NZ to ensure opportunities to utilise Telehealth are maximised where equivalence of an in-person consultation is met.

- Health NZ to ensure the host site has specialist Telehealth administration support.
- Health NZ to ensure the remote site has dedicated administration support to coordinate with the host site.
- Health NZ to ensure the remote site has a nurse or clinical nurse specialist available to be present for Telehealth appointments as required. Most appointments are expected to require a nurse present to ensure the local site is fully aware of the medical plan, increasing the safety of remote care provision.
- Health NZ to ensure the host site and remote site have timely access to information services and technical audio-visual support.
- Health NZ to ensure the host site and remote site have fit for purpose equipment (hardware and software).
- Health NZ and SACT services consider development of a remote chemotherapy supervision guide such as the Queensland Australian model (Appendix 5).
- Health NZ and SACT services to ensure Telehealth in the home is considered.

Acute oncology care during treatment

3.21 Health NZ clinical and operational leadership to ensure equity of access to Acute Oncology Care policies, processes and procedures to be in place across all districts to manage patients as close to home as is clinically required and to the same standards of specialist care. National guidance to be developed to support this.

3.22 All districts to ensure Level 2 and 3 SACT hospitals and non-SACT hospitals with an emergency department have processes in place for the assessment of SACT patients with acute care needs including pathways for rapid referral and timely transfer of patients to level 4-6 hospitals when required.

3.23 SACT services to use a validated telephone triage tool with contact details continuing to be given to all patients.

3.24 Health NZ to ensure electronic systems provide visibility of what SACT treatment patients are receiving, including if they are on a clinical trial, when presenting acutely such as to an emergency department.

3.25 Health NZ to ensure acute oncology services are co-located within oncology sites where demand justifies.

3.26 Health NZ to consider resourcing acute oncology services to operate extended hours where demand justifies this.

3.27 Health NZ to ensure buildings and facilities where acute oncology assessments occur are fit for purpose with sufficient physical space and equipment.

4. WORKFORCE - OVERALL

Key Attributes:

A national "grow your own" approach incorporating Tikanga Māori will underpin training and recruitment strategies to ensure a sustainable workforce into the future. The SACT workforce will grow in scale and diversity to better meet the needs of patients and whānau. The workforce will be underpinned by sustainable recruitment and retention planning as well as training and development opportunities that support career progression.

A framework to optimise workforce capacity and capability will be embedded and resourced to meet current and future demand for SACT including new medicines, increased opportunities for enhanced scope of practice and acquisition of new skills and experiences, including cultural competence.

"The cultural capability of the non-Māori cancer workforce needs to improve."

Steps to achieve the future state:

4.1. Health NZ and SACT services to undertake workforce modelling and service planning, as per steps in the Leadership and Governance section.

4.2. Health NZ to establish a whole of workforce pipeline for recruitment. For example, a pathway for health care assistants to train as enrolled nurses and employing clinical coaches to help develop and support newer staff as they are learning and gaining confidence (see Appendix 5 for information on clinical coaches).

4.3. Health NZ to ensure there are opportunities to secure enhanced scope of practice roles in advance, for staff to take up upon completion of training.

4.4. Health NZ and SACT services to undertake an evaluation process to identify tasks which can be safely devolved from clinical to administration staff with training and support in place.

4.5. Health NZ and associated recruitment agencies to raise the profile of SACT career options for Māori and Pacific Peoples to increase the number of Māori and Pacific Peoples working in SACT services. A workforce that reflects the diversity of the population will help to improve the cultural and linguistic capacity and capability, which will contribute to improving health outcomes.

4.6. Health NZ in collaboration with clinicians, to strengthen recruitment strategies to address existing vacancies across the SACT workforce. Recruitment for new positions to begin at the earliest possible opportunity, acknowledging long lead in times for specialist roles. Health NZ to consider how to support recruitment into "hard to recruit" sites.

4.7. Health NZ to consider supporting expansion of GPs specialising in SACT care and treatment, in keeping with its successful adoption in Canada and other countries. This may be through shared care follow up arrangements or more specialised support (see Appendix 5), recognising current workload likely makes this aspirational at this time.

4.8. Health NZ and SACT services to work in partnership with kaupapa Māori, community, and non-government providers in building the wider SACT workforce and support services. For example, Health NZ to explore opportunities to partner with the Cancer Society to utilise and potentially expand support services (e.g. counselling, psychologists, navigators, social workers, physiotherapists).

4.9. Health NZ and SACT services to ensure pastoral care is available for kaimahi Māori working in SACT services.

4.10. Health NZ to ensure there is a robust and sustainable acute after-hours oncology care workforce underpinned by a planned rostered approach to ensure the workload is sustainable. This could include establishment of a SACT specific National Telehealth triage call centre.

4.11. The Ministry and the Agency help to ensure legislation regarding the prescribing, dispensing, administration and monitoring of SACT is worded in such a way as to not create barriers to models of care e.g. currently s.29 of the Medicines Act restricts prescribing of unregistered medicines to medical practitioners only and is an issue when SACT medicines are out of stock and Pharmac must source an alternative, unregistered brand, to meet demand.



Transformational Actions

4.12. Health NZ to **adopt a "whole of service" approach to identify resourcing required**, rather than looking at each professional group in isolation**.** This would involve identifying tasks to be performed and the various professions with overlapping knowledge and skills who could undertake them. This would require resources to flow in accordance with the change in activity, rather than having budgets adhere to a particular professional group. An example of professionals who could have a much greater role in the management of patients on SACT, are pharmacist prescribers.

4.13. Health NZ to undertake workforce planning nationally and locally within SACT services to **support enhanced scope for the SACT workforce.** Particularly to consider expansion of SACT prescriber roles including Nurse Practitioner and Pharmacist prescriber.

4.14. Health NZ to **ensure strong administration support is embedded in SACT services** to deliver timely administration tasks (patient admission, typing, appointment booking and scheduling).

4.1 WORKFORCE - SENIOR MEDICAL OFFICERS

Steps to achieve the future state:

4.1.1 Health NZ to ensure SACT services have the required number of registrars (determined by Health NZ SACT clinicians in collaboration with the College of Physicians and College of Pathologists) to prepare for future service needs and that senior medical officers have capacity to meet training and supervision requirements. This is to include review of the number of accredited and funded laboratory training places available for haematology registrars.

4.1.2 Health NZ to ensure workload and FTE calculations include all aspects of patient care and activities which contribute to an effective and efficient service. The following are examples of clinical and non-clinical activities, where dedicated FTE must be allocated:

- FTE associated with non-malignant haematology and laboratory workload for haematologists.
- Completion of non-contact clinical components of patient care[2].
- Participation in local, regional, national clinical and operational leadership and governance activities which are crucial to ensuring that work such as service planning, audits and quality improvement can be undertaken.
- Participation in cancer MDMs including additional FTE allocated for the MDM Chair role to cover tasks and responsibilities associated with the running and leadership of these meetings, particularly at level 3 and 4 services (refer to the Agency Standards for High Quality Cancer MDMs in Aotearoa New Zealand).
- Meet registrar supervision and training requirements including for nursing (clinical nurse specialists, nurse practitioners) and potentially GPs, as required.
- Take up opportunities to lead or contribute to research and clinical trial activities.

4.1.3 Health NZ to set up robust mechanisms to identify and mitigate risk to service provision at times of unplanned leave, sickness and resignations. Including establishment of regular 'forums' to monitor and respond to service strain in a planned manner and formation of a team to support service continuity at times of short-term unplanned workforce shortages (particularly level 3 sites due to limited number of senior medical officers).

4.1.4 Health NZ operational leadership to recognise the value and leverage informal collegial networks bring to a health system and foster mechanisms that strengthen these networks within Aotearoa and between international sites.

[2] Reviewing and acting on results; case discussions with colleagues and team members; co-ordinating inter-disciplinary aspects of care; arranging aspects of symptom control and toxicity management in outpatient settings; completing administrative paperwork including clinical dictations; superannuation and insurance claims; special authority applications; completion of Named Patient Pharmaceutical Assessment applications; Accident Compensation Corporation requirements; adverse event and patient harm investigation and reporting, looking for available clinical trials, and initial and on-going applications to compassionate drug access programmes.



4.2 WORKFORCE – NURSING

Steps to achieve the future state:

4.2.1 Health NZ to ensure outpatient SACT units have a minimum of one nurse to three treatment spaces with the ability to decrease this ratio in response to patient acuity (the complexity of care provided to a patient) and complex SACT treatment administration (Lingaratnam, Murray, & Carle, 2013). In smaller sites, a minimum head count may be necessary for service sustainability, safety and staff wellbeing.

4.2.2 Health NZ to ensure inpatient areas fully implement Care Capacity and Demand Management (CCDM) for nursing, including undertaking staffing methodology calculations, recruitment to FTE requirements and implementation of variance response management protocols. Inpatient areas will support accurate CCDM predicting and reporting through regular training for all staff who use CCDM.

4.2.3 Health NZ to ensure outpatient areas have equivalent measures to calculate activity and FTE requirements. These measures are to include activities undertaken in the outreach setting and should represent workload complexity.

4.2.4 Health NZ to establish a formalised pathway and nationally consistent requirements to transition from generalist registered nurse to an advanced nursing practice role, e.g. cancer nurse specialist or a cancer nurse coordinator and from cancer nurse specialist to nurse practitioner.

4.2.5 Health NZ to expand clinical nurse specialist roles assisting with patient clinical reviews, both On Treatment (clinical reviews prior to commencement of a chemotherapy cycle) and follow up reviews utilising a protocolised methodology. This will increase the capacity and resilience of services to complete these tasks, acknowledging that senior medical officer oversight is required.

4.2.6 Health NZ and SACT services to consider increased utilisation of health care assistants and patient care assistants (who have a greater administrator focus) to create capacity for nursing staff to work at top of scope.

4.2.7 Health NZ to ensure the district nursing workforce is staffed and trained to support SACT care and treatment closer to or in the home.

4.2.8 Health NZ to ensure access to eviQ[3] and AntiNeoplastic Drug Administration Course (ADAC) training through eLearning platforms across Aotearoa.

4.2.9 Health NZ to ensure all regional SACT services have nurse educators who are certified to support SACT training and certification for nurses entering the SACT nursing workforce.

4.2.10 Health NZ to establish a mentoring framework to encourage transitions across training levels (health-care assistant to enrolled nurse, enrolled nurse to registered nurse, registered nurse to chemotherapy-trained registered nurse, SACT certified nurse to clinical nurse specialist, and clinical nurse specialist to nurse practitioner) to enhance workforce development.

[3] An Australian online resource offering evidence-based, consensus driven cancer treatment information and protocols.



Transformational Action

4.2.11 Health NZ to **ensure nurse practitioner roles are present at all Level 3 and 4 SACT services**. These roles would be able to undertake responsibilities for patients undergoing SACT and chemo-radiation (see Appendix 5 for Waitaha Canterbury District example).



4.3 WORKFORCE - PHARMACY

Steps to achieve the future state:

4.3.1 Health NZ to implement mechanisms to ensure the supply function of pharmacy is sustainable, without impacting clinical pharmacy function. Examples to achieve this include extended scope of practice for pharmacy technicians, use of accuracy checking technicians and robotic dispensing.

4.3.2 Health NZ to ensure clinical pharmacy resource (FTE) is dedicated and integrated into medical oncology and haematology services. Key benefits include increased rates of interventions by pharmacists in relation to prescriptions for hospitalised adult patients, improved continuity of care during clinical handover, better management of supportive medicines, enhanced patient education for patients receiving complex anti-cancer treatments and improved efficiency of chemotherapy infusion sites.

4.3.3 Health NZ to increase resource available according to the following ratios; For outpatient medical oncology and haematology by applying the Society of Hospital Pharmacists of Australia recommended clinical pharmacy services and pharmacist/patient ratios; In the inpatient setting, approximately 1.0FTE pharmacist is recommended per 20 adult medical oncology inpatients, or 1.0 FTE per 10 to 15 adult haematology patients (allograft patients 1:10 and autograft patients 1:15). (Coutsouvelis, et al., 2020). Studies have shown pharmacists contributions in this setting positively impacts on the assessment of medicines adherence, understanding of medicines, symptom control, patient satisfaction and quality of life.

4.3.4 As part of workforce planning, Health NZ to collaborate with tertiary institutions providing undergraduate BPharm degrees and pharmacy technician training, to ensure that the curriculum includes aspects of SACT compounding and to horizon scan and identify the long term requirements of the future SACT pharmacy workforce.

4.3.5 Health NZ to ensure there is provision of pharmacy services workforce to provide medicines management, pharmacovigilance (understanding and prevention of adverse effects), review and development of medicines-related policies and guidelines, patient education, staff training and education, quality improvement and support of research, clinical trials and compassionate access schemes.

4.3.6 Implementing new technologies such as integration of electronic prescribing software with dispensing software and ordering software that interfaces with compounding facilities (where applicable) have the potential to free up pharmacists to do more clinically focussed work.



Transformational Action

4.3.7 Health NZ to **support expansion of Pharmacist prescribers specialising in SACT**. This has the potential to bring care closer to home, reduce the clinical workload for the existing workforce and provide greater continuity of care for patients and whānau. These roles should be based within oncology services with strong links to their professional bodies.

5. FACILITIES AND INFRASTRUCTURE

Key Attributes:

SACT services will have fit for purpose modern, well maintained physical spaces in outpatient and inpatient settings, with access to ancillary services, to support delivery of high-quality patient whānau centred care that is safe and effective and provides an optimal environment for staff.

"I could only take one of my siblings...It was too hard to choose, so I went on my own. I regret that now."

Steps to achieve the future state:

5.1 Level 3-6 SACT services to be developed and expanded as identified following national review. The design and layout to be aligned with Health NZ facilities guidance on the built environment of haematology, medical oncology and pharmacy units. Updates to be undertaken as required to encompass infection control and prevention advice together with public health guidance. Planning to include requirements for future pandemics. The design and layout of all facilities to take into account tikanga practices, including treatment review areas with a room large enough to accommodate whānau participation in appointments and or telehealth facilities to accommodate whānau who are not able to attend appointments. Consideration of unmet need should also be included.

5.2 Health NZ to ensure outpatient units delivering SACT have treatment spaces to meet current and projected demand in accordance with clinical safety requirements and regulations. There will be fit for purpose storage areas for equipment and resources.

5.3 Health NZ to ensure all SACT services have the required number of dedicated procedure rooms to meet service requirements, including procedure rooms for the intrathecal administration (delivered into the space around the spinal cord) of SACT, apheresis (technology to separate blood components) and the management of symptoms of cancer such as ascitic drainage.

5.4 Health NZ to ensure provision of physical spaces for patients requiring SACT or other treatments (e.g. transfusions) at the weekend and public holidays to reduce the need for inpatient bed use, increasing ward capacity.

5.5 Health NZ to ensure SACT services have dedicated treatment environments to accommodate AYA patients.

5.6 Health NZ to ensure SACT level 4-6 haematology services have dedicated inpatient single rooms and High Efficiency Particulate Air filter rooms, including provision for complex treatments and to meet anticipated demand.

5.7 Health NZ to ensure SACT services have timely access to aseptic and cytotoxic compounding services to support optimal SACT delivery and access to clinical trials. At level 3-6 SACT services, pharmacy to be co-located or within easy access.

5.8 Health NZ to ensure areas where SACT is administered are physically accessible for all people and particularly considering the needs of tāngata whaikaha disabled people.

Transformational Actions

5.9 Health NZ to **undertake a national programme of work to quantify, evaluate, and rectify areas of capacity constraint and poor physical plant condition across all SACT services** (inpatient and outpatient areas). Beginning with those services that have known challenges as identified during site visits.

5.10 **Physical infusion spaces should** meet the Australasian Health Facility Guidelines and Supplementary Aotearoa New Zealand Design Guidance (9m2 per bed or a minimum of 6m2 to accommodate a recliner chair for infusions or chemotherapy, (AusHFG | (healthfacilityguidelines.com.au). Where this is not met, Health NZ to **undertake work to identify options for expansion and action implementation.** This may include decanting to a standalone service when quality, patient and or staff safety is deemed to be at risk balanced with the need for shared SACT and non-SACT infusion capacity and expertise in some centres.

6. DATA, INFORMATION AND TECHNOLOGY

Key Attributes:

Implementation of electronic prescribing at all SACT sites will enable SACT services to prescribe and administer SACT with increased accuracy, safety and visibility. SACT services will be able to see and manage their system with the benefit of timely cancer data, interoperability between cancer software systems and automated reporting to inform and improve clinical decision making as well as policy and planning decision support.

Steps to achieve the future state:

6.1. Health NZ to ensure key hospital services such as emergency departments, have visibility of patients receiving SACT and or patients who are under the care of a medical oncologist or haematologist.

6.2. Health NZ and primary health (including GP practices and community pharmacies) to continue work improving integration of patient electronic medical records and visibility of health information across services enabling greater continuity of care.

6.3. Health NZ to ensure regions have fit for purpose systems to support scheduling which optimises use of limited resources dynamically (physical space and health practitioners).

"Telling our story over and over is really draining, and traumatic for some people"

6.4. Health NZ and SACT services to ensure the data and digital requirements are met to support implementation of electronic patient reported outcome measures and patient reported experience measures (PREMS and PROMS). This will enable targeted improvements to be made which will improve the patient and whānau experience and outcomes from SACT.

6.5. Health NZ to ensure specialised oncology informatics roles are in place at SACT level 4 services. These roles must be resourced to provide service and support for electronic prescribing software at level 4 hospitals and to support requirements at associated satellite hospitals with common software (including maintenance and upgrades).

6.6. Health NZ to ensure data analytics roles are in place to support data quality and capture, SACT audit, monitoring and reporting at all district and regional levels.

6.7. Technology and systems assessment, national business case/funding decisions, procurement and subsequent planning and implementation relevant to SACT services (e.g. closed loop infusion, MDM solutions, telehealth for SACT assessment and delivery, cytotoxic compounding, electronic prescribing solutions) to be undertaken at a national level in collaboration with regional networks.

6.8. Health NZ to work with cancer software vendors to ensure all SACT data and information systems including electronic prescribing systems, meet the Agency's Canshare[4] SNOMED CT codes (common clinical terminology) and national HISO data standard for SACT prescribing and delivery.

[4] CanShare is a new national health informatics platform being developed by the Agency that aims to allow the timely sharing of relevant and accurate cancer data https://teaho.govt.nz/reports/canshare

6.9. Health NZ to establish an electronic mechanism which provides visibility of compassionate access and early access programmes available nationally, eligibility criteria and who to contact. This will also improve equity of access to novel cancer treatments to patients across the country and save valuable clinician time in establishing whether any such programmes are currently available for their patients.

6.10. Health NZ and SACT services consider development of teaching videos to support patients to self-administer chemotherapies at home. This will provide an easy reference for patients and whānau to have at hand when undertaking this procedure. Centralisation of this resource will avoid the risk of duplication across the country and ensure consistency of messaging including translation into different languages.

6.11. Health NZ to regularly horizon scan, emerging artificial intelligence technologies and consider implementation for automatable tasks once clinical safety is well established.



Transformational Actions

6.12. Health NZ to **establish and implement electronic prescribing for all SACT services** in Aotearoa by 2026. In the rollout of electronic prescribing platforms the goal of minimising the number of platforms that treatment staff have to navigate should be considered.

6.13. Health NZ to **consolidate and move electronic prescribing systems to a regional or national cloud based or "Software as a Service" environment** enabling the following key benefits: Significantly increase the ability to transfer patients to other sites for and or during treatment (building resilience, e.g in a cyber-attack); Reduce resource needed for the construction, import and implementation of new SACT regimens; Provide greater consistency of regimens and regimen libraries; Increase data standardisation across services; Reduce system maintenance, hosting and infrastructure costs; Ensure clinicians have full visibility of the patients SACT record.

7. QUALITY, SAFETY AND RISK MANAGEMENT

Key Attributes:

Strong clinical and operational leadership at district, regional and national levels will continue to set the foundation for high quality and safe SACT services. Key quality, safety and risk management components include:

- Standardisation of SACT regimens and adoption of electronic prescribing.
- Mechanisms for formal and informal collaboration between medical oncologists and haematologists during case decision making, particularly for patients affected by rare tumour types.
- Clear patient information and communication throughout the SACT service co-designed with consumers.
- Fit for purpose information technology systems supporting clinical decision making, referrals, documentation, audit and monitoring.
- An effective accountability and performance framework where patients are the focus and safety concerns are signalled, acted upon and evaluated.
- Nationally agreed quality measures and key performance indicators to enable routine monitoring and reporting, providing a mechanism to minimise unwarranted variation and identify areas of focus and attention for quality improvement work, with a focus on patient outcomes.
- Evolution of existing quality management and consumer engagement practices to align with a district, regional and national system of service delivery, including the Te Ao Māori Framework (Health Quality and Safety Commission New Zealand, 2023).
- Quality Management functions for sites reporting through to district, regional and national leadership and governance structures established by Health NZ.
- Systems structured to support a culturally safe service, including staff undertaking education to improve awareness, understanding and practice of cultural safety.

Steps to achieve the future state:

7.1 Health NZ to ensure an effective accountability and performance framework is embedded within SACT services, where quality and patient safety measures are monitored, evaluated and acted upon as part of a clinically governed quality and risk management approach.

7.2 National SACT leadership to lead development of safety, quality, and risk management policies, procedures and guidelines. Regional and national leadership to monitor, evaluate and improve SACT services, regularly utilising measures from patient reported experience and outcome measures, ACT-NOW, other national collections and Quality Performance Indicators as these continue to evolve. Consumers are supported to partner in evaluation and co-design.

7.3 Health NZ to ensure dedicated Quality Management (such as project management) FTE for SACT level 2-6 sites is in place.

7.4 Health NZ to ensure all SACT services have access to incident and harm registers which meet the needs of SACT care and treatment including those patients on waitlists.

7.5 Health NZ to ensure data analyst support is available to all services for audit, service improvement and quality management activities.

7.6 Health NZ and SACT services to continue to take responsibility for adherence to safety, quality, and risk management policies, procedures and guidelines, to ensure delivery of a quality and safe SACT service.

7.7 Health NZ to continue to ensure all staff involved in the administration of SACT are certified in the relevant nationally recognised training and accreditation for the provision of SACT e.g. Antineoplastic Drug Administration Programme (ADAC). Certification is to be regularly reassessed.

7.8 Health NZ to ensure SACT clinical staff have allocated non-clinical time to undertake quality and safety activities.

7.9 Health NZ to ensure all areas involved in the preparation, administration or disposal of SACT meet all necessary health and safety requirements and legislation.

7.10 Health NZ to ensure workforce is culturally safe and competent through mandatory cultural safety training. Training to be readily available in orientation and other ongoing programmes.

8. INNOVATION, RESEARCH AND CLINICAL TRIALS

Key Attributes:

A culture that supports and fosters innovation, research and clinical trials, enabled by fit for purpose infrastructure and workforce, providing equitable participation for eligible patients, irrespective of their geographical location, will lead to improved patient outcomes.

Steps to achieve the future state:

8.1 Health NZ to ensure hospitals with SACT services have clinical trial services and infrastructure to increase availability of clinical trials to patients receiving SACT. This includes pharmacy capacity and capability (e.g., cytotoxic isolators for compounding short expiry medicines) and a workforce which does not limit a services ability to participate in clinical trials e.g. number of trained pharmacists.

8.2 SACT services to ensure all patients (including AYA patients) are informed of and have access to clinical trials where they meet the eligibility criteria.

8.3 SACT services to support and embed clinical trials and research into patient care pathways to maximise opportunities for patients to participate e.g through MDMs, electronic prescribing systems and decentralising trial procedures.

8.4 Health NZ to support clinical trial work by providing 'standard of care' components of trials, rather than requiring these to be funded from trial budgets.

Transformational Actions

8.5 Health NZ to **ensure SACT services have visibility of all clinical trials open to recruitment in Aotearoa via a single web-based platform.**

8.6 Health NZ and the Ministry supported by the Agency undertake work to **assess the feasibility of establishing a national oncology/haematology clinical trials and research structure** which would have the following benefits: Enable patients to participate in clinical trials irrespective of their geographical location achieving greater equity of access (potentially improving outcomes); Reduce duplication of trial implementation and startup processes; Strengthen New Zealand's position in contract negotiations for sponsor-led trials; Ensure global trial results are more reflective of the population; Give clinicians and patients greater access to new and emerging novel therapies; Strengthen recruitment and retention benefits for workforce associated with high functioning research capability.

TE AHO O TE KAHU CANCER CONTROL AGENCY

Appendices

APPENDIX 1: SITE VISITS

Site Visit	Date
Rotorua Hospital	1st March 2023
Tauranga Hospital	2nd March 2023
Waikato Hospital	3rd March 2023
Dunedin Hospital	9th August 2023
Auckland City Hospital	12-13th October 2023
Wairau Hospital	26th October 2023
Nelson Hospital	27th October 2023
Christchurch Hospital	14th November 2023
Burwood Infusion Unit	15th November 2023
Wellington Hospital	21st November 2023
Palmerston North Hospital	23rd November 2023
Wairarapa Hospital	23rd November 2023
Dunstan Trust Hospital	7th February 2024
Hawkes Bay Hospital	13th February 2024
Middlemore Hospital	22nd February 2024
Manukau Super Clinic	22nd February 2024
North Shore Hospital	22nd February 2024
Whangārei Hospital, Jim Carney Cancer Centre	23rd February 2024
Timaru Hospital	20th March 2024
Cancer Society Timaru	20th March 2024
Ashburton Hospital	21st March 2024
Gisborne Hospital (virtual)	8th May 2024

APPENDIX 2: SUPPORT SERVICES

The table below provides an overview of the support services requirements for SACT services. For noting:

- Co-located means staff, services and/or resources located within or near the health facility or adjacent campus including third party providers.
- Accessible means ability to utilise a service (either located on-site or off-site) or skills of a suitably qualified person (who may be either on-site or off-site) without difficulty or delay via various communication mediums including but not limited to face-to-face, telehealth, telepharmacy, and/or outreach.

Across all the services listed, allied health support and wraparound services must be included to provide patient and whānau-centred care coordination.

	Level 1		Level 2		Level 3		Levels 4-6	
	Accessible	**Co-located**	**Accessible**	**Co-located**	**Accessible**	**Co-located**	**Accessible**	**Co-located**
Pharmaceutical compounding	y		y		y		y	
Laboratory services	y			y		y		y
Medical imaging	y		y			y		y
Blood bank/products	y		y			y		y
Apheresis	y		y		y			y
Medical	y		y			y		y
Surgery	y		y			y		y
Anaesthetics	y		y			y		y
Radiation oncology	y		y		y			y
Intensive care	y		y		y			y
Renal	y		y		y			y
Acute interventional radiology	y		y		y			y
Nuclear medicine	y		y		y			y
Palliative care	y		y		y		y	
Rehabilitation	y		y		y		y	
Cardiac (cardiac diagnostic and interventional)	y		y		y		y	
Fertility Preservation services	y		y		y		y	

APPENDIX 3: ADVANCED NURSING ROLES

Advanced Nursing Roles – Differentiation and Development The aim of this guide is to aid decision-making when considering gaps in service provision which could be met through a new model of health care delivery			
Nurse Practitioner with prescribing	**Clinical Nurse Specialist**	**Registered Nurse Expanded Practice**	**Registered Nurse with Prescribing** **Legislative change required to enable role development**
Focus Is the area of practice or health need narrow or broad? How advanced or expansive is the role within the practice area? Will the role expand as service requirements change?			
• Broad scope of practice related to population and specialty e.g. women's health, mental health, primary health care, acute care • May case manage population/patient group	• Defined specialist area of practice with specific skills or interventions related to management of disease and/or health issues • May case manage with support	• Defined specialist area of practice with specific skills or interventions related to specific patient group	• Defined specialist area of practice with specific skills or interventions related to management of disease and/or health issues • May case manage with support • Limited prescribing within confines of position (currently limited to pilot sites only)
Context Do you require the practitioner/role to be autonomous?			
• Autonomous role practicing both independently and in collaboration with other health professionals • Ability to have full clinical responsibility • Role expanding across services/sectors	• Works collaboratively within a specialty team • Role may expand across services/sectors	• Works collaboratively within a specialty team	• Works collaboratively within a specialty team • Role may expand across services/sectors
Advanced Nursing Role Does the role require a broad range of advanced nursing and/or clinical skills?			
Practice patient management through advanced skills such as • Managing and prescribing medications • Diagnosing, ordering and interpreting diagnostic and laboratory tests • Admitting and discharging to inpatient settings • Administering interventions for the management of potential or actual health needs	• Both extended aspects and expanded role dependent on patient needs • Specialist care that may include delegated medical responsibilities, diagnostics and implementation of treatment protocols, may prescribe according to standing orders • Examples include but not limited to – wound care, pain, continence, stomatherapy	• Specialist care that may include delegated responsibilities that are usually non-nursing (ie outside the RN scope of practice) eg colposcopy • May include areas of practice that have not previously been within realm of nursing or have been the responsibility of other health professionals • Examples include but not limited to – colposcopy, endoscopy, RN First Surgical Assistant • Credentialled and managed/determined by employers	• Both extended aspects and expanded role dependent on patient needs • Specialist care that may include delegated medical responsibilities, diagnostics and implementation of treatment protocols • Practice patient management through advanced skills such as managing and prescribing medications • Examples include but not limited to – Diabetes Nurse Specialist with prescribing
Resource for			
Wide involvement (service, local, national level) for • Patient • Family • Community • Health professionals • Consultant for organisations Revenue generator	Involvement limited to speciality care and education for • Patient • Family • Community • Health professionals • Consultant for organisations	Involvement limited to speciality care and education for patient	Involvement limited to speciality care and education for • Patient • Family • Community • Health professionals • Consultant for organisations
Registration Requirements			
Registered Nurse with ability to meet registration requirements of NCNZ for Nurse Practitioner scope of practice • Must be a strong and progressive leader • Must be involved in policy at service, local and national level	Registered with NCNZ within Registered Nurse scope of practice • May be a strong and progressive leader May be involved in policy at service, local and national level	Registered with NCNZ within Registered Nurse scope of practice and meets competencies developed by NCNZ to describe the skills and knowledge of nurses working in expanded practice roles. These competencies are additional to those that already describe the registered nurse scope of practice.	Registered with NCNZ within Registered Nurse scope of practice • May be a strong and progressive leader May be involved in policy at service, local and national level
Educational Requirements			
Regulatory requirement • Master of Nursing (Clinical) with Prescribing • Master of Nursing (Clinical)	• May be determined by employer / specialty • Relevant Postgraduate Diploma	• Determined by employer • Nurse must have necessary educational preparation and experience for role	• May be determined by employer / specialty • Relevant Postgraduate Diploma • Relevant Postgraduate qualification to meet NCNZ prescribing competency (pilot project identifies 2 postgraduate (level 8) papers with evidence of pathophysiology, clinical assessment & decision making, and pharmacology within content, or equivalent as determined by NCNZ)

Accessed from: https://www.sialliance.health.nz/programmes/workforce-development-hub/nurse-practitioners/

APPENDIX 4: CASE STUDY – MODELLING THE IMPACTS OF NEWLY FUNDED DRUGS

The following process and insights from recent work to model the implementation of new Immune Checkpoint Inhibitors (ICIs) in Non-Small Cell Lung Cancer (NSCLC), demonstrate the complexities which must be considered and accounted for in order to ensure successful implementation of the SACT model of care.

In particular, to address workforce, infrastructure and radiology/pathology requirements with the goal of ensuring:

- Equity of access for patients irrespective of their geographical location
- End to end resource (including workforce) to ensure high quality, safe and effective delivery of new medicines.
- A system wide focus and collaborative approach involving all craft groups including radiology and pathology services
- A nationally led process supporting regional implementation that can be tailored locally and aligned with the SACT model of care.

These goals are demonstrated in the process outlined below.

In May 2022, Government announced a significant Pharmac budget uplift. Shortly afterwards, Pharmac announced their decision to fund four new cancer treatments and a desire to issue a Request For Proposal for ICIs in NSCLC, by April 2023.

In response to the budget uplift, the Agency was asked to prepare a report within three weeks, for Interim Health NZ Workforce Taskforce, identifying workforce and infrastructure requirements to support implementation of five new medicines. As part of this report, a recommendation was made that a partnership approach be established between the Agency and Health NZ, to develop a coordinated workforce and infrastructure assessment of requirements to implement the new medicines.

Pharmac has since confirmed a decision to fund ICIs in advanced NSCLC. This became effective from 1st April 2023. A joint collaborative partnership between Health NZ, Te Aka Whai Ora, Pharmac and the Agency to develop a national coordinated process has been developed. Using the initial modelling done by the Agency as a starting point, a series of meetings were held with Health NZ, the Agency, Te Aka Whai Ora, Pathologists, Radiologists, Nurses, Medical and Radiation Oncologists and Pharmacists. At each of these meetings, aspects of the model pertinent to each group were discussed in depth. Subsequently, two half-day national workshops were held, bringing together the different specialties, clinical and operational leads from around the country to report back, agree on assumptions and next steps. The workshop was attended by Health NZ, Te Aka Whai Ora, the Agency, and Pharmac.

The output of this work is a modelling framework to feed into Health NZ's national business case process for additional resource to equitably and sustainably implement ICI in NSCLC.

In addition, a national clinical and governance structure supported this process by being able to agree on much of the modelling at a national level.

- Using the modelled number estimates for patients likely to receive treatment provided by Pharmac, agree numbers on treatment at national level.
- Break numbers down by ethnicity and provide to Health NZ to ensure adequate resource supports wraparound services.
- Agree on the current standard of care versus future standard of care based on the assumption that the new medicine is funded to enable modelling of additional resource requirements (and impacts on FSAs, MDM attendances, laboratory and radiological investigations, inpatient admissions, long term venous access insertions and additional medicines dispensed).
- Agree on the timeframe over which to model and duration of infusion appointments as well as time on treatment based on trial data.
- Agree on which investigations could be reasonably modelled based on clinical pathways, special authority criteria e.g. PD-L1 testing, frequency of CT scans. Additional numbers of tests and scans can be modelled and provided to laboratory and radiology providers to ensure that they incorporate projected demand into their business planning. Additionally, estimates of laboratory and radiology costs are then able to be estimated based on cost per PD-L1 test and cost per computer tomography scan in this case.
- Agree on a standard way of calculating FTE for nursing, pharmacy and senior medical officers including assumptions around statutory holidays, annual leave, study leave, sick leave and clinical vs non-clinical time.
- Agree on conversion factor of infusion time to chair time to model ambulatory capacity.
- Agree on how patient numbers and resource would be best allocated regionally (e.g. based on overall population using Statistics New Zealand data or using New Zealand Cancer Register data to account for variation in incidence of different cancers across the country).

At this point, it is possible to calculate an estimated dollar value for Health NZ to implement treatment at a national level. Funding would then be allocated regionally, according to advice from clinical and operational leads (e.g. in lung cancer, agreement of clinical and operational experts was to use the cancer register to account for variation in lung cancer incidence across Aotearoa). It is accepted that modelling is not perfect and has its limitations, however adopting a national approach means that high level assumptions going into the modelling can be agreed nationally and will lead to more equitable resource allocation and implementation of newly funded treatments. Once allocated regionally, the funding may be spent differently at different services, to account for regional variation and the different models of care that may need to be adopted based on local capacity and capability and the specific needs of the population being served. For example, one services may increase their senior medical officer FTE to meet demand for FSAs and follow-ups, whereas another services may struggle to recruit to additional senior medical officer FTE but may have a Nurse Practitioner who could be recruited instead.

APPENDIX 5: NEW INITIATIVES AND INNOVATIONS

1.	**Tumour Stream Nursing Model, Nelson Marlborough** Nelson Marlborough District has a tumour stream-based model. Their nurses transition from community through to the hospital-based oncology service. The nurses follow their own patients through the cancer pathway from diagnosis and referral to oncology, through to follow up and survivorship. As a key point of contact for the patient and whānau, there are significant benefits to this model in delivering continuity of care. These include the professional satisfaction of knowing their patients well and being in a position to provide optimal care and support throughout their cancer journey.
2.	**Te Aka Matauranga Matepukupuku, Centre for Cancer Research, Auckland** Te Aka Matauranga Matepukupuku, Centre for Cancer Research represents a partnership between the University of Auckland and the three Auckland metropolitan hospitals within the Auckland Academic Health Alliance partnership framework by establishing a number of joint research platforms and programmes to enable cancer research and the delivery of cancer clinical services. Te Aka Matauranga Matepukupuku includes Clinical Genomics, the Auckland Regional Biobank, Auckland Clinical Trials Centre, Cancer Trials New Zealand, and a collective group of oncologists who support a local General Practitioner prescriber with training and support. This framework is a key enabler for undertaking research close to the clinic and delivery of clinical care. (www.centreforcancerresearch.auckland.ac.nz)
3.	**Continuous Ambulatory Delivery Devices (CADD) pumps – Southern** Southern District utilise Continuous Ambulatory Delivery Devices to support treatment closer to home. These programmed pumps are used for continuous or intermittent infusions. An example of their use is for haematology patients on a medicine requiring 12-hourly infusion. These patients can go home with a cartridge pump and do not require hospital admission or a chemotherapy chair for extended periods of time.
4.	**Kia Ora E Te Iwi programme, Cancer Society Initiative** The Kia Ora E Te Iwi Programme is for people with cancer, their whānau, health professionals and people working alongside those affected by cancer. The programme provides an opportunity for whānau to participate, have input and to receive information and support. The real strength of Kia ora E Te Iwi is that it enables whānau to come together, to korero, in a safe environment to share and support each other.
5.	**Whānau Hauora Integrated Response Initiative (WHIRI programme) Waikato** The WHIRI programme, is designed for Māori whānau coping with cancer. Based on the Marae, extended whānau come together to learn with and from each other's stories about cancer and its treatment and connect with services available (Gurney, Campbell, Turner, & Scott, 2020). WHIRI includes a wraparound whānau hauora assessment with proactive management and navigation to ensure a hauora enhancing experience for whānau.

6. Remote Chemotherapy Supervision Guide, Queensland Australia

Queensland Australia have developed a remote chemotherapy supervision guide to support implementation of their Remote Chemotherapy Supervision model. This model describes the minimum implementation requirements and recommendations to implement the model which brings care closer to home for patients from rural and remote areas utilising telehealth. For more information refer QReCS-Guide-2019-Compressed.pdf (health.qg can be ld.gov.au) (Queensland Health, 2019).

7. Clinical Coach, Waikato

Waikato Hospital has established a 'Clinical Coach' role to support junior nursing staff including inpatient and outpatient setting rotations as they start out. They have found that this has improved job satisfaction and retention of junior staff.

8. General Practitioners specialising in Oncology, Canada

GPs specialising in oncology are increasingly recognised as physicians with focused practices in the field of oncology. Forty years ago, family physicians across Canada began to join and contribute to cancer care teams in both outpatient and inpatient settings. The provinces of Ontario, Manitoba, and British Columbia have been the chief pioneers in integrating GPO's into oncology teams, helping to define the role of physicians within cancer care. This GP model has the potential to bring care closer to home, reduce the clinical workload for the existing workforce and provide greater continuity of care for patients and whānau.

The GPs prescribe and supervise systemic treatment administration as defined by the medical oncologist or haematologist, assesses, and manage toxicities and respond to other patient management issues in consultation with the oncologist (Forbes, et al., 2019) Oncologists in centres where GPs are available, remarked it has helped them in their practice and understanding of the management of other conditions that patients with cancer often have, for example hypertension and diabetes. There is a GP working within SACT services in Auckland supported by a small group of oncologists who are guiding the training aspects. This could provide a pathway for other GPs to follow.

9. Nurse Practitioner Head and Neck role – Canterbury

Waitaha Canterbury have introduced a Nurse Practitioner role who sees new patients at their FSA, prescribes chemotherapy, and undertakes On Treatment Reviews for Head and Neck cancer patients. This has created efficiencies saving senior medical officer time, decreased patient admissions to hospital and providing greater continuity of care for the patient and whānau through their treatment pathway.

10. Nurse Led Peripherally Inserted Central Catheter (PICC) Insertion Clinics, Palmerston North and Nelson

Palmerston North and Nelson Hospitals' run nurse led PICC insertion clinics. These clinics have experienced Registered Nurses' undertaking this procedure. Since these services were established doctors rarely insert PICCs.

11. Use of Microsoft Teams in chemotherapy, Southern

Southern District utilise remote working platforms such as Microsoft Teams, to electronically complete and record "Time out" pre-chemotherapy checks, assessments and co-sign chemotherapy charts when there is insufficient staff on site.

12. Hospital based examples of community SACT provision

- Waitaha Canterbury, where some SACT infusions have been shifted away from Christchurch Hospital to a Burwood facility that is delivering infused medicines across multiple medical disciplines.
- Ashburton and Dunstan Hospitals which operate as part of a wider rural generalist hospital framework delivering a wide range of infusions across both medical oncology and haematology.
- Auckland City hospital's Local Delivery of Oncology model to The Manukau SuperClinic and North Shore hospital, which has increased the number of patients attending planned appointments.
- Outreach clinics such as Wellington Haematology visits to Kenepuru (for Porirua and the Kapiti Coast), Hutt Hospital, and Masterton, enables selected patients to receive parenteral SACT in Kenepuru and Masterton, minimising the need to travel into the central city for treatment and transfusion.

At some metropolitan sites where infusions are being shifted to non-tertiary hospital sites, the breadth of the infusion lists is currently quite narrow. At some rural hospitals with similar resuscitation response teams, a much broader range of infusions are being delivered. This highlights potential opportunities for future expansion of infusion lists at sites with sufficient emergency response services.

Potential impacts such as credentialing requirements for infusion staff or reduced staff productivity if senior medical officers are required to work at (or provide support to) an increased number of sites, need to be considered when efficiency impacts of strategies are assessed.

Work could be undertaken to identify opportunities to increase utilisation of SACT medicines delivered in the home however informal communications with an Australian provider indicate that in-home provision of intravenous SACT by registered nurses has not yet been able to be undertaken in a cost sustainable way by public hospitals; and, compared with initial intravenous formulations, the costs of alternative formulations are likely to be prohibitive. A successful example is the switch between intravenous and sub-cutaneous Bortezomib which was implemented in haematology and has enabled opportunities for self-administration (Cook, 2024).

13. Tele-trial model, Australia

The Australasian tele-trial model gives patients living in smaller centres the opportunity to participate in clinical trials without having to travel to major centres. In a tele-trial model, the lead trial site works with 'satellite sites' to enrol, consent and treat patients in clinical trials. The patient then receives face to face care in the region where they live (Sabesan, et al., 2019). Their tele-trial pilot found that tele-trials could be safely and ethically implemented and increased access to clinical trials in rural and remote sites, closer to community support. (Sabesan, et al., 2019) (Clinical Oncology Society of Australia, 2021). The New Zealand Association of Clinical Research has developed standard operating procedures for conducting tele-trials.

14. Chemotherapy mobile buses – United Kingdom

Chemotherapy mobile units have potential to take treatment delivery outside of the hospital setting. They could provide flexible treatment capacity across a region, as well as deliver treatment closer to home or co-located with other services, for example marae-based services. There are examples of existing mobile health units providing surgery, endoscopy, dental and other procedures(https://mobilehealth.co.nz).

APPENDIX 6: THE ROLE AND FUNCTION OF THE NEW ZEALAND BLOOD SERVICE

New Zealand Blood Service (NZBS) is a Crown Entity and was established in 1998 under the New Zealand Public Health and Disability Act 2000 and is an appointed entity pursuant to section 63 of the Human Tissue Act 2008.

NZBS plays several vital roles in the delivery of Stem Cell Transplant & Cellular Therapy Services in Aotearoa New Zealand. These functions include:

Histocompatibility testing (also known as 'tissue typing') is needed to help match a person who needs a transplant to a suitable donor. This testing is carried out in the New Zealand Transplantation and Immunogenetics Laboratory (NZTIL) at NZBS in Auckland.

The New Zealand Bone Marrow Donor Registry (NZBMDR) is also based at NZBS Auckland and provides a service that enables matched donors to be found for people who require allogeneic transplantation. NZBMDR can identify donors through its own registry or source stem cells from other registries around the world.

Stem cell collection is carried out by the NZBS Therapeutic Apheresis clinical teams, who work with providers around the country. The stem cells collected are transferred to specialist Cellular Therapy and Tissue Banking services (CTTB) at NZBS in Auckland, Wellington, and Christchurch, where they are processed and prepared for transplantation. When required, CTTB also prepares stem cells for cryopreservation and storage. When a patient is ready for transplantation, the stem cells are transferred to the provider.

Most patients undergoing stem cell transplant will need blood or blood products to support them during their treatment. NZBS is responsible for collecting, testing, processing, and storing blood and blood products in Aotearoa New Zealand. NZBS delivers or supports blood banks and other specialist services, including apheresis services, across Aotearoa New Zealand.

The expert doctors, nurses, scientists, and support teams of NZBS work in partnership with providers throughout the stem cell transplant patient journey.

Safety is the cornerstone of everything NZBS does, and this is reflected in the quality of Stem Cell Transplant & Cellular Therapy Services available to patients in Aotearoa New Zealand.

APPENDIX 7: THE NEEDS ASSESSMENT

The Needs Assessment

The purpose of a needs assessment is to ensure patients and whānau receive the wrap around support they require as they navigate through the SACT pathway. The quality of this wrap around care is an essential component of how services are designed, delivered, and improved.

The needs assessment may be undertaken by one or more members of the team caring for the patient and their whānau.

Individual **support needs may need to be prioritised to achieve the best outcomes within constrained resources.** When this is the case, the recommended approach is that providers prioritise the needs of Māori and Pacific peoples, as well those living in socioeconomically deprived and rural communities, those living with mental illness, disabled peoples and people who are SOGIESC-diverse.

All patients who require SACT, and their whānau, should have a needs assessment undertaken at the same time they are referred for treatment. SACT services will undertake needs assessments in a timely manner.

Needs assessment should include assessment of the following components:

- Social situation including social support available, living situation for the person undergoing treatment, access to transport, travel or accommodation and childcare requirements.
- Physical assessment including mobility, hearing, nutrition and requirements to meet the needs of a patient with a physical disability.
- Requirements to meet the needs of a patient with mental health illness.
- Requirement for interpreter services, it is important that the interpreter understand and can translate according to the nuances of the language. A whānau member should also be present whenever possible, who can support the translation.
- Identification of the support person/s and whānau and what education they need to provide support and recognise when a patients clinical condition is deteriorating, and urgent care is required.
- Taha hinengaro or mental and emotional health needs.
- Taha wairua or spiritual health needs.
- Traditional healing or alternative treatments that are being accessed should be considered as part of a care or treatment planning process.
- Financial situation including assessing for financial hardship and advising on eligibility for financial assistance.
- Risk assessment (treatment related, family violence, smoking status, falls, allergies etc.

Where needs are identified, SACT services will refer the patient undergoing SACT and their whānau to the required services based on their locality. (Gulliver, 2016)

The needs assessment should also consider how the wider health system can support the person and their whānau. This includes how Non-Governmental Organisations can support the patient undergoing systemic therapy such as Cancer Society support services.

APPENDIX 8: CONSOLIDATED STEPS TO ACHIEVE FUTURE STATE

1: System Leadership & Governance

1.1 Health NZ, in partnership with the Agency, continue work to lead establishment of SACT strategic, technical and operational leadership and governance structures and determine key responsibilities, functions and accountability for decision making.

1.2 Health NZ clinical and operational leads, in partnership with the Agency, to progress national cancer priorities with a focus on the areas below, highlighted through stakeholder engagement:

1.2.1 **Operationalise the model of care** giving deliberate attention to the impact variations in district structure and need, have on local model of care requirements.

1.2.2 **Develop a national prioritisation approach (which includes district and regional input) to identify the work to be done first,** with a focus on the immediate areas needing urgent attention as identified through stakeholder and sector engagement.

1.2.3 **Undertake a workforce analysis which builds a national view of FTE, taking a task-oriented perspective and focussed at district level.** Beginning with the workforce required to complete the on-treatment review and follow up requirements, as these activities incur a high proportion of the medical oncology and haematology workload (compared to FSA).

1.2.4 **Forecast district demand and capacity** across SACT services related to workforce, treatment spaces and building facilities so work can be undertaken to address these. **Identify vulnerable services and areas of constraint.** Become familiar with the factors which contribute most to setting the sustainable service capacity limit of each district.

1.2.5 **Monitor and evaluate SACT waitlists and refresh medical oncology and malignant haematology FSA and treatment prioritisation categories,** including local and regional escalation pathways.

1.2.6 **Establish agreement to align best practice and consistency of care** nationally.

1.2.7 **Embed a national business case framework which will quantify resource and funding** needed to support the successful implementation of new medicines.

1.2.8 **Undertake work to assess implementation of opportunities to create capacity**. Examples from stakeholders include moving to more community-based infusion services; rapid access clinics e.g., specific immuno-oncology toxicity outpatient clinics; national approach to rationalising follow up and surveillance practices and a review of indications for requesting contrast in radiology interval imaging (Te Whatu Ora, 2023b).

1.2.9 **Develop national SACT policy and procedures**, such as

1.2.9.1 **Establish a national approach to molecular testing** achieving consistency in application of tests available and equity of access across Aotearoa. Support horizon planning and future opportunities to advance precision medicine.

1.2.9.2 **Determine whether unfunded SACT are to be prescribed and managed through the public system** (including compassionate access schemes or early access schemes and privately or self-funded medicines).

1.2.9.3 **Establish processes for review, assessment and introduction of new innovations and technologies** (with consideration of disinvestment where needed), including horizon scanning of new cancer medicines or new treatment indications for existing medicines.

1.2.10 **Develop national reporting mechanisms** to identify and address unwarranted variation and evaluate new interventions and changes in practice. Reporting to include prospective forecasting and data to identify inequities so that these can be addressed. Through this work identify the populations of patients seen (and not seen) and treated at each site and where variation exists as part of "seeing our system". This will inform decision making regarding such things as resourcing, waitlist management and workforce modelling

1.2.11 **Establish a regional and or national process for establishment of new SACT services** which are not currently listed in the SACT Service Level Descriptions (Figure 3).

1.3 Health NZ to establish and maintain effective service delivery leadership and operational structures for SACT services. These arrangements will take responsibility for delivery of a robust and resilient model of care for SACT. To support these structures, Health NZ to ensure the following clinical and operational leadership arrangements are in place:

1.3.1 Levels 3-6 to have **clinical and operational leadership with dedicated FTE** allocation to enable participation in local, regional, national clinical and operational leadership and governance activities to ensure work such as service planning, audits and quality improvement work can be undertaken.

1.3.2 Level 2 SACT to have a clinical and an operational lead for their SACT service to oversee the coordinated approach to SACT delivery and service planning.

1.3.3 Level 1 SACT services to have clear leadership arrangements in place from community to hospital.

1.4 Health NZ to ensure districts where SACT is delivered, have strong connections into regional network structures and through to national networks, as these are established. These networks are to be multidisciplinary with representatives from all key services involved in cancer care delivery and support including clinical, equity, diagnostic and key business operational leads. These networks must have robust communication plans in place with all key clinical and operational staff at national, regional and district level.

1.5 Health NZ and SACT services to develop recommendations for SACT as part of the "Choosing Wisely" campaign where low benefit clinical interventions can be avoided, ensuring patients and whānau and health professionals have well-informed conversations around treatment options, leading to better decisions and outcomes.

2: Distribution of Services

2.1 Health NZ to include aspects of local service delivery as part of capacity planning estimates. Work to be undertaken to better understand and quantify the resource implications for services providing outreach clinics.

2.2 Health NZ to undertake work to understand the impact of high deprivation and rurality for patients and whānau accessing services.

2.3 Health NZ to assess opportunities to expand and strengthen the rural generalist hospital model to provide care closer to home for example, acute oncology and outreach nursing activities. Ensure Trust hospitals are resourced to meet the needs of their population based on demand for SACT care and treatment.

2.4 Health NZ to develop a national work programme which identifies existing local models which bring care closer to home, that could be shared more widely and scaled up if feasible. Appendix 5 provides local and international examples for consideration.

Transformational actions

2.5 Health NZ to **develop mechanisms to facilitate inter-district equity of access to all aspects of care and treatment** including molecular and genetic testing, specialised scans, specialised investigations e.g. endobronchial ultrasound and waitlists to access care.

2.6 Health NZ continue work to **enable SACT delivery to be shifted to community facilities** where it is safe to do so and meets clinical requirements, contributing to the goal of care delivered closer to home. Where non-hospital based community SACT delivery opportunities are identified, the accompanying funding structure needs to ensure care can be equitably accessed. Community SACT provision includes injected hormone treatment through primary care which currently occurs in many regions.

2.7 Health NZ to consider a **whole of infusion services view** to delivery where non-SACT and SACT treatments are delivered in the same location, by the same teams.

3: Service Delivery

3.1 Health NZ to **prioritise the immediate actions to be taken which ensure SACT services have capacity to deliver timely, safe and effective SACT**. This will be informed by steps 1.2.3-1.2.5 previously described.

Holistic patient and whānau centred services

3.2 Health NZ and SACT services to increase utilisation of kaiāwhina roles to provide conduits between community and hospital services, reducing barriers and streamlining the pathway for patients and whānau.

3.3 Health NZ to respond to indigenous populations and co-design services that work for Māori such as the Kia Ora E Te Iwi programme (a Cancer Society initiative) and Whānau Hauora Integrated Response Initiative (WHIRI), see Appendix 5.

3.4 SACT services to ensure that patients and whānau receive holistic care that meets their cultural and spiritual needs. This includes the support of patients and whānau in their use of rongoā and traditional healing practices which are an important contributor to the experience of care and treatment planning for Māori and Pacific peoples.

3.5 Health NZ clinical leadership to develop national guidance and principles to support safe use of traditional healing therapies, including interactions with SACT medicines, to provide a tool to guide discussion and care planning with patients and whānau. A co-design approach to development of this tool is to be undertaken with Māori and Pacific representatives, practitioners, pharmacists, clinicians, patients and whānau.

3.6 SACT services to continue to undertake Needs Assessments (see Appendix 7) for all patients receiving treatment, and their whānau, at the time of referral for treatment. To achieve this Health NZ to ensure this activity is resourced and funded.

3.7 Health NZ to ensure timely access to fertility preservation services, particularly AYA patients.

3.8 Health NZ to ensure timely access to palliative care and hospice (including respite care) is available, particularly for patients living outside of larger centres.

3.9 Health NZ to ensure patients have timely access to psychosocial support including counselling services and specialist psychologists to meet their needs.

3.10 Health NZ to ensure all AYA patients have access to an AYA Key Worker.

3.11 Health NZ to ensure patients have access to pre-habilitation and rehabilitation services to meet their needs.

3.12 Health NZ continue to ensure patients and whānau have access to key wrap around support including access to an interpreter where needed, dietician services, physiotherapists, social workers, community and outreach cancer services, wig and prothesis services and occupational therapy to meet their needs.

3.13 Health NZ to ensure SACT services have dedicated administration staff support and links to facilitate travel and accommodation coordination requirements.

3.14 Health NZ operational planners to ensure it is recognised that connection and trust are fundamental components of therapeutic relationships. Structures that enable generation of these dynamics such as clinic consultation durations that enable whakawhānaungatanga, to be in place.

3.15 Health NZ support SACT services to implement patient reported experience and outcome measures (as part of a cancer system wide PREMs and PROMs implementation) to understand and improve the patient and whānau experience of care and treatment and evaluate implementation of new models of care.

Transformational Actions

3.16 Health NZ to **ensure cancer navigators (both clinical and non-clinical roles as part of a team approach) are available to support and guide patients and whānau through the system,** particularly vulnerable patients including those with disabilities and mental health conditions. Where established cancer nurse specialist and cancer nurse coordinator roles are in place, ensure the number of these roles meets the needs of their population particularly where there is a high population of Māori and Pacific peoples. Cancer navigators, as part of cancer care teams, will improve continuity of care, and support well-coordinated transitions across the patient's diagnostic and treatment pathway. This will improve the patient and whānau experience of care and treatment (Patel, et al., 2024).

3.17 Health NZ to **continue modernising the NTA scheme** to ensure it meets the needs of patients and whānau. For example provide funding up front rather than reliance on reimbursement, provide funding which is reflective of actual costs incurred. (e.g. accommodation allowance).

Delivering care and support services closer to or in the home

3.18 SACT services to review linkages with wider hospital workforces and identify how other workforces can support SACT patients to receive patient and whānau centred care. Examples include the use of district nursing services for undertaking central venous access device routine cares at or closer to home.

3.19 SACT pharmacists to explore opportunities to extend the shelf life of medicines to support care closer to home (e.g. Palmerston North have implemented extended stability studies and cold-chain delivery validation processes to enable delivery of azacitidine to patients at home for self-administration by injection under the skin).

3.20 Health NZ to ensure opportunities to utilise Telehealth are maximised where equivalence of an in-person consultation is met.

- Health NZ to ensure the host site has specialist Telehealth administration support.
- Health NZ to ensure the remote site has dedicated administration support to coordinate with the host site.
- Health NZ to ensure the remote site has a nurse or clinical nurse specialist available to be present for Telehealth appointments as required. Most appointments are expected to require a nurse present to ensure the local site is fully aware of the medical plan, increasing the safety of remote care provision.
- Health NZ to ensure the host site and remote site have timely access to information services and technical audio-visual support.
- Health NZ to ensure the host site and remote site have fit for purpose equipment (hardware and software).
- Health NZ and SACT services consider development of a remote chemotherapy supervision guide such as the Queensland Australian model (Appendix 5).
- Health NZ and SACT services to ensure Telehealth in the home is considered.

Acute oncology care during treatment

3.21 Health NZ clinical and operational leadership to ensure equity of access to Acute Oncology Care policies, processes and procedures to be in place across all districts to manage patients as close to home as is clinically required and to the same standards of specialist care. National guidance to be developed to support this.

3.22 All districts to ensure Level 2 and 3 SACT hospitals and non-SACT hospitals with an emergency department have processes in place for the assessment of SACT patients with acute care needs including pathways for rapid referral and timely transfer of patients to level 4-6 hospitals when required.

3.23 SACT services to use a validated telephone triage tool with contact details continuing to be given to all patients.

3.24 Health NZ to ensure electronic systems provide visibility of what SACT treatment patients are receiving, including if they are on a clinical trial, when presenting acutely such as to an emergency department.

3.25 Health NZ to ensure acute oncology services are co-located within oncology sites where demand justifies.

3.26 Health NZ to consider resourcing acute oncology services to operate extended hours where demand justifies this.

3.27 Health NZ to ensure buildings and facilities where acute oncology assessments occur are fit for purpose with sufficient physical space and equipment.

4: Workforce - Overall

4.1 Health NZ and SACT services to undertake workforce modelling and service planning, as per steps in the Leadership and Governance section.

4.2 Health NZ to establish a whole of workforce pipeline for recruitment. For example, a pathway for health care assistants to train as enrolled nurses and employing clinical coaches to help develop and support newer staff as they are learning and gaining confidence (see Appendix 5 for information on clinical coaches).

4.3 Health NZ to ensure there are opportunities to secure enhanced scope of practice roles in advance, for staff to take up upon completion of training.

4.4 Health NZ and SACT services to undertake an evaluation process to identify tasks which can be safely devolved from clinical to administration staff with training and support in place.

4.5 Health NZ and associated recruitment agencies to raise the profile of SACT career options for Māori and Pacific Peoples to increase the number of Māori and Pacific Peoples working in SACT services. A workforce that reflects the diversity of the population will help to improve the cultural and linguistic capacity and capability, which will contribute to improving health outcomes.

4.6 Health NZ in collaboration with clinicians, to strengthen recruitment strategies to address existing vacancies across the SACT workforce. Recruitment for new positions to begin at the earliest possible opportunity, acknowledging long lead in times for specialist roles. Health NZ to consider how to support recruitment into "hard to recruit" sites.

4.7 Health NZ to consider supporting expansion of GPs specialising in SACT care and treatment, in keeping with its successful adoption in Canada and other countries. This may be through shared care follow up arrangements or more specialised support (see Appendix 5), recognising current workload likely makes this aspirational at this time.

4.8 Health NZ and SACT services to work in partnership with kaupapa Māori, community, and non-government providers in building the wider SACT workforce and support services. For example, Health NZ to explore opportunities to partner with the Cancer Society to utilise and potentially expand support services (e.g. counselling, psychologists, navigators, social workers, physiotherapists).

4.9 Health NZ and SACT services to ensure pastoral care is available for kaimahi Māori working in SACT services.

4.10 Health NZ to ensure there is a robust and sustainable acute after-hours oncology care workforce underpinned by a planned rostered approach to ensure the workload is sustainable. This could include establishment of a SACT specific National Telehealth triage call centre.

4.11 The Ministry and the Agency help to ensure legislation regarding the prescribing, dispensing, administration and monitoring of SACT is worded in such a way as to not create barriers to models of care e.g. currently s.29 of the Medicines Act restricts prescribing of unregistered medicines to medical practitioners only and is an issue when SACT medicines are out of stock and Pharmac must source an alternative, unregistered brand, to meet demand.

Transformational Actions

4.12 Health NZ to **adopt a "whole of service" approach to identify resourcing required**, rather than looking at each professional group in isolation**.** This would involve identifying tasks to be performed and the various professions with overlapping knowledge and skills who could undertake them. This would require resources to flow in accordance with the change in activity, rather than having budgets adhere to a particular professional group. An example of professionals who could have a much greater role in the management of patients on SACT, are pharmacist prescribers.

4.13 Health NZ to undertake workforce planning nationally and locally within SACT services to **support enhanced scope for the SACT workforce.** Particularly to consider expansion of SACT prescriber roles including Nurse Practitioner and Pharmacist prescriber.

4.14 Health NZ to **ensure strong administration support is embedded in SACT services** to deliver timely administration tasks (patient admission, typing, appointment booking and scheduling).

4.1: Workforce - Senior Medical Officers

4.1.1 Health NZ to ensure SACT services have the required number of registrars (determined by Health NZ SACT clinicians in collaboration with the College of Physicians and College of Pathologists) to prepare for future service needs and that senior medical officers have capacity to meet training and supervision requirements. This is to include review of the number of accredited and funded laboratory training places available for haematology registrars.

4.1.2 Health NZ to ensure workload and FTE calculations include all aspects of patient care and activities which contribute to an effective and efficient service. The following are examples of clinical and non-clinical activities, where dedicated FTE must be allocated:

- FTE associated with non-malignant haematology and laboratory workload for haematologists.
- Completion of non-contact clinical components of patient care[5].
- Participation in local, regional, national clinical and operational leadership and governance activities which are crucial to ensuring that work such as service planning, audits and quality improvement can be undertaken.
- Participation in cancer MDMs including additional FTE allocated for the MDM Chair role to cover tasks and responsibilities associated with the running and leadership of these meetings, particularly at level 3 and 4 services (refer to the Agency Standards for High Quality Cancer MDMs in Aotearoa New Zealand).
- Meet registrar supervision and training requirements including for nursing (clinical nurse specialists, nurse practitioners) and potentially GPs, as required.
- Take opportunities to lead or contribute to research and clinical trial activities.

[5] Reviewing and acting on results; case discussions with colleagues and team members; co-ordinating inter-disciplinary aspects of care; arranging aspects of symptom control and toxicity management in outpatient settings; completing administrative paperwork including clinical dictations; superannuation and insurance claims; special authority applications; completion of Named Patient Pharmaceutical Assessment applications; Accident Compensation Corporation requirements; adverse event and patient harm investigation and reporting, looking for available clinical trials, and initial and on-going applications to compassionate drug access programmes.

4.1.3 Health NZ to set up robust mechanisms to identify and mitigate risk to service provision at times of unplanned leave, sickness and resignations. Including establishment of regular 'forums' to monitor and respond to service strain in a planned manner and formation of a team to support service continuity at times of short-term unplanned workforce shortages (particularly level 3 sites due to limited number of senior medical officers).

4.1.4 Health NZ operational leadership to recognise the value and leverage informal collegial networks bring to a health system and foster mechanisms that strengthen these networks within Aotearoa and between international sites.

4.2: Workforce - Nursing

4.2.1 Health NZ to ensure outpatient SACT units have a minimum of one nurse to three treatment spaces with the ability to decrease this ratio in response to patient acuity (the complexity of care provided to a patient) and complex SACT treatment administration (Lingaratnam, Murray, & Carle, 2013). In smaller sites, a minimum head count may be necessary for service sustainability, safety and staff wellbeing.

4.2.2 Health NZ to ensure inpatient areas fully implement Care Capacity and Demand Management (CCDM) for nursing, including undertaking staffing methodology calculations, recruitment to FTE requirements and implementation of variance response management protocols. Inpatient areas will support accurate CCDM predicting and reporting through regular training for all staff who use CCDM.

4.2.3 Health NZ to ensure outpatient areas have equivalent measures to calculate activity and FTE requirements. These measures are to include activities undertaken in the outreach setting and should represent workload complexity.

4.2.4 Health NZ to establish a formalised pathway and nationally consistent requirements to transition from generalist registered nurse to an advanced nursing practice role, e.g. cancer nurse specialist or a cancer nurse coordinator and from cancer nurse specialist to nurse practitioner.

4.2.5 Health NZ to expand clinical nurse specialist roles assisting with patient clinical reviews, both On Treatment (clinical reviews prior to commencement of a chemotherapy cycle) and follow up reviews utilising a protocolised methodology. This will increase the capacity and resilience of services to complete these tasks, acknowledging that senior medical officer oversight is required.

4.2.6 Health NZ and SACT services to consider increased utilisation of health care assistants and patient care assistants (who have a greater administrator focus) to create capacity for nursing staff to work at top of scope.

4.2.7 Health NZ to ensure the district nursing workforce is staffed and trained to support SACT care and treatment closer to or in the home.

4.2.8 Health NZ to ensure access to eviQ[6] and AntiNeoplastic Drug Administration Course (ADAC) training through eLearning platforms across Aotearoa.

4.2.9 Health NZ to ensure all regional SACT services have nurse educators who are certified to support SACT training and certification for nurses entering the SACT nursing workforce.

[6] An Australian online resource offering evidence-based, consensus driven cancer treatment information and protocols.

4.2.10 Health NZ to establish a mentoring framework to encourage transitions across training levels (health-care assistant to enrolled nurse, enrolled nurse to registered nurse, registered nurse to chemotherapy-trained registered nurse, SACT certified nurse to clinical nurse specialist, and clinical nurse specialist to nurse practitioner) to enhance workforce development.

Transformational Action

4.2.11 Health NZ to **ensure nurse practitioner roles are present at all Level 3 and 4 SACT services**. These roles would be able to undertake responsibilities for patients undergoing SACT and chemo-radiation (see Appendix 5 for Waitaha Canterbury District example).

4.3: Workforce - Pharmacy

4.3.1 Health NZ to implement mechanisms to ensure the supply function of pharmacy is sustainable, without impacting clinical pharmacy function. Examples to achieve this include extended scope of practice for pharmacy technicians, use of accuracy checking technicians and robotic dispensing.

4.3.2 Health NZ to ensure clinical pharmacy resource (FTE) is dedicated and integrated into medical oncology and haematology services. Key benefits include increased rates of interventions by pharmacists in relation to prescriptions for hospitalised adult patients, improved continuity of care during clinical handover, better management of supportive medicines, enhanced patient education for patients receiving complex anti-cancer treatments and improved efficiency of chemotherapy infusion sites.

4.3.3 Health NZ to increase resource available according to the following ratios; For outpatient medical oncology and haematology by applying the Society of Hospital Pharmacists of Australia recommended clinical pharmacy services and pharmacist/patient ratios; In the inpatient setting, approximately 1.0FTE pharmacist is recommended per 20 adult medical oncology inpatients, or 1.0 FTE per 10 to 15 adult haematology patients (allograft patients 1:10 and autograft patients 1:15). (Coutsouvelis, et al., 2020). Studies have shown pharmacists contributions in this setting positively impacts on the assessment of medicines adherence, understanding of medicines, symptom control, patient satisfaction and quality of life.

4.3.4 As part of workforce planning, Health NZ to collaborate with tertiary institutions providing undergraduate BPharm degrees and pharmacy technician training, to ensure that the curriculum includes aspects of SACT compounding and to horizon scan and identify the long term requirements of the future SACT pharmacy workforce.

4.3.5 Health NZ to ensure there is provision of pharmacy services workforce to provide medicines management, pharmacovigilance (understanding and prevention of adverse effects), review and development of medicines-related policies and guidelines, patient education, staff training and education, quality improvement and support of research, clinical trials and compassionate access schemes.

4.3.6 Implementing new technologies such as integration of electronic prescribing software with dispensing software and ordering software that interfaces with compounding facilities (where applicable) have the potential to free up pharmacists to do more clinically focussed work.

Transformational Action

4.3.7 Health NZ to **support expansion of Pharmacist prescribers specialising in SACT**. This has the potential to bring care closer to home, reduce the clinical workload for the existing workforce and provide greater continuity of care for patients and whānau. These roles should be based within oncology services with strong links to their professional bodies.

5: Facilities and Infrastructure

5.1 Level 3-6 SACT services to be developed and expanded as identified following national review. The design and layout to be aligned with Health NZ facilities guidance on the built environment of haematology, medical oncology and pharmacy units. Updates to be undertaken as required to encompass infection control and prevention advice together with public health guidance. Planning to include requirements for future pandemics. The design and layout of all facilities to take into account tikanga practices, including treatment review areas with a room large enough to accommodate whānau participation in appointments and or telehealth facilities to accommodate whānau who are not able to attend appointments. Consideration of unmet need should also be included.

5.2 Health NZ to ensure outpatient units delivering SACT have treatment spaces to meet current and projected demand in accordance with clinical safety requirements and regulations. There will be fit for purpose storage areas for equipment and resources.

5.3 Health NZ to ensure all SACT services have the required number of dedicated procedure rooms to meet service requirements, including procedure rooms for the intrathecal administration (delivered into the space around the spinal cord) of SACT, apheresis (technology to separate blood components) and the management of symptoms of cancer such as ascitic drainage.

5.4 Health NZ to ensure provision of physical spaces for patients requiring SACT or other treatments (e.g. transfusions) at the weekend and public holidays to reduce the need for inpatient bed use, increasing ward capacity.

5.5 Health NZ to ensure SACT services have dedicated treatment environments to accommodate AYA patients.

5.6 Health NZ to ensure SACT level 4-6 haematology services have dedicated inpatient single rooms and High Efficiency Particulate Air filter rooms, including provision for complex treatments and to meet anticipated demand.

5.7 Health NZ to ensure SACT services have timely access to aseptic and cytotoxic compounding services to support optimal SACT delivery and access to clinical trials. At level 3-6 SACT services, pharmacy to be co-located or within easy access.

5.8 Health NZ to ensure areas where SACT is administered are physically accessible for all people and particularly considering the needs of tāngata whaikaha disabled people.

Transformational Actions

5.9 Health NZ to **undertake a national programme of work to quantify, evaluate, and rectify areas of capacity constraint and poor physical plant condition across all SACT services** (inpatient and outpatient areas). Beginning with those services that have known challenges as identified during site visits.

5.10 **Physical infusion spaces should** meet the Australasian Health Facility Guidelines and Supplementary Aotearoa New Zealand Design Guidance (9m2 per bed or a minimum of 6m2 to accommodate a recliner chair for infusions or chemotherapy, (AusHFG | (healthfacilityguidelines.com.au). Where this is not met, Health NZ to **undertake work to identify options for expansion and action implementation.** This may include decanting to a standalone service when quality, patient and or staff safety is deemed to be at risk balanced with the need for shared SACT and non-SACT infusion capacity and expertise in some centres.

6: Data, Information and Technology

6.1 Health NZ to ensure key hospital services such as emergency departments, have visibility of patients receiving SACT and or patients who are under the care of a medical oncologist or haematologist.

6.2 Health NZ and primary health (including GP practices and community pharmacies) to continue work to improve integration of patient electronic medical records and visibility of health information across services enabling greater continuity of care.

6.3 Health NZ to ensure regions have fit for purpose systems to support scheduling which optimises the use of limited resources dynamically (physical space and health practitioners).

6.4 Health NZ and SACT services to ensure the data and digital requirements are met to support implementation of electronic patient reported outcome measures and patient reported experience measures (PREMS and PROMS). This will enable targeted improvements to be made which will improve the patient and whānau experience and outcomes from SACT.

6.5 Health NZ to ensure specialised oncology informatics roles are in place at SACT level 4 services. These roles must be resourced to provide service and support for electronic prescribing software at level 4 hospitals and to support requirements at associated satellite hospitals with common software (including maintenance and upgrades).

6.6 Health NZ to ensure data analytics roles are in place to support data quality and capture, SACT audit, monitoring and reporting at all district and regional levels.

6.7 Technology and systems assessment, national business case/funding decisions, procurement and subsequent planning and implementation relevant to SACT services (e.g. closed loop infusion, MDM solutions, telehealth for SACT assessment and delivery, cytotoxic compounding, electronic prescribing solutions) to be undertaken at a national level in collaboration with regional networks.

6.8 Health NZ to work with cancer software vendors to ensure all SACT data and information systems including electronic prescribing systems, meet the Agency's Canshare[7] SNOMED CT codes (common clinical terminology) and national HISO data standard for SACT prescribing and delivery.

6.9 Health NZ to establish an electronic mechanism which provides visibility of compassionate access and early access programmes available nationally, eligibility criteria and who to contact. This will also improve equity of access to novel cancer treatments to patients across the country and save valuable clinician time in establishing whether any such programmes are currently available for their patients.

6.10 Health NZ and SACT services consider development of teaching videos to support patients to self-administer chemotherapies at home. This will provide an easy reference for patients and whānau to have at hand when undertaking this procedure. Centralisation of this resource will avoid the risk of duplication across the country and ensure consistency of messaging including translation into different languages.

6.11 Health NZ to regularly horizon scan, emerging artificial intelligence technologies and consider implementation for automatable tasks once clinical safety is well established.

[7] CanShare is a new national health informatics platform being developed by the Agency that aims to allow the timely sharing of relevant and accurate cancer data https://teaho.govt.nz/reports/canshare

Transformational Actions

6.12 Health NZ to **establish and implement electronic prescribing for all SACT services** in Aotearoa by 2026. In the rollout of electronic prescribing platforms the goal of minimising the number of platforms that treatment staff have to navigate should be considered.

6.13 Health NZ to **consolidate and move electronic prescribing systems to a regional or national cloud based or "Software as a Service" environment** enabling the following key benefits: Significantly increase the ability to transfer patients to other sites for and or during treatment (building resilience, e.g in a cyber-attack); Reduce resource needed for the construction, import and implementation of new SACT regimens; Provide greater consistency of regimens and regimen libraries; Increase data standardisation across services; Reduce system maintenance, hosting and infrastructure costs; Ensure clinicians have full visibility of the patients SACT record.

7: Quality, Safety and Risk Management

7.1 Health NZ to ensure an effective accountability and performance framework is embedded within SACT services, where quality and patient safety measures are monitored, evaluated and acted upon as part of a clinically governed quality and risk management approach.

7.2 National SACT leadership to lead development of safety, quality, and risk management policies, procedures and guidelines. Regional and national leadership to monitor, evaluate and improve SACT services, regularly utilising measures from patient reported experience and outcome measures, ACT-NOW, other national collections and Quality Performance Indicators as these continue to evolve. Consumers are supported to partner in evaluation and co-design.

7.3 Health NZ to ensure dedicated Quality Management (such as project management) FTE for SACT level 2-6 sites is in place.

7.4 Health NZ to ensure all SACT services have access to incident and harm registers which meet the needs of SACT care and treatment including those patients on waitlists.

7.5 Health NZ to ensure data analyst support is available to all services for audit, service improvement and quality management activities.

7.6 Health NZ and SACT services to continue to take responsibility for adherence to safety, quality, and risk management policies, procedures and guidelines, to ensure delivery of a quality and safe SACT service.

7.7 Health NZ to continue to ensure all staff involved in the administration of SACT are certified in the relevant nationally recognised training and accreditation for the provision of SACT e.g. Antineoplastic Drug Administration Programme (ADAC). Certification is to be regularly reassessed.

7.8 Health NZ to ensure SACT clinical staff have allocated non-clinical time to undertake quality and safety activities.

7.9 Health NZ to ensure all areas involved in the preparation, administration or disposal of SACT meet all necessary health and safety requirements and legislation.

7.10 Health NZ to ensure workforce is culturally safe and competent through mandatory cultural safety training. Training to be readily available in orientation and other ongoing programmes.

8: Innovation, Research and Clinical Trials

8.1 Health NZ to ensure hospitals with SACT services have clinical trial services and infrastructure to increase availability of clinical trials to patients receiving SACT. This includes pharmacy capacity and capability (e.g., cytotoxic isolators for compounding short expiry medicines) and a workforce which does not limit a services ability to participate in clinical trials e.g. number of trained pharmacists.

8.2 SACT services to ensure all patients (including AYA patients) are informed of and have access to clinical trials where they meet the eligibility criteria.

8.3 SACT services to support and embed clinical trials and research into patient care pathways to maximise opportunities for patients to participate e.g through MDMs, electronic prescribing systems and decentralising trial procedures.

8.4 Health NZ to support clinical trial work by providing 'standard of care' components of trials, rather than requiring these to be funded from trial budgets.

Transformational Actions

8.5 Health NZ to **ensure SACT services have visibility of all clinical trials open to recruitment in Aotearoa via a single web-based platform.**

8.6 Health NZ and the Ministry supported by the Agency undertake work to **assess the feasibility of establishing a national oncology/haematology clinical trials and research structure** which would have the following benefits: Enable patients to participate in clinical trials irrespective of their geographical location achieving greater equity of access (potentially improving outcomes); Reduce duplication of trial implementation and startup processes; Strengthen New Zealand's position in contract negotiations for sponsor-led trials; Ensure global trial results are more reflective of the population; Give clinicians and patients greater access to new and emerging novel therapies; Strengthen recruitment and retention benefits for workforce associated with high functioning research capability.

APPENDIX 9: REFERENCES

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