

Victoria's Cancer Action Plan 2008-2011



Innovation in care – saving lives



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I have nominated tackling cancer as one of my top priorities for Government...we will make sure that Victorians have access to the best possible cancer care, informed by worldclass research. We will invest in innovative prevention and treatment strategies in order to improve care and save lives.

> The Hon John Brumby MP Premier of Victoria

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Highlights of Victoria's Cancer Action Plan 2008–2011

Cancer is Victoria's biggest killer and the cause of considerable suffering for the Victorian community. With around 70 Victorians per day newly diagnosed with cancer, we need to focus on prevention and early intervention. We need to take action to reduce the number of Victorians dying from cancer. We must continue to develop a better understanding of cancer and how to treat it through an ongoing commitment to cancer research.

This new Cancer Action Plan will ensure that the cancer prevention and care Victorians receive is the best that it can be, informed by the latest research and state-of-the-art technologies. The Cancer Action Plan outlines a mediumterm vision for cancer reform that will offer standardised and high-quality cancer care to all Victorians, regardless of whether they live in metropolitan, regional or rural Victoria. This is a comprehensive action plan with measurable targets across four key action areas.

Through implementation of the Cancer Action Plan, we aim to further increase survival rates by 10 percent by 2015 – that is 2,000 Victorian lives saved.

Victoria is uniquely placed to make a major impact on cancer. Through the investment by the Victorian Government to date, and the commitment of our talented clinicians and researchers, we have developed a strong alignment across our cancer control agencies and services that is unparalleled in Australia. This Cancer Action Plan builds on our strengths to unlock the potential for further improvements in managing the burden of cancer on the Victorian community.

The highlights of the Cancer Action Plan include:

Action Area 1: Reducing major cancer risk factors in the population and maximising effective screening

- Increasing efforts to modify behaviour and lifestyle risk factors for cancer such as smoking, obesity and sun exposure
- Reducing the prevalence of smoking in the Victorian adult population by 20 percent by 2013 through anti-smoking social marketing and other campaigns
- Working with the Commonwealth to enhance the bowel cancer screening program and agree on a target participation rate of 60 percent in the eligible population by 2011
- Expanding access to genetic screening and new diagnostic technology, especially for those living in rural and regional areas.

Action Area 2: Ensuring rapid translation of research into effective treatments and clinical care

- Working through the Victorian Cancer Agency to increase our cancer research capacity and to translate research findings into improvements in early diagnosis and treatments for specific cancers
- Increasing the proportion of patients enrolled in cancer clinical trials which could ultimately improve cancer outcomes by introduction of new therapies
- Targeting investment in cancer research to maximise improvements in survival rates and to build on Victoria's leadership in biotechnology.

Action Area 3: Investing in innovative treatments and technologies and sustainable integrated care systems

- Developing a state-wide strategy to both introduce and replace specialised equipment for the diagnosis and treatment of cancer
- Building on our Integrated Cancer Services (ICS) networks to strengthen links between metropolitan and regional cancer services, with clear role designation to specify which types of cancer treatment can be provided locally and which require referral to larger centres
- Investing in centres of excellence by planning for a new Comprehensive Cancer Centre at Parkville, developing the Olivia Newton-John Cancer Centre at Austin Health and planning for expansion of our metropolitan and regional cancer centres
- Developing a strategic approach to clinical cancer data management to support information flow and linkage across the patient pathway.

Action Area 4: Supporting and empowering patients and their carers throughout their cancer journey

- Increasing the number of patients assessed and treated by specialist multidisciplinary teams
- Increasing consumer participation in the development of cancer care policies as well as in cancer service delivery and research
- Establishing a new state-wide service for adolescents and young adults, and a program to manage the long-term effects of treatment for survivors of childhood cancer
- Expanding palliative care services to give patients and carers real choice about end-of-life care.

Message from the Premier



Cancer affects one in three Victorians. Most families know someone who has been touched by cancer. Because of this, I have nominated tackling cancer as one of my top priorities for Government. Our Government wants Victoria to have the best cancer care in Australia and be a leader internationally.

Victoria has a long and proud history in tackling cancer. Our world-leading survival rates are a direct result of the skilled application of prevention and treatment programs,

and our internationally renowned research effort. But we cannot afford to be complacent. Cancer is Victoria's biggest killer and the cause of immense suffering for the Victorian community.

Our Government understands the enormous emotional strain of a positive cancer diagnosis. That's why we are so committed to providing the best possible cancer care, which treats people quickly, effectively and sensitively, to maximise the chances of cure. We also understand the devastating effect of a diagnosis of a life-threatening cancer. That's why we are committed to providing the most compassionate and best support to patients and their families.

In our Cancer Plan we will build on Victoria's achievements to date to make sure that Victorians have access to the best possible cancer care, informed by world-class research. We will invest in innovative prevention and treatment strategies in order to improve care and save lives.

Earlier this year I hosted a Roundtable to test the directions, actions and targets in this Plan. I am pleased to report strong support from clinical, research and consumer stakeholders.

In commending *Victoria's Cancer Action Plan 2008-2011* to you, I wish to emphasise our Government's commitment to keeping up the pressure in the fight against cancer. We will continue to invest in cancer care and will speed up the translation of research into practice. We want Victorians to be sure that their care is the best in Australia, and that as far as possible we can offer every Victorian with cancer the best chance of a cure.

The Hon John Brumby MP Premier of Victoria

Message from the Minister for Health



Victoria's Cancer Action Plan 2008–2011 builds on the significant work undertaken by the Ministerial Taskforce for Cancer. This group of cancer experts, including cancer survivors, was commissioned in 2003 to guide us in the development of future priorities in cancer. The taskforce has made a major contribution to cancer reform, including advising on the implementation of Integrated Cancer Services and establishment of the Victorian Cancer Agency as key platforms that position Victoria to take the next big step in tackling the burden of cancer.

This new plan builds on our strengths to unlock the potential for further improvements. Through implementation of the plan we aim to save 2,000 Victorian lives by 2015 that would otherwise have been lost to cancer. I have a strong personal commitment to the plan and will be chairing the Cancer Action Plan Implementation Committee charged with bringing the actions to fruition.

During the consultation process I have met with many dedicated clinicians, health service managers, researchers and cancer consumers all of whom share my passion for stepping up our commitment to fighting cancer. I would like to thank all those involved in the development of the plan to date, and assure you of my determination to make sure that this remains a 'live' commitment to action. There is further work to do on a number of important issues raised during consultation. The Implementation Committee will continue to develop and refine our approaches to ensure that further actions and targets are set as implementation progresses.

One of the most significant aspects of the plan is that it sets clear targets for everyone. Many of these are 'stretch' targets that will be very challenging to achieve, but they set measurable goals against which we can monitor our progress and they keep us all accountable for our efforts. I look forward to continuing to work with my colleagues across government, in the health sector and with the Victorian cancer community on this challenging and worthwhile venture.

The Hon Daniel Andrews MP Minister for Health

A view from Victoria's Chief Clinical Advisor for Cancer



I am pleased to support *Victoria's Cancer Action Plan 2008–2011*. I have spent many years treating patients with cancer and have a real understanding of what is required to make a difference for patients and their families. My role is to work with the Victorian Government to help make the plan's goals match the needs of patients with cancer.

I am proud to have been associated with some of the wonderful programs that have been introduced over recent

years, particularly the introduction of the network of cancer services and health professionals across the whole of Victoria. This aims to offer the best available care to all Victorians regardless of where they live. This plan outlines the next stage of actions and builds on our strengths to ensure a patient-focused approach to fighting cancer. Through implementing this plan, I believe we can substantially increase survival rates and improve patient care over the next five to seven years.

Professor Bob Thomas Chief Clinical Advisor for Cancer

Victoria's Cancer Action Plan at a glance

Action Area 1:

Priority 1: Reduce the prevalence of established risk factors for cancer in the Victorian population

Priority 2: Increase participation rates in population-based Qrevention cancer screening programs

Priority 3: Increase access to genetic screening and new diagnostic technology

Action Area 3:

Priority 1: Improve cancer service capacity across Victoria

Treatment Priority 2: Improve the quality of cancer services through the consistent implementation and monitoring of evidence-based care

Priority 3: Improve access to cancer diagnostic and treatment equipment and ensure a sustainable cancer workforce

Action Area 2:

Priority 1: Sustain and strengthen Victoria's leadership role in linking cancer research to clinical outcomes within Australia

Research

SUP

PATIENT-

CENTRED

CARE

Priority 2: Invest in translational research and develop partnerships with industry

Priority 3: Further develop institutional structures, platforms and support systems to facilitate cancer research and its effective translation into clinical practice in Victoria

Action Area 4:

Priority 1: Create better experiences for cancer patients and carers

Priority 2: Ensure the needs of adolescent and young adults with cancer are addressed and that long-term effects of treatment for survivors of childhood cancers are managed

Priority 3: Increase capacity of palliative care services to provide care for patients in the place of their choice

What the Cancer Action Plan means for Victorians

The actions we are taking are intended to ensure that every person has access to high-quality health services at every point of the cancer pathway. Our pledge to you is that:

More will be done to help you reduce your risk of cancer:

- We will tackle risk factors for cancer such as smoking, obesity, alcohol consumption and excessive exposure to UV light.
- Action will be taken to improve public awareness of risk factors for cancer.
- Young girls will be encouraged to undergo vaccination to significantly reduce their risk of developing cervical cancer.

If you are diagnosed with cancer...

There will be an increased likelihood of your cancer being detected early:

• Screening programs for cervical, breast and bowel cancer will be enhanced and we will continue to focus on early detection of cancer.

Irrespective of who you are, your background or where you live, we will work to give you access to the best possible cancer journey:

- We will work with your doctors and other health professionals to ensure that you receive the right care in the right place at the right time.
- We will work to offer you appropriate care as close to your home as possible.

Whether you are living with or have been cured from cancer, information and support tailored to your personal needs will be available:

- We will help you play as active a role as possible in decisions about your care and treatment.
- We will work to give you more choices and support at all stages of your cancer journey.

We will keep striving to improve cancer services:

- Training programs will be enhanced to help fill gaps in the workforce across Victoria.
- We will work with general practitioners and other health professionals to provide the best coordinated care possible.
- We will fund research programs to develop new initiatives to help detect and treat cancer.

Introduction

Victoria's Cancer Action Plan 2008–2011 builds upon the outstanding successes achieved in improving care for cancer patients and the cancer research effort of the past five years. Since 2003 we have been implementing an innovative cancer reform agenda that has restructured the cancer service delivery system into integrated and networked services resulting in improved access to consistent care across Victoria. Victoria's cancer and biomedical researchers are internationally renowned, as evidenced through successful grant applications, contributions to global knowledge and commercialisation of Victorian discoveries.

The improved cancer service system and our research efforts are translating into tangible benefits for patients, but we need to do more to speed up the rate of improvement. A commonly used indicator to measure the results of cancer control is the five-year survival rate. Since 1990 overall survival rates from cancer in Victoria have steadily increased from 48 percent to the 2004 level of 61 percent. Based upon those trends, projections indicate that this would be expected to increase to 67 percent by 2015. *Victoria's Cancer Action Plan 2008–2011* sets a challenging goal to increase the survival rate by a further 10 percent to 74 percent by 2015. If we can achieve this goal, an estimated 2,000 Victorian lives will be saved that would otherwise have been lost to cancer.

We aim to accelerate the increase in survival from cancer by a further 10 percent by 2015



While this target is an aspirational goal, designed to focus our efforts on existing patients, implementing the Cancer Action Plan will provide broad benefits to the whole community. Maintaining a focus on cancer prevention will provide Victorians with the best opportunity to lead cancer-free lives.

Strategic approach

Victoria's Cancer Action Plan 2008–2011 sets out a powerful vision for reducing the burden of cancer and represents the next phase in the Victorian Government's major reform process for cancer control and care. The Cancer Action Plan aims to provide policy leadership to guide investment across the spectrum of cancer control, including activities for government, relevant agencies, peak bodies and consumer organisations.

We need to manage the burden of cancer on the Victorian community by focusing on prevention and early intervention, reducing the number of Victorians dying from cancer, and continuing to develop a better understanding of cancer and how to treat it.

The Cancer Action Plan will achieve this through:

- reducing major risk factors and avoidable cancer deaths by investing in prevention, effective screening and early diagnosis initiatives
- building research capacity and accelerating the rapid translation of research discoveries and new treatments into clinical care
- ensuring that Victorians with cancer have the best opportunities for survival and cure by investing in innovative treatments and technologies and sustainable integrated care systems
- supporting and empowering patients and their carers throughout the cancer journey.

Vision

Victorians will have access to world-class cancer care supported by leading research, technologies and treatments. We will strategically invest in innovative prevention, treatment and research activities to provide the highest quality care, save more lives and support patients and carers in managing their cancer journey.

Why do we need to do more in cancer?

Cancer is the leading cause of death in Victoria. It affects one in three Victorians up to the age of 75. Cancer is a complex set of diseases to diagnose and treat, and represents a significant burden to patients and their families, the Victorian workforce, the health system and the community at large.

Around 500 Victorians are diagnosed with cancer every week, which equates to 70 people per day. By 2011 it is predicted that over 100,000 more new cases of cancer will have been diagnosed in Victoria alone. Lung, bowel, prostate and breast cancer are the most common forms of cancer and result in most of the cancer deaths.



Leading cancers causing death, Victoria 2005

The challenge of an ageing population

Cancer occurs more commonly in older people and with the ageing of the population, the number of cancer patients is expected to increase by up to 40 percent over the next 10 years. New diagnoses of cancer are predicted to increase faster than the rate of population growth, particularly in the older age group.



The need to improve prevention, detection and treatment of cancer

Cancer prevention, detection and treatment have changed dramatically over the past decade, with improvements in medical technology, increased public awareness, strong legislative controls and accessible screening programs. More people than ever before are being cured of cancer and those who are not cured are living longer and experiencing better quality lives. However, with the growth and ageing of the population, the number of people being diagnosed with cancer is growing, and meeting the current and future demand for high-quality services and care is a challenging issue for our community.

What we need to achieve includes:

- Modifying common risk behaviours such as smoking, poor nutrition, inadequate physical activity, excessive alcohol consumption and UV exposure
- Maintaining a commitment to protect public health through legislation, particularly regarding the supply and use of tobacco
- Ensuring access to evidence-based population screening programs for cancers such as breast, bowel and cervical cancer, which can be treated before they show any symptoms, and continuing research into screening tests for other cancers
- Assessing the risk of cancer through surveillance programs and genetic testing for the small but significant number of high-risk individuals and families
- Ensuring accurate and timely diagnosis and treatment for the cancers that are curable if treated early
- Providing access to cancer treatment services as close to people's homes as possible
- Reducing current disparities in survival rates for patients living in regional and rural areas
- Reducing disparities in survival rates that might arise from social/economic disadvantage and variations in treatment offered
- Ensuring that rare cancers are treated in centres with experience in their management
- Maximising new and emerging technologies and treatments, and working to apply these at a population level
- Funding research to develop a better understanding of cancer and how to prevent and treat it
- Minimising the long-term unwanted effects of treatment
- Delivering patient-centred care and supporting cancer patients, their families, carers and survivors.

The costs of treating cancer

It is estimated that in 2006–07 alone it cost Victorian tax payers more than \$600 million to treat cancer in the public system.¹

Recurrent costs are expected to grow by at least 7 percent per annum over the next few years. This is being driven by the increase in cancer incidence and prevalence, and by the escalating costs of drugs, essential equipment (such as radiotherapy machines) and new treatments and technologies.

Cancer also has a significant economic and social cost to the community and the individual. This cost relates to the time and effort spent by patients and their families undergoing treatment, and the low-productivity associated with disability and premature death. In 2003 cancer overtook cardiovascular disease to become the greatest burden of disease in Australia, as indicated by the Australian Institute of Health and Welfare. The most recently available estimates indicate that cancer causes more years of life lost than any other disease, for both men and women aged up to 75 years.



Rate of years life lost to major cancers – 1996 and 2001

¹ This excludes Commonwealth funding e.g. MBS and other initiatives, third-party payers (e.g. health insurance funds) and self-funding/out-of-pocket costs.

Building on our strengths

Victoria - a success story of innovation in cancer care and treatment

Cancer reform in Victoria has been underway for a number of years. Whilst there is still work to do, Victoria is very well placed to build on the strengths of its investments, policies and actions to save more Victorian lives and to ensure that cancer patients receive the highest quality care no matter where they live.



A new cancer service system for Victoria – Integrated Cancer Services

The development of integrated and networked cancer services has been recognised as an important step to improving cancer care both nationally and internationally. In Victoria, cancer services have been reorganised and developed into Integrated Cancer Services (ICS) across metropolitan and regional Victoria. These structures link hospitals, community and primary care services to ensure that cancer can be detected and treated by groups of health care professionals who have committed to working together to plan and coordinate patient care across specified geographic areas. There are eight geographically based ICS and one state-wide specialist paediatric ICS:

Barwon South Western Regional ICS Gippsland Regional ICS Grampians Regional ICS Hume Regional ICS Loddon Mallee ICS North Eastern Metropolitan ICS Southern Melbourne ICS State-wide Paediatric ICS Western and Central Melbourne ICS The Integrated Cancer Services have developed new governance structures for cancer service planning and improvement, which have engaged senior health service executives, senior clinical staff and consumers. They have focused on four priority areas including:

- Developing systems and processes so that multidisciplinary care becomes part of routine cancer care for many tumour streams. This includes the use of videoconferencing to maximise access to multidisciplinary care for outer metropolitan and regional cancer patients.
- Developing policies and protocols to improve coordination of care.
- Identifying and implementing a range of strategies to support cancer patients in their journey, including improving information resources and provision of consistent and accurate information to consumers and carers.
- Developing a range of mechanisms to monitor and improve the quality and safety of cancer care, and to ensure appropriate referral pathways and consistency of care across each region.

A number of Integrated Cancer Services are developing links with private sector cancer service providers. As elsewhere in Australia, the private sector in Victoria are major providers of cancer care, with more than 50 percent of surgery for cancer being undertaken in the private sector. Engaging the private sector in cancer service reform is important to improving cancer survival outcomes.

Videoconferencing promotes best practice

'We have used videoconferencing across five sites in our regional Integrated Cancer Service for multidisciplinary care meetings and more local clinicians are participating. We also linked with a metropolitan health service into their meetings, to bring specialist expertise to our region and avoid lengthy journeys for our patients to see city-based oncologists.'

- A regional cancer clinician



Integrated Palliative Care – Regional Palliative Care Consortia

Palliative care is a priority for the Victorian Government. Palliative care services have been reorganised to improve care by creating an integrated service system, including the establishment of the eight Regional Palliative Care Consortia. These services are working together to implement the *Strengthening Palliative Care Policy.* The consortia are:

Barwon South Western Regional Palliative Care Consortium Eastern Metropolitan Regional Palliative Care Consortium Gippsland Regional Palliative Care Consortium Grampians Regional Palliative Care Consortium Hume Regional Palliative Care Consortium Loddon Mallee Regional Palliative Care Consortium North and West Metropolitan Regional Palliative Care Consortium Southern Metropolitan Regional Palliative Care Consortium.

The Palliative Care Consortia are working to ensure that care is coordinated between organisations with clearly defined roles for services. In addition, the consortia are developing plans to identify needs and future priorities and plan how best to meet those needs at a regional level. The Palliative Care Consortia and Integrated Cancer Services will continue to work together on key projects that support patient care in their regions.

Clinical networks and tumour streams

Clinical networks are groups of health professionals and organisations, including consumers, with a common interest in a particular area of health, who work together to improve the quality of care provided. The benefit of clinical networks is that they bring together people from a range of health services and other areas to share ideas and address common issues.

Improving quality of care through networks

Clinical networks are being developed nationally and internationally to assist clinicians in working across organisational boundaries. This will encourage greater integration in health care and will promote clinician-led approaches to planning and implementing health service improvements.

Clinical networks in cancer are based on tumour streams, of which 10 major streams have been identified (genito-urinary cancers, colorectal cancer, breast cancer, lung cancer, skin cancers, haematological malignancies, gynaecological cancers, head and neck cancers, upper gastro-intestinal cancers and central nervous system tumours). Health professionals and others with a particular focus on a tumour stream meet to share ideas and improve care. These clinical networks are known as tumour groups. Victoria has led the way in the development of clinical networks in cancer. Through implementation of the Integrated Cancer Services model and the development of tumour groups within the ICS, Victoria has a sophisticated networking structure that improves the quality and continuity of patient care. All metropolitan ICS have tumour groups established across the 10 major tumour streams, and most regional ICS have succeeded in developing tumour groups for the cancers that are commonly treated within their areas. The underlying purpose of the tumour streams approach is to ensure that wherever cancer patients are treated, they will receive the same high quality of care and treatment according to best practice protocols, centred on their care needs.

Patient Management Frameworks

All ICS tumour groups use *Patient Management Frameworks* to guide their planning and improvement activities. These tools were developed in 2006 by the Ministerial Taskforce for Cancer in collaboration with Victorian cancer clinicians. The frameworks identify optimal pathways of care and requirements for each step of the patient journey, and have been developed for 14 cancers across 10 tumour streams. The Victorian Patient Management Frameworks are also being used in New South Wales, Queensland and Tasmania. New Zealand are adapting them for their use.

Cancer Clinical Network Advisory Committee

A state-wide network group, the Cancer Clinical Network Advisory Committee, has been established to advise on the quality and configuration of services, to explore opportunities for reducing unwanted variations in practice and for benchmarking optimal care.

The Cancer Clinical Network Advisory Committee focuses on developing state-wide performance measures and mechanisms to ensure the delivery of consistent cancer care across Victoria.

Planning for cancer centres of excellence

Within the integrated cancer service system, planning is underway to strengthen Victoria's leading cancer treatment centres to extend the state's leadership in both cancer treatment and research, as well as consolidate capacity to manage rare and highly specialised cancers.

Parkville Comprehensive Cancer Centre

Planning for a Parkville Comprehensive Cancer Centre is underway and development of the operating model continuing. The full proposal for the Parkville Comprehensive Cancer Centre is on target for consideration in 2009. In addition to consideration in the state Budget and the Commonwealth Health and Hospitals Fund in 2009, it is envisaged that project funding would be sought as partner contributions from research institutions and from philanthropic sources.

The Parkville Comprehensive Cancer Centre would be a leading national centre, with a critical mass of researchers and clinicians for collaborative translational research. It would have a major role in the education and training of current and future cancer clinicians, scientists and researchers. The centre would attract significant additional international investment and research collaborations. The proposed Comprehensive Cancer Centre would be the largest clinical and research cancer centre in Victoria. The new facility would bring together the Peter MacCallum Cancer Centre (Peter Mac), the Royal Melbourne Hospital cancer clinical and research services, the Ludwig Institute for Cancer Research and a major new University of Melbourne cancer research and education centre.

The Parkville Comprehensive Cancer Centre would be a Collaborative as well as a new facility. The Collaborative will facilitate joint research, translation of research into clinical practice, and new education and training programs to develop the future specialist workforce. The Royal Women's Hospital and the Walter and Eliza Hall Institute of Medical Research are key partners in the Collaborative.

The Parkville Comprehensive Cancer Centre would provide regional outreach and quaternary referral services both state-wide and nationally. The Parkville Comprehensive Cancer Centre would also work closely with the other members of the Western and Central Melbourne Integrated Cancer Service such as St Vincent's and Western Health to improve cancer services across the region.

Olivia Newton-John Cancer Centre

Planning for the Olivia Newton-John Cancer Centre (ONJCC) development is well advanced and will offer an opportunity to build on the existing clinical and research strengths at Austin Health in cancer care. In addition to providing a range of services and facilities for cancer treatment, education and research, this project will include a new Wellness Centre. The Wellness Centre will focus on information provision and holistic treatment approaches for cancer patients. The ONJCC will include new beds and ambulatory care facilities along with the full range of cancer treatment services. The ONJCC will work closely with the other members of the North Eastern Metropolitan Integrated Cancer Service such as Eastern Health and Northern Health to improve cancer services across the northern and eastern areas of Melbourne.

Southern Metropolitan Regional Cancer Hub

Alfred Health, Peninsula Health and Southern Health provide a range of cancer services to a substantial catchment population in the Southern metropolitan region. The three health services have developed a strong collaborative model for provision of high-quality cancer services through the Southern Melbourne Integrated Cancer Service (SMICS).

High-level capacity in laboratory, clinical and health services research is provided by leading research centres including Monash Institute of Medical Research, Prince Henry's Institute, the Burnet Institute, the Centre for Health Innovation and the Monash School of Public Health and Preventive Medicine. Further consideration will be given to strengthening the important clinical services/research/academic links in the SMICS catchment, which is also home to the Australian Synchrotron.

Regional cancer centres

Victoria has pioneered the development of regional cancer centres. This includes investing in the enhancement of the Andrew Love Cancer Centre in Geelong and establishing cancer services at Ballarat, Bendigo, and the Gippsland Cancer Centre in Traralgon. Victoria also has a large regional cancer service in the Hume 'Border region' at Albury–Wodonga with links to Shepparton and Wangaratta. The five Regional Integrated Cancer Services of Barwon South Western, Gippsland, Grampians, Hume and Loddon Mallee are critical in building service capacity and linkages, and improving outcomes for regional cancer patients.

A focus on local service delivery

Victoria's cancer reform agenda is underpinned by the principle that patients should be treated as close to home as possible whilst maintaining quality and safety of care. Cancer care should be delivered by providers from various disciplines working together in a coordinated manner. Along with the development of Integrated Cancer Services, a number of other programs and developments contribute to achieving this goal.

Radiotherapy single machine units in regional Victoria

Victoria has piloted the use of single machine unit (SMU) radiotherapy services in conjunction with the Commonwealth Government. This collaboration has demonstrated that SMU radiotherapy services in regional areas are viable and of a high quality where they are linked with major radiotherapy service providers in metropolitan areas and where there is sufficient population mass to attract staff and infrastructure investment. The first SMU regional radiotherapy services in Australia at Ballarat (2002), Bendigo (2002) and Traralgon (2006) have had a significant impact on access to this important treatment modality for regional cancer patients. More than 1,300 patients received treatment at these services in 2007–08. Evaluation of the single machine unit radiotherapy services confirms that these services have made a significant contribution to providing optimal cancer care by treating patients who may otherwise not have received radiotherapy treatment.

Importance of local radiotherapy services

Kathleen is a 62-year-old grandmother living in Gippsland who is a carer for her daughter with a disability. Her daughter also has a young son.

When Kathleen was diagnosed with breast cancer, she was worried that her grandson would need to go into care.

Being treated at the new Cancer Centre at Latrobe Regional Hospital meant that Kathleen could receive her six-week course of radiotherapy close to home without disruption to her family life and responsibilities as a carer.



The following maps illustrate an increase in access to radiotherapy for regional patients following the opening of radiotherapy services in Ballarat and Bendigo.
Before regional radiotherapy services
After the establishment of regional radiotherapy services





Travel time to a radiotherapy service By road under good conditions

| 6-7 hours |
|------------------|
| 5-6 hours |
| 4-5 hours |
| 3-4 hours |
| 2-3 hours |
| 1-2 hours |
| Less than 1 hour |
| |
| |

Major town or city

D Public radiotherapy service

Chemotherapy services

More than 10,000 patients were treated with chemotherapy in 2007–08, which is approximately 69,000 individual treatments. Ensuring that chemotherapy services are provided as close as they can be to patients' homes improves access to care by reducing the burden of travel, and improves compliance with treatment. In 2007 the first public chemotherapy service in outer-northern metropolitan Melbourne was established at The Northern Hospital, along with new community-based chemotherapy services at both the Melton and Craigieburn day hospitals. These services allow patients to receive chemotherapy closer to their homes and optimise access to acute health services. The Integrated Cancer Services will further develop hub-and-spoke models of care to ensure that chemotherapy can be provided in safe, local environments.

Gippsland Chemotherapy Nurse Education Program

Chemotherapy services are provided across a number of services in the Gippsland region from Bairnsdale through to Warragul. While providing chemotherapy in these locations improves patient access, the lower numbers of patients mean that many services only provide treatment one day per week. This can impact upon the timeframes it takes nursing staff to undertake enough chemotherapy so that they are appropriately proficient.

To address this, the Gippsland Regional Integrated Cancer Service is developing a Chemotherapy Nurse Education Program to provide local, accessible training from the Gippsland Cancer Care Centre for the chemotherapy units that have lower numbers of patients. This means that the chemotherapy nurse workforce can be adequately trained as well as expanded.

Day hospitals and day surgery

New models of care have been developed with the establishment of new ambulatory and same-day services, including the day hospitals at Craigieburn, Melton and Lilydale and the new diagnostic and treatment service at the Alfred Centre. The day hospitals are able to provide a range of cancer treatment and support services such as chemotherapy and palliative care through linkages with larger cancer treatment centres and palliative care services. A day hospital is also being developed at Sunbury and will be opened by 2012.

Hospital in the home

Hospital in the home (HITH) provides hospital care to patients, including cancer patients, in their own home. Patients remain admitted under the care of their treating hospital. A total of 47 public hospitals across the state offered HITH services to their patients in 2007. Hospital in the home has many benefits to patients, carers and the health system. Familiar surroundings are more pleasant and less disruptive to family life. Studies have shown that recovery is often faster for patients who are treated at home, where they can be close to family and friends. Hospital in the home also adds significant capacity to the health system by providing hundreds of extra hospital beds, equivalent to a large metropolitan hospital. In 2007–08 there were more than 3,100 occasions of service for chemotherapy treatment through this system. HITH teams are also often involved in the care of patients who wish to remain at home in the later stages of the disease.

Growth in chemotherapy and radiotherapy

Since 2000, chemotherapy treatments in Victoria's public hospitals have grown from 39,000 per annum to more than 69,000 each year, a 77 percent increase. Over the same time period, the number of patients receiving radiotherapy has also grown by 20 percent to around 8,300 patients per year. The regional services at Ballarat, Bendigo and Traralgon treat more than 1,300 of these patients.

Palliative care

Palliative care services have been substantially improved over recent years with implementation of the *Strengthening Palliative Care 2004–09* policy. New palliative care facilities have opened at Wantirna Health, Werribee and Casey hospitals.

Community palliative care services are an important part of service delivery and provide complex nursing care, supportive care and symptom management to clients and families with terminal illness who choose to die at home. An additional 2,000 episodes of care have been provided by community palliative care services to people at the end of their lives as a result of a funding increase of \$6 million over the past three financial years. More than 11,000 patients are looked after annually by these services.

Hospital-based palliative care consultancy services in metropolitan health services support care for dying patients in acute hospital beds and eleven new services have been established. This means that many more patients in acute hospitals are receiving additional care, focusing on patient comfort and pain management, linking with community services and supporting families during the last stages of life. Two consultancy services have been established in the Barwon South Western and Grampians regions with plans to expand consultancy services to other rural regions. To improve care in rural areas, access to specialist medical palliative care physicians who can provide inpatient and outpatient care as well as home visits and consultation services has been increased through the development of a Rural Palliative Medicine Purchasing Fund. Palliative care physicians are now providing services across rural Victoria including Mildura, Wangaratta, Hamilton, Ballarat and across the Gippsland region. For a number of regions, this has meant access to the skills of a specialist palliative care physician within the region for the first time.





Coordinated support to die at home

Mrs T was an Indigenous woman, married with teenage children. After treatment of her advanced breast cancer, she was referred to the hospital's Palliative Care Consultancy service for terminal care. Intractable nausea and vomiting was a particular problem.

Mrs T told the team that her aim was to 'get out of here once [we] sorted her out'. She wanted to die under the tree in her back yard. She had good support from her community health centre and GP.

When her nausea and vomiting was successfully managed, arrangements were made for her to be sent home, with a referral to the regional community palliative care service for support and management of her symptoms. Discussions were held with her GP regarding ongoing management.

Mrs T successfully stayed at home with support from the community palliative care service, her GP and the hospital's palliative care consultancy service. This included advice about adjustments to her medication regime to maintain her comfort.

Six weeks later Mrs T died at home, as per her wish. The regional community palliative care service supported her family in their bereavement.



Leading the way in cancer research

Research is essential to better understanding the biology of cancer and to develop new diagnostic procedures and treatments. Linking research and clinical care is an important step in ensuring that health care professionals are familiar with evidence-based cancer treatments through provision of scientific data to frontline cancer health care professionals. This results in improved quality of care and better treatment for patients.

Victoria has made significant investment in state-of-the-art technologies, facilities and techniques in recent years to ensure it remains a national leader and a world-class hub for cancer research.



Victorian Cancer Agency

In 2006 the Victorian Cancer Agency was established with seed funding from the Government's *Healthy Futures: Life Sciences statement.* The Victorian Cancer Agency is building the linkages between researchers, clinicians, academics and industry groups

necessary to promote and accelerate the rapid application of discoveries into better treatments and improved cancer patient care for all Victorians. The agency is building cancer research capacity through investing in translational research programs and projects, clinical trials enabling grants, regional research enabling grants, a range of workforce initiatives and funding to the Victorian Breast Cancer Research Consortium and the Victorian Prostate Cancer Research Consortium.

Victorian Breast Cancer Research Consortium

The Victorian Breast Cancer Research Consortium was established by the Victorian Government more than 10 years ago and comprises eight Melbourne medical research institutes. The consortium is supported by the Cancer Council Victoria and the Victorian Cancer Agency provides funding. The consortium demonstrates how collaborations between experts provide benefits in advancing knowledge in the fight against cancer. The Victorian Government has invested more than \$30 million in the Victorian Breast Cancer Research Consortium since it was established in 1997.

The Victorian Breast Cancer Research Consortium Case Study – impact of research on patient care

In 2006 a researcher from a Victorian Breast Cancer Research Consortium group at the Walter and Eliza Hall Institute of Medical Research discovered rare breast stem cells in mice from which all breast tissue is formed. This discovery has two key applications for breast cancer treatment and management in humans. First, it will lead to advances in knowledge about how both normal breast tissue and breast cancers develop. Second, this world-first discovery will provide opportunities for researchers to develop highly specific new therapies for breast cancers.

Victorian Prostate Cancer Research Consortium

The Victorian Prostate Cancer Research Consortium is a dedicated researchbased consortium, which was established in 2008 with \$1.5 million seed funding from the Victorian Cancer Agency. The consortium incorporates a number of prostate cancer researchers working in the state and will foster strategic partnerships to link cancer research with clinical practice.

The Cancer Council Victoria

The Cancer Council Victoria (CCV) was established in 1963 as a not-for-profit organisation. It is Victoria's best known cancer control agency and is widely regarded both nationally and internationally as a leader in cancer control, including prevention, support, advocacy and research. CCV provides information and support for people with cancer and for carers, health professionals and the general public. It has a strong focus on prevention of cancer and runs many education and support programs in the area of cancer prevention including *Quit* and *SunSmart*.

The CCV has two research centres undertaking work to advance cancer prevention and early detection. The Cancer Epidemiology Centre conducts large-scale studies to increase the understanding of factors that contribute to and protect against cancer, and includes the Victorian Cancer Registry and Health 2020 (the Melbourne Collaborative Cohort Study). The Centre for Behavioural Research in Cancer carries out applied behavioural research to advance cancer prevention, early detection, treatment, care and support. a Research Management Unit administers a range of grants to scientists working in laboratories, universities and hospitals, and the Cancer Council Clinical Trials Office hosts and supports the Victorian Cooperative Oncology Group.

Victorian Cooperative Oncology Group

The objective of the Victorian Cooperative Oncology Group is to maintain a 'parliament' of oncologists and scientists to promote a range of cooperative measures to optimise cancer management in Victoria. The group has a long history of clinical networking in oncology and has established 10 cancer-site subcommittees on breast, gastrointestinal, gynaecological, haemato-oncology, head and neck, lung, neurooncology, skin, and urological cancers and four advisory committees on genetics, palliative medicine, clinical research and psycho-oncology. Some of these cancer sites also have clinical trials subcommittees that initiate and contribute to cancer research and the implementation of cancer programs and services.

Victoria's world class cancer research institutes

Substantial Government funding for research infrastructure has allowed Victorian cancer research institutes to flourish and grow, such that in recent years Victoria has attracted more than 40 percent of the total research funding through the National Health & Medical Research Council.

Recognition for our medical research institutes

In the September/October 2007 issue of *Science Watch*, Thomson Scientific published the results of a survey of Australian university and institutional research. The Walter and Eliza Hall Institute of Medical Research and the Peter MacCallum Cancer Centre were ranked in first and third places respectively for the highest impact across all fields. The report ranked institutions by impact and total citations across 21 fields as well as overall output and impact.

The Walter and Eliza Hall Institute of Medical Research (WEHI) has a 90-year history of scientific and clinical research and is located on the Parkville campus of Royal Melbourne Hospital. The WEHI team have made internationally significant discoveries in the field of cancer research, including understanding the signalling pathways that affect the behaviour of cells. This discovery will assist in the eventual development of more refined therapies to treat a range of cancers, including blood cancers such as lymphomas.

The **Peter MacCallum Cancer Centre** houses the largest cancer research group in Australia, comprising over 300 full-time staff. Peter Mac has made landmark contributions to the management of lung and testicular cancer, in the use of genomic technologies in solid cancers, in stem biology and in fundamental studies in cancer immunology and cell growth.

The Ludwig Institute for Cancer Research Melbourne Branch is another internationally renowned cancer research institute, also located on the Parkville campus of Royal Melbourne Hospital. In 2002 the Ludwig Parkville

team were involved in a collaborative effort with CSIRO and WEHI in determining the three-dimensional structure of an important protein molecule in humans. Understanding this structure provides the detailed information for the discovery of a new class of anti-cancer drugs.

The Ludwig Institute for Cancer Research at the Austin Hospital is host to the Tumour Targeting Program and the Cancer Vaccine Program where a number of innovative clinical and scientific advances are in development and have already been achieved.

Prince Henry's Institute is a leading centre for research into endocrinology and reproduction collocated with the Monash Medical Centre. Among the centre's key research interests are ovarian and breast cancer and the mechanisms behind cancer metastases. The centre is a World Health Organization Collaborating Centre in human reproduction.

Monash Institute of Medical Research (MIMR) is made up of seven research facilities, including the Centre for Cancer Research and the Centre for Pain Medicine and Palliative Care. A key interest of the MIMR research groups is understanding the mechanisms of cancer development and applying this knowledge to better patient outcomes.

Research at **St Vincent's Institute** aims to increase knowledge of cancer at different stages of tumour development and progression and find better prevention strategies and therapies. Researchers are working to determine how DNA damage initiates cancer, the reasons for the increase in cell multiplication in cancer, the causes of cancer spread and the development of new drugs.

The **Burnet Institute**'s Centre for Immunology is focused on understanding how the immune system functions normally, how it malfunctions, and how cancers and some infections avoid being attacked by the immune system's cells and antibodies. The Institute aims to understand and manipulate the immune system for the development of new cancer treatments and vaccines. Victoria also boasts a number of **established universities:** Australian Catholic University, Deakin University, La Trobe University, Monash University, RMIT University, Swinburne University of Technology, University of Ballarat, The University of Melbourne and Victoria University. These provide a dynamic environment for academic research in the state. Many of these organisations have developed links with clinical counterparts in order to undertake clinically focused cancer research.

Located in Melbourne, Australia's first centre for new cancer therapeutics, the **Co-operative Research Centre for Cancer Therapeutics** (CRC-CT), is a government partnership with total project funding of \$148 million. This CRC-CT links seven of Australia's leading cancer research organisations to develop and commercialise innovations and discoveries in cancer therapeutics.

Industry and the clinical trials environment in Victoria

Australia was ranked first as a location to undertake clinical trials in a 2005 Economic Intelligence Unit study, which compared Australia, the USA, Singapore, UK, India, Germany and Japan. Multi-national pharmaceutical companies have recognised Australia's impressive capability to conduct clinical research.

With 141 biotech companies, 15 major medical research institutes, many teaching hospitals and nine universities, Victoria is recognised as the premier location for clinical trials in Australia. Victoria is also home to a number of centres of clinical trial expertise. These centres further expand Victoria's capabilities by offering scope and choice of operational models when determining the most appropriate location and venue for specific trials ranging from proof-of-concept to Phase I, II and III trials.

Phases

Clinical trials can range from Phase I trials, that establish human tolerance of a potentially promising new cancer treatment with a small group of cancer patients to Phase 3 trials that compare two treatments for a particular cancer.

Victoria has two specialist clinical trials organisations. **Cancer Trials Australia** focuses on cancer therapeutics and offers a combination of clinical and research skills, access to platform technologies and centralised administration of clinical trials in medical oncology, haematology and bone-marrow transplantation. **Nucleus Network** (formerly Clinical Trials Victoria) comprises over 40 clinical research relationships and alliance partnerships and acts as a single point of contact for clinical trials across all disease types, including cancer.

Herceptin to treat breast cancer

About 20 percent of breast cancers are 'HER2 positive', meaning the HER2 protein is present on the cells in large amounts. Trials tested whether the antibody treatment Herceptin (trastuzumab) given after initial breast cancer treatment (surgery, radiotherapy and adjuvant chemotherapy) could further reduce the risk of cancer recurrence in women with a particular type of breast cancer. Trials so far suggest that Herceptin reduces the risk of cancer recurrence by about 50 percent.

Investment in innovative infrastructure for the future

The Australian Synchrotron

This \$207 million facility at Clayton is the most significant investment in Australian science infrastructure in two generations. It is the nation's first and only synchrotron light source, and a world leader in its class. Providing ready access to leading-edge experimental techniques, the Australian Synchrotron will enable cancer researchers Australia-wide to conduct groundbreaking research previously only possible at overseas facilities.

Worldwide, synchrotrons are playing a key role in the development of new drugs. The Australian Synchrotron's powerful beams are already revealing the structure and function of proteins active in cancer processes. Once scientists identify the structure of active sites on these molecules, new drugs can be designed to block them. Scientists will also be able to study cellular interactions in real time, bringing new understanding to the processes of disease, which is essential in drug design.

The Australian Synchrotron will revolutionise the imaging of cells and biological structures. The special characteristics of the synchrotron light enable far better contrast and detail in the imaging of biological specimens, especially soft tissue like lungs and hearts, than is possible with conventional technologies. Synchrotron imaging offers scope for earlier detection of difficult-to-diagnose breast cancers.

The Australian Synchrotron's imaging and medical therapy beam-line will be one of only three such facilities worldwide undertaking pioneering research on microbeam radiotherapy (MRT). MRT has the potential to deliver much higher radiation doses with less tissue damage, offering hope for patients with aggressive and currently untreatable cancers. Scientists at the Australian Synchrotron and Monash University are collaborating on developing MRT in Australia.



Radiotherapy research at the Australian Synchrotron

MRT uses an array of very small microbeams to deliver highly focused high-energy X-rays to the target tumour. Through MRT, much higher doses can be delivered to destroy cancer cells while sparing healthy tissues. Animal studies have demonstrated that not only can higher doses be provided with less damage to normal tissue, any damaged normal tissue in the path of the microbeams repairs faster. This could have particular application to the treatment of brain and paediatric tumours.

Photon activation therapy uses a finely tuned beam of high-energy X-rays to target tumours. The tumour is loaded with a drug containing special target atoms, for example, platinum atoms that attach to the DNA of the tumour cells. The tumour is then irradiated with radiation specially tuned to the platinum. The platinum atoms absorb and then release energy into the surrounding tissues that causes the tumour to act as an amplifier of self-destruction.

Further research into both of these techniques is being undertaken at the Australian Synchrotron, one of only three synchrotron facilities in the world collaborating on clinical cancer research, with a view to progressing to human trials by around 2012.

Victorian Life Sciences Computation Initiative

Life sciences research is being transformed by the application of rapid advances in applying very high performance computing and data management to biology. Under the Victorian Life Sciences Computation Initiative, The University of Melbourne will host a \$100 million supercomputing program and facility, with \$50 million provided by the Victorian Government. The initiative will develop the most powerful supercomputer and leading computational biology facility dedicated to life sciences research in the world.

The initiative will accelerate ground-breaking research in key areas such as cancer and is expected to lead to major improvements in public health outcomes.

> Victorian Cancer

Biobank

The Victorian Cancer Biobank

The Victorian Cancer Biobank (the Biobank) is a government-funded consortium of hospital-based tissue banks. The aim of the

Biobank is to improve knowledge of cancer and cancer-related diseases as well as the ability to manage cancer in the future. The Biobank contains a de-identified collection of blood and tissue samples taken with consent from healthy individuals and patients diagnosed with cancer and collected as part of a surgical procedure. The tissue that is banked would otherwise be discarded. Researchers from within Australia or overseas can apply to the Biobank for bio-specimens and information to support research into the biology and treatment of cancers.

BioGrid Australia and the Australian Cancer Grid

BioGrid Australia is a federated 'virtual' research platform designed to give researchers access via the internet to ethically approved and privacy protected data at multiple health institutions with data able to be linked across all states. BioGrid will link to all participating teaching hospitals and cancer research centres in Australia as well as the ICS in Victoria. The depth and breadth of the data will provide a huge resource and currently covers a number of tumour streams including: colorectal, brain, breast, lung, sarcoma, gynaecology, prostate, head and neck, upper gastro-intestinal, melanoma and renal.

Both the Victorian Cancer Biobank and the BioGrid provide important infrastructure to enable Victorian researchers to continue making groundbreaking discoveries into the causes of cancer and improved prevention and treatment.

The Victorian Cancer Outcomes Network Project

The government has supported the Cancer Council Victoria to undertake an important trial to capture a national minimum dataset in cancer and to model an approach to the provision of timely population data on process and outcomes of cancer. The Victorian Cancer Outcomes Network seeks to integrate information on cancer treatment provided in hospitals with the Cancer Registry data to enable analysis of outcomes according to treatment. This approach is currently being trialled in the Barwon South Western region and in gynaecological cancers in a number of leading metropolitan hospitals.

Action Area 1: Reducing major cancer risk factors in the population and maximising effective screening

One-third of cancer deaths in Australia are from preventable causes. Some of the most common cancers have been found to be associated with smoking, obesity, excessive alcohol consumption, physical inactivity and UV exposure. This means that a significant number of cancer deaths could be avoided by helping people to adopt healthier lifestyles. Furthermore, population screening can find cancers or their precursors early when they can be successfully treated. Over time, new developments in genetics will increase our ability to identify individuals at high risk and provide the opportunity to offer interventions to prevent the cancer occurring.

Strategic directions

To reduce avoidable cancer deaths, further investment is needed in prevention and early detection. This includes reducing exposure to modifiable risk factors that are associated with a number of common cancers, as well as investing in population-based screening and programs to identify those at high risk of developing a familial cancer.

Priorities

- Reduce the prevalence of established risk factors for cancer in the Victorian population
- Increase participation rates in population-based cancer screening programs
- Increase access to genetic screening and new diagnostic technology



Percentage of avoidable deaths

Priority 1: Reduce the prevalence of established risk factors for cancer in the Victorian population

Tobacco control

More than 10,000 Australians are diagnosed with a smoking-related cancer each year and around one in five cancer deaths in Australia is related to smoking or exposure to second-hand smoke. Lung cancer is the most common form of cancer caused by smoking, with nine out of 10 lung cancers being attributable to this source. Smoking rates are highest among some of the most disadvantaged groups in Victoria.

The Victorian Government has been a national leader in the area of tobacco control, facilitating significant progress in reducing the prevalence of smoking and protecting non-smokers in Victoria. The *Tobacco Act 1987* established the foundation for ongoing reform that has seen the regulation of retail activity and smoke-free environments through tobacco control strategies such as restricting smoking in public places. These efforts, together with the establishment of VicHealth and the funding of social marketing and cessation programs via Quit Victoria, have been rewarded with a steady decline in the rate of smoking in the Victorian population from 29 percent in 1995 to 17 percent in 2007.

Health promotion and smoking cessation

VicHealth is The Victorian Health Promotion Foundation. It is the peak body for health promotion in Victoria.

VicHealth, the world's first health promotion foundation, was established by the Victorian Parliament as part of the Tobacco Act. This Act set the standard for international best practice by banning outdoor tobacco advertising and using cigarette taxes to fund anti-smoking campaigns and buy out the tobacco sponsorship of sport and the arts. The Victorian Government is committed to maintaining a strong stance on smoking, and has developed a new Victorian *Tobacco Control Strategy 2008–2013*. This strategy aims for a further decline in smoking prevalence across the population in the next five years. This will be achieved by a combination of legislative reform, anti-smoking social marketing and new smoking cessation services. There will be a particular focus on strategies to support those at increased risk of smoking and its consequences, for example, pregnant women and their families, Aboriginal and Torres Strait Islanders and other disadvantaged high smoking prevalence groups.

Raising awareness of known risk factors for cancer

The Victorian Government has a number of funded initiatives aimed at promoting healthy lifestyles. These include '*Go for your life'*, *Quit* and *SunSmart*. In addition, an alcohol action plan is under development. Many of the known risk factors for cancer are also risk factors for other forms of chronic disease including heart disease, diabetes and stroke.

We need to strengthen partnerships with and between appropriate organisations such as the Cancer Council Victoria, the National Heart Foundation, the Stroke Foundation and Diabetes Victoria to achieve coordinated policy approaches and programs to increase community awareness about cancer risk factors such as physical inactivity, obesity and excessive alcohol consumption, and to develop targeted education campaigns. In recognising the success of tobacco control efforts it is worth focusing on those learnings that can be applied to other areas of risk. In addition there is a need to improve community awareness of other cancer risk factors including those associated with infections such as hepatitis B and C, which carry an increased risk of liver and pancreatic cancers. Whilst still rare, primary liver cancer is increasing at a faster rate than any other cancer in Victoria and further work is required to develop approaches to prevention through immunisation and management of individuals at increased risk, particularly migrant and refugee populations. Environmental and occupational carcinogens such as asbestos, which causes mesothelioma, is also an area of concern. Further work will be undertaken by the Cancer Action Plan Implementation Committee to define relevant actions and targets in these areas.

WorkHealth

In March 2008 the Premier announced the establishment of WorkHealth, a new WorkSafe Victoria initiative aimed at 2.6 million Victorian workers and the promotion of workplace-based health and wellbeing programs.

This initiative is expected to raise awareness and offer education and information to Victoria's workers about leading healthy and productive lives. The risks of avoidable disease and injury through poor diet, physical inactivity and smoking, for example, will be addressed through health and wellbeing programs. It is expected that over 1.2 million workers will be given the opportunity to participate in an assessment of their health status.

These programs will provide a platform for reinforcing prevention messages including information about risk factors common to some cancers. There is opportunity to improve the reach of information about risk of cancer and workplace-based health and wellbeing programs can have a role in achieving the objectives of the Victorian Cancer Action Plan.

Skin cancer protection

Australia's skin cancer incidence and mortality rates are the highest in the world, for what is a very preventable form of cancer. Victoria's leading *SunSmart* program, which partners with schools, workplaces and local governments, aims to reduce the risks associated with sun exposure. However, more can be done. Particular efforts need to be made to engage young people and other population groups that have not sustained adequate levels of sun protection behaviours, such as secondary school children. The government will work with peak bodies such as VicHealth and the Cancer Council Victoria to agree coordinated policies on sun protection and to set appropriate targets.

There are a number of different types of skin cancer, some of which are much more common than others. Basal cell carcinoma and squamous cell carcinoma (which are collectively called non-melanocytic skin cancers) account for around 98 percent of all skin cancers treated in Victoria each year, and outnumber diagnoses of all other cancers combined. Malignant melanoma is the most dangerous type of skin cancer. Given the high prevalence of skin cancer in the community it is important to establish consistent policies and standards in relation to skin cancer prevention and surveillance, including identification of training requirements for relevant health professionals and implementing evidence-based pathways of care.

The Cancer Action Plan Implementation Committee will work with the Commonwealth Government, consumers and clinicians with expertise in skin cancer to define appropriate models of skin cancer care in both general practice and in the specialist dermatology services. This will include monitoring the service model at the recently established skin cancer triage clinic at St Vincent's Health.

Victoria has been the national and international leader in action to regulate the solarium industry. *Fashions to Die For* was launched in 2005. The Victorian Government will monitor the impact of the interim regulations on solaria put in place in February 2008 and will move towards ongoing regulation, taking into account work at a national level to ensure a consistent approach.

Priority 2: Increase participation rates in population-based cancer screening programs

Evidence-based population screening is an important approach to cancer control. Cancers such as breast, bowel and cervical cancer can be identified early through screening programs and treated before they show any symptoms. At this stage, these are the only cancers where there are proven screening methods and evidence to support population-based screening programs. However it is important to continue research into the development of screening tests for other cancers.

Currently participation in screening programs is below set targets and certain communities have lower participation rates in screening and prevention programs than the broader Victorian community.

Whilst the tests for breast, bowel and cervical cancer are different, these programs have a number of features in common. In particular, the hard-to-reach and under-screened groups are the same for all three cancers and these are also the groups in whom cancers are diagnosed at a later stage, resulting in poorer survival outcomes. Much could be achieved by a more coordinated approach to cancer screening. This issue will be taken up through implementation of the Cancer Action Plan.

Breast cancer screening

Breast cancer is the leading cause of cancer death in Victorian women. The economic and social burden of breast cancer is also high and the disease has a major impact on families and the ability of women to be active participants in the workforce and significant increased investment has been made in this area since 2000.

Victorian funding for BreastScreen Victoria 2000–01 – 2007–08



Screening participation rates for breast cancer are still below the national target of 70 percent. Participation rates among disadvantaged groups are considerably lower than those of the rest of the population, and can be improved. A major focus is to increase the number of women in the target age group who have a mammogram every two years and to aim to increase the percentage of screen-detected cancers. Five-year survival rates for screen-detected cancers are 95 percent compared with 88 percent for non-screen detected cancers.
With population ageing, increasing the percentage of women in the target age group being screened to the level of the national target will present a major challenge as the overall numbers of participants in the 50–69-year-old age cohort increase in the next 10 years.

Digital mammography

Mammography is the process used in breast screening to take an X-ray of a woman's breast so that abnormalities can be identified. In conventional mammography the images are recorded on a film in a cassette, but recent advancements in technology allow the images to be converted to a digital format that can be viewed on a computer screen and stored electronically rather than on film.

Through a \$3 million pilot project for digital mammography, this new technology has been successfully implemented at BreastScreen services at Maroondah, Bendigo, Gippsland and the rural mobile screening service. Digital technology has now also been installed at the Geelong BreastScreen Service and will continue to be expanded across all regions.

The Victorian Government has committed to rolling out digital mammography across Victoria to enhance breast imaging services and to alleviate workforce issues, particularly in regional areas.

Mobile digital mammography - an Australian first

Digital mammography has been installed on the rural mobile breast screening van and is linked to a wireless network. Previously images had to be couriered to a fixed site for processing. Now they may be viewed immediately on the van. If further images are required for technical reasons these can be done immediately rather than women having to make a second visit. The new technology also enables some women who need further assessment views to have these done on the van, thus removing the need for those women to travel to fixed BreastScreen assessment clinics. For many rural women this saves a round trip of hundreds of kilometres. Images are sent across the state for assessment, in real time, to a radiologist who may be located at a considerable distance.



BreastScreen Victoria mobile van

Cervical cancer screening

Victoria has one of the highest participation rates for cervical screening in the country. However, increasing cervical cancer screening rates in communities that have a lower than average participation rate, or have a higher incidence and mortality from cervical cancer is a priority for the future. This includes developing mechanisms to monitor under-screened and never-screened groups and participation by specific groups such as Aboriginal and Torres Strait Islander communities and culturally and linguistically diverse communities.

The Victorian Government also has a major role to play in advocating the importance of human papilloma virus (HPV) vaccination, particularly through schools. Monitoring of cervical cancer rates in vaccinated populations will be an important component of ongoing cervical cancer surveillance.







Bowel cancer screening

Bowel cancer can be cured if detected early, but currently it is estimated that fewer than 40 percent of bowel cancer cases are caught early. Treating bowel cancer at an early stage offers significant survival benefit to patients as well as being cost effective. Bowel cancer screening represents one of the best opportunities to improve cancer control, and to detect and treat pre-cancerous lesions before they become invasive. The National Bowel Cancer Screening Program commenced in Victoria in January 2007. Victoria has designated public health services in metropolitan and regional areas that are receiving additional state Government funding to provide assessment colonoscopies. Over a quarter of a million Victorians have been invited to participate in the program to date, and a further 500,000 will be invited during Phase 2. Victoria will continue to work with the Commonwealth Government to expand this screening program to Australians over 50, and to agree to a national framework to implement and fund the program on an ongoing basis.

There are a number of important issues to address in relation to bowel cancer screening. These include working with the Commonwealth Government to expand access to diagnostic colonoscopy capacity across both the public and private sector, and working to expand the age cohorts being invited for screening (currently 50, 55 and 65 year olds). The risk of bowel cancer increases significantly with age. It is therefore important to build on the excellent start that has been made through the National Bowel Cancer Screening Program to improve access to bowel cancer screening for older Victorians.

The Victorian Cancer Action Plan Implementation Committee will work with the Commonwealth Government to achieve action in the following important areas: securing a commitment to re-screening all participants at two yearly intervals; funding to screen additional age cohorts and the development of a Medicare Benefits Schedule item number for all screening-generated colonoscopies, which is available to all public and private providers undertaking assessment colonoscopies for people with a positive faecal occult blood test.



Incidence of bowel cancer by age 2005

Priority 3: Increase access to genetic screening and new diagnostic technology

Consideration of personal and family history of cancer is important when determining the genetic risk of developing cancer. Familial cancer describes the clustering of certain cancers in families, with at-risk families being at a higher risk of developing cancer than the general population. Genetic testing is available for some breast, ovarian and bowel cancers. The capacity to perform appropriate tests on asymptomatic family members of an individual diagnosed with a familial cancer allows for preventative health care and better patient choice.

Expanding the clinical genetics workforce in Victoria

The diagnosis assessment and counselling for familial cancers is a specialised area of cancer services.

The Victorian Family Cancer Genetics Service comprises metropolitan services located at Peter MacCallum Cancer Centre, the Royal Melbourne Hospital, Monash Medical Centre and regional clinics offered through the Victorian Clinical Genetics Service. These services offer genetic counselling and testing to around 3,400 Victorians each year. Since the commencement of these services, the number of consultations has grown steadily. Through the Cancer Action Plan, capacity will be increased to undertake screening tests and to provide appropriate genetics counselling services, particularly for those living in rural and regional areas.

Victorian Family Cancer Genetics Service - patient consultations



Action Area 2: Ensuring rapid translation of research into effective treatments and clinical care

Patients expect that their cancer treatment and care is underpinned by highquality research. Research is an essential component of identifying new preventative techniques, developing new and improving existing screening programs, improving diagnostics and developing novel treatments. Linking cancer research with clinical care is critical to accelerating access to the latest and best treatments for Victorian cancer patients. Strengthening Victoria's leadership position in cancer and biomedical research will lead to improved health outcomes, economy-wide productivity benefits and industry development.

Strategic directions

The Victorian Cancer Agency will invest in translational research, building research capacity and developing a collaborative and robust cancer research environment to position Victoria as the national leader in improving survival rates for cancer patients.

The proposed Parkville Comprehensive Cancer Centre would have a particular focus on encouraging and expanding translational research through better linkages of cancer researchers and clinicians and dedicated clinical trial facilities.

Priorities

- Sustain and strengthen Victoria's leadership role in linking cancer research to clinical outcomes within Australia
- Invest in quality, innovative translational research and develop partnerships with industry
- Further develop institutional structures, platforms and support systems to facilitate cancer research and its effective translation into clinical practice in Victoria



Priority 1: Sustain and strengthen Victoria's leadership role in linking cancer research to clinical outcomes within Australia

Victoria's cancer and biomedical research institutes and universities are internationally competitive and receive considerable investment from national and international funding bodies. This forms a strong research base that has attracted biotechnology, pharmaceutical and clinical trial organisations to Victoria. The establishment of the Victorian Cancer Agency brings a new opportunity to strengthen and consolidate Victoria's leadership in cancer and biomedical research, which will lead to improved health outcomes for cancer patients and will contribute significantly to increasing our cancer survival rates.

The Victorian Cancer Agency

Victorian Cancer Agency vision

The aspiration of the Agency is that 'Cancer patient care, outcomes and survival rates in Victoria will be amongst the best in the world through the rapid translation of cancer research into clinical care'.

The Cancer Action Plan capitalises on the 2006 formation of the Victorian Cancer Agency by significantly increasing its funding and profile. The agency, supported by a consultative council of eminent cancer researchers and clinicians, provides Victoria with a unique capacity to support, facilitate, advocate and foster the expanding community of translational researchers in Victoria. The agency will establish innovative approaches to the integration of research and services and foster closer linkages between cancer clinicians and cancer researchers through a culture of research participation.

The Victorian Cancer Agency is not aligned to any particular cancer organisation and is truly state-wide in its operations and funding programs. With such independence, the agency is able to lead the development of a state-wide strategy for cancer research that maximises innovation, collaboration and coordination.

Building research capacity and capability

A strong cancer research environment will allow Victoria to attract and retain leading cancer researchers and clinicians, attract international investment, and bring improved economic benefits to the state through leveraging the Victorian Government investment. The Victorian Cancer Agency will invest in projects and programs that focus on innovative and collaborative approaches to strengthening cancer research capacity and capability across the system.

The agency will achieve this by building on the success of its established workforce initiatives such as clinician–researcher fellowships and scholarships, and the early career network. The agency will support strong translational research programs across a range of priority tumour streams, as well as developing research frameworks for under-funded areas of research. In addition, the agency will seek to increase research opportunities and partnerships in regional Victoria.

Victorian Breast Cancer Research Consortium

Building on the Victorian Government's significant investment in the Victorian Breast Cancer Research Consortium, a further \$12 million has been allocated to this prolific 'institute without walls' over the course of the Cancer Action Plan. The additional investment will be used to develop stronger translational themes in the research undertaken within the 'institute', ensuring that research findings are moved towards the clinical environment to improve breast cancer patient outcomes and care.

Priority 2: Invest in translational research and develop partnerships with industry

Translational research

Translational research is a rapidly emerging focus within the cancer research community and among clinicians and health practitioners. With the increasing amount of cancer research being funded worldwide, progressing new research findings into effective treatments and clinical care as rapidly as possible is critical to improving our cancer survival rates. Exposure of clinicians to a strong research environment will drive improvement in patient outcomes through greater awareness of new approaches to treatment and more rigorous and evidence-based approaches to care.

Translational research will be the key focus for the work of the Victorian Cancer Agency. Growing Victoria's translational research capacity and capability will create the conditions for further scientific breakthroughs in identify new preventative techniques, new screening opportunities, improving diagnostic and treatment interventions, as well increasing our research effort in supportive care, palliative care, survivorship, rare cancers and cancers in selected groups such as paediatrics and adolescent and young adults.

A Victorian strategy for translational research will be developed by the Victorian Cancer Agency to guide research activity and investment, and to ensure that research findings can be rapidly and widely adopted into clinical practice.

Translational research strategy vision

The translational research strategy will provide a long-term framework for the development of Victoria's reputation as a national centre with world standard capacity and capability in translational cancer research.

Clinical trials

Increasing patient accrual to clinical trials is widely accepted as an important approach to improving patient outcomes through providing access to the very latest cancer therapies. The Victorian Cancer Agency will play a major role in increasing access to clinical trials. The agency will lead the development of a clinical trials framework for Victoria. To launch this initiative, the agency will convene a summit of the multiple participants working to deliver clinical trials in Victoria. The objective of the summit will be to identify how participants can work cooperatively – with minimal duplication and wasted effort – to deliver a best-practice clinical trials framework for Victoria, with associated monitoring and measurement systems. The agency will allocate resources to supporting health services and clinicians in clinical trials engagement and participation, and will work with relevant international, national and state-based organisations such as Cancer Australia, national clinical trials groups, Cancer Trials Australia, Nucleus Network, and the Cancer Council Victoria to achieve this outcome.

In addition, the agency will explore options and partnerships for supporting targeted clinical trials that sit outside of the traditional large clinical trials driven by industry. Examples of these types of trials include trials for differential duration of treatment regimens for some of the highest cost anti-cancer drugs, as well as trials to distinguish appropriate medications for certain types of tumours based on molecular pathology and specific gene mutations.

Streamlining ethics approval

The Victorian Government has invested in streamlining ethical review of multi-site clinical trials by creating a single approval mechanism. This initiative is part of the *Victorian Innovation statement* under the *Biotechnology Bridges* theme. The ethics approval process for human research is designed to be more rapid and will enhance improved treatment of cancer and other diseases.

Partnerships

The Victorian Cancer Agency will foster stronger links and important strategic partnerships between government, health services, researchers and industry. The Integrated Cancer Services and the position of the agency offer the opportunity for industry to link with a large networked patient cohort for clinical trial and drug development purposes.

The agency will work to increase collaborative linkages and partnerships with health services, researchers and industry groups to enhance participation in translational research in Victoria, leading to economic benefits and improved health outcomes for patients. This will be achieved through forging better connections and collaborations between all stakeholders, improving the skills base for an innovative cancer sector workforce and providing infrastructure support to enable research to be undertaken.

The agency will also work with the Commonwealth Government on a range of national priorities and will continue to explore further opportunities for national collaboration, including in the areas of prostate and gynaecological cancers.

Priority 3: Further develop institutional structures, platform technologies and support systems to facilitate cancer research and its effective translation into clinical practice in Victoria

The development of a strong translational research culture will require investment in structures and systems that support or 'enable' research to take place. The Victorian Cancer Agency has assumed responsibility for the Victorian Cancer Biobank as an important enabler of cancer research. The agency has allocated \$2.2 million to the Biobank during the first year, with further funding available over the remainder of the Cancer Action Plan. The agency will direct a proportion of its funding to a range of enablers of cancer research such as data and bio-informatics, platform technologies and infrastructure to support clinical trials.

The agency will also work with leading cancer centres to maximise the research opportunities that arise through the collocation and alignment of research institutes and health services, for example, at the proposed Parkville Comprehensive Cancer Centre, Olivia Newton-John Cancer Centre and the research and services hub in the Southern Metropolitan Integrated Cancer Services region.

The advent of personalised cancer medicine

Greater understanding of cancer biology and an increasing capacity to access genetic profiles provide an opportunity to reduce the burden of cancer through personalised medicine. Screening at-risk members of the population may lead to earlier diagnosis and, in turn, better treatment and survival outcomes. Understanding the genetic profile of individual tumours will enable the identification of optimal treatments, thereby increasing the efficiency and effectiveness of cancer care and improving cancer survival. The Cancer Action Plan Implementation Committee will continue to work with the Victorian Cancer Agency to explore opportunities to support the acceleration of these advancements in cancer care. Cancer care is entering a new era where it will be possible to prescribe specific treatments that are best suited to individual patients and their types of tumours. New advances in molecular pathology and gene expression profiling will enable the identification of sub-classifications of cancers as a basis for more effective treatments.



Enhancing treatment through personalised cancer medicine

Genetic variations in tumours of the same type (for example, breast cancers) can result in different responses to cancer treatments. We now know that certain drugs may shrink a tumour in one person but not in another, as a result of differences in the genetic and molecular make-up of the tumour.

Through research into the way that certain cancers respond to particular treatments, it is becoming possible for treatments to be tailored to an individual patient and to the type of tumour. A handful of tests are now available that can detect some of these genetic variations and predict how patients will respond to certain medications. This practice of 'personalised medicine' has the potential to offer many benefits, including the fine-tuning of chemotherapy treatments as responses to treatment are seen in real time. This means that clinicians would be able to make better choices about medications for their patients, with the potential for safer dosing options, improvements in drug development and decreased health care costs.



Action Area 3: Investing in innovative treatments and technologies and sustainable integrated care systems

Cancer care is complex and involves a range of clinicians with different expertise. It is important that clinicians have the technical skills and experience to provide high-standard cancer care and that hospitals have the right equipment and staffing to support this care. Cancer is also an expensive disease – in economic, personal, social and environmental terms – with considerable loss of productivity and years of life lost through cancer in the community, high-cost anti-cancer drugs, and highly specialised equipment and staffing requirements. The increase in cancer incidence as a result of population growth and ageing will require sustained improvements in the capacity of our health systems to deliver care that is accessible and effective, underpinned by a highly skilled workforce and driven by innovation and improved integration of care.

Strategic directions

The Integrated Cancer Services are pivotal in ensuring strong coordination and planning across their geographic areas and provide a key linkage between cancer treatment centres and services both within and across their boundaries. While the more common cancers can be treated in many locations, some cancers require specific technology or expertise. By investing in local cancer services and in centres of excellence that link with local services, patients will have timely well-coordinated access to the latest treatments and specialised technologies.

Priorities

- Improve cancer service capacity across Victoria
- Improve the quality of cancer services through the consistent implementation and monitoring of evidence-based care
- Improve access to cancer diagnostic and treatment equipment and ensure a sustainable cancer workforce



Priority 1: Improve cancer service capacity across Victoria

Building linkages and referral pathways between metropolitan and regional centres

The Integrated Cancer Service model provides a strong network to improve the quality and continuity of patient care, as well as ensuring that appropriate links and referral pathways exist between health services treating cancer patients. Linkages and collaborations between regional and metropolitan ICS will be formalised to ensure all Victorian cancer patients receive the right care from the right person in the right place, at the right time, as close to home as possible.

Victoria's Cancer Action Plan will continue to build support and capacity in regional centres through formal linkages with larger metropolitan centres. Regional centres need to be able to provide support to smaller cancer services in regional and rural Victoria, for example, through hub-and-spoke models. Workforce investment will be critical to achieving the survival targets for Victoria's Cancer Action Plan, as well as reducing the current survival disparities between metropolitan and regional areas.

Improving the quality of care for cancer patients also requires the development of tools that support clinical management and decision making, so that health service managers, clinicians and referring general practitioners are aware which cancers can safely be treated in which locations.

A cancer services capability framework will be developed to guide service improvement in this area. Service capability frameworks describe levels of care and complexity of services across the health system, including the minimum infrastructure, workforce and services required to support particular clinical services. The aim is to support health services, clinicians and government in providing a clear picture of requirements for cancer service delivery to ensure high-quality and safe cancer care. The Patient Management Frameworks, developed by Victorian cancer clinicians in 2006, describe the patient journey when an individual patient is diagnosed with cancer. This is a complex pathway commencing with the general practitioner, often involving the private health system as well as public hospitals and community services such as palliative care. Through the Integrated Cancer Services, linkages with all groups involved with patient care will be defined with the aim of improving the patient's ability to navigate through the system.

The Cancer Action Plan Implementation Committee will continue to explore approaches to improving coordination of cancer care, including with general practitioners and private health providers.

Improving care for children with cancer

The Paediatric Integrated Cancer Service has established a Regional Outreach and Shared Care Program to coordinate treatment and care for children with cancer. This partnership enables children with cancer to receive part of their care in metropolitan Melbourne and part of their care as close to home as possible. As part of the program, 33 regional paediatricians have participated in formal mentoring programs and 260 regional nursing and allied health staff have attended workshops about paediatric procedural pain and managing painful procedures.

Investing in new and redeveloped cancer centres in metropolitan and regional areas

Improving capacity to care for cancer patients requires investment in targeted infrastructure that is accessible to patients and which integrates cancer care modalities. Capital planning is underway to expand and redevelop a number of cancer centres. These include the Olivia Newton-John Cancer Centre at Austin Health and the new cancer service at Sunshine Hospital, which will bring public radiotherapy services to the western suburbs of Melbourne for the first time through a new four-bunker service.

Planning for the Parkville Comprehensive Cancer Centre is also underway. This proposed centre would play a key role in treating a range of rare cancers and supporting workforce training and development across Victoria.

Strengthening collaboration among cancer services and research hubs will increase the impact of research and improve service delivery. The proposed Parkville Comprehensive Cancer Centre and the Olivia Newton-John Cancer Centre will contribute to this, as will strengthening the research, clinical and academic hub in the Southern Melbourne Integrated Cancer Service region.

Significant improvements in access to cancer services for rural and regional cancer patients have occurred in recent years, in particular through the single machine unit radiotherapy services in Ballarat and Traralgon, the expansion of services at Bendigo and the Andrew Love Cancer Centre in Geelong. In addition, regional radiotherapy services are provided at the Murray Valley Private Hospital in Wodonga, which services the large Albury–Wodonga border population.

Continued expansion of regional cancer services across Victoria will occur over time through building regional cancer service capacity in both infrastructure and workforce. The planning approach will be to strengthen capability in core cancer services such as chemotherapy, radiotherapy, surgery, diagnostic services and supportive care services. Future planning for regional radiotherapy will be based on existing cancer hubs within each region to ensure that service capacity, viability and critical mass are maintained. Outreach consultancy services from regional radiotherapy hubs will be developed to improve appropriate referral to treatment for cancer patients living in outlying areas. This includes services to Warrnambool, Hamilton and Shepparton.

In addition, the Cancer Action Plan Implementation Committee will work with regional radiotherapy centres and the Regional Integrated Cancer Services to identify ways of improving services for rural radiotherapy patients. This will include a review of patient liaison and support services and funding for a new position to coordinate patient support services in the Barwon South Western region as the radiotherapy service at Geelong expands through outreach services to Warrnambool and Hamilton.

Priority 2: Improve the quality of cancer services through the consistent implementation and monitoring of evidence-based care

Continuous improvement of cancer services

A key to improving cancer survival rates is consistent implementation of evidence-based care. A range of mechanisms such as clinical audit, peer review and benchmarking will be used to monitor the quality of cancer services, drive improvements in cancer care and reduce unwanted variations in care. These will be over-sighted by the Cancer Clinical Network Advisory Committee and facilitated by the ICS who will support health services in monitoring the quality of their cancer services. Victoria's Cancer Action Plan provides for the first time a series of measurable targets. These targets will be used by Integrated Cancer Services as an important benchmark for measuring cancer management.

Information and communications technology for improved cancer care

A critical enabler of good cancer care is the development of linked and interoperative clinical information and communications technology (ICT) systems. Most cancer care is carried out in a range of settings that includes GP surgeries, public and private hospitals, specialists' private consultation rooms and community health settings.

Traditional institutional structures have served to impede rather than facilitate the flow and sharing of information between health services, and have made coordination of care unnecessarily complex. Innovative approaches to information management are required to enable information to be accessible at each point of patient care. This includes ICT systems to support the clinical management of cancer patients in order to reduce the unnecessary duplication of diagnostic tests, reduce system problems leading to medication and prescription errors and improve coordination of care. A significant opportunity now exists to build on the implementation of Health*SMART*² technologies and cancer clinical data linkage initiatives such as BioGrid and the Victorian Cancer Outcomes Network trial to develop clinical management systems to support patient management and facilitate the sharing of data and information within and between health services, as well as with the primary care sector.



2 HealthSMART is Victoria's whole-of-health information and communications technology strategy. It aims to improve patient care, reduce the administrative burden on health care professionals and ease the costs associated with updating technical infrastructure within the public health care system by adopting a standardised approach to health information systems

Priority 3: Improve access to cancer diagnostic and treatment equipment and ensure a sustainable cancer workforce

Innovative treatment and technology

A range of new and emerging technologies have the potential to revolutionise the detection and treatment of cancer. In the future, advances in areas such as molecular pathology and gene technologies will inform cancer treatment decision-making and provide the opportunity for treatments to be targeted to individual patients. Such developments can enhance patient outcomes, improve quality of life and reduce length of stay and procedural costs. However, it is recognised that new technologies can also increase procedural costs if inappropriately utilised.

The Cancer Action Plan Implementation Committee will continue to monitor and plan for the appropriate trialling and implementation of such technologies. This will occur in conjunction with the Victorian Policy Advisory Committee on Clinical Practice and Technology, which can commission horizon scanning for new and emerging health technologies and recommend pilot funding from the Department of Human Services New Technology Program budget for their implementation.

Revolutionising chemotherapy preparation

The state-of-the-art Cytocare drug 'compounding' robot is the latest cutting edge robotic technology in preparing chemotherapy. Launched at the Peter MacCallum Cancer Centre in November 2008, and only the second in the Asia Pacific region, the Cytocare has the ability to prepare up to 30,000 doses of chemotherapy a year. The robot will increase production efficiency and quality control and boost safety for both patients and workers.

Adoption of new health care technology needs to be underpinned by evidence of safety, clinical effectiveness and cost effectiveness. Appropriate implementation of new technologies such as advanced imaging techniques will be supported through the Cancer Action Plan. A strategy will be developed to plan for the introduction of new diagnostic and treatment technologies throughout the health sector, including workforce planning and capital requirements.

The Cancer Action Plan also supports additional training places for medical imaging interns in recognition of the need to build future workforce in this area.

New advances in lung cancer biopsy

Endo-bronchial ultrasound-guided biopsy is a new clinical practice that can diagnose and stage lung cancer in hospital, with results the same day. This can replace the current invasive procedure requiring a general anaesthetic lasting several hours, a multi-day hospital stay and a one to two-week wait for biopsy results, which can delay cancer treatment.





Expanding the oncology workforce, particularly in regional Victoria

Access to specialised cancer treatments depends on the availability of an appropriately skilled workforce. This is a particular challenge in rural and regional areas. New workforce models are required to ensure rural and regional cancer patients can access high-quality cancer care locally, and to assist in reducing disparities in outcomes between metropolitan and regional areas.

Improving linkages between metropolitan and regional cancer services will enable expertise to be shared and coordinated through a range of initiatives such as improved outreach and mentoring programs, joint clinical appointments, ICT linkages to enable local clinicians to take part in central multidisciplinary cancer meetings and expansion of supportive care for cancer patients. Development of innovative arrangements to support the regional oncology workforce will continue to be focus for implementation of the Cancer Action Plan. The plan also provides for some specific regional workforce initiatives such as expansion of the blood transfusion nursing program to support the delivery of regional haematology services and expansion of the cancer genetics workforce to provide regional outreach.

New positions funded through the Cancer Action Plan

The Cancer Action Plan supports the expansion of the cancer workforce. Seventy-three new positions in total will be funded in the areas of clinical genetics (geneticists and counsellors), medical physics trainees, radiation therapy clinical educators, medical imaging interns, blood transfusion nurses and trainers, palliative care physician trainees and nurse practitioners. Many of these positions will be wholly or partially in regional Victoria.

In addition, the Victorian Cancer Agency will continue to support capacity building in the cancer research workforce through a range of scholarships, fellowships and program grants.

Sustainability of laboratory services

Diagnostic pathology underpins all cancer treatment in determining the presence or absence of disease and in improving the understanding of its causes. In cancer care, pathology plays a crucial role in diagnosis and consequent treatment decisions. Diagnostic pathology in genetics is a technically specialised and complex field. Technological advances are improving the capacity for early detection and intervention that can reduce, or in some cases, prevent the disease.

Demand is growing and this highlights the importance of ensuring the sustainability of the pathology workforce, technical expertise and equipment. Ensuring a sustainable pathology service will produce significant benefits for the community.

The Cancer Action Plan Implementation Committee will work with specialist colleges, health services and public pathology laboratories to identify and over come barriers to sustainability, as well as build on existing collaborative relationships with private pathology services.

Improving access to radiotherapy and support for the radiotherapy workforce

Radiotherapy services require a highly specialised workforce including radiation oncologists, radiation therapists and medical physicists. Shortages in the specialist radiotherapy workforce combined with expanding demand for radiotherapy mean that greater support and training is required to recruit and retain staff in these areas. This includes expanding the training program for medical physics interns and increasing the number of educator positions across the state in radiation therapy.

Developing partnerships with the private sector to improve access to cancer services

The private sector plays an important role in cancer service provision, particularly outside the metropolitan area. Linking with the private sector will enhance the ability to provide high-quality services locally. Public cancer patients from many disadvantaged areas of Victoria can face difficulties in accessing specialist cancer services, particularly radiotherapy. The development of shared care arrangements between local public hospitals and private radiotherapy services will be undertaken through the Cancer Action Plan Implementation Committee. This will ensure that public patients are able to access radiotherapy locally and in coordination with their care at the local public hospital.

Action Area 4: Supporting and empowering patients and carers throughout their cancer journey

A diagnosis of cancer is a difficult and major event in people's lives and a time when they need great sensitivity and care, not only for their physical needs, but also for their emotional and spiritual needs. The complexity of the treatment and the number of clinical specialities involved mean that a high degree of coordination and information is required for patients and carers to feel supported throughout the cancer journey.

Strategic directions

Patients and carers need to be supported as equal partners in their care through strengthening the consumer voice and promoting well-coordinated care by multidisciplinary teams along the continuum from diagnosis to end of life. There is also a need to target particular groups who have poorer outcomes or suffer long-term unwanted effects of treatment.

Priorities

- Create better experiences for cancer patients and carers
- Ensure the needs of adolescents and young adults (AYA) with cancer are addressed and that long-term effects of treatment for survivors of childhood cancers are managed
- Increase capacity of palliative care services to provide care for patients in the place of their choice



Priority 1: Create better experiences for cancer patients and carers

The importance of consumer participation in cancer care policy development, service delivery and research

Consumers have an important role in improving cancer care, not only through understanding and directing their own care but also by participating in development of policy, service delivery and research. Training and education programs for consumer advocates, along with a commitment for consumers to participate in reference and project groups at all levels of cancer service planning, will increase the capacity of consumers to shape services that meet patients' needs.

The Cancer Action Plan Implementation Committee will work with a range of consumer organisations to develop and support programs that train consumer advocates.



Promotion of multidisciplinary care

Multidisciplinary care is a team approach where health professionals (such as surgeons, medical oncologists, radiation oncologists, pathologists, nurses, and allied health) work together to plan treatment and care for individual patients. An expanding body of international and national evidence has identified multidisciplinary care as a key component of best practice cancer care.

Many people with cancer are treated by multiple health professionals in different health services and health sectors, including public, private and community health, in both metropolitan and rural regions. Effective multidisciplinary care results in improved team communication, service coordination and continuity of care, as well as greater patient involvement and understanding of their treatment, contributing to improved outcomes and survival.

Multidisciplinary care is a focus for activity at the national level, as well as state and territory levels, and there is a significant opportunity for a consistent national target to be established in this area. An audit conducted in 2008 identified that more than 145 multidisciplinary teams meet regularly throughout Victoria to discuss patient care planning. The Cancer Action Plan will continue the focus on multidisciplinary care, with the aim of significantly increasing the number of patients with a documented multidisciplinary care plan.

Cross-sector collaboration

The Barwon South Western Regional Integrated Cancer Service has established five tumour-specific multidisciplinary team meetings as a collaboration between health care providers from Barwon Health, Geelong Private and St John of God (Geelong) and general practitioners. The multidisciplinary meetings are supported by the General Practice Association of Geelong's Cancer and Palliative Care Special Interest Group. The meetings provide a forum for discussing both public and private patient cases as well as an opportunity for education. Mechanisms are in place to facilitate timely communication to general practitioners prior to and following the discussion of all patient cases.

Strengthening supportive care services

Supportive care is an 'umbrella' term for services that may be required to support people with cancer and their carers throughout diagnosis, treatment and follow-up. In Victoria, supportive care refers to meeting five areas of need: physical, psychosocial, social, information and spiritual.

Supportive care can include self-help and support, information, symptom control, social support, rehabilitation and a range of allied health services such as physiotherapy, stomal care and lymphodoema care.

Strengthening supportive care is a key priority area for the Integrated Cancer Services in the delivery of cancer care. The aim is for supportive care to be an integral component of cancer service delivery, with a systematic approach established within organisations. Early identification of supportive care needs through screening and intervention can lead to considerable benefits for patients and their carers. There is a need for better assessment of supportive care needs, greater access to supportive care services and broader workforce training in core supportive care competencies.

Follow-up care and survivorship

Cancer has a huge impact on a person's life, not only during treatment but in the following months and years. With improved treatments and increases in the number of cancer cases, more people are living longer with cancer.

Support and guidance for survivors, carers and healthcare providers to help overcome the medical and psychosocial problems that may arise after treatment is very important, as is the need to provide appropriate follow-up models of care.

The cancer consumer advocacy movement has identified survivorship as an emerging field for cancer services improvement and cancer research. This includes physical needs such as medical follow-up as well as care to support psychosocial well being and quality of life. Whilst service responses to this issue are not yet fully developed, it is a priority to develop innovative models of follow-up and outpatient care to address these care needs.

How the Cancer Action Plan will support the delivery of best practice care for patients

The Integrated Cancer Services will continue their integral role in establishing and implementing multidisciplinary care, supportive care, appropriate models of follow-up care and planning for survivorship. Funding will be provided through the Cancer Action Plan to enhance multidisciplinary team-based care and multidisciplinary processes. This includes provision of training programs in supportive care competencies, implementation of supportive care screening and the development of innovative models of follow-up care that meet patients' needs. This will be delivered through metropolitan and regional Integrated Cancer Service partnerships.

In addition, a state-wide model that identifies the best ways of supporting patients in their own communities in the longer term will be developed and evaluated through the Cancer Action Plan. This will include the trialling of models of care that link public health services with primary and communitybased services as well as private providers in order to facilitate the provision of patient-centred care beyond active treatment.



Priority 2: Ensure the needs of adolescents and young adults with cancer are addressed and that long-term effects of treatment for survivors of childhood cancers are managed

Supporting adolescents and young adults with cancer

Adolescents and young adults (AYA) with cancer and their families have poorer outcomes than children with cancer, and they have particular psychosocial needs. They require relevant information and support, including knowledge of pertinent clinical trials, to maximise participation in their treatment and outcomes.

Victoria has a leading service in this area, with onTrac established in 2004 at the Peter MacCallum Cancer Centre to support this age group and their specific needs. onTrac provides coordinated, integrated and quality care for adolescents and young adults living with cancer. onTrac is a leader in its field and works with health services to promote a multidisciplinary, diseasespecific and age-appropriate approach to AYA cancer care.

Through the Cancer Action Plan, onTrac will be expanded to provide a statewide service to expand access to appropriate clinical and psychosocial followup and care for adolescents and young adults with cancer. Through linkages with regional Integrated Cancer Services, referral pathways will be developed, clinical protocols implemented and additional education and training provided to help staff better respond to the needs of AYA with cancer. To improve care for adolescents and young adults being treated by adult cancer services across Victoria, onTrac will be able to provide more secondary consultation and advice and assistance with care plans.



onTrac@PeterMac

Jill, a 19-year-old apprentice, was diagnosed with a bone tumour. Jill received 14 months of treatment, including chemotherapy, surgery and further chemotherapy. To manage the situation, Jill found she had to move back home with her parents.

During the experience Jill became frightened, confused and overwhelmed.

As a young person, she was referred to the onTrac@PeterMac service. The service team assessed Jill's needs and worked out with Jill the support she needed in all areas of her life, not just the cancer treatment. Jill participated in a peer support group that included a music program and led to the production of a CD. Jill was able to discuss the side effects and long-term implications of the treatment, including fertility and reproductive issues and receive education and careers advice as well as help to develop strategies to maximise her independence, enhance her self-esteem and enable her to focus on her future prospects.

Today, Jill is about to complete her apprenticeship and move out of home again.

Supporting survivors of childhood cancers

A significant proportion of survivors of childhood cancers experience new health problems as a result of the disease and its treatment with up to 60 percent having one or more chronic health problems five years later. The cumulative effects of chronic health problems in survivors may impact on their ability to participate in the workforce, establish long-term relationships, have a family, as well as impact on their ability to contribute to the wider community. There is a need to identify survivors who are high risk or with high needs and provide appropriate support services.

The Cancer Action Plan will provide recurrent funding for the establishment of a new Victorian state-wide Long Term Effects Follow-up (LTF) Program for survivors of childhood cancers. The program will be overseen by the Paediatric Integrated Cancer Service and will establish hub-and-spoke LTF services in key metropolitan and regional Integrated Cancer Services. This will support routine assessment of long-term risks and needs and the use of care plans, and clear referral pathways between cancer and paediatric services, general practitioners and other supportive care services.

This will be the first state-wide coordinated response to supporting survivors of childhood cancers through metropolitan and regional partnerships in Australia.

Priority 3: Increase capacity of palliative care services to provide care for patients in the place of their choice

The importance of timely palliative care

Palliative care improves the quality of life for patients facing life-limiting illness and their families by providing pain and symptom relief, spiritual and psychosocial support from diagnosis to the end of life and bereavement. Palliative care is not just about the last weeks of a person's life. Palliative care can be offered in conjunction with active curative treatments. This allows patients to continue towards a curative goal and provides them with the opportunity to understand the nature of their illness and how it will impact on their lives.

Community palliative care

International studies show that 56 percent of patients would prefer to die at home and 85 percent would choose to die in a home-like environment. The Victorian Government is committed to supporting patients in choosing where they want to die. Through the introduction of flexible funding packages, this strategy will increase the capacity of community palliative care services to support patients to die at home.

Palliative care in the home

Aaron was a 46-year-old man with non-Hodgkin's lymphoma who lived with his wife, teenage daughter and son who was completing his VCE exams. After discharge home from hospital, Aaron expressed his wish to die at home and said he wanted to make the most of his good days, and live until his son finished his VCE exams. The community palliative care service tailored Aaron's pain and symptom management and educated him and his wife on how to achieve these aims. The service provided overnight respite, 24-hour advice and support to his wife and liaised with his GP and pharmacist to ensure his pain was managed and that he could remain at home. Aaron was able to be with his family and friends in his own home. His wish to live until his son completed his exams was met and Aaron died at home several days later.

Reducing variation in care

Victorian carer satisfaction surveys report high levels of satisfaction with palliative care services. Improving the accessibility and quality of palliative care services still requires a continued focus. The Victorian Government will work with Regional Palliative Care Consortia to develop a clinical service improvement framework and associated benchmarks. The aim is to reduce unwanted variations in care by identifying the essential quality elements needed to monitor and report on service improvement.

Pain management

International research reports that pain impacts significantly on the quality of life for people with chronic conditions. Pain remains one of the most feared consequences of cancer for patients and their families. The implementation of routine pain assessment and management for patients with cancer pain requires continued focus. Moderate to severe cancer pain occurs in about 50 percent of patients who are receiving active cancer treatment and in about 80 to 90 percent of patients who have advanced disease and/or are receiving palliative care. As part of the ongoing work of Palliative Care Consortia and services and the Integrated Cancer Services, pain management initiatives in routine cancer and palliative care will be developed.

Improving quality of life through pain management

Carol is a 20-year-old woman with bone cancer who experienced uncontrolled pain and symptoms while in hospital. As part of coordinated treatment, a referral was made to the palliative care team to assess Carol's situation and her medication regime was subsequently changed. Carol's pain and symptoms were reduced and she was able to return home and continue treatment on an outpatient basis.

Workforce initiatives

Expansion of the palliative care workforce is a priority for the sustainability of palliative care services into the future. The Victorian Government has recognised the importance of improving access to palliative care physicians in rural Victoria. Partnerships between rural and metropolitan services have been established through the Palliative Care Consortia. Palliative care physicians are now providing services across rural Victoria including Mildura, Wangaratta, Hamilton, Ballarat and across the Gippsland region. Many local general practitioners and other medical specialists have participated in the palliative care education, training and scholarship programs established across the state.

The Cancer Action Plan will build on existing initiatives designed to increase medical palliative care trainee opportunities. Nurse practitioner models, although relatively new in Victoria, offer great potential for complementing medical services in palliative care. The Cancer Action Plan will support the creation of nurse practitioner scholarships, particularly in rural areas where medical specialists are in short supply.

Implementing the Cancer Action Plan

A collaborative effort

Victoria's Cancer Action Plan has been developed to provide policy leadership and common goals for government, health services, research institutes, peak bodies, health professionals and consumer organisations working in the cancer control arena in Victoria. The burden of cancer on individuals, families, the community and the health system is great, and tackling cancer is a complex task. Accordingly the Cancer Action Plan is a multifaceted program with impact across the breadth of the cancer journey.

Many different groups will be involved in implementing the parts of the plan in which they have expertise and operational influence. This includes the Cancer Council Victoria, VicHealth, the professional medical, nursing and allied health colleges and associations, consumer organisations, and a range of educational, research, health care and academic institutions.

Our challenges are to maintain a unified focus in order to progress the plan, and to evaluate the effectiveness of its actions. The Victorian Cancer Agency is a key resource in the implementation of the plan, particularly in the area of developing health services research. The Victorian Cancer Agency will actively seek to foster collaboration across relevant organisations and to promote joint projects and shared resources. The Integrated Cancer Services and Palliative Care Consortia are also central to the implementation of the plan and will play an important role in ensuring that the actions and initiatives implemented through the plan maintain a strong focus on improving patient care.

It is also essential that Victoria continues to work collaboratively with a range of national agencies, including Cancer Australia, the New South Wales Cancer Institute, the state and territory-based cancer networks and policy units, the National Breast and Ovarian Cancer Centre, the Cancer Council of Australia, and consumer organisations such as Cancer Voices, the Breast Cancer Network of Australia, Ovarian Cancer Australia, CanTeen, the Leukaemia Foundation and others.

Engagement with the private health sector

Private sector health services and practitioners are major providers of cancer care, including a large proportion of diagnostic services such as imaging and pathology. Many cancer patients have at least part of their care undertaken by private sector providers. Engaging the private sector and developing a range of collaborative care models and pathways that acknowledge the interplay between public and private health services are critical to improving cancer outcomes.

The Cancer Action Plan Implementation Committee will seek to work with the Commonwealth Government, private health insurers and others that can influence private cancer care. The private sector will be encouraged to participate fully in the implementation of the Cancer Action Plan and to benchmark practices against the targets articulated in the plan.

Implementation approach

The Cancer Action Plan is a living document that will be adapted and modified to reflect new developments and actions as they arise. Managing the implementation of the plan and monitoring the outcomes are critical to ensuring that the investment by government is well spent, and that the health outcomes of this program are achieved.

In principle, the implementation approach will be multilayered, with expert groups oversighting areas of specific interests. These groups will report to a newly established Cancer Action Plan Implementation Committee, which will lead the implementation evaluation process. This Implementation Committee will be chaired by the Minister for Health and its terms of reference will include:

- 1. approving appropriate methods of gathering data around the actions and targets
- 2. monitoring progress against the targets
- 3. creating working parties to further develop some areas within the plan, for example, molecular pathology
- 4. developing further actions and targets where appropriate
- 5. evaluating the Cancer Action Plan.

Evaluation and review

The monitoring and implementation processes put in place will include periodic review of the Cancer Action Plan to ensure that we are achieving our targets and milestones. New actions and targets will be put in place as work progresses on the many areas in the plan that require ongoing development, or as research identifies more effective ways to prevent and treat cancer. Targets will also be reviewed periodically in the context of national approaches to cancer control.

A formal evaluation of the plan will be undertaken in 2011 with a view to identifying further targets for cancer control to 2015.

Funding Victoria's Cancer Action Plan 2008–2011

The Cancer Action Plan presents a range of new initiatives and measurable targets aimed at positioning Victoria to make significant cancer control gains in the areas of prevention and screening, translating research into effective care, improving access to treatment, empowering patients and carers, and building the cancer workforce.

New government funding of \$150 million over four years has been allocated across the four Action Areas of the plan. A workforce development component is included in each area.

| Action Area 1: | Reducing major cancer risk factors in the population and maximising effective screening | \$24.06m |
|----------------|---|----------|
| Action Area 2: | Ensuring rapid translation of research into effective treatments and clinical care | \$78.77m |
| Action Area 3: | Investing in innovative treatments and technologies and sustainable integrated care systems | \$18.42m |
| Action Area 4: | Supporting and empowering patients and carers throughout their cancer journey | \$28.78m |

Of the above funding, \$24.8 million will be allocated to support workforce improvements. This includes funding for the equivalent of 73 new positions across Victoria, as outlined in the plan.

Additionally the Victorian Government has committed to a range of capital and infrastructure projects in 2008–09 that are not included in the \$150 million of new funding allocated to the Action Plan, including \$40.6 million for a new radiotherapy service in the westerns suburbs of Melbourne as part of the Sunshine Hospital redevelopment, \$25 million to support the Olivia Newton-John Cancer Centre and \$5 million planning funding for the proposed Parkville Comprehensive Cancer Centre.

Further government investment in cancer care to reflect growing demand for cancer services as a result of population growth and ageing, and to fully realise initiatives identified in this plan, will be considered as part of future budget processes. However achievement of the targets will depend on action and commitment across the cancer control arena, not just on government action.

This is the first time that Victoria has committed to such a broad range of challenging targets for a specified disease group. The purpose of the targets is to drive change and to provide a consistent framework for action across the diverse and complex cancer service system.

The plan provides a strategic framework and targets for health services, Integrated Cancer Services and Palliative Care Consortia, research organisations, industry, peak bodies, consumer organisations and the philanthropic sector, all of whom will have a major role in implementing the plan, and who will need to target their own funding priorities to ensure that together we can make sure Victoria is one of the best and safest places to be treated for cancer anywhere in the world.

Targets and milestones

Action Area 1: Reducing major cancer risk factors in the population and maximising effective screening Priority one: Reduce the prevalence of established risk factors for cancer in the Victorian population

Actions

- » Reduce the prevalence of smoking in the Victorian adult population, with a focus on pregnant women, Aboriginal and Torres Strait Islander communities and other high smoking prevalence groups.
- » Coordinate initiatives across key government and peak bodies to improve public awareness and evidence-based interventions of known cancer risk factors.
- » Work with the Commonwealth Government, industry and peak bodies to develop consistent and evidence-based approaches to skin cancer prevention and surveillance.

- » By 2013 we will deliver a 20 percent decline in smoking rates within the Victorian adult population.
- » By 2013 we will reduce smoking rates among pregnant women by 50 percent.
- » By 2013 we will reduce smoking among adult Aboriginal and other high-prevalence groups by at least 20 percent.
- » By 2010 we will develop coordinated strategies with agreed targets to increase and monitor population awareness of known cancer risk factors.
- » We will develop a comprehensive UV protection strategy including agreed approaches to target children, teenagers and young adults, with a focus on secondary school students.
- » We will ensure solaria businesses comply with Victorian laws regulating the use of tanning units.
- » We will work collaboratively to develop agreed policies, standards and models of care for skin cancer surveillance by 2011.

Priority two: Increase participation rates in population-based cancer screening programs

Actions

- » Increase cancer screening participation rates in communities that have lower than average participation rates, including the hard-to-reach, non-screened and under-screened, Aboriginal and Torres Strait Islander communities and culturally and linguistically diverse communities.
- » Increase breast cancer screening participation rates.
- » Increase bowel cancer screening capacity to support the expansion of the National Bowel Cancer Screening Program.
- » Maintain focus on cervical cancer control.

- » By 2013 we will increase breast cancer screening participation rates in Aboriginal and Torres Strait Islander and culturally and linguistically diverse groups by 10 percent.
- » We will develop systems to measure baseline participation rates for Aboriginal and Torres Strait Islander communities and culturally and linguistically diverse groups.
- » By 2013 we will increase cervical and bowel cancer screening participation rates in Aboriginal and Torres Strait Islander communities and culturally and linguistically diverse groups by 10 percent from a measured baseline.
- » By 2013 we will increase breast cancer screening participation rates by offering 20,000 additional screening tests per annum.
- » We will work with the Commonwealth Government to enhance the overall bowel cancer screening program and agree on a target participation rate of 60 percent in the eligible population (currently 50, 55 and 65 year olds) by 2011.
- » By 2011 we will increase the immunisation rate against HPV for cervical cancer to 75 percent for Year 7 secondary school girls.

Priority three: Increase access to genetic screening and new diagnostic technology

Actions

» Increase system capacity to identify families and individuals at very high risk of developing a familial cancer.

- » We will provide an additional 2,700 patient appointments in clinical cancer genetics across Victoria each year until 2011.
- » We will provide an additional 5,000 gene and predictive tests over four years for breast, bowel and other familial cancers.
- » We will recruit two new training fellows, two geneticists and six genetic counsellors over the next four years to boost cancer genetic service capacity.
- » We will aim to offer 100 percent of the individuals who are considered at risk of familial cancer registration on the Family Cancer Register by 2010.

Action Area 2: Ensuring rapid translation of research into effective treatments and clinical care

Priority one: Sustain and strengthen Victoria's leadership role in linking cancer research to clinical outcomes within Australia

| Actions | Targets & milestones |
|---|---|
| » Set strategic priorities for cancer research in Victoria, based on identified gaps and areas of need. » Support collaborative interdisciplinary and inter- organisational research (across universities, research institutes, health services and industry). » Build and sustain a translational cancer research workforce. | » By mid-2009 we will develop a comprehensive translational cancer research strategy for Victoria to guide research activity and investment. » We will develop new collaborative linkages between cancer researchers and clinical services. » We will increase the recruitment, retention and up-skilling of the translational research workforce, by investing in workforce development initiatives through the Victorian Cancer Agency. » By 2012, 25 percent of the Victorian Cancer Agency research investment will be in research projects developed since the creation of the Victorian Cancer Agency. » We will invest \$8 million in increasing the level and skill of the cancer research workforce in Victoria. |
| | |

Priority two: Invest in translational research and develop partnerships with industry

Actions

- Targets & milestones
- Invest in both translational research and the dissemination and adoption of research findings.
- » Increase the number of, and participation in, cancer clinical trials.
- » Increase industry partnerships for funding of translational cancer research.
- » In 2009 we will undertake an audit to establish ongoing monitoring processes for research findings that can be rapidly and widely adopted into clinical practice.
- » We will invest \$40–\$50 million over the next four years on translational research activity through the Victorian Cancer Agency.
- » By 2012 we will increase patient participation in cancer clinical trials from 6 percent to 9 percent and to 15 percent in 2020.
- » We will work towards doubling the level of patient participation from Victorian regional areas in cancer trials by 2012.
- » By 2011 The Victorian Cancer Agency will source an additional \$10 million of funding from nongovernment sources for translational cancer research.
- » By 2012 we will increase the level of Victorian Cancer Agency funding directed into supportive care, palliative care and survivorship by 50 percent.
- » We will develop and fund at least 10 regional research projects across five rural regions to support improved cancer services through regional ICS.

Priority three: Further develop institutional structures, platforms and support systems to facilitate cancer research and its effective translation into clinical practice in Victoria

Actions

- » Development of the Parkville Comprehensive Cancer Collaborative as a national facilitator for translational research in cancer.
- » Provide and improve access to appropriate 'enablers' of translational research, including:
 - infrastructure
 - platform technologies
 - data and bioinformatics.

- » We will attract funding for cancer research by 2011 through enhanced collaboration achieved by the establishment of the Parkville Comprehensive Cancer Collaborative.
- » We will ensure that 80 percent of all research funded by the Victorian Cancer Agency between 2008 and 2012 will be collaborative (within and between research organisations and clinical services).
- » We will leverage the capacity of the new 'super computer' (Victorian Life Sciences Computation Initiative) to be based at Parkville to establish links between existing and new data providers, such as BioGrid.
- » We will support the Victorian Cancer Biobank to maintain and expand tissue collection and enhance molecular pathology research and other research that requires tissue samples.
- » We will invest at least \$15 million of funding over four years into enablers of translational research through the Victorian Cancer Agency, of which \$8 million will be to support the cancer research workforce.

Action Area 3: Investing in innovative treatments and technologies and sustainable integrated care systems

Priority one: Improve cancer service capacity across Victoria

| Actions | Targets & milestones |
|---|---|
| » Build linkages and referrals between metropolitan and regional centres. | » By 2010 we will develop a service capability framework for cancer services that supports linked cancer treatment across metropolitan and regional cancer services. |
| » Invest in new and redeveloped cancer centres in metropolitan and regional areas. | » We will continue to progress the development of the Olivia Newton-John Cancer Centre at Austin Hospital (\$25 million committed in the 2008–09 financial year). |
| » Further develop specialised state-wide cancer | » By 2011 we will commission the new Sunshine Hospital radiotherapy service. |
| services, research and clinical trials capacity. | » We will continue to plan for the expansion of regional cancer services across Victoria by strengthening hub-and-spoke models of care and building regional cancer service capacity. |
| | » We will work with the Southern Metropolitan Integrated Cancer Service to strengthen a collaborative research/clinical services/academic hub in cancer for this region. |
| | » We will complete planning for the proposed Parkville Comprehensive Cancer Centre for consideration in the Health and Hospitals Fund in 2009. |

Priority two: Improve the quality of cancer services through the consistent implementation and monitoring of evidence-based care

Actions

- » Improve clinical leadership through the continued development of clinical networks and tumour groups to engage clinicians in the development of standardised care protocols to minimise variations in practice.
- » Develop a strategic approach to support cancer patient management and to facilitate sharing of information within and between health services, including primary care.

- » We will work to ensure that clinical treatment for the top 10 tumour streams is delivered and documented in compliance with evidence-based clinical practice guidelines and agreed referral protocols.
- » By end 2011 all cancer services will have monitoring and benchmarking mechanisms such as clinical audit, peer review and clinical indicator benchmarking in place and will submit completed performance data to the Department of Human Services.
- » We will develop standards for cancer clinical management systems to support multidisciplinary treatment planning, monitoring and discharge.
- » We will explore the development of data linkage models to improve the timeliness and accessibility of clinical cancer information to treating clinicians across different health services and for ongoing population surveillance.
Priority three: Improve access to cancer diagnostic and treatment equipment and ensure a sustainable cancer workforce

Actions

- » Develop a strategy for the replacement and expansion of specialised diagnostic imaging and treatment technologies for cancer.
- » Expand the oncology workforce, particularly in regional Victoria.
- » Improve access to public radiotherapy and support the specialist radiotherapy workforce.
- » Support developments around the sustainability of the pathology workforce.
- » Expand the specialist blood workforce to ensure quality in the use and administration of blood and blood products for cancer patients.

Targets & milestones

- » We will develop a strategy that outlines the future role, requirements and location of specialised diagnostic and treatment technologies for cancer by 2010–11.
- » We will work towards increasing specialist oncology trained staff working in regional Victoria, including joint appointments, remote consultations, mentoring and clinical networking arrangements.
- » We will expand the medical imaging workforce through the provision of up to 30 additional medical imaging internships in public health services each year until 2011.
- » We will work towards supporting the sustainability of pathology expertise in Victoria by 2010.
- » We will expand the specialist radiotherapy workforce by providing an additional eight medical physicist trainees each year and seven new radiation therapy clinical educators.
- » We will develop shared cancer care arrangements with private radiotherapy services to improve public access that will provide care for up to 600 additional cancer patients from disadvantaged areas.
- » We will develop outreach consultancy services in radiation oncology to sub-regional centres at Warrnambool, Hamilton and Shepparton from regional cancer hubs.
- » We will expand the current blood transfusion nurse program by providing the equivalent of 13 new full-time positions (transfusion nurses/trainers) across the state.

Action Area 4: Supporting and empowering patients and their carers throughout their cancer journey

Priority one: Create better experiences for cancer patients and carers

Actions

- **Targets & milestones**
- » Increase consumer participation in cancer care policy development, service delivery and research.
- » Support continued development of multidisciplinary management of cancer care across metropolitan and regional services.
- » Increase access to supportive care through introduction of supportive care screening processes and training of the cancer workforce in supportive care competencies across metropolitan and regional services.
- » Develop innovative and flexible models for followup cancer care.

» We will work with consumer organisations in a range of tumour streams to support programs that train cancer consumer advocates.

- » We will work to increase the number of newly diagnosed cancer patients that have a documented multidisciplinary care treatment plan by 20 percent each year with the aim of achieving 80 percent documentation by 2012.
- » By 2012 we will provide evidence of training of the cancer workforce in supportive care screening processes and survivorship awareness.
- » We will aim to document supportive care screening for 50 percent of newly diagnosed cancer patients by 2012.
- » We will establish a state-wide program that trials patient-centred models of survivorship care by 2011.

Priority two: Ensure the needs of adolescent and young adults with cancer are addressed and that long-term effects of treatment for survivors of childhood cancers are managed

Actions

- » Establish a state-wide adolescent and young adults cancer service in Victoria to provide direct care, capacity building and specialist education support resources and secondary advice to services managing AYA patients.
- » Develop a new state-wide program to support survivors of childhood cancers in managing the long-term effects.

Targets & milestones

- » By 2010 we aim to have an additional 10 percent of those adolescents and young adults at highest risk of poor outcomes enrolled in appropriate clinical trials.
- » By June 2012 we will develop and implement a comprehensive service for adolescents and young adults with cancer.
- » By 2012 we aim to have 80 percent of newly diagnosed survivors of childhood cancers with a long-term follow-up plan developed and documented through the new long-term follow-up service.

Priority three: Increase capacity of palliative care services to provide care for patients in the place of their choice

| Act | ione |
|-----|------|
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| | |

- Targets & milestones
- Provide flexible funding packages to support patients to die at home or in another home-like environment of their choice.
 We place place
- » Support the Palliative Care Consortia to develop a clinical service improvement program with an aim to reduce unacceptable variation in care.
- » Establish range of workforce initiatives to attract, retain and expand the specialist palliative care workforce.

» We will increase the number of cancer patients in palliative care who are supported to die in their

- » We will increase the number of cancer patients in pallative care who are supported to die in their place of choice with the aim to increase the proportion of patients who realise their preference by 10 percent each year until 2011.
- » By end 2011 all palliative care services will have monitoring mechanisms in place to report performance data to DHS.
- » By 2011 we will develop new regional nurse practitioner positions and associated scholarships with at least one position in each of the five rural regions.
- » By 2011 we will provide a minimum of five medical palliative care trainee opportunities each year in accredited palliative medicine training facilities.

Summary of key numeric targets

By 2010 we aim to have an additional 10 percent of those adolescents and young adults at highest risk of poor outcomes enrolled in appropriate clinical trials.

By 2011 we will increase the immunisation rate against HPV for cervical cancer to 75 percent for Year 7 secondary school girls.

We will work with the Commonwealth Government to enhance the overall bowel cancer screening program and agree on a target participation rate of 60 percent in the eligible population (currently 50, 55 and 65 year olds) by 2011.

We will provide an additional 2,700 patient appointments in clinical cancer genetics across Victoria each year until 2011.

By 2011 the Victorian Cancer Agency will source an additional \$10 million of funding from non-government sources for translational cancer research.

We will expand the medical imaging workforce through the provision of up to 30 additional medical imaging internships in public health services each year until 2011.

We will increase the number of cancer patients in palliative care who are supported to die in their place of choice with the aim to increase the proportion of patients who realise their preference by 10 percent each year until 2011.

By 2012, 25 percent of the Victorian Cancer Agency research investment will be in research projects developed since the creation of the Victorian Cancer Agency.

By 2012 we will increase patient participation in cancer clinical trials from 6 percent to 9 percent and to 15 percent in 2020.

By 2012 we will increase the level of Victorian Cancer Agency funding directed into supportive care, palliative care and survivorship by 50 percent.

We will work to increase the number of newly diagnosed cancer patients with a documented multidisciplinary care treatment plan by 20 percent each year with the aim of achieving 80 percent documentation by 2012.

We will aim to document supportive care screening for 50 percent of newly diagnosed cancer patients by 2012.

By 2012 we aim to have 80 percent of newly diagnosed survivors of childhood cancers with a long-term follow-up plan developed and documented through the new long term follow-up service.

By 2013 we will deliver a 20 percent decline in smoking rates within the Victorian adult population.

By 2013 we will reduce smoking rates among pregnant women by 50 percent.

By 2013 we will reduce smoking among adult Aboriginal and other high-prevalence groups by at least 20 percent.

By 2013 we will increase breast cancer screening participation rates in Aboriginal and Torres Strait Islander and culturally and linguistically diverse groups by 10 percent.

By 2013 we will increase cervical and bowel cancer screening participation rates in Aboriginal and Torres Strait Islander communities and culturally and linguistically diverse groups by 10 percent from a measured baseline.

By 2013 we will increase breast cancer screening participation rates by offering 20,000 additional screening tests per annum.

We will provide an additional 5,000 gene and predictive tests over four years for breast, bowel and other familial cancers.

We will develop shared cancer care arrangements with private radiotherapy services to improve public access that will provide care for up to 600 additional cancer patients from disadvantaged areas.

Appendices

Integrated Cancer Services and participating health services

Metropolitan

North Eastern Metropolitan Integrated Cancer Service Austin Health Northern Health Eastern Health Mercy Hospital for Women

Southern Melbourne Integrated Cancer Service Alfred Health Southern Health Peninsula Health

Western and Central Melbourne Integrated Cancer Service

Melbourne Health The Royal Women's Hospital Western Health Peter MacCallum Cancer Centre Mercy Werribee Hospital St Vincent's Hospital

State-wide Paediatric Integrated Cancer Service Royal Children's Hospital Southern Health Peter MacCallum Cancer Centre

Regional

Barwon South Western Regional Integrated Cancer Service Balmoral Bush Nursing Barwon Health Bellarine Community Health Casterton Memorial Hospital Colac Area Health Dartmoor Bush Nursing Geelong Private Hospital Hesse Rural Health Service Heywood Rural Health Lorne Community Hospital Moyne Health Service Otway Health and Community Services Portland District Health St John of God Health Care - Geelong St John of God Health Care - Warnambool South West Healthcare Terang & Mortlake Health Service Timboon & District Health Care Service Western District Health Service

Gippsland Regional Integrated Cancer Service

Bass Coast Regional Health Bass Coast Community Health Service Bairnsdale Regional Health Service Central Gippsland Health Service Gippsland Southern Health Service Kooweerup Regional Health Service Gippsland Lakes Community Health Service Latrobe Community Health Service Latrobe Regional Hospital Maryvale Private Hospital Neerim South Health Services Omeo District Health Orbost Regional Health South Gippsland Hospital West Gippsland Healthcare Group Yarram & District Health Service

Grampians Regional Integrated Cancer Service

Ballarat Austin Radiation Oncology Group Ballarat Division of GPs Ballarat Health Services Ballarat Oncology Services Beaufort and Skipton Health Service Djerriwarrh Health Services **Dunmunkle Health Services** East Grampians Health Service East Wimmera Health Service Edenhope & District Hospital Hepburn Health Service Maryborough Hospital **Bural Northwest Health** St.John of God Health Care Stawell Regional Health University of Ballarat West Wimmera Health Service Wimmera Health Care Group

Hume Regional Integrated Cancer Service

Benalla & District Memorial Hospital Goulburn Valley Health Kilmore & District Hospital Mansfield District Hospital Northeast Health Wangaratta Numurkah District Health Service Seymour District Memorial Hospital Wodonga Regional Health Service

Loddon Mallee Regional Integrated Cancer Service

Bendigo Community Health Services Inc Bendigo Health Care Group Boort & District Hospital Castlemaine District Community Health Centre (CHIRP) Cobaw Community Health Service Cohuna District Hospital Echuca Regional Health Inglewood & District Health Service Kerang District Health Kyabram District Health Services Kyneton District Health Service Maldon Hospital Mallee Track Health & Community Service Manangatang & District Hospital Maryborough District Hospital McIvor Health & Community Services Mildura Base Hospital Mildura Private Hospital Mt Alexander Hospital Northern District Community Health Service Peter MacCallum Cancer Centre (Bendigo Campus) Robinvale District Health Service Rochester & Elmore District Health Service St John of God Hospital Bendigo Sunraysia Community Health Services Inc Swan Hill District Hospital

Palliative Care Consortia and participating Palliative Care Services

Barwon South Western Regional Palliative Care Consortium

Barwon Health – McKellar Centre Barwon Health Community Palliative Care Bellarine Community Health Colac Area Health Portland District Health South West Health Care Western District Health Service

Eastern Metropolitan Regional Palliative Care Consortium Caritas Christi Hospice Eastern Palliative Care Wantirna Health Care

Gippsland Regional Palliative Care Consortium

Bairnsdale Palliative Care Service, Community Health Centre Bass Coast Community Health Service Bass Coast Regional Health Central Gippsland Health Service Gippsland Lakes Palliative Care Gippsland Southern Health Service Latrobe Community Health Latrobe Regional Hospital West Gippsland Healthcare Group Yarram and District Health Service

Grampians Regional Palliative Care Consortium

Ballarat Hospice Care Inc Central Grampians Palliative Care Service Djerriwarrh Health Service Gandarra Palliative Care Unit Wimmera Hospice Care

Hume Regional Palliative Care Consortium

Benalla Palliative Care Service Goulburn Valley Hospice Care Inc Hume Regional Palliative Care Consultancy Team Lower Hume Palliative Care Moira Palliative Care Service North East Health Wodonga Regional Health Service Palliative Care

Loddon Mallee Regional Palliative Care Consortium

Bendigo Community Palliative Care Service Bendigo Hospice and Evaluation Unit Echuca Community Palliative Care Service Macedon Ranges Palliative Care Service Maryborough Community Palliative Care Service Mildura Base Hospital Mount Alexander District Nursing & Palliative Care Sunraysia Community Health Services Inc. Swan Hill Palliative Care Service

North and West Metropolitan Regional Palliative Care Consortium

Banksia Palliative Care Services Broadmeadows Health Service Melbourne Citymission Palliative Care Mercy Werribee Hospital Mercy Western Palliative Care Palliative Care Unit - Austin and Repatriation Medical Centre Sunshine Hospital Palliative Care Unit

Southern Metropolitan Regional Palliative Care Consortium

Bethlehem Community Palliative Care Services Calvary Health Care Bethlehem McCulloch House Palliative Care Unit Palliative Care Unit and Consultancy Service - Peninsula Health Peninsula Hospice Service South East Palliative Care Ltd

Glossary

Adjuvant chemotherapy: When chemotherapy is used along with another treatment, such as surgery or radiotherapy. Adjuvant chemotherapy can be given before or after surgery and may be given at the same time as radiotherapy.

Basal cell carcinoma: A type of skin cancer that arises from the cells at the bottom (or basal) part of the outer layer of the skin.

Benign: Not malignant.

Biomarker: A specific physical trait used to measure or indicate the effects or progress of a disease or condition.

Brachytherapy: Internal radiation treatment given by placing radioactive material directly into the tumour or close to it.

Cancer: Is an abnormal growth of cells. The cells multiply in an uncontrolled way and replace healthy cells. Cancer is not one disease and can occur in any tissue in many forms. Cancers are named after the type of cell from which they originate, so, a **carcinoma** starts in the cells that line the skin and body cavities, a **sarcoma** grows within a supportive soft tissues of the body such as muscle, nerves, fat and blood vessels or in the bone, a **leukaemia** develops in the blood, a **myeloma** develops in the plasma cells and a **lymphoma** begins in the lymphatic system.

Cancer staging: Staging describes the extent or severity of an individual's cancer based on the extent of the primary (original) tumour and the extent of spread in the body.

Chemotherapy: A drug or combination of drugs used to destroy malignant cells. It can cure some types of cancer and 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.

Clinical networks: Assist clinicians to work across organisational boundaries and encourage greater integration in health care.

Clinical trial: A trial to evaluate the efficacy and safety of a medication or medical device by monitoring the effect on a large group of selected people

Colonoscopy: An endoscopic examination of the colon.

Computerised tomography: An X-ray technique using a scanner which takes a series of cross-sectional images of the body that can be viewed in two dimensional or three dimensional form.

Consumer advocate: Is a member of a professional consumer or non-government organisation whose role is to voice a consumer (patient or carer) perspective and take part in the decision-making process as a representative of consumers.

Cytology: The study of cells, usually to make a diagnosis.

Faecal occult blood test: A chemical test that can detect tiny traces of blood in the faeces that may indicate the presence of disease.

Genetic screening: Testing of a person to identify risk for a specific condition.

Haematology: The area of medicine that specialises in the study and treatment of blood and bone marrow disorders.

Herceptin (commercial name for trastumzumab): Principally used for treatment of breast cancer in patients who produce more than the usual amount of the HER2/neu protein.

HER2/neu: Stands for 'Human Epidermal growth factor Receptor 2' and is a protein associated with high aggressiveness in breast cancers.

HPV: The human papilloma virus is a risk factor for cervical cancer. Vaccines are now available to prevent infection and help prevent development of cervical cancer.

Hub and spoke: A service model whereby a large hospital supports a program or service at another hospital. In Victoria all public radiotherapy services operate through a hub-and-spoke model.

Integrated Cancer Services: A set of clinical networks including hospitals, community and primary care services within Victoria to ensure linked clinical care for cancer patients. They involve health care professionals who are committed to working together to plan and coordinate patient care across specified geographic areas. The Integrated Cancer Services is a Victorian concept.

Incidence: Number of cases or episodes in a defined population within a given time period.

Incidence rate: Number of people with a particular cancer per 100, 000 population.

Linear accelerator: Also called a LINAC it is a treatment machine generating very high energy X-rays or electrons, and is used to provide most radiotherapy treatment for cancer.

Lymphodoema: The swelling caused by the accumulation of lymph fluid that may occur if the lymphatic system is damaged, usually by surgical removal of lymph glands or radiotherapy to lymph glands. Malignant: Uncontrolled growth of a tumour.

Mammogram: A diagnostic image of the breast.

Medical oncology: The treatment of cancer with medicine, especially chemotherapy.

Metatasis: A deposit of tumour indicating spread of tumour away from original site.

Mortality rate: The number of people who have died from cancer per 100,000 population.

Multidisciplinary care: A team approach where health professionals work together to plan treatment and care for individual cancer patients.

Non-melanocytic cancer: Usually a form of skin cancer where melanoma cells are not present.

Palliative Care: An approach that improves the quality of life of patients and their families facing problems 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, psychological and spiritual.

Palliative Care Consortia: An organised approach to coordinating and planning care through an integrated (geographically based) service system.

Pathologist: A doctor who specialises in understanding and diagnosing cancer disease through the study of cells and tissues visually and by microscope.

Patient Management Frameworks: A clear description of the care pathway, identifying the critical points along that pathway and the optimal model of care required. They are intended to improve patient outcomes by facilitating consistent care based on evidence and best practice across the state.

Prevalence: Proportion of individuals in the population with a particular disease. In cancer it refers to the number of cases of cancer that are present in a particular population at a given time.

Radiation oncology: The treatment of cancer with radiation to destroy tumours.

Risk behaviours: Behaviour-related risk factors that can be used to help determine the risk of future adverse health events and the development of cancer.

Screening: Examination of people with no symptoms to detect unsuspected disease.

Single machine unit: A service with a single linear accelerator (machine that provides radiotherapy) established in a regional area of Victoria under the *National Single Machine Unit Radiotherapy* trial.

Squamous cell carcinoma: A form of cancer that may occur in many different organs including the skin, lips, mouth, esophagus, urinary bladder, prostate, lungs, vagina and cervix.

Stoma: A stoma is a surgical opening in the abdomen usually bringing the intestine to the skin surface to empty into a bag.

Stomal care: Is the nursing care of the stoma.

Surgical oncology: The surgical treatment of cancer, including biopsy, staging and surgical resection of tumours.

Surveillance program: A surveillance program targets people who are at a greater risk of developing cancer, or who have cancer, and involves close and continuous observation and monitoring over a long period of time in order to detect early signs of cancer, or changes in their condition.

Survival rate: The percentage of people still alive at measured number of years after they have been diagnosed with cancer.

The interval most commonly referred to in the Cancer Action Plan is a five-year survival rate.

Synchrotron: A machine in which charged particles are accelerated around a fixed circular path by an electric field and held to the path by an increasing magnetic field.

Translational research: Process of applying ideas, insights and discoveries generated through basic scientific discoveries arising from laboratory, clinical or population studies into clinical applications.

Tumour: An abnormal mass of tissue that may be benign or malignant.

Vaccination: Inoculation of a substance into the body to provide active immunisation against a disease.

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