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Cancer Framework and Strategic Cancer Plan 2010-2013

Department of Health and Human Services

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CanNET Tasmania

The development of this Cancer Framework and associated strategic cancer plan was supported through the CanNET program, a Cancer Australia initiative. More information about CanNET Tasmania is at **Attachment 1**.

Strategic directions for Tasmania's health services

The delivery of services for Tasmanian's at risk of or affected by cancer is guided by the Department of Health and Human Service's document *Strategic Directions 09-12*, which places patients and clients at the centre of the service system.

Strategic Directions 09-12 articulates a vision:

High quality, safe services for the people of Tasmania when they need them, so they can live well and live longer

.. a mission:

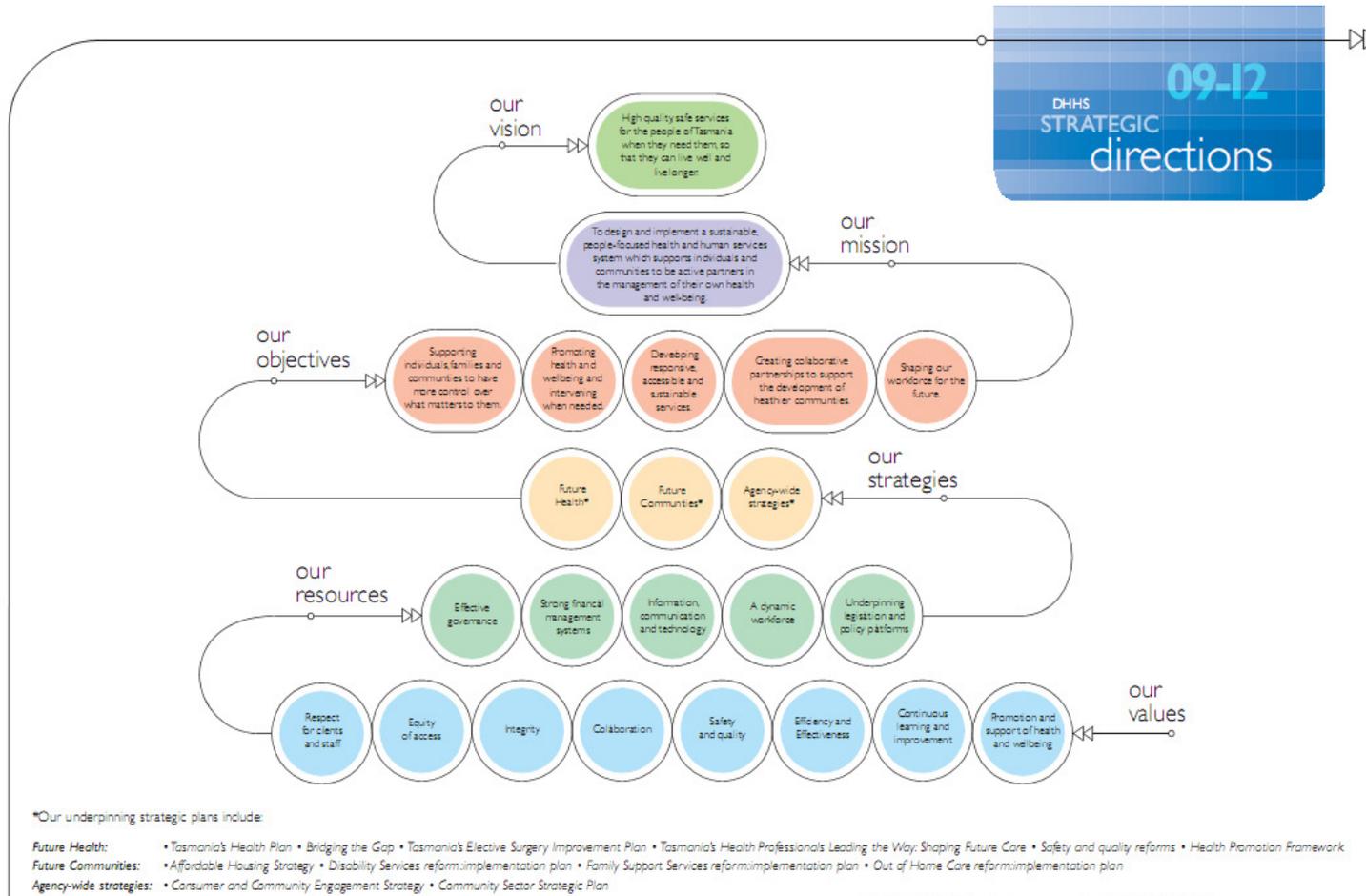
To design and implement a sustainable, people-focused health and human services system which supports individuals and communities to be active partners in the management of their own health and wellbeing

... and five objectives for Tasmania's health and human services:

- 1 Supporting individuals, families and communities to have more control over what matters to them.
- 2 Promoting health and wellbeing and intervening early when needed.
- 3 Developing responsive, accessible and sustainable services.
- 4 Creating collaborative partnerships to support the development of healthier communities.
- 5 Shaping our workforce to be capable of meeting changing needs and future requirements.

Tasmania's strategic cancer plan will become one of the plans expressing the vision, mission and strategic objectives of Tasmania's health and human services.

Figure 1: DHHS strategic directions 09-12



Tasmania's Cancer Framework and Strategic Cancer Plan

This Cancer Framework and Strategic Cancer Plan incorporates the structure and key design elements of Tasmania's cancer care system (the Framework) and the vision, mission strategies and actions that need to be taken to achieve the best possible outcomes for Tasmanians affected by cancer (the Strategic Cancer Plan).

A business plan will be developed to support the effective implementation of this Cancer Framework and Strategic Plan.

Tasmania's Cancer Framework

Three key elements make up Tasmania's Cancer Framework: a service system designed in accordance with best evidence, a contemporary a model of care and strong governance systems.

Tasmania's Strategic Cancer Plan

Vision

To reduce the impact of cancer on Tasmanians at risk of or affected by cancer

Mission

To provide high quality cancer services across the continuum of care, from prevention through to treatment, survivorship and palliative care for all Tasmanians

Objectives

Improving cancer prevention

Detecting cancers earlier

Creating an integrated and sustainable system

Providing a contemporary model of care

Ensuring a well-governed system

Objectives, strategies and actions

Objective 1 - improving cancer prevention		
Strategies	Actions	Time frame
Invest in effective community support programs	Continue implementation of the tobacco action plan and the Tasmanian food and nutrition policy.	Ongoing
	Establish, monitor and report against regional targets for the percentage of clients who receive a brief smoking cessation intervention.	1 year and ongoing
	Continue to implement the National Partnership Agreement on Preventive Health.	Ongoing
	Monitor and evaluate the effectiveness of all interventions designed to reduce the impact of cancer on Tasmanians.	Ongoing
Develop research capacity in inherited cancers	Review inherited cancer research programs to ensure adequacy of resources and effectiveness.	2 years

Objective 2 - detecting cancers earlier		
Strategies	Actions	Time frame
Increase effectiveness of screening programs	Review resources allocated to cancer screening programs.	1 year
	Explore options for workforce diversification and enhancing access to BreastScreen clinics.	1 year
	Establish, monitor and report against state and regional targets for participation in bowel, breast and cervical cancer screening programs in accordance with program guidelines.	1 year
	Increase education for the public and primary health care providers about the importance of cancer screening.	Ongoing
	Develop tools, resources and information to support referral to cancer screening programs.	2 years
Ensure timely access to diagnostic procedures	Review access to colonoscopy and ensure sufficient investment to support the Australian bowel cancer screening program.	6 months
	Monitor and ensure appropriate access to medical imaging and pathology services.	Ongoing

Objective 3 - creating an integrated and sustainable system		
Strategies	Actions	Time frame
Define the cancer care and treatment roles of Tasmania's major health care facilities	Adopt the proposed delineation of levels of cancer services.	Immediate
	Confirm the role of LGH and RHH as comprehensive cancer care centres.	Immediate
	Confirm the role of the North West Regional Hospital as a sub-regional cancer service.	Immediate
	Confirm a strategic commitment to developing a sustainable regional partnership in cancer services in the North of the state.	Immediate
	Support the Northern Area Health Service to recruit medical oncologists and haemoncologists to support provision of a sustainable and reliable service to the North and North West of the state.	Immediate and ongoing
	Review funding allocations and flows for cancer care in the North West to ensure their adequacy to support appropriate local service provision.	2-3 years
Improve access for people from rural and remote areas of Tasmania to all modalities of cancer care	Strengthen transport and accommodation infrastructure for people affected by cancer.	Ongoing
Strengthen access to highly specialised services for defined cancers	Endorse and support current shared care arrangements across the state and with the Royal Children's Hospital Melbourne for the management of children with cancer.	6 months
	Strengthen links with Peter MacCallum Cancer Centre for the management of adolescents and young adults with cancer.	Ongoing
	Define interstate referral pathways for rare cancers through patient management pathways.	2 years
	Recruit a second gynaecology-oncology sub-specialist to the RHH to support a state-wide service.	1 year
	Strengthen and support the state-wide bone marrow transplantation service.	Ongoing

Objective 3 - creating an integrated and sustainable system		
Strategies	Actions	Time frame
Develop structures and tools that support service integration across professional and geographic boundaries	Move toward physical integration of oncology services at the RHH.	Long term
	Clearly allocate responsibility within DHHS for integrated policy leadership spanning prevention, screening, treatment and outcomes for cancer.	6 months
	Support the development of the Tasmanian Cancer Clinical Network by: <ul style="list-style-type: none"> • appointing a leader; • further defining the role of the network including its interaction with individual health services; • ensuring consumers are engaged in all aspects of cancer policy, strategy and delivery including as equal members of the network; and • establishing a Northern and Southern Integrated Cancer Service (ICS) as sub-committees of the network. 	6 months
	Appoint a director of cancer for the Southern Area Health Service/Southern ICS, with the role to include operational leadership of cancer services at the RHH.	6 months
	Expand the role of the director of cancer at the LGH to encompass medical leadership of publicly-funded cancer services across the Northern and North West Area Health Services and of the Northern ICS.	6 months
	Facilitate ready transfer of patient information between providers for clinical purposes by supporting the implementation of the ARIA system across the state.	Ongoing
	Continue to explore and implement options for the innovative use of information technology to support patients and practitioners in various remote locations, including supporting multidisciplinary teams and meetings	Ongoing
	Ensure adequate system capacity	Increase radiotherapy treatment capacity by proceeding with the installation of a third linear accelerator in the North of the state.
Monitor access by cancer patients to hospital-based services and ensure service capacity expands as need increases.		Ongoing
Develop sustainable partnerships with the private and non-government sectors	Encourage private health services to adopt and implement the principles of this framework and plan.	Immediate
	Invite clinicians and organisations working in the private sector to engage in the integrated cancer centre and multidisciplinary team processes.	Immediate
	Establish active and sustainable links between the ICS, the Tasmanian Cancer Clinical Network and non-government organisations including Cancer Council Tasmania, to facilitate integrated planning, service delivery and service system monitoring.	Ongoing

Objective 3 - creating an integrated and sustainable system		
Strategies	Actions	Time frame
Maintain and sustain the workforce	Develop a cancer workforce plan on the basis of an analysis of workforce supply and future demand across Tasmania, confirming workforce gaps and identifying innovative strategies for addressing these gaps including: <ul style="list-style-type: none"> • articulating and strengthening the career path for cancer health professionals across Tasmania; • developing state-wide advanced training programs in medical oncology, haematology, radiation oncology and medical physics in collaboration with other states and professional bodies; and • developing clinical academic positions in collaboration with the University of Tasmania. 	12 months
	Ensure that there is a critical mass of health professionals in all disciplines at both comprehensive cancer care centres. Immediate attention is required to: <ul style="list-style-type: none"> • support recruitment of additional medical oncologists to the LGH and haemoncologists to Launceston and Hobart; • continue efforts to recruit a second gynaecological oncologist; • maintain a sustainable specialist medical palliative care service in the North West; and • strengthen the availability of other core team members including nurses, radiation therapists, medical physicists and other allied health professionals in all regions to enable multidisciplinary care. 	Immediate and ongoing
	Strengthen and support oncology nursing infrastructure at the NWRH (Burnie and Mersey) and formalise arrangements for medical leadership and backup.	Immediate
	Enhance educational infrastructure by: <ul style="list-style-type: none"> • implementing a state-wide cancer education and training plan; • appointing additional cancer nurse educators to work across Tasmania, focusing in the first instance on the North and North West of the state; • convening a State-wide Cancer Educators Network to advise the Cancer Clinical Network, and ensure the education needs across the state; and • ensuring the continued funding for radiation therapy clinical tutors beyond the cessation of the Commonwealth funding agreement in July 2010. 	2 years

Objective 3 - creating an integrated and sustainable system		
Strategies	Actions	Time frame
Support research and innovation	Develop an integrated state-wide cancer research policy and strategy.	3 years
	Enhance cancer trials infrastructure across the state (to support research on a regional basis including in the North West), enabling the enrolment of more patients in clinical trials.	Ongoing
	Develop health services' research capability including developing systems that enable the rapid translation of research into practice.	Ongoing
	Link Tasmania into Cancer Australia's national clinical trials register.	12 months
Objective 4 - providing a contemporary model of care		
Strategies	Actions	Time frame
Develop clinical systems of care to ensure continuing best practice in care planning and delivery	Define Tasmanian cancer care streams, based on the Victorian tumour stream framework, to provide a basis for planning, delivering and monitoring the outcomes of cancer care in Tasmania.	12 months
	Adopt and actively promulgate patient management frameworks for all cancer care streams. In the first instance, frameworks should be adopted in the areas of lung cancer and colorectal cancer, followed by adoption of patient management frameworks across all common cancers and a generic framework for the management of rare cancers.	Commence immediately, complete within 3 years
	Adopt and implement the eviQ protocols to provide a basis for decision-making and audit, leading to a strengthening of the quality of cancer care in Tasmania.	Commence immediately, complete within 3 years
Enhance multidisciplinary care and care coordination	Strengthen the availability of core team members including medical (North and North West particularly), nursing and allied health (all regions).	Ongoing
	Designate cancer-specific allied health positions in teams where service size permits.	Immediate and ongoing
	Implement well-resourced multi-disciplinary team meetings for all cancer care streams locally, regionally or state-wide as appropriate, depending on patient numbers.	Commence immediately, complete with in 2 years
	Develop processes to enable involvement of general practitioners in multi-disciplinary team meetings.	2 years
	Support Tasmanian clinicians to participate in interstate multi-disciplinary team meetings in relation to patients with rare cancers.	Ongoing
	Establish achievable targets for the proportion of patients whose care plan is discussed by a multi-disciplinary team and monitor achievement of those targets.	Immediate and ongoing
	Develop systems which support health care professionals to work together collaboratively in a multi-disciplinary model of care across the cancer care continuum including peer review.	Immediate and ongoing

Objective 4 - providing a contemporary model of care		
Strategies	Actions	Time frame
Enhance multidisciplinary care and care coordination (cont.)	Extend the existing care coordination model to other cancers, ensuring that all Tasmanians with cancer have access to care coordination services if they need them, and implement an ongoing evaluation of the model's effectiveness.	Commence immediately, complete within 3 years
	Empower care coordinators to assume responsibility for ensuring that people are included in the multi-disciplinary processes that determine their plans of treatment and care.	Immediate
	Strengthen and further develop the role of cancer care coordinators by formalising and supporting a state-wide cancer care coordinators network.	18 months
Enhance supportive and palliative care	Review existing cancer supportive care services, including mapping existing services and patterns of use, and develop a Tasmanian Cancer Supportive Care Service plan, incorporating the public, private and non-government sectors, to improve coverage and coordination of supportive care services for people affected by cancer.	2 years
	Investigate opportunities for Tasmanians who have been affected by cancer as children and adolescents to access post-treatment supportive care services from interstate specialist providers	18 months
	Review and adapt the process of referral to palliative care to improve the time to referral.	18 months
	Develop a state-wide system to ensure every person diagnosed with terminal cancer is given the opportunity to prepare an advanced directive to articulate their wishes and needs in the event of incapacity.	12 months

Objective 5 - ensuring a well-governed system		
Strategies	Actions	Time frame
Enhance knowledge and understanding of the cancer care system	Finalise and promulgate a directory of cancer services which contains sufficient detail for all clinicians (including those new to the state) and consumers to understand the level of service offered in each region and the referral pathways that apply within and external to the state.	12 months and ongoing
	Work with professional organisations and non-government organisations to promote community awareness of patient management frameworks including referral pathways and the availability of support for people receiving treatment remotely.	Ongoing
	Empower consumers to make informed choices about quality cancer care by working with non government organisations to develop a coordinated, integrated partnership-based strategy for community education about Tasmania's system of cancer prevention and care.	18 months
Engage consumers in system planning	Ensure consumers are invited to engage in key planning discussions and decisions at a system and organisational level.	Immediate and ongoing
Implement effective credentialling and scope of clinical practice processes	Develop and distribute to area health service CEOs and clinicians principles-based advice on the organisational and clinician competencies necessary to support the provision of specific low volume/high complexity services and monitor the response of health services to that advice.	12 months
	Establish robust role delineation/credentialing policies for the administration of cytotoxic drugs in small rural hospitals.	3 months
Monitor and improve clinical quality	Support effective peer review and audit by building the capacity of Area Health Services and the Cancer Clinical Network to collect data and undertake clinical peer review and audit with a focus on compliance with evidence-based and endorsed clinical protocols and outcomes.	Commence immediately and ongoing
	Develop a performance monitoring framework defining the key performance objectives, agreed data and information needs and a system for monitoring and reporting on performance which can be applied at the area, regional and state-wide level.	18 months
	Establish processes to provide feedback to health professionals and health services on outcomes of monitoring and recommendations for practice and service improvement, and processes to monitor the progress of implementation of recommendations arising from clinical audit and other performance review processes.	18 months
	Continue to support and invest in the Tasmanian cancer registry.	Ongoing
	Consider development of a state-wide tumour tissue bank.	2 years

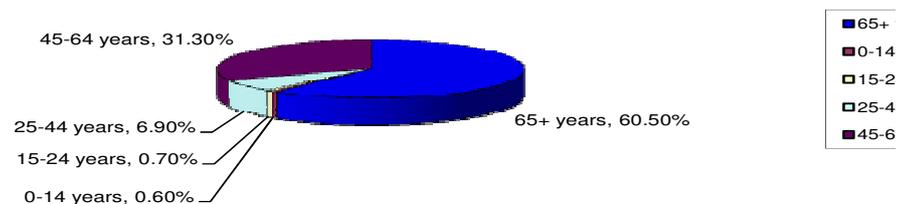
Cancer and cancer treatment

Introduction

Cancer is a broad term that describes not one but many different diseases, in which some of the body cells become defective, begin to multiply out of control, can invade and damage the tissue around them, and may also spread (metastasise) to other parts of the body causing further damage. Cancers can arise in many different tissues and parts of the body. Different cancer types tend to have different known and/or suspected risk factors associated with them.

Cancer risk increases with age, so that most cases occur in older people (Figure 2). The failure of the mechanisms that regulate normal cell growth, proliferation and cell death is common to all forms of the disease.

Figure 2: All causes cancer incidence by age, Tasmania, 2000-2004



Cancer has a major impact on Australian communities. In 2005, for the first time, there were over 100,000 new cases of cancer diagnosed in Australia [1]. In 2009 an estimated 111,000 new cases of cancer (excluding non-melanoma skin cancer) will be diagnosed, and more than 42,000 people will die from cancer nationally. The death rate from cancer is, however, falling, and more than 60% of patients will survive more than five years after diagnosis [2].

The number of people diagnosed with cancer is predicted to grow by over 3,000 extra cases per year between 2006 and 2010, mainly due to the ageing of the population, although there is also projected to be a small increase in the underlying cancer incidence rate [1].

Cancer is a National Health Priority Area (NHPA). The NHPA cancer control initiative focuses on eight types of cancer - lung cancer, colorectal cancer, melanoma, non-melanocytic skin cancer, prostate cancer, breast cancer, cervical cancer and non-Hodgkins lymphoma - which together account for approximately 53% of all deaths from cancer in Australia [3].

Approaches to the treatment of cancer

Cancer treatment aims to cure, prolong life and improve the quality of life. Cancer treatment incorporates the main modalities of medical oncology, radiation oncology, biological therapy, surgical oncology, supportive care and palliative care, or a combination of these modalities. A description of the common forms of cancer treatment is at **Attachment 2**.

The cancer continuum of care

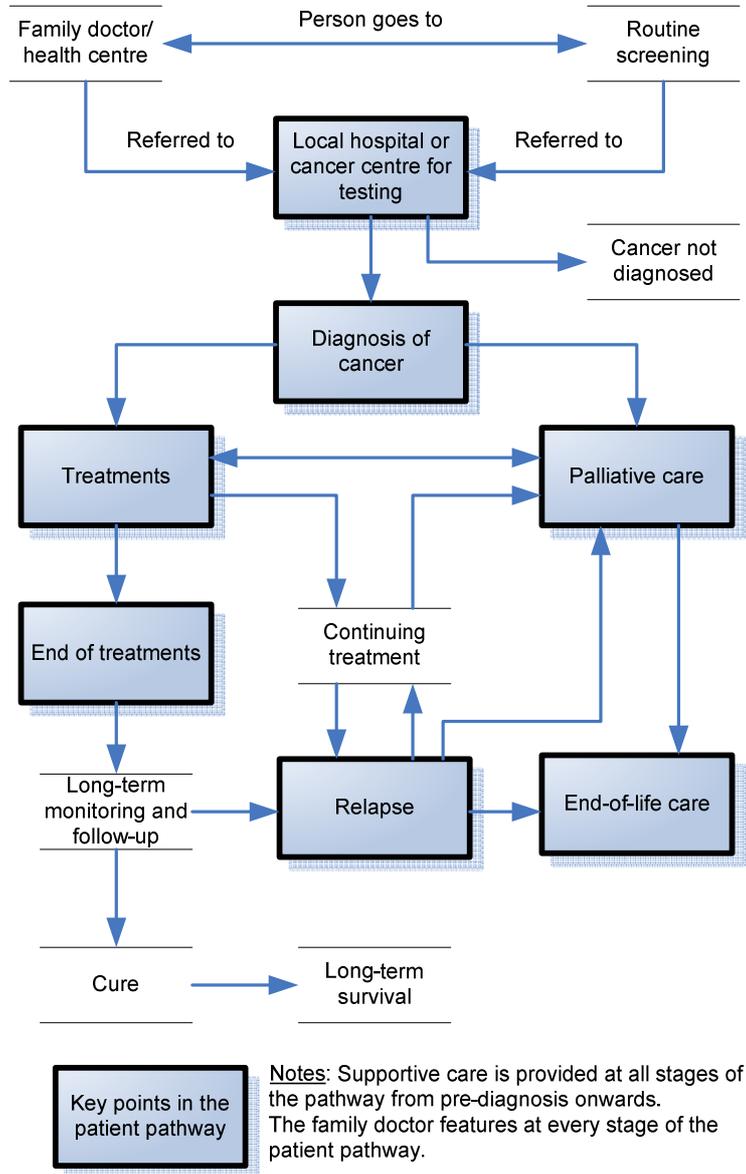
The cancer journey comprises prevention, early detection and diagnosis, treatment and survivorship through to end-of-life care. The cancer continuum is not necessarily linear or predictable.

People suffering from cancer need supportive care along the entire cancer journey, commencing at the time their cancer is detected and should receive ongoing follow-up and continued screening after their treatment is complete. Some but not all people with cancer require palliative care.

The control of cancer involves a range of strategies designed to reduce the burden of the disease on individuals and community. A description of the cancer care pathway in Tasmania is at **Attachment 3**.

Figure 3, which is taken from the National Institute of Clinical Excellence (2004) *Guidance on cancer services*, maps the journey travelled by many people with cancer. The challenge for cancer systems is to ensure the highest quality of integrated care throughout this complex journey.

Figure 3: The patient journey [4 p.19]



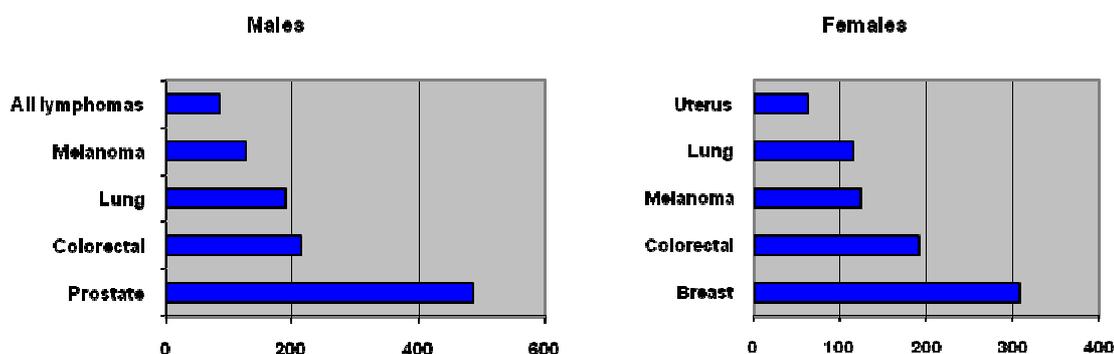
Cancer incidence and mortality in Tasmania

Cancer incidence in Tasmania

The most recent published data about cancer in Tasmania relate to 2006. There were 2,814 new cases of cancer (excluding non-melanoma skin cancer) diagnosed amongst Tasmanian residents in 2006 (1,595 males and 1,219 females). The overall age standardised incidence rate (ASR)¹ during 2006 was 394.7 per 100,000 for males and 276.3 per 100,000 for females. The risk of developing any cancer (other than non-melanoma skin cancer) by age 75 years was 1 in 3 for males and 1 in 4 for females [5].

The most common cancers diagnosed in Tasmanian males in 2006 were prostate cancer, colorectal cancer, lung cancer, melanoma skin cancer and all lymphomas. The most common cancers diagnosed in Tasmanian females in the same period were breast cancer, colorectal cancer, melanoma skin cancer, lung cancer and uterine cancer (Figure 4).

Figure 4: Common cancers diagnosed in Tasmanians, 2005



The age standardised incidence rates (ASR) of all cancers among Tasmanian residents (excluding non-melanoma skin cancers) increased by 41% for males and 33% for females during the 26-year period from 1980 to 2006 (comparing 2005-2006 with 1980-1981). The ASR for all cancers in males increased from 376.4 in 2005 to 394.7 in 2006, whilst in females it decreased from 292.2 in 2005 to 276.3 in 2006 [5].

With the ageing of the Tasmanian population, the number of people diagnosed with cancer will continue to increase. Currently, 20% of the Tasmanian population is aged 60 and over. In 10 years time this will increase to 30%. People aged 70 and over represent 11% of the Tasmanian population currently, increasing to 14% by 2016.

¹ Incidence per 100,000 people.

Figure 5 shows the predicted population changes between 2006 and 2016 across the North West, North and South regions of Tasmania and Figure 6 shows the predicted increase in cancer over the next four decades in the population aged 65 years and over.

Figure 5: Changes in population by age group and region 2006 to 2016

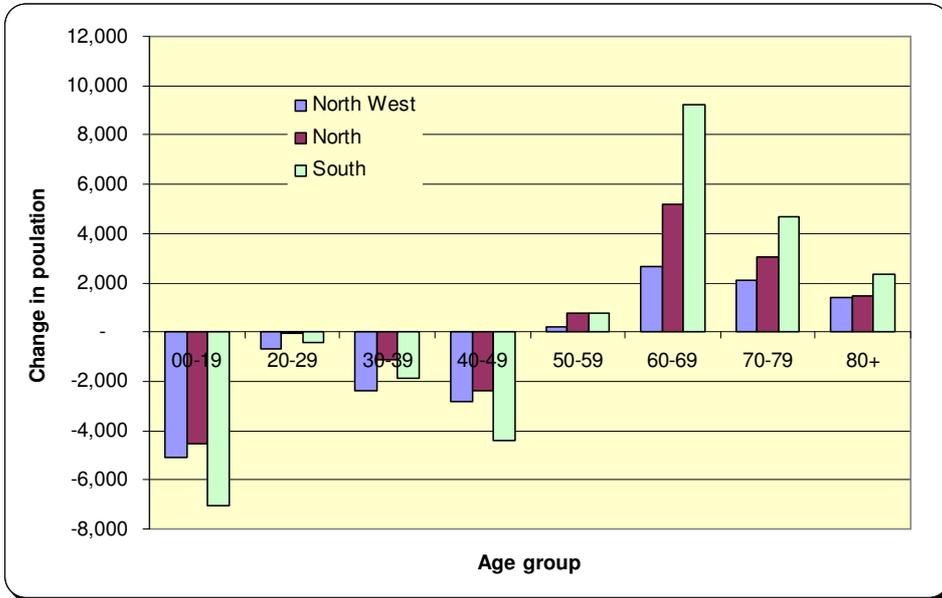
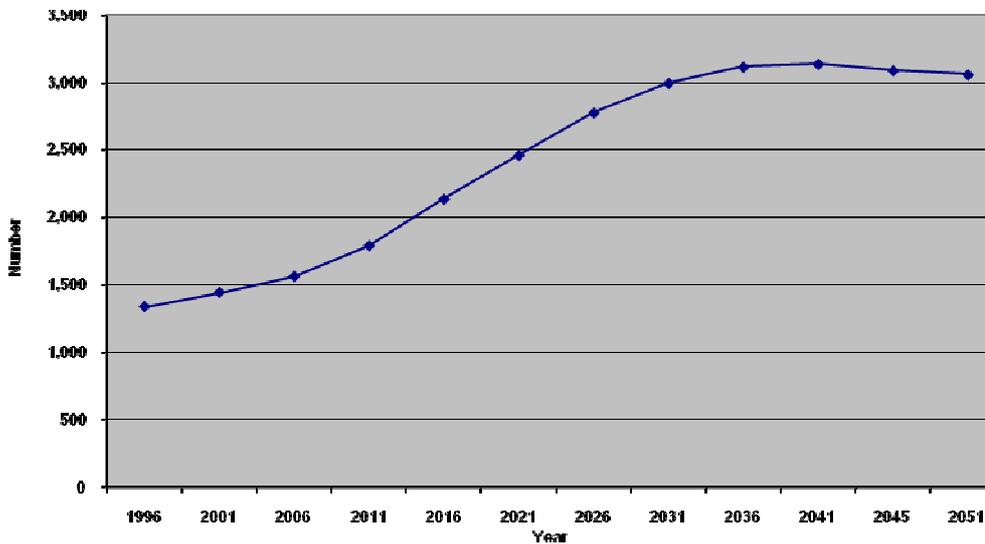


Figure 6: All causes cancer incident case projections, population aged 65 years and over, Tasmania, 1996-2051 [6]



An extra 3,865 cancer admissions to Tasmanian hospitals are predicted by 2021-22 (Table 1). All cancer streams are projected to grow except head and neck. Hospital admissions for haematology and genitourinary cancers are predicted to grow the most.

Table 1: Admissions by cancer stream type

Cancer Stream	2007-08	2021-22	Difference	% p.a.
Breast	789	996	207	1.7%
CNS	163	296	133	4.4%
Colo rectal	1,046	1,381	335	2.0%
Genitourinary	867	1,566	699	4.3%
Gynaecology	372	502	130	2.2%
Haematology	2,205	3,933	1,728	4.2%
Head and neck	519	399	-120	-1.9%
Lung	743	1,034	291	2.4%
Other	476	628	152	2.0%
Skin	1,001	1,119	118	0.8%
Upper GI	588	781	193	2.0%
Total	8,769	12,634	3,865	2.6%

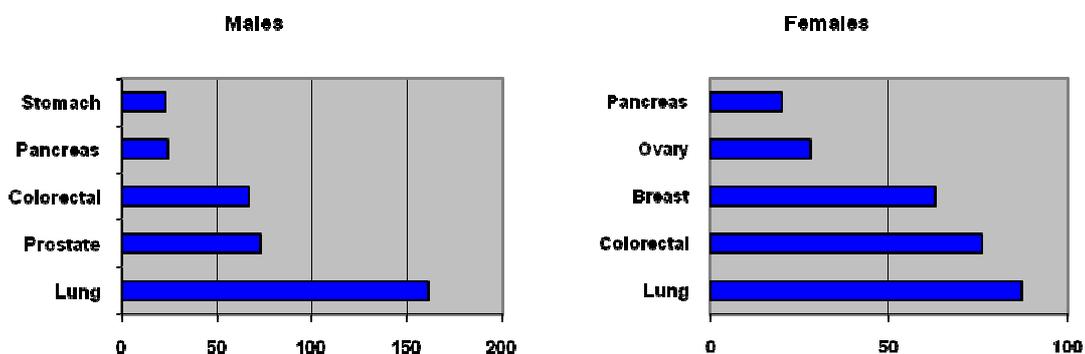
Cancer mortality in Tasmania

While the number of new cancer cases and cancer deaths occurring each year generally has increased since 1980, age standardised mortality rates for all cancers remain stable for both males and females.

In 2006, there were 1,060 cancer-related deaths of Tasmanian residents, with an overall age-standardised mortality rate of 125.8 per 100,000 for males and 94.3 per 100,000 for females. The person years life lost to age 75 years was 4,608 for males and 4,400 for females [5].

The most common causes of cancer-related deaths in Tasmanian males were lung cancer, prostate cancer, colorectal cancer, pancreatic cancer and stomach cancer. In females, the most common causes of cancer-related deaths were lung cancer, colorectal cancer, breast cancer, ovarian cancer and pancreatic cancer (Figure 7).

Figure 7: Common causes of cancer-related deaths in Tasmanians, 2006



Regional comparisons

Table 2 shows the regional distribution (number and %) of common cancers within Tasmania. On the basis of population numbers in each of the statistical divisions, the distribution of cancers would be expected to be 49% in the South, 29% in the North and 22% in the Mersey-Lyell division. Variation around that distribution can be expected to be mainly due to chance occurrences and differences in the age distribution between the regional populations.

Table 2: Regional distribution of cancer incidence for all sites with a minimum of 50 new cases 2006

ICD-10	Site	Southern 239,444 (49%)	Northern 137,936 (28%)	Mersey-Lyell 107,883 (22%)	Total 485,263 (100%)
C61	Prostate	260 (53%)	135 (28%)	92 (19%)	487
C18-C21	Colorectal	194 (48%)	121 (30%)	92 (23%)	407
C50	Breast	164 (53%)	86 (28%)	62 (20%)	312
C33, C34	Lung	151 (49%)	91 (30%)	65 (21%)	307
C43	Melanoma of skin	123 (49%)	55 (22%)	72 (29%)	250
C81-C85	All lymphomas	69 (50%)	36 (26%)	33 (24%)	138
C67	Bladder	41 (54%)	17 (22%)	18 (24%)	76
C01-C14, C30-C32	Head and neck	36 (51%)	19 (27%)	15 (21%)	70
C64	Kidney	39 (59%)	18 (27%)	9 (14%)	66
C54, C55	Uterus	27(43%)	18 (29%)	18 (29%)	63
C16	Stomach	32 (55%)	16 (28%)	10 (17%)	58
C91-C95	All leukaemia	39 (72%)	7 (13%)	8 (15%)	54
Total new cases		1,175 (51%)	619 (27%)	494 (22%)	2288

Source: Cancer in Tasmania. Incidence and Mortality 2006

National comparisons

Nationally, for all cancers combined (excluding non-melanocytic skin cancers), the highest ASR (averaged over the 5-year period 2001-2005²) occurred in Queensland (494.4), followed by Tasmania (479.4), New South Wales (471.3), Western Australia (466.6), South Australia (457.6), the Australian Capital Territory (453.5), Victoria (448.9) and the Northern Territory (425.4). If all skin cancers are excluded, the age-standardised incidence rates become similar

² To reduce the problems of statistical variation due to small numbers of cases, the Australian Institute of Health and Welfare presents data for the states and territories as annual averages over a 5-year period (the most recent report covering the period 2001–2005). Care should be taken when interpreting incidence rates, especially for less common cancers and for states and territories with small populations. Differences in rates between the states and territories may be explained by variations in underlying cancer risk, the availability and utilisation of diagnostic procedures, reporting and coding differences, and normal incidence rate fluctuations.

and the ranking of the states and territories changes. Tasmania had the highest ASR (433.9 cases per 100,000 persons), followed by Queensland (429.1), New South Wales (423.6), South Australia (417.5), Western Australia (413.6), Victoria (411.5), the Australian Capital Territory (408.3) and the Northern Territory (392.9). In terms of common cancers, Tasmania has the highest ASR for prostate cancer; the second highest ASR for breast cancer and lung cancer; and the fourth highest ASR for colorectal cancer [7].

The age-standardised death rate for all cancers in 2005 was higher in Tasmania (205.2 deaths per 100,000 population) than in Australia as a whole (177.5 deaths per 100,000 population) [6].

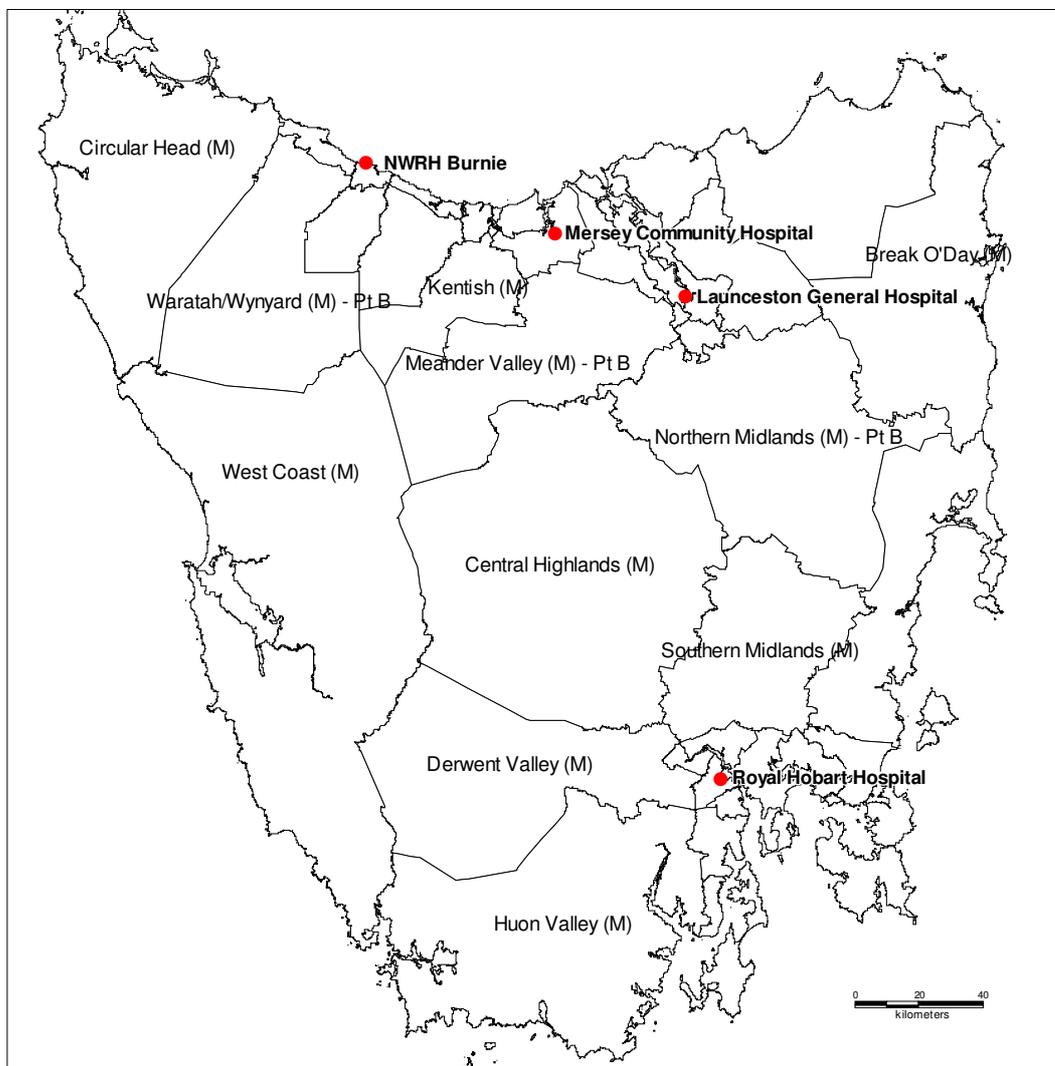
In terms of cancer outcomes Australia performs extremely well compared to other countries as measured by the mortality-to-incidence ratio (MIR) for all cancers combined except non-melanocytic skin cancer (see **Attachment 4**). A lower MIR indicates better outcomes of cancer treatment and care.

Tasmania's cancer prevention and care system

Tasmania's health care system

In Tasmania, cancer prevention and care is delivered by a network of health and community services. The three area health services (North West, Northern and Southern) are responsible for the care provided in the three major referral centres (North West Regional Hospital, Launceston General Hospital and the Royal Hobart Hospital) respectively, as well as care provided in surrounding district hospitals and multipurpose centres and services. The private sector also plays a significant role both in acute and primary care, with many clinicians working across both sectors and a major level of diagnostic service provision, treatment and care provided in that sector.

Figure 6: Tasmanian statistical local areas and regional hospitals



Cancer prevention and screening services

The Tasmanian Government, together with non-governmental organisations such as the Cancer Council Tasmania sponsor a coordinated and comprehensive range of preventive strategies and programs aimed at improving the general health and wellbeing of Tasmanians as well as reducing behaviour which is known to increase the risk of cancer. The Department of Health and Human Services (the Department) has published an overarching policy framework

for strengthening the prevention and management of chronic conditions which outlines key focus areas.

In addition, Tasmania participates in a number of national screening programs including the national cervical cancer screening program, BreastScreen Australia and the national bowel cancer screening program, which aim to detect cancer early.

Screening programs potentially result in increased numbers of pathology samples e.g. from colonoscopies and breast biopsies, and requirements for medical imaging investigations, so the impact on pathology and medical imaging resources should be considered in conjunction with any new screening program.

Cancer diagnosis and treatment services

General practitioners are often the first health care professional to assess a patient with symptoms and/or signs of cancer. Patients may be referred for a variety of diagnostic procedures including for medical imaging, surgical and/or pathology procedures.

Following diagnosis, curative or palliative treatment may consist of medical, surgical or radiation therapy.

Medical oncology/haematology care is available in both Launceston and Hobart, with more limited local services supplemented by outreach services in Burnie/Devonport. Some chemotherapy is administered in small district hospitals. Surgery is provided in the three regional centres although many procedures are only available in the larger centres in Launceston and Hobart and a small number of specialties are provided in one centre alone.

There is a state-wide bone marrow transplantation service which is led from Hobart but which works collaboratively with Launceston-based clinicians to enable care to be provided closer to home when clinically appropriate to do so.

Because of the cost of the equipment, radiation oncology services usually are located in major centres, although this is changing with the advent of single machine units [8]. Radiation therapy is available in Launceston and Hobart at present. An additional linear accelerator, funding for which was approved in the 2009/10 federal budget, will be installed in Launceston.

A variety of outreach cancer services are provided to the North West region - for example, radiation oncologists and haematologists/medical oncologists from both Hobart and Launceston visit the North West region on a regular basis to provide consulting services to people who live in those areas. These services are not organised systemically, however, and have tended to be unsustainable in the past because of their dependence on key individuals. Arrangements for their funding vary and have not been established systematically with the primary purpose of ensuring service sustainability.

Tasmania's Palliative Care Service has three specialist community teams based in Hobart, Launceston and Burnie, with outreach to rural areas. It has dedicated inpatient facilities for palliative care patients in Hobart and Launceston and an in-reach service into the state's teaching hospitals. The specialist palliative care health professionals in the Palliative Care Service work within a consultancy framework across the whole health sector to support primary health service providers in urban and rural areas to provide quality palliative care [9]. Tasmania's supportive and palliative care strategy is underpinned by the subacute care component of the Council of Australian Governments National Partnership Agreement on Hospital and Health Workforce Reform.

Table 3 provides an overview of current treatment resources in Tasmania's cancer system.

Table 3: Tasmania's cancer treatment resources as at December 2009

	North	North West	South
Day oncology unit	12 chairs, 2 beds 5FTE nurses at LGH	9 chairs, 2 beds, 3 FTE nurses at NWRH Burnie, 8 chairs, 1 bed, 1.4 FTE nurses NWRH Mersey	15 chairs, 2 beds and 10 FTE nurses at RHH
Public inpatient beds	Ward 5D	Patients with cancer are cared for in general medical and surgical wards	Ward 1B South, 20 bed haematology/oncology ward
Private inpatient beds	Hardy Wilson Ward at St Lukes Hospital	Patients with cancer are cared for in general medical and surgical wards	Gibson Unit at Calvary Hospital
Radiation therapy	2 linear accelerators, funding allocated for a third machine in the North IGRT and IMRT capability High dose brachytherapy	N/A. Patients travel to Launceston	2 linear accelerators Superficial X-ray unit IGRT and IMRT capability Superficial x-ray unit Seed (low dose rate) brachytherapy available in the private sector
Diagnostic imaging	A full range of imaging including CT and MRI	General imaging services including CT	A full range of imaging including CT, MRI and PET (in the private sector and approved for installation in the public sector)
Pathology	The LGH provides a comprehensive range of services. Private sector services also available	Services are contracted in from the private sector	The RHH provides a comprehensive range of services. Private sector services also available
Surgical oncology	Most cancer surgery is performed in Tasmania. Major neurosurgery and thoracic surgery are only performed at the RHH and surgery for some tumours (e.g. sarcomas) is performed interstate.		
Medical oncology	Specialist medical oncologists practice in Hobart and Launceston and provide outreach consulting services to the North West in a private capacity.		
Malignant haematology	Specialist haematologists practice in Hobart and Launceston. Outreach services are provided to the North West in a private capacity.		
Bone marrow transplantation	There is a single state-wide service for autologous bone marrow transplantation, including a nurse coordinator, led from Hobart, with shared care arrangements with haematologists at the LGH. Allogeneic bone marrow transplantation is provided in interstate institutions.		
Palliative care	3 public and 3 private inpatient beds provided at St Luke's Hospital	"Hospice without walls"	10 public inpatient beds on Whittle ward. Private palliative care beds at Calvary Hospital
	Each regional palliative care service is integrated into the regional health service, reporting to a regional chief executive officer. There is a state-wide director of palliative care, but the position has no formal state-wide directive authority - rather, it is a policy advisory position.		

Non-government organisations

A number of non-government, community-based organisations make a key contribution to the care and wellbeing of Tasmanians with cancer, and their carers. Usually working from a volunteer base, these organisations often make a substantial contribution through a range of roles including:

- peer-based psychosocial support of people with cancer and their carers;
- fundraising and targeted investment to stimulate service development;
- provision of transport and/or accommodation;
- raising funds for cancer research;
- advocacy on behalf of people with cancer and their carers;
- provision of consumer-friendly information about cancer; and
- provision of a consumer voice on government bodies.

Trends in the provision of cancer care in Tasmania

Most people with cancer can access the range of services they require within Tasmania, although people suffering from a small number of rare cancers which require more specialised treatment may need to travel interstate.

A comprehensive analysis of data relating to a range of indicators of cancer treatment was undertaken in the development of this plan. A summary of the analysis is presented at **Attachment 5**.

The results of this analysis need to be interpreted with caution, however, because administrative practices relating to the admission of patients for cancer treatment differ between hospitals in Tasmania. Depending on local policies, patients receiving therapy for cancer may be recorded as admitted or non-admitted patients. Despite the differences suggested by these data, there is no significant differences in the incidence of cancer between the north and south of the state and no evidence to suggest different treatment practices beyond those which apply to a small number of state-wide services.

Stakeholder views of Tasmania's cancer system

Stakeholders identify many positive attributes of the Tasmanian cancer system including the range of treatment options available, the high level of medical consultant input into patient care; an increasing level of support for the concept of multidisciplinary care and a strong tradition of contribution to cancer services by non-governmental organisations.

Consumers, carers and providers identify the opportunity to improve services, however, by enhancing prevention, linking services more effectively, coordinating care better, providing a much higher level of supportive care and providing people with cancer with the opportunity to access multidisciplinary care across the care continuum.

The case for change

More Tasmanians are affected by cancer

The incidence of cancer is increasing and although more people die from cancer than from any other single cause, more people also survive for longer periods following treatment for cancer, sometimes with significant physical and/or psychological disabilities which are a consequence of the disease or its treatment. Cancer, therefore, is creating a growing burden in our community.

Cancer care is becoming more complex and challenging

Cancer care often involves a number of professional disciplines and many interventions carried out in different settings. It spans government, non-government and private sector services in different geographical settings funded from different sources. An increasing body of evidence suggests that health services for people with chronic illnesses such as cancer need to be organised to provide a more integrated, coordinated and patient-focused approach which crosses traditional organisational and professional boundaries. There is also a need to ensure equity of access to appropriate services at appropriate times during the course of an illness.

Community expectations are increasing

Expectations of the cancer prevention and care system are increasing, as people with cancer and their carers access information about the range and reported successes of available methods of treatment and support.

There is evidence of substantial opportunity for improvement

Although many elements necessary for treatment and care of people with cancer are in place in Tasmania, they do not yet work as an integrated system. Data on patient outcomes, particularly mortality, must be interpreted with extreme care because Tasmania has a small population and apparent differences in outcomes for Tasmanians compared with residents of other states are likely to not be statistically significant. Nevertheless, consultation and analysis of the current service system suggests the following range of opportunities to improve cancer prevention and care in Tasmania:

- There is a need to improve access to services across the continuum of care, including prevention, screening, diagnosis and treatment, particularly for residents of the North and North West of Tasmania and rural residents generally.
- There is a significant opportunity to improve coordination of services for people affected by cancer. This requires improvements in the way services are designed and in the links and referral processes between diverse service providers.
- Multidisciplinary care, which is recognised as best practice in cancer care, is not yet available for all Tasmanians. Further work is required to ensure the full range of multidisciplinary care, including broad ranging patient support and education programs, is available for all people affected by cancer.
- Ensuring an adequate health workforce in cancer care is a challenge that, if not addressed, will continue to impact on local access to services and the ability to provide multidisciplinary care.
- There is an opportunity to enhance the application of evidence to clinical practice through the adoption of national guidelines, patient management frameworks and clinical protocols in cancer care throughout the state.

- Improving access to data will facilitate continuous improvement.
- There is an opportunity to develop a stronger, more strategic state cancer research program.

Tasmania's Cancer Framework

Framework principles

The following principles were developed in consultation with a broad range of stakeholders and take into consideration the *National Service Improvement Framework for Cancer*. They represent guiding values and beliefs that underpin the Framework.

Principle 1 A multidisciplinary approach

Achieving optimal outcomes for all Tasmanians through a consistent multidisciplinary approach, implemented across the continuum of prevention and care and throughout the state

Principle 2 Integrated, quality care that meets the needs of consumers

Developing systems to support the delivery of patient-centred, coordinated and integrated care in accordance with evidence-based practice

Principle 3 Access, equity and diversity

Facilitating timely access to information and integrated high quality services by all Tasmanians, regardless of where they live or their social, physical or economic circumstances

Principle 4 A skilled and supported workforce

Providing the career pathways, educational and organisational supports and cultures to attract and retain appropriate numbers of highly skilled cancer professionals

Principle 5 Research and innovation

Fostering a culture that values innovation and promotes and supports research as a basis for the delivery of evidence-based care

Principle 6 Data and information to support decision-making

Establishing, maintaining and supporting high quality data collection and monitoring systems that support clinical decision-making, clinical governance and continuous improvement

Principle 7 An engaged and educated community

Enabling the community to engage meaningfully in cancer prevention and management, providing effective community education on the risk factors for cancer, promoting healthy behaviours and creating healthy environments to support behavioural change, early detection and participation in screening programs and supporting people who are living with cancer

Principle 8 A planned, flexible and adaptable system

Ensuring that the service system remains responsive to the needs of the community and the forces impacting on it through ongoing planning and review

Principle 9 Accountable and responsible stewardship and use of resources

Designing and managing the cancer service system so that it is sustainable across time and generations and complements the broader health service system

Framework elements

The Framework describes the core elements of the design, model of care and governance of a cohesive, integrated, state-wide system of cancer prevention and care that:

- draws on the best available evidence;
- responds to all elements of the cancer continuum of care;
- builds on national and international experiences of success and meets or exceeds international benchmarks of effectiveness;
- guides the future development of Tasmania's cancer services; and
- establishes the foundation for the Tasmanian Strategic Cancer Plan 2010-2013.

Service system design and resources	Model of care	Service system governance
<p>A strong foundation in health promotion and cancer prevention</p> <p>Evidence-based cancer screening systems that support high rates of participation</p> <p>A sustainable, regionally-based, well-resourced, strongly-led integrated cancer care system</p> <p>Research and innovation to support evidence-based care</p> <p>Workforce support through an integrated approach to training, recruitment and ongoing education and development</p>	<p>A contemporary model of care that incorporates:</p> <ul style="list-style-type: none"> • designated cancer streams of care, with agreed patient management frameworks which apply to the most common cancers, supported by agreed clinical practice guidelines • multidisciplinary care planning and delivery for all people with cancer • care coordination to help people navigate the complex health care system and support them through their journey • supportive care, with access to an appropriate range of health care professionals, across the continuum of care from diagnosis to survivorship or palliative care • palliative care, with early referral for all of those whose illness is assessed to be life-limiting 	<p>Consumer and community engagement</p> <p>Sound systems of credentialing and defining scope of clinical practice for professionals</p> <p>Role delineation of organisations</p> <p>Clinician engagement in system governance</p> <p>Data collection and monitoring of outcomes</p>

Linking the Cancer Framework and Strategic Cancer Plan

The Cancer Framework defines the desired elements of Tasmania's system for cancer prevention and care. Strengthening those elements will ensure that Tasmanians affected by cancer will receive the best possible care.

The challenge is to move from the current system for cancer prevention and care to one which incorporates all of the elements of the Framework and operates in accordance with the principles.

The analysis and consultation for this project resulted in agreement on a vision, mission, strategic objectives, strategies and actions that need to be completed over the next three years to develop Tasmania's cancer services so that they incorporate all of the Framework elements and support service delivery in accordance with the Framework principles.

The vision, mission, objectives, strategies and actions that resulted from this process constitute Tasmania's Strategic Cancer Plan, which is presented below.

Tasmania's Strategic Cancer Plan

The Strategic Cancer Plan comprises:

Vision

To reduce the impact of cancer on Tasmanians who are at risk of or affected by cancer

Mission

To provide high quality cancer services across the continuum of care, from prevention through to treatment, survivorship and palliative care for all Tasmanians

Objectives

Improving cancer prevention

Detecting cancers earlier

Creating an integrated and sustainable system

Providing a contemporary model of care

Ensuring a well-governed system

Objective 1 - Improving cancer prevention

It is estimated that a third of the ten million new cancer cases per year that occur around the world can be prevented by changes to human behaviours such as smoking, poor diet, lack of physical activity, obesity, excessive alcohol use, sun exposure and immunising against viral hepatitis B [10 p.xi]. Tobacco alone is responsible for 30% of all cancer deaths in developed countries and is identified by the World Health Organisation (WHO) as one of the highest priorities for prevention [10]. Physical inactivity is associated with some types of cancer e.g. colon and breast, and alcohol is now recognised as a carcinogen. Successful cancer prevention reduces the burden of disease on the community and associated costs and frees up resources for the diagnosis and treatment of those cancers that have not been prevented.

Internationally and nationally, there is evidence of significant and continuing social disparities in cancer incidence and outcomes [11-12]. It is clear that there is a strong link between the social determinants of health and cancer incidence and outcome.

Health promotion and cancer prevention are core elements of the Tasmanian Cancer Framework, building on previous work undertaken in Tasmania to ensure cancer prevention initiatives continue to be a priority. The ultimate prevention goal is that Tasmanians will incorporate healthy choices and practices into their everyday lives. This is a core goal of the vision articulated for Tasmania in *Tasmania Together*.

Tasmania is doing much to improve the conditions of everyday life of its community guided by the *Tasmanian Physical Activity Plan*, *Tasmanian Food and Nutrition Policy 2004*, *the Tobacco Action Plan*, *the Alcohol Action Plan* and *Working in Health Promoting Ways - A Health Promotion Strategic Framework for DHHS 2009-2011*. Through legislation, Tasmania has been a national leader in reducing exposure to cigarette smoke in public and indoor and outdoor work sites. Smoking prevention programs are also helping to raise awareness of the effects of tobacco use amongst Tasmanians, with a recent increase in investment in social marketing campaigns and cessation support services. The 2007-08 ABS National Health Survey recorded that 24.9% of Tasmanians are current smokers, down from 25.4% in 2004. However the 2007-08 national average was 20.8% and much remains to be done, particularly in relation to smoking by young adults and amongst lower socio-economic groups in Tasmania.

Tasmania is a signatory to the National Partnership Agreement on Preventive Health, which has been established to address the rising prevalence of lifestyle related chronic diseases, by:

- laying the foundations for healthy behaviours in the daily lives of Australians through social marketing efforts and the national roll out of programs supporting healthy lifestyles; and
- supporting these programs and the subsequent evolution of policy with the enabling infrastructure for evidence-based policy design and coordinated implementation.
- More is needed, focusing particularly on young Tasmanians and providing them with the tools and information they need to achieve lifelong health and wellbeing, and also ensuring that priorities for cancer prevention need to be developed in the context of the social determinants of health.

Health promotion and cancer prevention policies and strategies will be further developed in partnership with stakeholders including the Cancer Council of Tasmania and other non-government-organisations involved in cancer control, local governments, divisions of general practice and other government departments. The strategic objective of reducing the prevalence

of cancer through health promotion and cancer prevention will be achieved by focusing on areas such as:

- increasing awareness of cancer risk behaviours and promoting healthy lifestyle choices;
- reducing smoking rates, particularly amongst young people;
- continuing to promote sun protection programs;
- supporting vaccination programs for virus-causing cancers including improving the rates of human papillomavirus (HPV) vaccination
- facilitating research to support evidence-based health promotion and cancer prevention decisions; and
- enabling Tasmanians to understand and manage risks associated with environmental carcinogens.

A key element of effective cancer prevention is proactively managing the risks associated with familial cancers. There is a genetic basis for 5% to 10% of ovarian, breast and colorectal cancers. Detection of potentially-affected individuals and the subsequent screening of family members depend on the recognition of families at risk followed by appropriate contact with family members, provision of information and evidence-based investigation. Genetic Health Services Victoria delivers genetic services to Tasmanians through the Tasmanian Clinical Genetics Service (TCGS).

The Menzies Research Institute also has been awarded \$1.1 million in funding from the Australian Cancer Research Foundation to form the ACRF Tasmanian Inherited Cancer Centre which will be applied in a collaborative approach to enhance and expand genealogical resources and link them with cutting edge biomedical and genetic research. The grant also will enable a strong program of clinical research and studies of the ethical considerations which are intrinsic to this type of research, including privacy issues. The Centre will bring together a number of groups in Tasmania that are working on different aspects of cancer research including geneticists, biologists, clinicians and ethicists to enhance cooperation and build a world-class cancer genetics programme.

Objective 1 - improving cancer prevention	
Strategies	Actions
Invest in effective community support programs	Continue implementation of the tobacco action plan and the Tasmanian food and nutrition policy. Establish, monitor and report against regional targets for the percentage of clients who receive a brief smoking cessation intervention. Continue to implement the National Partnership Agreement on Preventive Health. Monitor and evaluate the effectiveness of all interventions designed to reduce the impact of cancer on Tasmanians.
Develop research capacity in inherited cancers	Review inherited cancer research programs to ensure adequacy of resources and effectiveness.

Objective 2 - Detecting cancers earlier

It is estimated that up to one third of new cancers are amendable to early detection and therefore prompt treatment [10 p.xi].

General practitioners are often the first health care professionals consulted by people who have signs or symptoms of cancer. A number of strategies are underway in Tasmania to enhance integration of general practice with other community- and hospital-based service provision. Active engagement of general practitioners will be a critical success factor for many of the strategies and actions proposed in this plan.

Screening programs that lead to early detection can improve survival rates and quality of life and reduce the need for and costs of treatment of advanced disease. The three national cancer screening programs in Australia are for breast, cervical and colorectal cancer. The death rates related to these cancers have decreased significantly since these programs were introduced (p.viii [7]). To improve early detection rates across the state, Tasmania has been an active partner in these national screening programs.

Tasmanians have had reasonable participation rates in cancer screening programs (Table 4), but BreastScreen participation levels remain well short of the recommended 70% (in the 50 – 69 years age group) to maximise the public health benefits. National and international workforce shortages have led to recruitment difficulties for radiographers and radiologists. Resources are required to enhance services (e.g. evening clinics) to increase accessibility and meet some accreditation standards.

Prompt access to diagnostic services for Tasmanian's who have received a positive result from a screening program or who have experienced symptoms of cancer is critical if cancers are to be detected early and managed effectively. Medical imaging and pathology services are critical to timely diagnosis. Maintaining access to colonoscopy services to complete the diagnostic process following a positive faecal occult blood test has been challenging in Tasmania and waiting lists and times in the public sector are increasing.

Table 4: Participation in screening programs, Tasmania and Australia, 1996-2006

		Tasmania (% and 95% CI)	Australia (% and 95% CI)
National cervical screening program	1996-97	63.3 (62.8-63.7)	61 (60.9-61.1)
	2003-04	62 (61.5-62.4)	60.7 (60.6-60.7)
	2005-06	62.4 (62.0-62.8)	60.6 (60.6-60.7)
BreastScreen Australia	1999-2000	59.8 (59.1-60.5)	55.9 (55.8-56.0)
	2002-03	59 (58.3-59.6)	56.2 (56.1-56.3)
	2004-05	57.6 (56.9-58.2)	56.2 (56.1-56.3)

Tasmania needs to maintain and improve its participation in national cancer screening programs as well as provide the health services necessary to provide follow up diagnosis and treatment.

Objective 2 - detecting cancers earlier	
Strategies	Actions
Increase effectiveness of screening programs	Review resources allocated to cancer screening programs. Explore options for workforce diversification and enhancing access to BreastScreen clinics. Establish, monitor and report against state and regional targets for participation in bowel, breast and cervical cancer screening programs in accordance with program guidelines. Increase education for the public and primary health care providers about the importance of cancer screening. Develop tools, resources and information to support referral to cancer screening programs.
Ensure timely access to diagnostic procedures	Review access to colonoscopy and ensure sufficient investment to support the Australian bowel cancer screening program. Monitor and ensure appropriate access to medical imaging and pathology services.

Objective 3 - Creating an integrated and sustainable system

A role delineation model for Tasmania

Role delineation has been defined as a process to determine the scope and level of specialisation or complexity of hospital services on the basis of qualifications of the clinical workforce, support services (i.e. emergency, intensive care) and relevant safety standards [13]. The World Health Organisation (WHO) provides guidance to governments on the infrastructure and workforce requirements for different phases of the patient cancer journey [10].

When defining the level of complexity and specialty of the cancer services provided across the health service system, consideration needs to be given the range of factors listed below.

- Hospital infrastructure and equipment including the availability of core services (i.e. emergency and surgical) and support services (i.e. diagnostic radiology, pathology, pharmacy, and intensive care) [13].
- The skills and experience of resident medical, nursing and allied health professionals [14].
- The number of medical specialists. For example, unless very well supported by colleagues in larger centres, solo-practice for medical specialists is difficult to sustain if it means continuous on-call, high workloads, lack of locums to cover leave, and lack of access to specialists in other fields of relevance for peer support and second opinions [14].
- The volume of surgery undertaken by the surgeon and the hospital. The evidence points to a positive relationship between volume of surgery undertaken by surgeons and hospitals, and the outcomes for patients both in terms of operative mortality and long term survival [15-17]. This relationship is particularly evident in technically complex cancer operations such as oesophagectomy, liver resection and prostatectomy [16].
- Catchment population size and characteristics and service profile such as the presence of supportive health and community services, social networks and infrastructure, travel distances, the cultural and linguistic profile and incidence of specific diseases such as various forms of cancer (e.g. asbestos related), cardiac disease, chronic lung disease, or HIV/AIDS [14 p.44].
- The capital costs of highly technical equipment (i.e. radiotherapy), the technical skills required to operate it [10] and the capacity for this to be delivered in an outreach model [e.g. radiotherapy single machine (linear accelerator) units] [8].

Outreach services supported by telehealth technology, formal partnerships between rural centres and comprehensive cancer care centres, local social support networks and visiting specialist programs can be developed to improve access to services for people living in outlying areas. Outreach provision of medical specialist services is possible where there are other related specialist services, appropriately skilled resident medical, nursing and allied health professionals, supportive hospital facilities and infrastructure, links to supportive specialists in larger health services, good transport systems and infrastructure and support services [14]. Support services such as some elements of pathology may be provided off site if this does not compromise patient safety [13].

In most cancer systems, the most specialised services are provided in centres in which all modalities of cancer treatment are available. Such centres are variously called integrated or

comprehensive cancer centres. It should be noted, however, that the term 'comprehensive cancer centre', was first used by the United States of America National Cancer Institute (NCI) in 1973, when it published information and guidelines for the Cancer Centre Support Grant, which had been approved in principle by the National Cancer Advisory Board. The term has a special meaning in North America - described in **Attachment 6**. To avoid confusion, it is recommended that the term 'comprehensive cancer care centre' is used in Tasmania to describe the two centres in which all clinical modalities of cancer care are provided.

Tasmania's Clinical Services Plan 2007 proposed the development of a six-level model for the delivery of cancer services ranging from prevention and screening through to super speciality services. This model has been further developed in consultation with key stakeholders and is summarised in Table 5 below, which defines the different levels of services to be provided in Tasmania and the nature and location of those services.

Table 5: Delineation of levels of cancer services, Tasmania

Service	Nature of service	Location of service and links
Single site, state-wide and interstate services	• Gynaecology oncology	Single site at RHH, outreach to LGH
	• Autologous bone marrow transplantation	State-wide based at RHH
	• Radiation oncology - brachytherapy	Single site at LGH (all public services)
	• Paediatric and adolescent oncology	State-wide based at RHH
	• Central nervous system tumours	Single site at RHH
	• Thoracic cancer surgery	Single site at RHH
Comprehensive cancer care centres	• High-level, specialised cancer care across the range of treatment modalities (surgery, medical oncology, haematology, radiation oncology)	There will be 2 publicly managed comprehensive cancer care centres: <ul style="list-style-type: none"> • Northern at LGH • Southern at RHH
	• Provision of core cancer services plus speciality services in addition to the provision of some super speciality services	
Sub-regional cancer services	• Affiliated with a comprehensive cancer care centre	Services affiliated with comprehensive cancer care centres in the North and South
	• Site generally will be a major health facility	North West Regional Hospital (NWRH) for selected services
	• Services for less complex cancer cases than are managed in a comprehensive cancer care service, or contribute a specific component of cancer care (e.g. surgery or chemotherapy) in partnership with a comprehensive cancer service	Private hospital services in Hobart, Launceston and Burnie

Service	Nature of service	Location of service and links
Local community cancer services	<ul style="list-style-type: none"> • Affiliated with a comprehensive cancer care centre • May also be affiliated with sub-regional cancer services • Site may be a primary care service • Basic cancer care only or offer inreach/ outreach services for the community • Access to supportive services with specialist advice from a comprehensive cancer care centre 	Services affiliated with comprehensive cancer care centres in the North and South (i.e. community hospitals and multipurpose services)
Supportive services	Basic supportive care provided by general practitioners with or without the assistance of other health care professionals dependent on patient need.	Links with regional oncology, palliative care and pain management services.
Population based services	Population screening programmes, primary health care, general practice, other community services and population-based education and prevention	Links with all levels of cancer services

Tasmania's comprehensive cancer care centres

In Tasmania, there are two major 'hubs' based at the LGH (in the Northern Area Health Service) and the RHH (in the Southern Area Health Service) for the planning and delivery of clinical cancer care. Each centre provides surgical, medical, haematological and radiation oncology services, education and research. These centres are the hubs of publicly-funded and operated cancer services in Tasmania. For the purposes of the Framework, they are called comprehensive cancer care centres. It should be noted, however, that oncology services are not physically integrated within the RHH.

Cancer services in the north west

The communities of the north west of Tasmania are dispersed but because the population is relatively large significant benefits would be gained from providing cancer services to these communities from the larger population centres of Burnie or Devonport.

The current arrangement whereby clinicians from Hobart together with clinicians from Launceston visit and support the north west region has been extremely helpful and valued, but in the longer term the Northern Area Health Service needs to be supported to attract sufficient staff to enable it to:

- provide sustainable, integrated cancer outreach services to the North West where these can be provided safely and the volumes of activity support quality service provision;
- provide systematic, ongoing support and back up to oncology nursing staff and medical staff in the North West, who are relatively isolated; and
- support the natural referral pathways from the north west to the north of the state.

This arrangement is consistent with proposals in *Tasmania's Clinical Services Plan 2007*.

Support for rural and remote communities

Cancer treatment is time-consuming and can be extremely taxing for people receiving treatment and for those who care for them. Care is mainly delivered on a non-admitted patient basis but both chemotherapy and radiation therapy may require frequent attendance over prolonged periods. For example, radiation therapy as a component of treatment for breast cancer often requires a person to attend treatment five days a week for several weeks.

People who live in rural and remote communities may have the added burden of travel and time away from home. Evidence consistently shows that people with cancer who live in rural and remote communities have significantly higher morbidity and mortality rates compared to people with similar diagnoses living in the major metropolitan centres. There is evidence that they are diagnosed at a later stage than their urban counterparts, experience delays in treatment and care processes and poorer continuity of care after surgery and are more likely to die from cancers such as lung, cervical and uterine cancer the further they are located from large cities [18 p.136, 19]. Specific indicators of reduced access to cancer care services in rural and remote Australia include poorer quality diagnostic equipment, delayed staging and treatment of prostate cancer, less breast-conserving surgery and an apparently lower probability of completing treatment when referred for radiotherapy for rectal cancer.

About 60% of Tasmanians live outside the capital city. There are anecdotal reports that people from some areas of the state, for example the north west, may be reluctant or unable to relocate to a regional centre to receive recommended treatment. Potential inequities of service need to be identified and rectified as a priority. Clearly, the system should strive to ensure that services are available to people no matter where they live.

There are a number of government funded initiatives across Australia that provide support for travel and accommodation [20]. Non-government organisations such as Cancer Council Tasmania provide an invaluable service - its transport2treatment initiative involved more than 4,000 patient trips in 2008/09.

Following a comprehensive review of patient transport and accommodation, the Tasmanian Government is substantially increasing subsidies for patient travel and for health-related accommodation for patients and carer. It has confirmed its commitment to uniformity of patient transport services including community transport and the travel assistance scheme across the State, is investing in patient accommodation upgrades in Launceston and Hobart, and has announced its intention to provide more accommodation options in Burnie.

Access to highly specialised cancer services

Paediatric patients with cancer are treated in Tasmania under a shared care model led by a paediatric oncologist based at the RHH, in collaboration with Melbourne's Royal Children's Hospital (RCH). Where possible, treatments are administered locally in accordance with state-wide protocols agreed with the RCH. This is a well-designed model that enables high quality treatment as close to home as possible.

There are no specific services for adolescents and young adults at present. This group of patients has been shown to be significantly disadvantaged in terms of outcomes of cancer care. Cancer incidence is increasing in adolescents and young adults and mortality rates have been slow to decline [21]. Tasmania is seeking to develop its services for adolescents and young adults in collaboration with Melbourne's Peter MacCallum Cancer Centre. This initiative should be supported strongly.

Some cancer services in Tasmania can only be provided from a single site, because patient numbers and/or clinician numbers are small. For example, neurosurgery and thoracic surgery are only provided in Hobart and, for the foreseeable future, this arrangement should continue. Patients travelling from other areas of Tasmania to access these services may need special support in relation to transport, accommodation and scheduling of appointments. The availability of care coordinators, as proposed in this framework and plan, should substantially improve their experience.

Gynaecological oncology is provided by a specialist based at the RHH who historically has provided outreach consulting services to the LGH. This service requires the appointment of an additional sub-specialist practitioner to assure sustainability.

A small number of patients with rare and complex cancers (e.g. sarcomas) are referred out-of-state for specialist care. This practice should continue, although it needs to be recognised that these patients require significant psychosocial support and may benefit from specific care coordination initiatives.

The Tasmanian Cancer Clinical Network

The development of state-wide clinical networks for key services was proposed in Tasmania's Health Plan as a strategy to strengthen clinical governance.

“Cancer Networks are partnerships of organisations (both statutory and voluntary) working to secure the effective planning, delivery and monitoring of cancer services, including those for supportive and palliative care. They provide the framework for developing high quality services by bringing together relevant health and social care professionals, service users and managers” [4 p.5].

The Department is developing a state-wide cancer clinical network. This project has been supported by a clinical leader, a project team, a steering committee and advisory group representative of all stakeholders.

The formation of the Tasmanian Cancer Clinical Network will build on the work and roles already supported under the Tasmanian CanNET initiative and will be underpinned by the following objectives:

- Improving the collaboration, integration and coordination of services across organisational and professional boundaries, and across the cancer care continuum.
- Establishing agreed referral pathways including agreements and guidelines to link with interstate multidisciplinary teams for rare cancers.
- Ensuring that those affected by cancer are central to the establishment of and become an integral part of the network.
- Establishing linked groups of health professionals and organisations from primary, secondary and tertiary care, working in a coordinated manner, unconstrained by existing professional and organisational boundaries to ensure equitable provision of high quality effective services.
- Ensuring ongoing quality assurance, service and role redesign.
- Ensuring cancer care is based on current evidence and best practice by driving the development and adoption of evidence-based protocols and patient management frameworks.

- Linking with the private sector, non-government sector, education providers, research institutions and the Department.

The Tasmanian Cancer Clinical Network will drive the adoption of a cancer stream approach to cancer prevention and management. The rationale behind the concept of organ- or system-specific cancer streams of care is that an evidence-based, consistent approach to cancer care for a particular category of cancer will reduce unacceptable variations in care. Cancer streams of care provide both a basis for:

- agreeing on the most appropriate approach to treatment for different cancer types; and
- defining a management and governance framework that ensures appropriate, high quality care is delivered to all people with the particular type of cancer.

The operation of cancer streams of care is based on agreed treatment protocols, monitoring of best practice, identifying areas for service improvement, implementing system change to support system improvement and evaluating the impact of service improvement. As discussed, at the core of the Framework is the development and adoption of a set of evidence-based patient management frameworks and specific standards of care for the ten most frequently-occurring cancers in Tasmania, to facilitate the most appropriate provision of care.

The Tasmanian Cancer Clinical Network will span the primary, secondary and tertiary sectors. It will demonstrate critical sectoral leadership and advise the Department on diverse issues including policy, planning, governance, training of health professionals and service quality [9].

The network should have the additional role of monitoring and assessing the performance of the cancer care system in Tasmania, to enable it to base its advice and actions on sound information about system performance, gaps and opportunities.

In addition, to ensure a strong chain of leadership throughout the system, there needs to be an identifiable cancer focus within the Department which is sufficiently resourced to lead the development and implementation of state-wide cancer policy and strategy, including ensuring adequate resourcing of cancer services. This cancer unit within the Department should work closely with the Tasmanian Cancer Clinical Network. This investment is necessary and justified to oversee and support a clinical area as large and complex as cancer prevention and care.

The cancer system in Tasmania, therefore, needs to have organisational and regional elements, have a clear direction and commitment to development by the Department and be underpinned by a state-wide cancer clinical network that has significant leadership and monitoring roles and a highly influential advisory role.

Because the Tasmanian cancer system is relatively small it would benefit from links with externally-recognised experts. Some of these links are already in place, for example through the Royal Children's Hospital and the Peter MacCallum Cancer Centre in Melbourne, but the development, through the Tasmanian Cancer Clinical Network, of additional strong links to externally-recognised experts would be of great benefit to Tasmanians affected by cancer.

Local and regional integration of cancer services

According to the WHO (2002)

Cancer control programme(s) should be integrated into, and collaborate with, existing healthcare systems, both public and private, at the different levels of care, including hospitals, and primary health care clinics. The programme cannot, however, be run exclusively within any one of these levels, since activities will be concerned with different levels, or sometimes a combination of levels [10 p.136].

The Tasmanian public health care system recently was restructured from a program-based to a geographically-based system of care. State-funded and operated services spanning primary, secondary and tertiary care are now managed through three regional management structures (in the north, north west and south) creating opportunities to better integrate services and resources funded and provided by the state across primary, secondary and tertiary care.

This strategic plan offers a number of strategies and actions to improve integration of publicly-funded and provided services:

- within and between area health services; and
- between the public and private sectors.

Cancer care services are physically and organisationally well-integrated at the LGH but there are significant opportunities to improve service integration across the Northern Area Health Service and between the North West and Northern Area Health Services. In the south, there is an intention to redevelop the RHH capital stock over time and an opportunity may arise during that process to physically collocate oncology services - a key strategy in modern oncology services to promote integrated multidisciplinary care.

Private sector services are provided by a number of clinicians across a number of facilities in all three regions. There is no formal organisational system for cancer care in the private sector in Tasmania, or between the private and public sectors.

There is considerable informal and some semi-formal interaction between specialist clinicians from across the state, for example:

- Clinicians from both Hobart and Launceston visit the North West regularly. Where possible they work together in joint clinics.
- There is a state-wide radiation oncology forum held monthly with a focus on service planning.
- There are hospital-based joint clinics between medical and radiation oncology.
- There is a state-wide haematology/bone marrow transplantation meeting.
- There are evolving multidisciplinary team meetings in various disciplines, as resources become available.

There is not, however, a structural framework that draws cancer services in Tasmania into a coherent system across geographic regions, spanning the public, private and non-government sectors.

All Tasmanians affected by cancer, regardless of where they enter the cancer system, how their care is funded or the location in which their care is provided, should be confident that their care is integrated and coordinated across the public and private sectors, duplication and gaps are avoided and their movement through the care system is supported and made as easy as possible. The cancer care system should be planned, designed and operated to ensure those in need have equitable and timely access to cancer treatment and information and supportive and end-of-life care. Integration between health and community services, and collaboration between the health professionals responsible for delivering cancer care are integral to ensuring quality cancer care. A collaborative and coordinated approach to strategic and service planning and development across the integrated service systems that involve consumers is also required.

Integrated cancer services (ICS) have been established in a number of Australian jurisdictions over the last 5 years, including Victoria, WA and SA. The philosophy of an integrated cancer service is that hospitals (both public and private) and primary and community health services develop integrated care and defined referral pathways for the populations they serve. This requires effective collaboration between hospitals and community-based services, including general practitioners, and between public and private providers. It promotes more effective local coordination of care for cancer patients, and a more rational, evidence-based approach to cancer service planning and delivery [22].

Health, community and primary care services will be supported to operate within an integrated cancer service model in the south and north/north west of Tasmania. The inclusion of the private sector in the ICS is important, recognising its substantial role in cancer diagnosis and medical treatment and noting that in some states 50% of cancer surgery is undertaken in the private sector [23-24].

The Southern ICS will comprise the RHH comprehensive cancer care centre, surrounding district and private hospitals, multi-purpose services and centres and primary and community care services involved in the cancer continuum. RHH is the major tertiary referral hospital for the State, and most single site and state-wide services should continue to be provided by it because of its capital city location, level of infrastructure, associated services and access to important non-health organisations. The pathways of care for highly complex and rare cancers will continue to be to interstate tertiary centres.

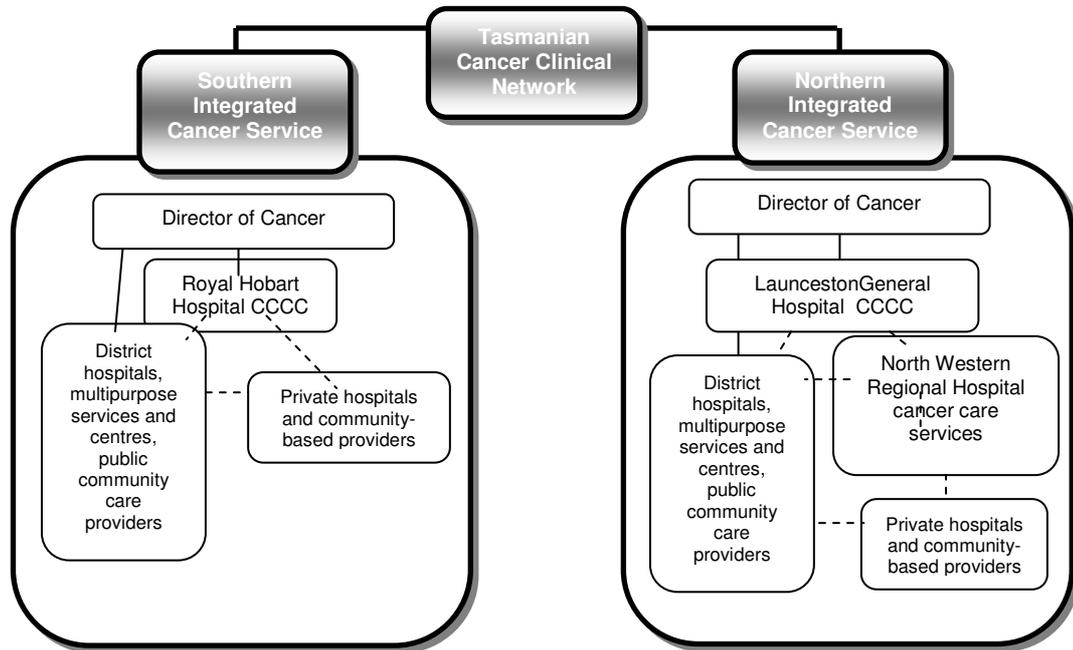
Tasmania's Clinical Services Plan 2007 envisaged that residents of the north west of the state will be referred to Launceston for care which cannot be provided locally, and that the Northern Area Health Service would formally adopt a support role for the North West Area Health Service and the region generally, providing outreach services where necessary to support local providers to provide care as close to home as possible. The Northern ICS will comprise a service delivery partnership between the Northern Area Health Service including the LGH comprehensive cancer care centre, the North West Area Health Service, private hospitals and community-based providers.

The small size and population of Tasmania means that infrastructure needs to be maintained at an efficient and manageable size. Governance infrastructure to support the integration of cancer services will build on existing relationships and networking roles and process as follows [23, 25]:

- A Director of Cancer should be appointed by the Southern Area Health Service. This individual should be responsible for operational leadership of cancer services for the RHH comprehensive cancer care centre and for the Southern Area Health Service and medical leadership of the ICS including cross-sectoral regional clinical leadership and advising the Tasmanian Cancer Clinical Network on strategy, policy and service performance and sufficiency.
- The role of the Director of Cancer in the Northern Area Health Service, which currently includes provision of operational leadership of cancer services for the LGH comprehensive cancer care centre, should be expanded to include medical leadership of cancer services in the Northern Area Health Service and of the Northern ICS. This role, like that in the south, also should include cross-sectoral regional clinical leadership and advising the Cancer Clinical Network on strategy, policy and service performance and sufficiency.

- An ICS Network Group for each of the Southern and the Northern ICS should oversee the activities of each ICS. These groups should be sub-committees of the Tasmanian Cancer Clinical Network which is discussed below. This relationship is illustrated in Figure 9.
- The Tasmanian Cancer Clinical Network should support each ICS to plan and monitor service delivery across their geographic and sectoral boundaries, as a component of the overall planning and monitoring role of the network.
- Systems and processes to support multidisciplinary care should be implemented at a regional and state-wide level, including using video-conferencing between professionals across each ICS and between the ICS.
- Policies and protocols should be established across each ICS to ensure care coordination across each ICS and between the ICS.
- Systems should be established to support consistent and accurate information flow across services in each ICS and between ICS to support consumers and carers in their journey. Ideally, there will be one Tasmanian medical record for cancer patients, at least within the public sector.
- Mechanisms should be established to monitor and improve the quality, safety and consistency of care and referral pathways at an ICS and state-wide level.
- Each ICS and the Tasmanian Cancer Clinical Network should establish active and sustainable links with non-government organisations including Cancer Council Tasmania, to enable shared activities including planning and monitoring of the service system between government, private and non-government sectors.

Figure 8: Southern and Northern ICS



Seamless transfer of information

The cancer treatment journey is complex and challenging. It is common for people with cancer to be seen by many health professionals within and across multiple health services and across different health sectors including public, private and community health in both metropolitan and rural regions. Moreover, people with cancer need care over long periods of time – in some cases for many years. People should be able to move from one phase of their cancer journey to the next seamlessly, and with the assurance that the health professionals planning and delivering this care are fully aware of the interventions of other health professionals involved in the patient’s care.

Sharing patient information between health professionals involved in the care and treatment of a person with cancer is critically important for complete and seamless care. Effective communication and information sharing between health professionals is a core element of interdisciplinary practice. This approach to practice ensures that every member of the patient’s cancer team has the most up-to-date information about the person and that follow-up with the person and other health professionals becomes a standard part of the process [26].

The transfer of patient information between one provider and another and between care events is important at a number of levels. The process by which information is shared is equally important to the content of the information shared and both need to be considered carefully during the development of improved care coordination recommended by this framework. To this end, a number of projects have commenced in Tasmania including the development of a consumer information portal, strategies for promoting telemedicine, the development of a provider information exchange hub, the development of an electronic cancer record and a state-wide cancer database.

The potential for specialists and clinicians to network, share examples of best practice and provide advice and guidance to their colleagues should be actively pursued.

Telemedicine offers new opportunities for improving access to diagnostic services, sharing specialist knowledge and expertise among clinicians and providing the opportunity for health

care professionals to update knowledge, skills and expertise. A number of states have invested heavily in establishing effective video-conferencing facilities that link the multi-disciplinary team across organisations with each other and with their patients [6, 23, 27]. This technology is fundamental to ensuring the cancer system can respond appropriately to the needs of rural communities, and will become even more important as specialist workforce shortages increase.

System capacity

Because Tasmania is a small state with a disparate population and, in relative terms, limited cancer infrastructure, incremental changes in key infrastructure (human or capital) are likely to create relative inequities in access. It will be very important for the north and south to continue to work together to manage planned as well as unexpected increases in demand and to assist each other to manage staff leave and turnover in critical areas.

The radiotherapy utilisation rate is the proportion of a defined population of patients with a notifiable cancer that receives radiotherapy during their lifetime. Victoria has assumed a utilisation rate of 52.3% of all new cancers requiring radiotherapy. Nationally and internationally, utilisation rates around 50% have been assumed.

Table 6, which is based on the Menzies Research Institute cancer incidence and mortality report, shows the proportion of people with cancer who are referred for radiation therapy in Tasmania.

Table 6: Proportion of people with cancer referred for radiation therapy

Year	Referred	Incidence	% referred
1996	809	2,200	37%
1997	794	2,082	38%
1998	913	2,126	43%
1999	934	2,235	42%
2000	920	2,263	41%
2001	914	2,426	38%
2002	995	2,534	39%
2003	987	2,441	40%
2004	1,143	2,472	46%
2005	1,124	2,737	41%
2006	1,185	2,814	42%

As noted earlier in this report, a small increase in the underlying cancer incidence rate is expected but the most significant influence on the number of persons diagnosed with cancer will be population ageing. Nationally, on a base of 100,000 new cases of cancer diagnosed in 2005, an extra 3,000 cases per year are expected between 2006 and 2010 [1].

In Tasmania, the number of people diagnosed with cancer increased annually by more than 3% between 2000 and 2006. It is difficult to confidently predict a trend for future cancer incidence so it can be useful to consider a range of growth rates for cancer incidence.

- If a 2.5% annual increase in cancer incidence is assumed from 2006, by 2011 there will be approximately 3,200 new cases of cancer per year and by 2016 approximately 3,600 new cases would be expected.
- If a 3.5% annual increase is assumed, in 2011 there will be approximately 3,300 Tasmanians diagnosed with cancer and in 2016 there will be approximately 4,000 Tasmanians diagnosed with cancer.

- If a 52.3% treatment rate is achieved, approximately 1,700 new patients will require radiotherapy for cancer in 2011, and approximately 2,000 new patients will require radiotherapy for cancer in 2016.

It is therefore likely that additional linear accelerators will be required, over time, in Tasmania. The location of these new machines should be carefully considered on the basis of demand at the time, which will reflect the rate of referral for radiation oncology as well as population and cancer incidence changes.

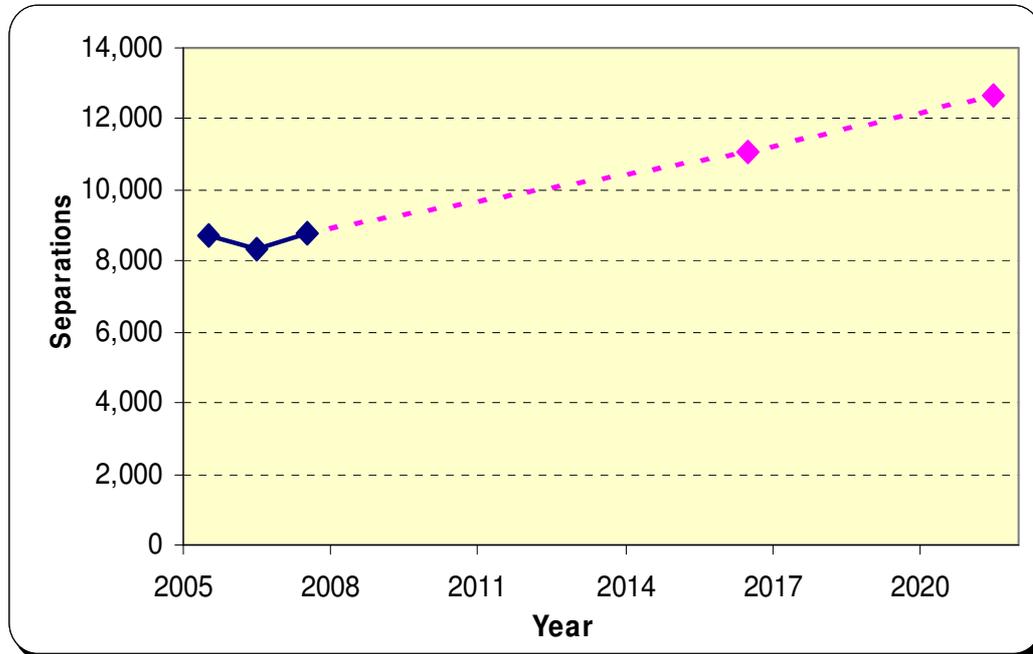
The Launceston service, with three linear accelerators will have a sufficient critical mass of clinicians and support staff for them to sustainably support a remote single machine unit should the clinical demand data support this.

Projections of the overall number of beds and other facilities that are likely to be required across the system are based on an analysis of current patient flow patterns, self-sufficiency levels and hospital service profiles³. Assumptions are made about changes in service profiles and patient flows to predict the resources that will be required in each of Tasmania's public acute hospitals in the future, as each of the hospital's roles and referral populations changes. If current patient flow patterns, self-sufficiency and hospital service profiles remain constant, population growth and ageing are the main factors that will influence future hospital service requirements.

³ Projection datasets for this project were developed for the Department by Harges and Associates, January 2008.

Planning on this basis demonstrates that there will be a steady increase over the coming years in admissions to Tasmania's public acute hospitals (Figure 10).

Figure 10: Projected Tasmanian in-patient cancer admissions



In the next decade, multi-day and same-day beds required for cancer admissions are estimated to increase by over 48 and 4, respectively (Table 10). The cancer streams projected to have the greatest increase in bed requirements are haematology, lung, central nervous system and genitourinary.

Table 10: Estimated beds by cancer stream type

Cancer Stream	2007-08		2021-22		Difference	
	Same day 'beds'	Multi day beds	Same day 'beds'	Multi day beds	Same day 'beds'	Multi day beds
Breast	1.7	6.0	1.8	8.0	0.2	2.0
CNS	0.1	4.3	0.3	9.2	0.2	4.9
Colo rectal	1.5	19.6	1.8	21.9	0.3	2.3
Genitourinary	1.4	12.2	2.9	16.7	1.5	4.5
Gynaecology	0.4	4.1	0.5	6.8	0.1	2.7
Haematology	3.7	23.4	6.1	41.4	2.4	18.0
Head and neck	1.4	4.0	0.6	4.7	-0.8	0.7
Lung	1.1	13.5	1.1	20.8	0.0	7.3
Other	0.8	6.2	1.0	6.6	0.2	0.3
Skin	3.7	5.6	3.7	8.3	-0.0	2.8
Upper GI	1.0	10.7	1.0	13.5	-0.0	2.8
Total	16.8	109.8	20.9	158.0	4.1	48.2

Table 11 indicates that RHH demand is projected to increase by 24 multi-day and 1.5 same-day beds and LGH demand by 20 multi-day and 2.2 same-day beds.

Table 11: Calculated cancer beds by hospital

Campus	2007-08		2021-22		Difference	
	Same day 'beds'	Multi day beds	Same day 'beds'	Multi day beds	Same day 'beds'	Multi day beds
Burnie	0.7	11.3	1.0	13.1	0.2	1.7
Mersey	0.9	7.7	1.1	10.8	0.2	3.0
LGH	3.2	38.2	5.3	57.8	2.2	19.6
RHH	12.0	52.5	13.6	76.4	1.5	23.8
Grand Total	16.8	109.8	20.9	158.0	4.1	48.2

Tasmania's cancer workforce

A skilled and committed workforce needs to be recruited and retained to enable provision of care across all stages of the cancer continuum from prevention through to survivorship and palliative care. The importance of providing multi-disciplinary care for all people with cancer across the continuum of care is a key element of this Framework.

Key principles for the cancer workforce include:

- The distribution of the cancer workforce should take into account the need to form sustainable teams with sufficient clinical exposure to maintain skills, as well as the objective of achieving locally-accessible services.
- Guidelines and standards including those for cancer care coordinators and multi-disciplinary teams must be available at any site of cancer care, with accreditation based on these standards. Accreditation of multi-disciplinary teams is recommended through the tumour streams to ensure consistent standards of care across the state.
- Flexible approaches will assist in attracting and retaining a skilled workforce.
- Multi-disciplinary care includes diagnostic specialists, surgical oncologists, radiation oncologists, medical oncologists, haematologists, other medical specialists, general practitioners, oncology nurses, radiation therapists, medical physicists, psychologists, social workers, specialist dietitians, pharmacists and other allied health professionals.

The medical specialist workforce

Catchment population is used as a proxy for demand and the thresholds to sustain medical specialist services are defined by the Specialist Colleges (i.e. College of Emergency Medicine; Royal Australasian College of Surgeons; Joint Faculty of Intensive Care Medicine).

Catchments of less than 20,000 to 30,000 are considered too small to sustain resident cancer specialists, apart from general surgery [14]. On this basis, medical specialist can only be appropriately supported in the three large health services across Tasmania.

The relevant specialist medical colleges define a population catchment requirement of 100,000-120,000 to sustain a viable resident service in haematology, 80,000 to sustain a viable resident service in medical oncology and 320,000 to sustain a viable resident service in radiation oncology (noting that the specialty is not practised by single specialists) [14]. For palliative medicine the recommended population catchment is between 50,000 and 80,000.

A population catchment of between 10,000 and 20,000 is considered necessary for a viable outreach service in palliative medicine and between 20,000 and 40,000 for haematology and medical oncology.

In 2001 the average specialist:population ratios applied in Australia were 0.9 per 100,000 for medical oncology, 0.8 per 100,000 for clinical haematology and 0.9 per 100,000 for radiation oncology.

In smaller jurisdictions, recommended specialist:population ratios may need modification because of the following factors:

- Frequency of on-call commitments.
- Professional isolation, requiring clinicians to attend update meetings/conferences to be able to discuss new issues with colleagues and maintain professional development.
- Administrative burden due to lack of dedicated administrative staff (who may be available in a larger unit).
- Additional burden of teaching and committee meetings that cannot be shared among colleagues.
- Lack of training registrars or junior staff experienced in haematology.
- Requirement to cover junior staff on leave who would be covered by another resident in a larger hospital.

Table 7 presents the current medical workforce profile for clinicians involved in the direct provision of cancer care.

Table 7: The current cancer medical workforce by region

	North	North West	South
Medical oncologists/ Haemoncologist ⁴	2 FTE medical oncologist 2 FTE haemoncologist Total 4 FTE	Visiting service from Hobart private practitioner one day per month	6 FTE (2 providing some haematology & 2 FTE in full time private practice) 0.3 FTE VMO, 0.2 FTE provided by laboratory haematologist, 0.1-0.2 FTE provided by dual-trained physicians Total 4.7 FTE
Radiation oncologists	3 FTE (2 FTE with combined public/private practices & 1 FTE public only staff specialist)	Visiting consulting service from Launceston	3 FTE (all with combined public/private practices)
Palliative care physicians	2 FTE	1 position (currently vacant)	3 FTE
Registrar training positions	1 advanced trainee in radiation oncology 1 advanced trainee in medical oncology, accreditation currently lapsed		1 advanced trainee in medical oncology 2 advanced trainees in haematology 1 accredited radiation oncology trainee

There are shortages in a number of specialty areas in Tasmania, in particular in haemoncology in both Launceston and Hobart and medical oncology in Launceston. Both the north and south of the state should have a minimum of 3 medical oncologists and 2 haemoncologists. Efforts need to continue to be made to recruit to these critical positions.

The existing cancer services in the north and north west rely heavily on a very small number of medical specialists with little support from advanced trainees or cancer care coordinators. Changes in availability of an individual medical practitioner have the potential to impact on the cancer service delivery capacity of the north and north west, and have done in the past.

It is important, therefore to recruit sufficient numbers of specialists to improve the sustainability of services in the north and north west. To meet demand for services into the future, ensure sustainability and robustness of the service to workforce changes and provide the support

⁴ While both haemoncologist and medical oncologists are cancer specialists, the former focus on haematological cancer and the latter on solid tumours. However, some oncologists practise in haemoncology and some haematologists practise in oncology. In view of this overlap, and the added fact that haematologists spend approximately half of their time doing non-cancer work (i.e. either diagnostic haematology or clinical, non-cancer haematology) these two groups are grouped together in this exercise.

required for research, clinical trials and education, at least 5 medical oncologists/haematologists should be resident in northern Tasmania.

Pathology and medical imaging services are also critical to the effective functioning of a cancer service system. A detailed assessment of the pathology and medical imaging workforces has not been undertaken for this strategic plan, but the adequacy of these workforces needs to be monitored and managed as this plan is implemented.

Medical leadership of cancer services

Medical leadership of cancer services in the Tasmanian public sector is organisation-based. At the RHH, there is a director of radiation oncology and a director of haematology and medical oncology. These two directors hold management responsibility for their specialty areas, but there is no director of cancer services at the RHH or for the Southern Area Health Service.

At the LGH there is a director of cancer services, who provides clinical leadership and policy and strategic advice across the disciplines of medical oncology, malignant haematology, radiation oncology services and surgical oncology. There is no clinician with designated clinical governance responsibility for cancer services across the Northern Area Health Service or in the North West.

The service leadership model should reflect the objective of integrated care. Defining responsibility for service leadership will support service development, advocacy and accountability.

The allied health workforce

Allied health professionals involved in the cancer system include:

- Radiographers.
- Radiation therapists.
- Psychologist.
- Dietician.
- Social workers.
- Physiotherapy.
- Occupational Therapists
- Oncology pharmacists.
- Oncopathology scientists to prepare cytopathologic and histopathologic examinations [10].
- Radiation oncology medical physicists.
- Research personnel such as data managers and clinical trials coordinators (also may include nurses or professionals from other disciplines).

An Australian Health Workforce Advisory Committee (2006) review of the Australian allied health workforce in 2001 showed that Tasmania's compares well for radiation therapists with 7 per 100,000 population compared with an average of 4 nationally. Tasmania's ratio was the highest in Australia [28]. Tasmania had an average ratio of medical diagnostic radiographers and social workers.

Tasmania fared less well for other allied health professionals such as physiotherapists (49/1000,000 compared with a national average of 54), occupational therapists (26/100,000

compared with a national average of 28), dieticians (7/100,000 compared with a national average of 10) and clinical psychologists (27/100,000 compared with a national average of 40). The supply of allied health professionals to Tasmania is likely to be severely limited by the current absence of an allied health degree program based in Tasmania. Efforts to develop allied health courses locally through the University of Tasmania and to offer clinical placements to students from Tasmania undertaking health professional degrees interstate should continue.

There is currently a worldwide shortage of medical physicists. Tasmania has difficulty recruiting physicists to the state which will impact greatly on the ability to increase radiation oncology services. The current Tasmanian radiation oncology medical physicist establishment of 6 FTE is below the level of 1.7 FTE physicists per linear accelerator and 0.2FTE medical physicists' per brachytherapy unit recommended by the Australasian College of Physicists, Scientists and Engineers in Medicine. The LGH has recently gained Commonwealth funding to participate in the physics registrar programme in an attempt to increase the medical physics workforce. The RHH will investigate participation in the programme following the appointment of a new Chief Medical Physicist in 2010.

While the Australian nursing workforce has been growing at a rate of approximate 9.9% since 2001 [29], growth continues to be outstripped by demand [30]. Furthermore, this workforce is ageing with a significant proportion comprising 'baby-boomers' which are expected to retire over the next 15 years [30]. Whereas the medical and allied health professions decline per head of population in the more rural and remote the community, the proportion of nurses to population remains constant between metropolitan communities and rural and remote communities [30]. This fact has important implications for developing a health workforce that can deliver cancer care to rural and remote communities.

Tasmania has the second highest ratio of nurses to population in Australia (1,295/100,000) with South Australia having the highest ratio.

The pharmacy workforce

Oncology-trained hospital pharmacists are critical to the provision of quality cancer care. The oncology pharmacist:

- manufactures cytotoxic and biomedical medications for cancer therapy;
- dispenses medications for cancer and cancer-associated therapies;
- collaborates with other health care professionals to pursue optimal medication therapy for patients with cancer, specifically:
 - reviewing appropriateness of cancer treatment in conjunction with patients' existing drug therapies;
 - identifying medication-related problems and interactions;
 - providing advice to optimise medication administration;
 - counselling patients to improve medication outcomes.
- actively participates in clinical trials and research associated with cancer treatment

Tasmania has the highest ratio nationally of hospital pharmacists at 10 per 100,000 population (noting, however, that this does not necessarily reflect the number of oncology-trained pharmacists).

The nursing workforce

There is a range of nursing specialties involved in cancer care, including

- Chemotherapy nurses.
- Pain management nurses.
- Palliative care nurses.
- Stoma nurses.
- Breast care nurses.
- Oncology nurse consultants.
- Nurse practitioners in the clinical area of oncology and palliative care.
- Cancer care coordinators.
- Radiotherapy nurses.

The available workforce data does not include these specialities so a detailed profile of cancer nursing is not available [29]. Tasmania has several community-based nurse co-ordinators including a breast care nurse and bowel cancer screening nurse employed within the community health subsector and a breast care nurse currently being recruited with 4-years' funding support from the McGrath Foundation (reporting to both BreastScreen and the RHH continuing care management team). The Leukaemia Foundation also employs a community-based nurse coordinator.

The general practitioner workforce

A significant part of the cancer journey occurs in the community [31]. There is an emphasis on strengthening the role of primary care providers such as general practitioners, community and practice nurses and community based allied health professionals (i.e. social workers and counsellors) in prevention, screening, early diagnosis, follow-up during treatment, supportive and palliative care. However, there is evidence that the general practitioner workforce is ageing, and with feminisation, reducing their participation in the workforce [32]. This will have a significant impact into the future on the supply of general practitioners needed to meet the demand from people with cancer.

Innovative solutions for workforce challenges

All of these health professionals should be included in workforce planning and development for the cancer care system. It is critically important that they are present in sufficient numbers and have the knowledge, clinical capacity and clinical guidelines to enable them to deliver this level of response [10].

The annual growth of the Australian workforce is predicted to decline on current trends from approximately 170,000 a year to 12,500 per year by 2020 [33 p.xvii]. The workforce shortage is most evident in rural areas, particularly for medical specialist. This situation may be exacerbated by the ageing of rural specialists and an increasing proportion of women entering medicine (AMWAC, 1996.8; AMWAC & AIHW, 1996.7, Wainer 2004 cited in [14]). There is currently a shortage of health professionals and trainees in non-urban areas [34] which will lead to a range of significantly poorer outcomes for rural and regional residents and the system as a whole, including:

- higher financial and social costs;
- difficulty in providing multidisciplinary care and psychosocial support;

- an over-reliance on visiting clinics; and
- health professionals working longer hours with more on-call and less support from trainees.

There are tensions created by inadequate workforce growth, increasing subspecialisation associated with treatment and technological advances and a desire to ensure access to cancer care as close to home as possible. In particular, there is growing evidence of poor access to cancer services by rural and vulnerable communities [19, 35]. These workforce tensions have resulted in a shift in government discourse and action, internationally and across Australia, which now increasingly challenges the traditional boundaries of the health workforce and calls for more workforce flexibility through role and service model redesign and more effective multi-disciplinary networking and collaboration [19, 24, 36-37]. Referring particularly to the challenges of maintaining the health workforce in rural and remote areas, the Australian Productivity Commission stated that

[i]n such an environment, the adverse consequences of rigidities and inefficiencies in regard to competencies, scopes of practice, and education and training for health workers, can be very significant [36 p.xxvii].

The Productivity Commission stressed the importance of using the skills of the existing workforce in the most efficient and effective way to meet the challenge of workforce shortages and distribution problems [36]. The barriers to this goal lie in professional role protection, unquestioned conventional practice, legislative and funding models.

Mechanisms need to be set in place to convert the recommendations of national workforce planning initiatives into practice at the local level. The unequal distribution of the workforce across the state needs to be addressed urgently. It also needs to be recognised that professional nursing services and allied health services are pivotal to an effective and efficient cancer care system. Barriers to optimal training, recruitment and workforce planning in nursing and allied health reflect problems across the health workforce, which require concerted strategies to overcome.

The establishment of comprehensive cancer care centres in northern and southern Tasmania, as outlined in this Framework, with the capacity to employ a range of health care professionals, attract metropolitan practitioners and provide outreach services within their region will be pivotal to achieving equitable access to high quality cancer services across Tasmania. Such centres should also establish links to larger cancer centres interstate for mentoring, continuing professional education and support for the management of people with complex and rare cancers.

Education and training

A planned, supportive commitment to education and training of all health care professionals (in acute and primary care settings) is required in order to achieve full implementation of the concepts of coordinated care and multi-disciplinary care into current professional practices. An education and training plan for Tasmania will ensure that health professionals have the right skills and knowledge to safely and effectively respond to the needs of people across the cancer continuum. Over time, a plan would clearly articulate the knowledge and competencies required by the health professionals, what education and training programs already exist to deliver these competencies and what additional education resources and programs are needed. This work could provide the point of reference for bringing together a network of educators who could then contribute to the deliberations of the Tasmanian Cancer Clinical Network.

This work has commenced with the writing, as part of the CanNET process, of a continuing professional development framework/strategy and a plan for moving forward.

Cancer Australia support the Cancer Learning web site from which health professionals can access frameworks, curricula and numerous reports that provide a comprehensive coverage of the Australian cancer system [38].

In addition to developing skills to put evidence into practice, health professionals also will need to develop skills in planning and data analysis, evaluation and collaboration. Health professionals also will require support to understand and implement proposed new methods of working together to deliver services. The involvement of respected peers and opinion leaders in this process is essential.

Education of people with cancer can also help to prevent and improve symptoms, thereby improving their health status and quality of life. In collaboration with non-government organisations, there should be a planned, systematic approach to education encompassing all elements of the continuum of cancer care.

Cancer research in Tasmania

Translational research is defined as a process of applying the knowledge or evidence generated by research into clinical practice [20, 23, 39]. Advancing evidence-based clinical practice through translational research is identified as a priority across Australian governments [23, 39].

There is general agreement that being involved in clinical trials provides patients with improved access to the latest cancer therapies [20, 23, 39]. Cancer clinical trials focus on developing new strategies for the prevention, detection, treatment, and overall improvement of the care and quality of life of people with cancer or people at high risk for developing cancer. There is evidence that patients who enter clinical trials have better survival and quality of life outcomes compared to patients who do not participate in trials. Therefore, for Tasmanians who have cancer there is the potential for a direct personal benefit from taking part in a clinical trial, and providers of cancer services should have systems and infrastructure that maximise the ability of clinicians to offer patients the opportunity to participate in trials.

The involvement of clinicians in clinical trials has a positive overall impact on treatment standards and approaches in the hospital or clinic where they practice. These effects include:

- An increased utilisation of evidence-based medicine.
- A greater tendency to utilise a multi-disciplinary team approach to solving cancer treatment problems.
- A greater propensity to adopt leading-edge treatment approaches [39].

The Menzies Research Institute is an established centre for population health research with a global reputation in epidemiology and expanding roles in genetics and clinical epidemiology as well as biomedical research. The Clifford Craig Medical Research Trust facilitates and funds medical research. Its main base is in Launceston but it also supports medical research in the north west of the State. The RHH Research Foundation is an independent private organisation established to promote and fund medical, health care and scientific research in Tasmania.

Both the Clifford Craig Medical Research Trust and the RHH Research Foundation rely on the corporate and general communities for fundraising. The Cancer Council makes a major contribution to the funding and support (including data management and clinical trials support) of research into cancer in Tasmania.

The research sector in Australia is highly competitive and some stakeholders believe that Tasmania has fallen behind other Australian jurisdictions in its performance.

Both the RHH and the LGH have active clinical trials programs but there is no state-wide approach to cancer research strategy. Participation in clinical trials requires infrastructure to promote enrolment and to manage the trials. The Framework identifies such infrastructure as critical to an effective system of cancer care.

The Department needs to continue to work with the Menzies Research Institute, the Clifford Craig Medical Research Trust, the RHH Research Foundation, the University of Tasmania and other research stakeholders to develop a formal strategy for health research in Tasmania which will ensure that Tasmania consolidates and expands its research effort through a cooperative partner approach.” [9]

A number of states have identified as a priority streamlining the ethics committee review of cancer research, particularly regarding clinical trials, and reducing duplication to accelerate the adoption of new treatments and preventions [23, 27, 39].

Objective 3 - creating an integrated and sustainable system	
Strategies	Actions
Define the cancer care and treatment roles of Tasmania's major health care facilities	Adopt the proposed delineation of levels of cancer services Confirm the role of LGH and RHH as comprehensive cancer care centres. Confirm the role of the North West Regional Hospital as a sub-regional cancer service. Confirm a strategic commitment to developing a sustainable regional partnership in cancer services in the North of the state. Support the Northern Area Health Service to recruit medical oncologists and haemoncologists to support provision of a sustainable and reliable service to the North and North West of the state. Review funding allocations and flows for cancer care in the North West to ensure their adequacy to support appropriate local service provision.
Improve access for people from rural and remote areas of Tasmania to all modalities of cancer care	Strengthen transport and accommodation infrastructure for people affected by cancer
Strengthen access to highly specialised services for defined cancers	Endorse and support current shared care arrangements across the state and with the Royal Children's Hospital Melbourne for the management of children with cancer Strengthen links with Peter MacCallum Cancer Centre for the management of adolescents and young adults with cancer Define interstate referral pathways for rare cancers through patient management pathways Recruit a second gynaecology-oncology sub-specialist to the RHH to support a state-wise service. Strengthen and support the state-wide bone marrow transplantation service.

Objective 3 - creating an integrated and sustainable system	
Strategies	Actions
<p>Develop structures and tools that support service integration across professional and geographic boundaries</p>	<p>Move toward physical integration of oncology services at the RHH. Clearly allocate responsibility within DHHS for integrated policy leadership spanning prevention, screening, treatment and outcomes for cancer.</p> <p>Support the development of the Tasmanian Cancer Clinical Network by:</p> <ul style="list-style-type: none"> • appointing a leader; • further defining the role of the network including its interaction with individual health services; • ensuring consumers are engaged in all aspects of cancer policy, strategy and delivery including as equal members of the network; and • establishing a Northern and Southern Integrated Cancer Service (ICS) as sub-committees of the network. <p>Appoint a director of cancer for the Southern Area Health Service/Southern ICS, with the role to include operational leadership of cancer services at the RHH</p> <p>Expand the role of the director of cancer at the LGH to encompass medical leadership of publicly-funded cancer services across the Northern and North West Area Health Services and of the Northern ICS.</p> <p>Facilitate ready transfer of patient information between providers for clinical purposes by supporting the implementation of the ARIA system across the state.</p> <p>Continue to explore and implement options for the innovative use of information technology to support patients and practitioners in various remote locations, including supporting multidisciplinary teams and meetings</p>
<p>Ensure adequate system capacity</p>	<p>Increase radiotherapy treatment capacity by proceeding with the installation of a third linear accelerator in the North of the state.</p> <p>Monitor access by cancer patients to hospital-based services and ensure service capacity expands as need increases.</p>
<p>Develop sustainable partnerships with the private and non-government sectors</p>	<p>Encourage private health services to adopt and implement the principles of this framework and plan</p> <p>Invite clinicians and organisations working in the private sector to engage in the integrated cancer centre and multidisciplinary team processes.</p> <p>Establish active and sustainable links between the ICS, the Tasmanian Cancer Clinical Network and non-government organisations including Cancer Council Tasmania, to facilitate integrated planning, service delivery and service system monitoring.</p>

Objective 3 - creating an integrated and sustainable system	
Strategies	Actions
<p>Maintain and sustain the workforce</p>	<p>Develop a cancer workforce plan on the basis of an analysis of workforce supply and future demand across Tasmania, confirming workforce gaps and identifying innovative strategies for addressing these gaps including:</p> <ul style="list-style-type: none"> • articulating and strengthening the career path for cancer health professionals across Tasmania; • developing state-wide advanced training programs in medical oncology, haematology, radiation oncology and medical physics in collaboration with other states and professional bodies; and • developing clinical academic positions in collaboration with the University of Tasmania. <p>Ensure that there is a critical mass of health professionals in all disciplines at both comprehensive cancer care centres. Immediate attention is required to:</p> <ul style="list-style-type: none"> • support recruitment of additional medical oncologists to the LGH support recruitment of additional medical oncologists to the LGH and haemoncologists to Launceston and Hobart; • continue efforts to recruit a second gynaecological oncologist; • maintain a sustainable specialist medical palliative care service in the North West; and • strengthen the availability of other core team members including nurses, radiation therapists, medical physicists and other allied health professionals in all regions to enable multidisciplinary care. <p>Strengthen and support oncology nursing infrastructure at the NWRH (Burnie and Mersey) and formalise arrangements for medical leadership and backup.</p> <p>Enhance educational infrastructure by:</p> <ul style="list-style-type: none"> • implementing a state-wide cancer education and training plan; • appointing additional cancer nurse educators to work across Tasmania, focusing in the first instance on the North and North West of the state; • convening a State-wide Cancer Educators Network to advise the Cancer Clinical Network, and ensure the education needs across the state; and • ensuring the continued funding for radiation therapy clinical tutors beyond the cessation of the Commonwealth funding agreement in July 2010.

Objective 3 - creating an integrated and sustainable system	
Strategies	Actions
Support research and innovation	<p>Develop an integrated state-wide cancer research policy and strategy.</p> <p>Enhance cancer trials infrastructure across the state (to support research on a regional basis including in the North West), enabling the enrolment of more patients in clinical trial.</p> <p>Develop health services' research capability including developing systems that enable the rapid translation of research into practice</p> <p>Link Tasmania into Cancer Australia's national clinical trials register.</p>

Objective 4 - Providing a contemporary model of care

Introduction

Every person's experience of cancer is unique. People with cancer usually will access a myriad of services across the cancer service system. The service system should focus on meeting their needs. Their journey should be continuous and seamless across an integrated service system, delivered by health professionals who are skilled and competent and work in a coordinated and multidisciplinary way.

Improved clinical collaboration and system integration are consistently identified by governments as priorities for achieving more efficient, high quality, responsive cancer services to people as close to where they live as possible.

Establishing a contemporary model of care in Tasmania will require strengthening and formalising the processes that build collaboration and support information exchange across the service system.

Cancer streams of care

The Cancer Services Framework for Victoria recommends adoption of organ or system specific tumour streams as a basis for planning, delivering and monitoring the outcomes of care. The intention is to reduce care variation and improve cancer service delivery. The reasoning behind tumour streams is that, within a tumour category, a consistent approach to care based on evidence based practice will reduce unacceptable variations in care across the state.

Ten tumour streams have been recommended, which collectively account for more than 90 per cent of the total cancer incidence in Victoria. The tumour streams include:

- 1 Genito-urinary cancers, including cancers of the prostate, bladder, kidney, and testis.
- 2 Colorectal cancer.
- 3 Breast cancer.
- 4 Lung cancer.
- 5 Skin cancers, notably melanoma.
- 6 Haematological malignancies, encompassing lymphomas, leukaemia, and myeloma.
- 7 Gynaecological cancers.
- 8 Head and neck cancers.
- 9 Upper gastro-intestinal cancers, encompassing cancers of the oesophagus, stomach, pancreas, and hepato-biliary system.
- 10 Central nervous system tumours.

There is strong support amongst Tasmanian clinicians for adoption of the Victorian tumour stream framework.

Patient management frameworks and clinical practice guidelines

There is an increasing body of work which suggests that the first stage in ensuring evidence-based care and reducing inappropriate variations in care is to clearly describe the patient journey across the continuum of care, identifying the critical points along that pathway and the

optimal care required. This is detailed in patient management frameworks for each tumour stream.

In contrast to clinical practice guidelines that guide appropriate practice and decision making, patient management frameworks provide a guide to the patient journey to ensure patients with cancer and their families receive optimal care and support. They are intended to improve patient outcomes by facilitating consistent care based on evidence and best practice across the state. Many Australian jurisdictions and New Zealand have now adopted patient management frameworks which set out the key requirements for the provision of optimal care which need to be considered at each step of the care pathway. Patient management frameworks that have been developed so far cover the following tumour streams:

- Colorectal [22, 40-41]
- Lung [41]
- Breast [41]
- Gynaecological [41]
- Head and neck [41]
- Skin melanoma [41]
- Genitourinary (prostate) [41]
- Genitourinary (testicular) [41]
- Upper gastrointestinal cancer (pancreatic) [41]
- Oesophagogastric cancer [41]
- Central nervous system (malignant glioma) [41]
- Central nervous system (cerebral metastases) [41]
- Haematological (acute myeloid leukaemia) [41]
- Haematological (intermediate grade non-Hodgkin's lymphoma) [41]
- Palliative care.

There has been a decision in principle to adopt the Victorian patient management frameworks in Tasmania. Adoption and successful implementation is likely to significantly improve the quality of care of people with cancer.

Once patient management frameworks are agreed, all of Tasmania's public hospitals will be expected to adopt and implement them. Private facilities and the clinicians who work within them also should be encouraged to adopt them and they should be widely publicised so that people with cancer and their carers are aware of the preferred approach to care in Tasmania.

Most modern cancer systems also have adopted clinical practice guidelines which provide detailed guidance about the care that is to be provided within an agreed patient management framework. The Cancer Institute NSW Standard Cancer Treatment Online program (eviQ) developed and maintains a comprehensive suite of chemotherapy cancer protocols, including

the evidence, cost, and drug dose calculation⁵. In addition, patients and their carers can find detailed information on the eviQ site about their treatments and its side-effects.

Inter-disciplinary practice and multi-disciplinary care

People with cancer have myriad needs spanning physical, psychological, social, spiritual and financial dimensions. They require a holistic and comprehensive response best delivered by a range of health professionals working in close, inter-professional collaboration. Inter-disciplinary practice is the foundation upon which to build a contemporary model of care.

Multi-disciplinary care is an integrated team approach to assessment, diagnosis, treatment, planning and ongoing care throughout the treatment pathway in which medical, nursing and allied health professionals and the person with cancer confirm the diagnosis, consider all relevant treatment options and develop the individual's treatment plan collaboratively (NBCC, 2005b, p. 2)" [42 p.15]. Health professionals engaging in multi-disciplinary practice retain their traditional boundaries and forms, whereas, health professionals practicing inter-professionally "share claims to specialised knowledge and authority depending on who can best meet the patient needs" [43]. Multi-disciplinary care aims to ensure that members of the treatment and care team, together with the person with cancer, can discuss all relevant aspects of the person's physical and psychosocial needs along with other factors impacting on their care. It is now well accepted that multi-disciplinary care represents best practice in terms of treatment planning and care and is likely to lead to the best outcomes for cancer patients. An effective multi-disciplinary approach can result in:

- improved treatment planning through consideration of the full therapeutic range and thus improved outcomes;
- improved team communication;
- engagement with stakeholders including the patient;
- better outcomes of care;
- increased recruitment into clinical trials;
- understanding of the emotional needs of people with cancer and their carers;
- reduction in service duplication, improved coordination of services and the development of clear lines of responsibility; and
- development of collegiate relationships between team members.
- Multi-disciplinary care underpins most government cancer plans in Australia and the WHO has identified multi-disciplinary teams as a core principal of patient centred care [6, 10].

The literature distinguishes between multi-disciplinary and inter-disciplinary practice [43-45]. Inter-disciplinary practice does not depend on the traditional divisions of professional knowledge and authority that characterise multi-disciplinary practice. As the growth in the health workforce is outstripped by the growing demand for health care, particularly in relation to chronic diseases such as cancer, the nature of the work of health professionals will need to change and the traditional divisions of professional knowledge and authority will become less

⁵ Treatment protocols can be accessed at <https://www.treatment.cancerinstitute.org.au/cancerinstitute/cancerinstituteDADAServlet?sid=2086902CIS&page=0BENPC&gen=0>

relevant [46-47]. Inter-professional teams share and even relinquish claims to specialised knowledge and authority if this arrangement better serves the patients' and community's needs [47].

The aim in Tasmania is to ensure:

- a multi-disciplinary team approach to care planning and treatment that is aligned with best practice and evidence-based care for all cancer patients; and
- collaboration by health care professionals from all relevant disciplines in the provision of care that meets the needs of people with cancer and their carers at the appropriate times throughout the cancer journey.

Multidisciplinary team meetings are an important aspect of multidisciplinary care, enabling multi-disciplinary input into diagnosis and treatment planning. The multidisciplinary team, however:

- should include all health care professionals involved in the care of people with cancer, including specialist medical practitioners (pathologists, medical imaging specialists, surgeons, medical oncologists, other specialist physicians, radiation oncologists) allied health professionals and nurses;
- collaborates throughout the patient journey, not just during the diagnosis and treatment planning phases but also during treatment, review and post-treatment phases of care; and
- has an important role in peer review and quality improvement.

General practitioners are important members of the team who need to be engaged, if possible, in multidisciplinary team meetings and in the ongoing, team-based care of the patient and carer.

Very few allied health professionals are specifically designated to work with cancer teams in Tasmania and there is a perception that there is an overall shortage of allied health professionals in the cancer care system and the health care system generally.⁶ Ensuring a balanced contribution of allied health professionals to the care of people with cancer in Tasmania will require the following:

- The creation and support of effective multidisciplinary teams including designation of cancer-specific positions where permitted by patient volumes.
- Provision of information about multidisciplinary care for patients to enable them to:
 - understand the process;
 - consent to their case being discussed by the multi-disciplinary team meeting;
 - know that they will be informed about treatment and care recommendations; and
 - know that they will be involved in decision-making throughout their journey.
- The establishment of and support for multi-disciplinary meetings; and

⁶ The ABS Census of Population and Housing, 2006 revealed a rate of 301 allied health workers per 100,000 population compared with a national average of 315 per 100,000. Data need to be interpreted with caution because they do not necessarily reconcile to EFT

- Facilitation of a range of other processes which enable health care professionals to work together collaboratively in the interests of each patient.

It will not be feasible or necessary to develop parallel multidisciplinary meetings across both the public and private sectors. The two sectors should collaborate to ensure all patients have the opportunity to receive multidisciplinary evidence-based treatment planning and care in accordance with best practice.

Care coordination

Care coordination is a comprehensive approach to achieving continuity of care for patients. This approach aims to ensure that care is delivered in a logical, connected and timely manner so that the clinical and personal needs of patients are met.

General practitioners often act as care coordinators for people with cancer, enabling them to access appropriate services at appropriate times. They and other community-based primary health care providers deliver significant levels of direct care for some patients.

A number of jurisdictions have responded to the need for coordinated care by funding dedicated care coordinator positions. Several cancer care coordinators are already working in Tasmania, across the community and hospital sectors. Their roles focus on paediatric cancer, gynaecological oncology, bone marrow transplantation and breast cancer. More recently, funding was made available to support two new positions to coordinate the care of people with lung and colorectal cancer - their principal role is to coordinate and support multi-disciplinary approaches for the lung and colorectal cancer streams in Northern and Southern Tasmania.

Cancer care coordinators play multiple roles at the individual patient level and at the cancer stream of care level. At the individual patient level, they ensure coordinated and efficient access to care and also often provide a significant level of direct psychosocial support for patients. At the cancer stream of care level, they support the operation of the multi-disciplinary team, including coordinating multi-disciplinary team meetings.

The dedicated care coordination model is highly valued by people affected by cancer, who report that understanding and navigating the health care system as they undergo cancer treatment and care is a daunting task.

Cancer care coordinators generally are nurses but may be allied health professionals with the skills necessary to support the multi-disciplinary team and support individual patients to navigate the cancer care system.

The Framework recognises the cancer care coordinator as a key element of a quality cancer care system. The focus of the role of the cancer care coordinators is to:

- support the development of and participate in a multidisciplinary approach to cancer care;
- facilitate the continuity and quality of care for patients diagnosed with cancer;
- identify improvements in care coordination and service accessibility within the designated area; and
- assist in the development and implementation of system changes and process improvements to support care coordination.

In collaboration with multi-disciplinary team members, cancer care coordinators undertake or contribute to:

- assessment and screening for clinical and supportive care needs and patients at risk for adverse clinical or psychological outcomes;
- facilitating delivery of cancer care consistent with established evidence based guidelines;
- ensuring prompt referral to specialist, allied health and support services;
- facilitating continuity of care between the patient, individual health care professionals and health care teams across different settings by establishing timely communication, clear referral pathways and acting as a liaison between family and members of the health care team;
- providing timely and consistent education and information to patients and their families;
- collaborating with all members of the team to facilitate the provision of physical and emotional support to patients and families;
- promoting the active involvement of patient/family/caregiver in their care and coordination of that care;
- assisting patients and families to navigate the health care system by coordinating appointments, streamlining investigations, explaining procedures and advocating for them when appropriate:
 - acting as a focal point of contact for patients and families throughout their journey;
 - developing and implementing care pathways and guidelines;
 - contributing to service development and evaluation activities to improve the coordination of care;
 - participating in quality improvement and clinical governance activities relevant to their role [48].

Cancer care coordinators are skilled, senior clinicians who play a key role in ensuring quality of cancer care. Many are working in relative professional isolation and would benefit from the establishment of a formal opportunity to network with their colleagues working in other cancer streams.

Supportive care and survivorship

Supportive care is an umbrella term for all services, both generalist and specialist, that may be required to support people with cancer and their carers. It includes self-help, support, information, psychological support, symptom control, social support, rehabilitation, and spiritual support, end of life care and bereavement.

Within Tasmania, a number of key gaps in cancer care relating to patient support have been identified. These include limited access to psychosocial support, general practitioner liaison, the interaction of public health system services and those provided by non-government organisations, as well as the special needs of cancer patients living in rural and remote Tasmania.

In the context of cancer, supportive care needs include:

- physical needs;
- psychological needs;
- social needs;
- information needs; and
- spiritual needs.

Generalist and specialist health services as well as community services can contribute to meeting the supportive care needs of people with cancer across all domains. All members of the multidisciplinary team have a role in the provision of supportive care. In addition, support from family, friends, support groups, volunteers and other community-based organisations make an important contribution to supportive care.

Consumers consistently identify a high need for supportive care which is often not met by cancer care systems. Ensuring effective supportive care throughout the cancer care journey requires the following:

- Processes that assist in the identification of patient, family and carer supportive care needs - screening at key points in the cancer journey is essential.
- Clear referral pathways to specialised supportive care services.
- Adequate staff training in identifying and responding to supportive care needs.
- Promotion of supportive care as an important element of cancer service delivery.

An effective supportive care system will recognise the type and level of intervention that is required at each phase of the cancer journey and provide care which is specific to the needs of the individual.

A large part of a person's cancer journey occurs between and after active treatment [4].

Cancer survivorship is a tumultuous experience of balancing the elation of surviving a life threatening illness with the demands of chronic health concerns and altered life meaning [49].

Transition at the end or in between episodes of active treatment has been associated with anxiety and uncertainty, particularly if the intense support and attention received by the person throughout the treatment phase ceases abruptly [31]. Cancer survivors have identified a range of issues of concern to them, including fatigue, sexual function, dependence and control, and changed life meaning [31]. Supportive care needs to be in place to respond to this transition into survivorship.

Currently, there are no formal systems for the provision of post-treatment care and support in Tasmania. Psychosocial support is delivered by a variety of providers including peer-based support groups, care coordinators (where they have been appointed), general practitioners, nurses, allied health professionals and specialist medical practitioners, but there is no formal system to ensure that all Tasmanians who need it can access post-treatment care and support. Non-government organisations such as Cancer Council Tasmania, the Leukaemia Foundation and CanTeen have an established and critical role to play in supportive care.

Children and young people who are cured of cancer are recognised to be at particular risk of needing longer term supportive care. Because there are relatively small numbers of people in this group and their needs are unique, they may benefit from opportunities to access specialised programs run by interstate providers, for example Melbourne's Peter MacCallum Cancer Centre.

The availability of supportive care for people with cancer and their carers would benefit from focused review at an organisational and system level in Tasmania, to determine specific gaps in access to contemporary supportive care services.

End-of-life care

“Although it may be impossible to offer hope of a cure, it is always possible to offer pain relief, psychological support, improved quality of life, and comfort in dying” [10 p.90].

The terms 'end of life care' and 'palliative care' are often used interchangeably. Both are focused on the patient's and their family's quality of life when a cure is no longer an achievable goal and ensuring a dignified death. This is achieved by preventing and relieving suffering caused by pain, stress and fear and requires a thorough and ongoing assessment of and response to pain and physical, psychological, social and spiritual problems [10]. Palliative care can involve surgery, chemotherapy and radiotherapy to remove obstructions and reduce pain.

The vision for end-of-life care in Tasmania is that every Tasmanian with a life-limiting illness will receive treatment and care with a palliative approach. Different levels of palliative care will be available, depending on the needs of each person. It will be provided by an integrated network of health care providers that includes, among others, palliative care specialists, rural hospitals and primary care providers of all disciplines.

The palliative care service is an integral part of the Tasmanian cancer care system. Referrals to palliative care, however, are often made late. The Framework envisages a system in which referrals to palliative care are made early and palliative care clinicians are engaged in the support of patients at appropriate times throughout the cancer journey, not just when death is imminent.

People with cancer may experience significant, chronic pain, both from the disease and from the treatment. Under-treatment of pain is not uncommon [50]. Pain can be relieved in approximately 90% of patients using the WHO's three step ladder for pain relief [10], administering analgesia (non-steroidal anti-inflammatory drugs, opioids and adjuvant pain medications) on the basis of the patient's self-assessment, at regular intervals, by the clock, with additional doses if pain breaks through, and preferably orally in order for pain relief wherever the patient is situated [50].

Advanced directives are formal, written statements detailing a person's wishes regarding the receipt of medical care in certain future circumstances when the person is not able to communicate their wishes [50]. Wishes expressed in an advanced directive could include withholding or withdrawing treatments, nutrition or hydration [50].

Objective 4 - providing a contemporary model of care	
Strategies	Actions
<p>Develop clinical systems of care to ensure continuing best practice in care planning and delivery</p>	<p>Define Tasmanian cancer care streams, based on the Victorian tumour stream framework, to provide a basis for planning, delivering and monitoring the outcomes of cancer care in Tasmania</p> <p>Adopt and actively promulgate patient management frameworks for all cancer care streams. In the first instance, frameworks should be adopted in the areas of lung cancer and colorectal cancer, followed by adoption of patient management frameworks across all common cancers and a generic framework for the management of rare cancers.</p> <p>Adopt and implement the eviQ protocols to provide a basis for decision-making and audit, leading to a strengthening of the quality of cancer care in Tasmania.</p>
<p>Enhance multidisciplinary care and care coordination</p>	<p>Strengthen the availability of core team members including medical (North and North West particularly), nursing and allied health (all regions).</p> <p>Designate cancer-specific allied health positions in teams where service size permits.</p> <p>Implement well-resourced multi-disciplinary team meetings for all cancer care streams locally, regionally or state-wide as appropriate, depending on patient numbers.</p> <p>Develop processes to enable involvement of general practitioners in multi-disciplinary team meetings.</p> <p>Support Tasmanian clinicians to participate in interstate multi-disciplinary team meetings in relation to patients with rare cancers;</p> <p>Establish achievable targets for the proportion of patients whose care plan is discussed by a multi-disciplinary team and monitor achievement of those targets.</p> <p>Develop systems which support health care professionals to work together collaboratively in a multi-disciplinary model of care across the cancer care continuum including peer review.</p> <p>Extend the existing care coordination model to other cancers, ensuring that all Tasmanians with cancer have access to care coordination services if they need them, and implement an ongoing evaluation of the model's effectiveness.</p> <p>Empower care coordinators to assume responsibility for ensuring that people are included in the multi-disciplinary processes that determine their plans of treatment and care.</p> <p>Strengthen and further develop the role of cancer care coordinators by formalising and supporting a state-wide cancer care coordinators network.</p>

Objective 4 - providing a contemporary model of care	
Strategies	Actions
Enhance supportive and palliative care	<p>Review existing cancer supportive care services, including mapping existing services and patterns of use, and develop a Tasmanian Cancer Supportive Care Service plan, incorporating the public, private and non-government sectors, to improve coverage and coordination of supportive care services for people affected by cancer.</p> <p>Investigate opportunities for Tasmanian who have been affected by cancer as children and adolescents to access post-treatment supportive care services from interstate specialist providers.</p> <p>Review and adapt the process of referral to palliative care to improve the time to referral.</p> <p>Develop a state-wide system to ensure every person diagnosed with terminal cancer is given the opportunity to prepare an advanced directive to articulate their wishes and needs in the event of incapacity.</p>

Objective 5 - Ensuring a well-governed system

Requirements for clinical governance

According to the Australian Council on Healthcare Standards (2004), clinical governance is

The system by which the governing body, managers, clinicians and staff share responsibility and are held accountable for patient care, minimising risk to consumers and for continuously monitoring and improving the quality of care and services [51].

A sound system of clinical governance requires:

- strong clinical leadership incorporating policy, strategy and operational leadership;
- clarity of roles for individuals and organisations, so responsibility for ensuring quality is clear;
- engagement of clinicians at all levels of the system;
- care delivered in accordance with evidence-based clinical quality systems;
- a reporting system that provides appropriate information to those who have responsibility to monitor and evaluation care;
- a risk management system that identifies and manages potential risk; and
- a culture that values quality and is committed to continuous review and improvement.

To date, clinical governance in the public system in Tasmania has been the responsibility of each organisation in which care is delivered.

Within a cancer system which is restructured in accordance with this framework and plan, clinical governance will occur at multiple levels including within hospitals, at a regional level through the Integrated Cancer Services, at a state-wide level through the Tasmanian Cancer Clinical Network and within the Department.

Consumer and community engagement

Cancer control and care involves many disciplines and services. Central to their care and treatment is the patient and their family who need to be actively engaged in the decisions about their own treatment. People with cancer should be involved in planning the treatment and support they will need, and should know exactly who will be involved in delivering these [31]. People with cancer need to know that their values and wishes will be respected and be enabled to manage their own needs as much as possible [26]. Empowering people with cancer and their families in this way is fundamental to maintaining a good quality of life and ensuring they receive care and services to meet their unique needs in a timely way [6, 10].

In order to be actively and meaningfully engaged in their cancer care, people need information about their cancer and the care they will receive. This information needs to be in a language that they can understand, be available when they need it and be in a form they understand, either written or verbal.

Engaging consumers more broadly in designing the cancer services system and government policy is considered important in ensuring that programs and planning reflect consumers' needs and interests. For example, Cancer Australia involves consumers in all of their advisory and reference groups and has formed a National Consumer Advisory Group [52].

Organisations such as the Cancer Council of Tasmania and the Leukaemia Foundation provide a range of critical supports, including education and information, practical support with travel and accommodation, some care coordination and peer support to people with cancer and their carers. They should be actively engaged in strategies to increase consumer and community involvement in governance of the cancer system.

Credentialling and defining scope of clinical practice

There is an inherent tension between maintaining and advancing high quality, specialist services and ensuring equity of access to these and other cancer services as close as possible to where people live, particular for people living in rural and remote communities. Access to care needs to be balanced with safety and quality considerations and such decisions need to place the person with cancer at the forefront of consideration.

While there is some support amongst stakeholders for prescribing which medical and surgical treatments should be permitted to be provided at the various public hospitals in Tasmania, an alternative approach is to facilitate these decisions being made at a local level so long as decision-making fulfils a range of objectives listed below.

- Decisions need to be evidence-based, following a thorough consideration of issues including volume of procedures, hospital infrastructure (core and support services and equipment), technical support, and health professionals' skill mix and clinician credentials.
- The rationale for decisions needs to be transparent to stakeholders including the Tasmanian Cancer Clinical Network and the Department of Health and Human Services.
- The outcome of decisions needs to be monitored for effectiveness. This could be achieved by establishing a state-wide system to regularly monitor activity and outcomes for low volume and/or high complexity cancer procedures.

There already is some concentration of certain lower volume, high complexity services in particular sites in Tasmania. For example, in the public sector all thoracic surgery, neurosurgery and major gynaecological oncology surgery is undertaken at the RHH. People

with other rare cancers (for example, sarcomas) are routinely referred interstate, which is appropriate practice and should continue. In view of the body of evidence that concentrating complex surgery in a small number of sites is positively related to patient outcomes, it is recommended that further consideration is given to credentialing and scope of practice for cancer surgery, with reference to case volumes and in particular whether:

- oesophageal, pancreatic and liver surgery should be concentrated in a single health service with surgery undertaken by a limited number of surgeons;
- radical surgery for prostate cancer should be concentrated on two sites;
- breast surgery should only be undertaken by surgeons who are accredited to do so and in particular who participate in the breast audit processes of the Royal Australasian College of Surgeons; and
- rectal surgery should be performed only by surgeons with an approved scope of clinical practice who can demonstrate specific training and/or experience.

There also is a need to review the administration of low toxicity chemotherapy in some of the state's small rural hospitals. While this provides a valuable service close to home for some Tasmanians, it is essential that the procedures utilised and the qualifications and training of staff are reviewed to ensure they are adequate for the safe administration of these agents and that if necessary appropriate training is provided.

Overall, the Framework envisages a system where organisational roles and responsibilities are clear and supported by appropriate processes of credentialling, designation of scope of clinical practice and education and training to ensure maintenance of competency and performance of staff.

There is a *National Standard for Credentialling and Defining the Scope of Clinical Practice* (the National Standard)⁷ which has been endorsed by Australian Health Ministers and applies to senior medical practitioners whose clinical decisions are not supervised directly [51].

Following on from the delineation of roles of each hospital, a robust and transparent process of credentialling and defining scope of clinical practice for clinicians delivering cancer services in Tasmania needs to be implemented, taking into account the credentials, competence and performance of individual clinicians and the capability of clinical teams and organisations to support specific services at an appropriate level of quality.

These are not issues that can be decided at a single hospital level – the system as a whole has a legitimate interest. There should be a single process introduced for the State, consistent with the National Standard, to ensure that new clinical services, procedures or other interventions are introduced in a planned and systematic manner over time, avoiding harm to existing services and ensuring ongoing quality of care [9].

Clinical audit and review and performance monitoring

The dimensions of quality and safety are generally understood to include person-centeredness, safety, effectiveness, appropriateness, accessible and seamless, continuous care [26].

A well-governed cancer system will have systems in place to monitor performance across all of these dimensions.

⁷ Accessible at:
[http://www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/A0E19BFE6489F6E1CA2571C70008A86A/\\$File/credenti.pdf](http://www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/A0E19BFE6489F6E1CA2571C70008A86A/$File/credenti.pdf)

Clinical audit and review is required on a regular basis in order to monitor and measure the safety, effectiveness, appropriateness and accessibility of cancer care, treatments and interventions against pre-agreed standards. Clinical audit involves reviewing the information and data in patient records, administrative databases or datasets specifically collected for this purpose, against criteria of effective care. Such audits can be performed across a sample of patients to build a picture of systems and practice; or can focus on a case and measured against clinical protocols [26].

Parallel processes need to be in place to monitor consumer and community views about the acceptability of the cancer system and whether it meets their needs.

Performance indicators are another method of maintaining an overview of performance across a range of dimensions of cancer care. According to WHO (2002), cancer control programs are

...designed to reduce cancer incidence and mortality and improve quality of life of cancer patients, through the systematic and equitable implementation of evidence-based strategies for prevention, early detection, diagnosis, treatment, and palliation, making the best use of available resources [10].

This definition suggests that a quality cancer service system may be measured on the basis of incidence of cancer, mortality and quality of life.

Establishing the capability to measure and monitor performance is a key component of an effective clinical governance system. Notwithstanding the cautions raised about the use of process and outcome data to manage performance of health services [53], there are many process and outcomes indicators that could be used to monitor the performance of Tasmania's cancer prevention and care system.

Process measures

- Screening participation rates [23]
- Rates of human papilloma virus (HPV) vaccination [23]
- Compliance with evidence-based clinical pathways and guidelines
- Surgeon and hospital patient volume per annum [17]
- Physician and hospital research focus [17]
- Achievement of recruitment targets
- Compliance with credentialling and scope of clinical practice policy

Outcome measures

- Cancer incidence [10]
- In-hospital or 30 day mortality [17]
- 5-year survival – Victoria's target is 10% improvement [17, 23]
- Patient satisfaction
- Quality of life [10]

Data on the incidence of cancer, preventative and treatment interventions are needed to understand the burden of the disease and how it can be controlled. Tasmania's state-wide cancer registry is a critically-important tool for ongoing system monitoring and development. It is run by the Menzies Institute for Medical Research and contributes to a national cancer registry program. Over time, the registry infrastructure should be developed to enable more

expansive data collection and more sophisticated analysis of the patterns and outcomes of cancer in Tasmania. Consideration should be given to developing a state-wide tumour tissue bank.

Objective 5 - ensuring a well-governed system	
Strategies	Actions
Enhance knowledge and understanding of the cancer care system	<p>Finalise and promulgate a directory of cancer services which contains sufficient detail for all clinicians (including those new to the state) and consumers to understand the level of service offered in each region and the referral pathways that apply within and external to the state.</p> <p>Work with professional organisations and non-government organisations to promote community awareness of patient management frameworks including referral pathways and the availability of support for people receiving treatment remotely.</p> <p>Empower consumers to make informed choices about quality cancer care by working with non government organisations to develop a coordinated, integrated partnership-based strategy for community education about Tasmania's system of cancer prevention and care.</p>
Engage consumers in system planning	Ensure consumers are invited to engage in key planning discussions and decisions at a system and organisational level.
Implement effective credentialling and scope of clinical practice processes	<p>Develop and distribute to area health service CEOs and clinicians principles-based advice on the organisational and clinician competencies necessary to support the provision of specific low volume/high complexity services and monitor the response of health services to that advice.</p> <p>Establish robust role delineation/credentialing policies for the administration of cytotoxic drugs in small rural hospitals.</p>
Monitor and improve clinical quality	<p>Support effective peer review and audit by building the capacity of Area Health Services and the Cancer Clinical Network to collect data and undertake clinical peer review and audit with a focus on compliance with evidence-based and endorsed clinical protocols and outcomes.</p> <p>Develop a performance monitoring framework defining the key performance objectives, agreed data and information needs and a system for monitoring and reporting on performance which can be applied at the area, regional and state-wide level.</p> <p>Establish processes to provide feedback to health professionals and health services on outcomes of monitoring and recommendations for practice and service improvement, and processes to monitor the progress of implementation of recommendations arising from clinical audit and other performance review processes.</p> <p>Continue to support and invest in the Tasmanian cancer registry.</p> <p>Consider development of a state-wide tumour tissue bank.</p>

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Attachments

Attachment 1 - CanNET Tasmania

CanNET involves the Australian, state and territory governments working collaboratively with consumers of cancer services and primary, secondary and tertiary health care professionals to improve outcomes through better coordination of existing services. Its objective is to improve access to quality, clinically-effective cancer services throughout Australia, particularly for specific population groups that may currently have poorer cancer outcomes including Aboriginal and Torres Strait Islander peoples and people living in rural and regional areas.

The projects supported under the CanNET Tasmanian initiative are:

- development of this Framework and strategic cancer plan;
- strengthening consumer involvement;
- publication of a directory of cancer services;
- development of an information exchange hub;
- implementation of multidisciplinary assessment processes;
- implementation of cancer care coordinator roles;
- development of care and referral pathways; and
- development of agreements and guidelines to link with interstate multidisciplinary teams for rare cancers.

Attachment 2 - Common forms of cancer treatment

Radiotherapy is a local treatment modality designed to arrest the growth of cancer cells and thereby cure cancer or palliate cancer symptoms. Radiotherapy can be delivered from a long distance by external beam radiation therapy (teletherapy) or a short distance via a radiation system called brachytherapy [50].

A **linear accelerator (LINAC)** is most commonly used to deliver external beam radiation generating extremely high energy x-rays or electrons and targeting tumours [23]. Radiotherapy commonly is delivered in low doses over the course of several weeks to allow the surrounding health tissues to recover.

The advent of **image-guided radiation therapy (IGRT)** has increased the precision with which radiation is delivered to tumours, reducing the area of normal tissues damaged because it allows the tumour to be imaged just before or even during the delivery of radiotherapy. Radiation oncologists can more exactly locate the tumour and reduce the margin of healthy tissue exposed to radiation to five millimetres and, in certain cases, to as little as one or two millimetres [54].

Intensity modulated radiation therapy (IMRT) is “an advanced mode of high-precision radiotherapy that utilizes computer-controlled x-ray accelerators to deliver precisely conformed radiation doses to a malignant tumour or specific areas within the tumour” [55]. Combined with IGRT, a single dose of radiation can be delivered at a level high enough to destroy the tumour and precise enough not to damage the surrounding healthy tissue [54].

Brachytherapy is commonly given as an internal radiation system. Brachytherapy involves the implantation or insertion of radioactive materials in, or close to the tumour. This modality is commonly used for head and neck, prostate and gynaecological malignancies [56].

Chemotherapy Chemotherapy is treatment of cancer with anticancer drugs. The main purpose of chemotherapy is to kill cancer cells. It usually is used to treat patients with cancer that has spread from the place in the body where it started (metastasized). Chemotherapy destroys cancer cells anywhere in the body. It even kills cells that have broken off from the main tumour and travelled through the blood or lymph systems to other parts of the body.

Chemotherapy can cure some types of cancer. In some cases, it is used to slow the growth of cancer cells or to keep the cancer from spreading to other parts of the body. When a cancer has been removed by surgery, chemotherapy may be used to keep the cancer from coming back (adjuvant therapy). Chemotherapy also can ease the symptoms of cancer, helping some patients have a better quality of life.

Biological therapy uses agents that alter the way the body responds to a tumour by either working directly on the tumour, improving the body’s immune response, or interfering with the cancer cells ability to metastasise or differentiate [50]. Agents used in biological therapy include interferons, interleukins, monoclonal antibodies, and haematopoietic growth factors (i.e. erythropoietin and platelet growth factors) [50].

Surgery is used for diagnosis, staging and treatment of local tumours [10] and is used most successfully with cancers arising from “tissue with a slow rate of cellular proliferation or replication” [50]. While it is usual for a margin of normal tissue to be removed along with the tumour, the trend is for less radical surgery. Postoperative pathology tests determine the risk of metastatic disease and may assist to define the adjuvant therapy required. Common surgical procedures to cure or control cancer include radical neck resection, pneumonectomy, mastectomy, lumpectomy, orchiectomy, thyroidectomy and bowel resection [50].

Interventional endoscopy involves the debulking or stenting of luminal obstruction by tumours in the GI and respiratory tract. Debulking is done using laser, diathermy or cryotherapy. Stenting is performed using plastic or wire stents

Palliative care is an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual [10].

Supportive care is an umbrella term for all services, both generalist and specialist, that may be required to support people with cancer and their carers. It includes self-help, support, information, psychological support, symptom control, social support, rehabilitation, and spiritual support, end of life care and bereavement.

Attachment 3 - The cancer care pathway in Tasmania

People with cancer usually enter the cancer care system when suspicious symptoms or signs are detected, with or without suspicious radiological findings. Cancer may be diagnosed as a result of an abnormal finding on a screening test or by general practitioners who examine and refer people with symptoms for tests and/or to a specialist in a hospital or private rooms. Histological diagnosis is then made either surgically, via endoscopy or via radiologically-guided percutaneous biopsy.

Pathology and medical imaging services are critical to support the investigation of symptoms suggestive of cancer. Pathologists and radiologists also are involved in all modalities of therapy (surgery, chemotherapy and radiotherapy). Cancer patients require ongoing rapidly accessible pathology testing, including haematology, biochemistry and transfusion support. The diagnosis and management of many cancers is increasingly dependent on the availability of specialist diagnostic pathology services such as flow cytometry, cytogenetics and molecular medicine, microarray and access to a comprehensive range of specialist medical imaging services.

There is potential for patients to move between the primary and secondary care sectors and the public and private sectors at an early stage of their diagnosis. A diagnosis of cancer in public patients is predominantly institution-based with pre diagnostic imaging, serum markers and diagnostic biopsy often all taking place in the same institution. It is not uncommon, however, for initial scans or fine needle aspirate to be performed outside institutions, in the private sector. For private patients the model is more heterogeneous.

In Hobart, pre-diagnostic scans may be performed by up to four private providers or in the public sector as a privately referred outpatient and pathology may be performed by up to three providers. Similar issues occur for patients in the North and North West and, in addition, specialised diagnostic interventions (e.g. neurosurgical and cardiothoracic biopsies) and aspects of services (e.g. cytogenetics) may be provided by different institutions through a state wide service.

For selected patients, positron emission tomography (PET) scans may be performed at several sites in Melbourne and there is now a private provider in the South of Tasmania with limited indications currently funded for public patients. \$3.5 million was allocated by the Australian Government in the 2009-10 budget for the purchase of a PET scanner for the RHH⁸.

Once a diagnosis is established, patients proceed to curative or palliative treatment which may continue over a considerable period of time. In some patients, the cycle of diagnosis and treatment may be repeated. All patients require ongoing supportive care and some patients require palliative care.

The range of providers spanning the public, private, institutional and community settings creates an imperative for effective linkages and very strong systems of communication and coordination of care to avoid gaps and duplication and to ensure all Tasmanians with cancer access the most streamlined and appropriate treatment.

Ensuring effective linkages and coordination of effort between clinicians and organisations working in each of these sectors, therefore, is a critical element of an integrated cancer system.

⁸ http://www.budget.gov.au/2009-10/content/bp3/html/bp3_payments-01.htm

Attachment 4 - Mortality to incidence ratio for top 15 countries

The MIR is defined as the age-standardised mortality rate divided by the age-standardised incidence rate. For example, an MIR of 0.42 in a given year means that for every 100 new cancer cases diagnosed that year, there were 42 deaths in the same year (though the deaths need not be of the same people as the cases). The lower the MIR, the better the outcomes of cancer treatment and care.

Table 8: Top 15 countries as ranked by the mortality-to-incidence ratio for all cancers combined except non-melanoma skin cancer, c. 2002⁹

Country	Incidence		Mortality		MIR ¹¹
	No of cases	ASR(W) ¹⁰	No of deaths	ASR(W)	
Males					
USA	762,399	406.6	295,630	152.6	0.375
Australia	46,931	347.2	20,672	147.1	0.424
NZ	9,189	363.1	4,142	159.7	0.440
Israel	9,835	295.6	4,537	132.6	0.449
Switzerland	19,790	329.1	9,489	150.1	0.456
Puerto Rico	6,128	264.3	2,950	125.7	0.476
Canada	71,785	327.4	35,450	156.6	0.478
Luxembourg	1,107	339.2	559	165.0	0.486
Sweden	22,038	277.5	11,406	135.1	0.487
Finland	10,507	264.1	5,359	130.3	0.493
Austria	19,178	312.9	9,981	156.0	0.499
Norway	10,860	311.5	5,779	156.7	0.503
Iceland	537	288.4	281	145.8	0.506
Germany	213,227	317.7	113,901	161.8	0.509
Italy	162,756	321.3	91,711	170.9	0.532

⁹ Incidence and mortality statistics are estimates for 2002, although they are based on data from around 2 to 5 years earlier. This varies between countries.

¹⁰ Age-standardised rate calculated using the WHO World 2000 Standard Population. Rates are expressed as the number of cases/deaths per 100,000 males/females.

¹¹ Mortality-to-incidence ratio: the ASR (W) mortality rate divided by the ASR(W) incidence rate.

Females

Israel	11,787	303.3	4,535	105.0	0.346
Australia	39,518	276.8	15,832	99.0	0.358
USA	669,941	308.8	270,105	111.9	0.362
Switzerland	15,654	240.1	7,153	92.1	0.384
Luxembourg	947	254.2	446	101.3	0.399
France	117,407	237.2	58,580	96.3	0.406
Finland	10,571	227.9	5,109	93.0	0.408
Sweden	20,632	251.8	10,094	102.8	0.408
Italy	129,247	231.7	64,590	95.2	0.411
Iceland	534	284.5	259	118.6	0.417
Norway	9,912	260.5	4,836	109.1	0.419
Canada	65,726	272.4	30,514	114.3	0.420
NZ	8,085	298.8	3,778	127.0	0.425
Croatia	9,556	239.0	4,771	104.6	0.438
Germany	194,685	248.9	104,269	110.4	0.444

Source: IARC 2004. The GLOBOCAN 2002 database. Lyon: IARC. Viewed 30 April 2008, <<http://www-dep.iarc.fr/globocan/database.htm>> cited in [7].

Attachment 5 - Trends in cancer care in Tasmania

Table 9 provides a summary of recorded cancer admissions across the major public health services in Tasmania from 2005 to 2008, excluding admissions for chemotherapy.

Table 9: Cancer admissions by hospital 2005-08 (excluding chemotherapy)¹²

Hospital	2005-2006	2006-2007	2007-08	Difference	% Change	% of total (2007-08)
Burnie	639	560	581	-58	-9%	7%
Mersey	485	442	514	29	6%	6%
LGH	2,268	2,242	2,052	-216	-10%	23%
RHH	5,333	5,115	5,622	289	5%	64%
Grand Total	8,725	8,359	8,769	44	1%	100%

Table 10 shows the distribution of admissions for cancer across the major public health services. The highest number of admissions in 2007-08 was for the treatment of haematology, skin, genitourinary and colorectal cancers.

Table 10: Cancer admissions by cancer site and hospital 2007-08 (excluding chemotherapy)³

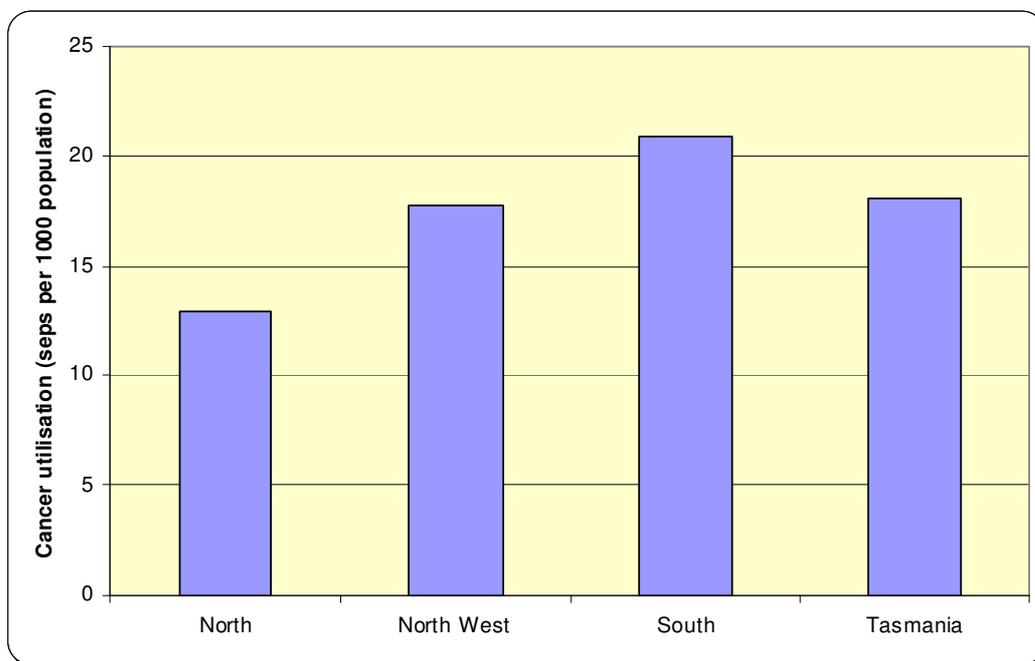
Cancer site	Burnie	Mersey	LGH	RHH	Grand Total	%
Breast	53	39	176	521	789	9%
CNS	13	7	30	113	163	2%
Colo rectal	122	88	308	528	1,046	12%
Genitourinary	38	23	331	475	867	10%
Gynaecology	29	48	78	217	372	4%
Haematology*	64	48	272	1,821	2,205	25%
Head and neck	19	7	43	450	519	6%
Lung	68	51	207	417	743	8%
Other	25	33	79	339	476	5%
Skin	117	125	312	447	1,001	11%
Upper GI	33	45	216	294	588	7%
Grand Total	581	514	2,052	5,622	8,769	100%

*note that haematology includes 'malignant and other' but excludes benign. There was no benign haematology coded at any hospital.

¹² Inpatient dataset provided by the Department of Health and Human Services. Excludes admissions for chemotherapy.

The three regions of Tasmania have different utilisation rates for inpatient cancer services, with the south region having the highest utilisation rate as indicated in Figure 9.

Figure 9: Utilisation of inpatient services by region¹³



Approximately 40% of people with cancer are referred for radiation therapy in Tasmania. There are two radiation therapy sites in Tasmania - the Holman Clinics at the LGH and the RHH. Approximately 58% of patients who attend the Launceston Holman Clinic reside in the North region and 41% reside in the North West region. As expected, 98.5% of patients who attend the RHH Holman Clinic reside in the Southern region.

Table 11: Radiotherapy attendances by radiation type, 2005 to 2007

Radiation type (hospital)	2005	2006	2007	Difference	% growth	% 2007
RHH SXRT ¹⁴	587	568	596	9	2%	2%
LGH HDR Brachy	362	463	510	148	41%	1%
RHH Low Energy Linac	6,073	7,506	6,654	581	10%	19%
RHH Dual Energy Linac	8,934	9,846	8,790	-144	-2%	25%
LGH Low Energy Linac	7,357	8,181	8,659	1,302	18%	25%
LGH Dual Energy Linac	8,916	9,343	9,315	399	4%	27%
Total	32,229	35,907	34,524	2,295	7%	100%

¹³ Utilisation is the number of admissions divided by the population. ERP 2006 population series 32350 was used for utilisation calculations.

¹⁴ Superficial X-ray therapy.

Table 12: Radiotherapy fields by radiation type, 2005 to 2007

Radiation type (hospital)	2005	2006	2007	Difference	% change	% 2007
RHH SXRT ¹⁵	687	726	853	166	24%	1%
LGH Blood	26	24	12	-14	-54%	0%
LGH HDR Brachy	1,545	2,041	3,053	1,508	98%	2%
RHH Low Energy Linac	15,272	19,353	17,488	2,216	15%	13%
RHH Dual Energy Linac	30,394	35,631	35,950	5,556	18%	28%
LGH Low Energy Linac	23,468	29,856	34,538	11,070	47%	27%
LGH Dual Energy Linac	33,501	36,095	38,132	4,631	14%	29%
Total	104,893	143,726	130,026	25,133	24%	100%

The RHH provided 396 (42%) previous and 537 (58%) new courses of radiotherapy in 2007. The LGH provided 284 (31%) previous and 618 (69%) new courses of radiotherapy in 2007. In terms of trends LGH has remained stable at 31% previous courses since 1996 while the RHH has slowly increased the percentage of previous courses from 34% in 1996 to 42% in 2007. It should be noted that the definition of previous course in this state differs from other states - for example, if a patient transfers to another treatment modality within an initial prescription then a new course is counted. Comparisons with other states need, therefore, to be made with caution.

Table 13 provides an overview of the number of patients admitted for chemotherapy treatment to each of the major public health services by type of cancer. Chemotherapy is more commonly provided in haematology, breast, colorectal and upper GI cancers. The vast majority of patients who receive chemotherapy at the LGH and the NWRH are classified as non-admitted patients and therefore are not included in these data.

Table 13: Chemotherapy separations by hospital, admitted patients only¹⁶, 2007-08

Cancer site	Burnie	LGH	RHH	Grand Total	%
Breast			933	933	26%
CNS	1	3	18	22	1%
Colo rectal			424	424	12%
Genitourinary	1	17	306	324	9%
Gynaecology			124	124	3%
Haematology	5	25	952	982	27%
Head and neck	7		47	54	1%
Lung			243	243	7%
Other			157	157	4%
Skin			25	25	1%
Upper GI		2	364	366	10%
Grand Total	14	47	3,593	3,654	100%

¹⁵ Superficial X-ray therapy.

¹⁶ Only RHH records day chemotherapy treatments as inpatient admissions. Mersey Community Hospital does not admit chemotherapy patients - all patients receiving chemotherapy at MCH are treated as non-admitted patients (see Table 9).

Table 14 provides an overview of the day oncology attendances at each of the major public health services in Northern Tasmania.

Table 14: Day oncology attendances by hospital, Northern Tasmania, 2007-08

Type of attendance	Mersey Community Hospital	NWRH Burnie	LGH
Autologous blood	0	0	0
Apheresis			144
Bisphosphonate therapy	146		
Bone marrow biopsy		12	151
Blood transfusion	275	91	265
Education	35		
Iron infusion	31		
Nursing consults		594	1,565
Therapeutic venesection	90		493
Chemotherapy <1 hour		347	859
Chemotherapy > 1 hour and < 6 hours	670	973	1,885
Procedures	98	213	1,183
Ven access device m'ment	671	1,161	2,049
Infusions		617	1,537
Blood tests		298	1,687
Grand Total	2,016	4,306	11,818

Attachment 6 - Comprehensive cancer centres

Two classes of cancer centres were initially described by the National Cancer Institute - comprehensive and specialised. Comprehensive cancer centres were described as those conducting long-term, multidisciplinary cancer programs in biomedical research, clinical investigation, training, demonstration, and community-oriented programs in detection, diagnosis, education, epidemiology, rehabilitation, and information exchange. Specialized cancer centres were described as those which had programs in one or more, but not all, of the above areas in which research efforts, specialized study, or a form of patient treatment resulted in well-defined areas of emphasis.

By the mid 1980's, cancer centres were classified by the NCI as basic, clinical, and comprehensive, but in 1997 this was changed to a system of classification which included cancer centres, clinical cancer centres and comprehensive cancer centres. In 2004, the classification was simplified to include cancer centres and comprehensive cancer centres.

The NCI now uses the unmodified term cancer centre to refer to a cancer centre having a scientific agenda that is primarily focused on laboratory, population science, or clinical research, or some combination of these three components. A comprehensive cancer centre has demonstrated reasonable depth and breadth of research activities in each of three major areas: laboratory, clinical, and population-based research, with substantial transdisciplinary research that bridges these scientific areas. An NCI-designated comprehensive cancer centre must also demonstrate professional and public education and dissemination of clinical and public health advances into the community it serves.

In the Australian context, the term 'comprehensive' has been used to refer to the mix of specialist personnel, diagnostic support services and technology provided by cancer centres and the complexity and sub-specialisation of care that can be delivered with these resources. A core function of comprehensive cancer services in the Australian context is conducting clinical trials and related research, and they usually have a close association with an academic institution [57-58]. Comprehensive cancer services generally are located at major referral hospitals in metropolitan areas. To ensure access to these services, they need to work collaboratively and form links with cancer services across jurisdictions [27].

The Parkville Comprehensive Cancer Centre, planned for Victoria, is an example of a true comprehensive cancer centre that reflects the NCI cancer centre model. The Parkville Comprehensive Cancer Centre is expected to provide a critical mass of researchers and clinicians to deliver collaborative translational research and attract international investment in Australian research [23].