



NSW CANCER RESEARCH ACHIEVEMENT REPORT 2008

*A celebration of the outstanding contributions
made to cancer research in New South Wales*

The NSW Government agency dedicated to the control and cure of cancer through prevention, detection, innovation, research and information.



**cancer
institute**
NSW





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ABOUT THE CANCER INSTITUTE NSW

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The Cancer Institute NSW is Australia's first statewide, government-supported cancer control agency. We are committed to curing cancer in NSW through promoting the best cancer research, prevention, early-detection, treatment and education initiatives.

Our goal is to substantially improve cancer control and cure in NSW by:

- reducing the incidence of cancer in the community
- increasing the survival rate of cancer patients
- improving quality of life for cancer patients and their carers
- operating as a source of expertise on cancer control for the government's health service providers, medical researchers and the general community.

Our goal is to control and cure cancer in NSW

The cancer problem

Cancer touches us all. The current lifetime risk of being diagnosed with cancer in NSW is one in two for men and one in three for women.

Cancer is now the largest single cause of disease in Australia, surpassing cardiovascular disease. In 2005, more than 34,000 people were diagnosed with cancer in NSW. Based on current trends, there is projected to be over 30 per cent more cases of cancer in the next 10 years than there were in the last.

A cure for cancer has never been more relevant or more important to the people of NSW than it is today.

How we control and cure cancer in NSW

In 2006, the Cancer Institute NSW released the *NSW Cancer Plan 2007–2010*: a blueprint to assist all people who are working to help lift the cancer burden in NSW. From the *Cancer Plan*, our priorities of cancer control in NSW are:

- preventing cancer
- detecting cancer early
- improving cancer services
- accelerating improvement through cancer research
- providing relevant cancer data and information.

This report details our achievements and progress in the area of cancer research and our goal to find a cure for the many cancers that affect the NSW community.

FOREWORD BY THE MINISTER

In recent years, New South Wales has developed into a leading hub for cancer research in our region. This success can be attributed to our highly dedicated cancer research community and – I am proud to say – a foundation of unprecedented financial and policy support by the NSW Government.

Since the NSW Government established the Cancer Institute NSW in 2003, funding for cancer research has grown substantially. Each year the Government now provides over \$25 million to support successful researchers, to provide crucial equipment and infrastructure and to translate research discoveries into better cancer results for patients.

External peer-reviewed cancer research funding has also increased rapidly since 2004 – reflecting the strong growth of the sector. In four years, National Health and Medical Research Centre cancer research funding coming to NSW has grown by 56 per cent, while funding from the Australian Research Council has grown by 133 per cent.

In fact, today more is invested per capita on cancer research in NSW than almost anywhere else in the world. NSW spends around \$11 per capita annually, well ahead of the European Union average of \$5.48 and surpassed only by the USA and the UK.

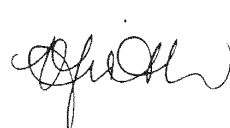
Not surprisingly, the cancer research workforce in NSW has grown by 50 per cent in this time. NSW now has a strong critical mass of world-renowned cancer research teams, giving the sector a strong basis on which to build further on recent growth.

Cancer research in NSW is a major success story. The research output of the sector is extraordinary, with NSW cancer researchers not only highly competitive for national research funds but scoring highly for research publications. Most importantly of all, there is evidence that new research from NSW is driving significant clinical improvements.

The NSW Government is extremely proud of the life-saving work being conducted by cancer researchers in this State. We will continue to invest in their crucial work to further improve the chances of survival for our patients and reduce the disability that changes the lives of those affected by cancer.

I congratulate the cancer research community on their dedication to this vital work and wish them well for their endeavours over the coming years. I also thank the public for their participation in clinical trials and their financial support for cancer research.

The lives of many depend on our continuing success.



THE HON. VERITY FIRTH MP
MINISTER FOR CLIMATE CHANGE AND THE ENVIRONMENT
MINISTER FOR WOMEN
MINISTER FOR SCIENCE AND MEDICAL RESEARCH
MINISTER ASSISTING THE MINISTER FOR HEALTH (CANCER)



THE HON. VERITY FIRTH MP (RIGHT) PRESENTING THE AWARD FOR OUTSTANDING CANCER RESEARCHER OF THE YEAR TO PROFESSOR ROBYN WARD IN 2007.

The substantial progress made in cancer research in recent years has led to large reductions in cancer mortality since the early 1990s. Death rates from cancer have fallen by 16 per cent in men and 10 per cent in women over the past 10 years.

There are currently around 220,000 cancer survivors in NSW accounting for 3.3 per cent of our population. These survivors are mainly those with breast cancer, melanoma, prostate cancer or bowel cancer. For breast cancer, the fall in cancer deaths and prolonged survivorship are equally attributable to screening mammography and to advances in post-surgery treatment, both programs established after extensive research trials.

However, despite these successes, the death and disability rates from cancer still remain unacceptably high. Cancer remains the major cause of deaths, the major cause of premature deaths and the major disease burden in our community. The Cancer Institute NSW estimates that around 450,000 people will be diagnosed with cancer in the next decade, with around 150,000 expected to die of cancer in NSW alone unless we can change the current situation. This provides an urgent incentive to substantially improve cancer outcomes in the next few years.

Our greatest hope is that cancer research will show us how to increasingly prevent, control and cure cancer and enable those affected to resume normal lives.

NSW has a vibrant and competitive cancer research community as shown in a recent report *Cancer Research in NSW 2001–2006*. There are major strengths in a number of large geographical cancer research hubs. The cancer research community has grown by around 50 per cent over the past three years. The ability of cancer researchers to leverage funds from external sources has increased over the most recent years. A new competitive edge has emerged in the past two years with a growth in NHMRC funding of 48 per cent since 2004 and other federal funds have grown even more. The support of cancer research by State and Federal Governments has increased by 183 per cent in the past three years.

New South Wales cancer researchers show strength in basic research, clinical research, melanoma, breast cancer and psycho-oncology research. Further development appears to be required in population health and health services research, as well as in research specific to some types of cancer.

New South Wales researchers continue to contribute globally to cancer knowledge and the improvement of care through publications. Australia has around 0.3 per cent of the world's population but contributes more than two per cent of the world's cancer research literature. New South Wales has particular strength in the areas of melanoma and psycho-oncology research. There is also a high level of international collaboration and connection from our researchers thus tapping into important overseas discoveries.

A recent report *The Health Returns on Investment in Cancer Research* shows that not only is a patient's well being and chances of survival improved by cancer research, but good research is highly cost effective for our community.

It suggested that our society must continue to invest to obtain the future benefits of cancer research. The findings show that even if we continue to improve cancer death rates, as we have since 1980, the economic benefits for the State are immense. For NSW improvements in cancer outcomes is estimated to have delivered \$48 billion in health benefits since 1980. For every dollar spent on cancer research in NSW the return in health benefits is around \$3.43 in NSW, but even more globally. A conservative base case suggests that improvements in cancer outcomes would return around \$170 billion to NSW in the next 10 years.

This report *NSW Cancer Research Achievements Report 2008* highlights some key achievements in cancer research over the past year. It provides grounds for continuing optimism that new research will provide innovations to prevent cancer or manage it more effectively.

The Cancer Institute NSW will commit more than \$94m over the next four years to cancer research. This investment will be targeted to allow our best researchers to pursue a life-long career dedicated to cancer research, will provide the equipment and programs for their research and will specifically enable research discoveries to be used more quickly in clinical programs. Such investment should provide the platform for substantial programs in the control and cure of cancer.



PROFESSOR JIM BISHOP
MD MMed MBBS FRACP FRCPA

CHIEF CANCER OFFICER
CEO, CANCER INSTITUTE NSW



PREMIER'S AWARDS FOR OUTSTANDING CANCER RESEARCH: PREVIOUS WINNERS

Outstanding Cancer Researcher of the Year

2006 – Professor Bruce Armstrong: for his pioneering research into the link between sun exposure and skin cancer, and asbestos and lung cancer as well as his role in the development of Australia's cervical cancer screening programs.

2007 – Professor Robyn Ward: for her internationally recognised breakthrough discovery of disease inheritance, as well as her outstanding contribution to furthering our understanding and management of cancer.

Outstanding Cancer Research Fellow of the Year

2006 – Dr Deborah Marsh: awarded for work in ovarian cancer research at the Kolling Institute, Royal North Shore Hospital

2007 – Dr Vanessa Hayes: awarded for her research at the Garvan Institute for Medical Research on the genetic susceptibility of breast and prostate cancer; and

2007 – Andrew Biankin: recognising his research at the Garvan Institute for Medical Research on Retinoic Acid signalling in the development and progression of pancreatic cancer. (shared award)

Outstanding Cancer Research Scholar of the Year

2006 – David Croucher, University of Wollongong, and

2006 – Rohini Sharma, Westmead Millennium Institute (shared award)

2007 – Anne Cust, University of Sydney

Cancer incidence is increasing in NSW. There is a predicted rise of 30 per cent in the next 10 years compared to the last, mainly driven by the ageing population and lifestyle factors. However, the last decade has also seen unprecedented falls in all cancer death rates: by 16 per cent in men and 10 per cent in women. These improvements are mainly due to cancer research discoveries in all aspects of cancer control and treatment.

Developments in cancer research offer hope that the gains we have seen recently can be accelerated across a range of cancers. Cancer death rates have fallen by around 20 per cent in some common cancers, such as bowel, breast and prostate cancer. Unfortunately, other cancers, like lung, brain and upper gastrointestinal cancer, still need more focused work.



The Cancer Institute NSW has developed key funding programs to position NSW at the forefront of global cancer research. We aim to foster research expertise by supporting careers; build research capacity through key infrastructure; translate research discoveries into clinical practice; and develop a world-class clinical trials network.

Why research is important in the control and cure of cancer

Investment in cancer research has become a priority across the world, acknowledging the rising burden of cancer on society and, in particular, on healthcare budgets.

There are compelling reasons for NSW, as Australia's most populous state, to continue to be active in world-class biomedical and health research, particularly in areas such as cancer; NSW has a substantial medical and health research capacity, including strengths in many areas of biomedical, clinical, public health and health services research.

Developing a local research capacity will not only assist in the global research effort to control cancer, but will allow NSW to effectively use and build upon results from elsewhere. It will also place NSW in a better position for tackling local health problems and encourage a research-oriented health system that is able to rapidly incorporate the most recent evidence-based medicine into practice.

The Cancer Institute Research Division has been an integral component of the current and previous *NSW Cancer Plans*. High quality cutting-edge research provides the evidence that will facilitate rapid improvement in cancer prevention, diagnosis and treatment and the subsequent improvements in survival and quality of life of cancer patients. Creating strong links between research and health services can result in the highest standard of care for NSW cancer patients.

Celebrating outstanding contributions to cancer research in NSW

The NSW Premier's Awards for Outstanding Cancer Research was set up in 2006 to acknowledge the hard work and commitment of NSW cancer researchers at all levels. There are three categories awarded each year:

1. Outstanding Cancer Researcher of the Year
2. Outstanding Cancer Research Fellow of the Year
3. Outstanding Cancer Research Scholar of the Year

The Outstanding Cancer Researcher of the Year honours an individual who has made significant and fundamental contributions to any field of cancer research in NSW. These contributions must have had a lasting impact on the cancer field and must have demonstrated sustained progress against cancer.

The Fellow and Scholar of the Year are awarded to a Cancer Institute NSW – supported fellow and scholar who have demonstrated significant achievements and progress in their research over the previous year.



The aims of the Cancer Research Program are to:

- Support cancer research that can be quickly translated into benefits for cancer patients, for the prevention of cancer; its early detection and treatment.
- Recruit and support researchers in NSW to become more skilled and more internationally competitive.
- Provide enabling infrastructure to improve international competitiveness and relevance.

There are four core funding support programs of the Cancer Institute NSW Research Division:

Fostering research expertise by supporting careers (page 8)

The Cancer Research Careers Program increases the cancer research capacity of NSW by supporting talented researchers at all stages of their careers. Future success in cancer research will depend on attracting and retaining talented individuals to choose cancer research as their career:

Building research capacity through key infrastructure (page 12)

In addition to supporting researchers, the Cancer Research Infrastructure Program encourages the development of world-class research technology and technical expertise within NSW. This includes funding for both physical and non-physical infrastructure, such as support staff. These goals will be achieved through increased collaboration among research groups to increase efficiencies and encourage knowledge transfer:

Translating research discoveries into clinical practice (page 16)

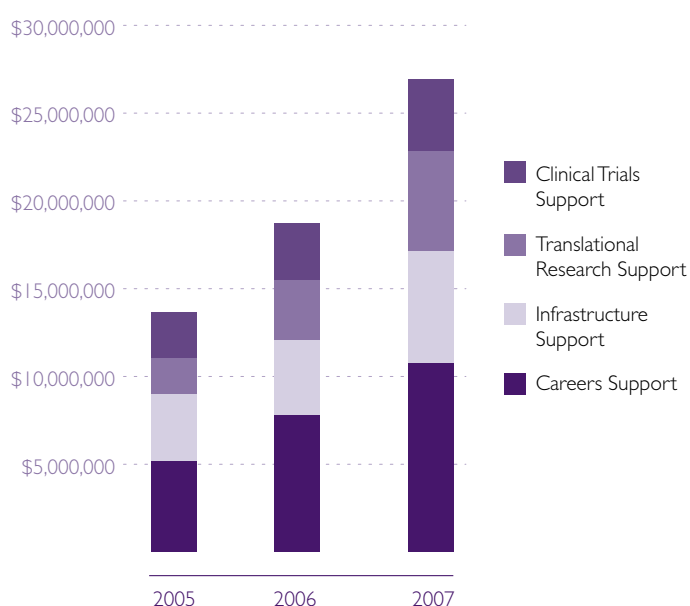
A key goal of the NSW Cancer Plans is to increase the capacity of NSW to quickly translate research discoveries into better treatments and cancer prevention. Six large translational research programs are being supported within the State, which bring together experts focused on taking innovative research discoveries into the clinic.

Developing a world-class clinical trials network (page 20)

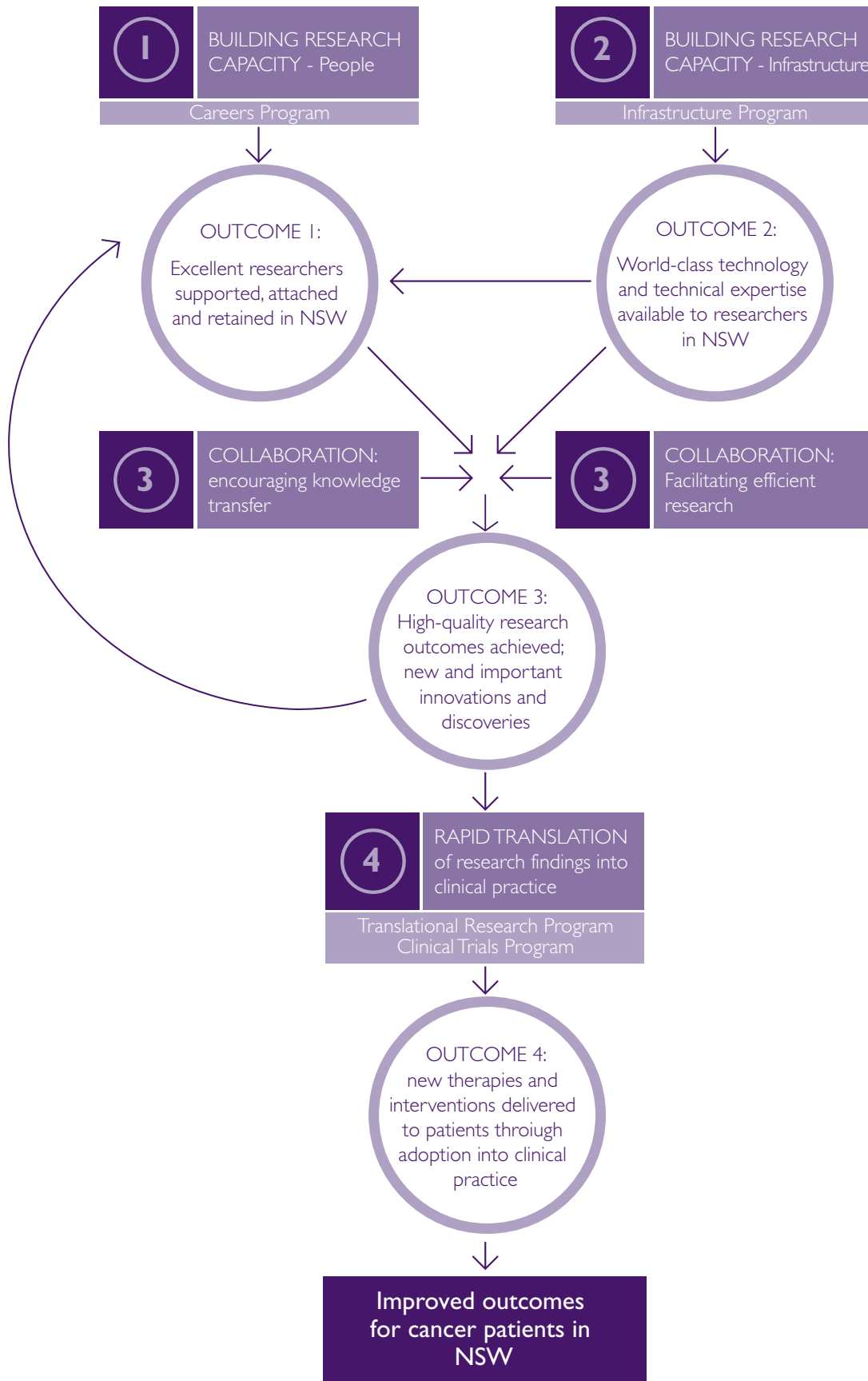
A new clinical trials network has been established to support clinical trials units in the testing of promising new anti-cancer treatments.

This is a significant step forward in bringing a co-ordinated, strategic and collaborative approach to Clinical Research in NSW. The network supports the consolidation of the funding programs of the Cancer Institute NSW and The Cancer Council NSW. Already we have seen an increase in people active in trials by around 25 per cent in NSW.

Our investment in cancer research in NSW



HOW THE PROGRAMS WORK TOGETHER





“Knowing that what we do has the potential to significantly improve many lives gets me out of bed each morning.”

Cancer Institute NSW Early Career Development Fellowship recipient Christopher Scarlett with Associate Professor Andrew Biankin

FOSTERING RESEARCH EXPERTISE BY SUPPORTING CAREERS

Christopher Scarlett was attracted to cancer research when his former supervisor pursued a long-term interest in pancreatic cancer:

Inspired by the change of direction, Chris soon realised cancer research was his vocation in life. "Seeing the human face of the disease, through friends, family and my career instilled a sense of urgency and a yearning to do something about it. Cancer research is important to me because you can make a difference when you don't lose sight of the big picture," he says.

His enthusiasm and expertise soon led to him working with one of the leading specialists in pancreatic cancer and 2007 joint winner of the Outstanding Cancer Research Fellow of the Year, Associate Professor Andrew Biankin, at the Garvan Institute of Medical Research.

"Work from Chris's PhD significantly added to our understanding of pancreatic cancer," says Andrew. "His expertise, energy and enthusiasm is giving our group the opportunity to set ambitious goals."

Their work in pancreatic cancer, the fourth leading cause of cancer death in men and women in Western societies, is breaking new ground and giving hope to cancer sufferers worldwide.

"Nothing, apart from surgery in a small proportion of individuals, gives any hope of cure from pancreatic cancer," Chris explains. "The cell origin of pancreatic cancer is not known, however, the disease is thought to originate from pancreatic stem cells. Recent evidence suggests that adult stem cells migrate from the bone marrow to lodge in and regenerate the pancreas. These migratory cells may be the source of pancreatic cancer. Our studies aim to define the role of these cells in the development of pancreatic cancer to facilitate the development of new therapies."

Having a mentor who is well regarded in the field has given Chris opportunities he wouldn't have had otherwise. "Andrew has been a great mentor to me and has guided me closely to develop me into an independent researcher and make significant contributions to our understanding of pancreatic cancer," he says. "He has provided me with many opportunities, through his knowledge, experience, expertise, resources, networks and collaborations, and friendship, all for the betterment of my career."



Achievements of the Research Careers Program

Since the start of the Research Careers Program, the Cancer Institute NSW has funded:

- 68 scholarships (equal to \$3.6 million)
- 82 fellowships (on-going funding equal to \$45 million).

The Research Leaders Program has also been established and is designed to attract research leaders, and members of their research team, to NSW from overseas or interstate, with funding over five years.

- In 2006, Professor Antony Braithwaite came from University of Otago, Dunedin in New Zealand to be Chair of Research at the Children's Medical Research Institute (CMRI). Professor Braithwaite is an internationally recognised expert on cell proliferation and cell survival with a particular focus on the role played by p53 in cancer.

The Research Careers Program develops the cancer research capacity in NSW by increasing the number, quality and international competitiveness of cancer researchers in NSW.

Through the program, we encourage the very best researchers to choose cancer research as their career and to take part in nationally and internationally competitive independent research.

Each year, we give a number of scholarships to outstanding PhD students who have the potential to develop highly significant careers in cancer research in NSW.

Our programs include:

Cancer Research Leader Grants

These grants strengthen cancer research capacity by funding new high-level academic posts and supporting outstanding research teams in NSW hospitals, universities or other institutions.

Research Fellowship Grants

Research Fellowships support researchers through various stages of their career development, allow researchers from interstate or overseas to be recruited and are available across all disciplines of cancer research.

Research Scholar Grants

These scholarships support outstanding PhD students who have the potential to develop highly significant careers in cancer research in NSW.

Overseas Clinical and Research Fellowship Grants

This fellowship places our best future leaders into world-renowned cancer centres to complete their training, obtain new ideas and techniques and to develop lifelong contacts around the world. Successful applicants are required to bring this training back to NSW for an agreed period to enhance our cancer control program in the State.

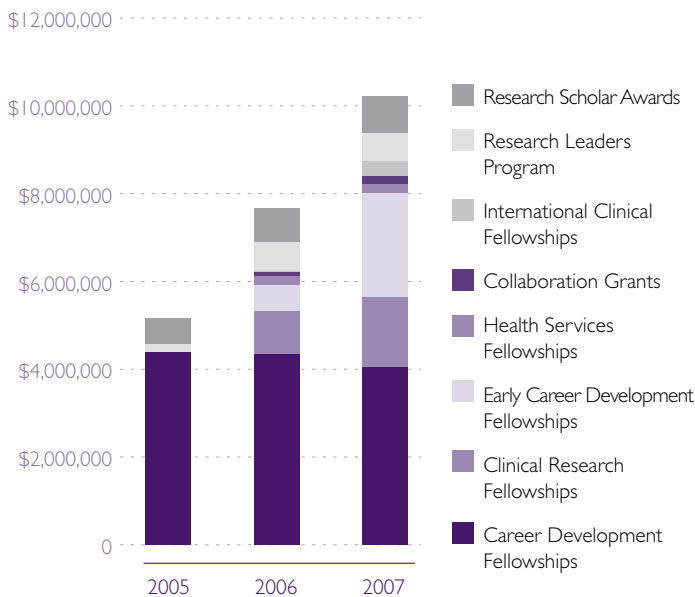


The Cancer Institute NSW will continue the strong focus on the Research Careers Program. We will play a proactive role in recruiting and training internationally competitive researchers in NSW.

National and Overseas Research Collaboration Grants

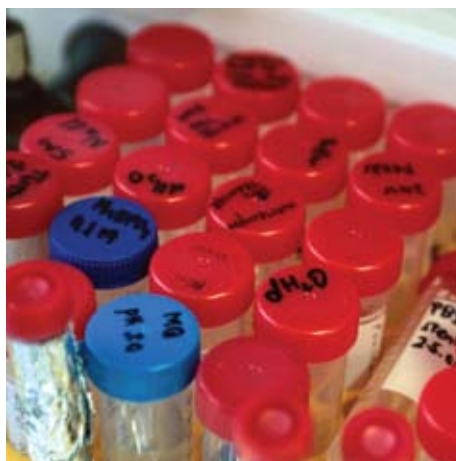
These grants provide cancer researchers in NSW with the opportunity for short stays in key cancer programs in Australia or overseas to hone their research skills and establish long-term scientific collaborations on projects of international importance.

How we spend our funds



Our plans to help future cancer researchers in NSW

For relevant cancer research in NSW to grow and sustain high quality, it is crucial to attract excellent researchers to the field. The Cancer Institute NSW Research Careers Program establishes and supports designated research priorities by providing funding for a range of career development awards for postgraduate students, early and mid-career researchers, as well as internationally acclaimed research leaders. We aim to create training and mentoring opportunities because it is vital we support the next generation of cancer researchers and clinicians, to build on accumulating evidence of how to cure cancer. The Cancer Institute NSW will continue its strong focus on its Research Careers Program and play a proactive role in assisting to recruit, train and retain internationally competitive researchers in NSW.



“When centres participate in clinical trials, it raises the standard of practice for all patients, not only those on clinical trials.”

Mel Grand and Dr Peter O'Brien of the Trans-Tasman Radiation Oncology Group (TROG).



In 2006 Mel Grand was working with the Trans-Tasman Radiation Oncology Group (TROG) on various projects as a Radiation Therapist, when she heard the Cancer Institute NSW had awarded them an Infrastructure Grant to fund personnel for the group. Mel immediately jumped at the chance to join TROG and make a difference in clinical trial participation in radiation oncology studies in NSW.

Now Mel works fulltime for TROG (Australia and New Zealand's specialist clinical research group for cancers that can be treated with radiotherapy) under chief investigator, Dr Peter O'Brien. Their project aims to identify the obstacles to clinical trial participation in radiation oncology and work towards solutions to these obstacles.

"I have visited all of the Sydney radiation oncology departments and conducted an initial scoping exercise, which involved interviewing representatives from all disciplines in radiation oncology," Mel explains. "Through this exercise we were able to identify the obstacles relevant to each discipline, detail their infrastructure requirements and their current processes including strategies used to improve participation. Subsequently, we conducted a survey – 'Survey for Clinical Trial Participation' – aimed at weighting these obstacles and the strategies likely to be most beneficial to individual centres."

Mel's main achievement has been to raise awareness of the importance of clinical trials with the disciplines involved. "Our involvement has resulted in many centres taking a more strategic approach to their clinical research activities by considering the obstacles to clinical trial participation they face," she says. "The knock-on effect is that there has been an improvement in the number of patients participating in Radiation Oncology clinical trials."

Ultimately, the driving force behind Mel's commitment to improving participation in clinical trials is the benefit for cancer patients in NSW. "It would be great to see an increase in the number of NSW-led radiation oncology trials being conducted," she says. "The end result, of greatest importance, is to improve the care that cancer patients receive."



Achievements of the Cancer Research Infrastructure Program

The Infrastructure Program has helped to fund key pieces of equipment across the State and has supported the appointment of a number of personnel including, technical experts, research managers and co-ordinators.

Examples of new initiatives the Infrastructure Program has supported include:

- the formation of a new cell and molecular therapy unit at Royal Prince Alfred Hospital
- a new co-operative research group for psycho-oncology
- a cancer genetics/genomics facility at the Garvan Institute for Medical Research
- a proteomics consortium at Macquarie University undertaking biomarker, molecular mechanism and personalised cancer medicine discovery projects.

The Infrastructure Program has also helped support the development and expansion of existing research groups, such as the Trans-Tasman Radiation Oncology Group (TROG) and the Australia New Zealand Breast Cancer Trials Group (ANZBCTG). These groups make substantial contributions to cancer clinical trials in NSW.

The Cancer Institute NSW provides funding for personnel and equipment to support the basic facilities, services and technology needed for research in NSW. Our major goal is to encourage efficient use of resources through collaboration and ensure maximum shared use of cancer research infrastructure.

The funding supports key personnel, who need to be highly trained in the technical use of equipment or possess excellent research management skills and operate under an appropriate governance structure. These skills will develop greater scientific collaborations and better use of cancer research infrastructure. The infrastructure funded through this program includes sophisticated imaging equipment, essential laboratory equipment for studying cells or proteins, IT items (such as computers and database development) as well as funding key management roles for supporting and co-ordinating research groups.

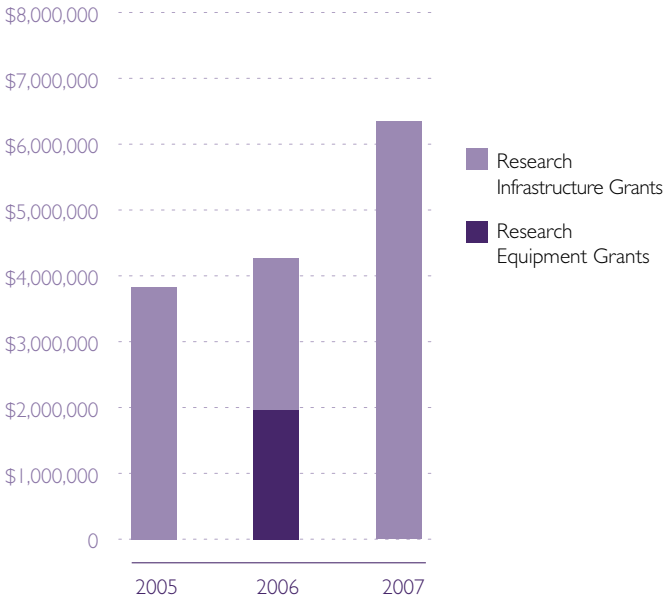
Why infrastructure is important

The physical pieces of cancer research equipment or technology and the staff who support the equipment are all essential in building the capacity of NSW researchers to undertake innovative and world-class research. Having access to the latest technology helps researchers to increase the speed and quality of their research so that important questions are answered quickly; often with greater precision or confidence than otherwise could be achieved.

In a vibrant research environment it is essential to encourage a high level of co-ordination and collaboration among researchers. The Cancer Institute NSW Infrastructure Grants, through increasing collaboration and research efficiency, will enable research funds to be put to the greatest use.

The Cancer Institute NSW facilitates a collaborative approach that encourages researchers across institutions to work together and share critical cancer research infrastructure.

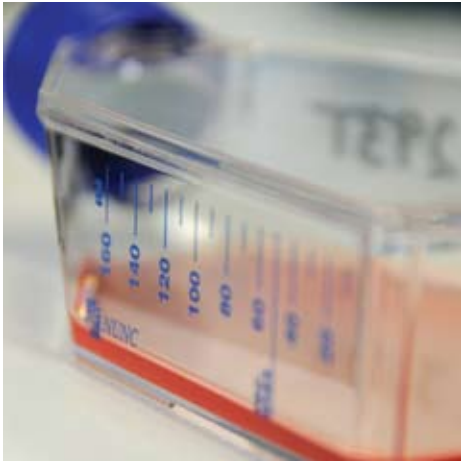
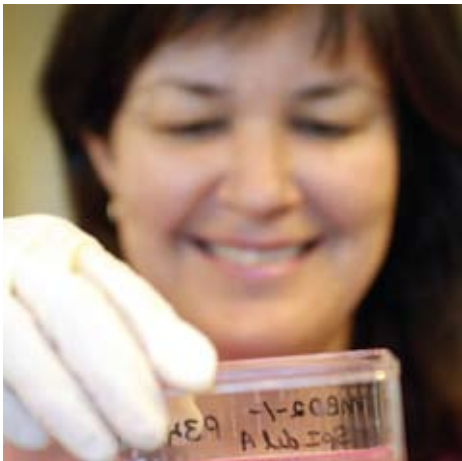
Where we spend our funds



The future of infrastructure in NSW

The Cancer Institute NSW will continue to provide strategic support in this area by closely engaging with stakeholders to determine priority investment areas that will meet the long-term needs of researchers in NSW. A Cancer Research Strategies Working Party, including representatives from academic, industry, consumer groups and non-government organisations, will be convened by the Cancer Institute NSW and is charged with identifying and advising on high-level cancer research priorities.

One of the key challenges facing researchers trying to remain competitive on a world stage is that research infrastructure investments are often too large to be supported by any single institution. At the same time, an uncoordinated approach to infrastructure funding will inevitably result in unnecessary duplication of facilities. The Cancer Institute NSW will continue to facilitate a collaborative approach that encourages researchers across institutions to work together and share critical cancer research infrastructure.



“I want to see new treatments for cancer being discovered and developed in NSW that will benefit all cancer sufferers.”

Professor Philip Hogg



Professor Philip Hogg, Director of the UNSW Cancer Research Centre, has received many accolades in his distinguished research career, but the achievement he is most proud of is the clinical development of his anti-cancer compounds.

“Taking the drugs from the bench to testing in cancer patients is a very difficult process and I am thrilled we have achieved this,” he says.

Professor Hogg’s team has described a novel way in which protein action is controlled. Application of this basic research has now led to the development of new anti-cancer drugs and a new cancer diagnostic.

“My team has developed a novel class of anti-mitochondrial cancer drugs and a tumour cell death imaging agent,” explains Professor Hogg. “The lead cancer drug is currently being trialled in cancer patients in the UK. The imaging agent non-invasively detects dying and dead tumour cells. The agent could be used, for instance, to assess the efficacy of cancer therapy.”

Bringing this research back to NSW is very important to Professor Hogg, something he wouldn’t have been able to do without local support. “The Cancer Institute NSW has enabled us to test our second generation anti-cancer drug in clinical trials in NSW. Up until now we have had to go overseas (UK and USA) to trial our drugs.”

Like most people in the field, contributing to breakthrough developments in cancer research has personal meaning for Professor Hogg. “Some of my close relatives have died from cancer. My job gives me the opportunity to do something significant in the fight against this disease.”



Achievements of the Translational Research Program

Six large translational research programs are being supported across NSW, substantially increasing capacity for translational research in our State.

Total funds committed of almost \$24 million for translational and health services research – 26 grants in total.

Translational research: 'from bench to bedside'

To improve survival and prevalence rates of cancer in NSW, scientific discoveries and research need to be translated into practical applications and therapies for real patients. Translational research usually begins at 'the bench' where scientists investigate cancers at a molecular or cellular level. This research is then tested in clinical trials with cancer patients at 'the bedside'.

The Cancer Institute NSW is at the forefront of breakthroughs in new developments for the control and cure of cancer in NSW, with a number of grants specifically for translational research. Five-year grants

support large programs of work designed to transform discoveries into clinical applications; while shorter Innovation Grants provide the necessary 'kick-start' needed for testing new ideas. It is also essential to ensure that our health system works optimally to rapidly incorporate these new developments. Research and innovation in this area is specifically supported through a number of Health Service Research Grants.

In the past four years, we have committed nearly \$24 million in grants to a number of research institutions with groundbreaking ideas that can help thousands of people diagnosed with cancer each year.

Grants awarded by the Cancer Institute NSW for the development of translational research

A grant of \$3,750,000 over five years awarded to the Garvan Institute of Medical Research to identify and validate the molecular markers of prognosis and therapeutic responsiveness in prostate cancer.

A grant of \$3,750,000 over five years awarded to the Sydney Melanoma Unit Translational Research Program to support two major lines of work with immediate relevance to melanoma care.

- A clinic dedicated to the surveillance of people at very high risk of melanoma to test the performance of current best practice techniques in skin examination and the evaluation of suspicious moles.
- Making use of new technologies for studying gene expression in melanoma.

A grant of \$3,383,211 over five years was given to the Children's Cancer Institute Australia for Medical Research for molecular targeted therapy: pathways to drug discovery.

The Program is focused on the development of new clinical tools to improve the therapeutic outcome of cancer patients.

A grant of \$3,745,500 over five years was awarded to the ANZAC Research Institute for the use of proteomic analysis to improve the management of colorectal cancer (CRC).

\$3,747,812 over five years awarded to the University of NSW to develop anti-mitochondrial cancer drugs.

A grant of \$2,957,349 over five years was given to the University of NSW to develop novel gene-targeted therapies for basal cell carcinoma.

A grant of \$1,402,189 over three years commencing January 2007 was awarded to The University of Sydney and Sydney South West Area Health Service to improve the patient journey: randomised trial of centralised 'remote access' cancer care co-ordination to improve processes and outcomes of care.

Benefits to the research community in NSW

The Translational Research Program provides the research community with infrastructure to establish:

- A critical mass in cancer research that is focused on the translation of basic research concepts and strategies to directly improve cancer prevention, early detection, screening, diagnosis, prognosis and/or treatment.
- Research capacity and depth in translational cancer research.
- Cancer research collaborations, networks and/or consortia to provide greater research depth.
- Translational cancer research of the highest international standards.
- A community of cancer researchers working together.

Giving the best care to cancer patients in NSW

The main goal of the Cancer Institute NSW is to work in partnership with the leaders in our field to lift the burden of cancer for the people of NSW.

Translational research is a key component of this goal as it gives cancer patients in NSW access to groundbreaking research and treatments on their doorstep.

Through translational research cancer patients have:

- early access to new innovative and novel therapies/interventions through clinical trials
- assessment by better diagnostic tools
- access to more effective cancer treatments
- access to new treatments.

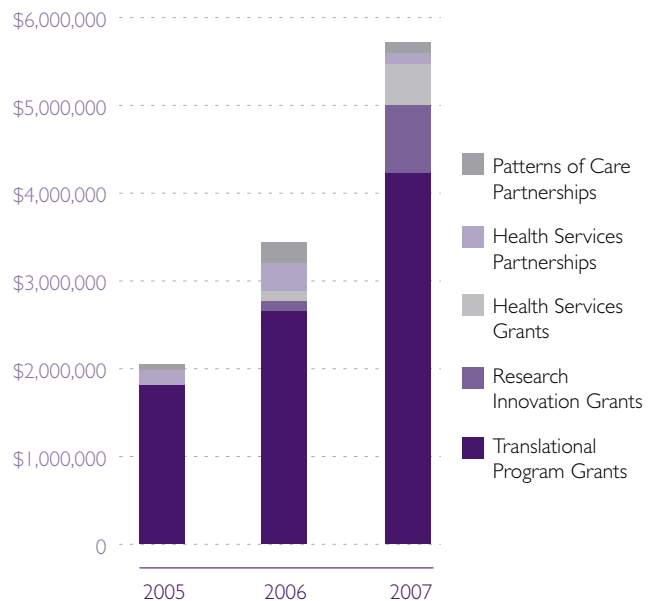
Our future plans

The Cancer Institute NSW will continue with the Translational Research Grants Program to promote rapid 'bench to bedside' application of important biomedical research discoveries.

The priorities for the grant program will be to encourage: a high level of scientific collaboration outside single research groups; clinical application of discoveries such as biomarkers, new therapeutic agents or tests or novel cancer detection or imaging methods within the period of the grant; and research likely to have the highest impact on cancer outcomes in NSW.

The grants will be evaluated for their ability to accelerate the use of research discoveries in clinical practice through 'first in man studies' or 'ready for clinical use' outcomes.

Our investment in translational research





“Patients often comment that they feel they are making a contribution to cancer research that may benefit others.”

From left: Pamela Witten from Armidale Hospital; Margaret Chamen and Rebecca Hemmings from Tamworth Hospital

The Clinical Trials Unit located at Tamworth and Armidale Hospitals covers a wide geographic area encompassing 98,000 square kilometres, stretching from Quirindi in the south to the Queensland border in the north. Despite this, the unit still manages to run a number of trials addressing the prevention and treatment of cancer and its symptoms; and providing increased accessibility and equity to people living in a rural area.

"The trials activated are those which can involve/benefit the region's higher incidence diagnostic groups. We aim to maintain a portfolio of oncology clinical trials that address important questions for people affected by cancer throughout the north-west of NSW," says Unit Manager, Margaret Chamen.

In early 2002 an expression of interest and commitment from Tamworth Hospital was obtained to establish a freestanding Oncology Clinical Trials Unit at that site. Funding was granted for the first clinical trials coordinator through the Cancer Trials NSW funding program, which began in April 2002 and continues to date.

Due to the success of the unit and Cancer Institute NSW funding, the capacity has grown, now encompassing two rural hospitals, Tamworth and Armidale. The Unit now employs three clinical trials coordinators with diverse backgrounds in nursing, pathology, science and cancer-related research. "We are also supported by energetic and motivated visiting medical oncologists from metropolitan hospitals," says Margaret.

"We sought and gained the ongoing enthusiasm of the hospitals' medical, chemotherapy, pathology, pharmacy and radiology departments. With the active inclusion of patient's GP and the staff at the smaller rural hospitals, patient care is directly addressed.

"The Cancer Institute NSW Clinical Trials Unit Establishment Grant funding has provided the support needed to diversify our clinical trials portfolio and the potential to achieve an increase in patient participation in cancer clinical trials at rural hospitals," says Margaret.

Margaret sees the main achievement of the unit as overcoming the difficulties of cancer research in remote areas. "We've brought cutting-edge cancer treatments to rural areas," she says. "We have created a strong foundation to now provide country people with a broader range of oncology services and aim to achieve the best possible clinical outcomes close to home."



Achievements of the Clinical Trials Program

Since the start of the program in 2004, the clinical trial units supported by the Cancer Institute NSW have increased the number of cancer trials available in NSW, as well as the number of patients enrolled and treated on trials.

- New enrolments in cancer trials have increased from 926 patients in 2004 (2.7 per cent of new cancer cases) to 1799 patients in 2006 (5.3 per cent of new cancer cases).
- The number of trials available to patients has gone from 175 trials in 2004 to 234 in 2006.

Our goal, set by the *NSW Cancer Plan 2007–2010*, is to have 10 per cent of new cancer patients on clinical trials by 2010.

The Clinical Trials Program aims to develop high-quality cancer clinical trials in NSW, introduce and study new cancer treatments, increase participation rates in cancer trials and promote a culture of research and innovation in cancer services. These aims are achieved through various grants, partnerships and collaborations.

The Cancer Institute NSW Clinical Trials Program was introduced in late 2004 with grants provided to 20 clinical trial units to fund the employment of dedicated clinical trial nurses and data managers across NSW.

The program was expanded during 2005 to include grants to nine sites to establish clinical trial units and employ a dedicated nurse or data manager. A clinical trials partnership grant was established with the NHMRC Clinical Trials Centre (CTC) to provide additional operational and statistical support for trial investigators.

From 1 July 2007 the program was further expanded as the NSW Cancer Trials Network. The Network now incorporates the clinical trials funding programs of the Cancer Institute NSW and The Cancer Council NSW (Cancer Trials). Across the state this Network now supports the positions of over 67 cancer trials nurses and data managers (47.5 full time equivalent positions) across 44 individual clinical trial units. Additional support has been provided to Area Health Services (AHS) in funding for Directors of Clinical Cancer Research along with full time Regulatory Affairs Officers. These positions provide assistance with the co-ordination of administrative and governance processes for the conduct of clinical research within each AHS.

The overall aims of the NSW Cancer Trials Network are to increase the number of high-quality cancer clinical trials in NSW and the number of cancer patients participating in these trials.

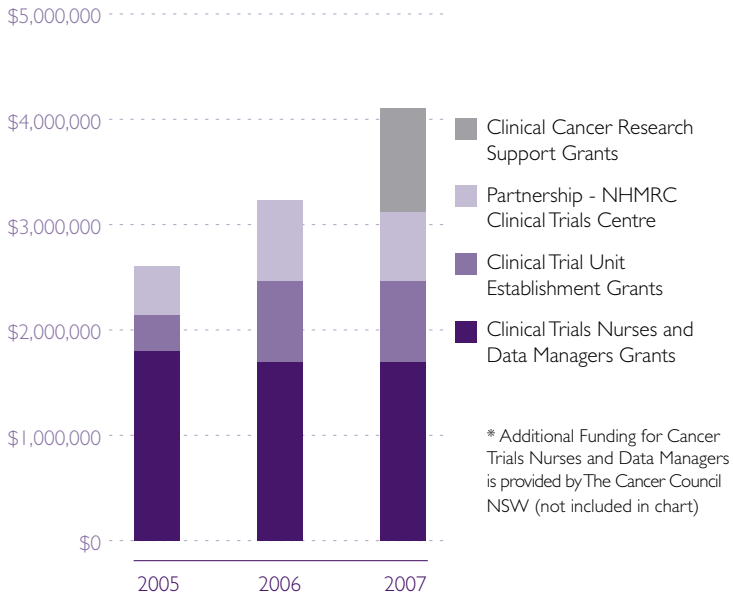
The importance of clinical trials in cancer research

Clinical trials are used to identify and develop new treatments or approaches to improve patient care. They provide the link between scientific discovery and delivery of new treatments to patients. The majority of trials being conducted in NSW are trials which compare new treatments against the current standard treatments to improve clinical practice and patient outcomes.

The overall aim of the NSW Cancer Trials Network is to increase the number of cancer patients participating in clinical trials. Higher participation means that trial recruitment targets are met sooner, and positive results can be translated into clinical practice more quickly. This has a direct benefit for patients as these new treatments become the standard of care.

There is evidence to suggest that patients enrolled on clinical trials have better outcomes than those treated outside of trials, with their treatment and care being closely monitored whether they are receiving the new treatment being tested or the standard treatment. There is also considerable evidence that improvements in clinical practices which result from incorporating clinical trial results have substantially reduced cancer mortality.

How we spend our funds on clinical trials support

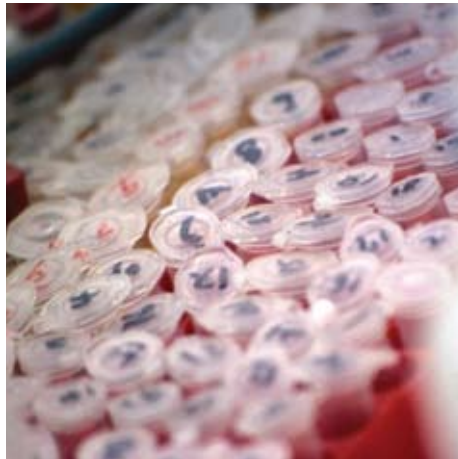


Future plans for clinical trials in NSW

While the NSW Cancer Trials Network has been set a target of 10 per cent of new cancer patients on clinical trials by 2010, the overall aim of the Clinical Trials Program is to accelerate the uptake of promising new treatments for cancer patients through research. The program aims to increase the number of high quality cancer clinical trials in NSW, to increase the access of patients to these trials and therefore to increase the numbers of patients treated on cancer trials.

The review of current cancer trial activity in NSW has identified areas in which additional clinical research is needed to improve the clinical outcomes of patients. These areas include lung cancer; brain cancer; cancers of the head and neck and cancer of unknown primary site.

The NSW Cancer Trials Network promotes a strategic approach to cancer clinical trials in NSW and will further develop opportunities for collaboration within NSW, to encourage a high level of trial activity across all tumour groupings. The Network aims to improve outcomes for cancer patients by encouraging clinical trial activity and research in general to improve clinical practice.



- The Cancer Institute NSW was established in 2003, following the *Cancer Institute (NSW) Act 2003*.
- Total funding for cancer-related research in NSW was \$134.5 million in 2004–2006.¹
- The Cancer Institute NSW began the Cancer Research funding program in 2005.
- For every dollar spent on cancer research, a return of \$3.43 can be expected.²
- Falling cancer deaths from successful research has returned more than \$48 billion, with an added \$175 billion in the next 10 years.²
- Funding from Australian governments, at both State and Federal level, increased from \$41.8 million in 2001–2003 to \$92.8 million in 2004–2006.¹
- The majority of funding during 2004–2006 was in Camperdown, Randwick, Hunter, Western Sydney and Darlinghurst and North Sydney hubs.¹
- The Cancer Institute NSW launched the inaugural NSW Premier's Awards for Outstanding Cancer Research in 2006.
- In 2006, 1,314 full-time equivalent (FTE) staff were employed across the State in cancer research groups, a 50 per cent increase from 2003.¹
- A NSW cancer researcher achieved a top ten ranking in the Thompson Scientific 'Hottest Researcher' list for 2005–2006.³
- From 1999–2006, NSW produced the largest number of publications on cancer of any Australian state, with more than 31% of the national output.¹
- In the 2007 Times Higher Education Supplement world university rankings, six of the top 50 rated universities in biomedicine were Australian, including both the University of Sydney and University of New South Wales.⁴
- The Cancer Institute NSW total commitment to cancer research in the State is now more than \$95 million.



1. Welberry H, Edwards C, Weston A, Harvey C, Wilson C, Böll S, Lo M, Bishop J. Cancer Research in NSW 2001–2006. Sydney: Cancer Institute NSW, March 2008.
2. Glass P, Pezzullo ML, Cutler H, Yates K, Tracey E, Welberry H, Catanzariti A, Bishop J. The Health Returns on Investment in Cancer Research. Cancer Institute NSW, April 2008.
3. <http://www.timeshighereducation.co.uk/hybrid.asp?typeCode=147> accessed on January 31 2008.
4. <http://scientific.thomson.com/press/2007/8366084/> accessed on January 31 2008.

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