CANCER FORUM



March 2007

Volume 31 Number 1

FORUM: Palliative care and cancer

Support for research 2007

Australian behavioural research in cancer

The Cancer Council Australia

CANCER FORUM

Cancer Forum is produced by The Cancer Council Australia for health professionals working in cancer control. It is the official journal of the Clinical Oncological Society of Australia.

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The policy of Cancer Forum is to provide a forum for debate and the exchange of medical, scientific, political, social and educational comment related to cancer research, treatment, prevention and control. Cancer Forum invites submissions of original research articles, reports and letters relating to these themes.

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Cancer Forum is published in March, July and November of each year.

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Design by Mac Magic Creative Designs Pty Ltd
Printed by Alltype Printing Pty Ltd

March 2007
Volume 31 Number 1
ISSN 0311-306X



CANCER FORUM

Contents



FORUM

Palliative care and cancer

OVERVIEW

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Palliative care and oncology have been integrally related since the first days of modern hospice care, however the shared history is only a relatively recent one. The current palliative care movement is regarded as growing especially out of a single institution, St Christopher's Hospice in London, under the leadership of the late Dame Cecily Saunders. As recently as the 1950s, reports appeared of unrelieved suffering in cancer patients dying at home;[1] it was 1967 when St Christopher's opened its doors and the mid-1970s before the first palliative care units opened in North America. The famous work by Elizabeth Kubler-Ross, *On Death and Dying*, focused public and professional thought on end of life experiences and care, and this was published merely 30 years ago.[2]

During the development of the specialty of palliative care, as most of our early patients were dying of malignant disease, the knowledge and skill base on which our practice was established was very much concentrated on the control of the symptoms of those with cancer. Over time, significant literature has been produced to guide pain and symptom control, to highlight emotional, social and spiritual care issues relevant to the dying person with cancer and to discuss the integration and shared care models that may best serve the cancer patient and his or her family. Two recent Australian publications cover many aspects of this expert knowledge and are worth accessing. These are the palliative care issue of the *Australian Family Physician*[3] and the updated *Therapeutic Guidelines: Palliative Care*.[4]

Despite this shared experience, there has been at times a sense of uneasiness between the two specialities. It was argued that cancer centres and researchers in oncology did not put a high priority on symptom control and quality of life, despite the fact that many patients die of their disease. It was felt that undue focus was placed on chemotherapy and tumour response. In return, there was a feeling from some that palliative care practitioners were unwilling to consider anti-cancer therapies which might well be useful, or that they were 'easing' the patients to an earlier death than was necessary.[5,6]

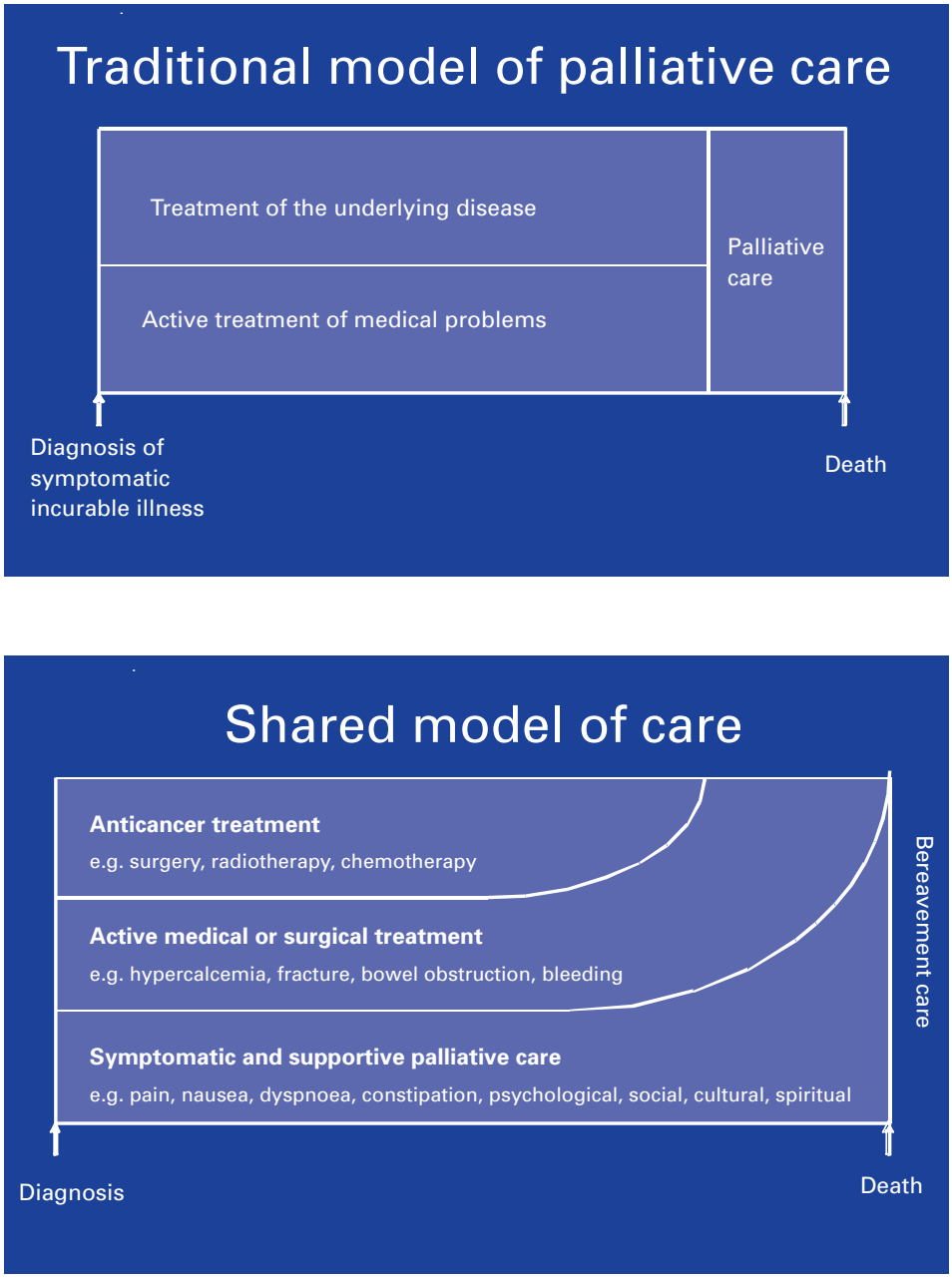
However, generally and more so as time has progressed, there has been a recognition that separation of the fields has not been in the patients' best interests. Cooperation between the two disciplines should be standard. Models have been proposed that encapsulate shared care and one such concept is illustrated in Figure 1. Palliative care itself has also recognised it needs to grow beyond the links it has traditionally had with cancer patients only and offer equitable care to all dying patients, based on levels of need, rather than diagnostic category.

Despite such models resulting in palliative care and oncology being close companions, the political and social progress made within each speciality may not be immediately obvious to the other speciality. Hence this issue of *Cancer Forum* focuses on some of the major achievements of palliative care over the last few years on a political level. Also included are some of the areas that are inadequately addressed within our current models of care. The authors that follow highlight the 'big picture' issues, which are the focus of palliative care in 2007. Throughout these contributions, commitment to a scientific vision and evidence-based medicine are clearly evident.

Will Cairns reminisces on the path of palliative medicine to speciality recognition and discusses training, education and workforce planning concerns. Over the past 20 years, palliative medicine in Australia and New Zealand has emerged from an informal network of enthusiasts to become a fully recognised specialty, with a comprehensive training program through the Royal Australasian College of Physicians.

Equity considerations are discussed by Janet Hardy in terms of the essential palliative care medications that should be available to all Australians. Many of the drugs commonly used in palliative care are not listed on the Pharmaceutical Benefits Scheme in Australia and are therefore not freely available to patients outside the acute hospital system. The Palliative Care Medicines Working Group was established by the Australian Government resulting in a separate palliative section within the Schedule of Pharmaceutical Benefits Scheme, which allows for authority prescribing of a number of medications that may be required by a palliative care patient.

Figure 1. *Separate versus shared care models of palliative care involvement*



These issues of equality of access are further explored by Patsy Yates, Kathryn White, Bev McNamara and Lorna Rosenwax in their papers on standards of and access to services for those with malignant and non-malignant disease, in rural and remote communities or with reference to those who do not fit into well-serviced demographic profiles. Pasty Yates reflects on growing requirements for specialist cancer services, as well as primary care, to integrate palliative care principles into their practice, and she discusses two projects in particular which have developed to address the educational needs of the workforce – the Palliative Care Curriculum for Undergraduates and the Program of Experience in the Professional Approach. Kathryn White focuses more on the education and support needs of primary healthcare practitioners in rural Australia to allow them to deliver optimal palliative care in rural communities.

The Western Australian Data Linkage System was used by McNamara and Rosenwax to study patterns of specialist palliative care delivery during the last 12 months of life, comparing use between different socio-demographic groups and causes of death. In this article they focus on the 8007 people who had either cancer alone, or cancer and another condition considered amenable to palliative care and who died during the study period. They show that approximately half of this group received some form of specialist palliative care, but particular groups of people were disadvantaged in relation to access to specialist palliative care. These people were less likely to die in their own homes – the place most often stated as the preference of patients.

With both the Federal Government election and negotiation of the next five-year Australian Health Care Agreements, advocacy will play an important role in the palliative care sector in 2007. Donna Daniell looks at the role of advocacy in palliative care in promoting the national agenda and maps out some of the recent initiatives that have improved palliative care within Australia.

Palliative care is now also recognised as an integral aspect of good medical care at the global level. It has recently been defined by the World Health Organization as:

> *"an approach that improves the quality of life of patients and their families facing the 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, psychosocial and spiritual. Palliative care:*
>
> - *provides relief from pain and other distressing symptoms;*

Table 1: *Websites worth perusing*

Reference	Comment
www.pbs.gov.au	Pharmaceutical Benefits Scheme online, with current medicines listed for palliative care indications.
www.health.gov.au/palliativecare	Listing of National Palliative Care Program initiatives and associated publications.
www.hospicecare.com/resources/edl.pdf	WHO list of essential medications in palliative care.
www.hospicecare.com/dv/english.html	Declaration of Venice - strategy by the European Association of Palliative Care and the International Association of Hospice and Palliative Care to promote palliative care research, especially in developing nations.
www.caresearch.com	An electronic resource that finds evidence and supports research in the palliative care context.
www.pallcare.org.au	Palliative Care Australia

- *affirms life and regards dying as a normal process;*
- *intends neither to hasten or postpone death;*
- *integrates the psychological and spiritual aspects of patient care;*
- *offers a support system to help patients live as actively as possible until death;*
- *offers a support system to help the family cope during the patient's illness and in their own bereavement;*
- *uses a team approach to address the needs of patients and their families, including bereavement counselling, if indicated;*
- *will enhance quality of life, and may also positively influence the course of illness;*
- *is applicable early in the course of illness, in conjunction with other therapies that are intended to prolong life, such as chemotherapy or radiation therapy, and includes those investigations needed to better understand and manage distressing clinical complications."* [7]

Palliative care is a recipient of significant National Health and Medical Research Council funding and is receiving support to establish multi-institution trial collaboratives. Government initiatives include the National Palliative Care Program. Other funding bodies have funnelled resources towards exploring the educational needs of practitioners, the social costs of caring for those with terminal illness, guidelines to assess palliative care needs and into comprehensive systems where information can be disseminated more widely via the internet. Some relevant websites are listed in Table 1.

The challenge for us in palliative care, in this rapidly changing political and social environment, is to continue to offer excellent care to those patients with cancer referred to us. We also need to ensure equitable care to those with non-malignant disease, those outside the tertiary hospital system and those who are economically disadvantaged.

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A SHORT HISTORY OF PALLIATIVE MEDICINE IN AUSTRALIA

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Abstract

Over the past 20 years, palliative medicine in Australia and New Zealand has emerged from an informal network of enthusiasts to become a fully recognised specialty with a comprehensive training program. While the field has developed extensively over the last two decades in terms of knowledge, with great improvements in symptom control and our understanding of the physical, emotional and social journeys of dying people, this paper tells the story of the political and educational challenges that have been faced in the effort to establish palliative medicine as a distinct force within our healthcare system. Doctors are now able to obtain a Clinical Diploma in Palliative Medicine to complement their skills in other fields, or to train for full specialist practice with fellowships from the Royal Australasian College of Physicians or the Australasian Chapter of Palliative Medicine, ensuring palliative medicine will play a significant role in meeting the healthcare challenges of the 21st Century.

"History is the essence of innumerable biographies" – Thomas Carlyle

The development of palliative medicine as a distinct specialty in Australia and New Zealand is a process I have been part of for many years. The progress to change in our health system is often far more tortuous than expected and this history describes the processes that gradually unfolded as I remember them. My narrative reflects the reality that memories are inevitably plastic and I am solely responsible for any errors and biases.

Sense of identity

The story began for me in 1990 when I came from the isolation of North Queensland to the first conference of the Australian Association for Hospice and Palliative Care held in Adelaide. No doubt the pioneering Professors Ian Maddocks, Norelle Lickiss and Peter Ravenscroft, along with many others, had been considering the future of palliative medicine for some time, but my eyes were opened then. In a meeting held in a school room, perched on small chairs, I remember Norelle commenting that "it would take a good 10 years before the specialty was recognised".

The next step was the creation of the Australian and New Zealand Society of Palliative Medicine (ANZSPM), which came into existence in 1993. The founding membership was an iconoclastic group of specialists, career medical officers and general practitioners (GPs), the formally trained and the self-taught, the city slickers and the rural pragmatists, developing skills in palliative medicine and building services in the face of an indifferent, and sometimes hostile, health system.

The initial challenge for ANZSPM was to develop the credibility of palliative medicine in the eyes of the community so that palliative care could be improved and could come to be recognised as a discrete field of specialised practice. Most of the groundwork was done by ANZSPM members across Australia and New Zealand, who daily provided high quality and effective care for dying patients and their families. This activity fundamentally changed community expectations and provided the fulcrum necessary to change the health system.

The development of training pathways and the creation of the Australasian Chapter of Palliative Medicine

Meanwhile, at the Royal Australasian College of Physicians (RACP), a pathway for sub-specialty training in palliative medicine had been created with the first trainees starting supervised training in 1991. A Specialist Advisory Committee (SAC) was created to manage the three-year advanced training program. As palliative medicine was not on the Federal Government's list of recognised specialties, the Fellows of the RACP who emerged were classified as specialists in "General Medicine". Most trainees worked in Sydney under the umbrella of the Sydney Institute of Palliative Medicine (SIPM), which continues to guide trainees through the variety of inpatient, hospice, consultative and community experiences necessary to create a balanced and skilled specialist. The SIPM program was also open to doctors who were not physician trainees and so, in Sydney in particular, a core of practitioners with specialised experience and focus began to accumulate.

From the late 1980s, pressure was also building for a specialist recognition pathway for experienced doctors in palliative care who did not wish to undertake the full six-year RACP training program. This engendered a vigorous debate within the palliative medicine community. A number of physicians argued that specialist status should only be available to consultant physicians who had completed the academically rigorous, basic RACP training followed by SAC-supervised specialist training. However, others felt that the breadth of experience from across the spectrum of medicine would enrich the practice of palliative medicine as one of the more holistic specialties. In

addition, a number of specialists in other fields, as well as GPs, expressed concerns that the creation of palliative medicine as a distinct specialty with only one entry point may exclude them from their established roles in the care of dying patients.

Over the 1990s meetings were held to address these issues and the decision was made to accommodate the diverse backgrounds of the emerging specialty within the College. The existing and successful RACP fellowship program was continued and a second fellowship pathway created via a new sub-group, the Chapter of Palliative Medicine, within the Adult Medicine Division. The Australasian Chapter of Palliative Medicine (AChPM) was approved by the RACP and came into existence in May 1999. This was a new direction for the College and led to the development of Chapters of Addiction Medicine and Sexual Health Medicine.

Foundation Fellows of AChPM included those who had trained under the SAC in palliative medicine and a number of others who were required to meet admission criteria that were by necessity both broad and rigorous.[1] These criteria recognised that there were a group of experienced doctors who had obtained their skills in palliative medicine in a wide variety of clinical settings, often in the absence of any framework in which they could obtain supervised training, but also ensured that Fellows were practising at the appropriate level of a "specialist". This was essential to demonstrate to the Australian Medical Council (AMC) and the New Zealand authorities that this group was worthy of recognition as specialists. In May 2000, the first Foundation Fellows of the AChPM were presented at the RACP annual ceremony held in the Adelaide Town Hall. By the time the process was completed, 218 had been awarded Foundation Fellowship.

Next came the creation of a committee to supervise those training for Chapter Fellowship. The Chapter program provides advanced training only and has been modelled on the three-year program run by the Palliative Medicine SAC of the College.[2] Unlike entry to training towards the Fellowship of the Royal Australasian College of Physicians (FRACP), which requires successful completion of basic training and the RACP examinations, entry to Chapter training requires that the trainee hold a fellowship of one of a number of clinical specialist medical colleges recognised in Australia and/or New Zealand. Trainees are required to spend 24 months in a variety of palliative medicine posts and at least six months working in oncology (unless having significant prior experience in oncology). The trainee can choose from a variety of elective options for the remaining time. Now all doctors in Australia and New Zealand, whether new graduates or experienced practitioners, have a defined pathway into specialist palliative medicine.[2]

Recognition of the specialty

These achievements opened the door for the next phase of development of the specialty, recognition by government. The gathering of all specialists in palliative medicine under the banner of the RACP meant that a single application for recognition, and appropriate reimbursement, could be lodged. In New Zealand, the process passed quickly through the Government and the specialty was declared in September 2001. In Australia life was not so simple.

During the mid-1990s the body responsible for the recognition of new specialties, the National Specialist Qualification Advisory Committee, had been disbanded and its responsibilities not handed over to the AMC until 2002. The AMC had not yet developed a process for recognition and was facing a minor deluge of applications, hence the ambitions for palliative medicine were caught up in political and bureaucratic reshuffling.

Luckily palliative medicine would be among the first to be assessed, taking the role of "crash test dummy" for the new process as a compliment. The two-part AMC process required that the case be proved that palliative medicine should be recognised as a medical specialty and an application be made for accreditation of specialist medical training and professional development programs.

The requirements of the full application to the AMC required some speculation as to the economic impact on the health care budget of recognition of the specialty by the Australian Government. The full application[3] was submitted to the AMC in 2004 and included discussion on the:

- development and modelling of the palliative medicine workforce;
- models of palliative care service delivery;
- relationships between specialists in palliative medicine and other doctors;
- place of palliative medicine and palliative care in the health system;
- economic impact of the recognition of specialist palliative medicine on Medicare billing;
- nature of specialist palliative medicine practice, with particular reference to the balance between cancer and non-cancer palliative care;
- costs of training and the capacity of the Chapter/College to train the required number of specialists;
- impact on education in palliative care for other doctors and health workers;
- role of the specialty in the development of standards and protocols;
- claims by palliative medicine of more appropriate and perhaps less expensive treatment at the end-of-life;
- safety for the patient and the community deriving from the practise of palliative medicine and the connection between specialist competence and patient safety; and
- claims that recognition would be essentially cost-neutral for the community where comprehensive palliative care services already exist.

Based on the work of Palliative Care Australia, it is estimated an optimum workforce would comprise about 300 full-time equivalent palliative medicine specialists, practising predominantly in the public sector as part of multidisciplinary teams and in collaboration with their colleagues in other specialties, particularly general practice. There is likely to be a progressive increase in the proportion of non-malignant palliative care.[4]

Curriculum development

As the AMC application was being developed during 2003, it was apparent that there was a need for a curriculum and syllabus for specialist palliative medicine.[5] This was necessary as a natural part of development of the training program, but also to provide support for the application to the AMC by, for the first time, codifying the roles of palliative medicine specialists.

The curriculum would:

- set down the knowledge, skills and attitudes that define a specialist in palliative medicine and that should be acquired by trainees;
- define the experiential requirements for supervised training;
- describe the supervision and assessment requirements of training; and
- guide career long mentoring, personal supervision and continuing professional development of specialists.

The Curriculum Working Party first met in June 2003 and developed a curriculum based on CanMEDS, the Canadian model for the roles of doctors.[6] The curriculum was based on the literature of adult learning, the experience of the Education Department of the RACP and the syllabuses of palliative medicine from around the world. It was finalised in November 2004, adopted by the Chapter and trialled with trainees in 2005. It is currently being adapted to mesh with the ongoing development of the Basic Training and Professional Qualities Curricula of the RACP as a whole.

Over the past year the Chapter Education Committee has merged with the SAC in Palliative Medicine to create a Combined SAC in Palliative Medicine, which will supervise all future advanced trainees under the one curriculum and syllabus. Although there are a few minor differences driven by the variety of prior experience that Chapter trainees bring with them, training can now be delivered to an agreed high standard. Specialist trainees are able to undertake conjoint training with other subspecialties within the RACP, such as oncology or geriatrics, which appears to be a growing trend.

Clinical Diploma in Palliative Medicine

The delivery of palliative care has always involved close collaboration between medical colleagues. A number of specialties including general practice, medical and radiation oncology, and geriatrics have also long accepted that a period of time working in palliative medicine enhanced the training and skills of those in their field. In the late 1990s, ANZSPM joined with the Royal Australian and Royal New Zealand Colleges of General Practitioners (RACGP and RNZCGP) and the Australian College of Rural and Remote Medicine (ACRRM) to develop a joint position statement that reinforced the crucial role of GPs for the successful delivery of palliative care.[7]

A working party, with representatives of the AChPM, ANZSPM, RACP, RACGP, RNZCGP, Australian College of Rural and Remote Medicine, Medical Oncology Group of Australia, Faculty of Pain Medicine and Faculty of Radiation Oncology, was formed in 2004 to develop a formal post-graduate training program in palliative medicine for those who did not wish to train to a specialist level. A six-month clinical placement in palliative medicine, modelled on the Clinical Diploma of Obstetrics, was developed and piloted successfully during the first half of 2006. The work was assisted by a grant to the RACP from the Commonwealth Department of Health and Ageing, recognising that the dissemination of the skills of palliative medicine throughout the medical community would improve the quality of the health system. As of August 2006, any doctor beyond their immediate post-graduate years can apply to enrol for the diploma, either as part of their post-graduate specialty training, or at any stage in their career to improve their skills or develop a new interest.[8]

Workforce needs

Towards the end of 2003 the College was asked to make a submission to the Australian Medical Workforce Advisory Committee on the workforce requirements for specialist palliative medicine, responding to questions on the definition of an optimal specialist service, the requirements for resident specialist practice (urban and rural) and the requirements for a visiting specialist service to rural areas. The responses to these questions were based on the work that had been done as part of work-up for recognition presented to the AMC and the extensive evidence-based standards that have been developed by Palliative Care Australia. The end result was that specialist palliative medicine was incorporated into workforce planning processes for Australia before it had been formally recognised by government.[9]

Most specialities would have difficulty calculating their exact workforce needs into the future and palliative medicine is no different. The Australian Bureau of Statistics publishes population and mortality projections that vary according to underlying assumptions. In addition, there needs to be consideration of new trends in referral and responsibility. With only half of expected deaths (50% of all deaths) being due to cancer, the role of specialist palliative medicine might be expected to grow into caring for those with non-malignant terminal disease, however this might be confounded if the skills of non-specialist palliative care are more widely disseminated into mainstream healthcare. There is no doubt, given existing specialist palliative medicine vacancies across Australia and the world, that there is plenty of scope for more trainees and resources are currently needed for more training posts.

Final steps

The final authority for the recognition of any new specialty in Australia rests with the Federal Minister for Health, who acts on the confidential advice of the AMC. In November 2005 the Minister, Tony Abbott, formally recognised the specialty. What remained then was for Medicare Australia to incorporate palliative medicine into its regulations and to develop item numbers to accommodate billing, and for those states that maintain specialist registers to include palliative medicine. Only then could individual specialists in palliative medicine become registered to practise under their own banner. On 1 May 2006 the specialty was listed in the updated Medicare Benefits Schedule and the new item numbers became available for use, and by the end of June 2006 the last state had completed its bureaucratic machinations. The job was finished.

Conclusions

Contemporary palliative medicine in Australia and New Zealand is the progeny of many people. The patients who motivate and encourage, the nurses and other health workers whose meticulous care sets such high standards, the family members who provide their support, the RACP, and of course, those colleagues working in diverse settings and often against much resistance – all have created the credibility that underwrites practice. Most of these people go unsung in any history but, inescapably, palliative medicine in Australasia is their legacy.

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QUALITY USE OF MEDICINES FOR PALLIATIVE CARE

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Abstract

Many of the drugs commonly used in palliative care are not listed on the Pharmaceutical Benefits Scheme in Australia and are therefore not freely available to patients outside the acute hospital system. In an attempt to address the inequity faced by patients being cared for in the community or hospices, the Palliative Care Medicines Working Group was established by the Australian Government. This has resulted in a separate palliative section within the Schedule of Pharmaceutical Benefits Scheme which allows for authority prescribing of a number of medications that may be required by a palliative care patient. This paper discusses the medications currently on this listing, the processes by which they were selected and the ongoing efforts to broaden access to required medications.

In 2000, members of the Australian and New Zealand Society of Palliative Medicine were surveyed to compile a list of the medications they considered essential in the practice of palliative care and the indications for which they were prescribed.[1] A number of the drugs that respondents highlighted were available on the nationally subsidised Pharmaceutical Benefits Scheme (PBS), such as morphine in its indication for the management of cancer-related pain and haloperidol for control of delirium. However, many other medications commonly used in palliative care were not listed on the PBS (see tables 1 and 2) and were therefore not freely available to patients outside hospitals ie. those patients in hospices, residential aged care facilities and in the community. Midazolam, used for terminal restlessness and hyoscine hydrobromide to control end-stage respiratory secretions, were two such agents used frequently and effectively, but not available on the PBS.

One of the *Standards for Providing Quality Palliative Care for all Australians* published by Palliative Care Australia is that the needs and wishes of patients, their

Table 1. *Top 25 drugs identified as being most useful in the management of a number of symptoms*[1]

Medication	Indication	PBS availability+
Morphine	pain	Y
	dypsnoea	N
Haloperidol	delirium	Y
Dexamethasone	anorexia/cachexia	Y
Midazolam	terminal restlessness	N
Metoclopramide	nausea/vomiting	Y
Clonazepam	insomnia	Y
Paracetamol	pain	Y
Amitriptyline	neuropathic pain	Y
Pamidronate	hypercalcaemia	Y
Cyclizine	nausea/vomiting	N
Hyoscine hydrobromide	retained resp secretions	N
Diazepam	insomnia	Y
Lorazepam	insomnia	N
Omeprazole	dyspepsia	Y
Chlorpromazine	delirium	Y
Fentanyl		
– transdermal	pain	Y
– parenteral	pain	N
Spironolactone	ascites	Y
Ranitidine	dyspepsia	Y
Promethazine	pruritis	N
Frusemide	fluid retention	Y
Ondansetron	nausea/vomiting*	Y
Docusate/senna	constipation	N
Temazepam	insomnia	Y
Prednisolone	anorexia	Y
Methadone	pain	
– tablet		Y
– liquid		N

+ PBS listing for many of these drugs is general and not specific to the indication noted.

** approved only for chemotherapy and radiotherapy induced nausea/vomiting.*

Table 2. *Top 10 non-PBS listed drugs for the management of common symptoms*[3]

Medication	Indication
Midazolam	terminal restlessness
Cyclizine	nausea/vomiting
Hyoscine hydrobromide	respiratory secretions
Lorazepam	insomnia
Fentanyl (injection)	pain
Ondansetron	non-chemo, RT nausea/vomiting
Docusate/senna	constipation
Methadone (liquid)	pain
Gabapentin	neuropathic pain
Ketamine	pain
Phenobarbitone	terminal restlessness

caregivers and families are acknowledged and used to guide decision-making and care planning.[2] The fact that those patients choosing to remain at home are obliged to buy many of their essential medications at full cost profoundly disadvantages patients who wish to die in the community – potentially restricting any real choices they may have in deciding about some aspects of their care. Moreover, many of these medications being prescribed in the palliative care setting are being used 'off-licence' for indications, routes of delivery and doses not yet approved by the Therapeutics Goods Administration (TGA).

These difficulties have been recognised and acknowledged by the Department of Health and Ageing and the Australian Government. Hence, a key area of the National Palliative Care Program is to improve access to affordable medicines through the PBS.

Improving access to medications

The Palliative Care Medicines Working Group (PCMWG) was established by the Australian Government in an attempt to remedy this situation. This expert group comprises invited clinicians, pharmacists and pharmaceutical industry representatives, along with government and drug regulatory officers. Its aim is to provide advice to the Australian Government on how to improve access to and quality use of medicines in the community. A communication sub-group has been established to raise awareness within the primary health care workforce of palliative care medicines already listed on the PBS and ways to improve access to essential medicines used in palliative care through a new PBS framework.

The first successful initiative has been the inclusion of a palliative care section within the PBS. This is the first section ever created in the PBS for a specific patient population. It allows for authority prescribing for those people meeting the definition of a palliative care patient and includes all patients with life-limiting disease (eg. those with end-stage heart or renal failure or motor neuron disease) (see box 1). It does not limit prescribing to those felt to have a specified prognosis, but rather focuses on maximising quality of life as the primary intent of care. This section is intended to complement and be used with the general listings, but the indications cited are often broader than those indications listed in the general section. For example, while non steroidal anti-inflammatory drugs (NSAIDs) are authorised only for patients with pain secondary to osteoarthritis in the general PBS section, they can be prescribed for severe pain of any aetiology to palliative care patients. Similarly, a prescription of a prolonged course of benzodiazepines is not restricted to

residents of an aged care facility who have failed a trial of drug withdrawal. The restriction on opioid prescribing for patients with non-malignant disease has also been lessened. While previously, opioids could only be initiated in hospital, under a palliative care authority they can also be started in the community. All palliative care listings are "authority required". Continuing treatment beyond four months requires a consultation with a specialist palliative care service, but this can be in the form of a telephone call between the general practitioner and a specialist or specialist service and does not require a face-to-face patient visit.

Box 1. *Definition of a palliative care patient for PBS purposes*

"A patient with an active, progressive, far-advanced disease for whom the prognosis is limited and the focus of care is on quality of life."

It is important to note that the change sought is often not only for any particular drug to be available, but also for the specific indication, formulation and/or route of delivery. A good example of this is clonazepam. The drug previously had approval only for the treatment of established epilepsy. The PCMWG has subsequently gained approval so that the indication for clonazepam is extended to include the prevention of epilepsy (including myoclonus).

One criticism of the content of the palliative care section as it currently stands is that it lists a relatively small number of drugs (see table 3) and the 'wish-list' of those practising palliative care remains substantially longer. However, the process of listing a drug on the PBS is rigorous and is dependent on the approval of a number of committees, including the TGA and the Pharmaceutical Benefits Advisory Committee. The quality, safety and efficacy of any drug must be judged satisfactory prior to any product registration and any application for PBS listing. The comparative safety, efficacy and cost-effectiveness of the new agent must then be assessed against existing products and the list price negotiated. Furthermore, the whole process is dependent on there being a sponsor willing to meet the time, effort and costs required to take the drug through the various stages. Only the sponsor (usually a pharmaceutical company) can apply to list a medicine or change a listed indication on the Australian Register of Therapeutic Goods.

To commence the process of improved access to palliative care medications, one of the first tasks the PCMWG undertook was to identify those drugs that already met the requirements necessary for PBS listing or those which could be listed with only minor changes in indication required. This led to drugs such as promethazine, hyoscine butylbromide, long-acting paracetamol and various laxatives quickly coming into the PBS within the palliative care section. The more slow and difficult task has been in getting the necessary approval for a whole range of other medications that have been identified by the Australian palliative care community as being of a high priority.

The Australian Government is supporting this next step in a number of ways. Significantly, funding has been made available to set up the infrastructure necessary to help gather scientific evidence necessary for the approval process and to support a national clinical trials network – the Palliative Care Clinical Studies Collaborative (PaCCSC). The collaborative is comprised of a number of centres across the country that have a proven ability to undertake clinical studies. The primary aim of PaCCSC is to complete a series of multi-site, well designed controlled clinical trials in order to substantiate the efficacy (or otherwise) of the palliative care community's priority drugs and from there further the argument for improved access to medications through the PBS. The current trials in design phase are centred on ketamine, risperidone, octreotide, ketorolac and megestrol acetate.

Conclusion

The palliative care section within the Schedule of Pharmaceutical Benefits reflects a commitment by the Australian Government to provide affordable and equitable access to palliative care medicines that have an established efficacy and proven pharmaco-economic base. Our responsibility as palliative care physicians is to improve awareness within the primary healthcare workforce of existing palliative care medicines listed on the PBS, encourage our colleagues to use the palliative care section and to promote quality use of medicines and best practice prescribing within palliative care. We must encourage sponsors to consider palliative indications as part of the registration process on the Australian Register of Therapeutic Goods and assist with the gathering of evidence to demonstrate the quality, efficacy and safety of the medicines we have prioritised.

Table 3. *Drugs listed in the palliative care section to date*

Benzydamine hydrochloride
Carmellose sodium
Hyoscine butylbromide (injection)
Promethazine hydrochloride (tablets, oral liquid)
Laxatives (bisacodyl, docusate, stercula, lactulose, macrogol, glycerol, sorbitol)
Non-steroidal anti-inflammatories (extended indication)
Morphine (extended supply)
Methadone (extended supply)
Paracetamol (suppositories and modified release formulations)
Clonazepam (extended indication)
Benzodiazepam derivatives (extended supply)

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DEVELOPING THE PRIMARY PALLIATIVE CARE WORKFORCE IN AUSTRALIA

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Abstract

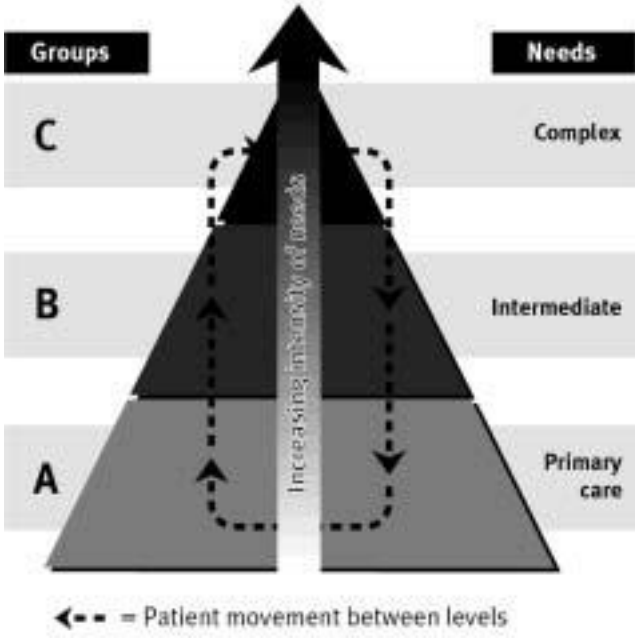
Current healthcare models promote the equitable provision of palliative care to oncology patients with advancing disease, in the setting of their usual care, often in conjunction with anti-cancer therapies. This has resulted in specialist cancer services, as well as primary care across metropolitan, rural and remote communities, being called upon to integrate palliative care principles into their practice. To meet this increased demand for skilled health care professionals several national strategies have been initiated over the last five years. In this paper two projects are discussed in detail: the Palliative Care Curriculum for Undergraduates and the Program of Experience in the Professional Approach.

The person with advanced progressive cancer has some unique clinical, emotional, social and spiritual needs. Throughout their journey, people with advanced disease typically come into contact with a wide range of health professionals in specialist oncology and palliative care settings, and in primary care, who must respond effectively to their needs.

Recent policy documents from Palliative Care Australia (PCA) emphasise the important and interrelated roles of cancer professionals, specialist palliative care services and primary care providers in collaborative efforts to provide high quality care to people whose disease may not be curable.[1,2] These PCA documents emphasise that while specialist palliative care services should be accessible to those patients with more complex needs, much care of patients with advanced disease is provided by specialists in areas such as cancer care. These specialist oncology staff will often have an ongoing role in the support of patients with advanced disease by adopting a palliative approach to the care they provide.[1,2] In this context, specialist cancer services may be considered a primary care service, with specialist palliative care services involved on an as required basis only. These service models, which emphasise collaborative networks and interdisciplinary approaches to care, are thought to provide a more responsive, coordinated, needs based approach to care, that recognises the more diverse and complex trajectories associated with modern approaches to treatment of conditions such as cancer.

Recent health service models thus move beyond the traditional handover approach, whereby palliative needs were seen solely as the domain of specialist palliative care providers who would be referred patients only at end of life, to one which recognises the role of all health professionals in responding to palliative needs. While the substantive work of specialist cancer professionals may not be with patients with end stage disease, current policy documents emphasise that all health professionals, including specialist oncology staff, require some level of knowledge and skill in the palliative approach.

Figure 1. *Conceptual model of level of need within the population of patients with a life limiting illness*



Source: Palliative Care Australia. A Guide to Palliative Care Service Development: A Population Based Approach. Palliative Care Australia, Canberra, 2005.

The PCA models also highlight that a range of other primary care providers may be involved in care of people with advanced cancer. Of particular importance here is the role of general practitioners (GPs). The particular needs of special populations, such as Indigenous communities, also require that a workforce with skills relevant to the cultural needs of these communities be available.

The National Palliative Care Program, funded by the Commonwealth Department of Health and Ageing, aims to improve access to, and the quality of, palliative care services in Australia. The program supports a range of national initiatives, with one key area of activity being education, training and support for the health workforce.

This paper provides an overview of two key initiatives which have been implemented to develop the skills of primary care providers (including cancer professionals) in Australia to provide quality care to people with life-limiting conditions such as advanced progressive cancer.

Palliative Care Curriculum for Undergraduates

The Palliative Care Curriculum for Undergraduates project (PCC4U) aims to promote the inclusion in all healthcare training of the role of palliative care and its principles and practice in the care of dying people, and to support the inclusion of palliative care education as an integral part of all medical, nursing and allied health undergraduate training. The project has been led by a consortium comprising clinicians and educators from Queensland University of Technology, Flinders University, Charles Darwin University and the University of Queensland. The focus on undergraduate education is seen as an important priority, to ensure all health professionals are equipped with fundamental skills in the palliative approach to care and in response to available evidence which suggests that undergraduate education may not adequately prepare the health workforce for end of life care.[3-5]

Phase 1 of the PCC4U project undertaken during 2003 to 2005 comprised three main components. The first involved a range of consultative and research activities to develop *Principles for Including Palliative Care in Undergraduate Curricula.* This involved: a review of literature on issues and practice in undergraduate palliative care education; scoping of existing curricula through survey and in-depth interview; a survey of healthcare professionals' views about core principles for inclusion of palliative care in undergraduate curricula; and focus group discussions with a wide range of stakeholders to explore and refine core principles for inclusion of palliative care in undergraduate curricula. This activity resulted in publication of the *Principles for Including Palliative Care in Undergraduate Curricula* (available at: www.pcc4u.org). An important component of the principles publication is the description of core graduate capabilities in palliative care, that provide a framework for understanding the expectations of the capabilities of all health professionals in meeting the needs of people with life-limiting conditions.

The core principles defined in this document were used to guide the development of a suite of teaching and learning resources. This activity resulted in development, piloting and revision of learning resources including an interactive CD-ROM and web-based teaching and learning resource, with accompanying facilitator guides and a resource compendium. In addition, strategies for facilitating uptake of the core principles and learning resources more widely were developed from a review of the literature and a further series of state and territory-based workshops involving key education providers and regulatory bodies. These latter activities resulted in the identification of a range of barriers and facilitators to curriculum uptake and a set of recommendations for promoting the uptake of the core principles and learning resources.

Stage 2 of the PCC4U project was undertaken in 2005 to 2006 and involved supporting several universities to implement and promote the use of the palliative care undergraduate curriculum resources. Ten undergraduate health courses in seven universities were recruited to participate in this stage of the project. The sites represented courses in nursing, medicine, pharmacy, speech pathology and social work. The universities included four metropolitan and three regional universities. All sites incorporated the PCC4U resources in their curricula during Semester 1 2006. The pilot sites made good progress with integrating the resources during this time, with the evaluation providing important insights into strategies for optimising student learning outcomes and facilitating integration of palliative care in undergraduate courses.

Stage 3 of the PCC4U project commenced in late 2006 and will run until 2010. Building on earlier work, this stage will involve: active promotion of the uptake of PCC4U resources in all universities in Australia which offer medical, nursing and allied health undergraduate training; maintenance and nurturing of the networks that have developed between participating universities and their faculties; and developing strategies for the ongoing sustainability of the project. It will also involve seeking endorsement and support for the principles framework by key professional and regulatory bodies in this field.

While a great deal of work is yet to be done to facilitate integration of palliative care in undergraduate courses, this project has already resulted in the development of evidence-based learning resources that can be delivered flexibly, in terms of time, place and delivery mode and tailored to the needs of various disciplines. The success of this initiative will be measured by indicators such as improved learning outcomes and capabilities of graduates, evidence of integration of palliative care principles in undergraduate courses, the support of regulator and professional bodies for the initiative and ultimately improved quality of care. The curriculum scoping survey undertaken in 2004 at the commencement of the project will be used as a benchmark for assessing some of these outcomes. The project website, www.pcc4u.org, provides further information about this initiative.

A program of experience in the palliative approach

The National Program of Experience in the Palliative Approach (PEPA) is providing palliative care workplace training opportunities and workshops for a range of healthcare professionals, including nurses, allied health professionals, Aboriginal health workers, GPs and other medical practitioners. The program encourages healthcare professionals in rural and remote areas to apply. PEPA commenced in 2003 and placements were initially offered to generalist nurses and allied health staff from primary health settings in all states and territories (PEPA 1). In 2005, PEPA was expanded to include placements for GPs, rural and remote medical staff and specialist palliative care staff (PEPA 2). All jurisdictions, except the Australian Capital Territory, offered clinical placements for GPs and rural and remote medical staff, and all jurisdictions

offered clinical placements for specialist palliative care staff.

The clinical placement program is underpinned by adult learning principles, with a focus on experiential and peer-based learning. In order to reinforce learning and provide ongoing opportunities for professional support and development, the program incorporates a supervised clinical placement, activities which facilitate integration of learning into the participant's practice and workplace and post-placement networking and learning support. Funded by the Department of Health and Ageing through the National Palliative Care Program, the program provides funding for backfill costs during the placement, as well as travel and accommodation costs for rural participants.

Demand for PEPA has been high, with the number of applications for the program being greater than the number of placements available in all states and territories. Since commencing in 2003, almost 1000 health professionals have completed a PEPA clinical placement, including nurses and allied health professionals from primary care settings, GPs and rural and remote medical practitioners, specialist palliative care staff and specialist oncology nursing staff. Nearly 38% of participants in PEPA 1 and 22% of participants in PEPA 2 came from regions in the moderately accessible, remote and very remote categories of the Accessibility/Remoteness Index of Australia.

PEPA has also supported a series of workshops for GPs and allied health professionals unable to take part in a clinical experience program due to difficulties with backfill or lack of access to an appropriate clinical placement site. These workshops have been held in metropolitan and rural settings and have been attended by almost 2000 health professionals since commencement of the program.

A comprehensive evaluation of PEPA was undertaken in 2006. Interviews and participant reports provided numerous examples of positive learning outcomes for participants, including examples of increased understanding of a palliative approach to care, improved knowledge about specific conditions and symptom management, improved skills in managing specific clinical problems in palliative care and improved communication skills. Employers of PEPA participants from the primary healthcare sector also provided numerous examples of ways in which participants were contributing to improvements in the delivery of a palliative approach in their settings.

A range of factors have been identified as being important to the success of the program to date. These factors have included the experiential nature of the program, the networks developed during PEPA and the interest and support provided by clinical mentors. Another key success factor associated with the program has been the partnerships developed between specialist and primary care providers, and between Commonwealth and state and territory government health departments in delivering the program. State and territory health departments have played a key role in program implementation, enabling the program to be linked with other local cancer and palliative care initiatives.

The key challenges include managing the administrative requirements associated with a large clinical placement program, pressures on host sites to provide clinical learning experiences for university students as well as PEPA participants and staff workload pressures which can impact on time that is available for mentoring. A range of strategies are being trialled to promote sustainability of learning outcomes and transfer of learning into ongoing practice improvements. This aspect of the learning program is, however, one of the most challenging and requires ongoing effort.

Funding has been provided to continue PEPA until June 2010. This next phase of PEPA will continue its emphasis on building the capacity of primary care providers. Particular attention will be given to collaborating with Indigenous communities to promote the participation of Indigenous health workers in PEPA and to develop the program so that it meets the cultural needs of Indigenous Australians. Further information about the project can be found on the project website: www.pepaeducation.org.au.

Conclusion

An important component of our health system is the services provided for those who are dying. In 2004 in Australia there were 37,989 deaths from cancer.[6] The health and support needs of these individuals are diverse and often change over time. People who are dying may have needs which are uncomplicated and which can be met by primary care providers, while others may have needs that require the resources of specialist, interdisciplinary teams.[1,2] To respond effectively to these needs, all healthcare providers require as a minimum, the knowledge and skills to provide a palliative approach to care.

A range of initiatives underway in Australia are focused on achieving improvements in the quality of palliative care. Importantly, the initiatives outlined in this paper are not solely focused on developing specialists in palliative care. Rather, they focus on enhancing the role of primary care providers, including cancer professionals, who often have ongoing contact with patients whose disease may not be curable while supported by specialist palliative care services. Some important implications arise from the initiatives outlined in this paper. In particular, the importance of embedding efforts to build the health workforce into existing service delivery networks and programs, and the benefits of using 'authentic' and experiential learning opportunities based on evidence-based strategies have been identified. Ongoing evaluation of these initiatives is underway, to enable assessment of the long-term impact of these initiatives on care for people with life limiting conditions including advanced cancer.

Acknowledgements

PCC4U and PEPA are initiatives of the Commonwealth Government Department of Health and Ageing, funded through the National Palliative Care Program. The author would like to acknowledge the contribution of

Project team members to the development and implementation of the initiatives described in this paper, as well as those individuals and organisations who have participated in and supported the programs.

PCC4U Project team members: Robyn Nash; Meg Hegarty; David Currow; Kim Devery; Carol Grbich; Geoff Mitchell; Bev Turnball; Deborah Prior and Debbie Canning.

PEPA management team: Linda Barrett; Shirley Connell; Dee May; and all state and territory PEPA managers.

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ADVOCACY IN PALLIATIVE CARE

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Abstract

It is already clear that 2007 will be a year of significant advocacy challenges for palliative care with the Federal Government election and negotiations for the next five-year Australian Health Care Agreement. Deployment of advocacy skills (as well as time, money and volunteer energy) and investments, supported by evidence and networks (numbers), must match the cycle of decision-making and opportunities.

In the lead-up to these negotiations, palliative care - its value in terms of economic and quality of life outcomes – should not be lost in the debate and weighted as a lower priority to competing health care priorities. The federal election, scheduled as a precursor to the conclusion of these negotiations, increases the scope of advocacy work to be done by the sector.

These events will provide an opportunity to strengthen recognition of palliative care as an essential and cost-effective investment in health outcomes and an opportunity to establish a robust advocacy network and make a difference.

This will be the palliative care sector's challenge in the year ahead.

Every health professional endeavouring to deliver patient care in the context of our complicated healthcare system will have wondered at some point: "Who is making these silly decisions about healthcare policies and funding? How are they made? How does one go about influencing them?"

Usually, this thinking is associated with a substitution of 'silly' with a favoured blasphemous term and an escalating frustration and attitude that: "If they only knew the facts. If they only asked me – they could have arrived at a much smarter decision."

Alas, it is this experience that motivates many health professionals to volunteer their intellect and passion through leadership roles within their respective peak organisations and to strive to make a difference, through what is the 'dark art' of politics, lobbying and advocacy. Thank goodness for this frustration – because patients gain through this extraordinary commitment.

Advocacy: the skills and investments

The vision of the founders of Palliative Care Australia (PCA) was to generate and amplify a national voice for representation, advocacy and lobbying with decision-makers. Part of this vision was for the organisation to develop as a custodian of national policy and standards for quality care. The idea was to build a national platform to bring together all who share an interest in the palliative care endeavour.

PCA's governance structure is based on an elected executive committee drawn from the palliative care sector, which in turn is advised by the National Council. This is the mechanism that provides national policy development, strategic direction and leadership for the development of palliative care in Australia. The day-to-day work, however, is carried out largely by the generous volunteer expertise contained in committees and working parties, supported by the national office in Canberra.

PCA and its member organisations also work collaboratively with the Commonwealth Department of Health and Ageing (DOHA) and state and territory health departments to achieve access to quality palliative care for all Australians.

The National Palliative Care Strategy[1] is seen as a synthesis of the national effort and was developed in 2000 through collaboration between the Commonwealth, state and territory governments, PCA and stakeholders. The three main goals of this strategy are to:

1. Improve community and professional awareness and understanding of, and professional commitment to, the role of palliative care practices in supporting the care needs of people who are dying and their families of care.
2. Support continuous improvement in the quality and effectiveness of all palliative care service delivery across Australia.
3. Promote and support partnerships in the provision of care for people who are dying and their families, and the infrastructure for that care, to support delivery of high quality, effective palliative care across all settings.

The strategy recognises the importance of building health service and community capacity to support people through dying and bereavement, with acceptance that death is a natural part of life. It emphasises the need for: broad community and professional awareness of the widely varying needs of people who are dying; flexible planning and service delivery that is responsive to these needs; and high quality and accountability in the provision of services. It seeks to address palliative care across all relevant sectors, including publicly and privately funded hospitals and community services, non-government organisations and the aged care and disability sectors.

Those who are close to the nuances of government policy will recognise that it takes more than a sound strategy document to improve care. Through effective advocacy work the Australian Government has continued to provide funding through its commitment to the National Palliative Care Program through three sources.

1. Palliative Care in the Community – $62.8 million for the period 2006-10 (in addition to $52.8 from 2002-2006).
2. Australian Health Care Agreements – $201.2 million for 2003-2008 ($13.2 million allocated to the Australian Government to support national initiatives).
3. Local Palliative Care Grants Program – $23.1 million over four years (2005-09) to help health-related services better support people requiring palliative care and their families.[2]

While the initial program funding phase between 2002 and 2006 was enormously exciting for those who work in palliative care, it is fair to say that such a small sector was overburdened. An already stretched workforce was asked to deliver care while participating in research, consultation and leading change. This placed extraordinary pressure on all involved. However, the work paid off with the announcement of extended funding for this program following positive evaluation and the articulation of the new priority areas.

In 2006, there was an essential process of consolidation and focus that will see investment in major initiatives to:

1. support patients, families and carers in the community;
2. increase access to palliative care medicines in the community;
3. educate, train and support the workforce; and
4. undertake research and quality improvement for palliative care services.

The ongoing challenge for the palliative care sector is to utilise the national networks at all levels to provide feedback on the success of these investments. We must use our advocacy skills to ensure that mechanisms are in place to deliver sustainable, evidence-based improvements that deliver the national implementation of better service models and tangible change in patient care outcomes.

Advocacy: the cycles

Deployment of advocacy skills (as well as time, money and volunteer energy) must match the cycle of decision-making and opportunities. In 2007, PCA will expand its focus from program funding (change and service improvement) to the critical area of service funding (workforce and care costs), in particular seeking to influence the decision-makers behind the Australian Health Care Agreements. In the lead-up to these negotiations, palliative care – its value in terms of economic and quality of life outcomes – should not be lost in the debate and weighted as a lower priority to competing health care priorities. The federal election, scheduled as a precursor to the conclusion of these negotiations, increases the scope of the advocacy work to be done.

Significantly, greater activity now occurs in the area of national advocacy, with the requisite focus on influencing decision-makers to recognise the value of quality palliative care and to match this recognition with support for adequate funding, commitment to enabling the implementation of quality standards, commitment to adequate resourcing for an ageing population and greater awareness of the needs of people with a life limiting illness.

Advocacy: the evidence

Those involved at the receiving end of advocacy work – healthcare decision-makers at all levels – unanimously call for policy changes and funding pursuits to be underwritten by quality information and evidence.

Articulation, development and implementation of national palliative care standards is fundamental to improving access to high-quality palliative care for all Australians. An important by-product of the benchmarking and measurement of performance against these standards is the enhanced credibility of advocacy work.

The 4th Edition of the *Standards for Providing Quality Palliative Care for All Australians*[3] reflected a move

towards a population-based approach to the development and delivery of palliative care services. This approach is described in *A Guide to Palliative Care Service Development – A Population Based Approach*.[4]

In 2007, work on the National Palliative Care Standards will take a significant step forward, with the piloting and implementation of the National Standards Assessment Program (NSAP), a national quality assurance program that streamlines self-assessment and peer-review activities while linking with existing accreditation mechanisms.

The intent of NSAP is to enable all specialist palliative care services to participate on an ongoing voluntary basis in the three stages of quality assurance: self assessment (stage 1), independent peer review (stage 2) and formal accreditation (stage 3).

Successful completion of stage 3 will result in full integration of the palliative care performance criteria with those used by the relevant national accrediting bodies. This will enable services that successfully complete NSAP stage 2 to use this status to efficiently satisfy the criteria of the accrediting body through mutual recognition.

2007 will also see the Australian Commission on Safety and Quality in Health Care complete consultation on the proposed package of reforms to reorientate, streamline and increase the efficiency of national accreditation work. Robust linking between NSAP and this emerging work, as well as managing strong, collaborative relationships will be key success criteria for planning as well as advocacy work.

Additional work on the measurement of standards is underway through the development and collection of information against national data sets being undertaken by the Palliative Care Outcomes Collaboration (PCOC) and the Australian Institute of Health and Welfare.

This work is poised to provide, as a by-product of the provision of patient care and evaluation of service models, the evidence to support advocacy targets and specific funding requests.

Advocacy: the numbers

Getting the timing and influence cycle right, investing in relationships and having the compelling evidence-based arguments will set the scene for effective advocacy. But this will not have optimum impact without the essential ingredient: numbers – the bigger the constituency that is fully-aligned to pursue the change the greater the impact. Many organisations collaborate to support and co-logo each other's initiatives: for example, the Australian Health Care Alliance with the specific aim of amplifying its impact through an increased number of constituents. The network of health professionals who share an interest in palliative care is strong and PCA aims to improve the efficiency of communication through physical and electronic networks.

Influencing health planners and funding providers through advocacy would be a much simpler task if the community possessed a level of knowledge and understanding about dying, loss and grief, and about the services available. When examining how to best increase numbers to strengthen advocacy work, it is important to consider how many people are touched by death and bereavement. Aside from those who work in the health sector, we need to consider the thousands of patients, carers and families.

Each year, more than 76,000 people die from a life-limiting illness. Assuming that each of these people have two family members, two close friends and 10 work colleagues, more than 1.2 million people are affected in some way by the death of someone with a life-limiting illness each year. This is a significant number which cannot be overlooked – the size of a few combined electorates.

Living with, caring for and working with people experiencing terminal illness, loss and grief can be a challenging and isolating life experience. Isolation from communities is not intentional, but often is a consequence of not knowing what to do and what to say when our family, friends, colleagues and other members of our community face death and grief. We need to build capacity in the community to face death and grief. The palliative care community aspires for people to encounter life-threatening illness and dying with knowledge and resources already in place, rather than have to assemble or develop them from scratch in the midst of that experience.[5]

A recent research report commissioned by the Commonwealth Department of Health and Ageing, *Community Attitudes Towards Palliative Care - Integrated Report*,[6] found that while Australians typically equated palliative care with providing care and comfort for the terminally ill, few Australians spontaneously associated palliative care with support for families and carers.

During 2007, a significant national campaign will seek to foster community capacity building. One objective of the campaign is to help individuals to know what to do and what to say for their family, friends, colleagues and communities when confronted with death and loss.

While these steps are important in raising the awareness of palliative care, they can be perceived as a double-edged sword. By raising awareness of palliative care, attention is drawn to the fact that there are significant funding and workforce shortages in the sector affecting accessibility. People facing the end of life are a vulnerable group in the community and must be supported with ready access to the information they require. Unfortunately, funding levels for the development of palliative care services in Australia do not always keep pace with demand. Awareness raising becomes a topical issue when one reflects on the media bias of current euthanasia debates, with no consideration given to the significant developments in end-of-life expertise, which are of world-class standard.

Much work is also required to ensure that the term palliative care is not erroneously equated with the last

few days of life and pain control. There is still evidence of reluctance among some in the medical profession to request palliative care for patients, regarding death as a medical failure. But palliative care is more than the last few days of life and can last for weeks, months, even a year or more. Palliative care is more than pain control, more than only cancer – palliative care is a whole of community affair.

Again, a by-product of awareness-raising is an increased ability to conduct advocacy through generating an increased number of people who understand the issues and through providing a mechanism for them to participate and make a difference.

Conclusion

This paper has described the advocacy challenges ahead for the palliative care sector. Success will rely on measured management of skills and investments, timing to correspond with funding cycles, evidence to support arguments and maintain credibility, and an ability to harness the support of others to take the argument forward to decision-makers.

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SPECIALIST PALLIATIVE CARE USE FOR PEOPLE DYING OF CANCER IN WESTERN AUSTRALIA

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Abstract

The Western Australian Data Linkage System was used to study patterns of specialist palliative care delivery during the last 12 months of life, comparing use between different socio-demographic groups and causes of death. In the two and half year study period, 8007 people had either cancer alone, or cancer and another condition considered amenable to palliative care recorded in part one of the death certificate. Of this group, 56.3% received some form of specialist palliative care. Particular groups of people were disadvantaged in relation to access to specialist palliative care, with those single or widowed, aged over 85 years, or those living in a region other than a major city significantly less likely to receive specialist palliative care services. The vast majority of people in the last year of life had at least one hospital admission. Those receiving specialist palliative care community-based services were more likely to die in their own homes. The population-based data in this study provides a unique picture of palliative care provision in WA, suggests areas of need and helps to lay the groundwork for future research.

Population-based research in palliative care

Population-based research in Australian palliative care is still in its infancy, though the national body, Palliative Care Australia, has proposed using this approach to guide future service provision.[1] Much can be learned from tracing the provision of palliative care services and documenting exactly who does and does not receive these important end-of-life supportive services. However, this kind of epidemiological research is complex and reliant on methods which can be time-consuming and frustrating, as access to reliable records is not always feasible. Our Western Australian study was able to deal with these methodological problems by using the unique Data Linkage System available in WA, which spans 20 years and contains core datasets including cancer registrations, inpatient hospital morbidity data and death records. The linking of a large number of administrative health records enables patterns of healthcare service use to be investigated in relation to a variety of socio-demographic variables. For

the purposes of our study we also linked residential and community specialist palliative care services (SPCS) to the other relevant core datasets, enabling us to describe all SPCS use across the whole WA population.[2,3]

The population was identified from the Australian Bureau of Statistics Mortality Register as all people who died in the period 1 July 2000 to 31 December 2002 in WA and whose underlying cause of death, as recorded on part one of the death certificate, was from either cancer or selected non-cancer conditions considered amenable to palliative care (heart failure, renal failure, chronic obstructive pulmonary disease, Alzheimer's disease, liver failure, Parkinson's disease, Motor Neurone Disease, HIV/AIDS and Huntington's disease).[4] The outcome variables in the study were cause of death, place of death, use of SPCS in the last 12 months of life and demographic information (age, gender, marital status, Aboriginality, geographical remoteness and socio-economic disadvantage). The following discussion focuses upon those who died of cancer (ICD 10 codes C00 – D 48), as recorded on part one of the death certificate, as this group constitutes the vast majority of people who have symptoms and needs warranting SPCS.

Specialised palliative care services in WA

Specialist palliative care services in WA, like other states and territories, provide a coordinated, integrated and patient-focused model of care, including respite and other supportive services to carers.[5] In WA these services are provided by tertiary and non-tertiary public hospitals, hospices and community-based agencies. Silver Chain provides the vast majority of specialist palliative care community service in WA.

Specialist palliative care use

In the study period, 8007 people had cancer as one of the conditions listed on part one of the death certificate (29.8% of all deaths). Of this group 7399 people had cancer only and 608 had cancer as well as at least one other condition considered amenable to palliative care. Table 1 shows the kinds of service use for these two groups. Although palliative care is now a well recognised and important subspecialty, many of those who died did not access SPCS. This was particularly so for those who had cancer and one or more co-morbidities considered amenable to palliative care. The study also found that once a patient was referred to specialist palliative care they were more likely to receive other SPCS. In other words once they were in the system they were well serviced, indicating that referral is crucial to specialised service provision. Of course not all people dying of cancer require or request specialist palliative care. Nevertheless service use is one way of assessing potential unmet need.

Who receives specialist palliative care and who misses out?

Our study used logistic regression to estimate the likelihood of receiving specialist palliative care in the last 12 months of life. Table 2 indicates those who may be disadvantaged by missing out on SPCS and not surprisingly tends to mirror the broader disadvantages in Australian healthcare. Those who died of cancer were significantly less likely to receive SPCS if they were single or widowed, aged over 85 years, or lived in a region other than a major city.

Being married increased the likelihood of accessing SPCS, both in hospital and in the community. Married people with cancer used more community-based services, indicating that the ability to be cared for in their usual place of residence may ease the cost of hospital services.

Those aged over 85 years dying of cancer were less likely to receive SPCS. Compared with those aged 75-84 years, this group was proportionally less likely to have accessed SPCS in both hospital and community settings. It could be argued that this group was more likely to reside in aged care facilities and that a generalist level of palliative care was provided for in this setting. However, this assumption should not mask the broader question the findings suggest: are older people with cancer adequately serviced by palliative care providers?

It is well known that Australians residing in rural and remote areas are less well serviced in relation to healthcare. Our study provides evidence to show that this is particularly so for SPCS provision.

Although numbers were small, when compared with non-Indigenous people, Indigenous Australians were more likely to have used SPC, despite 80% of this group living in rural and remote areas. However, these figures need to be understood in relation to place of death, with only 26 of the 98 dying in their usual place of residence. Of the 72 who died in a place other than their usual residence, 63 died in hospital. As it is culturally very important for Indigenous people to die in their 'own country', the place of SPC delivery is of prime importance.[6]

Table 1. *Use of Specialist Palliative Care Services (SPCS) in WA*

	Community-based SPCS only	Hospital-based SPCS only	Both community-based SPCS and hospital-based SPCS	No SPCS
Cancer only	23.9%	18.7%	25.1%	32.3%
Cancer + non cancer	20.2%	13.2%	14.8%	51.8%

Table 2. *Likelihood of receiving SPCS in the year preceding death for those who died of cancer*

Variable	N	% who received SPCS	Crude estimates OR	Crude estimates 95%CI	Adjusted estimates OR	Adjusted estimates 95% CI
Gender						
Male	4191	68	1.00		1.00	
Female	3208	67	0.98	.89 – 1.08	1.07	.96 - 1.19
Marital status						
Married	4171	72	1.00		1.00	
Divorced	691	71	1.05	.88 – 1.26	1.08	.89 - 1.30
Single	345	62	.67**	.54 - .85	.66*	.52 - .84
Widowed	1837	60	.62***	.56 - .70	.79**	.69 - .91
Unknown	355	64	.71**	.57 - .90	.77*	.60 - .99
Age (years)						
0 - 14	30	63	1.67	.78 – 3.53	2.17	.99 – 4.75
15 - 24	27	67	1.93	.86 – 4.33	2.45 *	1.06 – 5.68
25 - 34	75	73	2.65***	1.57 – 4.89	3.06***	1.73 – 5.41
35 - 44	191	73	2.58***	1.83 – 3.62	2.42***	1.69 – 3.46
45 - 54	620	74	2.73***	2.20 – 3.38	2.50***	1.97 – 3.17
55 - 64	1172	74	2.74***	2.29 – 3.28	2.59***	2.12 – 3.16
65 - 74	1974	70	2.22***	1.91 – 2.60	2.14***	1.80 – 2.54
75 - 84	2262	68	2.08***	1.79 – 2.42	1.98 ***	1.69 – 2.32
85+	1047	51	1.00		1.00	
Indigenous status						
No	7007	68	1.00		1.00	
Yes	98	65	.89	.59 – 1.36	1.54	.96 – 2.49
Socio-economic indices for areas (SEIFA), based on 2001 Census						
Most disadvantaged	1391	66	.78**	.66 - .91	.89	.75 – 1.06
More disadvantaged	1449	67	.79**	.67 - .92	.93	.79 – 1.11
Average	1477	66	.77**	.66 - .91	.90	.76 – 1.07
Less disadvantaged	1560	69	.87	.74- 1.01	.93	.79 – 1.10
Least disadvantaged	1457	72	1.00		1.00	
Accessibility remoteness index of Australia (ARIA+)						
Major city	5333	71	1.00		1.00	
Inner regional	1021	64	.73***	.63 0 .84	.72***	.62 - .84
Outer regional	709	58	.57***	.48 - .67	.57***	.48 - .67
Remote	182	47	.37***	.27 - .49	.34***	.25 - .46
Very remote	91	54	.48***	.31 - .72	.39***	.25 - .61
Migratory or missing	63	35	.22***	.13 - .37	.28	.02 – 5.01

Dependent variable = SPCS from any source (home-based or hospital-based)
** 0.05 > p ≥ 0.01 ** 0.01 > p ≥ 0.001 *** p < 0.001*

Hospital admissions in the last 12 months of life

In the last 12 months of life 96.5% of people who died of cancer, or cancer and another condition considered amenable to palliative care, had at least one hospital admission. Of the 3.5% of people dying of cancer who were not admitted to hospital in the last 12 months of life, the vast majority died in their usual place of residence, be it a residential aged care facility (35.0%) or some other location (58.8%). Table 3 summarises hospital admissions in the last year of life for those people who were: (1) hospital admission only; (2) specialised palliative care admission only; and (3) both specialised palliative care and hospital admission. Those admitted for both SPC and hospital admissions had a lower mean number of hospital admissions (6.3) than those who had hospital admissions only (6.9). More importantly those admitted for both had a lower mean length of hospital stay (29.0 days versus 33.5 days). In Table 3, the large standard deviations in comparison to the means are a reflection of the skewed distribution of the data.

Table 3. *Hospital admissions in the last year of life*

	Condition listed on part one of the death certificate			
	Cancer N=7399		Cancer + non cancer N=8007	
Hospital admissions in the last year of life (excluding specialised palliative care admissions)				
Number of persons	n = 3897	52.7%	n = 4316	53.9%
Mean number of hospital admissions	6.9	SD=9.4	7.0	SD=9.8
Mean length of hospital stay in the last year of life (days)	33.5	SD=33.3	34.0	SD=34.2
Range of the length of hospital stays in the last year of life (days)	1 – 359		1 – 361	
Specialised palliative care hospital admissions in the last year life				
Number of persons	198	2.7%	208	2.6%
Mean number of SPCS hospital admissions	1.7	SD=1.8	1.7	SD=1.8
Mean length of SPCS hospital stay in the last year of life (days)	20.6	SD=25.4	20.2	SD=24.9
Range of the length of SPCS hospital stays in the last year of life (days)	1 – 12		1 – 131	
Admission for both hospital and hospital specialised palliative care in the last year of life				
Number of persons	3046	41.2%	3206	40.0%
Mean number of hospital admissions	6.3	SD=6.9	6.4	SD=7.1
Mean length of hospital stay in the last year of life (days)	29.0	SD=25.1	29.2	SD=25.6
Range of the length of hospital stays in the last year of life (days)	1-182		1 – 262	
Mean number of SPCS hospital admissions	1.6	SD=2.0	1.6	SD=2.0
Mean length of SPCS hospital stay in the last year of life (days)	18.1	SD=20.8	17.9	SD=20.6
Range of the length of SPCS hospital stays in the last year of life (days)	1 – 180		1 – 180	

Place of death

Very little is known about where people die despite growing evidence to indicate that many people prefer to die in their usual place of residence.[7] As the goal of palliative care is to allow patients to die comfortably and, if possible, in a place of their choosing, data about actual place of death is of interest to palliative care practitioners. Our study shows that of those who died of cancer either with or without another condition considered amenable to palliative care: 29.6% died in their usual place of residence; 17.1% died in a hospice; 48.6% died in a hospital; 1.7% died in a residential aged care facility; and 3.0% died in some other place. Multiple logistic regression was used to examine the effects of receiving specialist palliative care on place of death. When considering the effect of receiving SPCS, after adjusting for other factors, there is a seven times higher chance (95% CI 6.1-7.9) of dying in the usual place of residence if the patient received community-based specialist palliative care only, when compared to no specialist palliative care from any source. Receiving SPCS in the home, in particular, potentially allows people to die in a place of their own choosing.

Conclusion

Our study has provided unique information on the healthcare use of WA people in the last year of their lives. While reliant on administrative databases, the data provides a good baseline to determine obvious inequities and areas of need. It is heartening to find that palliative care services are now acknowledged and their influence noticeable, but it is also concerning to find that over 40% of people who died of either cancer or cancer and another condition considered amenable to palliative care did not receive specialist palliative care services. Our study has not investigated non-specialist palliative care service and many people may be receiving a variety of supportive services from general practitioners, other specialists and community organisations. Nevertheless, the holistic, multidisciplinary and family focused care provided by SPCS is a service that should be offered to families as they negotiate the difficult last months of life.

Acknowledgements

The study was funded through a National Health and Medical Research Council Palliative Care Program grant.

Thanks are extended to Janine Calver, D'Arcy Holman, Ellen Nightingale, Gill Lewin, Dimitris Matsakidis and the palliative care community of Western Australia.

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RURAL PALLIATIVE CARE: EXPLORATION OF THE PIVOTAL ROLE OF PRIMARY HEALTHCARE PROVIDERS

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Abstract

Primary healthcare providers are critical to the delivery of healthcare in Australia. For rural Australians these health professionals play a pivotal role in all aspects of health, from prevention, early diagnosis and treatment through to care at the end of life. The delivery of optimal palliative care for rural Australians is dependant upon a viable, well educated primary healthcare workforce. Recent initiatives by the Commonwealth Department of Health and Ageing, Royal College of General Practitioners and state health departments have made significant inroads into supporting rural palliative care delivery. There is a need for these programs to be extended to other rural healthcare providers.

The Commonwealth Department of Health and Ageing National Palliative Care Strategy identifies three core goals: increase awareness and understanding of palliative care; improve the quality and effectiveness of palliative care delivery; and support and promote partnerships to support delivery of palliative care.[1] To achieve these goals for all Australians requires a knowledge and recognition of the needs of the diversity of the Australian population. This paper focuses on the palliative care needs of rural Australians and recent initiatives undertaken to implement sustainable quality access to palliative care. Not included in this paper are the specific needs and issues associated with provision of palliative care to Indigenous Australians.

Background

In Australia, approximately one third of Australians live in rural areas[2] and another half a million reside in remote regions of the country. The overall incidence of cancer is similar in metropolitan and rural populations, however, mortality is higher for those individuals who live in rural regions, particularly so for men with prostate cancer and women with cervical or lung cancer. There is recognition that access to healthcare for individuals living in rural and remote areas of Australia has been problematic.[3-5] Increased costs associated with healthcare delivery, decreasing numbers of rural healthcare providers and a growing trend toward centralisation of services impacted negatively on access to healthcare services for Australians living in rural and remote areas. Yet, with this decrease of healthcare services the needs for healthcare in rural and remote communities remain high, particularly in the area of palliative care. The need to develop alternative models for providing effective delivery of an appropriate mix and level of health services to rural communities, which differ in size and types, has been acknowledged by government and health authorities.[6] This article will outline the steps being taken to address these gaps and support the ongoing delivery of palliative care by primary healthcare providers in rural, regional and remote Australia.

Previous work carried out by the author identified a range of unmet needs for palliative care patients and their families in rural and remote areas, including access to palliative care services, information about illness, practical care and support.[4,7] Rural families have identified problems in accessing practical care, in particular, after hours care, where families reported difficulties associated with the provision of care to an ill family member, especially at night.[4,7] Difficulties included symptom management, assessment of the patient's condition and uncertainties about how to comfort and solve practical care giving problems. Reduced healthcare provider input and limited choices for home care were identified and families also had limited knowledge of the existing local services. Economic and physical barriers such as distance, lack of transport and the need to travel, as well as reduced

services from which to choose from, further impacted on the choices and availability of care for these rural families.[7] Access to specialist counselling services and psychosocial services, such as bereavement counselling, are also known to be challenging areas in rural and remote communities.[5]

There is consistent evidence to indicate that many people with advanced cancer prefer to be cared for at home, especially in the last stages of life.[8,9] This need to have care at home may be particularly important to those individuals living in rural or remote areas, who would otherwise experience isolation and distress if they were moved to regional or metropolitan centres for their end stage care. A number of studies have illustrated that specialist palliative care services in regional Australia are of high standard, however those individuals living in rural and remote areas do not always have access to these services.[3,4] Therefore, there is a need to explore alternative models for providing palliative care for Australians living in rural and remote areas. These alternative models must be sustainable from both a resource and funding perspective.

In a systematic review of palliative care for rural populations undertaken in 2003, Evans and colleagues[5] identified that the limited published work in this area identified problems in the delivery of palliative care in rural areas, focusing on the needs and barriers to providing palliative care. The author and colleagues[10] argue that this reaction has diverted attention away from attempting to develop a complementary body of knowledge on approaches to rural and remote area palliative care. Palliative care services in rural and remote areas need to be 'responsive' and a set of broad principles to assist in developing such a service are proposed. Establishing alternative models of palliative care delivery in local health services has provided unique opportunities for planning more integrated care. A number of new programs have been developed and are currently being evaluated, in recognition of the need to work with rural communities to develop the new approaches to palliative care delivery (see table 1).

Rural palliative care provision

While specialist palliative care services, as seen in metropolitan settings, can be found in larger regional centres, for most rural and all remote centres, primary healthcare providers are responsible for the delivery of palliative care. This can lead to the view that the lack of specialist palliative care services of itself is a limitation

Table 1. *Examples of recent rural palliative care initiatives*

Program/Initiative	Key Objectives
Rural Palliative Care Program Department of Health and Ageing and Royal College of General Practitioners	The program is designed to significantly improve access to quality, coordinated palliative care for people living in rural and remote communities. This will be achieved through funding projects which enhance common understandings among participants/key stakeholders, strengthen links between palliative care and mainstream service delivery, and account for the broader consumer and community interests. Further details: http://www.adgp.com.au/site/index.cfm?display=683.
Wagga Wagga Specialist Outreach Palliative Care Service[18]	The development of a visiting palliative medicine specialist outreach service for Wagga Wagga, NSW.
Griffith Area Palliative Care Service[20]	The elements of the model include weekly case conferences, the on-call nursing roster, patient-held records and shared protocols and procedures. Pilot evaluation showed the model achieved its aim of improving palliative care services and still continues with some modifications. The generalisability of the model is now being tested in eight rural and remote communities across Australia.
Primary Health Providers Palliative Care Education[21]	Development and evaluation of palliative care education and workshops for primary healthcare providers in rural and remote Queensland.
SEAM – improving the quality of palliative care in regional Toowoomba, Australia: lessons learned Support, Education, Assessment, and Monitoring[22]	Support, Education, Assessment and Monitoring (SEAM) model of service delivery aimed to provide palliative services to patients and their families who live in the regional city of Toowoomba and its rural catchment area. It also aims to facilitate education, support and networking among health-care professionals, particularly general practitioners and nurses employed in general practice (practice nurses).
Education, training and support for general practitioners in palliative care[23]	Research mapped current palliative care education opportunities and identified gaps, additional resources. Department of Health and Ageing response and recommendations.
"Pop-UP" Palliative Care: Implementing palliative care in small rural and remote communities.	Developed and tested a community-wide framework for facilitating small communities to develop a palliative care team utilising existing community and health services.

or reduction in the quality of palliative care for rural Australians. However, this view lacks supporting evidence and fails to acknowledge the benefits for maintaining primary carer led palliative care. These benefits include increased continuity of care, being cared for by health professionals who have a long standing professional relationship and knowledge of the individual and their family, and access to continuing care and bereavement support for family members. Equally important, rural health professionals have an increased knowledge and understanding of the broad issues within rural communities, the unique rural culture and the consequences of these factors on how the individual experiences their illness.

Rural palliative care healthcare team

A multidisciplinary team is seen as a major component in ensuring optimal palliative care. Achieving the breadth of professional palliative care expertise in rural Australia can be challenging. As with palliative care in metropolitan settings, medical and nursing care remain the major elements of care provision, after family care. On average, the Australian general practitioner (GP) will care for between five and 12 palliative care patients per year.[11-13] Pereira's[14] study of rural GPs in NSW, on average caring for eight palliative care patients, found that the majority of GPs surveyed preferred to manage the palliative care component of their patients terminal illness and to maintain this contact if admission to a local hospital was required. This is a unique aspect of the rural GP's role, which incorporates admission rights as well as community-based care.

While research highlights that GPs value the role they play in palliative care,[12] the relatively low numbers of palliative care patients they care for can lead to limited opportunities to develop specific expertise. Other challenges identified include difficulties in providing after hours access, time restraints, staff shortages, limited access to specialist or allied health services and concerns about skill level.[15]

McKenzie and colleagues[16] study of rural community nurses highlights that community nurses are pivotal to the organisation and provision of palliative cancer care at home. The regular comprehensive assessments and complex clinical judgements made about changing health status enable nurses to liaise with medical practitioners and allied health professionals on behalf of patients to ensure that ongoing care needs are met. Nurses provide emotional support and a broad spectrum of education to patients and their families, which promote independence and reduce some of the stresses associated with their condition. While research has focused on rural community nurses, there is limited knowledge of the palliative care expertise, needs or perspectives of nurses who work in the small district hospitals, where patients may elect to spend their final days. This is an area that requires attention in future research and education programs.

Access to other members of the allied health team varies depending on geographical location and population. Access to physiotherapy and occupational therapy services varies considerably and when these services are available they can be limited to inpatient access only. Given the breadth of knowledge required of GPs overall, the local pharmacist can be a critical member of the "local" palliative care team, providing an additional resource to assist in symptom management. Perhaps the more challenging area, and one that remains unmet in many communities, is access to ongoing bereavement or specialist psychological services, which remain limited in rural communities.

Access to specialist palliative care

Access to specialist palliative care services can be required by some patients. As outlined in Table 1, a number of programs have been developed to provide rural healthcare providers with access to specialist palliative care expertise. In addition to the small number of regional specialist palliative care multidisciplinary services, many areas have access to specialist palliative care nurses. These nurses commonly have extensive experience, skills and knowledge of palliative care, providing consultation and support to the primary healthcare team, covering often large geographical areas. In WA, additional support is provided through a statewide phone contact to specialist palliative care available 24 hours, seven days a week. In NSW "fly-in"[17] specialist palliative care services and the establishment of outreach clinics is another model.[18] In SA video link-up between remote and rural communities and specialist palliative care in Adelaide is being trialled.[19] Many rural centres support local staff to spend time in larger metropolitan and regional palliative care centres, to build knowledge and expertise.

Palliative care education

It could be said that palliative care practice of itself does not change significantly across geographical regions or population density. For most rural GPs and nurses palliative care patients will comprise only a small proportion of their caseload. This can make maintaining a depth of knowledge on recent trends in pharmaceutical management, new pain medications and approaches to using these medications challenging. Equally important is that most health professionals report that their undergraduate preparation in palliative care is lacking, leading to a perception of not being skilled in critical areas of managing the palliative care patient. Approaches to providing access to information in a format that is feasible for the GP is always a challenge and one that continues to require further attention. To date most nursing education has focused on those wishing to specialise in palliative care, neglecting community and district hospital nurses. Other members of the health team in rural Australia have yet to benefit from focused initiatives in palliative care.

Conclusion

While there remains a challenge in providing palliative care to rural and remote communities in Australia, there is evidence of a strong commitment from both rural health professionals and government to ensuring access to palliative care through innovative models and approaches to care delivery, education and support.

That these models for providing palliative care vary across rural Australia is a strength, reflecting the development of programs that are tailored to meet local needs. Ongoing education and access to support for the primary healthcare team is critical to achieving palliative care outcomes.

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MEDICAL ONCOLOGY GROUP OF AUSTRALIA PIERRE FABRE CANCER ACHIEVEMENT AWARD*

Papillomavirus specific immunity as a means to prevent deaths from cervical cancer

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Cervical cancer was shown by Professor Harald zur Hausen in the early 1980s to be initiated by infection of cervical epithelium with certain human papillomaviruses, now designated as "high risk" papillomaviruses. While working with Dr Ian Mackay in Melbourne I showed, in collaboration with Dr Gabrielle Medley, that papillomavirus infection was also associated with pre-cancer of other anogenital epithelium.[1] The increased incidence of anal pre-cancer we observed in immunosuppressed males with HIV/AIDS inspired further studies on the immune responses to papillomaviruses and particularly to the antigens expressed in cervical cancers. Over a number of years, members of my research group, and of many other groups worldwide, have studied immune responses to human papillomavirus (HPV) encoded antigens expressed in infected cervical epithelium and cervical cancer cells, with a view to developing vaccines to prevent and to treat cervical cancer.

In the early 1990s, the late Dr Jian Zhou and I pursued the idea of making a vaccine to prevent cervical cancer based on papillomavirus like particles, comprising the coat proteins of HPV, produced in vitro using recombinant DNA technology. This approach was adopted because conventional vaccine strategies (killed virus, attenuated virus) were not feasible for papillomavirus, as papillomaviruses could not be propagated in vitro. Using papillomavirus genetic material from a clinical isolate and the then relatively novel and challenging technique of long PCR, Dr Zhou produced expression clones for the capsid proteins of the highest risk human papillomavirus (HPV16). We established that to produce self assembling virus like particles of HPV16 in vitro, it was necessary to express the viral capsid genes in a eukaryotic system. This was achieved by producing recombinant vaccinia virus encoding expression of the relevant proteins.[2]

Professor Ian Frazer

We further established that it was necessary to express the major capsid protein (L1) from the second initiation codon, as expression from the first initiation codon produced a protein that did not acquire the correct structure or self assemble into virus like particles. These findings were presented to the scientific community at a meeting of the International Papillomavirus Society in Seattle in September of 1991, and shortly thereafter published in the journal *Virology*. This disclosure was followed by reports of similar findings from many groups (Kirnbauer, Schiller and Lowy at the National Institute of Health,[3,4] Schlegel and Bennet Jensen[5] at Georgetown University and Bonnez and Rose[6] at the University of Rochester) at that time interested in HPV

vaccine research. We and the other mentioned groups went on over the next few years to demonstrate immunogenicity of the virus like particles produced using recombinant DNA technology in eukaryotic cells and their more efficient expression using a range of eukaryotic expression systems, particularly baculovirus and yeast. This global collaborative effort has led to the production of two commercial vaccines (Cervarix® and Gardasil®) based on virus like particle technology which have been shown near 100% effective at preventing HPV associated cervical pre-cancer associated with the relevant viruses. These vaccines, which have the potential to prevent at least 70% of cervical cancer and over 200,000 deaths worldwide, have recently been introduced into routine childhood vaccine schedules in Australia, the US and elsewhere.

Another major theme of the research effort of the scientists working in my group at the Princess Alexandra Hospital has been the development of effective immunotherapy for existing papillomavirus infections. Treatment of cancer and of chronic viral infection by induction of immune responses against specific antigens expressed by the tumour cell or virus infected cell has been extensively studied in animal models and in human subjects. In principle, induction of effector T-cells targeted at the relevant antigen by immunisation should result in specific elimination of the relevant cells. In practice, induction of effector T-cells of the relevant specificity can be achieved in animal models and in human subjects. However, while effectiveness of these cells can be demonstrated both in vitro and in some in vivo models based on transplantable tumours, clinically useful outcomes in spontaneously arising animal and human tumours, and in chronic viral infections in animals and humans have been much harder to demonstrate. Early animal studies undertaken by Tindle and various students in the group demonstrated the immunogenicity of the major papillomavirus encoded tumour specific antigens (E6 and E7) in animal models.[7,8] Clinical trials conducted in patients with cervical cancer as investigator initiated studies,[9] and more recently in cooperation with CSL in patients with cervical pre-cancer (CIN 2,3),[10] have shown that it is possible to induce specific immune responses against the relevant papillomavirus encoded tumour specific antigens (HPV16 E7 and E6). However, for a number of reasons the clinical trials to date have not been sufficient to address the question of whether such immune responses are clinically useful.

Animal models of cervical cancer are available, and transplantable tumours expressing the relevant papillomavirus specific antigens have been used to test potential vaccines.[11] These models are based on transplantable tumours induced to express HPV16 E7 protein, which grow continuously in immunocompetent mice and eventually kill the animal. A wide range of potential vaccines are at some level effective at eliminating such transplantable tumours in vivo.[12] However, the tumour protection assays are not well able to discriminate between potential vaccines, as the tumours are easily cured by vaccines shown non-effective in the clinic. To develop better models for studying cervical cancer immunotherapy we have worked, in collaboration with Lambert and Griep at the McArdle Institute, with mice which express the relevant cervical cancer associated antigens as transgenes in the skin, and specifically in keratinocytes expressed from the Keratin 14 promoter.[13,14] These mice are tumour prone, but are not ideal models for studies of immunotherapy, as the constitutive expression of E7 not only induces tolerance to this antigen, but also impairs general immune responses by altering thymus biology. Rather, we have used skin from transgenic animals expressing papillomavirus and other antigens[15] transplanted on to immunocompetent animals as a model for testing specific immunotherapy.

All tumour specific antigens are not equal in this transgenic grafting model. Some antigens are able to induce graft rejection without further immune manipulation. These include well recognised non-self antigens (ovalbumen) and neo-self antigen (human growth hormone). Other antigens, including the E7 and E6 proteins of HPV16, do not induce spontaneous graft rejection, though their presence does not impair rejection of grafts bearing "good" antigens. Thus these antigens are not well presented to induce an immune response, perhaps because they are expressed at low levels, or are non-secretory proteins. Such E7 expressing grafts therefore serve as models for testing E7 specific immunotherapy.

We have used transgenic skin grafts expressing E7 or other antigens to study many aspects of tumour immunotherapy over the last decade. The broad questions we have addressed are:

1) What are the immune effector mechanisms that can eliminate epithelium expressing E7 proteins?

2) How does the local environment influence the effectiveness of immune effector cells?

3) How can the effectiveness of antigen specific immunotherapy be enhanced through temporary resetting of the innate immune system?

While these studies are ongoing, several practical conclusions can be drawn from the work to date, which we are in the process of translating into the clinic. Perhaps unsurprisingly, antigen specific CD8 T-cells are necessary for elimination of grafts in this model – and are, for newly placed grafts, sufficient provided that they are administered or induced in sufficient numbers.[16] However, conventional immunisation strategies do not produce sufficient effector cells, or alternatively do not enable these cells to reach their target, in contrast to antigen specific CD8 T-cells transferred in large numbers to a recent graft. The reasons for this discrepancy are currently under investigation. Inflammation can be shown to play an important role in determining the local effectiveness of immune effector mechanisms induced by vaccination or prior priming, as antigen bearing grafts protected from effector mechanisms by their temporary depletion will heal in place and are then resistant to further effector cells induced by immunisation or grafting (Zhong et al submitted). Further, application of a pro-inflammatory stimulus to a healed graft in the form of a toll like receptor (TLR) agonist such as imiquimod, which

promotes local inflammation by activating bone marrow derived cells expressing TLR 7 and 8, enables their subsequent rejection. Thus, local regulation of the relatively anti-inflammatory environment of skin tumours may facilitate effective vaccine induced immunotherapy for epithelial tumours.

An alternative approach, which Dr Liu in my group is investigating, is to remove one of the anti-inflammatory cytokines, Interleukin 10. This cytokine plays a key part in regulating the induction and function of cytotoxic effector T-cells, particularly where there is chronic exposure to antigen.[17,18] Therapeutic use of IL-10 inhibitors, such as antibody to IL-10 and soluble IL-10 receptor, are under consideration as interventions for a number of autoimmune diseases and their temporary use might also be expected to enhance the effectiveness of immunotherapeutic interventions for tumours, particularly those of epithelial origin which are likely to secrete this cytokine.

Thus, the future for immunotherapy for cervical cancer and its precursor lesions is a little more complex than the future for prophylactic vaccines for HPV-associated cancer. An additional dimension noted by many researchers, including ourselves, is that fully transformed cervical cancers often exhibit defects in antigen presentation.[19] This is a mixed blessing – on the one hand it tends to confirm the idea, suggested by the increased incidence of these cancers in immunosuppressed patients,[20] that immune responses to tumour specific antigens are relevant to control of cervical cancer. On the other hand, these lesions in the antigen presenting machinery may ultimately limit the use of antigen specific immunotherapy targeted at HPV antigens to cervical cancer precursor lesions rather than invasive cancer.

Acknowledgements

Research is a team effort and, in addition to those individuals specifically mentioned above, and acknowledged below, all student and scientific members of my research team over the last 20 years have contributed to our work.

**The Medical Oncology Group of Australia Pierre Fabre Award is granted annually in recognition of an outstanding contribution to the scientific study of cancer and/or to the control of cancer in Australia by an Australian scientist, clinician or other healthcare professional. Professor Ian Frazer was the 2006 recipient of the award.*

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SUPPORT FOR RESEARCH

The state and territory cancer organisations, which comprise The Cancer Council Australia, are the major sponsors of cancer research and related activities in Australia. Grants are made following competitive, peer-reviewed assessment of funds derived from donations and bequests.

In 2007 the value of these grants is over $36 million.

Please note: for research grants spanning more than one year, only funds to be dispersed in 2007 have been included.

THE CANCER COUNCIL AUSTRALIA

The Cancer Council Australia Sally Birch Fellowship in Cancer Control

D Young VicHealth Centre for Tobacco Control, The Cancer Council Victoria	Reducing cancer by improving tobacco control – an application of actor network theory	$100,000
TOTAL RESEARCH FUNDED		**$100,000**

THE CANCER COUNCIL ACT

Research grants

A Fahrer Australian National University	Understanding the role of Kleisin beta, a subunit of the condensing II complex, in T cell differentiation	$42,500
TOTAL RESEARCH FUNDED		**$42,500**

THE CANCER COUNCIL NSW

New research project grants

R Ankeny University of Sydney	Toward a best practice of emerging technologies: PGD and HLA typing for paediatric transplantation	$84,790
T Becker University of Sydney	The tumour suppressor p16INK4a binds the chromatin remodelling factor BRG1 to regulate the cell cycle and senescence	$77,250
R Daly Garvan Institute	A new role for cortactin in head and neck cancer	$98,750
A deFazio University of Sydney	Chemo-sensitising pathways in ovarian cancer	$100,000
D Goldstein University of Sydney	Phase II study of chemotherapy and 3-D conformal radiotherapy for the treatment of localised pancreatic cancer	$38,625
D Goldstein University of Sydney	Adjuvant chemotherapies in resectable pancreatic cancer	$54,936
D Gottlieb University of Sydney	A programme of clinical adoptive immunotherapy for treatment of Cytomegalovirus in stem cell transplant patients.	$99,250
P Greer University of Newcastle	High precision MRI based prostate radiotherapy	$112,250
P Greer University of Newcastle	Improving the verification of intensity modulated radiation therapy dose delivery with flat-panel imagers	$72,250
C Jordens University of Sydney	A qualitative study of the experience of multiple myeloma	$77,250

M Kangas Macquarie University	Treatment of anxiety and depression in head and neck cancer patients	$98,375
J G Lyons University of Sydney	Regulation of keratinocyte differentiation by Snail	$82,250
K MacKenzie University of NSW	The role of p16INK4a repression in telomere-driven karyotypic evolution and malignant progression	$97,250
C Ormandy Garvan Institute	Does expression of the ets transcription factor Elf5 limit tumour progression?	$96,750
H Rizos University of Sydney	The melanoma-associated ARF tumour suppressor modulates cell proliferation and apoptosis via target protein sumoylation	$82,250
K Scott University of NSW	Secreted phospholipase A2 in prostate cancer	$100,000
D Sze University of Sydney	Characterisation of cancer stem cells in myeloma leading to novel anti-tumour drug development	$186,000
O Ung University of Sydney	SNAC2: A randomised trial of extending sentinel node based management to women with larger or multifocal breast cancers	$97,706
R Ward University of NSW	Methylation in sporadic colorectal cancer extends over a large chromosomal region	$96,250
Total new research project grants		**$1,752,182**

Continuing research program grants

P Hogg University of NSW	New arsenical-based cancer drugs	$358,054
M Norris University of NSW	Improved treatment outcomes for children with leukaemia	$400,000
R Reddel Children's Medical Research Institute	Alternative lengthening of telomeres: a target for cancer treatment	$400,000
Total research program grants		**$1,158,054**

Continuing strategic research partnership grants

A Biankin Garvan Institute	New South Wales Pancreatic Cancer Network	$250,000
B Meiser University of NSW	Psychosocial impact of hereditary cancer and the development and evaluation of effective patient education and decision support strategies	$250,267
R Ward University of NSW	The Colorectal Cancer Research Consortium: a model for the integration of biomedical research into patient care	$302,395
Total strategic research partnership grants		**$802,662**

Career development research fellowship

G O'Neill University of Sydney		$150,000
Total research fellowships		**$150,000**

Continuing research project grants

B Allen University of NSW	Response of metastatic melanoma to bi-fold targeted alpha therapy of tumour capillary pericytes and melanoma cells	$150,275
M Boyer University of Sydney	The effects of chemotherapy on cognitive function in patients with testicular cancer	$35,167
S Breit University of NSW	The role of the TGF-b superfamily cytokine MIC-1 in the biology of cancer	$125,000
P Butow University of Sydney	Quality of life and psychosocial predictors of outcome in a population based study of ovarian cancer	$92,097
S Chapman University of Sydney	Television news on health and medicine in Australia: content, framing and impact	$120,500
A Dolnikov University of NSW	Targeting the IRF2 transcription factor to inhibit leukaemic cell growth	$97,250
M Friedlander University of Sydney	Carboplatin flat dosing versus intrapatient dose escalation in first line chemotherapy of ovarian cancer	$66,400
R Fulton University of Sydney	Motion compensation in FDG PET imaging for improved cancer diagnosis and treatment	$58,500

D Gottlieb University of Sydney	EBV - specific cytotoxic T lymphocytes as tools for adoptive immunotherapy for EBV-positive Hodgkin lymphoma	$10,000
B Henderson University of Sydney	Regulation of BARD1 localisation and apoptotic function in breast cancer	$20,467
B Henderson University of Sydney	Regulated targeting of BRCA1 to nuclear sites of DNA repair	$72,500
R Hogg Westmead Hospital	Total Laparoscopic Hysterectomy (TLH) vs Total Abdominal Hysterectomy (TAH) for the treatment of endometrial cancer	$13,875
L Khachigian University of NSW	DNAzymes as novel inhibitors of human basal cell carcinoma growth	$81,500
S Kilbreath University of Sydney	Early exercise program for women following breast cancer surgery: a randomised controlled study	$132,100
K MacKenzie University of NSW	Characterisation of a novel mechanism that prevents immortalisation and malignant transformation	$125,000
G Mann University of Sydney	Molecular genetics of melanoma predisposition	$112,100
D Marsh University of Sydney	Biomarkers of cell signalling pathways in ovarian cancer	$86,000
B Meiser University of NSW	Evaluation of a fertility-related decision aid for young women with early breast cancer	$93,750
G Mendz University of NSW	The role of pathogenic bacteria in hepatocarcinoma	$102,250
R Saw University of Sydney	Lymphoedema following axillary and groin sentinel node biopsy	$53,250
R J Simes University of Sydney	Intermediate and high risk, resected gastro-intestinal stromal tumours expressing kit: RCT of adjuvant imatinib mesylate	$52,000
N Suchowerska University of Sydney	Prostate cancer radiotherapy: urethral dose measurements using fibre optic dosimeters	$60,025
N Suchowerska University of Sydney	Radiobiological spatial model for radiation therapy	$51,650
S Tangye Garvan Institute	The development and function of anti-tumour cytotoxic lymphocytes in health and disease	$69,000
M Tattersall University of Sydney	Enhancing cancer patient participation when discussing clinical trial enrolment: evaluation of a question prompt list	$48,400
L Trevena University of Sydney	A randomised controlled trial of a meta-decision aid for evidence-based preventive activities in general practice	$115,500
Total continuing research project grants		**$2,044,556**
TOTAL INVESTIGATOR-INITIATED RESEARCH GRANTS		**$5,907,454**

Other research programs

Cancer Trials NSW (CTN)	$1,424,411
Cancer Epidemiology Research Unit (CERU)	$1,628,572
Cancer for Health Research & Psycho-Oncology (CHeRP)	$600,000
Quality Improvement in Cancer Care Research and Demonstration	$225,000
45 and Up Cohort Study	$400,000

Commissioned research projects

Tobacco distribution and consumption: a diary study of smokers	$81,172
Tobacco distribution and consumption: a diary study of quitters	$50,100
Understanding pro-smoking environments in relation to social disadvantage	$81,171
Exploring the appropriateness of public housing in relation to recommendations for minimising ETS exposure	$93,661
Action research project for tobacco and social equity strategy	$150,000
Information needs of cancer patients and carers	$50,000
Needs of partners and caregivers	$60,000
Evaluation of intervention to support carers	$40,000

Training and development needs of support group leaders	$30,000
Social marketing research – sun protection in adolescence	$44,000
Use, motivation, associated behaviour and acceptability of fake tans	$55,520
Shade feasibility study in primary schools	$20,400
Factors that influence fruit and vegetable purchasing decisions in families	$20,000
Framing messages for restricting junk food advertising	$15,000
Development and validation of consumer research review criteria	$30,500
Total other research programs and commissioned research	**$5,099,507**
TOTAL RESEARCH FUNDED	**$11,006,961**

THE CANCER COUNCIL SOUTH AUSTRALIA

The Cancer Council South Australia

Research grants

R Padbury, D Goldstein, J Shapiro, D Grimes University of Sydney	Adjuvant chemotherapies in resectable pancreatic cancer	$5000
H Greisser, B Thierry, M Brown, P Majewski, D Taylor Ian Wark Research Institute University of South Australia	An integrated approach to the development of advanced nanostructures as cancer diagnostic and therapeutic agents	$71,750
C Hahn, J Gamble Hanson Institute	The role of a novel protein, VasGAP, in angiogenesis	$77,250
N Wetzig, I Campbell, G Gill, O Ung, J Colling, D Oliver University of Queensland	SNAC2: A randomised trial of extending sentinel node based management to women with larger or multifocal breast cancers	$18,000
D Goldstein, S Bydder, J Harvey, S Selva-Nayaram, C Underhill, R Simes University of New South Wales	Phase II study of chemotherapy and 3-D conformal radiotherapy for the treatment of localised pancreatic cancer	$3000
G Maddern University of Adelaide	The effect of portal venous pressure on remnant regeneration following liver resection	$71,750
G Goodall University of Adelaide	mRNA targets of microRNAs involved in metastasis	$77,250
G Jamieson, P Drew, P Devitt, A Ruszkiewicz, E Smith, Jun-Feng Liu University of Adelaide	Barrett's Oesophagus: insights from and into fundoplication and oesophagectomy	$71,750
P Macardle, B Kuss, T Chataway Flinders University	Defining subsets of CLL on the function of CD20	$71,750
D Peet, J Gorman University of Adelaide	Investigation of factors influencing FIH-1 activity in the cellular response to oxygen and in cancer	$76,000
G Saccone, L Blackshaw, J Davison, J Toouli Flinders University	Characterisation of spinal afferent neurones in the rat pancreas	$77,250
D Watson, G Young, S Eckermann, D Hussey, G Mayne Flinders University	Surveillance of Barrett's Oesophagus: improving current practice	$87,496
H Morris, B May, W Tilley University of Adelaide	Vitamin D status and prostate cell growth	$88,750
R McKinnon, D Kotasek, M Sorich University of South Australia	Pharmacogenetic determinants of capecitabine response and toxicity	$66,750

P Vasey, M Quinn, J Simes, M Friedlander, M Buck, B Koczwara Royal Brisbane and Women's Hospital	Carboplatin flat dosing versus intrapatient dose escalation in first line chemotherapy of ovarian cancer	$6000
S Pitson Institute of Medical and Veterinary Science	The cellular regulation of sphingosine kinase by eEF1A and its role in tumourigenesis	$70,500
R Richards The University of Adelaide	Function of the FOR/WWOX gene and its contribution to cancer cell biology	$80,025
G Lindeman, G Mitchell, A Stapleton Familial Cancer Centre Royal Melbourne Hospital	Identification of Men with a genetic predisposition to prostate cancer and their clinical treatment – the IMPACT study	$47,700
D Currow, A Abernethy, D Rowett, T Shelby-James, B Fazekas, P Allcroft Palliative and Supportive Services Flinders University	A pilot study of the effectiveness of academic detailing on dyspnoea in cancer patients in a palliative care setting	$60,263
A Morley, M Brisco, P Sykes, B Kuss Flinders University	Improving the measurement of minimal residual disease in acute leukaemia	$76,000
M Tattersall, M Jefford, I Olver University of Sydney	Enhancing cancer patient participation when discussing clinical trial enrolment: evaluation of a question prompt list	$36,300

New investigator grant

M Michael Flinders University	MicroRNAs: Biomarkers for colorectal cancer and a focus for novel therapies	$68,800
Total research grants		**$1,309,334**

Other research programs

Senior research fellowships

Pending new appointment	$87,119
Y Khew-Goodall Institute of Medical and Veterinary Science, Hanson Institute	$87,119

Research fellowships

G Howarth, University of Adelaide	$76,355
A Brown, Child Health Research Institute	$76,355
R Gibson, Royal Adelaide Hospital	$38,170

W Bruce Hall Cancer Research Fellowship

A Sakko, University of Adelaide	$81,650

Peter Nelson Leukaemia Research Fellowship

M Guthridge, IMVS	$87,119

Other

Chair in Cancer Prevention*	$279,309
Chair in Cancer Medicine*	$287,000
Travel grants	$30,000
Distinguished visitors	$15,000
Student Vacation Scholarships	$15,000
The Freemasons Cancer Research Scholarship (1)	$25,000
Data Managers Program	$152,000
Microarray bioinformatics	$38,475
Rural and Remote Scholarship – Prostate	$1500
PhD Scholarship	$10,000

** Academic Positions*

Total of other research programs	**$1,387,171**
TOTAL RESEARCH FUNDED	**$2,696,505**

THE CANCER COUNCIL TASMANIA

Research grants

J Dickinson	Investigating the genetics of familial haematological cancers in Tasmania	$35,000
P Blomfield	Molecular epidemiology of endometrial cancer – addition of Tasmania	$30,000
G Woods	Effects of UV radiation and vitamin D deficiency on the development of the skin immune system	$35,000
J Dickinson	The Cancer Council's Tasmanian Research Fellow – first dedicated cancer research position based at the Menzies Research Institute	$115,000

Funded by David Collins Leukaemia Foundation (DCLF)

A Holloway	Deregulation of gene expression by RUNX1 fusion proteins in leukaemia	$25,000
J Dickinson	Investigating the genetics of familial haematological cancers in Tasmania	$25,000

Other

To be announced	Jeanne Foster Scholarships	$5000
Launceston General Hospital and Royal Hobart Hospital	Clinical Trial Data Managers	$54,500
N Clarke Royal Hobart Hospital	Athena Karydis Foniadakis Scholarship	$2500
E Hinds Royal Hobart Hospital	Athena Karydis Foniadakis Scholarship	$2500
A West University of Tasmania	The Cancer Council Tasmania Scholarship – Methylation in prostate cancer	$10,000
TOTAL – FUNDED BY DAVID COLLINS LEUKAEMIA FOUNDATION		**$50,000**
TOTAL – FUNDED BY THE CANCER COUNCIL TASMANIA		**$289,500**

THE CANCER COUNCIL VICTORIA

Fellowships

Carden Fellowship D Metcalf Walter and Eliza Hall Institute of Medical Research	Regulatory control of normal and leukaemic cells	$200,000
Colebatch Fellowship K Phillips Peter MacCallum Cancer Centre	Reducing the burden of breast cancer	$144,500
Dunlop Fellowship G McArthur Peter MacCallum Cancer Centre	Development of targeted therapies for cancer	$144,500
Lions Fellowship B Anderson Walter and Eliza Hall Institute of Medical Research	Coeliac disease and increased risk of cancer – novel therapeutic approaches	$20,000 (approx)
Total fellowships		**$509,000**

Research grants

Y Antill, I Winship, M Jenkins Peter MacCallum Cancer Centre	Studies into gynaecological cancers associated with the syndrome: hereditary nonpolyposis colon cancer	$66,600
V Apostolopoulos, D Pouniotis, C McDonald Macfarlane Burnet Institute for Medical Research and Public Health	Evaluation of pulmonary macrophage function in primary lung cancer patients	$70,000
L Bach, G Rice Monash University	Insulin-like growth factor (IGF)-dependent and -independent actions of IGF binding protein-6	$70,000
D Bowtell (Vic), A de Fazio (NSW), D Wyld (Qld), D Whiteman (Qld), D Gertig (Vic),M Friedlander (NSW), P Harnett (NSW), M Davy (SA), P Blomfield (Tas), N Zeps (WA) Peter MacCallum Cancer Centre	Molecular epidemiology of ovarian cancer: the Australian ovarian cancer study – clinical follow-up core	$69,993

W Chen Ludwig Institute for Cancer Research	Study immunodominance of natural and induced anti-NY-ESO-1 T-cell responses to optimise future cancer vaccine strategies	$70,000
H Cheng, H Zhu, T Mulhern University of Melbourne	Regulation of activity and subcellular localisation of the tumour suppressor PTEN	$70,000
P Choong and C Dass St Vincent's Hospital Melbourne	The resistance of growth plate cartilage to invasion by tumour: PEDF, a potent anti-angiogenic factor regulates osteosarcoma behaviour	$70,000
C Christophi, P Angus, V Muralidharan The University of Melbourne	The Renin Angiotensin System and colorectal liver metastases	$66,875
C Clyne, M Jones Prince Henry's Institute of Medical Research	Role of the orphan nuclear receptor LRH-1 in breast cancer proliferation	$67,922
W Cook The University of Melbourne	Roles of a novel gene in growth, obesity and myeloid leukaemia	$70,000
P Darcy, M Kershaw, J Trapani Peter MacCallum Cancer Centre	Immunotherapy of Lewis Y+ malignancy using genetically engineered T-cells	$70,000
A Dobrovic Peter MacCallum Cancer Centre	Somatic and germline BRCA1 methylation and breast cancer predisposition	$70,000
L Ebert Ludwig Institute for Cancer Research	The role of regulatory T-cells in suppression of immune responses in cancer vaccine recipients	$65,000
W Fairlie, D Huang Walter and Eliza Hall Institute	Understanding apoptosis through selective targeting of pro-survival proteins	$70,000
P Fuller Prince Henry's Institute of Medical Research	Characterisation of the molecular pathogenesis of ovarian granulosa cell tumours	$70,000
S Garland, D Gertig, J Wark, S Tabrizi, M Pitts, B Erbas The University of Melbourne	Genetic and environmental factors in invasive cervical cancer: a twin study	$70,000
D Goldstein (NSW), S Bydder (WA), J Harvey (QLD), S Selva-Nayaram (SA), C Underhill (VIC) Border Medical Oncology	Phase II study of chemotherapy and 3-D conformal radiotherapy for the treatment of localised pancreatic cancer	$6000
R Hannan Peter MacCallum Cancer Centre	The role of ribosome biogenesis in the development of B-cell lymphoma	$70,000
C Hawkins, D Ashley, H Friedman Murdoch Children's Research Institute	Factors influencing TRAIL sensitivity in ex vivo malignant glioma	$70,000
P Humbert Peter MacCallum Cancer Centre	The role of scribble in mammalian tumour development	$68,652
R Johnstone Peter MacCallum Cancer Centre	Mechanisms of action of histone deacetylase inhibitors: novel anti-cancer drugs	$70,000
H Li, JP Liu Monash University	Mechanisms of cancer inhibition by a novel telomerase inhibitor in vitro and in vivo	$70,000
G Lindeman (Vic), G Mitchell (Vic), A Stapleton (SA) Peter MacCallum Cancer Centre	Identification of men with a genetic predisposition to prostate cancer and their clinical treatment – the IMPACT study	$63,300
G McArthur Peter MacCallum Cancer Centre	Targeting CDK2 in breast cancer associated with mutations in BRCA1	$70,000
J McCluskey, J Rossjohn University of Melbourne	The structural and functional basis of tumour recognition by NKT cells	$70,000
M McCormack, S Jane, D Curtis Royal Melbourne Hospital	Analysis of the interaction of the T-cell oncoproteins Sc1 and Lmo2 as a therapeutic target for T-cell acute lymphoblastic leukaemia	$70,000
E Nice, P Gibbs, L Lipton Ludwig Institute for Cancer Research	Development of validated biomarker assays for the early detection and surveillance of colon cancer	$70,000
A Obermair (Qld), A McCartney (WA), T Manolitsas (Vic), M Janda (Qld), F Chan (NSW) Monash Medical Centre	Total Laparoscopic Hysterectomy (TLH) vs Total Abdominal Hysterectomy (TAH) for the treatment of endometrial cancer	$27,750
R Padbury (SA), D Goldstein (NSW), J Shapiro (Vic), D Grimes (Qld) The Alfred Hospital	Adjuvant chemotherapies in resectable pancreatic cancer	$15,000

J Price, A Magliocco, J Ojaimi Monash University	FKBP52 and its role in breast cancer metastasis	$70,000
R Ramsay, I Bertoncello, E Stanley Peter MacCallum Cancer Centre	CSF-1 is an essential intestinal epithelial cell mitogen	$70,000
G Risbridger, S McPherson Monash Institute of Medical Research	Early origins of prostate cancer	$67,000
S Russell, H Richardson Peter MacCallum Cancer Centre	A new role for polarity proteins in leukaemia/lymphoma	$70,000
B Sarcevic St Vincent's Institute of Medical Research	A conserved catalytic site in UBCs and E3s as a potential cancer therapeutic target	$70,000
P Schofield, R Sanson-Fisher (NSW), S Aranda Peter MacCallum Cancer Centre	A randomised controlled trial of consumer-driven multi-disciplinary care to manage the needs of men with prostate cancer	$70,000
A Scott, V Rayzman Ludwig Institute for Cancer Research	Development and evaluation of a transgenic mouse model for anti-human A33 targeted therapy	$70,000
J Simes (NSW), J Zalcberg (Vic), B Mann (Vic), M Smithers (Qld), D Kotasek (SA) and G Van Hazel (WA) Peter MacCallum Cancer Centre	Intermediate and high risk, resected gastro-intestinal stromal tumours expressing kit: RCT of adjuvant imatinib mesylate	$13,334
M Smyth Peter MacCallum Cancer Centre	TRAIL-mediated immunosurveillance, immunoselection and immunotherapy of cancer	$70,000
D Thomas, P Simmons Peter MacCallum Cancer Centre	Role of WIF1 in bone development and oncogenesis	$70,000
P Thompson, B Vogelstein Monash University	Towards selective inhibition of oncogenic forms of PI3K – a chemical biology approach	$66,750
T Tiganis Monash University	Regulation of the SRC proto-oncogene	$70,000
P Vasey (NSW), M Quinn (Vic), J Simes (NSW), M Friedlander (NSW), M Buck (Qld) and B Koczwara (SA) Royal Women's Hospital	Carboplatin flat dosing versus intrapatient dose escalation in first line chemotherapy of ovarian cancer	$36,000
N Wetzig (Qld), G Gill (SA), O Ung (NSW), J Collins (Vic), D Oliver (WA) Royal Melbourne Hospital	SNAC2: A randomised trial of extending sentinel node based management to women with larger or multifocal breast cancers	$30,000
E Williams, K Opeskin, C Temelcos Monash University	Mechanisms underlying prostate cancer lymph node metastasis	$70,000
L Wu Walter and Eliza Hall Institute	Development and functional analysis of human dendritic cell subsets	$70,000
Total research grants		**$2,830,176**

Venture grants

The Venture Grants Scheme is a new initiative designed to fund projects that push the conventional boundaries. Successful projects were selected via a competitive application process and their continued funding is dependent on key milestones being met. The Cancer Council Victoria has provided seed funding and future funding is being sought.

W Alexander, B Kile, A Strasser Walter and Eliza Hall Institute	Scanning the genome for new drug targets in cancer	$138,125
A Brumby, P Humbert, H Richardson, I Street University of Melbourne	Drosophila as a novel tool for anti-cancer drug discovery	$143,750
R Johnstone, R Hannan, G McArthur, R Pearson Peter MacCallum Cancer Centre	Identification of novel breast cancer suppressor and chemotherapeutic drug sensitivity genes using shRNA-mediated functional genomics screens	$105,500
P Rogers, R Lewis, I Svalbe, B Williams, D Blakey Monash University	The biological effects of synchrotron microbeam radiation therapy on normal and tumour tissues	$123,750
J Visvader, I Street, G Lindeman, K Watson, M Asselin-Labat Walter and Eliza Hall Institute	Developing lead compounds to target breast cancer by specific inhibition of the LMO4-oncogene	$140,750
Total venture grants		**$651,875**

Postdoctoral research fellowships

E Michalak, Walter & Eliza Hall Institute of Medical Research	$30,500
M Teng, Peter MacCallum Cancer Centre	$30,500
R Allan, University of Melbourne	$62,250
A Dakic, Walter & Eliza Hall Institute of Medical Research	$62,250
Two fellowships to be appointed mid-year	$62,250
Total postdoctoral research fellowships	**$247,750**

Postgraduate research scholarships

S Amos, Peter MacCallum Cancer Centre	$23,150
F Barnett, Ludwig Institute for Cancer Research	$28,250
I Elsum, Peter MacCallum Cancer Centre	$22,750
C Fedele, Monash University	$23,558
J Fletcher, St Vincent's Institute	$23,150
Y Jayasinghe, Murdoch Children's Research Institute	$27,750
D Kethesparan, Monash University	$22,750
S Lee, Ludwig Institute for Cancer Research	$27,750
K Mason, University of Melbourne	$2397
E Naik, Walter & Eliza Hall Institute of Medical Research	$23,558
J Stone, University of Melbourne	$2299
N Thomas, Monash University	$23,150
M Wall, Peter MacCallum Cancer Centre	$4703
L Williams, Peter MacCallum Cancer Centre	$14,738

Vacation studentships

25 six-week summer Vacation Studentships were awarded	$35,200
Total scholarships and studentships	**$305,153**

Support for medical and scientific activities — $275,030

Cancer Control Research Institute programs

Cancer Epidemiology Centre	$323,000
Victorian Cancer Registry	$2,600,000
The Melbourne Collaborative Cohort Study (Health 2000)	$1,620,000
Centre for Behavioural Research in Cancer	$2,167,000
Centre for Clinical Research in Cancer	$1,730,000
VicHealth Centre for Tobacco Control (The Cancer Council Victoria contribution to VicHealth Centre)	$398,000
Total Cancer Control Research Institute programs	**$8,838,000**
TOTAL RESEARCH FUNDED	**$13,656,984**

THE CANCER COUNCIL WA

The Cancer Council Western Australia

Research grants

K Bhoola Asthma & Allergy Research Institute (UWA)	Cellular and molecular studies on the kallikrein-kinin cascade in human lung carcinomas and mesothelioma (two year grant)	$60,000
P Hart Telethon Institute for Child Health Research (UWA)	Immune regulatory cells in lymph nodes regional to sites of erythemal UVB-irradiation	$60,000
D Goldstein University of Sydney	Phase II study of chemotherapy and 3-D conformal radiotherapy for the treatment of localised pancreatic cancer (two year grant)	$10,000

R Ganss Western Australian Institute for Medical Research	Enhancing anti-tumour immunity by targeting tumour vasculature (two year grant)	$60,000
A Currie University of Western Australia	Blocking T-cell inhibitory receptors PD-1 and CTLA-4 to augment anti-tumour immunotherapy	$59,050
A Beesley Telethon Institute for Child Health Research (UWA)	A novel role for the MLL gene in steroid resistance in acute lymphoblastic leukaemia	$60,000
M Garlepp Curtin University of Technology	Regulation of Wnt signalling by sFRP4 modulates chemotherapeutic resistance in mesothelioma	$60,000
S Thompson Curtin University of Technology	Cancer matters: Participatory action research to increase Indigenous engagement with cancer prevention and treatment	$60,000
L Abraham University of Western Australia	Control of CD30 Expression in Anaplastic Large Cell Lymphoma	$46,700
Total research grants		**$475,750**

Edward and Patricia Usher Student Vacation Research Scholarships

P Pong University of Western Australia	Is there a role for lung cancer screening in smokers with computed tomography in WA? A feasibility study	$2000
S McKerracher University of Western Australia	The reduced risk of colorectal cancer in more physically active lifestyles	$2000
Y Tan University of Western Australia	A descriptive research study: quality of life and symptom control in cancer patients	$2000
E Tjandra University of Western Australia	The effect of terpinene-4-ol on the growth of murine mesothelioma	$2000
J Low University of Western Australia	How does MiR-21 mediate anti-apoptotic effects in cancer cells	$2000
P Tong University of Western Australia	The impact of burn trauma on the incidence of cutaneous malignancy	$2000
S R Tie University of Western Australia	The level of expression of SOCS-3 mRNA in SOCS-3 knockout and SOCS-3 knock-in liver progenitor cells	$2000
H Kissick University of Western Australia	Mechanisms that tumours use to recruit regulatory T-cells	$2000
Total vacation research scholarships		**$16,000**

Early career investigator grants

G Halkett Curtin University of Technology	Radiation therapy information needs: appropriate timing, sources and content	$25,000
D Galvao Edith Cowan University	Resistance and aerobic exercise for reducing treatment side-effects in men receiving ADT for prostate cancer	$24,662
Total early career investigator grants		**$49,662**

Professorial chairs

Chair of Palliative Care Research	Edith Cowan University	$115,000
Chair of Behavioural Cancer Research	Curtin University of Technology	$125,000
Chair of Clinical Cancer Research	University of Western Australia	$250,000
Total professorial chairs		**$490,000**

Other research grants

Bone tumour registry	$28,000
Travel grants	$15,000
Total other research grants	**$43,000**
TOTAL RESEARCH FUNDED	**$1,074,412**

QUEENSLAND CANCER FUND

The Cancer Council Queensland

Research grants

2007-2008

A Antonsson University of Queensland	Development of models to study human papillomaviruses and their involvement in non-melanoma skin cancer	$78,000
B Charles University of Queensland	An oral thymine screening test to predict susceptibility to pyrimidine anticancer drug toxicity	$78,000
P Dawson University of Queensland	Hyposulfataemia and tumour cell growth	$78,000
M Gandhi Queensland Institute of Medical Research	Immuno-regulatory and viral biomarkers as tools to assist clinical outcome in patients with EBV-positive lymphomas	$78,000
R Gardiner Queensland Institute of Medical Research	A randomised vaccine trial of men at very high risk of metastases following radical prostatectomy	$78,000
D Goldstein University of Sydney	Phase II study of chemotherapy and 3-D conformal radiotherapy for the treatment of localised pancreatic cancer	$5250
J Hancock University of Queensland	K-Ras signalling platforms and oncogenesis	$78,000
J Harris Queensland University of Technology	Potentiation of the antiproliferative effects of sex hormone binding globulin	$78,000
A Herington Queensland University of Technology	The opposing roles of a novel preproghrelin isoform and obestatin, a preproghrelin derived hormone, in prostate cancer	$78,000
G MacDonald Queensland Institute of Medical Research	Clinical measures of obesity and risk of Barrett's Oesophagus	$78,000
R Padbury University of Sydney	Adjuvant chemotherapies in resectable pancreatic cancer	$7500
S Shekar Queensland Institute of Medical Research	The genetics of dermatological traits associated with increased cancer risk	$30,612
Ross Smith University of Queensland	Heterogeneous nuclear ribonucleoprotein roles in alternative RNA splicing and human disease	$78,000
B Smithers Queensland Institute of Medical Research	Coordination and immunological analysis of a Phase III immunotherapy trial for patients with Stage IIIB/C melanoma	$78,000
K Spring Queensland Institute of Medical Research	Oncongenic BRAF and the serrated pathway to colorectal cancer	$78,000
R Sturm University of Queensland	Melanocytic spheroids as a model for melanoma development and mestasis	$78,000
I Tonks Queensland Institute of Medical Research	The role of pocket proteins in melanocyte homeostasis and transformation to melanoma	$78,000
D Turnbull University of Southern Queensland	Beneficial vitamin D3 producing UV compared to damaging overexposure	$78,000
B Wainwright University of Queensland	The cellular origin of medulloblastoma	$78,000
G Walker Queensland Institute of Medical Research	Molecular pathways to UVR-induced melanoma	$78,000
N Wetzig University of Sydney	SNAC2: A randomised trial of extending sentinel node based management to women with larger or multifocal breast cancers	$24,000

2006-2007

G Beadle Wesley Research Institute	The effect of adjuvant chemotherapy on cognitive functioning in early breast cancer	$78,000
L Chopin Queensland University of Technology	The role of autocrine ghrelin, a growth hormone releasing peptide, and a novel preproghrelin variant in breast cancer	$78,000
J Clements Queensland University of Technology	Role of prostatic kallikreins in in vitro and in vivo human bone models of prostate cancer bone metastasis	$78,000
T Gonda University of Queensland	Role, and potential for therapeutic targeting, of transcriptional co-regulators in transformation by the MYB oncogene	$78,000
S Kellie University of Queensland	The role of DEP-1 as a tumour suppressor in breast cancer	$78,000

A Kelso Queensland Institute of Medical Research	Differential regulation of perforin and granzyme gene expression in CD8+ T lymphocytes	$78,000
M Lavin Queensland Institute of Medical Research	Functional Importance of ATR - dependent Mre11 phosphorylation in response to stalled DNA replication forks	$78,000
K MacDonald Queensland Institute of Medical Research	Lineage specific roles of SOCS3 in the regulation of GVHD	$78,000
D Moss Queensland Institute of Medical Research	A phase I trial on adoptive transfer of EBV-specific cytotoxic T-cells to nasopharyngeal carcinoma patients	$118,000
J Neuzil Griffith University	Vitamin E analogues as selective modulators of the FGF-FGFR signalling in malignant mesothelioma	$78,000
A Obermair Royal Brisbane Hospital Research Foundation	Total Laparoscopic Hysterectomy (TLH) vs Total Abdominal Hysterectomy (TAH) for the treatment of endometrial cancer	$78,000
S Porceddu Princess Alexandra Hospital	Post-operative chemo-radiothrerapy vs radiotherapy in high risk cutaneous squamous cell carcinoma of head and neck	$78,000
A Rice Mater Medical Research Institute	Fanning the fire: combination immunotherapy to treat relapsed leukaemia post transplant	$78,000
N Saunders University of Queensland	The molecular basis for the initiation of squamous differentiation	$78,000
A Smith University of Queensland	Elucidating PPARgamma regulation of melanocytic cell function and tumorigenesis	$78,000
P Vasey University of Sydney	Carboplatin flat dosing versus intrapatient dose escalation in first line chemotherapy of ovarian cancer	$8350
C Veitch James Cook University	Experiences of colorectal cancer and oncology services: a rural/urban comparison to identify locational differences	$61,625
P Webb Queensland Institute of Medical Research	Folate and related micronutrients, folate metabolising genes and risk of ovarian cancer	$78,000
M Wei University of Queensland	Development of a novel gene therapy vector for multiple modalities of tumour killing	$78,000
J Young Queensland Institute of Medical Research	Molecular pathways in endometrial cancer	$78,000
K-N Zhao University of Queensland	Molecular mechanisms of regulatory expression of human papillomavirus L1 genes in keratinocytes	$78,000
2007-2009		
G Hill Queensland Institute of Medical Research	Rationalising anti-TNF therapy in transplantation	$91,922
2006-2008		
G Walker Queensland Institute of Medical Research	Mechanisms of UVR-induced melanoma in melanoma-prone mice	$100,000
2005- 2007		
D Bowtell Peter MacCallum Cancer Centre	Molecular epidemiology of ovarian cancer: the Australian Ovarian Cancer Study - clinical follow-up core	$75,000
J Simes University of Sydney	Intermediate and high risk, resected gastro-intestinal stromal tumours expressing kit: RCT of adjuvant imatinib mesylate	$11,630
W Warren James Cook University	The role of the "deflated" gene in the control of cell proliferation	$76,900
Total research grants		**$3,340,789**

Fellowships

Senior research fellowship program

M McGuckin, Mater Medical Research Institute
P Webb, Queensland Institute of Medical Research
G Kay, Queensland Institute of Medical Research
J-P Levesque, Mater Medical Research Institute
J Young, Queensland Institute of Medical Research

Senior clinical research fellowship program

K Fong, Prince Charles Hospital
John McCaffrey Fellowship in Cancer Control
S Harrison, James Cook University
Total fellowships **$733,068**

Epidemiology and psycho-oncology research programs

Cancer Epidemiology Unit	$832,120
Psycho-Oncology Research Unit	$553,238
Brain Tumour Study	$40,023
Colorectal Cancer and Quality of Life Study	$47,936
The HELP Study	$29,317
Prostate Cancer Supportive Care and Patient Outcomes Trial	$518,999
Queensland Cancer Risk Study	$90,885
Skin Clinics Project	$27,177
Townsville Hospital Project	$83,447
Vitamin D and prostate cancer	$24,828
Total epidemiology and psycho-oncology research programs	**$2,247,970**

Other research grants

Australian Paediatric Cancer Registry	$93,973
Travel grants	$105,000
Total other research grants	**$198,973**

PhD program 2007

2007 – 2009

John Earnshaw Scholar 2006
- J Johnson, Queensland Institute of Medical Research
- A Kittila, Griffith University
- M Kvaskoff, The University of Queensland
- N Bennett, Queensland University of Technology (2007 – 2008)
- R McLachlan, The University of Queensland (2007 – 2008)

2006 – 2008

John Earnshaw Scholar 2006
- C Zapata, The University of Queensland
- M Davidson, The University of Queensland

George Roberts PhD Scholarship (North Queensland)
- L Bartlett, James Cook University

2005 – 2007

John Earnshaw Scholar 2005
- M Hsueh-Li Lai, Queensland Institute Medical Research
- K Wynn, Queensland Institute Medical Research
- C Morais, The University of Queensland

Total PhD program 2007	**$215,950**

Hospital based – data managers

Royal Children's Hospital	
Mater Hospital – Oncology Centre	
Royal Brisbane & Women's Hospital	– Radiation Oncology – Medical Oncology – Gynaecology Oncology
Princess Alexandra Hospital	– Radiation Oncology – Medical Oncology and Haematology
Toowoomba Hospital	
Mater Children's Hospital	
Townsville Hospital	
Data managers total	**$649,000**
TOTAL RESEARCH FUNDED	**$7,385,750**

CLINICAL ONCOLOGICAL SOCIETY OF AUSTRALIA – 33RD ANNUAL SCIENTIFIC MEETING

The Clinical Oncological Society of Australia's (COSA) 2006 Annual Scientific Meeting (ASM) was held in conjunction with the Australian Health and Medical Research (AHMR) Congress, in Melbourne, from 27 November to 1 December. The event provided a wonderful opportunity to integrate our strong clinical program with the best of cancer research around Australia and to benefit from some of the international speakers attending the main program. The ASM organising committee's goal was to integrate a science focus into the program, while retaining the core elements that have made the COSA ASM successful over many years.

There were 594 COSA delegates registered, along with many AHMR Congress delegates who took advantage of the COSA program. There were 218 submitted abstracts in addition to around 100 other speakers invited to submit abstracts for the various themed sessions.

The COSA program ran over the last three days of the AHMR Congress and included two AHMR Congress-hosted plenary sessions, two COSA plenary sessions and 35 concurrent sessions, with several additional AHMR Congress sessions on cancer available to COSA registrants. The major focus for the meeting was breast cancer, with other main themes around epidemiology, palliative care, supportive care and psycho-oncology; quality of life, work-related stress, melanoma and consumer issues. The pre-conference modules included an invited workshop for the national cancer nursing education project, an National Breast Cancer Centre (NBCC) communications skills workshop and a consumer workshop held by The Cancer Council Victoria in conjunction with Cancer Voices Victoria. COSA convened a workshop, with the support of Cancer Australia and the NSW Cancer Institute, to consider the experiences to date in care co-ordination and identify key learnings and opportunities and directions for future implementation of care co-ordination. Workshop participants included key stakeholders with responsibility, experience and expertise in care co-ordination at the national, state and territory and local level.

Four breakfast sessions were held on the Thursday with the topics of Measuring Cancer Care (NBCC), Clinical Research Professions, Cancer Pain Education for Patients and FOLFOX versus XELOX. The first COSA plenary offered perspectives on 'The Future of Cancer in Australia' and the first presence at COSA of staff from the newly formed federal government agency, Cancer Australia. The second plenary session focused on consumer involvement in cancer care. The ability to have additional COSA plenary sessions this year was limited by the nature of the meeting and to do so would have significantly reduced the number of abstracts selected and concurrent sessions offered.

The international speakers for the COSA program were Richard Sainsbury from the UK and Judy Garber from the US who both featured in the breast program, Ciaran O'Boyle from Ireland who focused on quality of life, Nora Kearney from Scotland who led sessions on consumer involvement and Nathan Cherney from Israel who featured in the palliative care program. Joe Nevins, a plenary speaker from the main AHMR Congress program, also presented in the COSA program.

The dinner this year featured entertainment by Stewart Dunn and a range of volunteer participants who showed their talents in charades and the singing of drug names to the tune of supercalifragilisticexpialidocious. Professor Alan Coates was clearly the standout singer of the night as well as being honoured in the final plenary of the conference with the *Tom Reeve Oration Prize for Leadership in Cancer Care* for his contributions to cancer control, in Australia and internationally.

Participant feedback collected through the online ASM evaluation indicated that the collaboration with the AHMR Congress was generally successful and well-received, with the majority of respondents commenting on the benefits derived from the joint approach. The most consistent comment was in favour of the increase in scientific content and the improved opportunities for engagement across cancer research groups.

It is, of course, almost impossible to stage an event of this magnitude and targeted at such a wide range of disciplines without some level of dissatisfaction. Comments included a view that the joint hosting of the event meant less "intimacy" than at previous meetings, while a number of respondents would have liked more content relevant to specific disciplines and a structuring of the program to help avoid clashing of sessions that may interest individual participants. These constructive criticisms are valuable and will be considered when the next ASM program is being developed.

Thank you to the organising committee and to the participants who continue to make the COSA ASM the most important cancer-specific professional gathering in Australia.

Sanchia Aranda
Meeting convenor

AUSTRALIAN BEHAVIOURAL RESEARCH IN CANCER

Viertel Centre for Research in Cancer Control (VCRCC), Queensland

NHMRC accreditation

The Queensland Cancer Fund (QCF) has received accreditation from the National Health and Medical Research Council (NHMRC) as an independent research institute for the period 2007-2009, in recognition of the high quality of research undertaken by its staff. QCF has also received NHMRC Project Grant funding for two projects that commenced in January 2007. The first builds on an existing research project and will improve adjustment for men diagnosed with localised prostate cancer. The second will improve management and secondary prevention for those diagnosed with heart disease. This is a new area of research for QCF and will build our experience in innovative home-based lifestyle and psychosocial interventions in cancer control, to include the broader area of chronic disease management.

Predicting and promoting improved long term adjustment for men with localised prostate cancer: ProsCan

The project will produce four key outcomes for health planning:

1. Provide recommendations about the efficacy of tele-based nurse counselling to facilitate better long-term adjustment after prostate cancer;
2. Validate a method of screening for and identifying men who are at risk of poorer long-term decision-related and psychosocial adjustment after localised prostate cancer, to provide a proven mechanism for triaging to in-depth intervention;
3. Provide an evidence-based decision support/psychosocial intervention for men with prostate cancer that can be easily integrated into community and acute settings; and
4. Provide information on the potential economic value of the intervention that can be used by health planners for efficient health service delivery.

The ProsCan study aims to assess the effectiveness of a decision support/psychosocial intervention in improving men's adjustment at two and three years post-treatment and to identify men diagnosed with localised prostate cancer at risk of poorer long-term psychosocial adjustment.

Implementation trial of a telephone-based care management program for patients following myocardial infarction

This brings together an experienced multi-disciplinary team of researchers and clinicians from Australia and the US. The research will generate new knowledge, as well as an approach to the management of chronic disease (coronary heart disease) that has the potential to improve risk factors, quality of life and thereby, improve the life expectancy and morbidity of the majority of patients following myocardial infarction (MI or heart attack). The trial seeks to implement and evaluate the six and 12-month health outcomes (primary outcomes include physical activity, nutrition and quality of life) and cost-effectiveness of an innovative care management model and delivery system directed at the rehabilitation, recovery and secondary prevention of patients following MI; and identify the enablers and barriers to the future system-wide implementation of this model and delivery system.

Centre for Research in Cancer (CBRC), Victoria

Evaluating Quit campaigns: development of a comprehensive tracking system for Quit data

Currently there is no mechanism for ongoing systematic tracking and linking of Quit Victoria's mass media campaigns to Quitline call data or Quit web traffic. Due to the complications with integrating the data there is no standard overall evaluation of each campaign in terms of calls to Quitline or web hits. During 2006 researchers at CBRC have mapped Quit's current data collection and integration procedures and have identified procedures and requirements for a new and ongoing systematic data tracking system. This system will by-pass manual procedures and will automatically link Quit Victoria's mass media campaigns to Quitline call data and Quit web traffic. The system will provide automatic production of standardised reports for Quit management, enabling Quit to examine how a campaign is performing and to determine whether specific media buying strategies are effective in promoting cessation activity. Information from the system will allow media buys to be adjusted in order to maximise their effects. The system will also provide opportunities to ascertain wear-out parameters of particular campaigns and in doing so, identify when and how often specific campaigns should be advertised to increase their efficiency. It is envisaged that the information obtained from the system will allow Quit to develop a model to predict the number and timing of calls to the Quitline in order to ensure adequate staffing.

Dietary behaviour and physical and sedentary activity among Australian secondary students in 2005

The aim of this study was to provide an assessment of Australian secondary students' dietary, physical activity and sedentary behaviour. Analyses were based on data

from the 2005 Australian Secondary Students Alcohol and Drug Survey (ASSAD), excluding West Australian students. Most students were not meeting the daily requirement of four serves of vegetables and three serves of fruit. Levels of participation in at least 60 minutes of moderate-vigorous physical activity every day (recommended level) were also low, whilst the majority of students spent too much time doing sedentary activity (television, internet, computer games). Results indicate that a significant proportion of Australian secondary students appear to fall short of current, national dietary and physical activity recommendations for teenagers.

2006-07 National Sun Survey

During summer data was collected for the second national sun survey. On Monday and Tuesday evenings approximately 5000 adults and 700 adolescents in Australia were interviewed by telephone about their sun-related outdoor activities on the previous weekend. Interviews continued for eight weeks from 27 November 2006 to 29 January 2007. The details of people's sun protective behaviour, sunburn, related knowledge and attitudes and their awareness of recent media campaigns will be assessed. The protocol was developed in consultation with research, evaluation and program staff from most states and territories. The Cancer Council Victoria is coordinating the conduct, analysis and reporting of the study. This collaborative research project aims to provide national data to support evaluation of skin cancer control programs and campaigns at the state and national levels. The research is being funded by The Cancer Council Australia and the Commonwealth Department of Health and Ageing.

Centre for Cancer Control Research (CCCR) and Tobacco Control Research and Evaluation Program (TCRE), South Australia

Early Childhood Centres SunSmart Program Evaluation

A survey of 189 early childhood centres was conducted in October 2006 to assess the impact of the SunSmart Early Childhood program in South Australia (response rate=63%), following similar methodology to the 2001 baseline survey. Results indicate a marked improvement in sun protection policies and practices since the program was initiated, with a higher quality of policy and practice in SunSmart centres. Childcare centres are more receptive to the program than kindergartens.

Trial of subsidised nicotine replacement therapy for low income smokers – six month follow-up survey results (TCRE)

Consistent with many clinical studies, the results of the second (six-month) follow-up suggest that adding subsidised NRT to telephone support increases quit rates and in this instance among low-income populations. Subsequent studies are underway to follow-up study participants to assess 12 month behavioural outcomes to see if the apparent benefits persist.

Tobacco component of the Australian School Student's Alcohol and Drugs (ASSAD) Survey (SA specific) (TCRE)

Smoking prevalence and behaviour were investigated among South Australian school children in 2005 as part of the triennial Australian School Students' Alcohol and Drugs (ASSAD) Survey. The data revealed that smoking rates declined significantly among 12-15 year olds and slightly (but not significantly) among 15-17 year olds. These declines are consistent with a significant decline in smoking rates in 15-29 year olds in South Australia over the past year (as found in a representative population survey).

Support and information packs pilot evaluation

A support and information pack for cancer patients is being trialled across several South Australian hospitals, including one regional hospital. One hundred and fifty patients are being recruited to trial the pack. Participants undertake a written survey approximately one month after receiving the pack. Survey results will serve to inform the style and content of the pack before more widespread distribution. Focus groups with oncologists and nursing staff at centres involved with the trial will inform the timing and method of dissemination.

Evaluation of Staying Healthy After Cancer

Pre, post and follow-up surveys (six-month) are being undertaken with participants of the Staying Healthy After Cancer Program (SHAC) to assess the short-term and intermediate impact of the program. SHAC is a chronic disease self-management program developed by Stanford University, which aims to develop self-efficacy among people with chronic conditions. The evaluation is ongoing and will assess changes in self-efficacy, pain levels, fatigue and health enhancing behaviours.

SmokeCheck (TCRE)

TCRE is evaluating SmokeCheck, a training program for health professionals working with Indigenous clients, by assessing its effects on health professionals' discussions about smoking with clients and by examining quit rates. Results will be available in mid-2008.

Centre for Health Research and Psycho-oncology (CHeRP), NSW

Solaria operations in NSW in 2006

In 2003 CHeRP, in conjunction with NSW Health, conducted a study of solarium industry practices. A follow-up study was conducted in 2006 to identify current levels of compliance with the Australian and New Zealand Standard on Solaria Operations and to estimate whether compliance levels had increased following industry efforts in 2003 and 2004. In both 2003 and 2006, the study involved the use of simulated

customer scenarios designed to represent typical adult solaria users. The sample was identified via the electronic Yellow Pages and included both tanning-focused establishments and smaller operators such as hairdressers and beauty therapists who operated at least one sunbed. Data on the 2006 sample of 167 establishments included a total of 106 establishments visited in both 2003 and 2006. It was found that although compliance varied over the time period for most establishments, there was no evidence of improvements in compliance between 2003 and 2006. Compliance with a number of aspects of the standard remained moderate or low. For example, approximately half of the establishments did not indicate that parental permission was required for those aged under 18 years, even when prompted. Few establishments were compliant with all 13 of the items studied.

Cancer Survival Study

In 2005, CHeRP commenced the Cancer Survival Study, which is Australia's first population-based longitudinal study to examine the psychosocial well-being and lifestyle behaviours of adult cancer survivors over the first five years since a cancer diagnosis. One thousand six hundred and sixty cancer patients newly diagnosed with one of the top eight incident cancers are being recruited from the Cancer Registry in two states and surveyed at six months, one year, two years and five years post-diagnosis. Although the design of the study is one of its key strengths, accruing a large and heterogeneous study cohort, ascertaining cases early through cancer registries, retaining and following up participants long-term, and managing large-scale data collection is challenging. A number of strategies have been implemented, including the use of scannable surveys and the development of a data dictionary, to help ensure the success of the study.

Since October 2005, two thirds of the total cohort has been recruited from the cancer registries. To date, 80% of eligible participants have returned baseline surveys, 56% have provided the details of a 'secondary contact' who will know where participants are if they have moved, and 43% have agreed to be approached about future survivorship research conducted by CHeRP. Wave two of data collection commenced in August 2006. The results of this study will help identify the onset, duration, frequency and severity of the psychosocial effects of cancer and determine when survivors' psychosocial outcomes return to general population levels. This study is funded by the National Health and Medical Research Council, The Cancer Council NSW and Hunter Medical Research Institute.

Centre for Behavioural Research in Cancer Control (CBRCC), Western Australia

Longitudinal investigation of pharmacological smoking cessation aids in real-life settings

There is robust evidence from randomised control trials to suggest that smokers attempting to quit are twice as successful as those going cold-turkey if they use a nicotine replacement therapy (NRT) product, such as patches, gum or lozenges, and three-times more successful if using buproprion, such as Zyban. Uptake of these products has been facilitated greatly by NRT products becoming available without prescription since 1997 and Zyban being heavily subsidised by the Pharmaceutical Benefits Scheme (PBS) since 2001. Despite their promise, the availability of these products does not appear to have impacted appreciably upon quitting rates within the general population. CBRCC has been awarded an NHMRC grant for 2007 to 2009 to conduct a two-year longitudinal study of 1300 smokers to gauge their awareness and attitudes towards pharmaceutical cessation aids and to track their use in quitting attempts and for other reasons.

Community asbestos exposure and implications for prevention of asbestos related diseases

The overall aim of this 30-month project is to examine the distribution of asbestos in the community, community exposure to asbestos and actions taken to minimise exposure. A national survey will provide the first ever baseline community data about exposure to asbestos in the Australian population. This data will be used to calculate accurate predictions of future mesothelioma incidence. An in-depth study of a sample of community members who have been exposed to asbestos will provide information about their knowledge, perceptions of risk and their behaviours in relation to exposure to asbestos and their preferences for intervention approaches. This will inform the development of interventions aimed at reducing the development of asbestos related disease in community members.

Preventing high risk alcohol use by university students

A two-year project is trialling the use of the Internet for epidemiological and intervention research aimed at reducing high risk drinking by university students. Stage 1 utilised a series of focus groups to collate information on student experiences of alcohol use, their patterns of use, behaviours engaged in by their peers, perceptions of safe and unsafe drinking behaviours, and feedback on the development of Internet interventions. Stage 2 will involve an Internet-based survey of undergraduate students at Curtin University. A sample of 3000 will be selected to receive an Internet-based intervention during 2007.



NEWS & ANNOUNCEMENTS

Cancer scales turn against children as obesity problem grows

Australian children will face an increasingly higher risk of cancer in adulthood unless more is done to reduce childhood overweight and obesity, according to The Cancer Council Australia.

Speaking on World Cancer Day (4 February), The Cancer Council's Chief Executive Officer, Professor Ian Olver, warned that a more concerted effort was needed to combat obesity in order to minimise what would be an "inevitable growth" in cancers and other chronic diseases.

"Today's school children are being put at greater risk of contracting obesity related cancers and other diseases in later life and that has to be big concern for all parents," Professor Olver said.

Launching the Australian component of a world-wide cancer prevention campaign, *Today's children, Tomorrow's World*, International Union Against Cancer President-elect, Professor David Hill,* said Australia needed to join other countries in combating obesity and other causes of cancer through a much greater investment in prevention programs.

The campaign is being run in more than 80 countries and focuses on tobacco use, unhealthy diet and obesity, infections and overexposure to damaging ultraviolet radiation from sunlight and solariums.

"Governments, businesses, community organisations, parents and carers need to act now to reduce the impact of cancer on children and future generations," Professor Hill said. "Research shows that more than 40 per cent of the 88,000 cancers diagnosed each year in Australia can be prevented through healthier lifestyles established early in life. Limiting exposure to risk factors among children today will greatly reduce the long-term incidence and economic cost of cancer."

According to Professor Olver, the economic cost of cancer to Australia was estimated to be almost $3 billion a year and rising. "As a nation there is a lot that can be done to reduce the devastating human and economic cost," he said.

Professor Olver said there were simple steps all parents could take themselves and encourage their children to take to reduce their risk of cancer:

- Not use tobacco of any kind;
- Maintain a healthy diet and exercise regularly;
- Ensure children get vaccinations against cancer causing infections; and
- Limit over exposure to the sun and UV radiation.

"As a nation we are under-investing in cancer, a disease that Australians consistently rate as the one they most fear," he said. "Cancer is responsible for around 28 per cent of deaths in Australia, but only accounts for a little over six per cent of the nation's health budget."

Cancer killed more than seven million people worldwide in 2006, more than AIDS, malaria, diabetes, tuberculosis, malnutrition, violence and war combined, according to the World Health Organization.

Getting to the bottom of bowel cancer screening

Australian and international experts in bowel cancer screening met in Melbourne in November 2006 to discuss the Federal Government's national bowel cancer screening program, being phased in with a view to full implementation from 2008-09.

Around 120 delegates from a range of disciplines involved in bowel cancer screening attended the event, hosted by The Cancer Council Australia and sponsored by the Commonwealth Department of Health and Ageing.

Quality assurance in colonoscopy, measures to boost screening participation, ways for government jurisdictions to work more cooperatively, and areas for GP involvement were among the items discussed in a busy one-day agenda.

Formal evaluation indicated the event was highly successful in terms of meeting delegates' expectations, with British gastroenterologist Dr Roland Valori's presentation on bowel cancer screening in the UK, where a national program is already established, rating particularly well.

A full report from the event, including recommendations for best practice in bowel cancer screening, should be available on The Cancer Council Australia website within the next month.

Cancer Council welcomes decision to fund cervical cancer vaccine

The Cancer Council Australia welcomed the announcement in November that the Australian Government will fund the world-first cervical cancer vaccine under the National Immunisation Program.

Chief Executive Officer, Professor Ian Olver, said the decision was an exciting development for future generations of Australian women, in particular in Indigenous communities, where the rate of cervical cancer was up to three times as high as the non-Indigenous population.

**Professor Hill is Chief Executive Officer of The Cancer Council Victoria*

Prime Minister John Howard and Health Minister Tony Abbott announced that the vaccine would be available to girls aged 12-13 years from 2007 and a two-year catch-up program would be available to girls aged 13-18 years through schools. In addition, women aged 18-26 years would be able to access the funded vaccine through their general practitioners.

Pioneered by Australian of the Year, Professor Ian Frazer, the vaccine protects against two strains of the human papilloma virus which cause 70 per cent of cervical cancers. Each year 735 Australian women are diagnosed with cervical cancer and nearly 300 lose their lives to the disease.

"Australia's cervical screening program is one of the best in the world and it will remain important for all women as the vaccine does not protect against all strains of HPV," Professor Olver explained. "The vaccine is not a replacement for the Pap screening program, which has been highly successful in reducing deaths from cancer of the cervix.

"The current screening program is still the best protection from cervical cancer for women who have ever had sex and they should continue to have their two-yearly Pap smears."

National campaign to combat Australia's most costly cancer

A new national skin cancer awareness campaign launched by the Federal Government in November has the potential to significantly reduce the impact of the nation's most costly yet preventable cancer, according to The Cancer Council Australia.

Cancer Council spokesperson and melanoma surgeon, Emeritus Professor Bill McCarthy, said the campaign would make a significant contribution to changing the attitudes and behaviour of young people to skin cancer and sun protection.

"Skin cancer claims around 1500 lives and costs the health system $300 million each year, yet it is largely preventable by taking sun-protection measures," Professor McCarthy said. "Young people are at particular risk and are the most difficult group to convince of the need to protect themselves."

Professor McCarthy said that in more than three decades of clinical practice he had treated thousands of skin cancer patients who could have avoided the anguish of complex medical procedures and in some cases premature death, had they protected themselves effectively from ultraviolet radiation.

The Cancer Council Australia's Chief Executive Officer, Professor Ian Olver, also welcomed the campaign, which he described as crucial to helping to change the attitudes and behaviour of young Australians about skin cancer and sun protection.

"Australia has the world's highest skin cancer incidence and mortality rates and this government-funded campaign is an important step in trying to reduce the unacceptable, but largely avoidable burden of skin cancer," Professor Olver said.

"We welcome this targeted campaign, which communicates the five principles of effective sun protection – seeking shade, wearing sun-protective clothing, a broad-brimmed hat, SPF 30+ sunscreen and wrap-around sunglasses."

Aussies make every cup count

Having raised almost $40 million since we first put the kettle on over a decade ago is testament to the fact that when it comes to Australia's Biggest Morning Tea, every cup really does count in helping to beat cancer.

While the official date is 24 May, more than a million people will be trying to sip their way past last year's total of $7.7 million by participating in morning teas throughout the month of May at work, school, home and in the community.

One of the reasons Australia's Biggest Morning Tea is so successful is that it is so easy to take part in – simply register as a host, set a date anytime in May and start inviting work mates, friends and family, even the whole community, if you choose to have a public morning tea.

The funds raised by Australia's Biggest Morning Tea allow The Cancer Council, as the country's leading cancer charity, to invest in research initiatives; prevention and education programs; and support services for those diagnosed with cancer, their families and carers.

So be one in a million this May and help raise vital funds for The Cancer Council. Visit **www.biggestmorningtea.com.au** or call **1300 65 65 85** to register as a host.

Cancer Council welcomes withdrawal of 'split packs'

The Cancer Council Australia welcomed the withdrawal of Dunhill cigarette wallet packs, or "split packs", following court action initiated by the Australian Competition and Consumer Commission.

Anita Tang, Chair of The Cancer Council Australia's Tobacco Issues Committee, said the ACCC should be commended for its swift response in instituting legal proceedings to halt the sale of split packs under the *Trade Practices Act*.

"The split packs, which we believe made cigarettes more attractive and affordable to children and other vulnerable members of the community, immediately caused great concern among health promotion organisations when they emerged last year," Ms Tang said. "The court order sought by the ACCC will help to prevent this kind of exploitation occurring again."

Warning on impact of soft drinks on childhood obesity

A recent warning from Federal Health Minister, Tony Abbott, that high levels of soft drink consumption are likely to be an important factor in childhood obesity, has been supported by The Cancer Council Australia.

Cancer Council CEO Professor Ian Olver said obesity was linked to major cancers such as bowel cancer and breast cancer, as well as less common cancers such as kidney, oesophageal, gallbladder and endometrial cancers, and that increased obesity rates are likely to compound the rising cancer burden in Australia associated with population ageing.

"It is encouraging to see Minister Abbott warn about the clear connection between energy intake and obesity," Professor Olver said. "Many soft drink products are unacceptably high in sugar and should not be regularly consumed as part of a healthy, cancer-smart diet. The Cancer Council would be keen to support measures which reduce consumption of energy-dense products like high-sugar soft drinks."

BOOK REVIEWS



Nutrition and Cancer Prevention

AB Awad, PG Bradford
CRC Press/ Taylor and Francis Group (2006)
ISBN: 0-8493-3945-6
595 pages plus index
RRP: £149.00

Nutrition and Cancer Prevention brings together some of the most recent epidemiological and experimental evidence to explore the strength of the association between various classes of dietary micronutrients (eg. minerals, vitamins, phytosterols, polyphenols, isothiocyanates and lipids) as well as energy and alcohol intake with cancer risk. Plausible mechanisms of action are also explored.

The introductory section provides an overview of the epidemiology of the three cancers for which there is growing evidence of a contribution from diet to risk ie. breast, prostate and colorectal cancer, however this aspect was only introduced briefly and did not provide an adequate assessment of the weight and quality of evidence for the role of diet in these cancers. The mechanisms by which dietary factors might alter cancer risk were amply described in the second chapter and showed the various possible mechanisms, of which a total of 19 were identified, including prevention of mutagenesis by inhibition of carcinogen uptake, improved DNA repair, inhibition of carcinogen activation and enhanced detoxification. Other mechanisms affecting cell proliferation were identified, such as inhibition of polyamine synthesis, inflammation and cyclo-oxygenases and induction of apoptosis.

The section on vitamins emphasises the importance of vitamin A deficiency in promoting squamous metaplasia and the inverse relationship from epidemiological studies between vitamin A intake and/or blood retinol levels and cancer. However, notably, few of the human intervention studies showed anti-cancer effects, illustrating the problem with a reductionist approach to interpretation of the epidemiological data when planning intervention studies. The need here is to appreciate that dietary vitamin A intake may simply be identifying a class of foods that are cancer-protective and that it is the foods rather than vitamin A that should be tested. The role of vitamin D in cancer protection is of note, however in this case, the dietary sources of this vitamin are limited (eg. salmon, milk) making the option of supplementation with vitamin D (or its analogues) the most practical one for those who do not consume such foods and/or have limited sun exposure. An interesting new development in our knowledge regarding vitamin E is that it has anti-oxidant and pro-apoptotic properties, both of which could explain the observed association with reduced cancer risk. However, apparently these properties are independent of each other because the most redox-silent analog, α-tocopheryl succinate, is also the most apoptogenic. The role of vitamin C in cancer prevention remains controversial due to the pro-oxidant effects of high dose-supplementation with this vitamin. However, the balance of evidence indicates that vitamin C and vitamin C-rich foods have chemopreventive effects against cancer, possibly via anti-inflammatory mechanisms and by promoting gap-junction intercellular communication. Folate deficiency leads to base mutations (due to uracil incorporation) and altered methylation of DNA. The balance of epidemiological and experimental evidence shows that folate deficiency increases the risk for colorectal cancer and possibly childhood leukaemia, however the extent to which folic acid supplementation or fortification may modify cancer risk in those who already have cancer remains unclear.

Only calcium and selenium amongst minerals were considered in this text, presumably because they are the ones for which there is strongest evidence. Animal experiments, human epidemiological evidence and human clinical trials support the hypothesis that increased intake of Ca^{2+} is an effective chemopreventive agent for colon cancer. Current evidence suggests that the mechanisms are via the calcium sensing receptor, which stimulates E-cadherin and α-catenin expression in colon epithelial cells, which promotes maintenance of the fully differentiated phenotype and thus prevents malignancy. Selenium has been shown to be protective against prostate, lung and colon cancer in selenium-depleted populations. Possible mechanisms include enhanced immunity, induction of apoptosis and improved antioxidant response, although direct evidence for cancer-chemoprevention by these pathways is not conclusively proven. Daily of doses of 100-200μg selenium appear to provide maximum protection but the jury is still out whether organic or inorganic forms of this mineral are preferable or safest.

Phytosterols are plant sterols that are structurally related to cholesterol. Both epidemiological and animal cancer model studies suggest a protective effect against colon, breast and prostate cancer. Current evidence indicates that the mechanism is probably promotion of apoptosis, possibly via activation of the ceramide cascade and possibly boosting of immune function response via natural killer cells and lymphocyte proliferation. Flavonoids such as anthocyanidin are another abundant class of phytonutrients of varying bioavailability and bioefficacy with regard to cancer prevention. These compounds are cleaved into monomeric forms in the stomach, and following glycoside removal are O-methylated and present in the blood in this form. Flavonoids from tea and soya beans have also been shown to inhibit metastases in animal models of melanoma, prostate and breast cancer. Certain polyphenolic compounds such as epigallocatechin gallate from green tea have a surprising range of alternative activities such as inhibition of telomerase and DNA methyltransferase, which may act to normalise the chromosomal instability phenotype in cancer cells and make them less pathogenic. Another outstanding phytonutrient is resveratrol, with multiple biochemical effects that are inhibitory of cancer risk including, anti-inflammatory effects via inhibition of NF_beta and COX-2 and protein kinase C., induction of apoptosis and interestingly activation of sirtuin deacetylase, which has been shown to mediate the anti-ageing effects of caloric restriction. Phyto-oestrogens such as plant lignans found in flaxseed are thought to play an important role in breast cancer prevention, however a mechanism for this effect has not been convincingly demonstrated. Much research on the protective effects of cruciferous vegetables centres on the role of isothiocyanates in inhibition of phase I and activation of phase II enzymes.

The role of lipids in cancer prevention is another emerging area of interest since it has been shown in human epidemiological studies that higher intake of fish oil, fish and olive oil is associated with a reduced colorectal cancer risk and that n-3 PUFAs (eg. fish oil) inhibit AOM-induced colon tumours in rats while n-6 PUFAs (eg. corn oil) increase colon cancer in this animal model. Molecular evidence suggests that the protective effect is via inhibition of Cox-2 and Rasp21, which results in reduced proliferation in colon tissue. Sphingolipids are another class of lipids rich in milk, meat eggs and soya beans that are attracting attention as chemopreventive agents. Shingolipids isolated from butter milk reduced aberrant crypt foci in colons of CF-1 mice by 51–70% and evidence suggests that the mechanism, if via inhibition of the Wnt-signalling pathway, which stimulated cellular division via beta-catenin translocation into the nucleus.

The book concludes with a section on the role of obesity and alcohol in cancer promotion. Obesity is associated with increased risk and death from all cancers accounting from 5% of cases in Europe to 17% in the US. It is thought that the key mechanisms are increased glucose availability to cancer cells, enhanced proliferation, possibly via elevated levels of insulin, and insulin-like growth factors which are increased in positive energy balance, reduced apoptosis and increased vascularisation. Alcohol is associated with increased risk of oral, oesophageal, colon, liver and breast cancer. It is now evident that the likely mechanism is genotoxic effects resulting from alcohol-derived acetaldehyde, which accumulates when alcohol intake is excessive and/or when an individual is defective genetically in the detoxifying enzyme acetaldehyde dehydrogenase.

The book edited by Awad and Bradford, containing 28 chapters contributed by 60 authors, is a comprehensive and up-to-date tome of our current knowledge on dietary factors that are protective against or can modify cancer risk. This book is a great contribution, however I suspect that it would be difficult to digest by the newcomer in the field because of the great diversity of phytonutrients that can impact on carcinogenesis, the various mechanisms involved and the direct relevance of this knowledge to dietary choices made on a day-to-day basis. It is evident that while much progress has been made on the effects of high dose levels of specific nutrients, there is a lack of studies on dietary patterns and combinations of nutrients that are achievable by the normal educated consumer. A synthesis of the molecular mechanisms involved in nutrition cancer-chemopreventive and a vision of how dietary pattern and nutrient combination studies could be investigated in the future at the end of the book would have been a useful addition.

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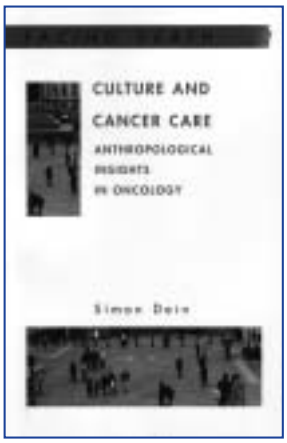
Culture and Cancer Care: Anthropological Insights in Oncology

Simon Dein
Open University Press (2006)
ISBN: 0-335-21458-4
192 pages
RRP: £19.99

This book is one of a series called *Facing Death* which focus on social, ethical and moral issues in care at the end of life, giving prominence to cultural factors. The main themes are culture, race and ethnicity and their relationship to cancer, the cultural context of sickness and help seeking behaviour, and the shift from biomedicine to alternative forms of treatment.

An overview of cancer and its epidemiology in the contemporary Western world in both the US and UK is given in the introduction, along with a discussion of ethnic minority groups from the perspective of ethnicity, poverty and gender. 'The relevance of anthropology' looks at terms such as culture, race, ethnicity, disease and illness, and emphasises the importance of socio-economic factors and the unequal distribution of resources in health and illness.



Possible explanations for the poor uptake of screening among some ethnic groups, the ways in which screening rates could be improved and the role of culturally sensitive health education are included in the second chapter. 'Communicating the diagnosis and cancer communication' discusses the difficulties for clinicians working with ethnic minority groups in a western culture setting where the approach is towards open disclosure. The necessity for knowledge of different cultural patterns of communication among different populations, including family structures, power relationships within the family and their influences on medical decision making is highlighted. 'The cultural response to cancer, coping and the role of religion and spirituality' looks at the influence of the cultural context on a person's emotional response to a negative life event and the importance of an awareness and understanding of these cultural differences. The place of religion and spirituality when looking at patterns of adjustment to cancer is also discussed.

'Culture, treatment and cancer' looks at the possible reasons for the discrepancy in cancer mortality rates across racial and ethnic groups when compared with the majority populations in the UK and US, including disparity in health care, late presentation, non-compliance with treatment, use of traditional healing and racist attitudes among health professionals. 'Complementary and alternative therapies in oncology' discusses how socio-cultural factors are responsible for their growth and increase in use. 'Cultural aspects of palliative care, death and dying' addresses a number of issues including the need for palliative care services to become more culturally sensitive in order to increase uptake by ethnic minority groups whose attitudes and beliefs towards death, dying and bereavement need to be understood and incorporated.

The chapter, 'Tackling inequalities in cancer outcomes', is an assessment of how social inequalities relating to cancer can be identified and overcome. A short conclusion with an agenda for future research follows.

The book is under 200 pages and consists of nine chapters which are well set out in short sections with plenty of headings.There is a short summary at the end of each chapter and they are interspersed with case histories. The contents of the book are based mainly on studies from the UK and the US which may be somewhat frustrating for some Australian readers. I found this fairly scholarly book accessible, objective and easy-to-read, and although the author adopts a critical and analytical stance, it is written with a clinical awareness and clear understanding of practical issues. The book's intended audience is students, researchers and practitioners in oncology and palliative care. It is a very useful reference text, well priced and would be an excellent addition to any departmental or hospital library, as well as being useful reading for those involved in service delivery and health policy making.

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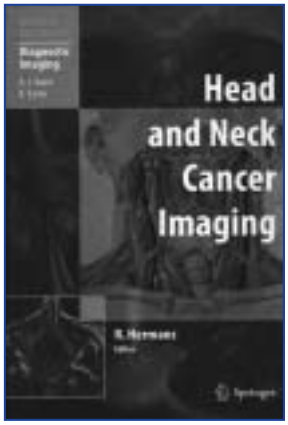
Head and neck cancer imaging

R Hermans, AL Baert
Springer-Verlag GmbH (2006)
ISBN: 3-504-22027-5
359 pages plus index
RRP: $US179.00



This book is part of a large, uniform Springer series in medical imaging and has an assured, logical, systematic European layout. Except for one US-based and one Singapore-based author, all the chapter authors are European. The style therefore is didactic, terse and yet comprehensive. It is not afraid of being categorical and clear, and avoids the verbosity, ambiguity and citations of minutiae that plague some thicker American texts. The size (under 400 pages) can easily be encompassed in a week of evening reads to give an overview of the topic. As a departmental resource text, it is very easy to reference quickly thanks to its systematic structure.

The book's title should have been 'Textbook of cross-sectional morphologic imaging in head and neck tumours to be treated with radiotherapy, with surgical correlation and with prognostic justification of key CT and MR imaging signs'. Its greatest strength is outstanding presentation of cross-sectional imaging morphology, both anatomical and pathological. The

degree of complexity is suitable for both radiologists (for whom this will be a terse revision) and for radiation oncologists and more adventurous surgeons (for whom the text is largely self-sufficient and does not require explanations from elsewhere). The illustrations are outstanding. They are overwhelmingly of CT and MR (as relevant), of recent cases, high quality, thoughtfully selected and sparingly labelled. Almost every condition described in the text has a diagnostic quality memorable illustration.

The book references UICC/AJCC TNM system 6th edition (2002) consistently. Beware of an omission in Table 2.1 (N2c is missing). Discussion of T-staging with CT and MR teaches adequate staging signs to be world-practice. Radiation oncology correlation for larynx and pharynx tumour imaging is excellent. It provides the link for radiologists to understand reasons for selection of particular treatment modalities and regimes. Discussion of prognostic factors at T-staging (such as tumour volume, invasive front, extracapsular invasion, etc) is highly relevant. Presentation and discussion of perineural spread is excellent, and skilfully teaches its diagnosis.

The greatest weakness of the book is omission of fluorodeoxyglucose PET (and other PET imaging) from the main text. PET has been relegated to a single (albeit excellent) chapter at the end of the book and, even worse, the region based chapters propose anatomically based imaging approaches for indications where FDG PET is clearly superior. As a result, a reader new to the field is left with the erroneous impression that PET has no role in modern head and neck oncology and that its occasional use is a discretional frivolity. In order to avoid this trap the learner reader should start the book with Chapter 17 (PET) and Chapter 18 (Radiotherapy Planning) and keep the tenets of both chapters firmly in mind when reading the anatomical imaging chapters. Chaper 18 also serves as an excellent overview of the needs and evolution of head and neck radiation oncology for diagnostic radiologists and surgeons.

In Australia, where a lot of seminal head and neck PET integration work has originated, FDG-PET is a routine part of best-practice head and neck oncology protocols. PET is the modality of choice for the following broad head and neck oncology indications: localisation of unknown primary with malignant lymphadenopathy; mass characterisation (primary, residual, recurrent); monitoring of therapy; prediction of response; surveillance for recurrence; demonstration of tumour hypoxia; whole body N and M staging for SCC, melanoma, adenocarcinoma.

Unfortunately, PET is not integrated into the diagnostic algorithms or discussion in the region based chapters, and the reader will need to extrapolate these chapters to current use of PET. It appears that the authors of region based chapters (while unquestionable authorities on anatomical imaging) are not practising PET in their respective departments. With this limitation in mind, the book should be purchased, read and enjoyed for what it does superbly: modern concise didactic teaching of cross-sectional T-staging of all head and neck neoplasms.

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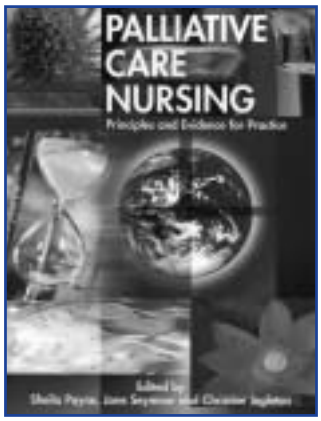
Palliative Care Nursing: Practice Perspectives

S Payne, J Seymour, C Ingleton (eds)
Open University Press (2004)
800 pages
ISBN: 0-335-21243-3
RRP: £30.99



Essentially this book is about the care of people facing death, "both those who will die and those who will accompany them". The editors' stated objective is to target palliative care nurses with the aim of extending and enhancing holistic practice. The structure is broken into four parts: Encountering Illness; Transitions into the Terminal Phase; Loss and Bereavement; and Contemporary Issues. An introductory overview is followed by related articles authored by an interesting mix of contributors and disciplines, although mostly from Britain, each article ending with its own reference list.

This book focuses on the extended role of nurses and others, providing care during the trajectory of advanced illness through the transitions of suspecting illness, diagnosis confirmation, living with dying and bereavement. The editors believe that there is a tendency to prevent the inclusion of patient experience, which therefore fails to fully recognise the connectedness of the patient with family, friends and the extended social network. They are seeking to provide a resource for post-qualified nurses and those in the social sciences, in order to develop the conceptual holistic understanding of theories and evidence that underpin clinical skills, leading to total care. They endeavour to promote, challenge and discuss palliative care, rather than routinely deliver the 'how to' of working with patients at the end of their lives, together with the support given to those accompanying them on the journey.

Does this book achieve its aims? Yes, it does. This large text has an amazingly 'dippable' quality, covering a wide range of subjects. These include good communication, which is essential particularly as the palliative care patient's need is profound and complex, together with the social impact of a protracted death. It deals with ethics, euthanasia, institutional palliative care, carers, information technology, organ donation, pain, bereavement care and risk assessment, education and research organ and tissue donation. It juxtaposes the needs of a changing work environment against the delivery of care needs, as well as that of self-care. Just open to any page and there will be a paragraph or heading that catches the eye, provokes thought, and extends knowledge. This book helps the reader to expand concepts and consider an alternative opinion. Palliative care is becoming better understood in the health and social sciences, and this text assists this transformation, by providing empirical and academic rigour in its content, whilst at the same time encouraging post-graduate students to take the opportunity for further reading and analysis. Somehow it manages to generate the sense of being more than just another textbook; there is a dynamism in the writing and a breadth in the subjects covered, with the net affect that it takes the reader beyond mere learning by engaging the person as well as the intellect.

Dorothy Parkinson, Community Palliative Care, Barwon Health Geelong, Victoria

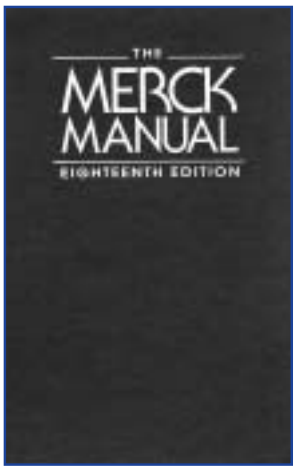
The Merck Manual (18th Edition)

MH Beers (ed)
Merck & Co. (2006)
ISBN: 0911910-18-2
2991 pages
RRP $95.00

This text provides a basic, general medical reference. It is a quick and easy reference describing pathophysiology, etiology, signs and symptoms, diagnosis, prognosis, treatment and prevention of medical conditions. Its target audience comprises "those involved in patient care and the general public seeking a medical reference". It is a general text and as such, provides only an overview. For readers wanting more information, they will need to read elsewhere.

The Merck Manual has grown from a 192 page reference in its first edition in 1899, to a lengthy 2991 pages in its 18th edition. The front section of the text lists more than 300 clinicians from across the world as authors of this text. I would have preferred to site these references chapter by chapter throughout the text.

The index is thorough and complete, taking 204 pages to guide you to your topic. The text contains 22 easily identified tabbed sections, containing well arranged content pages to guide you through its chapter contents. The different sections separate disorders of the various body systems, starting with an overview of what the health professional should be evaluating and looking at during assessment. The summaries at the beginning of each chapter provide a quick source of easy to understand information.



It is a compact source of information, small enough to carry around, or leave on your desk. The trade-off for having this compact production is in accepting that the pages are very thin. Care needs to be taken to keep the pages from becoming torn.

To keep up-to-date with latest treatments, the reader (or anyone interested) can access the Merck website to see updated information free of charge. When accessing their website I could review all of the information that was provided in the text. I was impressed with their site and I found it easy-to-use. For customers wanting to have the latest information, purchasing a PDA version of this edition plus a year of updates would be another way of staying up-to-date.

This text provides basic information; it is suitable for buyers wanting a medical dictionary and needing to access information easily. I would recommend this to medical students and feel it worthy of a place in the reference section of a library.

Helen Kradolfer, Department of Medical Oncology, Royal Adelaide Hospital, South Australia

UICC Manual of Clinical Oncology (8th Edition)

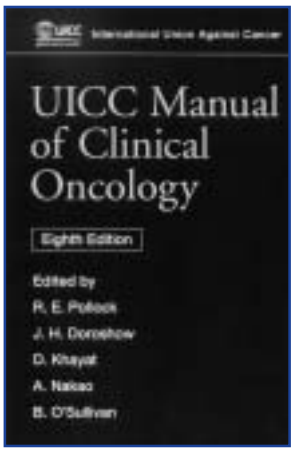
R Pollock (ed)
Wiley Liss (2004)
ISBN: 0-471-22289-5
872 pages plus index
RRP: $US88.50

This manual is a paperback edited by five people. There are many contributing authors from a range of clinical backgrounds and countries, including Australia. The preface states it is aimed at doctors who are training in oncology and oncology health professionals who may be "practising in less than optimal conditions". However, I believe the text is entirely appropriate for nurses and allied health staff working in any area of oncology. It would also be a good resource for health

professionals who may specialise in other disciplines, but from time to time may care for patients with a cancer diagnosis.

There are 39 chapters in total which follow a logical order. The first section commences with the history and biology of cancer. Subsequent chapters address carcinogenesis, genomics, genetic predisposition to cancer, cancer epidemiology, chemoprevention, screening, diagnosis, imaging and staging. The second section of the book moves into principles of various treatments, biostatistics and clinical trials, then covers specific cancers by anatomic site, including haematological cancers. The last section of the book addresses paediatric cancers, AIDS-related cancers, palliative care, and cancer in the elderly, although not comprehensively. Cancer-related adverse events are given an overview, such as oncological emergencies and pain management.

What would improve this manual is more subject matter relating to psychological care of the cancer patient, and ethical issues as they relate to cancer and cancer treatments. If this is to be a manual which covers almost the entire spectrum of oncology, then it would be worthwhile adding a chapter or two on breaking bad news, common responses to a cancer diagnosis and psychological assessment of patients diagnosed with cancer. Common unmet needs of patients with a cancer diagnosis would also be an informative addition.



If this manual is truly aimed at health professionals who might be practising under difficult circumstances, where there may be a higher potential for cancer-related deaths and uncontrolled symptoms if optimum treatments and drugs cannot be accessed, then a more comprehensive explanation of palliative care and what palliative treatments can offer would also be beneficial, as well as a more detailed chapter on symptom control.

Although, in my opinion, this manual is biased towards the purely physical aspects of cancer treatment and management, it is a solid reference book. Despite many contributors from many countries, the language style of the book remains consistent. It is easy to read and complex subject matter is well-explained. Tables and diagrams are also easy to interpret overall. A good buy.

Tracey Mander, St Vincent's Health Melbourne, Victoria

CALENDAR OF MEETINGS



AUSTRALIA AND NEW ZEALAND

Date	Name of Meeting	Place	Secretariat
2007			
April			
11-14	Trans Tasman Radiation Oncology Group (TROG) 19th Annual Meeting	Rotorua New Zealand	TROG Conference Secretariat Tel: +61 2 9954 4400 Fax: +61 2 9954 0666 Email: trog@dcconferences.com.au Web: www.trog.com.au
May			
13-16	Australasian College of Dermatologists 40th Annual Scientific Meeting	Adelaide SA	Australasian College of Dermatologists PO Box 2065 Boronia Park NSW 2111 Australia Tel: 1300 361 821 (Australia only) or +61 2 8765 0242 Fax: +61 2 9736 2194 Email: admin@dermcoll.asn.au Web: www.dermcoll.asn.au
July			
26-28	Australian and New Zealand Head and Neck Society 9th Annual Scientific Meeting	Brisbane QLD	Australian and New Zealand Head and Neck Society c/ o DC Conferences Suite 1. 26 Ridge Street North Sydney NSW 2060 Tel: +61 2 9954 4400 Fax: +61 2 9954 0666 Email: anzhns@dcconferences.com.au Web: www.anzhns.org
August			
1-4	Medical Oncology Group Australia/ Cancer Nurses Society Australia Annual Scientific Meeting	Melbourne VIC	MOGA Conference Secretariat PO Box 637 North Sydney NSW 2059 Tel: +61 2 9954 4400 Fax: +61 2 9954 0666 Email: mogacnsa@dcconferences.com.au Web: www.moga.org.au
16-18	Glioma 2007	Sydney NSW	DC Conferences Suite 1, 26 Ridge Street North Sydney NSW 2060 Tel: +61 2 9954 4400 Fax: +61 2 9954 0666 Email: mail@dcconferences.com.au Web: http://www.dcconferences.com.au/index.php
28-31	9th Australian Palliative Care Conference	Melbourne VIC	APCC 07 Conference Secretariat C/- ICE Australia P/L 6 Clarendon Place South Melbourne VIC 3205 Australia Tel: +61 3 9681 6288 Fax: +61 3 9681 6653 Email: apcc@iceaustralia.com Web: www.iceaustralia.com/apcc2007
September			
8-10	Back to Prince of Wales Meeting	Coogee NSW	DC Conferences Suite 1, 26 Ridge Street North Sydney NSW 2060 Tel: +61 2 9954 4400 Fax: +61 2 9954 0666 Email: mail@dcconferences.com.au Web: http://www.dcconferences.com.au/index.php

CALENDAR OF MEETINGS

Date	Name of Meeting	Place	Secretariat
23-26	International Clinical Trials Symposium	Sydney NSW	ICTS Symposium Secretariat GPO Box 3270 Sydney NSW 2001 Tel: +61 2 9254 5000 Fax: +61 2 9251 3552 Email: info@clinicaltrials2007.com Web: www.clinicaltrials2007.com
October			
1-7	RANZCR 58th Annual Scientific Meeting	Melbourne VIC	Royal Australian and New Zealand College of Radiologists (RANZCR) C/- Tour Hosts Conference & Exhibition Organisers Level 10, 51 Druitt Street Sydney NSW 2001 Australia Tel: +61 2 9265 0700 Fax: +61 2 9267 5443 Web: www.ranzcrasm.com
November			
14-16	34th Clinical Oncological Society of Australia Annual Scientific Meeting	Adelaide SA	Pharma Events Ph: +61 2 9280 0577 Fax: +61 2 9280 0533 Email: cosa@pharmaevents.com.au

INTERNATIONAL

Date	Name of Meeting	Place	Secretariat
2007			
March			
1 - 3	American Psychosocial Oncology Society (APOS) 4th Annual Conference	Austin, TX United States	American Psychosocial Oncology Society (APOS) Ms. Alison Ball 2365 Hunters Way Charlottesville, VA 22911, United States Tel: +1 434 293 5350 Fax: +1 434 977 1856 E-mail: aball@apos-society.org Web: www.apos-society.org
1 - 4	The International Network For Cancer Treatment and Research (INCTR) 7th Annual Meeting	Sao Paulo Brazil	Institut Pasteur Cedric Petit-Musin, Meeting Coordinator Rue Engeland 642 Brussels B-1180, Belgium Tel: 32 2 373 9314 Fax: 32 2 373 9313 E-mail: cedric@inctr.be Web: www.inctr.org
3 - 7	Annual Meeting on Women's Cancer	San Diego, CA United States	Society of Gynaecologic Oncologists (SGO) 230 W. Monroe, Suite 710 Chicago, IL 60606, United States Tel: + 1 312 321 4099 Fax: + 1 312 673 6959 Email: sgo@sgo.org Web: www.sgo.org/meetings/2007Annual/index.cfm
6 - 8	International Conference on Recent Advances in the Management of Head and Neck Cancer	Kuwait City Kuwait	Department of Surgical Oncology Hussain Makki Al-Juma Centre for Specialized Surgery Ministry of Health Kuwait City, Kuwait Tel & Fax: +965 4814651 Email: info@hnc2007.com Web: www.hnc2007.com
6 - 10	Tumour Microenvironment, Progression, Therapy and Prevention, 4th International Conference	Florence Italy	International Cancer Microenvironment Society Tel Aviv University, Ramat Aviv, Tel Aviv 69978, Israel Tel: +972 3 640 6979 Fax: +972 3 640 6905 Email: ipwitz@post.tau.ac.il Web: www.cancermicroenvironment.tau.ac.il
14 - 17	Primary Therapy of Early Breast Cancer, 10th International Conference	St Gallen Switzerland	St Gallen Oncology Conferences c/ o Centre for Tumour Detection, Prevention and Treatment Ms Beatrice Nair Schmid Rorschacherstr. 150, CH-9006 St Gallen, Switzerland Tel: +41 71 243 0890 Fax: +41 71 245 6805 E-mail: info@oncoconferences.ch Web: www.oncoconferences.ch
18 - 30	Hospice and Palliative Care Study Seminar in Britain	London United Kingdom	Hospice Education Institute 3 Unity Square PO Box 98 Machiasport Maine 04655-0098, United States Tel: +1 207 255 8800 Fax: +1 207 255 8008 Email: hospiceall@aol.com Web: www.hospiceworld.org
21-24	International Society of Haematology, 31st World Congress	Punta del Este Uruguay	International Society of Haematology (ISH) Av. 8 de Octubre 2323 of. 305 Montevideo, Uruguay Tel: +598 2 4081015 Fax: +598 2 4082951 Email: ish2007@personas.com.uy Web: www.2007ish.org

CALENDAR OF MEETINGS

Date	Name of Meeting	Place	Secretariat
21 - 26	Cancer in Developing World	Cairo Egypt	National Cancer Institute, Cairo Dr. Atef Badran, MS, PhD Kasr Al Eini Street Fom El Khalig 11796 Cairo, Egypt Tel: +20 2 535 1424 Fax: +20 2 532 8286 / 364 4720 E-mail: a.badran@link.net Web: www.nci.edu.eg/
April			
14 - 18	American Association for Cancer Research (AACR), 98th Annual Meeting	Los Angeles United States	American Association for Cancer Research (AACR) 615 Chestnut St, 17th Floor Philadelphia, PA 19106-4404, United States Tel: +1 215 440 9300 Fax: +1 215 351 9165 Email: meetings@aacr.org Web: www.aacr.org/page6812.aspx
17 - 19	Innovation and Clinical Practice, Anti-Cancer Summit 2007	Shanghai China	Chinese Anti-Cancer Association (CACA) c/ o Institute for Global Leaders, Shanghai, China Tel: +86 21 5236 9375 Fax: +86 21 5236 0029 Email: nono.shao@globaleaders.com Web: www.globaleaders.com/en/Conferencesview.asp?thistable=1&id=11
19 - 20	Cancer in the Elderly	Leiden Netherlands	European School of Oncology V.le Beatrice D'Este 37 20122 Milan, Italy Tel: +39 02 8546 451 Fax: +39 02 8546 4545 Email: teaching@esoncology.org Web: www.cancerworld.org/eso
19 - 22	1st Interconference Breast Cancer Meeting (IBCM)	Sarajevo, Bosnia and Herzegovina	Federation of European Cancer Societies (FECS) Avenue E. Mounier 83 B-1200 Brussels, Belgium Tel: +32 2 775 0201 Fax: +32 2 775 0245 Email: IBCM@fecs.be Web: www.fecs.be/emc.asp?pageId=1534
21 - 22	The Lancet Asia Medical Forum 2007: Asia and Cancer Management in the 21st Century	Suntec Singapore	Reed Exhibitions Pte Ltd 51 Changi Business Park Central 2, #07-01 The Signature, Singapore 486066 Tel: 65 6789 8800 Fax: 65 6588 3798 Email: LancetAsiaForum@reedexpo.com.sg Web: http://www.asiamedicalforum.com/index.htm
24 - 27	2007 Oncology Nursing Society (ONS) Congress	Las Vegas United States	Oncology Nursing Society (ONS) 125 Enterprise Drive 15275- Pittsburgh, Pennsylvania, USA Tel: +1 866 257 4667 /+1 412 859 6100 Fax: +1 877 369 5497 /+1 412 859 6162 E-mail: customer.service@ons.org Web: www.ons.org
26 - 28	COMO 8: Middle East Oncology Congress	Beirut Lebanon	Lebanese Cancer Society PO Box 16-5883 Beirut, Lebanon Tel: +961 1 581714 Fax: +961 1 582560 Email: lcs@cancer.org.lb Web: www.cancer.org.lb
29 – 4 May	Craniofacial Surgery and Distraction Osteogenesis, 3rd Asia-Pacific Congress	Bandos Island Resort Maldives	Asian Association for Craniofacial Surgery Prof. Dr. S. M. Balaji 30, K.B. Dasan Road Teynampet, Chennai, India Tel: +91 44 2436 4136 Fax: +91 44 2432 2907 Email: Smbalaji@gmail.com Web: www.distraction2007.com
May			
2 - 4	Association of Oncology Social Work, 23rd Annual Conference	Portland United States	Association of Oncology Social Work (AOSW) 100 North 20th Street, 4th Floor Philadelphia, PA 19103 Tel: (215) 599-6093 Fax: (215) 5454-8107 Email: info@aosw.org Web: http://www.aosw.org/Conference07/conference_07.html

CALENDAR OF MEETINGS

Date	Name of Meeting	Place	Secretariat
5 - 9	American Radium Society (ARS), 89th Annual Meeting	Amsterdam Netherlands	American Radium Society (ARS) 11300 W. Olympic Blvd. Suite 600 Los Angeles, CA 90064, United States Tel: +1 310 437 0581 Ext. 123 Fax: +1 310 437 0585 Web: www.americanradiumsociety.org/
11 - 14	7th ESH Euroconference on Angiogenesis	Cascais Portugal	European School of Haematology (ESH) Centre Hayem, Hôpital Saint-Louis 1, av. Claude Vellefaux Cedex 10 75475 Paris Tel: 33 1 42 06 65 40 Fax: 33 1 42 06 05 87 E-mail: ghyslaine@chu-stlouis.fr Web: www.esh.org/
14 - 15	Breast Cancer in Young Women	London United Kingdom	European School of Oncology V.le Beatrice D'Este, 37 20122 Milan, Italy Tel: +39 02 8546 451 Fax: +39 02 8546 4545 Email: teaching@esoncology.org Web: www.cancerworld.org/eso
17 - 20	1st World Congress of the International Academy of Oral Oncology: Oral Cancer – A Global Challenge	Amsterdam Netherlands	International Academy of Oral Oncology (dir. Scully) Prof. Crispian Scully Eastman Dental Institute, University of London 256 Gray's Inn Road WC1X8LD London Tel: 442 07 915 1038 Fax: 442 07 915 1039 E-mail: C.Scully@eastman.ucl.ac.uk Web: www.eastman.ucl.ac.uk/iaoo/congress.html
30 – June 2	14th Reach to Recovery International (RRI) UICC Breast Cancer Support Conference	Stockholm Sweden	Swedish Breast Cancer Association (BRO) c/ o Congrex Sweden Karlavägen 108 PO Box 5619 114 86 Stockholm, Sweden Tel: + 46 8 459 6600 Fax: +46 8 661 9125 Email: rri2007@congrex.se Web: www.congrex.se/rri2007
June			
1 - 5	43rd ASCO Annual Meeting: Translating research into practice	Chicago United States	American Society of Clinical Oncology (ASCO) Denver, VA, United States Tel: +1 703 299 0158 Fax: + 1 703 299 0255 Email: meetings@asco.org Web: www.asco.org
6 - 9	10th Congress of the European Association for Palliative Care (EAPC)	Budapest Hungary	National Cancer Institute Milan, Italy Tel: +39 02 2390 3391 Fax: +39 02 2390 3393 Email: heidi.blumhuber@institutotumori.mi.it Web: www.eapcnet.org
7 - 10	12th Congress of the European Haematology Association (EHA)	Vienna Austria	European Haematology Association (EHA) c/ o Eurocongres Conference Management Jan van Goyenkade 11 NL-107 Amsterdam Tel: +31 20 679 3411 Fax: +31 20 673 7306 E-mail: eha@eurocongres.com Web: www.eurocongress.com/eha2007/
8 - 11	11th World Congress on Cancers of the Skin	Amsterdam Netherlands	The Skin Cancer Foundation, c/o International Conference Services BV PO Box 83005 1080 AA Amsterdam Tel: 31 20 679 3218 Fax: 31 20 675 8236 E-mail: wccs2007@nl.ics-online.com Web: wccs2007.ics-online.com/
11 - 15	19th IUHPE World Conference on Health Promotion and Health Education	Vancouver Canada	International Union for Health Promotion and Education (IUHPE) 42 Blvd. de la Libération 93203 St. Denis Cedex Tel: 33 3 48 13 7120 Fax: 33 3 48 09 1767 E-mail: mclamarre@iuhpe.org Web: www.iuhpe.org

CALENDAR OF MEETINGS

Date	Name of Meeting	Place	Secretariat
18 - 19	British Association for Cancer Research (BACR) Conference: Diet and Cancer	Nottingham United Kingdom	British Association for Cancer Research (BACR) McElwain Laboratories Cotswold Road Sutton, Surrey SM2 5NG, United Kingdom Tel: +44 20 8722 4208 Fax: +44 20 8770 1395 Email: bacr@icr.ac.uk Web: www.bacr.org.uk
20 - 22	7th Madrid Breast Cancer Conference	Madrid Spain	La Fundacion de Investigacion Medica Mutua Madrilena, c/ o BN & CO Congress Management Paseo de la Castellana 179 – 5o B1 28046 Madrid, Spain Tel: +34 91 571 9390 Fax: +34 91 571 9206 Email: b.navarro@bnyco.com Web: www.madridbreastcancer.com
23 - 29	Methods in Clinical Cancer Research, 9th Joint FECS-AACR-ASCO Workshop	Flims Switzerland	Federation of European Cancer Societies (FECS) Avenue E. Mounier 83 B-2100 Brussels, Belgium Tel: +32 2 775 0206 Fax: +32 2 775 0245 Email: Workshop@fecs.be Web: www.fecs.be/emc.asp?pageId=1153
27 - 30	CARS 2007, 21st International Congress and Exhibition on Computer-Assisted Radiology and Surgery	Berlin Germany	CARS Conference Office Mrs Franziska Schweikert Im Gut 15 D – 79790 Kuessaberg, Germany Tel: +49 7742 922434 Fax: +49 7742 922438 Email: office@cars-int.org Web: www.cars-int.org
27 - 30	9th World Congress on Gastrointestinal Cancer	Barcelona Spain	European Society for Medical Oncology (ESMO) c/ o Imedex 4325 Alexander Drive Alpharetta, GA 30022-3740, United States Tel: +1 770 751 7332 Fax: +1 770 7517334 Email: meetings@imedex.com Web: www.worldgicancer.com
July			
5 - 7	Joint European Conferences: International Symposium on State-of-the-Art Imaging	Dubrovnik Croatia	Continuing Medical Education Courses Stanford University Radiology Palo Alto, CA, United States Tel: +1 888 556 2230 Fax: +1 650 473 5062 Email: radiologycme@med.stanford.edu Web: www.radiologycme.stanford.edu
5 - 7	ESMO Conference Lugano	Lugano Switzerland	European Society for Medical Oncology (ESMO) Viaganello-Lugano, Switzerland Tel: +41 91 973 1919 Fax: +41 91 973 1918 Email: congress@esmo.org Web: www.esmo.org/activities/ecluconference
11 - 13	27th Sapporo International Cancer Seminar	Sapporo Japan	Sapporo Cancer Seminar Foundation Odori-West 6-6, Ishikai-Bldg, Chuo-ku, Sapporo 060/0042, Japan Tel: +11 222 1506 Fax: +11 222 1526 Email: scs-hk@pheonix-c.orjp Web: www.phoenix-c.or.jp/scs-hk
24 - 27	18th WONCA World Conference	Singapore City Singapore	WONCA - World Organisation for Family Doctors Secretariat 73 Bukit Timah Road Rex House, #03-01 229832 Singapore Tel: 65 6 330 6834 Fax: 65 6 336 2263 E-mail: enquiry@wonca2007.com Web: www.wonca2007.com/index.html

CALENDAR OF MEETINGS

Date	Name of Meeting	Place	Secretariat
August			
9 - 11	1st KL International Breast and Colorectal Cancer Congress	Kuala Lumpur Malaysia	Malaysian Oncological Society Kuala Lumpur, Malaysia Tel: +6 3 2093 0100 Fax: +6 3 2093 0900 E-mail: klbcc@malaysiaoncology.org Web: www.malaysiaoncology.org/article/php?aid=223
25 - 30	25th International Congress of Paediatrics	Athens Greece	Greek Paediatric Society, c/o C & C International S.A. Conventions & Congresses 16, Paradisou Str. 151 25 Athens, Greece Tel: +30 210 6889100 Fax: +30 210 6844777 E-mail: icp2007@cnc.gr Web: www.icp2007.gr/
September			
2 - 6	12th World Conference on Lung Cancer	Seoul South Korea	International Association for the Study of Lung Cancer, c/ o International Conference Services Ltd. Suite 2101 117 West Hastings Street V6E 2K3 Vancouver, Canada Tel: 1 604 681 2153 Fax: 1 604 681 1049 E-mail: lungcancer@meet-ics.com Web: www.2007worldlungcancer.org/
7 - 8	1st Global Insight Conference on Leukaemia	Mumbai India	European School of Oncology Bellinzona, Switzerland Tel: +41 91 811 8050 Fax: +41 91 811 8051 E-mail: eso2@esoncology.org Web: www.cancerworld.org/eso
19 - 22	9th World Congress of Psycho-Oncology	London United Kingdom	International Psycho-Oncology Society (IPOS) Charlottesville, VA, United States Tel: +1 434 293 5350 Fax: +1 434 977 1856 E-mail: info@ipos-society.org; info@ipos2006.it; scientific@ipos2006.it Web: www.ipos2006.it
21 - 23	3rd ESH-EHA Conference: Focus on Paediatric Haematology and Oncology	Sestri Levante Italy	European School of Haematology (ESH) Centre Hayem, Hôpital Saint-Louis 1, av. Claude Vellefaux Cedex 10 75475 Paris, France Tel: 33 1 42 06 65 40 Fax: 33 1 42 06 05 87 E-mail: ghyslaine@chu-stlouis.fr Web: www.esh.org
23 - 27	ECCO 14 - the European Cancer Conference	Barcelona Spain	Federation of European Cancer Societies (FECS) Avenue E. Mounier 83 1200 Brussels Tel: 32 2 775 0201 Fax: 32 2 775 0200 E-mail: ECCO14@fecs.be Web: www.fecs.be/emc.asp?pageId=1228&Type=P
October			
4 - 6	EUROGIN 2007 International Multidisciplinary Conference: New Strategies of Cervical Cancer Prevention	Monte Carlo Monaco	European Research Organization on Genital Infection and Neoplasia (EUROGIN) Paris, France Tel: +33 1 44 40 01 20 E-mail: admin@eurogin.com Web: www.eurogin.com
11 - 13	ECToH 07: 4th European Conference Tobacco or Health 2007	Basel Switzerland	Swiss Cancer League, German Cancer Society Bern, Switzerland Tel: +41 31 389 9163 Fax: +41 31 389 9160 E-mail: office@ectoh07.org Web: www.ectoh07.org
17 - 20	8th Asia-Pacific Conference on Tobacco or Health (APACT)	Taipei Taiwan	John Tung Foundation Taipei, Taiwan Tel: +886 2 2776 6133 Fax: +886 2 2752 7247 Email: secretariat2007@jtf.org.tw Web: www.smokefreeasia.org/apact2007

CALENDAR OF MEETINGS

Date	Name of Meeting	Place	Secretariat
24 - 26	Cancer in the Developing World	Cairo Egypt	National Cancer Institute Cairo University Cairo, Egypt Tel: +20 2 535 1424 Fax: +20 2 532 8286 E-mail: a.badran@link.net Web: www.nci.edu.eg
24 - 28	AORTIC 6th International Cancer Conference: Cancers in Africa	Cape Town South Africa	African Organization for Research and Training in Cancer (AORTIC) Rodenbosch, South Africa Tel: +27 21 689 5359 Fax: +27 21 689 5350 E-mail: aortic@telkomsa.net Web: www.africa.aortic.org/events.html
28 – Nov 1	15th International Meeting of the European Society of Gynaecological Oncology – ESGO	Berlin Germany	ESGO, c/ o Kenes International - Global Congress Organisers ans Associations Management Services 17 Rue du Cendrier, PO Box 1726 1211 Geneva, Switzerland Tel: +41 22 908 0488 Fax: +41 22 732 2850 E-mail: espid@kenes.com Web: www.esgo.org/esgo15/
30 – Nov 3	SIOP 2007: 39th Congress of the International Society of Paediatric Oncology (SIOP)	Mumbai India	Indian Academy of Paediatrics, Indian Society of Medical & Paediatric Oncologists, c/ o SIOP 2007 Local Organizing Committee 37/900, Adarsh Nagar Century Bazaar, Worli 400 030 Mumbai Tel: 91 22 24 38 10 68 E-mail: siop2007@varriance.com Web: www.siop2007.in
November			
1 - 2	International Research Conference on Food, Nutrition and Cancer	Washington DC United States	American Institute for Cancer Research (AICR), World Cancer Research Fund International Washington DC, United States Tel: +1 202 328 7744 Fax: +1 202 328 7226 E-mail: aicrweb@aicr.org Web: www.aicr.org
9 - 11	2007 Oncology Nursing Society (ONS) Institutes of Learning	Chicago, Illinois United States	Oncology Nursing Society (ONS) Pittsburgh, PA, United States Tel: +1 866 257 4667, +1 412 859 6100 Fax: +1 877 369 5497, +1 412 859 6162 E-mail: customer.service@ons.org Web: www.ons.org
15 - 17	19th Asia Pacific Cancer Conference (APCC) 2007	Tehran Iran	Tehran University of Medical Sciences Department of International Relations P.O.BOX : 14155-6559 Tehran Tel: 98 21 649 1070 Fax: 98 21 641 9537 E-mail: office@sina.tums.ac.ir Web: http://www.tums.ac.ir/about/index.html
15 - 17	13th Hong Kong International Cancer Congress & 3rd Annual Meeting for the Centre for Cancer Research	Hong Kong	13th HKICC Department of Surgery Li Ka Shing Faculty of Medicine University of Hong Kong Medical Centre Queen Mary Hospital, Pokfulam Hong Kong Tel: (852) 2855 4235 E-mail: hkicc06@hku.hk Web: www.hkicc.org
29 - 30	Epigenetics and New Therapies in Madrid Cancer	European Spain	School of Oncology Milan, Italy Tel: +39 02 8546 451 Fax: +39 02 8546 4545 E-mail: conferences@esoncology.org Web: www.cancerworld.org/eso

CALENDAR OF MEETINGS

Date	Name of Meeting	Place	Secretariat
2008			
February			
28 – 2 March	5th American Psychosocial Oncology Society (APOS) Annual Conference	Irvine United States	American Psychosocial Oncology Society (APOS) Charlottesville, VA, United States Tel: +1 434 293 5350 Fax: +1 434 977 0899 E-mail: aball@apos-society.org Web: www.apos-society.org
March			
27 - 29	6th European Oncology Nursing Society (EONS) Spring Convention	Geneva Switzerland	Federation of European Cancer Societies (FECS) Brussels, Belgium Tel: +32 2 775 0201 Fax: +32 2 775 0200 Email: EONS6@fecs.be Web: www.fecs.be
April			
15 - 19	6th European Breast Cancer Conference (EBCC)	Berlin Germany	EORTC –EUSOMA-Europa Donna c/ o Federation of European Cancer Societies (FECS) Brussels, Belgium Tel: +32 2 775 0201 Fax: +32 2 775 0245 Email: EBCC6@fecs.be Web: www.fecs.be/emc.asp?pageId=1309
May			
30 – 3 June	44th ASCO Annual Meeting	Chicago United States	American Society of Clinical Oncology (ASCO) Denver, VA, United States Tel: +1 703 299 0158 Fax: +1 703 299 0255 Email: meetings@asco.org Web: www.asco.org
June			
4 - 7	10th International Conference on Malignant Lymphoma	Lugano Switzerland	Instituto Oncologico della Svizzera Italiana (IOSI) Viganello-Lugano, Switzerland Tel: +41 91 922 0575 Fax: +41 91 922 2084 Email: cristiana.brentan@lymphcon.ch Web: www.lymphcon.ch
4 - 8	5th World Conference on Breast Cancer	Winnipeg Canada	Canadian Breast Cancer Foundation Port Robinson, ON, Canada Tel: +1 905 384 1848 Fax: + 1 905 384 1675 Email: mail@wcbcf.ca Web: www.wcbcf.ca/winnipeg08.php
July			
5 - 8	EACR 20: European Association for Cancer Research Conference	Lyon France	Federation of European Cancer Societies (FECS) Brussels, Belgium Tel: +32 2 775 0246 Fax: +32 2 775 0200 Email: EACR20@fecs.be Web: www.eacr.org, www.fecs.be
August			
17 - 22	12th World Congress on Pain	Glasgow Scotland	International Association for the Study of Pain (IASP) Seattle, WA, United States Tel: +1 206 547 6409 / +1 206 283 3011 Fax: +1 206 547 1703 Email: iaspdesk@iasp-pain.org Web: www.iasp-pain.org/2008Congress.htm
27- 31	UICC World Cancer Congress 2008	Geneva Switzerland	UICC Congress Secretariat 62, route de Frontenex 1207 Geneva, Switzerland Tel: +41 (0) 22 809 1811 Fax: +41 (0) 22 809 1810 Email: congress08@uicc.org Web: www.uicc.org/congress08
October			
1 - 6	40th Congress of the International Society of Paediatric Oncology (SIOP)	Berlin Germany	SIOP Secretariat, c/ o MCI Berlin Office Berlin, Germany Tel: +49 30 20 4590 Fax: +49 30 20 45 950 Email: siop2008@cpb.de Web: www.siop2008.de
25 - 28	12th Biennal International Gynaecological Cancer Society Meeting	Bangkok Thailand	International Gynecologic Cancer Society c/ o Kenes International/IGCS 12 Geneva, Switzerland Tel: +41 22 908 0488 Fax: +41 22 732 2850 Email: igcs-12@kenes-com Web: www.igcs.org

THE CANCER COUNCIL AUSTRALIA

The Cancer Council Australia is the peak national cancer control organisation.
Its members are the leading state and territory cancer councils, working together to undertake and fund cancer research, prevent and control cancer and provide information and support for people affected by cancer.

MEMBERS

The Cancer Council ACT
The Cancer Council New South Wales
The Cancer Council Northern Territory
The Cancer Council South Australia
The Cancer Council Tasmania
The Cancer Council Victoria
The Cancer Council Western Australia
Queensland Cancer Fund

AFFILIATED ORGANISATIONS

Australasian Association of Cancer Registries
Clinical Oncological Society of Australia Inc
Palliative Care Australia

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CLINICAL ONCOLOGICAL SOCIETY OF AUSTRALIA INC

The Clinical Oncological Society of Australia (COSA) is a multidisciplinary society for health professionals working in cancer research or the treatment, rehabilitation or palliation of cancer patients.

It conducts an annual scientific meeting, seminars and educational activities related to current cancer issues. COSA is affiliated with The Cancer Council Australia.

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MEMBERSHIP

Further information about COSA and membership applications are available from:
www.cosa.org.au or cosa@cancer.org.au

Membership fees for 2007

Ordinary Members: $160
Associate Members: $100
(includes GST)

INTEREST GROUPS

ANZ Children's Haematology and Oncology
Breast Oncology
Cancer Nurses Society of Australia
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Clinical Research Professionals
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Familial Cancer
Gastrointestinal Oncology
Gynaecological Oncology
Lung Oncology
Medical Oncology
Melanoma and Skin
Neuro-oncology
Palliative Care
Pharmacy
Psycho-Oncology
Radiation Oncology
Regional and Rural Oncology
Social Workers
Surgical Oncology
Urological Oncology

Information for contributors

Cancer Forum provides an avenue for communication between all those involved in the fight against cancer and especially seeks to promote contact across disciplinary barriers.

To this end articles need to be comprehensible to as wide a section of the readership as possible. Authors should provide sufficient introductory material to place their articles in context for those outside their field of specialisation.

Format

Cancer Forum welcomes original articles about medical, scientific, political, social, educational and administrative aspects of cancer control. All manuscripts should be submitted by email to forum@cancer.org.au as MS Word documents.

Length: 2000-2500 words.

Font: Arial - 20pt for title, 12pt for headings and 10pt for text.

Following the title, include your full name, organisation and email address.

Include an introductory heading and sub-headings that describe the content.

Number pages in the footer.

Abstract

All manuscripts must include an abstract of approximately 200 words, providing a summary of the key findings or statements.

Illustrations

Photographs and line drawings can be submitted via email or on disk, preferably in tiff or jpeg format, or as transparencies or high quality prints.

If images are not owned by the author, written permission to reproduce the images should be provided with the submission.

Referencing

Reference numbers within the text should be superscripted and placed after punctuation.

The list of references at the end of the paper should be numbered consecutively in the order in which they are first mentioned and be consistent with the National Library of Medicine's International Committee of Medical Journal Editors' *Uniform Requirements for Manuscripts Submitted to Biomedical Journals.*

> eg. Halpern SD, Ubel PA, Caplan AL. Solid-organ transplantation in HIV-infected patients. N Engl J Med. 2002 Jul 25;347(4):284-7.

A full guide is available at www.nlm.nih.gov/bsd/uniform_requirements.html

The Editorial Board will make the final decision on publication of articles and may request clarifications or additional information.

Manuscripts should be emailed to:

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