Bringing multidisciplinary cancer care to regional Australia: requirements for a regional cancer centre of excellence

Prepared by the Clinical Oncological Society of Australia and The Cancer Council Australia, this document outlines the recommended requirements of a regional cancer centre of excellence. It is intended as a guide for policy makers and service planners.

The Clinical Oncological Society of Australia (COSA) is Australia's peak body representing multidisciplinary cancer care professionals and includes a dedicated regional oncology group whose aim is to foster improved cancer treatment outcomes for people living outside metropolitan areas. The Cancer Council Australia is Australia's peak non-government cancer control organisation.

Background

Evidence shows the further from a metropolitan centre a cancer patient lives, the more likely they are to die within five years of diagnosis.[1,2,3] For some cancers, remote patients are up to 300% more likely to die within five years of diagnosis.[4] The problems of diagnosing and treating cancer in regional Australia reflect disadvantages across the healthcare spectrum experienced by rural and remote communities.[2-4] Geographic isolation, shortage of healthcare providers and a higher proportion of disadvantaged groups are acknowledged as general contributing factors.[3]

A COSA study of regional oncology services showed that cancer care is less accessible as geographical isolation increases, with the quality and availability of services by location correlating with survival rates.[5] The *National Service Improvement Framework for Cancer* identifies the need to improve access to diagnostic and treatment services for all Australians, regardless of where they live. The Framework recommends that models of care should be supported that link smaller centres to larger centres of specialist expertise with timely referrals ensuring that the quality of care is not compromised for people living in regional, rural and remote areas.[6]

The centrepiece of COSA and The Cancer Council Australia's plan to improve cancer treatment outcomes for rural and remote patients is the establishment of a network of regional cancer centres of excellence (RCCEs). RCCEs would:

- substantially reduce the distance rural and remote cancer patients must travel to receive multidisciplinary cancer care in a capital city
- provide a considerable return on investments in radiotherapy equipment in regional centres by complementing costly (in capital outlays) radiation oncology services with additional oncology and allied health services
- contribute to ongoing enhancements in regional cancer care through stronger links between regional centres and major teaching hospitals, access to clinical trials and tissue banks and involvement in research programs
- operate as relay points for supporting remote services and communities, providing mentoring and referral links for rarer cancers and providing a template for setting up future centres in regional areas with similar populations that currently have no radiotherapy capacity

- foster an overall culture of medical excellence in local communities through improved recruitment and retention of specialised medical staff and by providing a platform for the introduction of diagnostic and other hi-tech imaging and medical services throughout regional Australia.

COSA and The Cancer Council Australia are calling for a whole-of-government approach to establishing a network of RCCEs, recognising that this will involve joint funding. The location of RCCEs should be determined by the availability of existing infrastructure and an analysis of population density and future community need. Given that radiation oncology services represent the most costly capital outlay in a cancer service, it is recommended that regional centres with radiotherapy equipment in place, or a commitment to develop a radiation oncology service, should be considered as priority locations for an RCCE. However, this should not be the sole determinant, with an assessment of current and projected population density also considered during planning. In addition, it is recommended that a cost-effectiveness model be developed to determine the minimum caseload that will be required to ensure the feasibility and sustainability of an RCCE.

Twelve non-metropolitan areas already have radiotherapy units (Coffs Harbour, Port Macquarie, Wagga, Wollongong, Albury-Wodonga, Ballarat, Bendigo, Geelong, Latrobe Valley, Townsville, Nambour and Toowoomba) and units are flagged for Darwin, Lismore and Orange. Trialling of the recommendations outlined in this document at one or more pilot sites identified from this list, prioritised on the basis of current service capacity, will provide the opportunity to determine the feasibility and acceptability of the recommendations.

Recommended staffing* and services** for a regional cancer centre of excellence (in summary)

Treatment services

- Two radiation oncologists (to meet caseload and provide professional peer support), with registrar support
- Radiation therapists, radiation nursing staff, physicists and administrative support
- At least one resident consultant surgeon specialising in a particular tumour stream, with coordination of surgery cases to ensure patients with complex needs and rare tumours are referred to high caseload surgeons
- Two or more medical oncologists (or at least one medical oncologist and one clinical haematologist)
- At least two pharmacists with oncology pharmacy training (part-time or full-time) on-site with the capability to clinically validate prescriptions and supply parenteral and oral cancer treatment
- Access to a supply of reconstituted cytotoxic and related products to provide appropriate treatment for the tumour streams and to manage treatment complications
- At least one specialist nurse educator for resident nursing staff and for peer support of outreach and community nurses

- Procedures to ensure that nurses administering chemotherapy within the centre and through outreach services are appropriately trained and accredited

- Procedures to ensure that all nurses working in other specialties provided in RCCEs are competent and educationally prepared to meet the needs of the person with cancer and their families, wherever they reside throughout Australia

- At least one palliative care physician or full-time equivalent from local general practice with a professional interest in palliative care, with one palliative care nurse specialist to provide peer support for outreach

- At least one full-time professional providing psychosocial support, e.g. through a mix of clinical psychology and accredited oncology social work services

- Local allied health professionals, e.g. nutritionists, physiotherapists, occupational therapists, trained in cancer care and engaged according to caseload

- Care coordination, e.g. a dedicated coordinator per 200 new patient referrals per year; the cancer care coordinator could be a nurse, social worker or other allied health professional or GP

- Blood banking services, including capacity to access and deliver platelet transfusions within clinically appropriate timeframes

- Emergency department /out-of-hours assessment capacity

- Accommodation services

Diagnostic services

- At least two pathologists (to ensure sustainability and professional peer support) and an in-service pathology laboratory
- Computed tomography (CT), nuclear medicine, magnetic resonance imaging (MRI) and positron emission tomography (PET) imaging facilities and operators, rolled out into regional Australia through co-location with RCCEs

- Access to skilled haematopathologist and associated conventional and molecular diagnostic and therapeutic monitoring tests (PCR/cytogenetics/FISH/flow cytometry); services do not need to be on site but should be achieved through appropriate linkages

Research

- A clinical trials research unit, plus salary and support costs for at least two trial co-ordinators (data managers or research nurses)

- A data management function (including linkages to cancer registries) and provision of audits and reporting of clinical indicators

Professional development

- Links with major teaching hospital for undergraduate and postgraduate training and rotation of staff and trainees

- Telemedicine links with metropolitan and outreach services
- RCCE to act as a focus for up-skilling local primary care providers and improving overall healthcare staff recruitment and retention

Office management

- A centre manager
- Depending on patient caseload and local arrangements, a flexible mix of receptionists, booking clerks, secretaries and office managers

*Recommendations represent minimum staffing requirements
**Recommendations represent ideal service requirements and may be adapted based on location of service

Services and staffing – rationale

The core services integral to the delivery of good clinical care for patients with cancer are identified in a number of national guidelines and frameworks.[6,7] The *National Service Improvement Framework for Cancer*[6] outlines optimal services as including surgery, medical oncology, radiation oncology, pathology, radiology, nursing and supportive care, as well as access to other care relevant to patient needs, such as psychiatry, physiotherapy, genetic testing and counselling and nuclear medicine. The framework also highlights the importance of seamless communication between tertiary and primary care as well as adequate care coordination. A recommended framework for cancer service standards published by The Cancer Council Australia, Australian Cancer Network and National Breast Cancer Centre outlines the minimum requirements for a cancer service based on the National Service Improvement Framework and evidence-based clinical practice guidelines for cancer care.[7] The framework outlines the importance of services relating to diagnosis, clinical management, palliative and supportive care as well as rehabilitation, community outreach and follow-up.

Radiation oncology

Radiation oncologists are experts in the management of malignancies, including the prescribing of radiation therapy. Radiation oncology is essential to multidisciplinary cancer care for a wide range of cancers. A key recommendation from the Radiation Oncology Inquiry published in 2002 was an improvement in the delivery of radiotherapy services in rural and regional Australia.[8] Radiotherapy equipment is the most costly capital outlay in cancer care,[9] so there is a strong economic case for complementing radiation oncology investment with additional cancer care services. The delivery of radiation treatment requires expertise in planning, delivery and follow-up care.

COSA/The Cancer Council Australia recommend:

- two radiation oncologists (to meet caseload and provide professional peer support), with registrar support
- radiation therapists, radiation nursing staff, physicists and administrative support
- training links for other health professionals, e.g. radiation therapists, according to workforce numbers per population guidelines
- links with a larger central institution, e.g. major teaching hospital, for more complex planning, physics and other technical support.

Medical oncology, haematology

Medical oncologists and haematologists specialise in the management of malignancies, including the prescription of chemotherapy and other medical treatments for cancer. There are currently over 100 different chemotherapy regimens in use for the treatment of cancer in Australia and skills are required to plan, deliver and monitor their use in individual patients. Issues relating to the delivery of chemotherapy for patients in rural and remote Australia were described in 2001 by the Medical Oncology Group of Australia, which recommended the placement of medical oncologists in regional centres as well as implementation of strategies to improve the provision of medical oncology services to rural and remote communities.[10]

The Australian Medical Workforce Advisory Committee (AMWAC) has described an acceptable medical oncology service as one that: '*is able to diagnose and manage patients with various malignancies, [provide] a high level chemotherapy service, undertake all modalities required for palliation, practice a high level of communication skills, and be part of a multi-disciplinary team.*'[11] It is recommended that there should be two or more people in oncology practice to allow adequate professional stimulation and time for study and recreation.[10,11]

Specialists placed in regional centres would provide support for staff in smaller centres within the region. In turn they would maintain links with a tertiary metropolitan centre or centres for continuing professional development and advice/co-management of complex/low volume cancers.

COSA/The Cancer Council Australia recommend:

- two or more medical oncologists (or at least one medical oncologist and one clinical haematologist)
- COSA recommends at least one dedicated career medical officer or advanced trainee and a resident to support the medical oncology service
- Clearly defined links or network with at least one tertiary metropolitan cancer centre to ensure appropriate management of specialised services
- other support required includes:
    - rapid access to blood products
    - emergency out of hours capacity to deal with sepsis and other urgent complications of chemotherapy
    - links with fertility specialists and availability of sperm banking
    - links with major centres for co-ordination of stem-cell collection, high-dose therapy, complex treatments such as induction chemotherapy for leukaemia and other low volume haematological malignancies
- some centres with two or more haematologists may develop the capacity to administer treatment for more complex haematology patients (and would then need to be supported by other medical staff such as infectious disease physicians and nurses skilled in the specific requirements of managing immunocompromised patients).

Pharmacy services[12-14]

Cancer pharmacy services provide both clinical and pharmaceutical support to patients receiving treatment for solid tumours and haematological malignancies as well as palliative care.[12] Access to pharmacy services is identified as an infrastructure requirement in the AMWAC report.[11]

The provision of cancer pharmacy services should comply with the SHPA Standards of Practice for the Provision of Clinical Oncology Pharmacy Service.[13] The pharmacist must have the appropriate skills, knowledge and competency to clinically validate prescriptions and to supply parenteral and oral chemotherapy as well as targeted and supportive agents for all tumours stream being managed. It is also important for the pharmacist to have mentoring links with a metropolitan tertiary service. The pharmacist must be available on site during working hours and there should be access to a pharmacist for 24 hour emergency advice relating to cancer therapy.

Cancer pharmacy services must have access to:

- appropriate facilities for the supply of reconstituted cytotoxic products. either on-site (where facility complies with Australian Standards AS4273, AS2567, AS2639 and AS/NZ ISO 14644) or access to an off-site provider (Therapeutic Goods Administration Good Manufacturing Practice (TGA GMP) registered provider)

- medications on-site to provide treatment delivery and to manage the complications arising from protocols being delivered

- the service must also comply with local state guidance and regulations on the handling of cytotoxic drugs and related waste.

COSA/The Cancer Council Australia recommend:

- pharmacy staffing numbers must support a safe service and a minimum of two pharmacists (as fractional or whole full-time equivalents) with oncology pharmacy training to provide services at the institution is recommended to ensure cover for sickness, leave etc; technical staff should also be considered to support pharmacy services particularly with respect to supply functions and chemotherapy preparation

- the numbers of full-time equivalent oncology pharmacists will depend on the volume of inpatient and outpatient treatments through the centre (some suggested benchmarks have been developed).

Surgical oncology

Surgery is a core modality in cancer treatment, with surgical oncologists providing not only skills in cancer surgery but also expertise in multi-modality treatment in a multidisciplinary setting.[15] Surgical training may be within a defined area or across several tumour streams. Access to specialist surgical services, either locally or linked through appropriate referral pathways, e.g. metropolitan tertiary hospitals, is essential to multidisciplinary cancer care.

While many cancers are appropriately treated by surgeons without specific sub-speciality expertise, a number of cases should be treated in high-volume centres and/or by high-volume surgeons with experience in particular tumours.[17,18]

COSA/The Cancer Council Australia recommend:

- at least one resident consultant surgeon specialising in a particular tumour stream, with coordination of surgery cases to ensure patients with complex needs and rare tumours are referred to high caseload surgeons.

Cancer nursing

The specialist nature of services to be provided by RCCEs necessitate that nurses be competent and educationally prepared in order to provide specific and expert care across all specialist cancer services, including haematology, radiation oncology, medical oncology and surgical oncology.

Experienced nurses play a pivotal role in educating, supporting and monitoring patients and in early intervention if problems emerge.[10,19] The AMWAC report identifies the need for skilled oncology nursing as a component of a resident oncology service.[11]

COSA/The Cancer Council Australia recommend:

- nursing staff numbers determined by patient throughput
- at least one specialist nurse educator for resident nursing staff and for peer support of outreach and community nurses
- procedures to ensure that nurses administering chemotherapy within the centre and through outreach services are appropriately trained and accredited
- procedures to ensure that all nurses working in other specialties provided in RCCEs are competent and educationally prepared to meet the needs of the person with cancer and their families, wherever they reside throughout Australia.

Palliative care

Access to trained palliative care physicians and nurses is essential for controlling symptoms and enabling patients to be cared for where possible in a home environment. Australian *Standards for Palliative Care* identify the need for access to palliative care regardless of geography.[20] A national guide to palliative care services[21] outlines the isolation issues faced by some palliative care providers in rural and remote areas and emphasises the need for formalised links with a comprehensive specialist palliative care service. Given that many terminally ill patients are cared for by primary health practitioners, particularly in rural and remote areas, the importance of appropriate links between primary care and specialist palliative care, as well as provision of education for primary care providers cannot be underemphasised.

COSA/The Cancer Council Australia recommend:

- at least one palliative care physician or full-time equivalent from local general practice with a professional interest in palliative care
- one palliative care nurse specialist to provide peer support for community outreach.

Psychosocial support

The importance of psychosocial support as an integral component of the care pathway for patients with cancer is highlighted in national frameworks and cancer plans.[6,7,22] The *Clinical Practice Guidelines for the Psychosocial Care of Adults with Cancer* provide evidence-based guidance in relation to the delivery of psychosocial and supportive care and highlight the

importance of counselling and specialised psychological services in ensuring the wellbeing of patients with cancer. Dedicated oncology counselling services provided by an oncology social worker and a psychologist would ensure that cancer patients have access to evidence-based psychosocial care.

COSA/The Cancer Council Australia recommend:

- at least one full-time professional providing psychosocial support, e.g. through a mix of clinical psychology and accredited oncology social work services.

Other allied health services

Allied health professionals such as nutritionists, physiotherapists and occupational therapists are integral to optimal cancer care. The needs of patients with cancer vary according to cancer type and the individual patient but it is important that links with appropriate services are established and functional and can be drawn on as required.[6]

COSA/The Cancer Council Australia recommend:

- local allied health professionals, e.g. nutritionists, physiotherapists, occupational therapists, trained in cancer care and engaged according to caseload.

Pathology

Pathologists are core members of the multidisciplinary cancer team.[6,7] Access to resident pathologists for pathology reporting, CT-guided biopsies and participation in multidisciplinary treatment planning meetings is essential to optimal cancer service delivery. In addition to staff resources, it is important that appropriate testing facilities are available. The National Association of Testing Authorities provides accreditation according to nationally agreed standards for pathology testing facilities.[23]

COSA/The Cancer Council Australia recommend:

- at least two pathologists (to ensure sustainability and professional peer support), with a pathology laboratory within the centre.

Diagnostic technology

Access to high quality medical imaging – i.e. CT, nuclear medicine and MRI – is essential to optimal cancer service delivery.[6,7] These services would also facilitate local diagnosis and monitoring of illnesses other than cancer, as well as providing an important professional contribution to cancer care multidisciplinary team meetings. They therefore should be included in regional cancer centres of excellence modelling. Radiology practices in Australia are encouraged to use the accreditation standards and quality assurance processes developed by the Royal Australian and New Zealand College of Radiologists.[24]

Regional cancer centres of excellence would also provide an effective framework for rolling out PET scanning facilities in regional areas. A population profile that supports a radiation oncology centre would also support a PET centre. Access to PET scanning would provide important staging information to enable high quality and cost-effective multidisciplinary care, and in addition, fusion of PET imaging to the radiotherapy scans facilitates the planning of treatment. (Similarly, the future introduction of new diagnostic technology could be facilitated through an RCCE.)

COSA/The Cancer Council Australia recommend:

- CT, nuclear medicine, MRI and PET imaging facilities and operators, rolled out into regional Australia through co-location with RCCEs

- access to skilled haematopathologist and associated conventional and molecular diagnostic and therapeutic monitoring tests (PCR/cytogenetics/FISH/flow cytometry); services do not need to be on site but should be achieved through appropriate linkages.

Multidisciplinary clinics and care coordination

Multidisciplinary care has been shown to contribute to improved patient outcomes and improves patient quality of life through a patient-centred, coordinated approach to care planning and service delivery.[6,25] Under current arrangements, patients in rural and remote areas have significantly reduced access to multidisciplinary care, adding to the considerable disadvantages of remoteness. As an example, the COSA Mapping report identified that less than half of all hospitals in Australia that administer chemotherapy hold multidisciplinary clinics.[5]

Cancer care coordination is an essential component of multidisciplinary care, ensuring seamless delivery of care and smooth transition across and between services.[6] A range of models are currently in use in Australia to improve coordination of care.[6,26] One option would be to fund a dedicated cancer care coordinator per 200 new patient referrals per year. The cancer care coordinator could be a nurse, social worker or other allied health professional or GP. Regardless of the model used, it is important to recognise that coordination of care is a responsibility of the entire team.

GPs and community nurses

While treatment for cancer is generally delivered in the tertiary setting, a large part of the ongoing management and care for patients with cancer is delivered in the community, particularly in regional, rural and remote areas. GPs and community nurses play a critical role in the provision of supportive care, palliation and in ensuring care coordination through linkages with the multidisciplinary treatment team. It is important that health professionals working in primary care settings have adequate training and information to assist them in the delivery of optimal care. An RCCE would provide a hub of cancer care expertise that would contribute considerably to the healthcare in the region, up-skilling primary health professionals.

Research

Clinical trials are fundamental to developing an evidence base to improvements in clinical care. The importance of clinical trials is emphasised in the *National Service Improvement Framework for Cancer*[6] and is included as part of the recommended *Cancer Services Standards Framework*.[7] The Framework identifies the need not only for access to information about clinical trials but also the need for appropriate support of clinical trials through dedicated data managers. Access to cancer clinical trials, which can provide patients with the latest cutting edge treatments, is unavailable for most people outside capital cities. Enabling access to clinical trials is therefore a core function of an RCCE, through the inclusion of a research unit. The unit could also accommodate project officers providing health services research.

COSA/The Cancer Council Australia recommend:

- a clinical trials research unit, plus salary and support costs for at least two trial co-ordinators (data managers or research nurses)

- procedures to ensure all research funds are quarantined for use only by the research unit

- a data management function (including linkages to cancer registries) and provision of audits and reporting of clinical indicators.

Office management

The Australian Council on Healthcare Standards EQuIP standards identify a range of support and corporate requirements for health services, including aspects relating to information management, human resource management and other management principles.[26] The AMWAC report also identifies office facilities as a minimum requirement for a resident oncology service.[11] Depending on patient caseload, an RCCE would require office services, optionally through a flexible mix of receptionists, booking clerks, secretaries and office managers.

References

[1] Australian Institute of Health and Welfare and Australasian Association of Cancer Registries. Cancer survival in Australia 1992–1997: geographic categories and socioeconomic status. Canberra: AIHW, 2003. (Cancer Series No. 22. AIHW Catalogue No. CAN 17.)

[2] Jong KE, Vale PJ, Armstrong BK. Rural inequalities in cancer care and outcome. Med J Aust 2005; 182: 13-14.

[3] Australian Institute of Health and Welfare. Health in rural and remote Australia. Canberra: AIHW, 1998. (AIHW Cat. No. PHE 6.)

[4] Jong KE, Smith DP, Yu XQ, et al. Remoteness of residence and survival from cancer in New South Wales. Med J Aust 2004; 180: 618-622.

[5] Clinical Oncological Society of Australia, Mapping regional oncology services, 2006

[6] National Health Priority Action Council (NHPAC). National Service Improvement Framework for Cancer. Canberra: Australian Government Department of Health and Ageing, 2006.

[7] The Cancer Council Australia, Australian Cancer Network and National Breast Cancer Centre. A core strategy for cancer care: accreditation of cancer services – a discussion paper. 2005 National Breast Cancer Centre, Camperdown, NSW.

[8] Baume P (Chair). A vision for radiotherapy. Report of the Radiation Oncology Inquiry. Canberra: Commonwealth of Australia, 2002.

[9] Delaney GP, Jacob S, Featherstone C, Barton MB. Radiotherapy in cancer care: estimating optimal utilisation from a review of evidence-based clinical guidelines. Sydney: Collaboration for Cancer Outcomes Research and Evaluation, 2003.

[10] Medical Oncology Group of Australia. Provision of medical oncology services to rural and remote regions of Australia. 2001.

[11] Australian Medical Workforce Advisory Committee, *Sustainable Specialist Services – a Compendium of Requirements, 1998*

[12] Low J et al. The Development of a Capacity Planning Model for pharmaceutical Services to cancer Patients. The Pharmaceutical Journal 2003; 270: 239-240

[13] The SHPA Committee of Specialty Practice in Cancer Services. SHPA Standards of Practice for the Provision of Clinical Oncology Pharmacy Services. JPPR 2002; 32:115-8

[14] Modernising chemotherapy services - a practical guide to redesign. NHS cancer Services Collaborative 2005

[15] What is surgical oncology? Royal Australasian College of Surgeons. http://www.surgeons.org/Content/NavigationMenu/FellowshipandStandards/FellowshipServices/CollegeSections/SurgicalOncologySection/default.htm (accessed 13 December 2007)

[16] The Australian Cancer Network and National Breast Cancer Centre. Clinical practice guidelines for the management of women with epithelial ovarian cancer. 2004 National Breast Cancer Centre, Camperdown, NSW.

[17] Australian Cancer Network Colorectal Cancer Guidelines Revision Committee. Guidelines for the Prevention, Early Detection and Management of Colorectal Cancer. The Cancer Council Australia and Australian Cancer Network, Sydney 2005.

[18] Palliative Care Australia. Standards for Providing Palliative Care for all Australians. 2005.

[19] Cancer Nurses Society of Australia Chemotherapy Position Statement, July 2003

[20] Palliative Care Australia. Palliative care service provision in Australia: a planning guide (2nd edition). 2003

[21] Clinical Oncological Society of Australia (2002). The Cancer Council Australia and the National Cancer Control Initiative. *Optimising Cancer Care in Australia*. National Cancer Control Initiative, Melbourne, VIC.

[22] National Breast Cancer Centre and National Cancer Control Initiative. Clinical Practice Guidelines for the Psychosocial Care of Adults with Cancer. Camperdown, National Breast Cancer Centre, 2003.

[23] Royal College of Pathologists of Australasia. Professional Practice Standards. http://www.rcpa.edu.au/public/pathology/rcpa.cfm (accessed 13 December 2007)

[24] Royal Australian and New Zealand College of Radiologists. Standards and Accreditation Overview. http://www.ranzcr.edu.au/qualityprograms/accreditation/index.cfm (accessed 13 December 2007)

[25] National Breast Cancer Centre. Multidisciplinary meetings for cancer care: a guide for health service providers. Camperdown, National Breast Cancer Centre, 2005.

[26] Yates P. Achieving Coordinated Cancer Care: Report on the Clinical Oncological Society of Australia Care Coordination Workshop. Cancer Forum, 2007; 31(3): 169–172.

[27] Australian Council on Healthcare Standards. EQuIP 4 Standards and Criteria. http://www.achs.org.au/EQUIP4/ (accessed 13 December 2007)